

THRL Pty Ltd  
Annual Compliance Report for Scenic Rim Trail – Thornton  
Trailhead to Spicers Canopy Nature Reserve,  
Queensland (EPBC 2016/7847)

Surface Water Investigations for 6th Round of Annual  
Monitoring of Surface and Groundwaters  
at Amphitheatre and Woodcutters EcoCamps.

Main Range National Park, Queensland, Australia.

5 December, 2025



*Moreton Environmental and Health Pty Ltd*

220 Avalon Road,  
Sheldon, QLD 4157.

ABN: 169 746 123

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Name	Company	Version Sent	Email Address
Kira Klein	THRL Pty Ltd	FINAL	gm.scenicrimtrail@spicersretreats.com

## Executive Summary

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### Background

Moreton Environmental and Health Pty Ltd (MEH) was engaged by THRL Pty Ltd ACN 137 592 593 (THRL) to provide the 6<sup>th</sup> annual report on water quality data for impacts of treated wastewater effluent disposal areas at the Timber Getters EcoCamp and Amphitheatre View Wilderness EcoCamp, as well as the two nearby creek crossings, Blackfellow and Dalrymple Creeks, along the Scenic Rim Trail between the Thornton Trailhead and the Spicers Canopy Nature Reserve.

This data collection is designed to ensure monitoring will detect any downstream changes in surface water (SW) and groundwater (GW) quality from impacts of the Timber Getters EcoCamp and Amphitheatre EcoCamp and creek crossings in accordance with the Scenic Rim Trail Management Plan, dated 31<sup>st</sup> March 2019 (O'Hara, 2019) and Sewage and Wastewater Monitoring Plan (SWMP), (MEH, 2025b).

### Results

There are occurrences of median values above the Water Quality Objectives (WQO), as outlined in **Tables 4 - 10** and **Graphs 1-12**, that demonstrate:

- The Total Nitrogen (TN) or Total Phosphorus (TP) levels in sampling over the six-year period have exceeded the WQO for locations associated with EcoCamp monitoring between 2019 – 2025 24% of the time
- The TN or TP levels in sampling over the six-year period have exceeded the WQO for locations associated with creek crossing monitoring between 2019 – 2025 25% of the time
- However, Ammonia, Oxidised Nitrogen and Filterable Phosphorus levels have exceeded the WQO much of the time in the creek systems studied and, therefore, are not considered a reliable trigger level for exceedances of nutrients from impacts in the creek systems being studied.
- The median value for TN exceeded the low-flow WQO of 270 µg/L 13 times between 2019 – 2025.
- The median value for Total Phosphorus exceeded the low-flow WQO of 110 µg/L twice in 2019 at SW06 and SW08.

### Observations

Considering the changes of nutrients over time, set out in **section 6.5, Graphs 1-6** and Table 11, the following observations are made:

- Considering the changes in nutrient levels over time in **section 6.5** and **Graphs 1-6** and Table 11, Table 21, Table 22 the following observations are made:
  - a. There is no discernible trend between control sites and impacted sites;

- b. The 51 relatively high results in the last six years above the WQO for TN and TP are across both control and potentially impacted sites, as well as at locations monitoring creek crossings and EcoCamps; and
- c. There is no increase in Nitrogen or Phosphorus over time.

In order to make inferences on whether the median nutrient levels in the potentially impacted sites are greater than in the control sites, , MEH conducted statistical analysis using basic descriptive statistics, Mann-Whitney tests, and Mood's median tests to determine whether the difference in sample medians of the impacted sites and the control sites were statistically different, as discussed in **section 6.6** of this report.

**Section 6.6** Statistical Analysis of Nutrient Results shows the Mann-Whitney test results. These results demonstrated there was an insufficient number of samples to determine statistically whether the sample medians in the impacted sites were or were not equal to the control site medians (details of Statistical Analysis shown in **Appendix D**). To correct this issue, an estimated 20 to 30 samples per site are needed, depending on the variance in the data.

