Monthly Water Quality Monitoring Results, Cabbage Tree Road Sand Quarry, NSW

October 2023 Monitoring Event

NCA23R161102

24 November 2023

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24 November 2023
NCA23R161102

Williamtown Sand Syndicate (WSS)
PO Box 898
Newcastle, NSW 2300

Attention: Darren Williams

Subject: Monthly Water Quality Monitoring Results, Cabbage Tree Road Sand Quarry, NSW
October 2023 Monitoring Event

Please find enclosed the monthly water quality monitoring results for the October 2023 monitoring event undertaken by Kleinfelder at the Cabbage Tree Road Sand Quarry, NSW (herein referred to as the 'site').

1 SCOPE OF WORK

The scope of work presented in this report includes the results from the monthly groundwater monitoring event undertaken in accordance with the NSW Environment Protection Authority (EPA) and Department of Planning and Environment (DPE) requirements for monthly water quality monitoring at the site. **Figure 1**, **Attachment 1** presents the groundwater sampling locations.

The scheduled October 2023 monitoring event included gauging of ten (10) monitoring wells, recording of field parameters for groundwater, surface water and sampling from seven (7) monitoring wells and one (1) Wash Plant Water (WPW) sample as outlined in the Soil and Water Management Plan (SWMP, 2021) for the quarry.

2 SITE WORK

The monthly monitoring round was conducted on the 23rd of October 2023 and comprised:

- Gauging of ten monitoring wells (BH1A, BH2, BH4, BH6, BH7, BH9, BH9A, BH11, BH12A & MW239S) as summarised in **Table 4**.
- Groundwater sampling from seven monitoring wells (BH2, BH4, BH6, BH7, BH9A, BH11 & MW239S) for water quality parameters and contaminants of potential concern, as summarised in **Table 4** and **Table 5** respectively.
- One WPW sample (WPW2) as summarised in **Table 6**.

All field records and tabulated data are presented in **Attachment 2**

Each well location was gauged using a water level meter to determine groundwater depth (relative to the top of the well casing) and the total depth of the well in order to determine potential sand/silt inundation and potential maintenance requirements. Following gauging, a HydraSleeve was placed into the well, ensuring the top of the sleeve was located below the water column to be sampled, and suspended in place while all remaining wells were gauged. Each HydraSleeve was then removed from the well and representative groundwater samples taken.

The WPW samples was collected directly into laboratory supplied sample containers using a nitrile-gloved hand.

All samples collected were placed into an ice chilled esky and then submitted to a National Association of Testing Authorities (NATA) accredited laboratory under a chain of custody (COC) for the analytical schedule as per **Table 1**.

Table 1: Summary of Monthly Water Quality Analysis (October 2023)

Analysis	Number of Samples				
	Primary	Intra-lab (Duplicate)	Inter-lab (Triplicate)	Transport Blank	Rinsate Blank
Metals*	8	0	0	1	1
PFAS (28 analytes, standard level)	1	0	0	1	1

* - Metals suite (dissolved) – arsenic (As), iron (Fe) and manganese (Mn)

Table 2 provides a summary of the gauging data for October 2023. The full set of gauging data for each monitoring location is provided in **Table 13**, **Attachment 2**. Additionally, Watershed HydroGeo (2019) outlined a Trigger Action and Response Plan (TARP) to mitigate groundwater elevations that may potentially impact Cabbage Tree Road Sand Quarry operations (primarily sand excavation depths). Based on these recommendations, groundwater elevation has been shaded to correspond to triggers and actions outlined in **Table 3.** There were no instances of TARP Level Exceedances during the October monitoring event.

Table 2: Summary of Gauging Data (October 2023)

Well ID	Top of Casing (mAHD)	Depth to Water (mBTOC)	Ground-water Elevation (mAHD)	Well Total Depth Current (mBTOC)	Well Total Depth 2014 (mBTOC)	Inferred Max GW Elevation (mAHD)[1]	Difference Between Inferred Max and Measured GW Elevation (mAHD)	Comment
BH1A	8.98	5.67	3.310	12.160	N/A	4.5[2]	1.190	Gauge only
BH2	7.79	5.383	2.407	8.836	9.45	3.8	1.393	Light brown, no odour, no sheen
BH4	3.06	1.585	1.475	6.014	6.45	3.0[3]	1.525	Clear, no odour, no sheen
BH6	3.62	1.523	2.097	4.528	4.95	4.4	2.303	Clear, no odour, no sheen
BH7	2.98	1.527	1.453	4.526	4.95	3.7	2.247	Clear, low sulphur odour, no sheen
BH9	17.75	Dry	1.680	16.070	18.8	3.0[3]	1.320	Gauge only
BH9A	10.75	9.164	1.586	12.225	16.16	3.0[3]	1.414	Light brown, moderate sulphur odour, no sheen
BH11	6.63	2.698	3.932	5.313	5.95	5.5	1.568	Clear, strong sulphur odour, no sheen
BH12A	5.62	3.177	2.443	7.309	NA	4.0[5]	2.443	Gauge only
MW239S	3.04	1.170	1.870	3.775	4.0	3.9[4]	2.030	Light brown, no odour, no sheen

[1] – Sourced from Watershed HydroGeo ,2019, *Maximum Extraction Depth Management Plan, Cabbage Tree Road Sand Quarry*, May 2019.
[2] – Inferred Max Groundwater level based on former adjacent well (BH1).
[3] – Inferred Max Groundwater level based on adjacent wells (BH4 & BH9).
[4] – Inferred Max Groundwater level based on adjacent well (MW239S).
[5] – Inferred Max Groundwater level based on former adjacent well (BH12).

Table 3: Groundwater Level Monitoring TARP Rules (Watershed HydroGeo, 2019)

Level	Trigger	Action and Response	Report / Response Actions
0	Groundwater levels more than 0.5 m below *inferred* maximum historical level (**Table 2**).	Standard operations – monthly dipping of operational on-site monitoring bores.	N/A
1	Groundwater levels within 0.5 m below *inferred* maximum historical level (**Table 2**) at any on-site bore.	Weekly (or more frequent) monitoring (dipping) of groundwater levels until water level declines to below high frequency level bores listed in **Table 2**.	Internal and environmental consultant. Include note in Annual Report.
2	Groundwater levels within 0.25 m of *inferred* maximum historical level (**Table 2**) at any on-site bore.	Weekly (or more frequent) monitoring (dipping) of groundwater levels. Re-analysis and review of Minimum Extraction Level (MEL).	WSS to issue letter to DPIE, documenting groundwater level and rainfall trends, review and make recommendations regarding MEL.
3	Groundwater levels within resource area rise above previously *inferred* maximum groundwater level (**Table 2**).	Analysis of recent data by hydrogeologist, including site data and data from local HWC wells and local Defence wells (if available). Revision of MEL. Remediation of earlier excavations to revised MEL if required by DPIE.	WSS to issue letter to DPIE, DoI Water and HWC, documenting groundwater level trends, and revision (if necessary) of MEL. Letter to outline remedial options, considering access, vegetation condition in previously rehabilitated areas. Re-grading of previously rehabilitated areas if required by DPIE.

Table 4 provides a summary of the field parameters taken during the October 2023 monitoring event. All field parameters for each monitoring location are detailed in the field sheets provided in **Attachment 2**.

Table 4: Summary of Field Measurements

Borehole	Turbidity (NTU)	Temp (^{0}C)	DO (mg/L)	EC (µc/cm)	TDS (mg/L)	pH	Redox (mV)
BH1A	ND	ND	ND	ND	ND	ND	ND
BH2	50.85	21.3	3.87	79.5	56	5.69	177
BH4	29.4	18.1	3.58	126.4	95	6.16	155.7
BH6	107.4	20.7	3.9	211.8	150	7.68	2.8
BH7	110	21.1	5.91	101.5	71	6.88	5.3
BH9	ND	ND	ND	ND	ND	ND	ND
BH9A	94	20.2	4.18	71.4	51	5.63	32.5
BH11	47.66	20.6	3.43	93.6	66	6.07	4.3
BH12A	ND	ND	ND	ND	ND	ND	ND
MW239S	132	22.9	3.29	87.6	59	7.72	2.9
WPW2	498	23.9	8.52	116.7	78	6.35	130.2

ND: No Data – no sample taken

Table 5 below presents a summary of the groundwater monitoring results for key analytes reported above the laboratory limit of reporting (LOR).

Table 6 presents a summary of the wash plant sample results for key PFAS analytes in water. The site-specific groundwater criteria outlined in the SWMP (2021) has been applied to this monthly report, including a comparison of results with previous data.

One analyte exceedance was reported, with iron concentration at BH6 (4.27 mg/L) reported above the site-specific trigger value (4.1 mg/L). While still in exceedances of the site-specific trigger value, this represents a decrease in the concentration of iron reported at this location. The WPW2 sample recorded a detection for PFAS compound PFOS (0.02 µg/L) however below the adopted criteria (0.07 µg/L - Sum of PFOS + PFHxS) during this monitoring round.

Full results summary tables, including quality assurance/quality control (QA/QC) sample analyses, are provided in **Attachment 2**. No duplicate or triplicate samples were collected for this GME. Field rinsate and trip blank samples collected by Kleinfelder which did not detect any analytes above the laboratory LOR.

Based on a review of the QA/QC Compliance Assessment provided by ALS, no outliers were identified, and the overall data quality is considered acceptable for interpretive use. Copies of the final NATA endorsed laboratory reports, including internal QA/QC results and chain-of-custody documentation for both laboratories are provided in **Attachment 3**.

Table 5: Groundwater Results and Screening Criteria (October 2023)

Analyte	Metals			Discussion of results relative to previous monitoring events (details on specific data trends provided in Section 4 below)
	Arsenic	Iron	Manganese	
LOR	0.001	0.05	0.001	
Units	mg/L	mg/L	mg/L	
Adopted Site Specific Trigger Values (SWMP 2021)	0.003	4.1 (8.84 for BH1A)	0.136	
Samples				
BH1A	NS	NS	NS	Metals for BH1A were not sampled - gauge only.
BH2	<0.001	0.11	0.007	Metal concentrations were generally consistent with historical results and remain below the adopted criteria. BH2 is located marginally down hydraulic gradient from the current quarry operations footprint.
BH4	<0.001	0.08	0.013	Metal concentrations were generally consistent with historical variations and remain below the adopted criteria. BH4 is located down hydraulic gradient (approximately 700 m) from current quarry operations and on the southernmost boundary of the site adjacent to Cabbage Tree Road.
BH6	<0.001	4.27	0.006	Metal concentrations are generally consistent with historical results and remain below the adopted criteria, except for Iron which has exceeded the site-specific trigger value, however lower than the previous six events. BH6 is considered up hydraulic gradient (approximately 860 m) from current quarry operations and the most north-eastern location at the site.
BH7	<0.001	0.53	0.004	Metal concentrations were generally consistent with historical results and are below the adopted criteria. BH7 is located (approximately 960 m) east of the current quarry operations.
BH9	NS	NS	NS	Metals for BH9 were not sampled - gauge only.
BH9A	<0.001	0.63	0.051	Metal concentrations were generally consistent with historical results and below the adopted criteria. BH9A is down gradient (approximately 700m) from current quarry operations and is on the southern-most boundary of the site adjacent to Cabbage Tree Road.
BH11	<0.001	0.66	0.003	Metal concentrations were generally consistent with historical results and below the adopted criteria. BH11 is located approximately 460 m from current quarry operations and at the most north-western point of the site.
BH12A	NS	NS	NS	Metals for BH12A were not sampled - gauge only.
MW239S	<0.001	0.22	0.005	Metal concentrations were generally consistent with historical results and below the adopted criteria. MW239S is located approximately 800 m east of the current quarry operations.

Notes:
< - Less than laboratory limit of reporting

Table 6: Wash Plant Water Sample Results and Screening Criteria

Analyte	PFAS				Discussion of results
	PFOA	PFOS	PFHxS	Sum of PFOS + PFHxS	
LOR	0.01	0.01	0.01	0.01	
Units	µg/L	µg/L	µg/L	µg/L	
Site Specific Trigger Values (SWMP 2021)	0.56	N/A	N/A	0.07	
Sample Name	**Sand Wash Plant**				
WPW2	<0.01	0.02	<0.01	0.02	Concentrations of PFAS compounds in the WPW were detected above the LOR for PFOS and subsequently for Sum of PFOS + PFHxS but below the adopted criteria during this sampling event.

Notes:
< - Less than laboratory limit of reporting
*Detection from QC sample

3 RAINFALL DATA

Table 7 presents the rainfall data from Williamtown RAAF base (Station Number: 061078, Latitude: 32.79°S; Longitude: 151.84°E; Elevation: 8 m) for the period 2022/23. The total monthly rainfall for October was recorded to be below the monthly mean, as has consistently been the case since May 2023 and lower than the previous two months. Based on current rainfall data (mean and monthly totals) for October 2023, it is expected that groundwater elevations will continue to decrease slightly due to a lag in groundwater response, broadly consistent with current groundwater trend data.

Table 7: 2022-2023 Rainfall data (12-month period)

Date	Nov (22)	Dec (22)	Jan (22)	Feb (23)	Mar (23)	Apr (23)	May (23)	Jun (23)	Jul (23)	Aug (23)	Sep (23)	Oct (23)
1st	9	0	0	0	0.2	0	0	0	0	0	0	0
2nd	0	0	0	0	0	11.2	0	0	0	0	4.2	0
3rd	0	0	0	0	0	2.4	0	0	0	0	0	0
4th	0.4	0	0	0.6	1	3.4	0	0	2.2	0	0	0
5th	0	0	13.8	0	0	ND	0	0.2	5	0	0.2	7.0
6th	0	0.4	5.6	0	0	6.8	0	0.8	0	12.6	0	0
7th	0	0	21.2	0	0	3	0	0	0	8.8	0	3.0
8th	0	0	4.8	0	0	10.6	4.6	0	0	1.6	4.4	0.2
9th	0	0	ND	0	0	0.2	0	0.6	0	0.4	3.8	0
10th	0	0	0	0	0	0	0	0	0	0	0	0
11th	0	0	0	0.2	0	0	0	0	0	0	0	0
12th	0	0	0	0	0	0	0	0	0	0	0	0
13th	2.8	5.6	0	0	4.2	11.6	0	1.2	ND	0	0	1.2
14th	24.2	0	0	21.2	1.6	25.4	0.2	0.6	0	4.6	0	0.2
15th	ND	0	ND	1	7.4	2	0	0	0	8.4	0	0
16th	ND	0.2	0	0.2	0.2	0	0	0	0	ND	0	0.6
17th	0	4.2	0	0	0	0	11.4	0	5.4	0	0	0
18th	0	2.8	0	0	0	0	22.2	0	0.2	ND	0	0
19th	0	3	0.2	1.8	0	0	2.2	0	0.8	0	0.6	0.6
20th	0	0	21.4	0.2	0	3.2	0	0	0	0	0	0
21st	0	2	0.8	0	0.6	29.4	0	0	0.4	0	0	0
22nd	0	0	9.0	45.6	0	0.8	0	0	1	0	0	0
23rd	0	0.2	4.4	35	0	0	0	3.6	0	1.8	0	0
24th	0	0.8	0	1.2	25.6	0.2	0	0.2	22	2.4	0	-
25th	0	0	0	0	31.4	0	0	0	1	0	0	-
26th	1.6	0	0	0	1.8	0	0.2	0	0.2	0	0	-
27th	0	0	3.6	0	0	0	45.8	0	0.2	0	0	-
28th	12	0	0	0.4	22.4	0	0	0	0	0	3.2	-
29th	0	0	0	-	8.8	0	0	1.6	0	0	0	-

30th	0	0	3.4	-	0.8	8.2	0	0	ND	ND	0.2	-
31st	-	0	18.0	-	0	-	0	-	ND	7	-	-
Total	50.0	19.2	106.2	107.4	106	118.4	86.6	8.8	38.4	47.6	16.6	12.8*
Historical Mean	76.1	77.1	99.4	118.8	128.0	109.6	108.2	121.5	75.2	71.7	60.1	76.1

Notes:
ND – no data retrieved.
* – to 23 October 2023

4 DATA TRENDS

Data trends, based on from analyses undertaken throughout the duration of the sampling program (January 2019 – present), are provided as **Attachment 4.** Generally, groundwater elevations have increased over the last four years with a notable spike in elevation following the March 2021 and February 2022 water monitoring events. A general increase in groundwater elevations across the site occurred during 2022 and is predominantly due to the above average rainfall recorded for most months during the year. Since October 2022 groundwater elevations have decreased across the site, with a minor rebound across the March and April 2023 monitoring events, coinciding with the above average rainfall received during this period as presented in **Section 3**. Water levels between July and October have generally seen a marginal decrease across the site.

Notable changes in data trends were observed for the following analytes:

- Iron – The reported iron concentrations at BH6 has generally been on an increasing trend since May 2022, and has been reported above the site-specific trigger value (4.1 mg/L) since March 2023. The reported concentration of iron during this Groundwater Monitoring Event (GME) (4.27 mg/L) continues to be above the site-specific trigger value, however this represents a decrease in concentration compared to the last four monitoring rounds.
- PFAS – PFAS compounds PFOS and subsequently Sum of PFOS and PFHxs were detected in the WPW2 samples during this monitoring event, however the concentration (0.02 µg/L) is below the adopted criteria (0.07 µg/L), this is an increase from the previous monthly monitoring in September 2023.

5 CLOSING

Overall, the results suggest that since quarry operations began in August 2019, there has been negligible change in analytical results across the sampled locations. Groundwater level monitoring TARP rules, outlined in **Section 2,** recorded no exceedances at any locations during the October 2023 monitoring event.

One analyte exceedance of site-specific trigger values was reported during the October GME, for iron (4.27 mg/L) at BH6, located 860 m upgradient from current quarrying activity. This result is consistent with the increasing concentration of iron reported since the May 2022 monitoring event and exceedances of the site-specific trigger values reported since March 2023. The concentration of iron reported in the October 2023 GME is below the reported concentration from the May to September GMEs (ranging from 4.56 mg/L – 6.78mg/L).

There is no cause to suggest that the elevated Iron concentrations at BH6 are related to quarrying activities due to the distance and upgradient location of this monitoring well. Iron concentrations have been on a generally increasing trend since June 2022 at this location, however this increase does not appear to have been reflected in any of the wells considered downgradient of quarrying activities. BH6 will continue to be monitored during future sampling rounds, as per Section 8.6.1 from the SWMP below.

4. Where two consecutive samples are:

a. ABOVE the adopted trigger value, BUT LESS than previous data, this may suggest an incorrectly set trigger value that does not fully account for seasonal changes. Consider updating trigger value at next management plan update.

We trust that the above report meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Kleinfelder Australia Pty Ltd

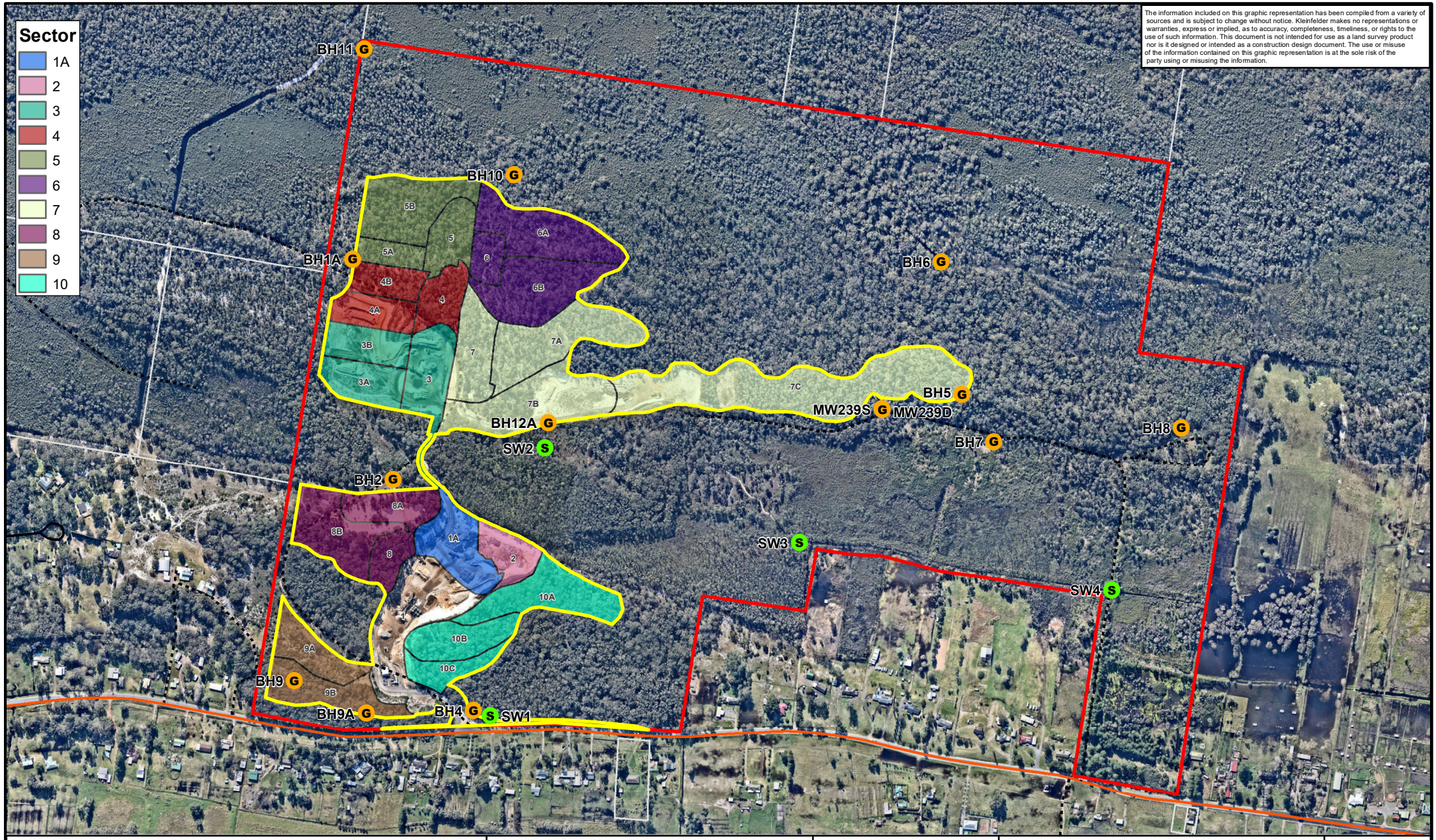
Thomas Jeffery

Graduate Environmental Scientist
Contaminated Land Management
tjeffery@kleinfelder.com
Mobile: 0421 887 830

Attachments

Attachment 1: Figures
Attachment 2: Results Tables and Field Records
Attachment 3: Laboratory Documentation and COCs
Attachment 4: Data Trends

ATTACHMENT 1: FIGURES



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Legend

- G Groundwater Sample Site
- S Surface Water Sample Site
- Quarry Project Area
- Subject Land Boundary
- Arterial Road
- Local Road
- Track

Metres
0 50 100 200 300 400 500
N

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PROJECT REFERENCE: 20232071
DATE DRAWN: 7/10/2022 14:16 Version 1
DRAWN BY: CMiskell
DATA SOURCE:
NSW DFSI - 2017
Nearmap - 2022

Monthly Monitoring Locations

Williamtown Sand Syndicate
Proposed Sand Quarry
398 Cabbage Tree Road, Williamtown

FIGURE:
1

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ATTACHMENT 2: RESULTS TABLES AND FIELD RECORDS

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH1	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	**1,710**	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	**40**	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 100	-	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH11	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	06-Mar-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH12	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH12A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH1A	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH2	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH3	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH4	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	**250**	< 50	**250**	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	**130**	< 50	**130**
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	**340**	< 50	**340**
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH5	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH6	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH7	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
BH8	21-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up				
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	100	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																		
BH9A	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
MW239S	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	-	< 50	< 100	< 50	< 50

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}	>C_{10} - C_{40} (sum)	>C_{10}-C_{16} - Silica Cleanup	F2 - Silica Cleanup	>C_{16}-C_{34} - Silica Cleanup	>C_{34}-C_{40} - Silica Cleanup	>C_{10}-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH1	15-Mar-19	**1,690**	**1,690**	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	**30**	**30**	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	-	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH11	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	06-Mar-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH12	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH12A	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH1A	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}	>C_{10} - C_{40} (sum)	>C_{10}-C_{16} - Silica Cleanup	F2 - Silica Cleanup	>C_{16}-C_{34} - Silica Cleanup	>C_{34}-C_{40} - Silica Cleanup	>C_{10}-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH2	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH3	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH4	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	**280**	< 100	**280**	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	**140**	< 100	**140**
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	**370**	< 100	**370**
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH5	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}	>C_{10} - C_{40} (sum)	>C_{10}-C_{16} - Silica Cleanup	F2 - Silica Cleanup	>C_{16}-C_{34} - Silica Cleanup	>C_{34}-C_{40} - Silica Cleanup	>C_{10}-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH6	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH7	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
BH8	21-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 1
Groundwater Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}	>C_{10} - C_{40} (sum)	>C_{10}-C_{16} - Silica Cleanup	F2 - Silica Cleanup	>C_{16}-C_{34} - Silica Cleanup	>C_{34}-C_{40} - Silica Cleanup	>C_{10}-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
BH9A	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
MW239S	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Manager

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

Analyte		Anions and Cations																			Anions and Cations					
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1	0.2	1.0
Units		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
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0	--	--	--	--	--	--	0.5	5.9	5.9	5.9	--	--	--
Sample Name	Sample Date																									
BH1	15-Mar-19	11	2.0	1.0	< 1.0	< 1.0	25	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	14	1.0	2.0	< 1.0	4.0	25	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	12	< 1.0	2.0	< 1.0	5.0	25	< 0.1	-	0.03	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	0.11	-	0.3	-	-	0.3	-	-
	14-Jun-19	10	< 1.0	2.0	< 1.0	3.0	24	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	15	< 1.0	2.0	< 1.0	4.0	23	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	14	< 1.0	2.0	< 1.0	2.0	21	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	13	< 1.0	2.0	< 1.0	2.0	20	< 0.1	-	< 0.01	0.06	-	-	-	< 0.01	-	< 0.01	< 0.01	0.12	-	0.3	-	-	0.3	-	-
	15-Oct-19	13	< 1.0	2.0	< 1.0	2.0	21	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	16	< 1.0	2.0	< 1.0	3.0	23	0.1	< 0.01	< 0.01	-	-	-	-	< 0.01	0.01	-	0.01	-	0.13	0.3	-	-	0.3	-	-
	16-Sep-20	13	< 1.0	2.0	< 1.0	2.0	21	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	14	< 1.0	2.0	< 1.0	4.0	21	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	11	< 1.0	2.0	< 1.0	5.0	18	< 0.1	-	< 0.01	0.02	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.07	0.2	-	-	0.2	-	-
	16-Dec-20	13	< 1.0	2.0	1.0	6.0	22	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	12	< 1.0	2.0	< 1.0	5.0	23	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	14	< 1.0	2.0	1.0	5.0	25	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	0.02	0.02	-	0.05	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	14	1.0	2.0	< 1.0	4.0	23	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	14	1.0	3.0	< 1.0	10	23	< 0.1	-	-	< 0.01	-	-	< 0.01	-	0.02	-	0.02	0.11	-	0.2	-	-	0.2	-	-
BH11	21-Feb-19	48	< 1.0	10	< 1.0	24	80	0.1	-	< 0.01	0.03	-	-	-	< 0.01	-	0.04	0.04	0.06	-	1.8	-	-	1.8	-	-
	15-Mar-19	26	< 1.0	2.0	< 1.0	2.0	52	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	32	< 1.0	5.0	< 1.0	2.0	57	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	29	< 1.0	4.0	< 1.0	2.0	55	< 0.1	-	< 0.01	0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	0.12	-	0.4	-	-	0.4	-	-
	14-Jun-19	26	< 1.0	3.0	< 1.0	< 1.0	53	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	49	< 1.0	8.0	< 1.0	8.0	73	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	28	< 1.0	3.0	< 1.0	4.0	47	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	27	< 1.0	3.0	< 1.0	5.0	46	< 0.1	-	< 0.01	0.12	-	-	-	< 0.01	-	< 0.01	< 0.01	0.15	-	0.7	-	-	0.7	-	-
	15-Oct-19	28	< 1.0	3.0	< 1.0	3.0	44	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	28	< 1.0	3.0	< 1.0	< 1.0	53	< 0.1	2.11	< 0.01	-	-	-	-	< 0.01	0.06	-	0.06	-	0.18	5.9	-	-	5.8	-	-
	16-Sep-20	29	< 1.0	5.0	< 1.0	6.0	48	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	29	< 1.0	6.0	< 1.0	4.0	61	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	27	< 1.0	5.0	< 1.0	5.0	50	< 0.1	-	< 0.01	0.06	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.08	0.5	-	-	0.5	-	-
	16-Dec-20	31	< 1.0	6.0	< 1.0	7.0	60	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	32	< 1.0	6.0	< 1.0	12	63	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	32	< 1.0	5.0	1.0	12	55	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.08	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	29	< 1.0	6.0	< 1.0	17	48	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	58	< 1.0	7.0	< 1.0	9.0	110	0.1	-	< 0.01	0.08	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	1.4	-	-	1.4	-	-
	22-Sep-21	49	< 1.0	6.0	< 1.0	12	101	0.1	-	< 0.01	0.01	-	-	-	< 0.01	-	0.01	0.01	-	0.01	0.8	-	-	0.8	-	-
	13-Oct-21	51	< 1.0	8.0	< 1.0	29	90	< 0.1	-	< 0.01	0.03	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	0.8	-	-	0.8	-	-
	16-Nov-21	37	< 1.0	8.0	< 1.0	24	55	< 0.1	-	< 0.01	0.03	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	0.9	-	-	0.9	-	-
	24-Feb-22	41	< 1.0	6.0	< 1.0	4.0	80	< 0.1	-	-	< 0.01	-	-	< 0.01	-	< 0.01	-	< 0.01	0.02	-	0.6	-	-	0.6	-	-
	06-Mar-22	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	17	< 1.0	2.0	< 1.0	< 1.0	29	< 0.1	-	< 0.01	0.04	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.07	1.0	-	-	1.0	-	-
	16-May-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	24	< 1.0	7.0	1.0	22	38	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	22	< 1.0	4.0	1.0	11	41	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	0.02	0.02	-	< 0.01	0.2	-	-	0.2	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	20	< 1.0	4.0	2.0	18	28	< 0.1	-	-	0.12	-	-	< 0.01	-	0.01	-	0.01	0.01	-	0.4	-	-	0.4	-	-
BH12A	15-Feb-23	16	< 1.0	2.0	< 1.0	8.0	29	< 0.1	-	< 0.01	1.74	-	-	-	0.02	-	0.02	0.04	-	0.21	3.2	-	-	3.2	-	-
	14-Aug-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1A	15-Feb-23	9.0	< 1.0	< 1.0	< 1.0	7.0	13	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	0.26	0.26	-	0.04	0.5	-	-	0.2	-	-
	14-Aug-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	12	2.0	2.0	< 1.0	6.0	22	0.1	-	< 0.01	0.28	-	-	-	< 0.01	-	2.76	2.76	0.05	-	4.0	-	-	1.2	-	-
	15-Mar-19	10	3.0	2.0	< 1.0	7.0	23	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	14	2.0	2.0	< 1.0	6.0	23	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	12	2.0	2.0	< 1.0	21	22	< 0.1	-	< 0.01	0.26	-	-	-	< 0.01	-	0.38	0.38	0.01	-	1.3	-	-	0.9	-	-
	14-Jun-19	11	1.0	2.0	< 1.0	5.0	23	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	13	2.0	2.0	< 1.0	9.0	20	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	12	1.0	2.0	< 1.0	8.0	20	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	11	2.0	2.0	< 1.0	8.0	18	< 0.1	-	< 0.01	-	-	0.28	-	< 0.01	-	1.07	1.07	0.04	-	-	-	2.7	-	-	1.6
	15-Oct-19	12	2.0	2.0	< 1.0	5.0	20	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	14	2.0	1.0	< 1.0	7.0	19	< 0.1	0.21	< 0.01	-	-	-	-	< 0.01	1.01	-	1.01	-	0.05	2.1	-	-	1.1	-	-
	16-Sep-20	11	2.0	2.0	< 1.0	7.0	17	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	11	2.0	2.0	< 1.0	6.0	16	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	11	2.0	2.0	< 1.0	9.0	16	< 0.1	-	< 0.01	0.48	-	-	-	< 0.01	-	2.88	2.88	-	< 0.01	4.8	-	-	1.9	-	-
	16-Dec-20	11	2.0	2.0	< 1.0	7.0	15	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	9.0	2.0	2.0	< 1.0	7.0	13	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	12	1.0	1.0	< 1.0	8.0	12	< 0.1	-	< 0.01	0.15	-	-	-	< 0.01	-	2.58	2.58	-	< 0.01	3.5	-	-	0.9	-	-
	17-Mar-21	10	2.0	2.0	< 1.0	7.0	13	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	8.0	2.0	1.0	< 1.0	7.0	14	< 0.1	-	-	0.06	-	-	< 0.01	-	0.05	-	0.05	0.01	-	0.4	-	-	0.3	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	9.0	< 1.0	1.0	< 1.0	6.0	16	< 0.1	-	< 0.01	0.22	-	-	-	< 0.01	-	0.04	0.04	-	0.01	1.4	-	-	1.4	-	-
	16-May-23	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