MEH conducted Mann-Whitney and Mood's test on Turbidity and Suspended Solids (SS) at the two creek crossings and the population medians are all equal. As the P-value is greater than the significance level of 0.05, it is feasible to neither reject nor **accept the H<sub>0</sub>**, concluding that the differences between the sample medians are not statistically significant.

MEH also conducted Mann-Whitney and Mood's test on TKN, TN, TP and FP at the sample locations monitoring the two EcoCamps. The population medians are all equal and as the P-value is greater than the significance level of 0.05, it is feasible to neither reject nor **accept the H<sub>0</sub>**, concluding that the differences between the sample medians are not statistically significant.

The minor metalloid concentrations, and difference between total and dissolved, demonstrates that the metalloids are locked up in the sediments and are naturally derived from the volcanic bedrock.

Other parameters measured during the annual monitoring events of 2025, such as total dissolved salts, total hardness, alkalinity, chloride, major cations and SAR, found that the sampling values were all similar between all locations over time, including to baseline conditions. This adds to the weight of evidence that Blackfellow and Dalrymple Creeks and their tributaries are currently predominantly being groundwater-fed.

The E. coli levels in both creek systems in 2025 were 72% >10 CFU/100mL and 28 % <10 CFU/100mL, with a maximum value of 450 CFU/100mL and median value of 42 CFU/100mL, which are considered as background concentrations of E. coli in an Australian River Systems, (Sinclair, 2019).

Guidelines on primary contact (including bathing) in recreational waters indicates median values of over 150 CFU/100ml are considered likely to be disease-causing with long-term exposure, (ANZECC, 2000).

## Conclusions

MEH can conclude there has been no change in water quality referred to in conditions **8A, 14.c. or 15A** of the Conditions of Approval (Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC ref 2016/7847)) and no incident associated with the operation of the Scenic Rim Trail Eco Camps, including disposal of treated effluent, that has had an adverse impact on water quality and therefore potential to impact Matters of National Environmental Significance (MNES) and world heritage values of the Gondwana Rainforests of Australia World Heritage area (GRAWHA) in 2025.

MEH recommends continued testing of surface water locations to monitor any potential surface and groundwater impacts from the disposal of treated effluent once the land disposal of treated effluent commences. MEH also recommends the continued monitoring of potential impacts on the use of creek crossings, as well as any influence of overland flow or groundwater flow from the sites.

Following consultation with DCCEEW, revised Conditions of Approval, and the production of the SWMP, MEH has revisited both baseline and trigger values for this project, concluding

- Agreement that baseline data could now be the last five years of data, 2019 – 2024;
- That the trigger points indicating there has been an incident (as defined by conditions and set out in the Glossary) shall be determined by:
  - A multiple lines of evidence approach based on criteria, including but not limited to:
    - Individual sample results above the maximum baseline level;
    - Annual or median values above the WQO;
    - Whether the annual medians of the potentially impact sites are greater than their control;
    - Whether cumulative medians of potentially impacted sites are statistically not the same using nonparametric statistics;
    - Whether there are changes in parameters over time;
    - Whether trend analysis demonstrates a change in water quality; and
    - Whether the change in water quality could harm a protected matter (as defined by conditions and set out in the Glossary).

### MEH is proposing the following:

1. The continued use of a multiple lines of evidence approach as outlined above.
2. The current regime of testing monitoring points for EcoCamps Amphitheatre (SW01, 02 and 05) and Woodcutters (SW03, 04, 06) to continue with the following parameters:
  - a) E. coli (cfu/100 mL);
  - b) Ammonia-N (mg/L N as Ammonia), Total Kjeldahl Nitrogen, Nitrate, Nitrite (mg/L as N);
  - c) Total Phosphorus, Ortho-Phosphate (mg/L);
  - d) Major Anions (Cl, SO<sub>4</sub>, HCO<sub>3</sub>, F);
  - e) Major Cations (Na, K, Ca, Mg);
  - f) Total and dissolved metal concentrations (Al, Fe, Mn, As, Cd, Cr, Cu, Ni, Pb, Zn);

- g) Field Parameters of pH, DO (surface water only), ORP (groundwater only), Temperature and EC.
- 3. The monitoring of creek crossings at Blackfellows and Dalrymple will be limited to analysis of Suspended Solids and field parameters of pH, Temperature, Dissolved oxygen (DO), ORP, EC and Turbidity.
- 4. Further statistical analysis to be continued with increased inferences being possible once sample numbers have increased to between 20 and 30 samples in each data set representing seasonal variability.