Analyte		Anions and Cations																			Anions and Cations					
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1	0.2	1.0
Units		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
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0	--	--	--	--	--	--	0.5	5.9	5.9	5.9	--	--	--
Sample Name	Sample Date																									
BH3	21-Feb-19	4.0	4.0	1.0	< 1.0	4.0	10	< 0.1	-	< 0.01	2.76	-	-	-	< 0.01	-	0.78	0.78	0.3	-	5.9	-	-	5.1	-	-
BH4	21-Feb-19	8.0	2.0	1.0	1.0	5.0	17	< 0.1	-	< 0.01	0.19	-	-	-	< 0.01	-	0.35	0.35	0.04	-	0.6	-	-	0.3	-	-
	15-Mar-19	9.0	2.0	< 1.0	< 1.0	5.0	18	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	10	2.0	1.0	1.0	3.0	19	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	9.0	2.0	1.0	1.0	22	19	< 0.1	-	< 0.01	0.97	-	-	-	< 0.01	-	0.29	0.29	< 0.01	-	1.0	-	-	0.7	-	-
	14-Jun-19	6.0	1.0	1.0	< 1.0	4.0	18	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	10	2.0	2.0	1.0	6.0	18	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	8.0	2.0	1.0	1.0	5.0	16	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	11	2.0	2.0	< 1.0	8.0	19	< 0.1	-	< 0.01	0.4	-	-	-	< 0.01	-	0.24	0.24	0.02	-	0.6	-	-	0.4	-	-
	15-Oct-19	10	1.0	1.0	< 1.0	4.0	18	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	11	1.0	1.0	< 1.0	6.0	18	< 0.1	0.08	< 0.01	-	-	-	-	< 0.01	0.29	-	0.29	-	< 0.01	0.3	-	-	< 0.1	-	-
	16-Sep-20	20	< 1.0	2.0	< 1.0	11	31	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	19	1.0	3.0	< 1.0	10	34	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	18	< 1.0	2.0	< 1.0	12	27	< 0.1	-	< 0.01	0.06	-	-	-	< 0.01	-	0.1	0.1	-	< 0.01	0.1	-	-	< 0.1	-	-
	16-Dec-20	25	1.0	4.0	< 1.0	15	43	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	36	1.0	4.0	< 1.0	23	54	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	69	2.0	9.0	1.0	32	111	< 0.1	-	< 0.01	0.11	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.03	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	77	2.0	11	1.0	26	128	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	7.0	1.0	2.0	< 1.0	7.0	15	< 0.1	-	-	0.3	-	-	< 0.01	-	0.21	-	0.21	0.01	-	0.6	-	-	0.4	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	10	1.0	1.0	1.0	7.0	18	< 0.1	-	< 0.01	0.11	-	-	-	< 0.01	-	0.33	0.33	-	0.02	0.7	-	-	0.4	-	-
	16-May-23	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	22-Feb-19	42	< 1.0	6.0	1.0	19	69	0.2	-	< 0.01	0.34	-	-	-	< 0.01	-	< 0.01	< 0.01	0.09	-	3.0	-	-	3.0	-	-
	24-Feb-22	40	< 1.0	8.0	< 1.0	42	60	< 0.1	-	-	0.29	-	-	< 0.01	-	0.02	-	0.02	0.21	-	1.2	-	-	1.2	-	-
	15-Feb-23	18	< 1.0	2.0	< 1.0	17	24	< 0.1	-	< 0.01	0.32	-	-	-	< 0.01	-	0.01	0.01	-	0.06	3.9	-	-	3.9	-	-
BH6	22-Feb-19	28	3.0	4.0	1.0	28	42	< 0.1	-	< 0.01	0.05	-	-	-	< 0.01	-	0.09	0.09	0.14	-	0.5	-	-	0.4	-	-
	14-Mar-19	23	2.0	4.0	1.0	17	37	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	25	3.0	4.0	1.0	18	42	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	23	3.0	4.0	1.0	18	45	< 0.1	-	< 0.01	0.13	-	-	-	< 0.01	-	< 0.01	< 0.01	0.14	-	0.6	-	-	0.6	-	-
	14-Jun-19	20	2.0	4.0	1.0	16	42	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	23	2.0	4.0	1.0	20	35	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	23	2.0	3.0	1.0	21	38	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	25	3.0	3.0	1.0	21	38	< 0.1	-	< 0.01	0.15	-	-	-	< 0.01	-	0.07	0.07	0.19	-	0.8	-	-	0.7	-	-
	15-Oct-19	25	2.0	4.0	1.0	13	41	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	27	3.0	3.0	1.0	18	45	< 0.1	0.06	< 0.01	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	0.23	0.4	-	-	0.4	-	-
	16-Sep-20	36	2.0	4.0	1.0	16	55	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	36	2.0	5.0	1.0	12	64	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	37	3.0	5.0	2.0	23	61	< 0.1	-	0.01	0.08	-	-	-	< 0.01	-	0.01	0.01	-	0.22	0.3	-	-	0.3	-	-
	16-Dec-20	46	3.0	6.0	2.0	15	75	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	39	3.0	5.0	2.0	21	73	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	43	3.0	6.0	2.0	18	72	< 0.1	-	< 0.01	0.1	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.25	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	51	4.0	9.0	1.0	25	80	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	30	< 1.0	4.0	< 1.0	10	61	< 0.1	-	-	0.11	-	-	< 0.01	-	0.02	-	0.02	0.04	-	0.4	-	-	0.4	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	32	< 1.0	4.0	< 1.0	21	59	< 0.1	-	< 0.01	0.03	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.03	0.4	-	-	0.4	-	-
	16-May-23	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	7.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	34	< 1.0	5.0	2.0	12	64	0.2	-	< 0.01	0.13	-	-	-	< 0.01	-	0.02	0.02	0.34	-	2.2	-	-	2.2	-	-
	14-Mar-19	36	< 1.0	6.0	2.0	16	61	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	38	< 1.0	6.0	2.0	17	62	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	35	< 1.0	5.0	2.0	15	68	0.2	-	< 0.01	0.06	-	-	-	< 0.01	-	< 0.01	< 0.01	0.27	-	0.9	-	-	0.9	-	-
	14-Jun-19	31	< 1.0	4.0	2.0	11	56	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	36	< 1.0	5.0	2.0	12	46	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	32	< 1.0	4.0	2.0	15	49	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	27	< 1.0	4.0	1.0	13	53	< 0.1	-	< 0.01	0.09	-	-	-	< 0.01	-	0.06	0.06	0.2	-	-	1.2	-	-	1.1	-
	15-Oct-19	34	< 1.0	5.0	2.0	12	53	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	31	< 1.0	5.0	1.0	15	56	0.1	0.02	< 0.01	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	0.17	0.5	-	-	0.5	-	-
	16-Sep-20	33	< 1.0	5.0	2.0	12	62	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	34	< 1.0	5.0	2.0	9.0	64	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	30	< 1.0	5.0	2.0	9.0	54	0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.3	0.6	-	-	0.6	-	-
	16-Dec-20	30	< 1.0	6.0	2.0	9.0	58	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	31	< 1.0	5.0	2.0	10	63	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	34	< 1.0	6.0	2.0	12	64	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.3	0.6	-	-	0.6	-	-
	17-Mar-21	36	< 1.0	7.0	2.0	11	68	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	17	< 1.0	2.0	1.0	8.0	25	< 0.1	-	-	0.12	-	-	< 0.01	-	0.02	-	0.02	0.08	-	1.0	-	-	1.0	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	10	< 1.0	1.0	< 1.0	1.0	14	< 0.1	-	< 0.01	0.23	-	-	-	< 0.01	-	< 0.01	< 0.01	-	0.03	1.6	-	-	1.6	-	-
	16-May-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																			Anions and Cations					
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Total Phosphorus	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Nitrogen as N	Total Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	1.0	0.1	0.01	0.01	0.01	0.02	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.2	1.0	0.1	0.2	1.0
Units		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
WSS - Groundwater		77	5.0	11	2.0	70	148	0.2	--	--	2.0	2.0	2.0	--	--	--	--	--	--	0.5	5.9	5.9	5.9	--	--	--
Sample Name	Sample Date																									
BH8	21-Feb-19	**52**	< 1.0	**6.0**	< 1.0	**11**	**90**	< 0.1	-	< 0.01	**1.97**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.5**	-	**2.4**	-	-	**2.4**	-	-
	14-Mar-19	**45**	< 1.0	**6.0**	< 1.0	**6.0**	**76**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**53**	< 1.0	**7.0**	< 1.0	**8.0**	**89**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**47**	< 1.0	**4.0**	< 1.0	**6.0**	**81**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.12**	-	**0.4**	-	-	**0.4**	-	-
	14-Jun-19	**47**	< 1.0	**5.0**	< 1.0	**4.0**	**89**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**57**	< 1.0	**5.0**	< 1.0	**70**	**121**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**42**	< 1.0	**3.0**	< 1.0	**4.0**	**63**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**46**	< 1.0	**3.0**	< 1.0	**4.0**	**70**	< 0.1	-	< 0.01	-	**0.43**	-	-	< 0.01	-	< 0.01	< 0.01	**0.13**	-	-	**1.1**	-	-	**1.1**	-
	15-Oct-19	**45**	< 1.0	**4.0**	< 1.0	**4.0**	**70**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**49**	< 1.0	**4.0**	< 1.0	**8.0**	**80**	< 0.1	**0.58**	< 0.01	-	-	-	-	< 0.01	**0.01**	-	**0.01**	-	**0.17**	**1.3**	-	-	**1.3**	-	-
	16-Sep-20	**58**	< 1.0	**4.0**	< 1.0	**9.0**	**109**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**43**	< 1.0	**4.0**	< 1.0	**12**	**70**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**48**	< 1.0	**6.0**	< 1.0	**10**	**76**	< 0.1	-	< 0.01	**0.14**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.13**	**0.6**	-	-	**0.6**	-	-
	16-Dec-20	**35**	< 1.0	**4.0**	< 1.0	**14**	**56**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**44**	< 1.0	**5.0**	< 1.0	**13**	**77**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**50**	< 1.0	**6.0**	< 1.0	**17**	**79**	< 0.1	-	< 0.01	**0.14**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.12**	< 0.1	-	-	< 0.1	-	-
	17-Mar-21	**50**	< 1.0	**6.0**	< 1.0	**19**	**75**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**7.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**8.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**55**	< 1.0	**5.0**	< 1.0	**54**	**70**	< 0.1	-	-	**0.3**	-	-	< 0.01	-	**0.72**	-	**0.72**	**0.13**	-	**1.7**	-	-	**1.0**	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**16**	< 1.0	**1.0**	< 1.0	**15**	**22**	< 0.1	-	< 0.01	**0.19**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.06**	**1.7**	-	-	**1.7**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	**35**	**5.0**	**5.0**	**1.0**	**41**	**38**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**32**	**3.0**	**6.0**	**1.0**	**33**	**48**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**23**	**2.0**	**4.0**	**1.0**	**23**	**35**	< 0.1	-	< 0.01	**0.11**	-	-	-	< 0.01	-	**2.35**	**2.35**	-	< 0.01	**2.8**	-	-	**0.5**	-	-
	16-Dec-20	**23**	**1.0**	**3.0**	**1.0**	**9.0**	**37**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**24**	**1.0**	**3.0**	**1.0**	**15**	**43**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**25**	**1.0**	**3.0**	**1.0**	**12**	**40**	< 0.1	-	< 0.01	**1.74**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.15**	**5.1**	-	-	**5.1**	-	-
	17-Mar-21	**25**	**1.0**	**3.0**	< 1.0	**12**	**35**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	**25**	**1.0**	**3.0**	**1.0**	**14**	**37**	< 0.1	-	< 0.01	< 0.01	-	-	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.8**	-	-	**0.8**	-	-
	22-Sep-21	**22**	**1.0**	**2.0**	**1.0**	**12**	**35**	< 0.1	-	< 0.01	**0.16**	-	-	-	< 0.01	-	**0.03**	**0.03**	-	**0.25**	**1.0**	-	-	**1.0**	-	-
	13-Oct-21	**24**	< 1.0	**2.0**	**1.0**	**11**	**38**	< 0.1	-	< 0.01	**0.13**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.31**	**0.9**	-	-	**0.9**	-	-
	16-Nov-21	**24**	**2.0**	**3.0**	**1.0**	**17**	**32**	< 0.1	-	< 0.01	**0.05**	-	-	-	< 0.01	-	**0.04**	**0.04**	-	**0.21**	**1.1**	-	-	**1.1**	-	-
	24-Feb-22	**21**	**2.0**	**4.0**	**1.0**	**17**	**32**	< 0.1	-	-	**0.19**	-	-	< 0.01	-	< 0.01	-	< 0.01	**0.25**	-	**1.0**	-	-	**1.0**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**18**	< 1.0	**2.0**	**1.0**	**20**	**19**	< 0.1	-	< 0.01	**0.13**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.27**	**2.0**	-	-	**2.0**	-	-
	16-May-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW239S	22-Feb-19	**61**	< 1.0	**6.0**	< 1.0	**6.0**	**104**	< 0.1	-	< 0.01	**0.56**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.18**	-	**3.9**	-	-	**3.9**	-	-
	14-Mar-19	**64**	< 1.0	**6.0**	< 1.0	**2.0**	**126**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	**64**	< 1.0	**7.0**	**1.0**	**9.0**	**97**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**52**	< 1.0	**6.0**	< 1.0	**13**	**88**	< 0.1	-	< 0.01	**0.43**	-	-	-	< 0.01	-	< 0.01	< 0.01	**0.09**	-	**1.7**	-	-	**1.7**	-	-
	14-Jun-19	**50**	< 1.0	**6.0**	< 1.0	**13**	**87**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**52**	< 1.0	**7.0**	**1.0**	**16**	**73**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**54**	< 1.0	**7.0**	< 1.0	**11**	**88**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**55**	< 1.0	**6.0**	**1.0**	**14**	**85**	< 0.1	-	< 0.01	-	**0.32**	-	-	< 0.01	-	< 0.01	< 0.01	**0.1**	-	-	**1.4**	-	-	**1.4**	-
	15-Oct-19	**58**	< 1.0	**6.0**	< 1.0	**8.0**	**108**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**63**	< 1.0	**6.0**	**1.0**	**8.0**	**118**	< 0.1	**0.23**	< 0.01	-	-	-	-	< 0.01	< 0.01	-	< 0.01	-	**0.17**	**1.2**	-	-	**1.2**	-	-
	16-Sep-20	**53**	< 1.0	**8.0**	**1.0**	**36**	**86**	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**76**	< 1.0	**9.0**	**1.0**	**17**	**148**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**68**	< 1.0	**9.0**	**2.0**	**37**	**125**	< 0.1	-	< 0.01	**0.59**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.01**	**2.6**	-	-	**2.6**	-	-
	16-Dec-20	**68**	< 1.0	**10**	**1.0**	**24**	**126**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**58**	< 1.0	**9.0**	**2.0**	**37**	**102**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**66**	< 1.0	**11**	**2.0**	**38**	**124**	< 0.1	-	< 0.01	**0.58**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.06**	**2.5**	-	-	**2.5**	-	-
	17-Mar-21	**49**	< 1.0	**7.0**	**1.0**	**38**	**70**	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**24**	< 1.0	**3.0**	< 1.0	**15**	**33**	< 0.1	-	-	**0.33**	-	-	< 0.01	-	**0.16**	-	**0.16**	**0.04**	-	**1.8**	-	-	**1.6**	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**2.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**14**	< 1.0	**2.0**	< 1.0	**7.0**	**25**	< 0.1	-	< 0.01	**0.31**	-	-	-	< 0.01	-	< 0.01	< 0.01	-	**0.04**	**1.5**	-	-	**1.5**	-	-
	16-May-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**1.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
BH1	15-Mar-19	0.66	0.88	-	-	-	-	9.0	< 1.0	< 1.0	9.0	9.0	-	104	68	129	78	5.67	-	-
	23-Apr-19	0.82	0.99	-	-	-	-	10	< 1.0	< 1.0	10	11	-	84	55	97	248	5.83	-	-
	16-May-19	0.69	1.01	-	-	1.7	-	10	< 1.0	< 1.0	10	8.0	-	105	68	164	80	5.82	-	-
	14-Jun-19	0.6	0.94	-	-	-	-	10	< 1.0	< 1.0	10	8.0	-	99	64	72	39	5.52	-	-
	16-Jul-19	0.82	0.95	-	-	-	-	11	< 1.0	< 1.0	11	8.0	-	102	66	84	26	5.62	-	-
	15-Aug-19	0.77	0.91	-	-	-	-	14	< 1.0	< 1.0	14	8.0	-	128	83	82	181	6.22	-	-
	16-Sep-19	0.73	0.76	-	-	1.84	-	8.0	< 1.0	< 1.0	8.0	8.0	-	102	66	88	108	5.44	-	-
	15-Oct-19	0.73	0.71	-	-	-	-	4.0	< 1.0	< 1.0	4.0	8.0	-	98	64	-	-	5.5	-	-
	18-Nov-19	0.86	1.19	-	-	2.26	-	24	< 1.0	< 1.0	24	8.0	-	126	82	-	-	6.29	-	-
	16-Sep-20	0.73	0.81	-	-	-	-	9.0	< 1.0	< 1.0	9.0	8.0	-	95	62	81	58	5.87	-	-
	16-Oct-20	0.77	0.84	-	-	-	-	8.0	< 1.0	< 1.0	8.0	8.0	-	88	57	-	-	5.7	-	-
	16-Nov-20	1.02	1.05	-	-	1.55	-	22	< 1.0	< 1.0	22	8.0	-	120	78	76	41	5.98	-	-
	16-Dec-20	0.93	1.16	-	-	-	-	21	< 1.0	< 1.0	21	8.0	-	134	87	-	-	5.76	-	-
	14-Jan-21	0.96	1.07	-	-	-	-	16	< 1.0	< 1.0	16	8.0	-	124	81	-	-	5.63	-	-
	16-Feb-21	0.8	1.05	-	-	1.98	-	12	< 1.0	< 1.0	12	8.0	-	116	75	89	20	5.57	-	-
	17-Mar-21	0.82	0.95	-	-	-	-	11	< 1.0	< 1.0	11	11	-	111	72	-	-	6.02	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.66	98	-
	24-Feb-22	0.9	1.18	-	-	-	16	-	< 1.0	< 1.0	16	15	-	127	82	-	-	5.95	-	< 0.01
BH11	21-Feb-19	2.91	2.76	-	-	3.21	-	< 1.0	< 1.0	< 1.0	< 1.0	41	-	346	225	278	144	4.67	-	-
	15-Mar-19	1.3	1.51	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	8.0	-	186	121	144	152	4.82	-	-
	23-Apr-19	1.8	1.65	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	150	98	135	112	4.99	-	-
	16-May-19	1.59	1.59	-	-	3.0	-	< 1.0	< 1.0	< 1.0	< 1.0	16	-	188	122	216	156	4.91	-	-
	14-Jun-19	1.38	1.5	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	12	-	175	114	107	136	4.84	-	-
	16-Jul-19	2.79	2.22	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	33	-	318	207	192	223	4.68	-	-
	15-Aug-19	1.46	1.41	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	12	-	197	128	135	303	4.88	-	-
	16-Sep-19	1.42	1.4	-	-	3.18	-	< 1.0	< 1.0	< 1.0	< 1.0	12	-	195	127	140	533	4.66	-	-
	15-Oct-19	1.46	1.3	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	12	-	194	126	-	-	4.92	-	-
	18-Nov-19	1.46	1.5	-	-	3.3	-	< 1.0	< 1.0	< 1.0	< 1.0	12	-	193	125	-	-	5.12	-	-
	16-Sep-20	1.67	1.48	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	223	145	111	136	4.61	-	-
	16-Oct-20	1.76	1.8	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	218	142	-	-	4.8	-	-
	16-Nov-20	1.58	1.51	-	-	2.51	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	217	141	146	100	4.81	-	-
	16-Dec-20	1.84	1.84	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	249	162	-	-	4.74	-	-
	14-Jan-21	1.88	2.03	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	264	172	-	-	4.41	-	-
	16-Feb-21	1.83	1.8	-	-	2.98	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	235	153	149	386	4.73	-	-
	17-Mar-21	1.76	1.71	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	223	145	-	-	4.66	-	-
	19-Aug-21	3.1	3.29	3.0	-	4.6	-	< 1.0	< 1.0	< 1.0	< 1.0	29	-	403	262	-	-	4.38	-	-
	22-Sep-21	3.01	3.1	1.54	-	4.18	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	382	248	-	-	4.47	-	-
	13-Oct-21	2.88	3.14	4.42	-	3.79	-	< 1.0	< 1.0	< 1.0	< 1.0	33	-	373	242	-	-	4.27	18	-
	16-Nov-21	2.27	2.05	-	-	2.75	-	< 1.0	< 1.0	< 1.0	< 1.0	-	33	268	174	-	-	4.54	-	-
	24-Feb-22	2.28	2.4	-	-	-	3.0	-	< 1.0	< 1.0	3.0	25	-	260	169	-	-	4.57	-	< 0.01
	06-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	0.9	0.82	-	-	2.4	-	< 1.0	< 1.0	< 1.0	< 1.0	8.0	-	118	77	-	-	4.54	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH12	16-Sep-20	1.64	1.57	-	-	-	-	2.0	< 1.0	< 1.0	2.0	29	-	206	134	118	446	5.37	-	-
	16-Nov-20	1.31	1.52	-	-	2.27	-	7.0	< 1.0	< 1.0	7.0	16	-	190	124	134	438	5.92	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.75	398	-
	24-Feb-22	1.25	1.2	-	-	-	2.0	-	< 1.0	< 1.0	2.0	16	-	148	96	-	-	5.03	-	< 0.01
BH12A	15-Feb-23	0.86	0.98	-	-	2.26	-	< 1.0	< 1.0	< 1.0	< 1.0	8.0	-	129	84	-	-	4.91	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1A	15-Feb-23	0.39	0.51	-	-	2.15	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	-	70	46	-	-	4.49	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2	22-Feb-19	0.79	0.74	-	-	1.44	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	91	59	128	376	4.87	-	-
	15-Mar-19	0.75	0.79	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	16	-	101	66	90	352	4.71	-	-
	23-Apr-19	0.87	0.77	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	70	46	84	575	4.82	-	-
	16-May-19	0.79	1.06	-	-	1.44	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	94	61	144	111	4.85	-	-
	14-Jun-19	0.69	0.75	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	11	-	91	59	51	215	4.76	-	-
	16-Jul-19	0.83	0.75	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	90	58	63	92	4.84	-	-
	15-Aug-19	0.74	0.73	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	11	-	110	72	61	310	5.2	-	-
	16-Sep-19	0.74	0.67	-	-	1.32	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	96	62	60	216	4.72	-	-
	15-Oct-19	0.79	0.67	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	102	66	-	-	5.06	-	-
	18-Nov-19	0.79	0.68	-	-	2.02	-	< 1.0	< 1.0	< 1.0	< 1.0	9.0	-	102	66	-	-	5.47	-	-
	16-Sep-20	0.74	0.62	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	99	64	76	356	4.85	-	-
	16-Oct-20	0.74	0.58	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	90	58	-	-	5.07	-	-
	16-Nov-20	0.74	0.7	-	-	1.32	-	3.0	< 1.0	< 1.0	3.0	13	-	119	77	91	952	5.09	-	-
	16-Dec-20	0.74	0.57	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	105	68	-	-	4.66	-	-
	14-Jan-21	0.66	0.57	-	-	-	-	3.0	< 1.0	< 1.0	3.0	13	-	93	60	-	-	5.04	-	-
	16-Feb-21	0.65	0.5	-	-	2.03	-	< 1.0	< 1.0	< 1.0	< 1.0	7.0	-	89	58	67	86	4.84	-	-
	17-Mar-21	0.7	0.53	-	-	-	-	1.0	< 1.0	< 1.0	1.0	13	-	88	57	-	-	5.28	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.09	101	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	0.53	0.6	-	-	-	3.0	-	< 1.0	< 1.0	3.0	9.0	-	70	46	-	-	5.18	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	462	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	0.47	0.62	-	-	1.69	-	2.0	< 1.0	< 1.0	2.0	4.0	-	73	47	-	-	4.67	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Williamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
BH3	21-Feb-19	0.46	0.54	-	-	0.46	-	9.0	< 1.0	< 1.0	9.0	14	-	60	39	438	3,800	5.55	-	-
BH4	21-Feb-19	0.56	0.7	-	-	1.15	-	6.0	< 1.0	< 1.0	6.0	9.0	-	73	47	96	122	5.4	-	-
	15-Mar-19	0.49	0.61	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	5.0	-	77	50	70	45	5.12	-	-
	23-Apr-19	0.64	0.6	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	9.0	-	54	35	61	147	5.05	-	-
	16-May-19	0.6	0.99	-	-	1.3	-	< 1.0	< 1.0	< 1.0	< 1.0	9.0	-	73	47	100	44	4.99	-	-
	14-Jun-19	0.39	0.59	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	7.0	-	69	45	36	186	4.84	-	-
	16-Jul-19	0.72	0.63	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	75	49	42	74	4.96	-	-
	15-Aug-19	0.56	0.56	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	9.0	-	85	55	49	30	5.01	-	-
	16-Sep-19	0.74	0.7	-	-	1.32	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	95	62	58	49	4.83	-	-
	15-Oct-19	0.57	0.59	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	7.0	-	85	55	-	-	4.93	-	-
	18-Nov-19	0.61	0.63	-	-	1.86	-	< 1.0	< 1.0	< 1.0	< 1.0	7.0	-	86	56	-	-	5.34	-	-
	16-Sep-20	1.03	1.1	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	8.0	-	148	96	74	24	4.66	-	-
	16-Oct-20	1.12	1.21	-	-	-	-	2.0	< 1.0	< 1.0	2.0	15	-	133	86	-	-	5.21	-	-
	16-Nov-20	0.95	1.03	-	-	2.54	-	1.0	< 1.0	< 1.0	1.0	8.0	-	146	95	90	15	4.98	-	-
	16-Dec-20	1.47	1.58	-	-	-	-	3.0	< 1.0	< 1.0	3.0	19	-	193	125	-	-	4.81	-	-
	14-Jan-21	1.94	2.02	-	-	-	-	1.0	< 1.0	< 1.0	1.0	19	-	258	168	-	-	5.23	-	-
	16-Feb-21	3.87	3.82	0.65	-	4.63	-	1.0	< 1.0	< 1.0	1.0	42	-	445	289	251	56	4.86	-	-
	17-Mar-21	4.38	4.21	1.96	-	-	-	3.0	< 1.0	< 1.0	3.0	50	-	501	326	-	-	5.07	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.51	56	-
	24-Feb-22	0.52	0.61	-	-	-	2.0	-	< 1.0	< 1.0	2.0	11	-	74	48	-	-	5.07	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	0.59	0.65	-	-	1.69	-	< 1.0	< 1.0	< 1.0	< 1.0	7.0	-	84	55	-	-	5.06	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5	22-Feb-19	2.35	2.34	-	-	3.59	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	250	162	211	458	4.87	-	-
	24-Feb-22	2.4	2.63	-	-	-	3.0	-	< 1.0	< 1.0	3.0	33	-	276	179	-	-	4.67	-	< 0.01
	15-Feb-23	0.95	1.07	-	-	2.54	-	2.0	< 1.0	< 1.0	2.0	8.0	-	126	82	-	-	4.64	-	-
BH6	22-Feb-19	1.72	1.77	-	-	2.49	-	< 1.0	< 1.0	< 1.0	< 1.0	24	-	177	115	144	41	4.37	-	-
	14-Mar-19	1.46	1.44	-	-	-	-	2.0	< 1.0	< 1.0	2.0	21	-	179	116	146	144	4.95	-	-
	23-Apr-19	1.59	1.56	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	24	-	136	88	115	62	4.64	-	-
	16-May-19	1.5	1.64	-	-	2.04	-	< 1.0	< 1.0	< 1.0	< 1.0	24	-	175	114	214	106	4.88	-	-
	14-Jun-19	1.32	1.52	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	21	-	174	113	90	32	4.82	-	-
	16-Jul-19	1.46	1.4	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	21	-	161	105	82	23	4.73	-	-
	15-Aug-19	1.37	1.51	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	17	-	201	131	104	16	4.87	-	-
	16-Sep-19	1.51	1.55	-	-	2.44	-	2.0	< 1.0	< 1.0	2.0	20	-	197	128	124	71	4.68	-	-
	15-Oct-19	1.54	1.43	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	21	-	202	131	-	-	5.17	-	-
	18-Nov-19	1.6	1.64	-	-	2.64	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	204	133	-	-	5.32	-	-
	16-Sep-20	2.02	1.9	-	-	-	-	1.0	< 1.0	< 1.0	1.0	21	-	273	177	121	49	4.98	-	-
	16-Oct-20	2.1	2.14	-	-	-	-	4.0	< 1.0	< 1.0	4.0	26	-	249	162	-	-	5.3	-	-
	16-Nov-20	2.22	2.2	-	-	3.04	-	< 1.0	< 1.0	< 1.0	< 1.0	28	-	321	209	205	12	4.45	-	-
	16-Dec-20	2.7	2.43	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	32	-	321	209	-	-	4.63	-	-
	14-Jan-21	2.31	2.5	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	28	-	332	216	-	-	4.33	-	-
	16-Feb-21	2.56	2.46	-	-	3.3	-	3.0	< 1.0	< 1.0	3.0	32	-	316	205	182	20	4.89	-	-
	17-Mar-21	3.18	2.82	-	-	-	-	2.0	< 1.0	< 1.0	2.0	47	-	358	233	-	-	5.07	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.1	51	-
	24-Feb-22	1.63	1.93	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	16	-	241	157	-	-	3.92	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	1.93	2.1	-	-	3.31	-	< 1.0	< 1.0	< 1.0	< 1.0	16	-	265	172	-	-	3.95	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH7	22-Feb-19	1.94	2.06	-	-	3.16	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	213	138	196	152	4.76	-	-
	14-Mar-19	2.11	2.05	1.37	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	271	176	212	149	4.73	-	-
	23-Apr-19	2.2	2.1	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	205	133	185	20	4.51	-	-
	16-May-19	1.98	2.23	-	-	3.26	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	235	153	310	29	4.87	-	-
	14-Jun-19	1.73	1.81	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	16	-	213	138	145	39	4.91	-	-
	16-Jul-19	2.03	1.55	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	202	131	164	61	5.0	-	-
	15-Aug-19	1.77	1.85	-	-	-	-	8.0	< 1.0	< 1.0	8.0	16	-	232	151	168	44	5.53	-	-
	16-Sep-19	1.53	1.86	-	-	2.79	-	5.0	< 1.0	< 1.0	5.0	16	-	222	144	181	44	5.07	-	-
	15-Oct-19	1.94	1.74	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	252	164	-	-	4.95	-	-
	18-Nov-19	1.78	1.89	-	-	2.89	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	239	155	-	-	4.97	-	-
	16-Sep-20	1.9	2.0	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	248	161	140	24	4.81	-	-
	16-Oct-20	1.94	1.99	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	243	158	-	-	4.87	-	-
	16-Nov-20	1.77	1.71	-	-	2.79	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	245	159	168	6.0	4.57	-	-
	16-Dec-20	1.85	1.82	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	265	172	-	-	4.34	-	-
	14-Jan-21	1.81	1.98	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	20	-	267	174	-	-	4.62	-	-
	16-Feb-21	2.02	2.06	-	-	2.9	-	< 1.0	< 1.0	< 1.0	< 1.0	25	-	270	176	161	9.0	4.54	-	-
	17-Mar-21	2.19	2.15	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	29	-	279	181	-	-	4.9	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.22	170	-
	24-Feb-22	0.93	0.87	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	8.0	-	124	81	-	-	4.43	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	0.52	0.46	-	-	1.88	-	2.0	< 1.0	< 1.0	2.0	4.0	-	66	43	-	-	4.83	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2
Groundwater Analytical Results - Anions Cations and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
BH8	21-Feb-19	**2.76**	**2.77**	-	-	**4.44**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**352**	**229**	**258**	**438**	**4.46**	-	-
	14-Mar-19	**2.45**	**2.27**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**319**	**207**	**253**	**138**	**4.77**	-	-
	23-Apr-19	**2.88**	**2.68**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**264**	**172**	**223**	**121**	**4.76**	-	-
	16-May-19	**2.37**	**2.43**	-	-	**4.86**	-	**1.0**	< 1.0	< 1.0	**1.0**	**16**	-	**302**	**196**	**354**	**312**	**4.9**	-	-
	14-Jun-19	**2.46**	**2.59**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**315**	**205**	**194**	**83**	**4.82**	-	-
	16-Jul-19	**2.89**	**4.87**	**26**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**353**	**229**	**226**	**145**	**4.78**	-	-
	15-Aug-19	**2.07**	**1.86**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**260**	**169**	**140**	**98**	**5.0**	-	-
	16-Sep-19	**2.25**	**2.06**	-	-	**5.43**	-	< 1.0	< 1.0	< 1.0	< 1.0	**12**	-	**293**	**190**	**206**	**79**	**4.85**	-	-
	15-Oct-19	**2.29**	**2.06**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**303**	**197**	-	-	**5.02**	-	-
	18-Nov-19	**2.46**	**2.42**	-	-	**5.06**	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**316**	**205**	-	-	**5.12**	-	-
	16-Sep-20	**3.1**	**3.26**	**2.57**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**391**	**254**	**216**	**34**	**4.79**	-	-
	16-Oct-20	**2.2**	**2.22**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**268**	**174**	-	-	**5.01**	-	-
	16-Nov-20	**2.58**	**2.35**	-	-	**4.1**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**341**	**222**	**212**	**14**	**4.75**	-	-
	16-Dec-20	**1.85**	**1.87**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**16**	-	**256**	**166**	-	-	**4.82**	-	-
	14-Jan-21	**2.32**	**2.44**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**20**	-	**317**	**206**	-	-	**4.76**	-	-
	16-Feb-21	**2.67**	**2.58**	-	-	**4.27**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**335**	**218**	**184**	**63**	**4.68**	-	-
	17-Mar-21	**2.67**	**2.51**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**329**	**214**	-	-	**4.57**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**2.8**	**3.2**	**6.58**	-	-	**5.0**	-	< 1.0	< 1.0	**5.0**	**20**	-	**329**	**214**	-	-	**4.67**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.78**	**0.93**	-	-	**3.0**	-	< 1.0	< 1.0	< 1.0	< 1.0	**4.0**	-	**135**	**88**	-	-	**4.93**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH9A	16-Sep-20	**2.21**	**2.06**	-	-	-	-	**7.0**	< 1.0	< 1.0	**7.0**	**33**	-	**276**	**179**	**310**	**1,060**	**5.78**	-	-
	16-Oct-20	**2.06**	**2.06**	-	-	-	-	**1.0**	< 1.0	< 1.0	**1.0**	**32**	-	**237**	**154**	-	-	**5.15**	-	-
	16-Nov-20	**1.46**	**1.51**	-	-	**2.16**	-	**2.0**	< 1.0	< 1.0	**2.0**	**21**	-	**195**	**127**	**142**	**2,220**	**4.93**	-	-
	16-Dec-20	**1.32**	**1.23**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**15**	-	**175**	**114**	-	-	**4.83**	-	-
	14-Jan-21	**1.37**	**1.52**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**15**	-	**196**	**127**	-	-	**4.96**	-	-
	16-Feb-21	**1.41**	**1.42**	-	-	**2.82**	-	**2.0**	< 1.0	< 1.0	**2.0**	**15**	-	**181**	**118**	**135**	**2,030**	**4.72**	-	-
	17-Mar-21	**1.38**	**1.32**	-	-	-	-	**4.0**	< 1.0	< 1.0	**4.0**	**15**	-	**164**	**107**	-	-	**5.23**	-	-
	19-Aug-21	**1.41**	**1.42**	-	-	**2.82**	-	**4.0**	< 1.0	< 1.0	**4.0**	**15**	-	**180**	**117**	-	-	**5.03**	-	-
	22-Sep-21	**1.2**	**1.36**	-	-	**2.92**	-	**6.0**	< 1.0	< 1.0	**6.0**	**11**	-	**172**	**112**	-	-	**4.99**	-	-
	13-Oct-21	**1.23**	**1.46**	-	-	**3.39**	-	**8.0**	< 1.0	< 1.0	**8.0**	**8.0**	-	**156**	**101**	-	-	**5.21**	**105**	-
	16-Nov-21	**1.42**	**1.36**	-	-	**2.51**	-	**5.0**	< 1.0	< 1.0	**5.0**	-	**17**	**163**	**106**	-	-	**5.51**	-	-
	24-Feb-22	**1.37**	**1.26**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**21**	-	**164**	**107**	-	-	**4.85**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**289**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.97**	**1.01**	-	-	**2.54**	-	**3.0**	< 1.0	< 1.0	**3.0**	**8.0**	-	**141**	**92**	-	-	**4.65**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW239S	22-Feb-19	**3.15**	**3.06**	**1.43**	-	**5.21**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**329**	**214**	**234**	**149**	**4.89**	-	-
	14-Mar-19	**3.28**	**3.64**	**5.18**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**25**	-	**410**	**266**	**232**	**504**	**5.02**	-	-
	23-Apr-19	**3.38**	**2.92**	**7.32**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**294**	**191**	**208**	**385**	**4.92**	-	-
	16-May-19	**2.76**	**2.75**	-	-	**4.44**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**327**	**212**	**320**	**371**	**4.87**	-	-
	14-Jun-19	**2.67**	**2.86**	-	-	-	-	**7.0**	< 1.0	< 1.0	**7.0**	**25**	-	**334**	**217**	**220**	**427**	**5.39**	-	-
	16-Jul-19	**2.86**	**2.39**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**353**	**229**	**188**	**70**	**4.85**	-	-
	15-Aug-19	**2.92**	**2.71**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**359**	**233**	**195**	**363**	**4.83**	-	-
	16-Sep-19	**2.91**	**2.69**	-	-	**4.7**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**373**	**242**	**224**	**179**	**4.66**	-	-
	15-Oct-19	**3.02**	**3.21**	**3.15**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**404**	**263**	-	-	**4.86**	-	-
	18-Nov-19	**3.26**	**3.5**	**3.48**	-	**5.38**	-	< 1.0	< 1.0	< 1.0	< 1.0	**25**	-	**419**	**272**	-	-	**4.76**	-	-
	16-Sep-20	**2.99**	**3.24**	**3.95**	-	-	-	**3.0**	< 1.0	< 1.0	**3.0**	**33**	-	**390**	**254**	**244**	**350**	**5.2**	-	-
	16-Oct-20	**4.14**	**4.57**	**4.99**	-	-	-	**2.0**	< 1.0	< 1.0	**2.0**	**37**	-	**458**	**298**	-	-	**4.73**	-	-
	16-Nov-20	**4.21**	**4.3**	**1.0**	-	**4.78**	-	< 1.0	< 1.0	< 1.0	< 1.0	**37**	-	**489**	**318**	**294**	**562**	**4.55**	-	-
	16-Dec-20	**3.81**	**4.05**	**3.15**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**41**	-	**484**	**315**	-	-	**4.68**	-	-
	14-Jan-21	**3.31**	**3.65**	**4.78**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**37**	-	**430**	**280**	-	-	**4.44**	-	-
	16-Feb-21	**4.03**	**4.29**	**3.1**	-	**4.21**	-	< 1.0	< 1.0	< 1.0	< 1.0	**45**	-	**488**	**317**	**375**	**346**	**4.61**	-	-
	17-Mar-21	**2.73**	**2.76**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**29**	-	**343**	**223**	-	-	**4.73**	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**4.87**	**295**	-
	24-Feb-22	**1.29**	**1.3**	-	-	-	**3.0**	-	< 1.0	< 1.0	**3.0**	**12**	-	**159**	**103**	-	-	**4.67**	-	< 0.01
	12-Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**104**	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**0.77**	**0.89**	-	-	**1.98**	-	**2.0**	< 1.0	< 1.0	**2.0**	**8.0**	-	**111**	**72**	-	-	**4.63**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of report
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the l
Highlighting indicates an exceedance c

Criteria:
SWMP 2021 - Soil and Water Managen

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH1	15-Mar-19	< 0.001	0.003	< 0.001	< 0.05	< 0.0001	0.004	< 0.001	< 0.001	13	< 0.001	0.014	< 0.0001	< 0.001	< 0.01	< 0.01	1.27
	23-Apr-19	< 0.001	0.003	< 0.001	< 0.05	< 0.0001	0.004	< 0.001	0.002	10	0.001	0.015	< 0.0001	0.002	< 0.01	< 0.01	0.363
	16-May-19	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	< 0.001	8.33	< 0.001	0.009	< 0.0001	0.002	< 0.01	< 0.01	0.132
	14-Jun-19	< 0.001	0.001	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.001	6.31	< 0.001	0.009	< 0.0001	< 0.001	< 0.01	< 0.01	0.074
	16-Jul-19	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	0.002	7.35	< 0.001	0.01	< 0.0001	0.001	< 0.01	< 0.01	0.116
	15-Aug-19	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	0.002	7.96	< 0.001	0.008	< 0.0001	< 0.001	< 0.01	< 0.01	0.023
	16-Sep-19	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	0.004	< 0.001	0.001	8.84	< 0.001	0.009	< 0.0001	< 0.001	< 0.01	< 0.01	0.034
	15-Oct-19	< 0.001	0.005	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	0.006	-	< 0.001	0.007	< 0.0001	< 0.001	< 0.01	< 0.01	0.037
	18-Nov-19	< 0.001	0.001	< 0.001	< 0.05	< 0.0001	0.004	< 0.001	< 0.001	11	< 0.001	0.008	< 0.0001	0.001	< 0.01	< 0.01	0.012
	16-Sep-20	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.005	5.48	< 0.001	0.01	< 0.0001	< 0.001	< 0.01	< 0.01	0.016
	16-Oct-20	< 0.001	0.006	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.001	5.55	< 0.001	0.009	< 0.0001	< 0.001	< 0.01	< 0.01	0.017
	16-Nov-20	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	0.001	7.05	< 0.001	0.012	< 0.0001	< 0.001	< 0.01	< 0.01	0.045
	16-Dec-20	< 0.001	0.006	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.008	3.21	< 0.001	0.011	< 0.0001	0.001	< 0.01	< 0.01	0.077
	14-Jan-21	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.001	5.21	< 0.001	0.013	< 0.0001	< 0.001	< 0.01	< 0.01	0.032
	16-Feb-21	< 0.001	0.003	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.001	3.24	< 0.001	0.015	< 0.0001	< 0.001	< 0.01	< 0.01	0.652
	17-Mar-21	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	4.0	< 0.001	0.027	< 0.0001	< 0.001	< 0.01	< 0.01	0.596
	24-Feb-22	< 0.001	0.003	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	7.7	< 0.001	0.018	< 0.0001	< 0.001	< 0.01	< 0.01	0.106
BH11	21-Feb-19	< 0.001	0.008	< 0.001	< 0.05	< 0.0001	0.002	0.001	< 0.001	0.26	< 0.001	0.003	< 0.0001	0.005	< 0.01	< 0.01	0.031
	15-Mar-19	< 0.001	0.005	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	1.49	< 0.001	0.007	< 0.0001	0.037	< 0.01	< 0.01	0.016
	23-Apr-19	< 0.001	0.006	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	0.98	< 0.001	0.007	< 0.0001	0.07	< 0.01	< 0.01	0.04
	16-May-19	< 0.001	0.005	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	0.97	< 0.001	0.006	< 0.0001	0.004	< 0.01	< 0.01	0.024
	14-Jun-19	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	0.98	< 0.001	0.005	< 0.0001	0.001	< 0.01	< 0.01	0.005
	16-Jul-19	< 0.001	0.01	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	0.47	< 0.001	0.003	< 0.0001	0.004	< 0.01	< 0.01	0.007
	15-Aug-19	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.001	0.87	< 0.001	0.007	< 0.0001	0.001	< 0.01	< 0.01	0.005
	16-Sep-19	< 0.001	0.005	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	0.79	< 0.001	0.008	< 0.0001	0.002	< 0.01	< 0.01	0.012
	15-Oct-19	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	0.004	-	< 0.001	0.006	< 0.0001	0.003	< 0.01	< 0.01	0.016
	18-Nov-19	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	0.95	< 0.001	0.008	< 0.0001	0.002	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	0.014	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	0.005	0.9	< 0.001	0.008	< 0.0001	< 0.001	< 0.01	< 0.01	0.009
	16-Oct-20	< 0.001	0.007	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	1.06	< 0.001	0.009	< 0.0001	0.002	< 0.01	< 0.01	0.01
	16-Nov-20	< 0.001	0.007	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	0.84	< 0.001	0.011	< 0.0001	0.002	< 0.01	< 0.01	0.016
	16-Dec-20	< 0.001	0.008	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	1.0	< 0.001	0.009	< 0.0001	0.002	< 0.01	< 0.01	0.008
	14-Jan-21	< 0.001	0.008	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	0.025	0.56	< 0.001	0.006	< 0.0001	0.004	< 0.01	< 0.01	0.018
	16-Feb-21	< 0.001	0.008	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	0.018	0.59	< 0.001	0.008	< 0.0001	0.007	< 0.01	< 0.01	0.03
	17-Mar-21	< 0.001	0.01	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	0.2	< 0.001	0.002	< 0.0001	0.003	< 0.01	< 0.01	0.014
	19-Aug-21	0.001	0.009	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	< 0.001	0.62	< 0.001	0.003	< 0.0001	0.004	< 0.01	< 0.01	0.047
	22-Sep-21	< 0.001	0.007	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	0.72	< 0.001	0.003	< 0.0001	0.004	< 0.01	< 0.01	0.042
	13-Oct-21	< 0.001	0.007	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	0.69	< 0.001	0.005	< 0.0001	0.002	< 0.01	< 0.01	0.037
	16-Nov-21	< 0.001	0.005	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	< 0.001	0.92	< 0.001	0.002	< 0.0001	0.004	< 0.01	< 0.01	0.036
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	0.92	-	0.003	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	1.06	-	0.003	-	-	-	-	-
	24-Feb-22	< 0.001	0.007	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	< 0.001	1.25	< 0.001	0.003	< 0.0001	0.004	< 0.01	< 0.01	0.036
	06-Mar-22	< 0.001	0.004	-	-	-	0.002	-	< 0.001	1.27	-	-	-	0.002	-	-	0.028
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	1.06	-	0.004	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	1.06	-	0.004	-	-	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	1.24	-	0.004	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	1.03	-	0.004	-	-	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	1.14	-	0.004	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	1.14	-	0.003	-	-	-	-	-
	18-Nov-22	< 0.001	0.002	-	-	-	0.003	< 0.001	< 0.001	1.06	-	0.003	-	0.003	-	-	0.042
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	0.96	-	0.003	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	0.86	-	0.003	-	-	-	-	-
	15-Feb-23	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	0.003	< 0.001	0.008	0.91	< 0.001	0.003	< 0.0001	0.005	< 0.01	< 0.01	0.076
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	0.99	-	0.002	-	-	-	-	-
	18-Apr-23	0.001	0.001	< 0.001	< 0.05	< 0.0001	0.004	< 0.001	< 0.001	1.07	< 0.001	0.003	< 0.0001	0.002	< 0.01	< 0.01	0.029
	16-May-23	< 0.001	0.002	-	-	-	0.003	-	0.001	1.04	-	-	-	0.003	-	-	0.065
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	0.59	-	0.001	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	0.86	-	0.002	-	-	-	-	-
	14-Aug-23	< 0.001	0.002	-	-	-	0.003	-	0.001	0.88	-	0.004	-	0.002	-	-	0.081
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	0.78	-	0.002	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	0.66	-	0.003	-	-	-	-	-
BH12	16-Nov-20	< 0.001	-	-	-	< 0.0001	0.002	-	0.002	-	< 0.001	-	< 0.0001	0.002	-	-	0.017
	24-Feb-22	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	0.33	< 0.001	0.006	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH12A	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	**0.003**	**3.64**	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.015**
	14-Aug-23	< 0.001	**0.006**	-	-	-	< 0.001	-	**0.001**	< 0.05	-	**0.006**	-	< 0.001	-	-	**0.025**
BH1A	15-Feb-23	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.013**
	14-Aug-23	< 0.001	**0.003**	-	-	-	**0.003**	-	**0.004**	**0.45**	-	**0.011**	-	< 0.001	-	-	**0.015**
BH2	22-Feb-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.14**	< 0.001	**0.021**	< 0.0001	**0.015**	< 0.01	< 0.01	**0.006**
	15-Mar-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	< 0.05	< 0.001	**0.02**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	23-Apr-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.004**	**0.19**	< 0.001	**0.018**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.008**
	16-May-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.06**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.004**	**0.08**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Jul-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**0.05**	< 0.001	**0.013**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.006**
	15-Aug-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.08**	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**0.26**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.007**
	15-Oct-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	-	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	18-Nov-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	**0.08**	< 0.001	**0.011**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.028**
	16-Sep-20	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	**0.07**	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	< 0.05	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-20	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.02**	**0.36**	< 0.001	**0.015**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.018**
	16-Dec-20	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	< 0.05	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	< 0.05	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Feb-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.021**	< 0.05	< 0.001	**0.009**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.017**
	17-Mar-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.003**	< 0.05	< 0.001	**0.016**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	19-Aug-21	< 0.001	**0.003**	-	-	-	< 0.001	-	**0.007**	< 0.05	-	**0.015**	-	< 0.001	-	-	< 0.005
	22-Sep-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.013**	-	-	-	-	-
	13-Oct-21	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.012**	-	-	-	-	-
	16-Nov-21	< 0.001	**0.003**	-	-	-	< 0.001	-	**0.006**	< 0.05	-	-	-	< 0.001	-	-	< 0.005
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.05**	-	**0.008**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.49**	-	**0.012**	-	-	-	-	-
	24-Feb-22	**0.002**	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	< 0.05	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.01**	-	-	-	-	-
	12-Apr-22	**0.001**	-	-	-	-	-	-	-	**0.25**	-	**0.009**	-	-	-	-	-
	27-May-22	< 0.001	**0.002**	-	-	-	< 0.001	-	**0.004**	< 0.05	-	-	-	< 0.001	-	-	**0.005**
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.007**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.008**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.005**	-	-	-	< 0.001	-	**0.012**	< 0.05	-	-	-	**0.001**	-	-	**0.169**
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.009**	-	-	-	-	**0.125**
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.005**	-	-	-	-	**0.086**
	18-Nov-22	< 0.001	**0.004**	-	-	-	< 0.001	**0.001**	**0.002**	**0.14**	-	**0.005**	-	< 0.001	-	-	**0.086**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.004**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.005**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	< 0.05	< 0.001	**0.002**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.048**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.003**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.003**	< 0.001	**0.05**	< 0.0001	< 0.001	< 0.001	**0.003**	**0.09**	< 0.001	**0.004**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.039**
	16-May-23	< 0.001	**0.002**	-	-	-	< 0.001	-	**0.004**	**0.08**	-	-	-	**0.001**	-	-	**0.05**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.002**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.007**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.004**	-	-	-	< 0.001	-	**0.008**	**0.18**	-	**0.009**	-	< 0.001	-	-	**0.164**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.06**	-	**0.005**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.11**	-	**0.007**	-	-	-	-	-
BH3	21-Feb-19	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.06**	< 0.001	**0.005**	< 0.0001	**0.053**	< 0.01	< 0.01	< 0.005

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH4	21-Feb-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.16**	< 0.001	**0.039**	< 0.0001	**0.018**	< 0.01	< 0.01	**0.014**
	15-Mar-19	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	< 0.05	< 0.001	**0.014**	< 0.0001	**0.022**	< 0.01	< 0.01	**0.043**
	23-Apr-19	< 0.001	**0.013**	< 0.001	**0.05**	< 0.0001	< 0.001	< 0.001	**0.002**	**0.99**	< 0.001	**0.045**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.008**
	16-May-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.27**	< 0.001	**0.022**	< 0.0001	**0.022**	< 0.01	< 0.01	**0.011**
	14-Jun-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.038**	< 0.05	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.005**
	16-Jul-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.046**	< 0.05	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	15-Aug-19	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	< 0.05	< 0.001	**0.018**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.007**
	16-Sep-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.051**	**0.19**	< 0.001	**0.026**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.005**
	15-Oct-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	-	< 0.001	**0.136**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.014**
	18-Nov-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	< 0.05	< 0.001	**0.013**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.078**	**0.06**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	**0.25**	< 0.001	**0.021**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.018**
	16-Nov-20	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.005**	**0.18**	< 0.001	**0.008**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	16-Dec-20	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.46**	< 0.001	**0.027**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.27**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	16-Feb-21	< 0.001	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**0.94**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.008**
	17-Mar-21	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.006**	**1.39**	< 0.001	**0.029**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.019**
	19-Aug-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.198**	**0.14**	< 0.001	**0.022**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.013**
	22-Sep-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.172**	**0.1**	< 0.001	**0.02**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	13-Oct-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.026**	**1.65**	< 0.001	**0.019**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.38**	< 0.001	**0.021**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.006**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.69**	-	**0.016**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.52**	-	**0.018**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.62**	< 0.001	**0.017**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.008**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.018**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.017**	-	-	-	-	-
	27-May-22	< 0.001	**0.011**	-	-	-	< 0.001	-	**0.097**	< 0.05	-	-	-	< 0.001	-	-	< 0.005
	17-Jun-22	< 0.001	-	-	-	-	-	-	**0.082**	< 0.05	-	**0.014**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.09**	-	**0.014**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.013**	-	-	-	< 0.001	-	**0.05**	< 0.05	-	-	-	< 0.001	-	-	**0.013**
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.11**	-	**0.014**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.19**	-	**0.016**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.012**	-	-	-	< 0.001	< 0.001	**0.006**	**0.13**	-	**0.016**	-	< 0.001	-	-	**0.011**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.14**	-	**0.015**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.12**	-	**0.022**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.012**	**0.06**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.015**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.022**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.059**	**0.05**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.008**
	16-May-23	< 0.001	**0.008**	-	-	-	< 0.001	-	**0.135**	**0.09**	-	-	-	< 0.001	-	-	**0.017**
	14-Jun-23	< 0.001	-	-	-	-	-	-	**0.067**	< 0.05	-	**0.009**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.06**	-	**0.013**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.009**	-	-	-	< 0.001	-	**0.119**	**0.09**	-	**0.015**	-	< 0.001	-	-	**0.028**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.13**	-	**0.013**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.013**	-	-	-	-	-
BH5	22-Feb-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.4**	< 0.001	**0.005**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.008**
	24-Feb-22	< 0.001	**0.024**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.64**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Feb-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.47**	< 0.001	**0.002**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.018**