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## 1. Introduction

Moreton Environmental and Health Pty Ltd (MEH) was engaged by THRL Pty Ltd ACN 137 592 593 (THRL) to provide the 6<sup>th</sup> annual report on water quality data for impacts of treated wastewater effluent disposal areas at the Timber Getters EcoCamp and Amphitheatre View Wilderness EcoCamp, as well as at the two nearby creek crossings, Blackfellow and Dalrymple Creeks, along the Scenic Rim Trail between the Thornton Trailhead and the Spicers Canopy Nature Reserve.

Surface water assessment was conducted at monitoring sites in the Main Range National Park as part of a 10-year monitoring program that will:

- determine whether activities associated with the development and operation of the Spicers Scenic Rim Trail have an adverse impact on Matters of National Environmental Significance (MNES). This report will contribute to the decision process of the broader THRL Environmental Team in assessing the quality of natural waters.
- monitor water quality data using trigger values from the Scenic Rim Trail Management Plan, dated 31<sup>st</sup> March 2019, (O'Hara, 2019).
- make recommendations of any corrective actions or any changes to the Scenic Rim Trail Management Plan, dated 31<sup>st</sup> March 2019, (O'Hara, 2019) and/or Sewage and Wastewater Monitoring Plan (SWMP), (MEH, 2025b).

It should be noted that Moreton Environmental Pty Ltd (MEL) changed its name to Moreton Environmental and Health Pty Ltd (MEH) in 2020. MEL and MEH are the same company with the same Principal scientist and Director of the companies, Dan Morton.

In addition, THRL originally referred to their EcoCamps as Amphitheatre View Wilderness Ecocamp and Woodcutters Ecocamp, as stated in the Department of Climate Change, Energy, the Environment and Water (DCCEEW) approval, Appendix A. Subsequently THRL has referred to the two EcoCamps as Amphitheatre and Timber Getters however, they are referred to as outlined in the Approval throughout this report.

Currently, MEH maintains that the following monitoring regime is sufficient for the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) assessment as outlined in Conditions of Approval (Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC ref 2016/7847)).

Surface water assessment has been, and will continue to be, conducted at monitoring sites in the Main Range National Park as part of a 10-year monitoring program, outlined in the Scenic Rim Trail Management Plan (SRTMP). This will determine whether activities associated with the operation of the Scenic Rim Trail Eco Camps, including disposal of treated effluent, have had an adverse impact on water quality and therefore potential to impact Matters of National Environmental Significance (MNES) and world heritage values of the Gondwana Rainforests of Australia World Heritage area (GRAWHA).

In accordance with **Condition 8A** in Variation of Conditions attached to Approval (Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC ref 2016/7847)), dated 2019). The Sewage and Wastewater Monitoring Plan (SWMP) outlines the methods (including survey methodology, effort, timing, frequency and responsibility) that will be implemented for the collection and analysis of data regarding soil and water quality to establish a baseline, and to subsequently detect any change from baseline outside the boundaries of the **Woodcutters Eco Camp** and **Amphitheatre View Wilderness Eco Camp** attributable to onsite disposal of sewage or wastewater.

In addition, **Blackfellows Creek** and **Dalrymple Creek Crossings** are monitored in accordance with Condition 8 in Variation of Conditions attached to Approval (Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC ref 2016/7847)), dated 2019). The Scenic Rim Trail Management Plan (SRTMP) outlines the methods (including survey methodology, effort, timing, frequency and responsibility) implemented for the collection and analysis of data regarding water quality to establish a baseline, and to subsequently detect any change from baseline **upstream** and **downstream** of the **crossings**.