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH6	22-Feb-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.03**	< 0.001	**0.014**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.019**
	14-Mar-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.9**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.012**
	23-Apr-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.96**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.022**
	16-May-19	< 0.001	**0.029**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**2.57**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.027**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**2.86**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.008**
	16-Jul-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**2.41**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.005**
	15-Aug-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**2.19**	< 0.001	**0.008**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	16-Sep-19	< 0.001	**0.034**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.008**	**2.08**	< 0.001	**0.012**	< 0.0001	**0.007**	< 0.01	< 0.01	**0.035**
	15-Oct-19	< 0.001	**0.026**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	-	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	18-Nov-19	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.58**	< 0.001	**0.009**	< 0.0001	**0.008**	< 0.01	< 0.01	**0.073**
	16-Sep-20	< 0.001	**0.047**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.002**	**1.78**	< 0.001	**0.01**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.04**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.84**	< 0.001	**0.011**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	16-Nov-20	< 0.001	**0.061**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.72**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.01**
	16-Dec-20	< 0.001	**0.07**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.64**	< 0.001	**0.014**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.007**
	14-Jan-21	< 0.001	**0.054**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.011**	**1.06**	< 0.001	**0.014**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.025**
	16-Feb-21	< 0.001	**0.048**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.013**	**1.18**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.012**
	17-Mar-21	< 0.001	**0.068**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**1.39**	< 0.001	**0.012**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	19-Aug-21	**0.005**	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	22-Sep-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.005**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	13-Oct-21	**0.002**	**0.014**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Nov-21	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.83**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.66**	-	**0.002**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.7**	-	**0.003**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.55**	< 0.001	**0.001**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.031**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.81**	-	**0.002**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**3.24**	-	**0.016**	-	-	-	-	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**3.45**	-	-	-	< 0.001	-	-	< 0.005
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**2.7**	-	**0.005**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**2.38**	-	**0.001**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.008**	-	-	-	< 0.001	-	< 0.001	**2.38**	-	-	-	< 0.001	-	-	**0.008**
	16-Sep-22	**0.001**	-	-	-	-	-	-	-	**3.45**	-	**0.002**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**3.44**	-	**0.002**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.009**	-	-	-	< 0.001	< 0.001	< 0.001	**4.39**	-	**0.006**	-	**0.002**	-	-	**0.005**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**3.23**	-	**0.012**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**3.61**	-	**0.014**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	**3.82**	< 0.001	**0.009**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.032**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**4.97**	-	**0.006**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**4.13**	< 0.001	**0.003**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-May-23	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**4.56**	-	-	-	< 0.001	-	-	**0.024**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**5.53**	-	< 0.001	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**6.78**	-	**0.005**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.008**	-	-	-	< 0.001	-	**0.001**	**6.34**	-	**0.006**	-	< 0.001	-	-	**0.062**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**4.68**	-	**0.004**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**4.27**	-	**0.006**	-	-	-	-	-

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH7	22-Feb-19	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**1.8**	< 0.001	**0.026**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.019**
	14-Mar-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.003**	< 0.001	**1.8**	< 0.001	**0.02**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.009**
	23-Apr-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.0**	< 0.001	**0.026**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.01**
	16-May-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.32**	< 0.001	**0.035**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.013**
	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**2.06**	< 0.001	**0.03**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.006**
	16-Jul-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.66**	< 0.001	**0.025**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	15-Aug-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.54**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	16-Sep-19	< 0.001	**0.016**	< 0.001	**0.06**	< 0.0001	**0.002**	**0.002**	**0.007**	**1.42**	**0.001**	**0.024**	< 0.0001	**0.02**	< 0.01	< 0.01	**0.085**
	15-Oct-19	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.003**	-	< 0.001	**0.018**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.011**
	18-Nov-19	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.1**	< 0.001	**0.015**	< 0.0001	**0.013**	< 0.01	< 0.01	**0.053**
	16-Sep-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.67**	< 0.001	**0.021**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.49**	< 0.001	**0.015**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.015**
	16-Nov-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**1.72**	< 0.001	**0.023**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	16-Dec-20	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	< 0.001	**1.79**	< 0.001	**0.024**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.004**	**1.65**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.017**
	16-Feb-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.002**	**0.002**	**1.74**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.013**
	17-Mar-21	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	< 0.001	**2.28**	< 0.001	**0.028**	< 0.0001	**0.005**	< 0.01	< 0.01	< 0.005
	19-Aug-21	**0.003**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**	**0.001**	< 0.001	**0.79**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	22-Sep-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.62**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	13-Oct-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.69**	**0.002**	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Nov-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.39**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.007**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.47**	-	**0.002**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.45**	-	**0.002**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.003**	< 0.001	< 0.001	**0.66**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.45**	-	**0.003**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.43**	-	**0.004**	-	-	-	-	-
	27-May-22	< 0.001	**0.003**	-	-	-	**0.003**	-	< 0.001	**0.52**	-	-	-	**0.002**	-	-	**0.005**
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.004**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.51**	-	**0.004**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.003**	-	-	-	**0.002**	-	**0.003**	**0.56**	-	-	-	**0.002**	-	-	< 0.005
	16-Sep-22	**0.001**	-	-	-	-	-	-	-	**0.54**	-	**0.004**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.5**	-	**0.003**	-	-	-	-	-
	18-Nov-22	**0.001**	**0.002**	-	-	-	**0.002**	< 0.001	< 0.001	**0.43**	-	**0.001**	-	**0.001**	-	-	**0.009**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.32**	-	**0.002**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.002**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.31**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.011**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.34**	-	**0.003**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.46**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	16-May-23	< 0.001	**0.002**	-	-	-	**0.002**	-	**0.001**	**0.47**	-	-	-	**0.002**	-	-	**0.025**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.003**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.53**	-	**0.004**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.002**	-	**0.003**	**0.41**	-	**0.003**	-	**0.002**	-	-	**0.024**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.55**	-	**0.004**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.53**	-	**0.004**	-	-	-	-	-

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
BH8	21-Feb-19	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**4.1**	< 0.001	**0.012**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.005**
	14-Mar-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.25**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	23-Apr-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.2**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.008**
	16-May-19	**0.003**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.0**	< 0.001	**0.01**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.5**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	16-Jul-19	**0.001**	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**2.6**	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Aug-19	**0.001**	**0.008**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**1.72**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-Sep-19	**0.001**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**2.06**	< 0.001	**0.005**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Oct-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	-	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	18-Nov-19	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**2.49**	< 0.001	**0.01**	< 0.0001	**0.013**	< 0.01	< 0.01	**0.053**
	16-Sep-20	< 0.001	**0.014**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.035**	**3.35**	**0.001**	**0.009**	< 0.0001	**0.009**	< 0.01	< 0.01	**0.039**
	16-Oct-20	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.03**	< 0.001	**0.007**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.012**
	16-Nov-20	< 0.001	**0.013**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**3.48**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Dec-20	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.001**	**2.98**	< 0.001	**0.01**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.002**	**2.71**	< 0.001	**0.01**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.009**
	16-Feb-21	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.004**	**2.99**	< 0.001	**0.01**	< 0.0001	**0.006**	< 0.01	< 0.01	**0.013**
	17-Mar-21	< 0.001	**0.012**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**3.86**	< 0.001	**0.01**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	19-Aug-21	**0.003**	**0.008**	-	-	-	**0.002**	-	< 0.001	**3.72**	-	-	-	**0.002**	-	-	< 0.005
	16-Nov-21	**0.001**	**0.01**	-	-	-	**0.002**	-	< 0.001	**4.23**	-	-	-	**0.002**	-	-	< 0.005
	16-Dec-21	-	-	-	-	-	-	-	-	**3.78**	-	-	-	-	-	-	-
	24-Feb-22	**0.001**	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**2.98**	< 0.001	**0.007**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.012**
	27-May-22	**0.001**	**0.004**	-	-	-	**0.002**	-	< 0.001	**1.1**	-	-	-	**0.001**	-	-	< 0.005
	12-Aug-22	**0.001**	**0.006**	-	-	-	**0.002**	-	< 0.001	**1.54**	-	-	-	**0.001**	-	-	**0.007**
	18-Nov-22	**0.002**	**0.004**	-	-	-	**0.002**	< 0.001	< 0.001	**1.16**	-	**0.001**	-	< 0.001	-	-	**0.008**
	15-Feb-23	**0.001**	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.96**	< 0.001	**0.002**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.034**
	16-May-23	**0.002**	**0.004**	-	-	-	**0.003**	-	< 0.001	**1.37**	-	-	-	**0.001**	-	-	**0.015**
	14-Aug-23	**0.002**	**0.005**	-	-	-	**0.003**	-	< 0.001	**1.78**	-	**0.006**	-	**0.001**	-	-	**0.024**
BH9	16-Nov-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.014**	-	-	-	-	-
BH9A	16-Sep-20	< 0.001	**0.028**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.004**	**0.14**	< 0.001	**0.076**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.02**
	16-Oct-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.06**	< 0.001	**0.042**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.016**
	16-Nov-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.11**	< 0.001	**0.03**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	16-Dec-20	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.31**	< 0.001	**0.024**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	14-Jan-21	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.017**	**0.14**	< 0.001	**0.025**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.011**
	16-Feb-21	< 0.001	**0.001**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.35**	< 0.001	**0.024**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	17-Mar-21	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.27**	< 0.001	**0.024**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	19-Aug-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.26**	< 0.001	**0.03**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.006**
	22-Sep-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.32**	< 0.001	**0.027**	< 0.0001	**0.003**	< 0.01	< 0.01	< 0.005
	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**0.51**	< 0.001	**0.033**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.021**
	16-Nov-21	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.33**	< 0.001	**0.025**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.031**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.025**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.03**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	< 0.001	**0.5**	< 0.001	**0.042**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.006**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.32**	-	**0.036**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.038**	-	-	-	-	-
	27-May-22	< 0.001	**0.007**	-	-	-	< 0.001	-	< 0.001	**0.35**	-	-	-	**0.003**	-	-	< 0.005
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.42**	-	**0.032**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.16**	-	**0.019**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.009**	-	-	-	< 0.001	-	**0.004**	**0.53**	-	-	-	**0.004**	-	-	**0.008**
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.54**	-	**0.031**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.022**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.007**	-	-	-	< 0.001	< 0.001	< 0.001	**0.56**	-	**0.034**	-	**0.002**	-	-	**0.012**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.18**	-	**0.023**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.49**	-	**0.035**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.001**	**0.61**	< 0.001	**0.041**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.015**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.02**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.004**	**0.5**	< 0.001	**0.033**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.038**
	16-May-23	< 0.001	**0.004**	-	-	-	< 0.001	-	< 0.001	**0.26**	-	-	-	**0.002**	-	-	**0.029**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.16**	-	**0.013**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.67**	-	**0.045**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.006**	-	-	-	< 0.001	-	**0.003**	**0.63**	-	**0.041**	-	**0.003**	-	-	**0.038**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.21**	-	**0.023**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.63**	-	**0.051**	-	-	-	-	-

Table 3
Groundwater Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Groundwater		0.003	0.07	0.002	0.1	0.0002	0.004	0.006	0.083	4.1	0.001	0.136	0.0001	0.02	0.01	0.01	0.085
Sample Name	Sample Date																
MW239S	22-Feb-19	< 0.001	**0.007**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.11**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.006**
	14-Mar-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.25**	< 0.001	**0.005**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.008**
	23-Apr-19	< 0.001	**0.008**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.01**	< 0.001	**0.004**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.007**
	16-May-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jun-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.8**	< 0.001	**0.003**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-Jul-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.87**	< 0.001	**0.003**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	15-Aug-19	< 0.001	**0.006**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.0**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.94**	< 0.001	**0.006**	< 0.0001	**0.006**	< 0.01	< 0.01	**0.032**
	15-Oct-19	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.003**	-	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	18-Nov-19	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.1**	< 0.001	**0.004**	< 0.0001	**0.008**	< 0.01	< 0.01	**0.03**
	16-Sep-20	< 0.001	**0.016**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.002**	**0.51**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	16-Oct-20	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.17**	< 0.001	**0.009**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.005**
	16-Nov-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	**0.001**	**0.3**	< 0.001	**0.011**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.021**
	16-Dec-20	< 0.001	**0.01**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**1.06**	< 0.001	**0.011**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jan-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	**0.005**	**0.77**	< 0.001	**0.012**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.011**
	16-Feb-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	**0.01**	**0.92**	< 0.001	**0.012**	< 0.0001	**0.009**	< 0.01	< 0.01	**0.014**
	17-Mar-21	< 0.001	**0.011**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.95**	< 0.001	**0.01**	< 0.0001	**0.004**	< 0.01	< 0.01	**0.009**
	19-Aug-21	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.53**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	22-Sep-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.65**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.005**
	13-Oct-21	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.79**	< 0.001	**0.008**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.016**
	16-Nov-21	< 0.001	**0.005**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.68**	< 0.001	**0.006**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.77**	-	**0.005**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.003**	-	-	-	-	-
	24-Feb-22	< 0.001	**0.004**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.55**	< 0.001	**0.004**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.006**
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.48**	-	**0.005**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.93**	-	**0.007**	-	-	-	-	-
	27-May-22	< 0.001	**0.004**	-	-	-	**0.002**	-	< 0.001	**0.56**	-	-	-	**0.001**	-	-	**0.009**
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.36**	-	**0.004**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.43**	-	**0.004**	-	-	-	-	-
	12-Aug-22	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.4**	-	-	-	**0.001**	-	-	< 0.005
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.006**	-	-	-	-	-
	24-Oct-22	< 0.001	-	-	-	-	-	-	-	**0.38**	-	**0.004**	-	-	-	-	-
	18-Nov-22	< 0.001	**0.003**	-	-	-	**0.001**	< 0.001	< 0.001	**0.28**	-	**0.002**	-	**0.002**	-	-	**0.006**
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.26**	-	**0.003**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.003**	-	-	-	-	-
	15-Feb-23	< 0.001	**0.003**	< 0.001	< 0.05	< 0.0001	**0.001**	< 0.001	< 0.001	**0.17**	< 0.001	**0.004**	< 0.0001	**0.001**	< 0.01	< 0.01	**0.019**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.004**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.002**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**0.27**	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.006**
	16-May-23	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.21**	-	-	-	**0.002**	-	-	**0.027**
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.004**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.25**	-	**0.005**	-	-	-	-	-
	14-Aug-23	< 0.001	**0.002**	-	-	-	**0.002**	-	< 0.001	**0.28**	-	**0.004**	-	**0.001**	-	-	**0.013**
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.3**	-	**0.004**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.22**	-	**0.005**	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids					
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
BH1	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH11	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	06-Mar-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH12	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH12A	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH1A	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH2	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH3	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH4	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH5	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids					
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
BH6	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH7	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
BH8	21-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Mar-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Apr-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Jul-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Aug-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Oct-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids					
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
BH9A	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
MW239S	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
BH1	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH11	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	06-Mar-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH12	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.07**	< 0.05	< 0.05	< 0.01	**0.07**	**0.07**
BH12A	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH1A	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH2	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH3	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH4	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	**0.02**	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	**0.02**
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.15**	< 0.05	< 0.05	< 0.01	**0.15**	**0.15**
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.06**	< 0.05	< 0.05	< 0.01	**0.06**	**0.06**
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	**0.05**	< 0.05	< 0.05	< 0.01	**0.05**	**0.05**
	14-Jun-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH5	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
BH6	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH7	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
BH8	21-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Mar-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Apr-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jun-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Jul-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Aug-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Oct-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Table 4
Groundwater Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Groundwater		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
BH9A	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
MW239S	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of report
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Manager

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																	
SW1	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
SW2	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	22-Sep-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	13-Oct-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
SW3	22-Feb-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Mar-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	**2.0**	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	**2.0**	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	23-Apr-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-May-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	14-Jun-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Jul-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Aug-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	< 50	< 100	< 50	< 50	-	-	-	-
	16-Sep-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Oct-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-19	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		BTEXN								Total Petroleum Hydrocarbons					Total Petroleum Hydrocarbons - Silica Clean-up			
		Benzene	Toluene	Ethylbenzene	meta- & para-Xylene	ortho-Xylene	Total Xylenes	Naphthalene	Sum of BTEX	C_6 - C_9	C_{10} - C_{14}	C_{15} - C_{28}	C_{29} - C_{36}	C_{10} - C_{36} sum	C_{10}-C_{14} - Silica Cleanup	C_{15}-C_{28} - Silica Cleanup	C_{29}-C_{36} - Silica Cleanup	C_{10}-C_{36} Sum - Silica Cleanup
LOR		1.0	2.0	2.0	2.0	2.0	2.0	5.0	1.0	20	50	100	50	50	50	100	50	50
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SW4	16-Sep-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Oct-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Dec-20	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Jan-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Feb-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	17-Mar-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	19-Aug-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-Nov-21	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	24-Feb-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	27-May-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	12-Aug-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	18-Nov-22	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	15-Feb-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	16-May-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50
	14-Aug-23	< 1.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 5.0	< 1.0	< 20	-	-	-	-	< 50	< 100	< 50	< 50

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenzene, total xylenes, naphthalene
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}	>C_{10} - C_{40} (sum)	>C_{10}-C_{16} - Silica Cleanup	F2 - Silica Cleanup	>C_{16}-C_{34} - Silica Cleanup	>C_{34}-C_{40} - Silica Cleanup	>C_{10}-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		20	20	100	--	100	100	--	--	--	--	--	--
Sample Name	Sample Date												
SW1	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
SW2	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	22-Sep-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	13-Oct-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
SW3	22-Feb-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Mar-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	23-Apr-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-May-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	14-Jun-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Jul-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Aug-19	< 20	< 20	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-
	16-Sep-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Oct-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-19	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Table 5
Surface Water Analytical Results - Hydrocarbons
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Total Recoverable Hydrocarbons							Total Recoverable Hydrocarbons - Silica Clean-up				
		C_6 - C_{10}	C_6 - C_{10} minus BTEX (F1)	>C_{10} - C_{16}	>C_{10} - C_{16} minus Naphthalene (F2)	>C_{16} - C_{34}	>C_{34} - C_{40}	>C_{10} - C_{40} (sum)	>C_{10}-C_{16} - Silica Cleanup	F2 - Silica Cleanup	>C_{16}-C_{34} - Silica Cleanup	>C_{34}-C_{40} - Silica Cleanup	>C_{10}-C_{40} - Silica Cleanup
LOR		20	20	100	100	100	100	100	100	100	100	100	100
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		20	20	100	--	100	100	--	--	--	--	--	--
	16-Sep-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
SW4	16-Oct-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Dec-20	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Jan-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Feb-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	17-Mar-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	19-Aug-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-Nov-21	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	24-Feb-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	27-May-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	12-Aug-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	18-Nov-22	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	15-Feb-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	16-May-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100
	14-Aug-23	< 20	< 20	-	-	-	-	-	< 100	< 100	< 100	< 100	< 100

Notes:
- - Not analysed
< - Less than laboratory limit of repor
µg/L - Micrograms per litre
BTEXN - Benzene, toluene, ethylbenze
Bold indicates a detection above the

Criteria:
SWMP 2021 - Soil and Water Manager

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																					Anions and Cations	
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Sulphate	Sulphate	Chloride	Chloride	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	1.0	10	5.0	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Units		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
WSS - Surface Water		142	40	52	8.0	324	324	324	234	234	234	0.8	--	--	0.17	--	--	--	--	--	--	0.2	5.9	--
Sample Name	Sample Date																							
SW1	23-Apr-19	94	34	52	6.0	310	-	-	95	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	86	24	42	6.0	324	-	-	112	-	-	0.3	-	< 0.01	0.13	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	1.8	1.8
	14-Jun-19	77	20	34	5.0	-	182	-	-	112	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	90	20	35	4.0	240	-	-	130	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	97	18	32	4.0	212	-	-	134	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	117	21	39	4.0	244	-	-	193	-	-	0.7	-	< 0.01	0.05	-	< 0.01	-	0.02	0.02	< 0.01	-	1.2	1.2
	15-Oct-19	124	16	31	3.0	-	-	127	-	-	191	0.6	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	142	14	30	4.0	165	-	-	234	-	-	0.5	0.02	< 0.01	-	-	< 0.01	< 0.01	-	< 0.01	-	0.03	1.1	1.1
	16-Sep-20	9.0	16	3.0	3.0	< 1.0	-	-	< 1.0	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	12	40	4.0	4.0	< 1.0	-	-	16	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	8.0	13	2.0	3.0	< 1.0	-	-	10	-	-	< 0.1	-	< 0.01	0.03	-	< 0.01	-	0.04	0.04	-	< 0.01	0.6	0.6
	16-Dec-20	10	19	2.0	3.0	5.0	-	-	12	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	10	18	2.0	3.0	< 1.0	-	-	13	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	10	15	2.0	3.0	< 1.0	-	-	12	-	-	0.1	-	< 0.01	0.02	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	0.5	0.5
	17-Mar-21	10	15	2.0	2.0	< 1.0	-	-	13	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	6.0	9.0	2.0	2.0	< 1.0	-	-	10	-	-	< 0.1	-	-	0.11	< 0.01	-	< 0.01	-	< 0.01	0.02	-	1.0	1.0
	27-May-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	15	10	2.0	< 1.0	6.0	-	-	22	-	-	0.1	-	0.06	0.06	-	< 0.01	-	< 0.01	< 0.01	-	0.03	1.1	1.1
	16-May-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW2	17-Mar-21	12	2.0	2.0	< 1.0	6.0	-	-	16	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	12	< 1.0	1.0	< 1.0	6.0	-	-	22	-	-	< 0.1	-	< 0.01	0.07	-	< 0.01	-	< 0.01	< 0.01	-	0.17	1.2	1.2
	22-Sep-21	14	2.0	2.0	2.0	16	-	-	30	-	-	0.1	-	< 0.01	0.08	-	< 0.01	-	1.77	1.77	-	< 0.01	3.0	1.2
	13-Oct-21	10	< 1.0	1.0	< 1.0	6.0	-	-	18	-	-	< 0.1	-	< 0.01	0.03	-	< 0.01	-	0.02	0.02	-	< 0.01	0.6	0.6
	16-Nov-21	10	2.0	2.0	< 1.0	7.0	-	-	16	-	-	0.1	-	< 0.01	0.09	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	1.8	1.8
	24-Feb-22	10	1.0	1.0	< 1.0	2.0	-	-	21	-	-	0.1	-	-	0.63	< 0.01	-	< 0.01	-	< 0.01	0.31	-	7.5	7.5
	17-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.01	-	-	-	-	0.04	-	0.13	0.4	0.4
	27-May-22	-	-	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	14	2.0	3.0	< 1.0	6.0	-	-	36	-	-	0.4	-	< 0.01	0.16	-	< 0.01	-	< 0.01	< 0.01	-	0.05	5.4	5.4
	16-May-23	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW3	22-Feb-19	40	4.0	4.0	1.0	16	-	-	82	-	-	< 0.1	-	< 0.01	0.06	-	< 0.01	-	< 0.01	< 0.01	0.16	-	1.0	1.0
	14-Mar-19	45	6.0	6.0	2.0	44	-	-	64	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	23-Apr-19	37	8.0	6.0	1.0	42	-	-	53	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	35	7.0	5.0	< 1.0	34	-	-	54	-	-	< 0.1	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	0.1	0.1
	14-Jun-19	32	7.0	6.0	< 1.0	41	-	-	55	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	46	8.0	12	< 1.0	104	-	-	57	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	38	6.0	7.0	< 1.0	54	-	-	56	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	42	7.0	8.0	< 1.0	48	-	-	57	-	-	0.1	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	0.01	-	0.1	0.1
	15-Oct-19	40	5.0	7.0	< 1.0	42	-	-	57	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	36	5.0	5.0	< 1.0	29	-	-	56	-	-	< 0.1	0.04	< 0.01	-	-	< 0.01	0.01	-	0.01	-	0.03	0.6	0.6
	16-Sep-20	39	3.0	8.0	< 1.0	65	-	-	55	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	40	4.0	6.0	< 1.0	40	-	-	63	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	34	2.0	5.0	< 1.0	67	-	-	53	-	-	< 0.1	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	0.3	0.3
	16-Dec-20	36	1.0	5.0	1.0	27	-	-	61	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	27	< 1.0	2.0	< 1.0	26	-	-	54	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	30	2.0	3.0	< 1.0	21	-	-	56	-	-	< 0.1	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	0.5	0.5
	17-Mar-21	29	< 1.0	2.0	< 1.0	15	-	-	51	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	27	< 1.0	2.0	< 1.0	8.0	-	-	53	-	-	< 0.1	-	-	0.03	< 0.01	-	< 0.01	-	< 0.01	0.02	-	0.9	0.9
	27-May-22	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	33	< 1.0	2.0	1.0	20	-	-	76	-	-	< 0.1	-	< 0.01	< 0.01	-	0.02	-	< 0.01	0.02	-	0.21	2.8	2.8
	16-May-23	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Anions and Cations																					Anions and Cations	
		Sodium	Calcium	Magnesium	Potassium	Sulphate	Sulphate	Sulphate	Chloride	Chloride	Chloride	Fluoride	Phosphorus	Reactive phosphorus as P	Total Phosphorus	Nitrite	Nitrite as N	Nitrate	Nitrate as N	Nitrite + Nitrate as N	Ammonia as N	Total Ammonia as Nitrogen	Total Nitrogen as N	Total Kjeldahl Nitrogen as N
LOR		1.0	1.0	1.0	1.0	1.0	10	5.0	1.0	10	5.0	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Units		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
WSS - Surface Water		142	40	52	8.0	324	324	324	234	234	234	0.8	--	--	0.17	--	--	--	--	--	--	0.2	5.9	--
SW4	23-Apr-19	**39**	**5.0**	**5.0**	< 1.0	**60**	-	-	**64**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-May-19	**41**	**5.0**	**5.0**	< 1.0	**41**	-	-	**59**	-	-	< 0.1	-	**0.01**	< 0.01	-	< 0.01	-	**0.05**	**0.05**	< 0.01	-	**0.2**	**0.2**
	14-Jun-19	**40**	**5.0**	**5.0**	< 1.0	**39**	-	-	**60**	-	-	< 0.1	-	-	-	-	-	-	-	-	-	-	-	-
	16-Jul-19	**46**	**7.0**	**7.0**	< 1.0	**67**	-	-	**56**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	15-Aug-19	**40**	**5.0**	**5.0**	< 1.0	**43**	-	-	**55**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Sep-19	**45**	**7.0**	**6.0**	< 1.0	**45**	-	-	**58**	-	-	**0.1**	-	< 0.01	**0.01**	-	< 0.01	-	< 0.01	< 0.01	< 0.01	-	**0.1**	**0.1**
	15-Oct-19	**44**	**6.0**	**6.0**	< 1.0	**38**	-	-	**57**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-19	**41**	**4.0**	**5.0**	< 1.0	**41**	-	-	**64**	-	-	**0.2**	< 0.01	< 0.01	-	-	< 0.01	**0.02**	-	**0.02**	-	< 0.01	**0.2**	**0.2**
	16-Sep-20	**45**	**6.0**	**7.0**	< 1.0	**58**	-	-	**59**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Oct-20	**43**	**5.0**	**5.0**	< 1.0	**40**	-	-	**67**	-	-	**0.1**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-20	**37**	**8.0**	**6.0**	**2.0**	**42**	-	-	**54**	-	-	**0.2**	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	< 0.01	**0.1**	**0.1**
	16-Dec-20	**43**	**4.0**	**4.0**	**2.0**	**24**	-	-	**70**	-	-	**0.2**	-	-	-	-	-	-	-	-	-	-	-	-
	14-Jan-21	**36**	**16**	**4.0**	**2.0**	**15**	-	-	**58**	-	-	**0.8**	-	-	-	-	-	-	-	-	-	-	-	-
	16-Feb-21	**37**	**6.0**	**4.0**	**2.0**	**14**	-	-	**61**	-	-	**0.3**	-	< 0.01	**0.03**	-	< 0.01	-	< 0.01	< 0.01	-	**0.02**	**1.2**	**1.2**
	17-Mar-21	**36**	**10**	**4.0**	**2.0**	**10**	-	-	**54**	-	-	**0.4**	-	-	-	-	-	-	-	-	-	-	-	-
	19-Aug-21	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**35**	**3.0**	**4.0**	< 1.0	**27**	-	-	**63**	-	-	< 0.1	-	-	< 0.01	< 0.01	-	< 0.01	-	< 0.01	< 0.01	-	**0.3**	**0.3**
	27-May-22	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	**3.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**34**	**1.0**	**3.0**	< 1.0	**9.0**	-	-	**63**	-	-	< 0.1	-	< 0.01	**0.02**	-	< 0.01	-	< 0.01	< 0.01	-	**0.04**	**0.7**	**0.7**
	16-May-23	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	**4.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sample Name	Sample Date																			
SW1	23-Apr-19	10	9.13	5.6	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	299	-	893	580	707	32	4.01	-	-
	16-May-19	8.94	9.9	5.13	-	2.45	-	< 1.0	< 1.0	< 1.0	< 1.0	233	-	947	616	715	59	4.6	-	-
	14-Jun-19	7.27	6.95	2.28	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	190	-	847	550	512	26	4.5	-	-
	16-Jul-19	7.9	8.66	4.64	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	194	-	876	569	568	17	4.42	-	-
	15-Aug-19	7.85	8.19	2.12	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	177	-	813	528	548	5.0	4.53	-	-
	16-Sep-19	9.45	11	5.38	-	3.49	-	< 1.0	< 1.0	< 1.0	< 1.0	213	-	1,080	702	689	15	4.32	-	-
	15-Oct-19	8.82	8.03	4.68	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	168	-	1,050	682	-	-	5.32	-	-
	18-Nov-19	9.45	10	3.03	-	4.91	-	< 1.0	< 1.0	< 1.0	< 1.0	158	-	1,090	708	-	-	5.06	-	-
	16-Sep-20	1.51	1.1	-	-	-	-	55	< 1.0	< 1.0	55	52	-	137	89	152	8.0	6.5	-	-
	16-Oct-20	2.95	2.69	-	-	-	-	112	< 1.0	< 1.0	112	116	-	268	174	-	-	7.29	-	-
	16-Nov-20	1.24	1.12	-	-	0.54	-	42	< 1.0	< 1.0	42	41	-	127	82	127	< 5.0	6.5	-	-
	16-Dec-20	1.62	1.68	-	-	-	-	62	< 1.0	< 1.0	62	56	-	171	111	-	-	7.01	-	-
	14-Jan-21	1.57	1.46	-	-	-	-	55	< 1.0	< 1.0	55	53	-	154	100	-	-	6.71	-	-
	16-Feb-21	1.42	1.36	-	-	0.64	-	51	< 1.0	< 1.0	51	46	-	141	92	115	6.0	6.93	-	-
	17-Mar-21	1.4	1.26	-	-	-	-	45	< 1.0	< 1.0	45	46	-	139	90	-	-	6.63	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.82	3.3	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	0.92	0.8	-	-	-	26	-	< 1.0	< 1.0	26	31	-	89	58	-	-	6.38	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	1.32	1.36	-	-	1.13	-	31	< 1.0	< 1.0	31	33	-	141	92	-	-	6.59	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW2	17-Mar-21	0.79	0.58	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	83	54	-	-	5.08	-	-
	19-Aug-21	0.6	0.74	-	-	2.25	-	< 1.0	< 1.0	< 1.0	< 1.0	4.0	-	103	67	-	-	4.21	-	-
	22-Sep-21	0.92	1.18	-	-	1.67	-	< 1.0	< 1.0	< 1.0	< 1.0	13	-	235	153	-	-	3.55	-	-
	13-Oct-21	0.52	0.63	-	-	1.88	-	< 1.0	< 1.0	< 1.0	< 1.0	4.0	-	77	50	-	-	4.58	4.7	-
	16-Nov-21	0.7	0.6	-	-	1.2	-	< 1.0	< 1.0	< 1.0	< 1.0	-	13	93	60	-	-	4.39	-	-
	24-Feb-22	0.57	0.63	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	7.0	-	97	63	-	-	4.32	-	< 0.01
	17-Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	0.96	1.14	-	-	1.46	-	< 1.0	< 1.0	< 1.0	< 1.0	17	-	150	98	-	-	4.2	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SW3	22-Feb-19	2.55	2.87	-	-	3.38	-	11	< 1.0	< 1.0	11	26	-	262	170	228	58	6.21	-	-
	14-Mar-19	2.8	2.8	-	-	-	-	4.0	< 1.0	< 1.0	4.0	40	-	344	224	279	34	5.42	-	-
	23-Apr-19	2.53	2.37	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	45	-	220	143	190	9.0	5.2	-	-
	16-May-19	2.28	2.25	-	-	2.47	-	1.0	< 1.0	< 1.0	1.0	38	-	271	176	300	14	5.24	-	-
	14-Jun-19	2.24	2.4	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	42	-	300	195	170	12	4.58	-	-
	16-Jul-19	3.39	3.77	5.38	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	69	-	451	293	246	7.0	4.47	-	-
	15-Aug-19	2.53	2.7	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	44	-	338	220	192	< 5.0	4.47	-	-
	16-Sep-19	2.83	2.61	-	-	2.57	-	< 1.0	< 1.0	< 1.0	< 1.0	50	-	374	243	201	7.0	4.3	-	-
	15-Oct-19	2.56	2.48	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	41	-	383	249	-	-	4.75	-	-
	18-Nov-19	2.23	2.18	-	-	2.72	-	< 1.0	< 1.0	< 1.0	< 1.0	33	-	278	181	-	-	5.39	-	-
	16-Sep-20	3.12	2.9	3.5	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	40	-	402	261	224	6.0	4.41	-	-
	16-Oct-20	2.73	2.61	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	35	-	333	216	-	-	4.15	-	-
	16-Nov-20	2.6	2.89	-	-	2.92	-	< 1.0	< 1.0	< 1.0	< 1.0	26	-	460	299	201	< 5.0	3.95	-	-
	16-Dec-20	2.05	2.3	-	-	-	-	1.0	< 1.0	< 1.0	1.0	23	-	303	197	-	-	4.8	-	-
	14-Jan-21	1.82	2.06	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	8.0	-	301	196	-	-	4.06	-	-
	16-Feb-21	1.65	2.02	-	-	3.13	-	< 1.0	< 1.0	< 1.0	< 1.0	17	-	273	177	172	< 5.0	4.15	-	-
	17-Mar-21	1.43	1.75	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	8.0	-	237	154	-	-	4.65	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	1.34	1.7	-	-	-	2.0	-	< 1.0	< 1.0	2.0	8.0	-	183	119	-	-	4.59	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	2.13	2.56	-	-	4.66	-	< 1.0	< 1.0	< 1.0	< 1.0	8.0	-	247	160	-	-	4.08	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 6
Surface Water - Cations Anions and Inorganics
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte					Anions and Cations		Alkalinity								Inorganics					
		Total Cations	Total Anions	Ionic Balance	Sodium Adsorption Ratio	Sodium Adsorption Ratio	Bicarbonate	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Hydroxide Alkalinity as CaCO3	Total Alkalinity as CaCO3	Total Hardness as CaCO3	Hardness	Electrical Conductivity @ 25°C	Total Dissolved Solids	Total Dissolved Solids	Total suspended solids	pH	Turbidity	Phosphate Total (as P)
LOR		0.01	0.01	0.01	--	0.01	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10	5.0	0.01	0.1	0.01
Units		meq/L	meq/L	%		-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	pH units	NTU	mg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SW4	23-Apr-19	**2.36**	**3.05**	**13**	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**293**	**190**	**198**	< 5.0	**4.0**	-	-
	16-May-19	**2.44**	**2.52**	-	-	**3.1**	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**331**	**215**	**288**	**13**	**4.08**	-	-
	14-Jun-19	**2.4**	**2.5**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**316**	**205**	**163**	< 5.0	**4.31**	-	-
	16-Jul-19	**2.93**	**2.97**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**46**	-	**367**	**238**	**207**	**6.0**	**4.46**	-	-
	15-Aug-19	**2.4**	**2.45**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**308**	**200**	**160**	< 5.0	**4.48**	-	-
	16-Sep-19	**2.8**	**2.57**	-	-	**3.01**	-	< 1.0	< 1.0	< 1.0	< 1.0	**42**	-	**360**	**234**	**208**	< 5.0	**4.47**	-	-
	15-Oct-19	**2.71**	**2.4**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**40**	-	**365**	**237**	-	-	**4.48**	-	-
	18-Nov-19	**2.76**	**2.66**	-	-	**3.22**	-	< 1.0	< 1.0	< 1.0	< 1.0	**30**	-	**348**	**226**	-	-	**4.48**	-	-
	16-Sep-20	**2.83**	**2.87**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**44**	-	**421**	**274**	**228**	< 5.0	**4.16**	-	-
	16-Oct-20	**2.53**	**2.72**	-	-	-	-	< 1.0	< 1.0	< 1.0	< 1.0	**33**	-	**355**	**231**	-	-	**3.94**	-	-
	16-Nov-20	**2.55**	**2.4**	-	-	**2.41**	-	< 1.0	< 1.0	< 1.0	< 1.0	**45**	-	**338**	**220**	**196**	**6.0**	**4.21**	-	-
	16-Dec-20	**2.45**	**2.79**	-	-	-	-	**16**	< 1.0	< 1.0	**16**	**26**	-	**323**	**210**	-	-	**6.15**	-	-
	14-Jan-21	**2.74**	**2.69**	-	-	-	-	**37**	< 1.0	< 1.0	**37**	**56**	-	**316**	**205**	-	-	**6.38**	-	-
	16-Feb-21	**2.29**	**2.15**	-	-	**2.87**	-	**7.0**	< 1.0	< 1.0	**7.0**	**31**	-	**267**	**174**	**240**	**48**	**5.91**	-	-
	17-Mar-21	**2.44**	**2.25**	-	-	-	-	**26**	< 1.0	< 1.0	**26**	**41**	-	**271**	**176**	-	-	**6.23**	-	-
	19-Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	13-Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**5.86**	**8.6**	-
	16-Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	24-Feb-22	**2.0**	**2.34**	-	-	-	< 1.0	-	< 1.0	< 1.0	< 1.0	**24**	-	**275**	**179**	-	-	**3.96**	-	< 0.01
	27-May-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12-Aug-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	18-Nov-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15-Feb-23	**1.78**	**2.02**	-	-	**3.84**	-	**3.0**	< 1.0	< 1.0	**3.0**	**15**	-	**250**	**162**	-	-	**5.44**	-	-
	16-May-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	14-Aug-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of repor
LOR - Laboratory limit of reporting
mg/L - Milligrams per litre
µS/cm - Microsiemens per centimeter
Bold indicates a detection above the
Highlighting indicates an exceedance