This data collection is designed to ensure monitoring will detect any downstream changes in surface water (SW) and groundwater (GW) quality from impacts of the Timber Getters EcoCamp (Timber Getters), the Amphitheatre View Wilderness (Amphitheatre) EcoCamp, and creek crossings in the Scenic Rim Trail Management Plan, dated 31<sup>st</sup> March 2019, (O’Hara, 2019), Sewage and Wastewater Monitoring Plan (SWMP), (MEH, 2025b) and is in accordance with the DES Monitoring and Sampling Manual, (DEHP, 2013).

## 1.1 Objectives

The monitoring study objective is to monitor potential impacts from the disposal of treated effluent and the use of creek crossings.

## 1.2 Legislation and Guidance for Recycled Water Use

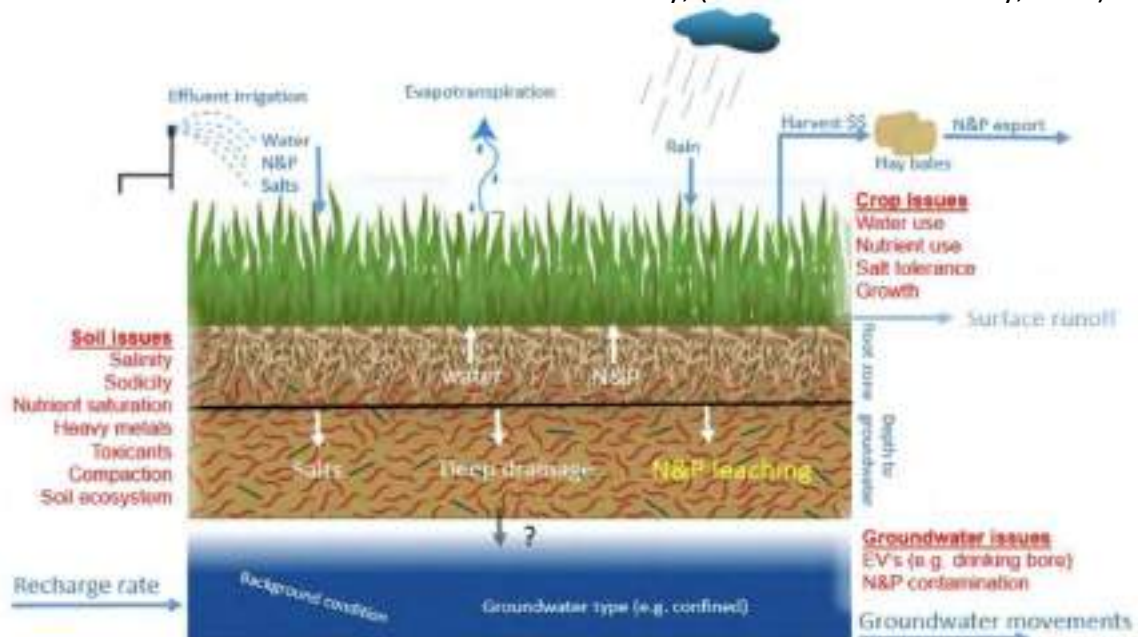
The following legislation and guidance are pertinent to recycled or treated effluent waters.

- Environmental Protection Act 1994 Qld, (Queensland, 2015b).
- Environmental Protection Regulation 2019 (Qld), (Queensland, 2019b);
- Environmental Protection (Water) Policy 2009, (Queensland, 2012);
- Environmental Protection (Water and Wetland Biodiversity) Policy 2019, (Queensland, 2019a);
- Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy, (NHMRC and NRMCC, 2011);
- Sustainable Planning Act 2009 (Qld), (State of Queensland, 2009);
- Work Health and Safety Act 2011 (Qld), (Queensland, 2011);
- Public Health Regulation 2018, (Queensland, 2018b);
- Water Supply (Safety and Reliability Act) 2008, (Queensland, 2017b).
- Plumbing and Drainage Act 2018 (Qld), (Queensland, 2024);
- Eligibility criteria and standard conditions for sewage treatment works (ERA63), (Queensland, 2015a);
- Model operating conditions ERA 63—Sewage Treatment, (Queensland, 2017a);
- Guideline for low- exposure recycled water schemes, (Health, 2022);

- Disposal of effluent using irrigation - Technical guideline, (Tennakoon and Ramsay, 2020);
- Water quality guidelines for recycled water schemes, (Queensland, 2013);
- Monitoring and Sampling Manual, Environmental Protection (Water) Policy 2009, (Queensland, 2018a).

### 1.3 Rationale

The QLD Dept. of Environment and Heritage Protection (DEPH) 2012 Technical Guideline for Disposal of Effluent via Irrigation states that land disposal requires proper planning and management to reduce the risk of impact to surface waters and groundwater, protect human health and maintain soil sustainability, (Tennakoon and Ramsay, 2020).



**Schematic 1. Effluent irrigation and environmental interaction conceptual model, (Tennakoon and Ramsay, 2020).**

The eligibility criteria and standard conditions for sewage treatment works (Environmental Relevant Activity (ERA) 63) states that treated effluent is permitted to be released to land provided that it is done in accordance with a written procedure that ensures:

- infiltration to groundwater and subsurface flows of contaminants to surface waters are prevented;
- surface pondage and run-off of effluent are prevented;
- degradation of soil structure is minimised;
- soil sodicity and the build-up of nutrients and heavy metals in the soil and subsoil are minimised;
- spray drift or overspray do not carry beyond effluent disposal areas;
- effluent disposal areas are maintained with an appropriate crop in a viable state for transpiration; and
- the crop on the disposal area is harvested and removed from the disposal area.

When weather conditions or soil conditions preclude the release of effluent to land, effluent must be directed to wet weather storage or be lawfully removed from the site.

A site-specific conceptual site model of the micro scale of interactions of the disposal of treated effluent on the land with the environment is shown in **Figure 6** in **Figures**.

MEH recommends a Before-After Control-Impact (BACI) study design be used to monitor surface water for impact of wastewater disposal areas in the EcoCamps and the creek crossings, quarterly monitoring. This report is the 6th monitoring report in a series over six years, with previous reports listed in section 3 of this report.

The median values will be monitored over the long term along with maximum conditions in any one monitoring event, in accordance with the Australian & New Zealand Guidelines for Fresh & Marine Water Quality (ANZG)

(<https://www.waterquality.gov.au/anz-guidelines/monitoring/study-design/preparation#ecological>).

The ANZG allows for more flexibility and considering the level of protection, MEH, has used the high conservation or high ecological value guidance.

As described in section 2, Main Range National Park is part of Gondwana Rainforests of Australia World Heritage Area (GRAWHA), which is effectively unmodified or highly valued ecosystem. Although, the GRAWHA has some human influence, the ecological integrity of our high conservation or ecological value systems is regarded as 'intact'. Therefore, the level of protection should typically require no change in biodiversity beyond natural variability. Where possible, there should also be no change in water/sediment chemical and physical properties, including naturally occurring toxicants such as nutrients.

ANZG recommends

- No change beyond natural variability, using ecologically conservative decision criteria for detecting change.
- Where reference condition is poorly characterised, we recommend actions to increase the power of detecting a change.
- Any relaxation of this objective should only be considered where comprehensive biological effects and monitoring data clearly show that biodiversity would not be altered.
- Taking a precautionary approach for assessment of post-baseline data through trend analysis or feedback triggers.

Following consultation with DCCEEW, revised Conditions of Approval, and the production of the SWMP, MEH has revisited both baseline and trigger values for this project.