Criteria:
SWMP 2021 - Soil and Water Manager

Table 7
Surface Water Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Surface Water		0.006	0.08	0.002	0.1	0.0002	0.004	0.006	0.033	7.25	0.003	0.841	0.0001	0.02	0.01	0.01	0.535
Sample Name	Sample Date																
SW1	23-Apr-19	< 0.001	0.043	< 0.001	0.14	< 0.0001	< 0.001	0.017	0.002	4.16	< 0.001	0.841	< 0.0001	0.02	< 0.01	< 0.01	0.356
	16-May-19	< 0.001	0.029	< 0.001	0.1	< 0.0001	< 0.001	0.01	0.003	7.25	< 0.001	0.666	< 0.0001	0.012	< 0.01	< 0.01	0.077
	14-Jun-19	< 0.001	0.029	< 0.001	0.09	0.0002	< 0.001	0.009	0.006	2.75	< 0.001	0.595	< 0.0001	0.011	< 0.01	< 0.01	0.535
	16-Jul-19	< 0.001	0.032	< 0.001	0.08	0.0001	< 0.001	0.007	0.003	1.86	< 0.001	0.59	< 0.0001	0.008	< 0.01	< 0.01	0.239
	15-Aug-19	< 0.001	0.027	< 0.001	0.09	< 0.0001	< 0.001	0.005	0.003	2.15	< 0.001	0.482	< 0.0001	0.005	< 0.01	< 0.01	0.075
	16-Sep-19	< 0.001	0.056	< 0.001	0.09	0.0002	0.001	0.008	0.012	2.45	0.001	0.587	< 0.0001	0.014	< 0.01	< 0.01	0.282
	15-Oct-19	< 0.001	0.036	< 0.001	0.07	< 0.0001	< 0.001	0.005	0.003	-	< 0.001	0.383	< 0.0001	0.005	< 0.01	< 0.01	0.055
	18-Nov-19	< 0.001	0.042	< 0.001	0.11	< 0.0001	0.001	0.003	< 0.001	1.14	< 0.001	0.366	< 0.0001	0.003	< 0.01	< 0.01	0.026
	16-Sep-20	< 0.001	0.021	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	0.005	0.87	0.001	0.096	< 0.0001	0.002	< 0.01	< 0.01	0.061
	16-Oct-20	0.001	0.021	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	0.001	0.76	< 0.001	0.15	< 0.0001	0.001	< 0.01	< 0.01	0.005
	16-Nov-20	< 0.001	0.02	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	0.005	0.18	< 0.001	0.017	< 0.0001	< 0.001	< 0.01	< 0.01	0.03
	16-Dec-20	< 0.001	0.015	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	0.003	0.18	< 0.001	0.058	< 0.0001	< 0.001	< 0.01	< 0.01	0.013
	14-Jan-21	< 0.001	0.012	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	0.02	0.35	< 0.001	0.04	< 0.0001	0.006	< 0.01	< 0.01	0.037
	16-Feb-21	< 0.001	0.011	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	0.12	< 0.001	0.028	< 0.0001	< 0.001	< 0.01	< 0.01	0.024
	17-Mar-21	< 0.001	0.013	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	0.16	< 0.001	0.036	< 0.0001	< 0.001	< 0.01	< 0.01	0.04
	19-Aug-21	< 0.001	0.011	-	< 0.05	-	0.001	< 0.001	0.002	0.86	-	-	-	0.002	-	-	0.056
	16-Nov-21	< 0.001	0.006	-	< 0.05	-	< 0.001	< 0.001	0.002	1.0	-	-	-	0.001	-	-	0.036
	24-Feb-22	< 0.001	0.01	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	0.12	< 0.001	0.025	< 0.0001	< 0.001	< 0.01	< 0.01	0.014
	27-May-22	< 0.001	0.01	-	< 0.05	-	0.003	0.001	< 0.001	4.39	-	-	-	0.002	-	-	0.047
	12-Aug-22	< 0.001	0.007	-	< 0.05	-	0.003	< 0.001	0.001	2.92	-	-	-	0.002	-	-	0.019
	18-Nov-22	< 0.001	0.01	-	< 0.05	-	< 0.001	0.001	< 0.001	2.89	-	0.038	-	< 0.001	-	-	0.022
	15-Feb-23	< 0.001	0.002	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	0.005	0.51	< 0.001	0.06	< 0.0001	0.001	< 0.01	< 0.01	0.007
	16-May-23	< 0.001	< 0.001	-	< 0.05	-	< 0.001	< 0.001	0.001	0.39	-	-	-	< 0.001	-	-	0.013
	14-Aug-23	< 0.001	0.004	-	< 0.05	-	< 0.001	< 0.001	0.003	0.16	-	0.026	-	< 0.001	-	-	0.013
SW2	17-Mar-21	< 0.001	0.005	< 0.001	< 0.05	< 0.0001	0.001	0.002	< 0.001	0.62	< 0.001	0.11	< 0.0001	0.004	< 0.01	< 0.01	0.097
	19-Aug-21	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	< 0.001	0.001	< 0.001	0.55	< 0.001	0.045	< 0.0001	0.002	< 0.01	< 0.01	0.022
	22-Sep-21	< 0.001	0.007	< 0.001	< 0.05	< 0.0001	< 0.001	0.003	< 0.001	1.11	< 0.001	0.087	< 0.0001	0.005	< 0.01	< 0.01	0.134
	13-Oct-21	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	0.88	< 0.001	0.049	< 0.0001	0.002	< 0.01	< 0.01	0.06
	16-Nov-21	0.001	0.005	< 0.001	< 0.05	< 0.0001	0.001	0.002	< 0.001	5.59	< 0.001	0.064	< 0.0001	0.004	< 0.01	< 0.01	0.083
	24-Feb-22	< 0.001	0.008	< 0.001	< 0.05	< 0.0001	0.002	0.002	< 0.001	16	< 0.001	0.032	< 0.0001	0.006	< 0.01	< 0.01	0.099
	17-Mar-22	-	-	-	-	-	-	-	-	1.62	-	-	-	-	-	-	-
	27-May-22	< 0.001	0.005	-	< 0.05	-	0.001	0.001	< 0.001	1.7	-	-	-	0.002	-	-	0.111
	12-Aug-22	< 0.001	0.005	-	< 0.05	-	0.001	< 0.001	< 0.001	2.79	-	-	-	0.001	-	-	0.09
	18-Nov-22	< 0.001	0.004	-	< 0.05	-	< 0.001	< 0.001	< 0.001	0.45	-	0.011	-	< 0.001	-	-	0.031
	15-Feb-23	< 0.001	0.013	< 0.001	< 0.05	< 0.0001	< 0.001	0.002	0.003	2.37	< 0.001	0.056	< 0.0001	0.004	< 0.01	< 0.01	0.063
	16-May-23	< 0.001	0.018	-	< 0.05	-	< 0.001	0.004	0.003	0.87	-	-	-	0.005	-	-	0.284
	14-Aug-23	< 0.001	0.01	-	< 0.05	-	0.001	0.003	< 0.001	6.48	-	0.061	-	0.004	-	-	0.062
SW3	22-Feb-19	0.003	0.075	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	4.84	< 0.001	0.033	< 0.0001	0.002	< 0.01	< 0.01	0.016
	14-Mar-19	0.006	0.08	< 0.001	< 0.05	< 0.0001	< 0.001	0.003	< 0.001	9.26	< 0.001	0.048	< 0.0001	0.002	< 0.01	< 0.01	0.009
	23-Apr-19	< 0.001	0.043	< 0.001	< 0.05	< 0.0001	< 0.001	0.003	0.001	2.01	< 0.001	0.046	< 0.0001	0.004	< 0.01	< 0.01	0.016
	16-May-19	< 0.001	0.034	< 0.001	< 0.05	< 0.0001	< 0.001	0.002	< 0.001	1.78	< 0.001	0.038	< 0.0001	0.003	< 0.01	< 0.01	0.012
	14-Jun-19	< 0.001	0.035	< 0.001	< 0.05	< 0.0001	< 0.001	0.003	< 0.001	1.68	< 0.001	0.038	< 0.0001	0.003	< 0.01	< 0.01	0.016
	16-Jul-19	< 0.001	0.055	< 0.001	< 0.05	< 0.0001	< 0.001	0.007	0.002	1.25	< 0.001	0.043	< 0.0001	0.006	< 0.01	< 0.01	0.029
	15-Aug-19	< 0.001	0.035	< 0.001	< 0.05	< 0.0001	< 0.001	0.003	0.002	1.16	< 0.001	0.036	< 0.0001	0.003	< 0.01	< 0.01	0.013
	16-Sep-19	< 0.001	0.045	< 0.001	< 0.05	< 0.0001	< 0.001	0.004	0.02	0.69	0.001	0.036	< 0.0001	0.017	< 0.01	< 0.01	0.094
	15-Oct-19	< 0.001	0.034	< 0.001	< 0.05	< 0.0001	< 0.001	0.005	0.002	-	< 0.001	0.027	< 0.0001	0.005	< 0.01	< 0.01	0.022
	18-Nov-19	< 0.001	0.031	< 0.001	< 0.05	< 0.0001	0.001	< 0.001	< 0.001	2.6	< 0.001	0.026	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	0.034	< 0.001	< 0.05	< 0.0001	< 0.001	0.007	0.007	3.49	< 0.001	0.029	< 0.0001	0.007	< 0.01	< 0.01	0.031
	16-Oct-20	< 0.001	0.028	< 0.001	< 0.05	< 0.0001	< 0.001	0.004	0.003	7.09	< 0.001	0.027	< 0.0001	0.004	< 0.01	< 0.01	0.019
	16-Nov-20	< 0.001	0.029	< 0.001	< 0.05	< 0.0001	< 0.001	0.009	0.002	4.79	< 0.001	0.032	< 0.0001	0.009	< 0.01	< 0.01	0.03
	16-Dec-20	0.002	0.015	< 0.001	< 0.05	< 0.0001	0.001	0.002	0.005	16	< 0.001	0.023	< 0.0001	0.004	< 0.01	< 0.01	0.054
	14-Jan-21	0.002	0.015	< 0.001	< 0.05	< 0.0001	< 0.001	0.004	0.02	8.28	< 0.001	0.026	< 0.0001	0.01	< 0.01	< 0.01	0.025
	16-Feb-21	0.004	0.014	< 0.001	< 0.05	< 0.0001	0.002	0.003	0.001	11	< 0.001	0.015	< 0.0001	0.004	< 0.01	< 0.01	0.011
	17-Mar-21	0.004	0.013	< 0.001	< 0.05	< 0.0001	0.001	0.002	< 0.001	12	< 0.001	0.016	< 0.0001	0.003	< 0.01	< 0.01	0.007
	19-Aug-21	0.001	0.005	-	< 0.05	-	< 0.001	< 0.001	< 0.001	7.14	-	-	-	< 0.001	-	-	< 0.005
	16-Nov-21	0.001	0.006	-	< 0.05	-	< 0.001	< 0.001	< 0.001	4.89	-	-	-	< 0.001	-	-	< 0.005
	24-Feb-22	0.004	0.004	< 0.001	< 0.05	< 0.0001	0.002	< 0.001	< 0.001	10	< 0.001	0.015	< 0.0001	< 0.001	< 0.01	< 0.01	0.005
	27-May-22	< 0.001	0.01	-	< 0.05	-	0.001	0.002	< 0.001	13	-	-	-	0.002	-	-	< 0.005
	12-Aug-22	< 0.001	0.012	-	< 0.05	-	0.001	0.003	< 0.001	9.73	-	-	-	0.004	-	-	0.007
	18-Nov-22	0.001	0.012	-	< 0.05	-	< 0.001	0.002	0.002	7.82	-	0.05	-	< 0.001	-	-	< 0.005
	15-Feb-23	< 0.001	0.004	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	5.16	< 0.001	0.01	< 0.0001	< 0.001	< 0.01	< 0.01	0.009
	16-May-23	0.001	0.004	-	< 0.05	-	< 0.001	< 0.001	< 0.001	4.81	-	-	-	< 0.001	-	-	0.008
	14-Aug-23	< 0.001	0.005	-	< 0.05	-	< 0.001	< 0.001	< 0.001	4.72	-	0.034	-	< 0.001	-	-	< 0.005

Table 7
Surface Water Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
WSS - Surface Water		0.006	0.08	0.002	0.1	0.0002	0.004	0.006	0.033	7.25	0.003	0.841	0.0001	0.02	0.01	0.01	0.535
SW4	23-Apr-19	< 0.001	**0.059**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.003**	**0.003**	**2.09**	< 0.001	**0.037**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.03**
	16-May-19	< 0.001	**0.047**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.12**	< 0.001	**0.03**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.019**
	14-Jun-19	< 0.001	**0.041**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.003**	**0.79**	< 0.001	**0.034**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.014**
	16-Jul-19	< 0.001	**0.044**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.002**	**0.96**	< 0.001	**0.043**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.014**
	15-Aug-19	< 0.001	**0.04**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.001**	**0.001**	**0.57**	< 0.001	**0.032**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.009**
	16-Sep-19	< 0.001	**0.046**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.02**	**0.7**	**0.001**	**0.039**	< 0.0001	**0.017**	< 0.01	< 0.01	**0.085**
	15-Oct-19	< 0.001	**0.037**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.004**	-	< 0.001	**0.031**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.018**
	18-Nov-19	< 0.001	**0.035**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	< 0.001	**6.32**	< 0.001	**0.032**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	16-Sep-20	< 0.001	**0.041**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.005**	**0.97**	< 0.001	**0.053**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.02**
	16-Oct-20	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	**0.001**	**2.26**	< 0.001	**0.042**	< 0.0001	**0.003**	< 0.01	< 0.01	**0.007**
	16-Nov-20	< 0.001	**0.031**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.004**	**0.001**	**1.93**	< 0.001	**0.074**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.016**
	16-Dec-20	< 0.001	**0.017**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.001**	**0.002**	**32**	< 0.001	**0.035**	< 0.0001	**0.002**	< 0.01	< 0.01	< 0.005
	14-Jan-21	**0.002**	**0.028**	< 0.001	< 0.05	< 0.0001	**0.002**	**0.003**	**0.026**	**20**	< 0.001	**0.171**	< 0.0001	**0.005**	< 0.01	< 0.01	**0.013**
	16-Feb-21	**0.003**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.003**	**0.001**	< 0.001	**27**	< 0.001	**0.054**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.01**
	17-Mar-21	**0.002**	**0.02**	< 0.001	< 0.05	< 0.0001	**0.002**	< 0.001	< 0.001	**16**	< 0.001	**0.057**	< 0.0001	< 0.001	< 0.01	< 0.01	< 0.005
	19-Aug-21	< 0.001	**0.022**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**2.13**	-	-	-	**0.001**	-	-	**0.005**
	16-Nov-21	< 0.001	**0.016**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**6.59**	-	-	-	< 0.001	-	-	< 0.005
	24-Feb-22	< 0.001	**0.03**	< 0.001	< 0.05	< 0.0001	< 0.001	**0.002**	< 0.001	**1.19**	< 0.001	**0.034**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.011**
	27-May-22	< 0.001	**0.021**	-	< 0.05	-	< 0.001	**0.001**	< 0.001	**0.68**	-	-	-	**0.001**	-	-	< 0.005
	12-Aug-22	< 0.001	**0.022**	-	< 0.05	-	**0.002**	**0.003**	< 0.001	**0.39**	-	-	-	**0.004**	-	-	**0.011**
	18-Nov-22	**0.002**	**0.013**	-	< 0.05	-	**0.002**	**0.001**	**0.003**	**20**	-	**0.084**	-	**0.001**	-	-	< 0.005
	15-Feb-23	**0.001**	**0.01**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.001**	< 0.001	**12**	< 0.001	**0.017**	< 0.0001	**0.001**	< 0.01	< 0.01	< 0.005
	16-May-23	< 0.001	**0.025**	-	< 0.05	-	< 0.001	**0.003**	**0.004**	**0.38**	-	-	-	**0.003**	-	-	**0.018**
	14-Aug-23	< 0.001	**0.028**	-	< 0.05	-	< 0.001	**0.002**	< 0.001	**0.26**	-	**0.022**	-	**0.003**	-	-	**0.021**

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting
Highlighting indicates an exceedance of the corresponding criteria (highlighting corresponds to the guideline with the highest criteria value where analytical result exceeds more than one guideline)

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 8
Surface Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids										
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	0.56	--	--	--	--	--	--
Sample Name	Sample Date																		
SW1	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
SW2	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
SW3	22-Feb-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
SW4	16-May-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-19	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Oct-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Dec-20	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jan-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Feb-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Criteria:
SWMP 2021 - Soil and Water Management Plan, July 2021

Table 8
Surface Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids									(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptanesulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
WSS - Surface Water		--	--	--	--	--	--	--	--	--	--	--	0.07	--	--
Sample Name	Sample Date														
SW1	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW2	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW3	22-Feb-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Jan-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Mar-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
SW4	16-May-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-19	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	18-Nov-19	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Oct-20	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-20	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
	16-Dec-20	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
	14-Jan-21	< 0.02	< 0.02	-	**0.03**	< 0.02	**0.04**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.07**	**0.07**	**0.07**
	16-Feb-21	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	17-Mar-21	< 0.02	< 0.02	-	**0.02**	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.04**	**0.04**
	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Feb-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	18-Nov-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
- - Not analysed
< - Less than laboratory limit of repor
µg/L - Micrograms per litre
Bold indicates a detection above the l

Criteria:
SWMP 2021 - Soil and Water Manager

Table 10
Wash Plant Water Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Metals															
		Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc
LOR		0.001	0.001	0.001	0.05	0.0001	0.001	0.001	0.001	0.05	0.001	0.001	0.0001	0.001	0.01	0.01	0.005
Units		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
Sample Name	Sample Date																
WPW	19-Aug-21	< 0.001	-	-	-	-	-	-	-	< 0.05	-	**0.062**	-	-	-	-	-
	22-Sep-21	< 0.001	-	-	-	-	-	-	-	**0.08**	-	**0.051**	-	-	-	-	-
	13-Oct-21	< 0.001	-	-	-	-	-	-	-	**0.22**	-	**0.079**	-	-	-	-	-
	16-Nov-21	< 0.001	-	-	-	-	-	-	-	**0.29**	-	**0.045**	-	-	-	-	-
	15-Dec-21	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.078**	-	-	-	-	-
	18-Jan-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.038**	-	-	-	-	-
	24-Feb-22	< 0.001	-	-	-	-	-	-	-	**1.02**	-	**0.084**	-	-	-	-	-
	17-Mar-22	< 0.001	-	-	-	-	-	-	-	**0.97**	-	**0.05**	-	-	-	-	-
	12-Apr-22	< 0.001	-	-	-	-	-	-	-	**0.44**	-	**0.042**	-	-	-	-	-
	27-May-22	< 0.001	-	-	-	-	-	-	-	**0.07**	-	**0.038**	-	-	-	-	-
	17-Jun-22	< 0.001	-	-	-	-	-	-	-	**0.94**	-	**0.061**	-	-	-	-	-
	27-Jul-22	< 0.001	-	-	-	-	-	-	-	**0.27**	-	**0.038**	-	-	-	-	-
	12-Aug-22	< 0.001	-	-	-	-	-	-	-	**0.17**	-	**0.026**	-	-	-	-	-
	16-Sep-22	< 0.001	-	-	-	-	-	-	-	**0.58**	-	**0.069**	-	-	-	-	-
	24-Oct-22	**0.002**	-	-	-	-	-	-	-	**2.22**	-	**0.118**	-	-	-	-	-
	18-Nov-22	< 0.001	-	-	-	-	-	-	-	**0.56**	-	**0.066**	-	-	-	-	-
	14-Dec-22	< 0.001	-	-	-	-	-	-	-	**0.42**	-	**0.062**	-	-	-	-	-
	17-Jan-23	< 0.001	-	-	-	-	-	-	-	**0.36**	-	**0.05**	-	-	-	-	-
WPW2	15-Feb-23	< 0.001	**0.015**	< 0.001	< 0.05	< 0.0001	< 0.001	< 0.001	**0.003**	< 0.05	< 0.001	**0.004**	< 0.0001	< 0.001	< 0.01	< 0.01	**0.115**
	15-Mar-23	< 0.001	-	-	-	-	-	-	-	**0.15**	-	**0.061**	-	-	-	-	-
	18-Apr-23	< 0.001	**0.009**	< 0.001	< 0.05	< 0.0001	**0.001**	**0.001**	**0.004**	**0.6**	< 0.001	**0.049**	< 0.0001	**0.002**	< 0.01	< 0.01	**0.053**
	16-May-23	< 0.001	-	-	-	-	-	-	-	**0.28**	-	**0.07**	-	-	-	-	-
	14-Jun-23	< 0.001	-	-	-	-	-	-	-	**0.33**	-	**0.047**	-	-	-	-	-
	24-Jul-23	< 0.001	-	-	-	-	-	-	-	**0.39**	-	**0.08**	-	-	-	-	-
	14-Aug-23	< 0.001	-	-	-	-	-	-	-	**0.88**	-	**0.058**	-	-	-	-	-
	13-Sep-23	< 0.001	-	-	-	-	-	-	-	**0.2**	-	**0.047**	-	-	-	-	-
	23-Oct-23	< 0.001	-	-	-	-	-	-	-	**0.26**	-	**0.062**	-	-	-	-	-