- Agreement that baseline data could now be the last five years of data, 2019 – 2024;
- That the trigger points indicating there has been an incident (as defined by conditions and set out in the Glossary) shall be determined by:
  - A multiple lines of evidence approach based on criteria, including but not limited to:
    - Individual sample results above the maximum baseline level;
    - Annual or median values above the WQO;
    - Whether the annual medians of the potentially impact sites are greater than their control;
    - Whether cumulative medians of potentially impacted sites are statistically not the same using nonparametric statistics;
    - Whether there are changes in parameters over time;
    - Whether trend analysis demonstrates a change in water quality; and
    - Whether the change in water quality could harm a protected matter (as defined by conditions and set out in the Glossary).

## 2 Environmental Values

The values of the Gondwana Rainforests of Australia World Heritage Area (GRAWHA) include outstanding examples of major stages of the Earth's evolutionary history, ongoing geological and biological processes, and exceptional biological diversity. A wide range of plant and animal lineages and communities with ancient origins in Gondwana, many of which are restricted largely or entirely to the Gondwana Rainforests, survive in this collection of reserves. The Gondwana Rainforests also provides the principal habitat for many threatened species of plants and animals,

([www.https://www.dcceew.gov.au/parks-heritage/heritage/places/world/gondwana#outstanding-universal-value](https://www.dcceew.gov.au/parks-heritage/heritage/places/world/gondwana#outstanding-universal-value)).

It should be noted that the upper catchment has evidence of feral pigs, and it is known that feral pigs degrade water quality. The lower catchment has evidence of feral cattle, which is also known to degrade water quality. The pollution from feral animals will be episodic to some extent due to ongoing pest control and attenuation is likely to be low in upper catchments, partly due to the fast flowing nature of streams and low water residence times (Mitchell, 2010) and (James D. Vincent et al., 2021).

The health of the MNES in GRAWHA, specifically the Hastings River Mouse, Fleay's Frog and the Mountain Frog, is assessed by Penn Lloyd of Biodiversity Assessment and Management Pty Ltd (BAAM) on an annual basis. In BAAM's 2024 report, riparian habitat quality had not changed upstream or downstream of the two creek crossings, (BAAM, 2024). The threaten species or MNES have **potential** to be impacted from the activities of the Eco Camps, in particular the disposal of treated effluent, through adverse effects on water quality. Therefore, the principal indicator of diminishing value or impact on MNES is changes in water quality downstream of the Eco Camps. Any changes in soil quality within 50 meters of the Eco Camps will also be used to determine potential impact.

In terms of water quality, the Water Quality Objectives (WQO) for the Condamine Basin, including Dalrymple and Glengallan Creeks, were finalised in October 2020 and the relevant catchments, including Dalrymple and Glengallan Creeks are shown in **Page 3** and **4** in **Figures**. The Dalrymple Creek and the tributary Blackfellow Creek systems are in the south eastern Condamine Basin, as shown in **Page 3** in **Figures**.

As indicated above, feral animals are likely to have more impact on the threaten species or MNES than the EcoCamps as the Main Range National Park and values of GRWHA are under threat from the impact of feral pigs and cattle in the national park, (Gondwana—Threat management, <https://www.qld.gov.au/environment/plants-animals/conservation/bushfires-threatened-species-recovery/recovery-projects/gondwana-wha/threat-management>).

**The Surface fresh water** associated with Dalrymple and Glengallan Creek systems have Environmental Values zone defined in the basin map **WQ4223**, as shown in **Figure 3** in **Figures** and outlined in Table 1 below.

The **Groundwater** at the site is associated with the Upper Condamine Basalts Environmental Vale zone as defined in the fractured rock zone map **GWQ4162** as shown in **Page 4** in **Figures** and outlined in Table 1 below.

The environmental values outlined in **Table 1** are in accordance with the Condamine River Basin Environmental Values and Water Quality Objectives, (Queensland, 2020) and Healthy Waters Management Plan Condamine River Basin, (Queensland, 2019c).