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre
Bold indicates a detection above the laboratory limit of reporting

Table 10
Wash Plant Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte		Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids					
		Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)
LOR		0.02	0.05	0.05	0.05	0.05	0.02	0.02	0.1	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.05
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date																		
INPUT	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
WPW	19-Aug-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	22-Sep-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Oct-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Nov-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Dec-21	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Jan-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Feb-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Mar-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Apr-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-May-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Jun-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	27-Jul-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	12-Aug-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-Sep-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Oct-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Nov-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Dec-22	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	17-Jan-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
WPW2	15-Feb-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	15-Mar-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	18-Apr-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	**0.01**	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	16-May-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Jun-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	24-Jul-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	14-Aug-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	13-Sep-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
	23-Oct-23	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05

Notes:
- - Not analysed
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre
Bold indicates a detection above the laboratory limit of reporting

Table 10
Wash Plant Water Analytical Results - PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
		Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanesulfonic acid (PFHxS)	Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
LOR		0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.05	0.05	0.05	0.05	0.01	0.01	0.01
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date														
INPUT	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
WPW	19-Aug-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	22-Sep-21	< 0.02	< 0.02	-	< 0.02	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Oct-21	< 0.02	< 0.02	-	< 0.02	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	16-Nov-21	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Dec-21	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	18-Jan-22	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	24-Feb-22	< 0.02	< 0.02	**0.01**	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.01**	**0.01**	**0.01**
	17-Mar-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	12-Apr-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-May-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	17-Jun-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	27-Jul-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	12-Aug-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	16-Sep-22	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	24-Oct-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	18-Nov-22	< 0.02	< 0.02	**0.02**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.05**	**0.05**
	14-Dec-22	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.04**	**0.04**
	17-Jan-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.01**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**
WPW2	15-Feb-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	15-Mar-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	18-Apr-23	< 0.02	< 0.02	**0.02**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.04**	**0.05**	**0.05**
	16-May-23	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.03**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	14-Jun-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	24-Jul-23	< 0.02	< 0.02	**0.01**	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.03**	**0.03**	**0.03**
	14-Aug-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	13-Sep-23	< 0.02	< 0.02	< 0.01	-	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
	23-Oct-23	< 0.02	< 0.02	< 0.01	-	< 0.02	**0.02**	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	**0.02**	**0.02**	**0.02**

Notes:
- - Not analysed
< - Less than laboratory limit of repor
µg/L - Micrograms per litre
Bold indicates a detection above the l

Table 13
QAQC Analytical Results - Dissolved Metals
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Metals		
			Arsenic	Iron	Manganese
Units			mg/L	mg/L	mg/L
Sample Name	Sample Date	Sample Type			
TB_231023_23102023	23-Oct-23	Trip Blank	< 0.001	< 0.05	< 0.001
RB_231023_23102023	23-Oct-23	Rinsate	< 0.001	< 0.05	< 0.001

Notes:
< - Less than laboratory limit of reporting
mg/L - Milligrams per litre

Table 14
QAQC Analytical Data- PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonamides							Perfluoroalkyl Carboxylic Acids		Perfluoroalkyl Carboxylic Acids			Perfluoroalkyl Carboxylic Acids							Perfluoroalkyl Sulfonic Acids	
			Perfluorooctane sulfonamide (FOSA)	N-Methyl-perfluorooctane sulfonamide (MeFOSA)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	Perfluorobutanoic acid (PFBA)	Perfluoro-n-pentanoic aicd (PFPeA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanoic acid (PFHpA)	Perfluorooctanoate (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnDA)	Perfluorododecanoic acid (PFDoDA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorobutanesulfonic acid (PFBS)	Perfluoropentane sulfonic acid (PFPeS)	Perfluorohexanesulfonic acid (PFHxS)
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type																					
TB_231023_23102023	23-Oct-23	Trip Blank	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01
RB_231023_23102023	23-Oct-23	Rinsate	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.01	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre

Table 14
QAQC Analytical Data- PFAS
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Analyte			Perfluoroalkyl Sulfonic Acids						(n:2) Fluorotelomer Sulfonic Acids	Sum of PFAS		
			Perfluoroheptane sulfonate (PFHpS)	Perfluorooctanesulfonic acid (PFOS)	Perfluorodecanesulfonic acid (PFDS)	4:2 Fluorotelomer Sulfonate (4:2 FTS)	6:2 Fluorotelomer Sulfonate (6:2 FtS)	8:2 Fluorotelomer sulfonate (8:2 FtS)	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	Sum of PFHxS and PFOS	Sum of PFAS (WADER List)	Sum of PFAS
Units			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Name	Sample Date	Sample Type										
TB_231023_23102023	23-Oct-23	Trip Blank	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
RB_231023_23102023	23-Oct-23	Rinsate	< 0.02	< 0.01	< 0.02	< 0.05	< 0.05	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01

Notes:
< - Less than laboratory limit of reporting
µg/L - Micrograms per litre

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH1	27-Jul-22	8.210	NM	NM	3.836	--	M Ferguson
	12-Aug-22	NM	NM	NM	NM	--	M Ferguson
BH1A	16-Sep-22	12.400	8.980	5.030	3.950	--	J Roby
	24-Oct-22	12.266	8.980	5.034	3.946	--	J Roby
	18-Nov-22	12.290	8.980	4.810	4.170	Gauge only	J. Roby
	14-Dec-22	12.163	8.980	4.513	4.467	--	M Ferguson
	17-Jan-23	12.181	8.980	4.142	4.838	--	A king
	15-Feb-23	12.190	8.980	3.885	5.095	Clear	A King
	15-Mar-23	12.160	8.980	3.766	5.214	--	A King
	18-Apr-23	12.155	8.980	3.764	5.216	Gauge only	A King
	16-May-23	12.160	8.980	3.688	5.292	Gauge only	A King
	14-Jun-23	12.160	8.980	3.792	5.188	--	M Ferguson
	24-Jul-23	12.150	8.980	3.522	5.458	--	A King
	14-Aug-23	12.150	8.980	3.501	5.479	Clear, no odor, no sheen	AK
	13-Sep-23	12.160	8.980	3.451	5.529	--	A King
	23-Oct-23	12.16	8.98	3.31	5.67	Gauge only	TJ
BH2	27-Jul-22	8.940	7.790	3.897	3.893	Clear	M Ferguson
	12-Aug-22	8.000	7.790	3.735	4.055	Clear	M Ferguson
	16-Sep-22	8.997	7.790	3.671	4.119	Dark brown	J Roby
	24-Oct-22	9.952	7.790	3.608	4.182	Clear	J Roby
	18-Nov-22	9.450	7.790	3.410	4.380	Light brown, NO, NS	J. Roby
	14-Dec-22	8.879	7.790	3.203	4.587	Very light brown	M Ferguson
	17-Jan-23	8.930	7.790	2.917	4.873	Brown	A king
	15-Feb-23	8.871	7.790	2.732	5.058	Odor, Light brown	A King
	15-Mar-23	8.842	7.790	2.655	5.135	Light brown	A King
	18-Apr-23	8.861	7.790	2.703	5.087	Light brown, no odour, no sheen	A King
	16-May-23	8.850	7.790	2.654	5.136	Brown, no odour / sheen, well in good condition	A King
	14-Jun-23	8.840	7.790	2.706	5.084	Clear	M Ferguson
	24-Jul-23	8.840	7.790	2.574	5.216	Lt brown	A King
	14-Aug-23	8.825	7.790	2.582	5.208	Brown, no odour, no sheen	AK
	14-Sep-23	8.840	7.790	2.538	5.252	Lt brown	A King
	23-Oct-23	8.836	7.79	2.407	5.383	Light brown, no odour, no sheen	TJ
BH4	27-Jul-22	5.980	3.060	2.296	0.764	Clear	M Ferguson
	12-Aug-22	5.000	3.060	2.261	0.799	Clear	M Ferguson
	16-Sep-22	5.990	3.060	2.234	0.826	Light brown	J Roby
	24-Oct-22	6.050	3.060	2.239	0.821	Clear	J Roby
	18-Nov-22	6.010	3.060	2.110	0.950	Clear, NO/NS	J. Roby
	14-Dec-22	6.025	3.060	1.941	1.119	Clear	M Ferguson
	17-Jan-23	6.006	3.060	1.761	1.299	Clear	A king
	15-Feb-23	6.015	3.060	1.627	1.433	Clear	A King
	15-Mar-23	6.015	3.060	1.625	1.435	Clear	A King
	18-Apr-23	6.018	3.060	1.832	1.228	Clear, no odour, no sheen	A King
	16-May-23	5.992	3.060	1.771	1.289	Clear, no odour / sheen, well in good condition	A King
	14-Jun-23	5.990	3.060	1.832	1.228	Slightly cloudy/clear	M Ferguson
	24-Jul-23	5.995	3.060	1.814	1.246	Clear	A King
	14-Aug-23	6.010	3.060	1.809	1.251	Clear, low Sulphur odor, no sheen	AK
	14-Sep-23	6.020	3.060	1.529	1.531	Clear	A King
	23-Oct-23	6.014	3.06	1.475	1.585	Clear, no odour, no sheen	TJ
	12-Aug-22	0.000	7.360	2.320	5.040	--	M Ferguson

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH5	18-Nov-22	8.820	7.360	2.169	5.191	Gauge only	J. Roby
	15-Feb-23	5.612	7.360	-1.375	8.735	Odor, Light brown	A King
	14-Aug-23	8.700	7.360	2.013	5.347	Gauge only	AK
BH6	27-Jul-22	4.510	3.620	2.914	0.706	Odor, Clear	M Ferguson
	12-Aug-22	4.000	3.620	2.909	0.711	Odor, Clear	M Ferguson
	16-Sep-22	4.580	3.620	2.904	0.716	Odor, Clear	J Roby
	24-Oct-22	4.554	3.620	2.870	0.750	Odor, Clear	J Roby
	18-Nov-22	4.540	3.620	2.815	0.805	Cloudy, low sulfur odour, NS	J. Roby
	14-Dec-22	4.530	3.620	2.596	1.024	Odor, Light yellow	M Ferguson
	17-Jan-23	4.520	3.620	2.381	1.239	--	A king
	15-Feb-23	4.529	3.620	2.267	1.353	Odor, Clear	A King
	15-Mar-23	4.535	3.620	2.303	1.317	Odor, Clear	A King
	18-Apr-23	4.535	3.620	2.580	1.040	Clear, no odour, no sheen	A King
	16-May-23	4.515	3.620	2.480	1.140	Clear, low Sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	4.490	3.620	2.542	1.078	Odor, Clear	M Ferguson
	24-Jul-23	4.920	3.620	2.645	0.975	Odor, Cloudy white	A King
	14-Aug-23	4.525	3.620	2.572	1.048	Clear, low Sulphur odor, no sheen	AK
	14-Sep-23	4.530	3.620	2.376	1.244	Odor, Clear	A King
	23-Oct-23	4.528	3.62	2.097	1.523	Clear, no odour, no sheen	TJ
BH7	27-Jul-22	4.500	2.980	2.074	0.906	Weak Odor, Light yellow	M Ferguson
	12-Aug-22	4.000	2.980	2.035	0.945	Light yellow	M Ferguson
	16-Sep-22	4.499	2.980	2.027	0.953	Yello	J Roby
	24-Oct-22	4.530	2.980	2.040	0.940	Odor, Brown	J Roby
	18-Nov-22	5.500	2.980	1.890	1.090	Light brown, low sulfur odour, NS	J. Roby
	14-Dec-22	4.520	2.980	1.702	1.278	Odor, Light yellow	M Ferguson
	17-Jan-23	4.510	2.980	1.584	1.396	Odor, Light yellow, almost clear	A king
	15-Feb-23	4.520	2.980	1.511	1.469	Odor, Light brown	A King
	15-Mar-23	4.505	2.980	1.535	1.445	Odor, Lght yeloow	A King
	18-Apr-23	4.520	2.980	1.789	1.191	Light yellow, no odour, no sheen	A King
	16-May-23	4.520	2.980	1.715	1.265	Light yellow, low sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	4.520	2.980	1.762	1.218	Light yellow	M Ferguson
	24-Jul-23	4.520	2.980	1.769	1.211	Weak Odor, Lt yellow	A King
	14-Aug-23	4.510	2.980	1.766	1.214	Light brown, moderate Sulphur odor, no sheen	AK
	14-Sep-23	4.519	2.980	1.685	1.295	Odor, Lt yellow	A King
	23-Oct-23	4.526	2.98	1.453	1.527	Clear, low sulphur odour, no sheen	TJ
BH8	12-Aug-22	0.000	3.880	2.191	1.689	Strong Odor, Milky white	M Ferguson
	18-Nov-22	6.040	3.880	2.055	1.825	Cloudy, low sulfur odour, NS	J. Roby
	15-Feb-23	6.055	3.880	1.540	2.340	Odor, Light brown	A King
	16-May-23	6.025	3.880	1.858	2.022	Yellow, strong sulphur odour, no sheen, well in good condition	A King
	14-Aug-23	3.490	3.880	1.964	1.916	Yellow, moderate Sulphur odor, no sheen, white suspended sediment	AK
BH9	27-Jul-22	16.190	17.750	2.709	15.041	--	M Ferguson
	12-Aug-22	16.000	17.750	2.600	15.150	--	M Ferguson
	16-Sep-22	16.145	17.750	2.494	15.256	--	J Roby
	24-Oct-22	16.000	17.750	2.471	15.279	--	J Roby
	18-Nov-22	16.320	17.750	2.291	15.459	Gauge only	J. Roby
	14-Dec-22	16.110	17.750	2.091	15.659	--	M Ferguson
	17-Jan-23	16.240	17.750	1.895	15.855	--	A king
	15-Feb-23	16.108	17.750	1.747	16.003	--	A King
	15-Mar-23	16.090	17.750	1.707	16.043	--	A King

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
	18-Apr-23	16.095	17.750	1.904	15.846	Gauge only	A King
	16-May-23	16.075	17.750	1.832	15.918	Gauge only	A King
	14-Jun-23	16.100	17.750	1.872	15.878	--	M Ferguson
	24-Jul-23	1616.100	17.750	1.834	15.916	--	A King
	14-Aug-23	16.090	17.750	1.864	15.886	Gauge only	AK
	14-Sep-23	16.070	17.750	11.797	5.953	--	A King
	23-Oct-23	16.07	17.75	NM	Dry	Gauge only, Dry	TJ

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
BH9A	27-Jul-22	12.440	10.750	2.548	8.202	Weak Odor, Clear	M Ferguson
	12-Aug-22	12.000	10.750	2.455	8.295	Light yellow	M Ferguson
	16-Sep-22	12.283	10.750	2.395	8.355	Odor, Light brown	J Roby
	24-Oct-22	12.420	10.750	2.384	8.366	Clear	J Roby
	18-Nov-22	12.430	10.750	2.229	8.521	Brown, NO/NS	J. Roby
	14-Dec-22	12.295	10.750	2.053	8.697	Light yellow	M Ferguson
	17-Jan-23	12.264	10.750	1.881	8.869	Weak Odor, Light brown	A king
	15-Feb-23	12.235	10.750	1.744	9.006	Odor, Light bown	A King
	15-Mar-23	12.241	10.750	1.727	9.023	Light brown	A King
	18-Apr-23	12.215	10.750	1.934	8.816	Light brown, moderate sulfur odour, no sheen	A King
	16-May-23	12.235	10.750	1.871	8.879	Light brown, low sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	12.230	10.750	1.931	8.819	Weak Odor, Light yellow/clear	M Ferguson
	24-Jul-23	12.270	10.750	1.891	8.859	Strong Odor, Lt yellow	A King
	14-Aug-23	12.195	10.750	1.905	8.845	Brown, strong Sulphur odor, no sheen	AK
	14-Sep-23	12.290	10.750	1.828	8.922	Odor, Brown	A King
	23-Oct-23	12.225	10.75	1.586	9.164	Light brown, Moderate Sulphur odour, no sheen	TJ
BH10	12-Aug-22	0.000	6.690	4.991	1.699	--	M Ferguson
	18-Nov-22	3.480	6.690	4.600	2.090	Gauge only	J. Roby
	15-Feb-23	3.486	6.690	3.771	2.919	--	A King
	14-Aug-23	3.490	6.690	3.473	3.217	Gauge only	AK
BH11	27-Jul-22	5.280	6.630	5.837	0.793	Strong Odor, Light yellow	M Ferguson
	16-Sep-22	5.304	6.630	5.783	0.847	Odor, Yellow	J Roby
	24-Oct-22	4.315	6.630	5.760	0.870	Odor, Yellow	J Roby
	18-Nov-22	5.290	6.630	5.450	1.180	Yellow, moderate sulfur odour, NS	J. Roby
	14-Dec-22	5.302	6.630	5.174	1.456	Odor, Light yellow	M Ferguson
	17-Jan-23	5.300	6.630	4.836	1.794	Odor, Light yellow	A king
	15-Feb-23	5.309	6.630	4.577	2.053	Odor, Yellow light	A King
	15-Mar-23	5.300	6.630	4.431	2.199	Odor, Yellow	A King
	18-Apr-23	5.300	6.630	4.520	2.110	Light yellow, strong sulfur odour, no sheen	A King
	16-May-23	5.295	6.630	4.402	2.228	Light yellow, strong sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	5.280	6.630	4.410	2.220	Strong Odor, Yellow	M Ferguson
	24-Jul-23	5.305	6.630	4.209	2.421	Strong Odor, Yellow	A King
	14-Aug-23	5.280	6.630	4.174	2.456	Light yellow, strong Sulphur odor, no sheen	AK
	14-Sep-23	5.300	6.630	4.120	2.510	Odor, Light yellow	A King
	23-Oct-23	5.313	6.63	3.932	2.698	Clear, High Sulphur odour, no sheen	TJ
BH12A	16-Sep-22	7.337	5.620	3.322	2.298	--	J Roby
	24-Oct-22	7.340	5.620	3.329	2.291	Light brown	J Roby
	18-Nov-22	7.390	5.620	3.190	2.430	Gauge only	J. Roby
	14-Dec-22	7.370	5.620	3.033	2.587	--	M Ferguson
	17-Jan-23	7.327	5.620	2.907	2.713	--	A king
	15-Feb-23	7.335	5.620	2.717	2.903	Brown	A King
	15-Mar-23	7.310	5.620	2.664	2.956	--	A King
	18-Apr-23	7.312	5.620	2.746	2.874	Gauge only	A King
	16-May-23	7.300	5.620	2.698	2.922	Gauge only	A King
	14-Jun-23	7.300	5.620	2.724	2.896	--	M Ferguson
	24-Jul-23	7.290	5.620	2.640	2.980	--	A King
	14-Aug-23	7.290	5.620	2.631	2.989	Light brown, low Sulphur odor, no sheen	AK
	14-Sep-23	7.290	5.620	3.584	2.036	--	A King
	23-Oct-23	7.309	5.62	2.443	3.177	Gauge only	TJ

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
MW239D	18-Nov-22	20.490	3.040	2.300	0.740	Gauge only	J. Roby
	15-Feb-23	20.500	3.040	1.964	1.076	--	A King
	15-Aug-23	20.275	3.040	2.161	0.879	Gauge only	AK

Table 13
Gauging Data
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Well ID	Date	Well Depth (m)	TOC (mAHD)	Water Table Elevation (mAHD)	DTW (mBTOC)	Remark	Technician
MW239S	27-Jul-22	3.800	3.040	2.510	0.530	Strong Odor, Light yellow	M Ferguson
	12-Aug-22	3.000	3.040	2.445	0.595	Odor, Cloudy yellow	M Ferguson
	16-Sep-22	3.820	3.040	2.420	0.620	Odor, Yellow	J Roby
	24-Oct-22	3.620	3.040	2.430	0.610	Odor, Clear	J Roby
	18-Nov-22	3.820	3.040	2.280	0.760	Cloudy, low sulfur odour, NS	J. Roby
	14-Dec-22	3.810	3.040	2.129	0.911	Odor, Light brown	M Ferguson
	17-Jan-23	3.618	3.040	2.008	1.032	Strong Odor, Brown	A king
	15-Feb-23	3.815	3.040	1.939	1.101	Odor, Light brown	A King
	15-Mar-23	3.805	3.040	1.952	1.088	Odor, Orange brown	A King
	18-Apr-23	3.827	3.040	2.155	0.885	Light brown, moderate sulfur odour, no sheen	A King
	16-May-23	3.787	3.040	2.102	0.938	Light brown, moderate sulphur odour, no sheen, well in good condition	A King
	14-Jun-23	3.760	3.040	2.139	0.901	Odor, Clear	M Ferguson
	24-Jul-23	3.790	3.040	2.128	0.912	Odor, Light brown	A King
	15-Aug-23	3.790	3.040	2.136	0.904	Light yellow, strong Sulphur odor, no sheen	AK
	14-Sep-23	3.786	3.040	2.060	0.980	Odor, Brown	A King
	23-Oct-23	3.775	3.04	1.87	1.17	Light brown, no odour, no sheen	TJ
SW1	12-Aug-22	NM	NM	NM	NM	Odor, Yellow	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Clear	A King
	14-Aug-23	NM	NM	NM	NM	Clear, Green algae, no odor, no sheen	AK
SW2	12-Aug-22	NM	NM	NM	NM	Light yellow	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Light brown	A King
	14-Aug-23	NM	NM	NM	NM	Clear, low Sulphur odor, no sheen	AK
SW3	12-Aug-22	NM	NM	NM	NM	Clear	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Yellow tanins	A King
	14-Aug-23	NM	NM	NM	NM	Clear, no odor, no sheen	AK
SW4	12-Aug-22	NM	NM	NM	NM	Clear	M Ferguson
	15-Feb-23	NM	NM	NM	NM	Odor, Yellow tanins	A King
	14-Aug-23	NM	NM	NM	NM	Clear, no odor, no sheen	AK
WPW	27-Jul-22	NM	NM	NM	NM	Dark cloudy brown	M Ferguson
	12-Aug-22	NM	NM	NM	NM	Light brown	M Ferguson
	16-Sep-22	NM	NM	NM	NM	Brown	J Roby
	24-Oct-22	NM	NM	NM	NM	Dark brown	J Roby
	14-Dec-22	NM	NM	NM	NM	Brown	M Ferguson
	17-Jan-23	NM	NM	NM	NM	Weak Odor, Brown	A king
	15-Feb-23	NM	NM	NM	NM	Clear	A King
	15-Mar-23	NM	NM	NM	NM	Odor, Brown	A King
WPW2	18-Apr-23	NM	NM	NM	NM	Light brown, low earthy odour, no sheen	A King
	14-Jun-23	NM	NM	NM	NM	Turbid muddy brown	M Ferguson
	24-Jul-23	NM	NM	NM	NM	Odor, Dark brown	A King
	14-Aug-23	NM	NM	NM	NM	Light brown, earthy odor, no sheen	AK
	14-Sep-23	NM	NM	NM	NM	Odor, Brown	A King
	23-Oct-23	NM	NM	NM	NM	Brown, earthy odour, no sheen	TJ

Notes:
DTW = Depth to water
mBTOC = metres below top of casing
m = Metres
NC = Not calculated
NM = Not measured

Table 16
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
BH1A	15-Feb-23	5.8	192.5	4.33	82.6	55	23.8	
	14-Aug-23	4.1	252.3	4.05	101.5	66	18.4	72
BH2	27-Jul-22	5.85	223	4.13	87.6		15.6	131
	12-Aug-22	4.34	269.7	4.52	53		16.7	15.58
	16-Sep-22	3.28	262.7	4.76	80.7	60	18.1	710.34
	24-Oct-22	4.55	218.8	4.71	73.6	55	18.5	33.87
	18-Nov-22	1.9	213.9	4.7	73.2	54	19	
	14-Dec-22	4.14	229.7	4.79	78.6	51	19.3	27.86
	17-Jan-23	3.88	211.3	4.69	75.6	228.72	21.7	240.6
	15-Feb-23	4.2	300.5	4.54	70.9	50	21	133.94
	15-Mar-23	3.62	227.7	4.67	69	49	20.8	103
	18-Apr-23	4.84	224.5	4.88	64.6	4.6	20.2	44.8
	16-May-23	3.27	234	4.54	64.1	47	18.6	
	14-Jun-23	3.1	258	4.43	79.2	52	17.9	0.86
	14-Jun-23	3.1	258	4.43	79.2	52	17.9	0.86
	24-Jul-23	4.14	103.7	4.57	84	64	17.4	40
	14-Aug-23	64	187.8	4.38	102.5	67	18.1	164
	13-Sep-23	3.13	209.2	4.72	71.9	55	17	44.01
	23-Oct-23	3.87	177	5.69	79.5	56	21.3	50.58
BH4	27-Jul-22	3	190.7	4.6	90.2		14.1	121
	12-Aug-22	3.25	236	4.86	77		15.5	10.2
	16-Sep-22	5.35	163.8	5.29	75.2	60	15.4	34.07
	24-Oct-22	3.52	162.3	5.45		57	17.8	45.42
	18-Nov-22	3.57	170.6	5.32	80.2	62	16.8	
	14-Dec-22	3.95	119.8	5.59	92.5	60	18.1	16.36
	17-Jan-23	1.89	159.5	5.31	128.8	91	20.9	8
	15-Feb-23	2.6	166	5.47	115.5	82	20.8	29.64
	15-Mar-23	4.46	179	5.22	92.5	65	21	8.26
	18-Apr-23	4.84	196.7	5.27	70.3	52	18.7	8.45
	16-May-23	3.96	217.9	4.84	65.5	56	16.8	
	14-Jun-23	2.7	157.9	4.97	92.8	60	16.4	3.33
	14-Jun-23	2.7	157.9	4.97	92.8	60	16.4	3.33
	24-Jul-23	3.41	215.7	5.18	66	53	15.3	7.71
	14-Aug-23	4.9	143.9	5.11	87.7	57	15.6	18.06
	13-Sep-23	4.53	213	5.06	70.8	56	15.2	27.65
	23-Oct-23	3.58	155.7	6.16	126.4	95	18.1	29.4
BH5	15-Feb-23	3	15.6	4.64	132.9	88	23.9	75.75
BH6	27-Jul-22	4.75	-104	4.76	225		14.2	16.8
	12-Aug-22	3.94	-80	5.1	217		14.2	156
	16-Sep-22	2.64	-112.5	5.18	229.4	71	18.1	101.53
	24-Oct-22	1.75	-66.8	4.01	84.3	171	18.3	65.7
	18-Nov-22	2.29	-85.2	4.14	224.4	156	21.7	
	14-Dec-22	1.72	-45.6	4.11	232.3	151	21.1	35
	17-Jan-23	2.46	-7	3.82	245.5	162	24.5	34.06
	15-Feb-23	3	-57.2	4.55	233.8	148	26.4	88.41
	15-Mar-23	4.29	150.2	4.09	233.2	155	23.9	32.96
	18-Apr-23	2.64	-60.1	4.85	195.4	137	21	19.48
	16-May-23	3.45	-39.9	4.8	195.1	140	20.2	
	14-Jun-23	2.9	-49.9	4.59	242.1	157	15.7	82.08
	14-Jun-23	2.9	-49.9	4.59	242.1	157	15.7	82.08
	24-Jul-23	8.84	97	4.91	230.2	174	17.7	230
	14-Aug-23	1.9	38.3	4.36	275.9	179	14.6	39
	13-Sep-23	3.6	-11	4.79	207.7	164	15.6	30.2
	23-Oct-23	3.9	2.8	7.68	2.8	150	20.7	107.4

Table 16
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
BH7	27-Jul-22	4.21	26	4.43	117		14.3	489
	12-Aug-22	3.98	11	4.84	110		14.9	110.4
	16-Sep-22	2.92	65.6	4.78	94.1	71	17.6	101.6
	24-Oct-22	3.52	-93.2	4.72	81.9	62	17.7	68.09
	18-Nov-22	3.35	-92.5	4.75	78.4	54	22.1	
	14-Dec-22	3.82	-72.2	4.74	70.1	46	21.6	35.8
	17-Jan-23	2.98	38	4.49	74.1	51	22	15.49
	15-Feb-23	3.4	-50.1	4.68	70.4	45	25.4	70.91
	15-Mar-23	4.06	4	4.62	75.9	51	23.2	28.4
	18-Apr-23	4.02	174.3	4.8	82.9	58	21	51.83
	16-May-23	1.84	161.2	4.18	75.2	54	20	
	14-Jun-23	2.9	99.5	4.66	87.2	57	16.1	184
	14-Jun-23	2.9	99.5	4.66	87.2	57	16.1	184
	24-Jul-23	5.6	159.2	4.83	90.6	71	16.3	58
	14-Aug-23	3.5	123.5	4.45	102.8	67	15.3	55
	13-Sep-23	3.26	26.6	4.87	81.5	64	15.8	49
	23-Oct-23	5.91	5.3	6.88	5.3	71	21.1	110
BH8	12-Aug-22	4.2	-67.9	4.81	135		14.7	782
	18-Nov-22	3.4	-97.2	4.66	98.5	69	20.7	
	15-Feb-23	1.7	-108.51	4.81	129.9	82	26.7	45.25
	16-May-23	2.72	-85.5	4.81	113.1	84	18.6	
	14-Aug-23	3.4	-19.2	4.26	163.3	106	15.3	271
BH9A	27-Jul-22	4.93	208.5	4.11	182.8		16.6	52
	12-Aug-22	3.96	249	4.46	186		17.6	41.5
	16-Sep-22	3.65	241.4	4.69	132	99	18	45.22
	24-Oct-22	2.84	196.2	4.76	118	87	19	36.09
	18-Nov-22	2.04	86.3	4.79	112	84	18.1	
	14-Dec-22	2.32	166	4.75	107.7	70	18.7	61
	17-Jan-23	1.94	111.5	4.73	107.4	75	21.4	32.2
	15-Feb-23	3.2	29.5	3.83	171.6	119	21.6	87.9
	15-Mar-23	4.24	171.7	4.83	103.3	72	21.9	51.32
	18-Apr-23	3.5	9.5	4.83	123.5	90	19.5	69.85
	16-May-23	6.01	44.1	4.6	103.9	80	17.1	
	14-Jun-23	3.6	168.9	4.45	107.6	70	18.2	66.18
	14-Jun-23	3.6	168.9	4.45	107.6	70	18.2	66.18
	24-Jul-23	4.13	195.5	4.69	125.6	95	17.8	55.5
	14-Aug-23	2.6	77.5	4.33	164.1	107	17.9	121.51
	13-Sep-23	3.85	37.3	4.7	96.2	73	17.6	55.55
	23-Oct-23	4.18	32.5	5.63	32.5	51	20.2	94
BH11	27-Jul-22	4.74	-39	4.2	158		14	9.7
	16-Sep-22	2.46	-63.9	4.54	118.4	89	18	26.3
	24-Oct-22	2.12	-92.9	4.37	120.3	90	18.1	23.72
	18-Nov-22	2.01	-100.5	4.47	120.7	89	18.8	
	14-Dec-22	3.19	-86	4.48	130.2	85	19.1	73
	17-Jan-23	2.16	-80.5	4.31	133.5	89	23.9	5.8
	15-Feb-23	4	-66.5	4.45	110.1	76	22.1	53.17
	15-Mar-23	3.05	-43.4	4.58	102.9	71	21.6	4.83
	18-Apr-23	3.11	-69.5	4.61	100.1	72	20.1	417.6
	16-May-23	3.13	-60	4.45	111.1	83	18.4	
	14-Jun-23	2.5	-48.9	4.38	122.9	80	16.6	74.09
	14-Jun-23	2.5	-48.9	4.38	122.9	80	16.6	74.09
	24-Jul-23	5.69	-35.6	4.45	102.2	80	16	133
	14-Aug-23	3	16	4.26	125.2	81	16.5	75
	13-Sep-23	3.34	-83.7	4.77	91	72	15.8	104.53

Table 16
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
	23-Oct-23	3.43	4.3	6.07	93.6	66	20.6	47.66

Table 16
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
BH12A	24-Oct-22	2.94	141.5	4.95	120.8	89	18.8	146
	15-Feb-23	2.5	167.5	4.93	138.4	90	24.9	287.01
	14-Aug-23	2.9	166.6	3.82	137.5	89	16.5	21
MW239S	27-Jul-22	4	-71	4.32	125		14.2	175
	12-Aug-22	2.73	-69	4.6	115		15.2	310
	16-Sep-22	3.65	-79.71	4.83	102.4	77	17.9	129.37
	24-Oct-22	2.33	-117.7	4.72	86.5	65	18	83.71
	18-Nov-22	1.93	-113	4.74	97.3	67	22	
	14-Dec-22	3.05	-62	4.62	115.4	75	21.5	239
	17-Jan-23	2.61	-9.4	4.52	100.2	67	23.6	105.4
	15-Feb-23	3.1	-62.6	4.51	114.2	72	26.6	145
	15-Mar-23	3.02	-4.1	4.61	102.4	70	22.5	206.44
	18-Apr-23	3.29	-85	4.78	87.2	63	20.1	84.02
	16-May-23	2.75	-50.4	4.52	84.7	63	18.6	
	14-Jun-23	2.4	-77.3	4.58	100.8	66	17.4	88.4
	14-Jun-23	2.4	-77.3	4.58	100.8	66	17.4	88.4
	24-Jul-23	4.37	-57	4.53	84.6	67	15.6	217
	15-Aug-23	3.3	-34	4.77	105.9	69	15.1	223
	13-Sep-23	3.22	-68.1	4.69	93.1	72	17	339
	23-Oct-23	3.29	2.9	7.72	87.6	59	22.9	132
SW1	12-Aug-22	2.97	182	5.18	140		12.6	4.3
	18-Nov-22	0.89	154.6	5.45	99.5	78	15.9	
	15-Feb-23	4	117.8	6.37	138.5	97	21.1	20.69
	16-May-23	3.58	75.7	6.34	82.4	69	13.3	
	14-Aug-23	2.8	0.8	6.31	114.5	74	12.5	5.67
SW2	12-Aug-22	1.11	-40	4.95	88.2		12.9	23
	18-Nov-22	2.49	122	4.62	82.5	61	18.4	
	15-Feb-23	2.5	-27.9	4.39	137.7	90	23.9	80.7
	16-May-23	3.62	206.2	4.02	147.8	116	15.8	
	14-Aug-23	1.7	52.7	4.15	203.9	133	14	0.5
SW3	12-Aug-22	1.4	41.1	3.99	259.8		11.9	2.8
	18-Nov-22	3.09	80.4	5.62	227.1	164	19.5	
	15-Feb-23	3	-72	4.72	215.5	138	25.6	43.33
	16-May-23	0.98	-24	4.36	176	143	14.7	
	14-Aug-23	2.8	0.8	6.31	114.5	74	12.5	5.67
SW4	12-Aug-22	3.75	224	4.57	214		11.3	1.34
	18-Nov-22	3.5	130.2	4.43	217.9	149	22.4	
	15-Feb-23	0.7	-74	5.75	253.3	172	22.7	4.1
	16-May-23	3.74	292.9	3.96	209.7	172	14	
	14-Aug-23	4.3	281.1	3.84	258.6	168	10.9	1.4
WPW	12-Aug-22	10.09	210	5.06	255		14.7	205
	16-Sep-22	9.42	174.5	4.7	208.2	149	20	1000.34
	24-Oct-22	9.11	145.4	4.73	199.4	143	20.2	4120.3
	18-Nov-22	8.57	209.5	4.77	253.6	167	24.3	
	14-Dec-22	8.64	189.5	4.97	267.8	174	22.1	3055.6
	17-Jan-23	8.24	195.3	4.69	264.1	167	26.5	415
	15-Mar-23	8.29	171.9	4.83	297.2	195	24.7	468.5

Table 16
Field Parameters
WSS Cabbage Tree Road Sand Quarry
Cabbage Tree Road, Wiliamtown, NSW

Parameters		DO	ORP	PH	SC	TDS	TEMP	TURB
Unit		mg/L	mV	pH units	uS/cm	mg/L	deg C	NTU
Well ID	Date							
WPW2	15-Feb-23	8.2	470.7	6.1	272	164	29	4.88
	18-Apr-23	8.61	203.3	5	226.3	163	20	56.08
	16-May-23	9.61	249.7	4.71	230.1	173	17.8	
	14-Jun-23	10.7	168.3	4.46	263.5	171	14.6	1037
	14-Jun-23	10.7	168.3	4.46	263.5	171	14.6	1037
	24-Jul-23	11.79	448	2.65	1207	980	14.5	1300
	14-Aug-23	10.2	205.6	4.41	242.8	158	15.9	42
	13-Sep-23	9.94	156.3	4.8	208.8	162	16.6	483

HydroTerra
Environmental Monitoring Specialists

DataStream™

Document No: 2017	
Reviewed by: IT	
Approved by: R&WM	
Issued date: 25/11/21	

EQUIPMENT QUALITY REPORT

Water Quality Meter:

Serial Number: 23F105250

The following equipment has been issued as follows:

✓ Equipment is clean ✓ Impeller and probe check

Calibration Results									
Parameter	Solution Brand and Batch no.			Standard			Error Range	Result		
Temperature (°C)	-			25°C			-	25°C		
pH				10	7.00	4.00	± 0.2	10	7.01	4.01
Sp. Conductivity (µS/cm)				12880			± 20	12878		
DO (%)				0		100	± 3	-0.1		99.1
Redox (mV)				229			± 10	229.1		
Turbidity (NTU/FNU)				0	200	1000	± 2%	0.23	204	1002
Chlorophyll							± 2			

Date: 20/09/2023

Calibrated by: Lachlan Ward

Please check that the following items are received and all items are returned. Please clean equipment before retuning. **A minimum $20 service/repair charge applies to any unclean or damaged items.**

Item	HT Id No.	Sent	Returned
Water Quality Meter	23F105250	✓	
Manual	N/A	✓	
Probe Cluster	N/A	✓	
In situ monitoring cage	N/A	✓	
Storage cup	N/A	✓	
Flow through Cell	N/A	✓	
Calibration cup and lid	N/A	✓	
Spare Batteries / Screwdriver	N/A	✓	
Test and Tag	N/A	✓	

✓ Equipment voltage ✓ Pre-Delivery Calibration Confirmation Test

Date: 20/09/2023

Calibrated by: Lachlan Ward

HT JOB NO: 23-21609 CLIENTS REF: P/O No: 24001832.001A

RETURN DATE: / /	TIME:	CONDITION ON RETURN:

KLEINFELDER

HYDRASLEEVE™ SAMPLING LOG

Project Number:	Date:	Site Address:
24001956	23/10	Cabbage Tree Road.

Site Name:	Field Manager:	Weather Observations:
WSS	TJ	Sunny 30°C

Field Measurements												
Well ID	Sample Time	DTW (mbTOC)	Total Depth (mbTOC)	Sample Depth (mbTOC)	Temp (°C)	DO (mg/L)	EC (µc/cm)	TDS (mg/L)	pH	Redox (mV)	Turbidity (NTU)	Description (Odour, Colour, Sheen)
BH1A	1159	5.670	12.160	—	—	—	—	—	—	—	—	Gauge only
BH2	1148	5.353	8.836	6.500	21.3	3.87	79.5	56	5.69	177.0	50.58	LBr, N/S, N/S
BH4	0940	1.585	~~6.014~~	2.700	18.1	~~4.68~~ 3.58	176.4	95	6.16	155.7	29.40	Clear N/S, N/O.
BH6	1325	1.523	4.528	2.700	20.7	3.90	211.8	150	7.68	2.8	107.4	Clear, N/S,
BH7	1305	1.527	4.526	2.700	21.1	5.91	101.5	71	6.88	5.3	110	Clear, HSodour, N/S
BH9	1130	Dry	16.072	—	—	—	—	—	—	—	—	Gauge only Dry
BH9A	1040	9.164	12.225	10.400	20.2	4.18	71.4	51	5.63	32.5	94.0	LBown, HSodour, N/S
BH11	1219	2.698	5.313	3.800	20.6	3.43	93.6	66	6.07	4.3	47.66	Clear, HSodour, N/S
BH12A	1337	3.177	7.309									Gauge only
MW23S	1350	1.170	3.725	2.300	22.9	3.29	87.6	59	7.72	2.9	132	LBrown,
WPW2	1240	—	—	—	23.9	8.52	116.7	78	6.35	130.2	498	Brown, Earthy odour, N/S

Damaged wells (identify how damaged): _____

*Sample Depth is reported as bottom of hydrasleeve depth

KLEINFELDER
Bright People. Right Solutions.

QA/QC SAMPLE REGISTER

Project Number:	Site Name:	Site Address:
24001956	WSS	Cabbage Tree Road.

Date:	Field Manager:
23/10/23	TJ

Field Sample ID	Field Staff	Date (QC Sample ID)	QC Sample Type	Primary Sample	Rinsate Item (Hand auger, low flow pump etc.)	Rinsate Water Batch	Analysing Lab	Analysis Requested
RB_231023	TJ	23/10	Rinsate	—	IP	—	ALS	See COC
TB_231023	"	"	Trip Blank	—	"	—	"	"

COMMENTS:

ATTACHMENT 3: LABORATORY DOCUMENTATION AND COCS

KLEINFELDER AUSTRALIA PTY LTD

COC number:

KLEINFELDER
Bright People. Right Solutions.

Client:	SITE, COC AND CONTACT DATA				Laboratory:
Kleinfelder Australia Pty Ltd Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290 Phone: 02 4949 5200	Site Name:	WSS Cabbage Tree Road	Sampler Name:	Tom Jeffery	ALS 5/585 Maitland Rd Mayfield West, Newcastle NSW 2304 Phone: 02 4014 2500
	QUOTE NUMBER		Contact Number:	421887830	
	Job No.:	24001956	Contact e-mail:	tjeffery@kleinfelder.com	
	Required TAT:	48 hrs 3 days 5 days 7 days	PM e-mail:	Dkousbroek@kleinfelder.com	
	Data QA level:	LAB minimum unless specified:	EDD Format	KLF_EFWEDD	

CHAIN OF CUSTODY							
Relinquished by (print):	T Jeffery	Received by (print):	BM 3PM	Relinquished:		Received by:	
(sign)		(sign)	BM	(sign)		(sign)	
Date / Time:	3:00pm	Date / Time:	23/10	Date / Time:		Date / Time:	
		Temp. (°C)	0-5			Temp. (°C)	-
Notes:		Notes:	ice present / no ice seals intact / no seal	Notes:		Notes:	ice present / no ice seals intact / no seal

Send Results to:

dkousbroek@kleinfelder.com, tjeffery@kleinfelder.com

Suite 3, 240-244 Pacific Highway
Charlestown, NSW 2290
Phone: 02 4949 5200

Sample ID	Lab ID	Sample Point	Sample Type	Date	Start Depth	End Depth	Units	# Containers	Organic Analytes: TRH, TPH, BTEXN (Silica Gel, Clean Up)									Metals: Dissolved Metals - As, Fe, Mn			Other Analytes: PFAS (23 analytes standard Level)	Extended Water Quality Suite B			HOLD	Comments
BH2			Water	23/10/2023				1										X								
BH4			Water	23/10/2023				1										X								
BH6			Water	23/10/2023				1										X								
BH7			Water	23/10/2023				1										X								
BH9A			Water	23/10/2023				1										X								
BH11			Water	23/10/2023				1										X								
MW239S			Water	23/10/2023				1										X								
WPW2			Water	23/10/2023				3										X			X					
RB_231023			Water	23/10/2023				3										X			X					
TB_231023			Water	23/10/2023				3										X			X					

Environmental Division
Sydney
Work Order Reference
ES2336474

Telephone : +61-2-8784 8555

CERTIFICATE OF ANALYSIS

Work Order	: **ES2336474**	Page	: 1 of 6
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: DANIEL KOUSBROEK	Contact	: Graeme Jablonskas
Address	: Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 24001956	Date Samples Received	: 23-Oct-2023 15:09
Order number	: ----	Date Analysis Commenced	: 25-Oct-2023
C-O-C number	: ----	Issue Date	: 30-Oct-2023 14:23
Sampler	: Tom Jeffery		
Site	: WSS Cabbage Tree Road		
Quote number	: EN/222		
No. of samples received	: 10		
No. of samples analysed	: 10		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH2	BH4	BH6	BH7	BH9A
			Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2336474-001	ES2336474-002	ES2336474-003	ES2336474-004	ES2336474-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.007**	**0.013**	**0.006**	**0.004**	**0.051**
Iron	7439-89-6	0.05	mg/L	**0.11**	**0.08**	**4.27**	**0.53**	**0.63**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH11	MW239S	WPW2	RB_231023	TB_231023
			Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2336474-006	ES2336474-007	ES2336474-008	ES2336474-009	ES2336474-010
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	0.001	mg/L	**0.003**	**0.005**	**0.062**	<0.001	<0.001
Iron	7439-89-6	0.05	mg/L	**0.66**	**0.22**	**0.26**	<0.05	<0.05
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	----	----	<0.01	<0.01	<0.01
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	----	----	**0.02**	<0.01	<0.01
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	----	----	<0.02	<0.02	<0.02
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	----	----	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	----	----	<0.01	<0.01	<0.01
Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	----	----	<0.02	<0.02	<0.02
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	----	----	<0.05	<0.05	<0.05
EP231C: Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	----	----	<0.02	<0.02	<0.02

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	BH11	MW239S	WPW2	RB_231023	TB_231023
			Sampling date / time	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00	23-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2336474-006	ES2336474-007	ES2336474-008	ES2336474-009	ES2336474-010
				Result	Result	Result	Result	Result
EP231C: Perfluoroalkyl Sulfonamides - Continued								
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	----	----	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	----	----	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	----	----	<0.05	<0.05	<0.05
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	----	----	<0.05	<0.05	<0.05
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	----	----	<0.02	<0.02	<0.02
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	----	----	<0.02	<0.02	<0.02
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	----	----	<0.05	<0.05	<0.05
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	----	----	<0.05	<0.05	<0.05
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	----	----	<0.05	<0.05	<0.05
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	----	----	<0.05	<0.05	<0.05
EP231P: PFAS Sums								
Sum of PFAS	----	0.01	µg/L	----	----	**0.02**	<0.01	<0.01
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.01	µg/L	----	----	**0.02**	<0.01	<0.01
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	----	**0.02**	<0.01	<0.01
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	----	**96.6**	**96.7**	**102**
13C8-PFOA	----	0.02	%	----	----	**99.8**	**101**	**103**

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

QUALITY CONTROL REPORT

Work Order	: **ES2336474**	Page	: 1 of 5
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: DANIEL KOUSBROEK	Contact	: Graeme Jablonskas
Address	: Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +6138549 9609
Project	: 24001956	Date Samples Received	: 23-Oct-2023
Order number	: ----	Date Analysis Commenced	: 25-Oct-2023
C-O-C number	: ----	Issue Date	: 30-Oct-2023
Sampler	: Tom Jeffery		
Site	: WSS Cabbage Tree Road		
Quote number	: EN/222		
No. of samples received	: 10		
No. of samples analysed	: 10		

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This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
RPD = Relative Percentage Difference
# = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **WATER**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5384085)									
ES2336440-001	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.027	0.027	0.0	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	22.0	22.2	0.7	0% - 20%
ES2336440-011	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.029	0.029	0.0	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5384086)									
ES2336474-009	RB_231023	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
ES2336778-003	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.005	0.004	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.33	0.33	0.0	0% - 20%
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 5387470)									
ES2336383-002	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	8.54	8.41	1.5	0% - 20%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	22.0	22.0	0.2	0% - 20%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	1.15	1.06	9.0	0% - 20%
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	1.22	1.07	12.6	0% - 20%
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	0.92	0.82	10.9	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	<0.02	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5387470)									
ES2336383-002	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.52	1.43	6.3	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	0.55	0.54	2.9	0% - 20%

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5387470) - continued									
ES2336383-002	Anonymous	EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	2.10	2.06	1.4	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.25	0.25	0.0	0% - 50%
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	0.3	0.3	0.0	No Limit
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 5387470)									
ES2336383-002	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	<0.02	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5387470)									
ES2336383-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	<0.05	0.0	No Limit
EP231P: PFAS Sums (QC Lot: 5387470)									
ES2336383-002	Anonymous	EP231X: Sum of PFAS	----	0.01	µg/L	38.6	37.9	1.6	0% - 20%

Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result	Concentration	LCS	Low	High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5384085)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.5	85.0	114
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	103	82.0	110
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	100	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5384086)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	114
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	103	82.0	110
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.0	82.0	112
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5387470)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	88.9	72.0	130
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.02	µg/L	<0.02	0.25 µg/L	83.5	71.0	127
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	91.0	68.0	131
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.02	µg/L	<0.02	0.25 µg/L	94.9	69.0	134
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	100	65.0	140
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.02	µg/L	<0.02	0.25 µg/L	80.0	53.0	142
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5387470)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	96.9	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	108	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	111	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	112	71.0	133
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.02	µg/L	<0.02	0.25 µg/L	102	69.0	130
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.02	µg/L	<0.02	0.25 µg/L	101	71.0	129
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.02	µg/L	<0.02	0.25 µg/L	113	69.0	133
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.02	µg/L	<0.02	0.25 µg/L	110	72.0	134
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.02	µg/L	<0.02	0.25 µg/L	104	65.0	144
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.05	µg/L	<0.05	0.625 µg/L	101	71.0	132
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5387470)								
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.02	µg/L	<0.02	0.25 µg/L	102	67.0	137
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.05	µg/L	<0.05	0.625 µg/L	105	68.0	141
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.05	µg/L	<0.05	0.625 µg/L	93.9	62.6	147

Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report: Result	Laboratory Control Spike (LCS) Report: Spike Concentration	Spike Recovery (%): LCS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 5387470) - continued								
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.05	µg/L	<0.05	0.625 µg/L	112	66.0	145
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.05	µg/L	<0.05	0.625 µg/L	102	57.6	145
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.02	µg/L	<0.02	0.25 µg/L	107	65.0	136
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.02	µg/L	<0.02	0.25 µg/L	102	61.0	135
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5387470)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	99.1	63.0	143
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	<0.05	0.25 µg/L	115	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	106	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	99.6	71.4	144

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%): MS	Acceptable Limits (%): Low	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5384085)							
ES2336440-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	109	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	118	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5384086)							
ES2336474-010	TB_231023	EG020A-F: Arsenic	7440-38-2	1 mg/L	96.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	108	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2336474**	Page	: 1 of 5
Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: DANIEL KOUSBROEK	Telephone	: +6138549 9609
Project	: 24001956	Date Samples Received	: 23-Oct-2023
Site	: WSS Cabbage Tree Road	Issue Date	: 30-Oct-2023
Sampler	: Tom Jeffery	No. of samples received	: 10
Order number	: ----	No. of samples analysed	: 10

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	17	5.88	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	17	0.00	5.00	NEPM 2013 B3 & ALS QC Standard

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / *Container / Client Sample ID(s)*	*Sample Date*	*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	*Evaluation*	*Date analysed*	*Due for analysis*	*Evaluation*
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) BH2, BH4, BH6, BH7, BH9A, BH11, MW239S, WPW2, RB_231023, TB_231023	**23-Oct-2023**	**----**	----	----	**26-Oct-2023**	20-Apr-2024	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) WPW2, RB_231023, TB_231023	**23-Oct-2023**	**27-Oct-2023**	20-Apr-2024	✓	**30-Oct-2023**	20-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) WPW2, RB_231023, TB_231023	**23-Oct-2023**	**27-Oct-2023**	20-Apr-2024	✓	**30-Oct-2023**	20-Apr-2024	✓
EP231C: Perfluoroalkyl Sulfonamides							
HDPE (no PTFE) (EP231X) WPW2, RB_231023, TB_231023	**23-Oct-2023**	**27-Oct-2023**	20-Apr-2024	✓	**30-Oct-2023**	20-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) WPW2, RB_231023, TB_231023	**23-Oct-2023**	**27-Oct-2023**	20-Apr-2024	✓	**30-Oct-2023**	20-Apr-2024	✓

Matrix: **WATER**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
WPW2, RB_231023, TB_231023	**23-Oct-2023**	**27-Oct-2023**	20-Apr-2024	✓	**30-Oct-2023**	20-Apr-2024	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Duplicates (DUP)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	23	**17.39**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**10.00**	×	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	23	**8.70**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	17	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	*Method*	*Matrix*	*Method Descriptions*
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45µm filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	WATER	In-house: Analysis of fresh and saline waters by Solid Phase Extraction (SPE) followed by LC-Electrospray-MS-MS, Negative Mode using MRM and internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	*Method*	*Matrix*	*Method Descriptions*
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2336474**

Client	: **KLEINFELDER AUSTRALIA PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: DANIEL KOUSBROEK	Contact	: Graeme Jablonskas
Address	: Suite 3, 240 - 244 Pacific Highway Charlestown NSW 2290	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: dkousbroek@kleinfelder.com	E-mail	: graeme.jablonskas@alsglobal.com
Telephone	: ----	Telephone	: +6138549 9609
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 24001956	Page	: 1 of 2
Order number	: ----	Quote number	: EM2017ALLENVENG0022 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WSS Cabbage Tree Road		
Sampler	: Tom Jeffery		

Dates

Date Samples Received	: 23-Oct-2023 15:09	Issue Date	: 23-Oct-2023
Client Requested Due Date	: 30-Oct-2023	Scheduled Reporting Date	: **30-Oct-2023**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 0.5'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 10 / 10

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- **No sample container / preservation non-compliance exists.**

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.
If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EG020F Dissolved Metals by ICP/MS	WATER - EP231X PFAS - Full Suite (28 analytes)
ES2336474-001	23-Oct-2023 00:00	BH2	✓	
ES2336474-002	23-Oct-2023 00:00	BH4	✓	
ES2336474-003	23-Oct-2023 00:00	BH6	✓	
ES2336474-004	23-Oct-2023 00:00	BH7	✓	
ES2336474-005	23-Oct-2023 00:00	BH9A	✓	
ES2336474-006	23-Oct-2023 00:00	BH11	✓	
ES2336474-007	23-Oct-2023 00:00	MW239S	✓	
ES2336474-008	23-Oct-2023 00:00	WPW2	✓	✓
ES2336474-009	23-Oct-2023 00:00	RB_231023	✓	✓
ES2336474-010	23-Oct-2023 00:00	TB_231023	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

DANIEL KOUSBROEK

- *AU Certificate of Analysis - NATA (COA)	Email	dkousbroek@kleinfelder.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	dkousbroek@kleinfelder.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	dkousbroek@kleinfelder.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	dkousbroek@kleinfelder.com
- A4 - AU Tax Invoice (INV)	Email	dkousbroek@kleinfelder.com
- Chain of Custody (CoC) (COC)	Email	dkousbroek@kleinfelder.com
- EDI Format - ENMRG (ENMRG)	Email	dkousbroek@kleinfelder.com
- EDI Format - EQuIS V5 for KLEINFELDER (KLEINFELDER)	Email	dkousbroek@kleinfelder.com
- EDI Format - ESDAT (ESDAT)	Email	dkousbroek@kleinfelder.com

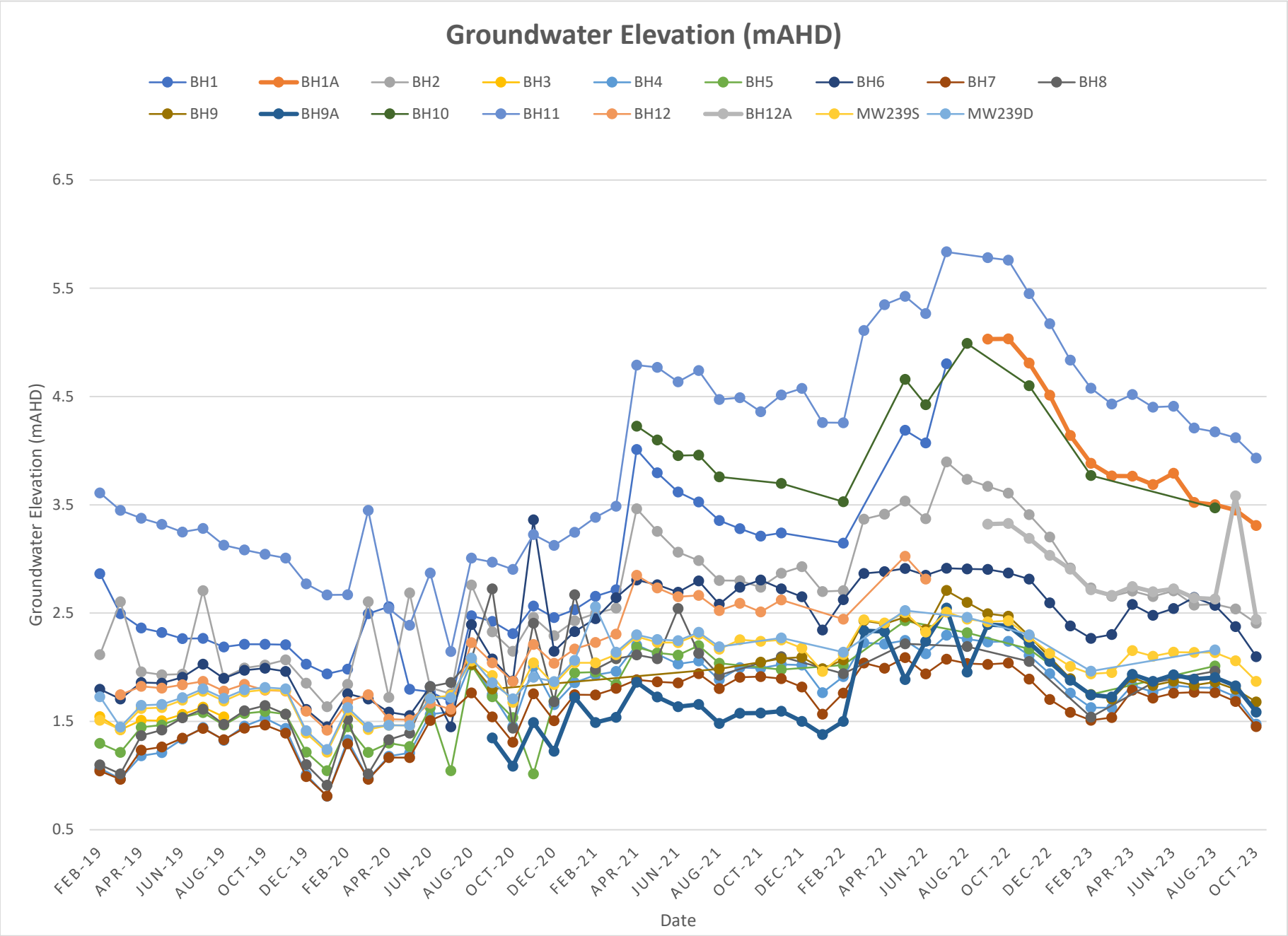
INVOICES

- A4 - AU Tax Invoice (INV)	Email	Aus_Accounts@kleinfelder.com

THOMAS JEFFERY

- *AU Certificate of Analysis - NATA (COA)	Email	tjeffery@kleinfelder.com
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	tjeffery@kleinfelder.com
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	tjeffery@kleinfelder.com
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	tjeffery@kleinfelder.com
- Chain of Custody (CoC) (COC)	Email	tjeffery@kleinfelder.com
- EDI Format - ENMRG (ENMRG)	Email	tjeffery@kleinfelder.com
- EDI Format - EQuIS V5 for KLEINFELDER (KLEINFELDER)	Email	tjeffery@kleinfelder.com
- EDI Format - ESDAT (ESDAT)	Email	tjeffery@kleinfelder.com

ATTACHMENT 4: DATA TRENDS


Groundwater Elevation (mAHD)
BH1
BH1A
BH2
BH3
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12
BH12A
MW239S
MW239D
6.5
5.5
4.5
3.5
2.5
1.5
0.5
Groundwater Elevation (mAHD)
FEB-19
APR-19
JUN-19
AUG-19
OCT-19
DEC-19
FEB-20
APR-20
JUN-20
AUG-20
OCT-20
DEC-20
FEB-21
APR-21
JUN-21
AUG-21
OCT-21
DEC-21
FEB-22
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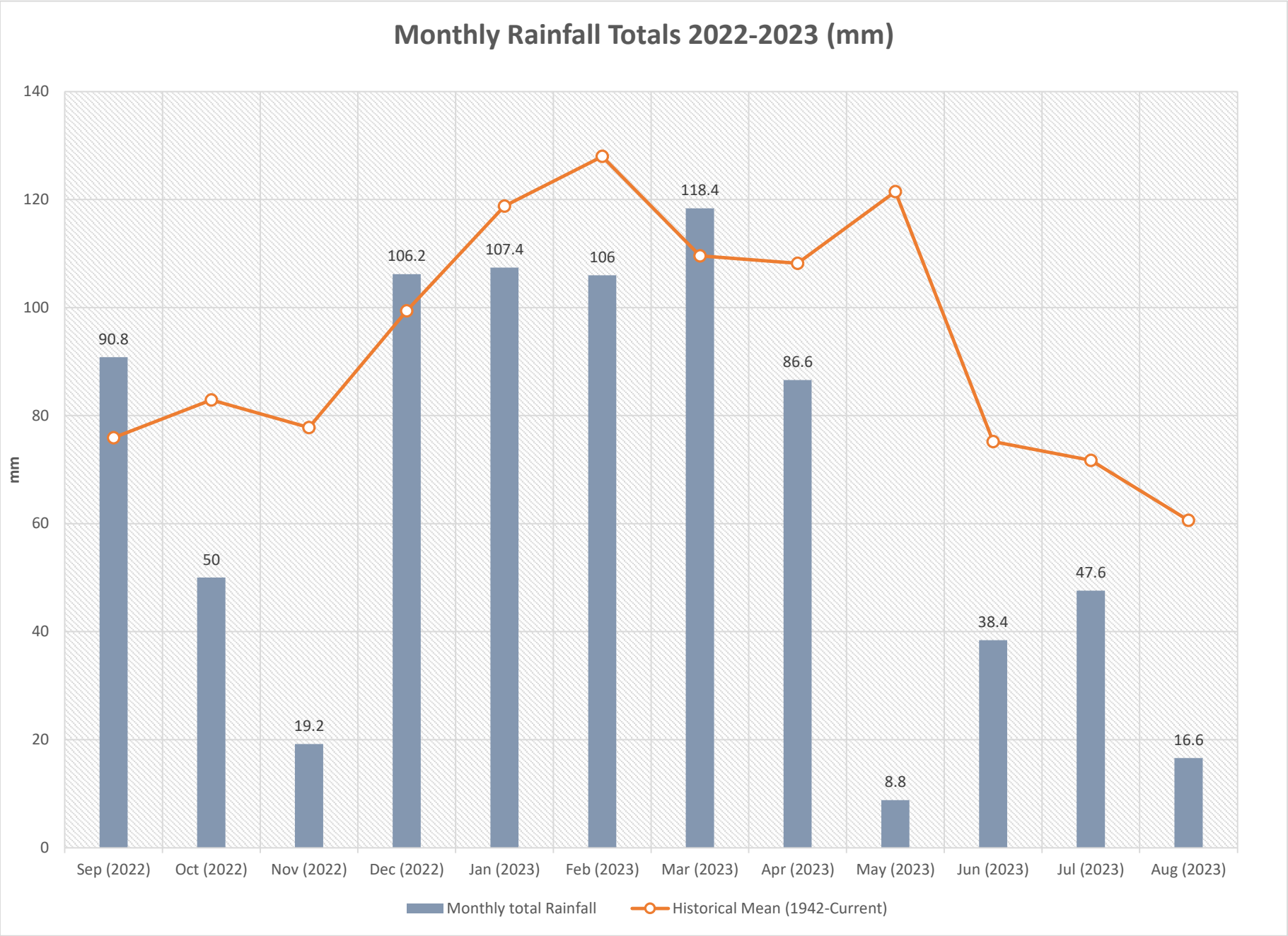
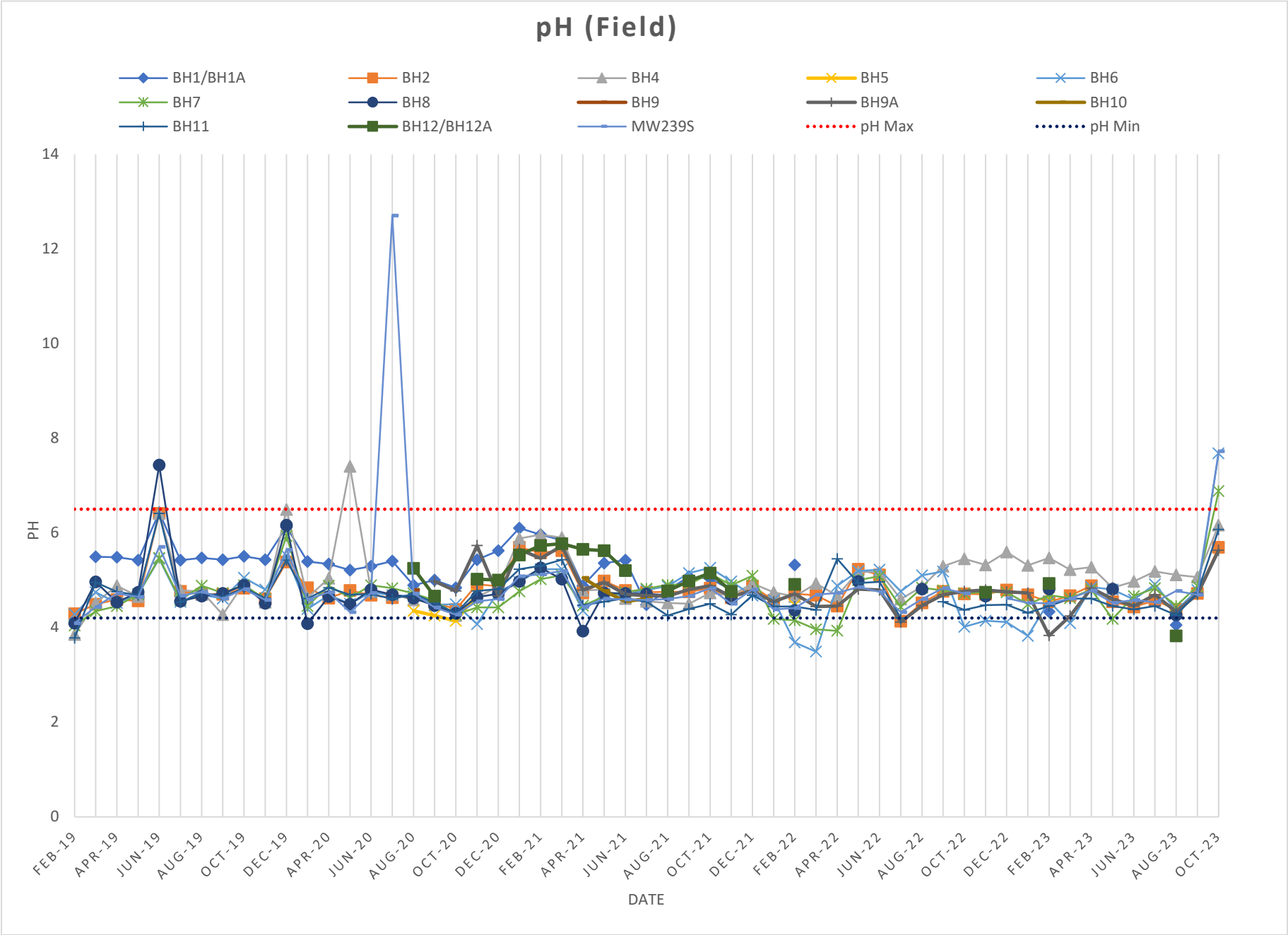
AUG-23
OCT-23
Date


Monthly Rainfall Totals 2022-2023 (mm)
mm
140
120
100
80
60
40
20
0
90.8
50
19.2
106.2
107.4
106
118.4
86.6
8.8
38.4
47.6
16.6
Sep (2022)
Oct (2022)
Nov (2022)
Dec (2022)
Jan (2023)
Feb (2023)
Mar (2023)
Apr (2023)
May (2023)
Jun (2023)
Jul (2023)
Aug (2023)
Monthly total Rainfall
Historical Mean (1942-Current)


pH (Field)
BH1/BH1A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12/BH12A
MW239S
pH Max
pH Min
PH
DATE
0
2
4
6
8
10
12
14
FEB-19
APR-19
JUN-19
AUG-19
OCT-19
DEC-19
APR-20
JUN-20
AUG-20
OCT-20
DEC-20
FEB-21
APR-21
JUN-21
AUG-21
OCT-21
DEC-21
FEB-22
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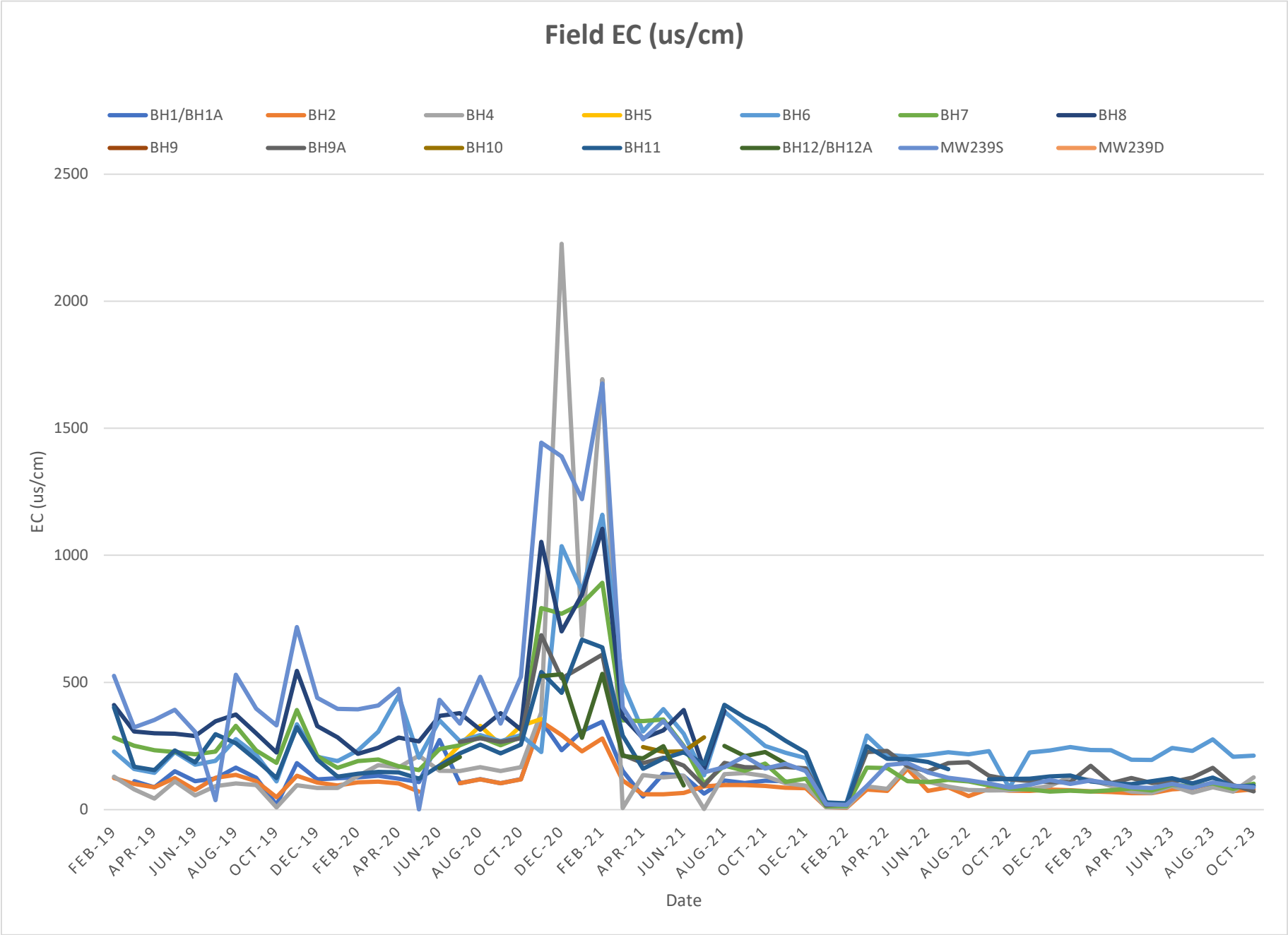
AUG-22
OCT-22
DEC-22
FEB-23
APR-23
JUN-23
AUG-23
OCT-23


Field EC (us/cm)
BH1/BH1A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
BH11
BH12/BH12A
MW239S
MW239D
EC (us/cm)
2500
2000
1500
1000
500
0
FEB-19
APR-19
JUN-19
AUG-19
OCT-19
DEC-19
FEB-20
APR-20
JUN-20
AUG-20
OCT-20
DEC-20
FEB-21
APR-21
JUN-21
AUG-21
OCT-21
DEC-21
FEB-22
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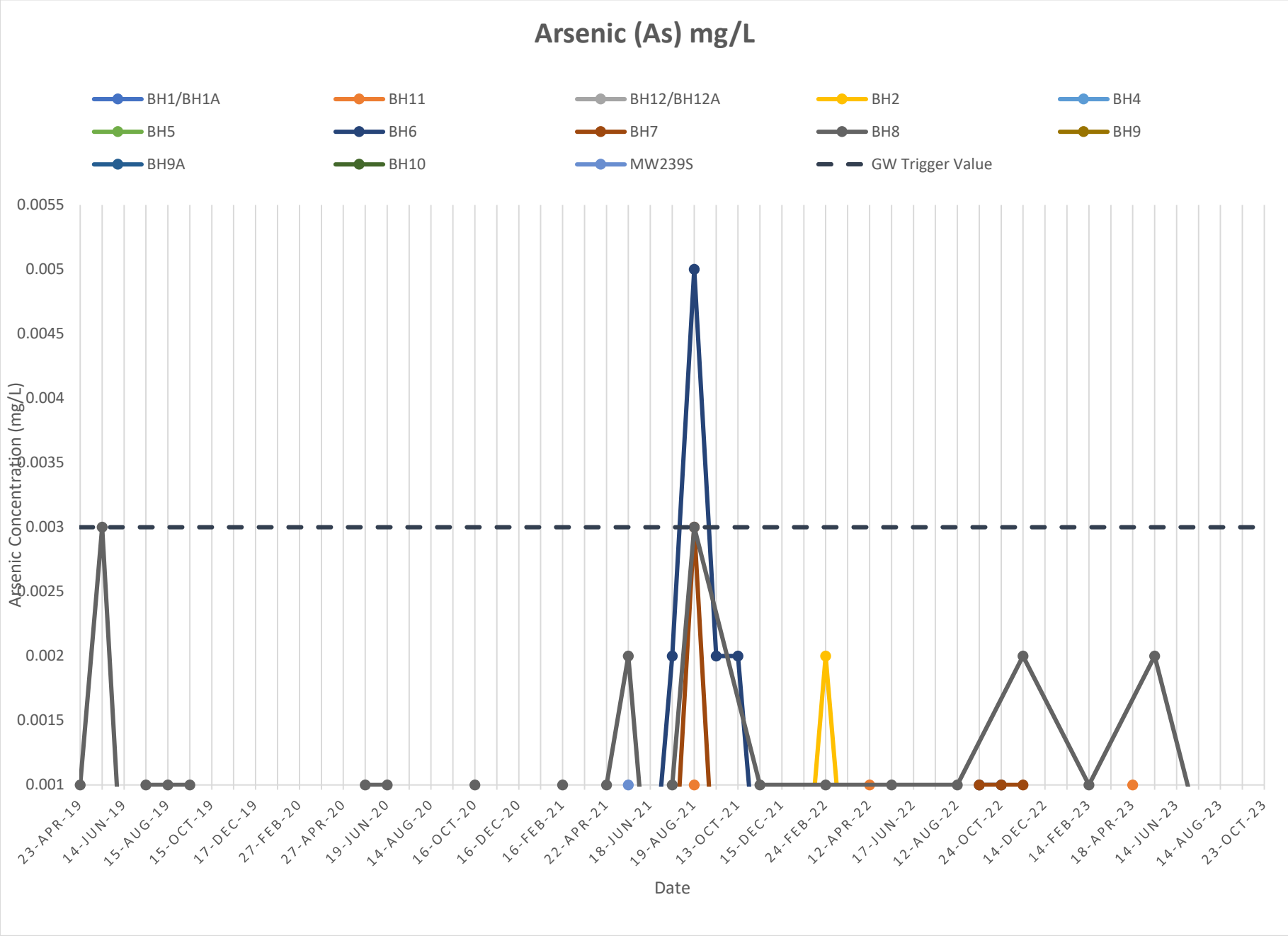
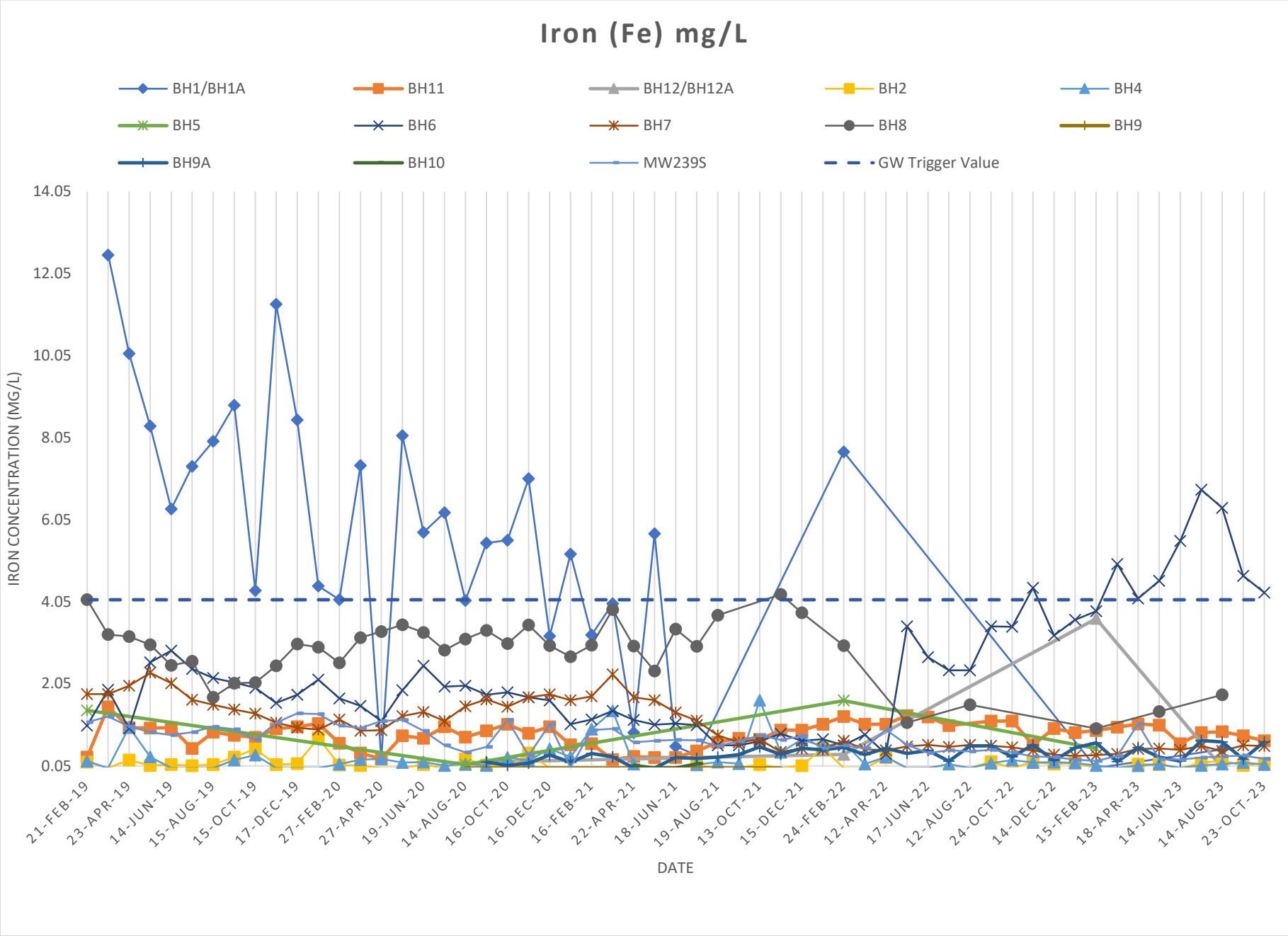
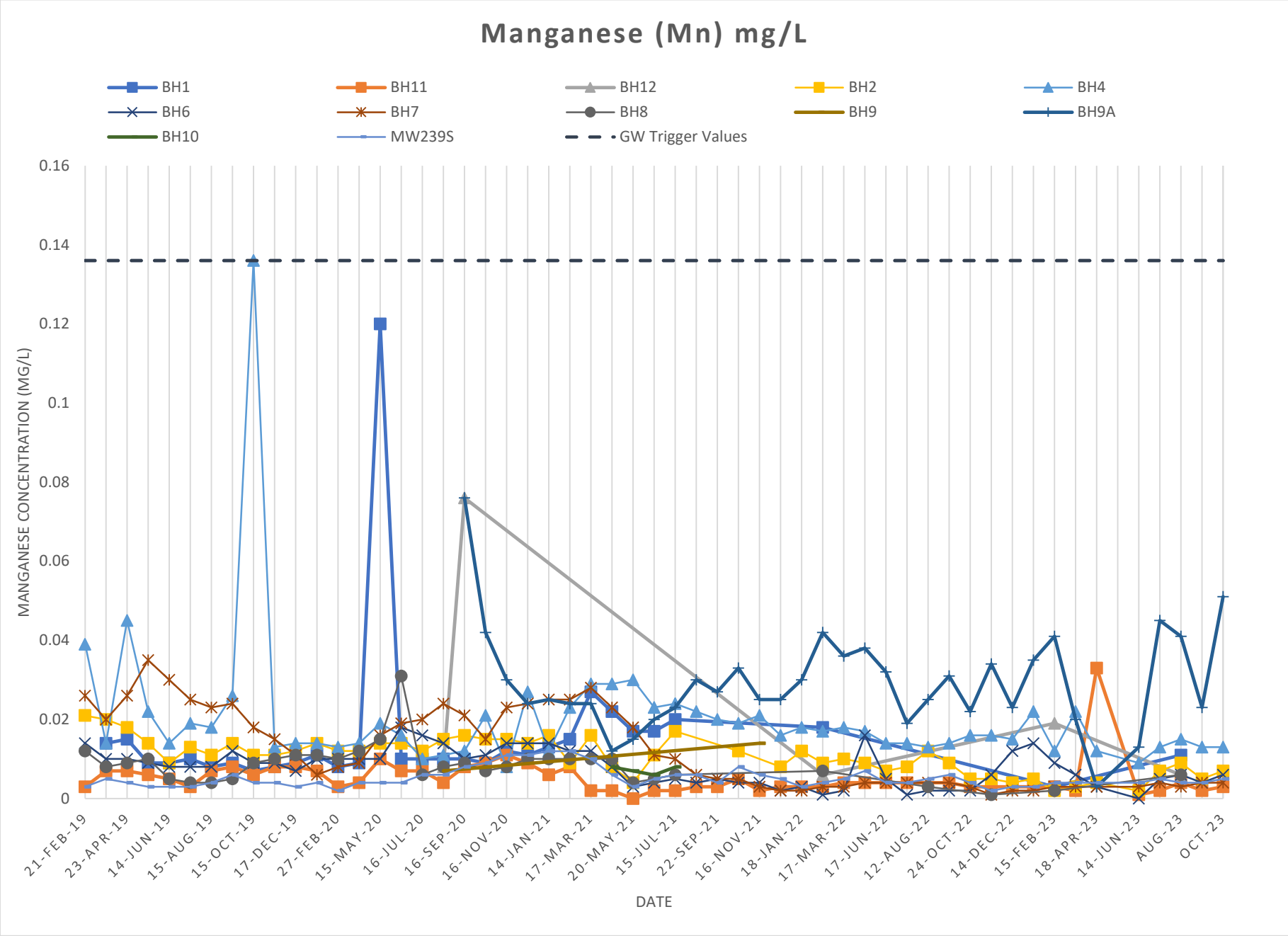
AUG-23
OCT-23
Date


Arsenic (As) mg/L
BH1/BH1A
BH11
BH12/BH12A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
GW Trigger Value
Arsenic Concentration (mg/L)
0.0055
0.005
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
23-APR-19
14-JUN-19
15-AUG-19
15-OCT-19
17-DEC-19
27-FEB-20
27-APR-20
19-JUN-20
14-AUG-20
16-OCT-20
16-DEC-20
16-FEB-21
22-APR-21
18-JUN-21
19-AUG-21
13-OCT-21
15-DEC-21
24-FEB-22
12-APR-22
17-JUN-22
12-AUG-22
24-OCT-22
14-DEC-22
14-FEB-23
18-APR-23
14-JUN-23
14-AUG-23
23-OCT-23
Date


Iron (Fe) mg/L
BH1/BH1A
BH11
BH12/BH12A
BH2
BH4
BH5
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
GW Trigger Value
IRON CONCENTRATION (MG/L)
14.05
12.05
10.05
8.05
6.05
4.05
2.05
0.05
21-FEB-19
23-APR-19
14-JUN-19
15-AUG-19
15-OCT-19
17-DEC-19
27-FEB-20
27-APR-20
19-JUN-20
14-AUG-20
16-OCT-20
16-DEC-20
16-FEB-21
22-APR-21
18-JUN-21
19-AUG-21
13-OCT-21
15-DEC-21
24-FEB-22
12-APR-22
17-JUN-22
12-AUG-22
24-OCT-22
14-DEC-22
15-FEB-23
18-APR-23
14-JUN-23
14-AUG-23
23-OCT-23
DATE


Manganese (Mn) mg/L
BH1
BH11
BH12
BH2
BH4
BH6
BH7
BH8
BH9
BH9A
BH10
MW239S
GW Trigger Values
MANGANESE CONCENTRATION (MG/L)
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
21-FEB-19
23-APR-19
14-JUN-19
15-AUG-19
15-OCT-19
17-DEC-19
27-FEB-20
15-MAY-20
16-JUL-20
16-SEP-20
16-NOV-20
14-JAN-21
17-MAR-21
20-MAY-21
15-JUL-21
22-SEP-21
16-NOV-21
18-JAN-22
17-MAR-22
17-JUN-22
12-AUG-22
24-OCT-22
14-DEC-22
15-FEB-23
18-APR-23
14-JUN-23
AUG-23
OCT-23
DATE