**Table 1. Environmental Values of Dalrymple and Glengallan Creeks**

	Aquatic ecosystems	Irrigation	Farm Supply/use	Stock water	Aquaculture	Human consumer	Primary contact	Secondary contact	Visual recreation	Drinking water	Industrial use	Cultural, spiritual and ceremonial
Dalrymple and Glengallan Creeks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Upper Condamine Basalts	✓	✓	✓	✓						✓	✓	✓

The WQO (Queensland, 2020) for the Dalrymple and Glengallan Creeks systems are not considered robust to inform trigger values and are only to be used as a general indication of declining values in the GRAWHA, should values change over time.

The use of a Before-After Control-Impact (BACI) study design allows the monitoring of soil surface and groundwater for impact of operations and wastewater disposal within 50m and downstream of Eco Camps.

Flow conditions in the Dalrymple and Blackfellows Creek Systems are determined by flows at Swan Creek at Swanfels as shown below.

- Low-flow Conditions are <0.3 m<sup>3</sup>/s at gauge 422306A – Swan Creek at Swanfels.
- High-flow Conditions are > or = 0.3 m<sup>3</sup>/s at gauge 422306A – Swan Creek at Swanfels.

**Table 2. Water Quality Objectives for Southeastern Condamine Basin high ecological value**

	Percentile	Ammonia-N	Oxidised-N	Total N	Filterable P	Total P	Chlorophyll-a	DO	Turbidity	Suspended Solids	pH	EC	Sulfate	Alkalinity
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	%	NTU	mg/L	pH Units	µS/cm	mg/L	mg/L (CaCO <sub>3</sub> )
WQO Indicator percentiles Low-Flow, HEV	20 <sup>th</sup>	2	2	200	35	80	2	60-110	4	6	7.7	330	2	140
	50 <sup>th</sup>	4	4	270	50	110	5		8	10	8.0	440	2	190
	80 <sup>th</sup>	9	12	450	80	150	16		20	25	8.3	650	5	250
WQO Indicator percentiles High-Flow, HEV	20 <sup>th</sup>	6	35	340	75	120	ID	60-110	8	9	7.5	145		50
	50 <sup>th</sup>	13	80	460	90	200	ID		25	18	7.8	190	2	70
	80 <sup>th</sup>	40	270	1500	130	560	ID		90	110	8.1	330	3	140

### 3 Scope and Methodology

To address THRL' requirements, we propose to complete the following monitoring regime, which MEH maintains is sufficient at the time of writing this report for the Environment Protection and Biodiversity Conservation (EPBC) Act 1999 assessment as outlined in the BDCP (O'Hara, 2019).

1. Annual monitoring of surface water and groundwater networks and assessment of changes of concentration of parameters in water quality over time; and
2. Report on the baseline monitoring event.

#### 3.1 EPBC baseline data.

MEH recommends the following monitoring program for the BDCP in the surface and groundwaters (if applicable) for the following parameters:

- i.* E. coli (cfu/100 mL);
- ii.* Ammonia-N (mg/L N as Ammonia), Total Kjeldahl Nitrogen, Nitrate, Nitrite (mg/L as N);
- iii.* Total Phosphorus, Ortho-Phosphate (mg/L);
- iv.* Major Anions (Cl, SO<sub>4</sub>, HCO<sub>3</sub>, F);
- v.* Major Cations (Na, K, Ca, Mg);
- vi.* Total and dissolved metal concentrations (Al, Fe, Mn, As, Cd, Cr, Cu, Ni, Pb, Zn);
- vii.* Field Parameters of pH, DO (surface water only), ORP (groundwater only), Temperature and EC.

#### 3.2 Scope of works

MEH has devised the following scope of works and methodology to monitor any potential impact on waters from the activity of wastewater treatment and irrigation of treated effluent, as well as the two creek crossings on the trial.

At Amphitheatre EcoCamp:

- Assess the potential drainage pathways, both groundwater and surface water, from the wastewater disposal area at Amphitheatre EcoCamp to the nearest surface water body (ephemeral or permanent);
- Sample surface water if present.

At Woodcutters EcoCamp:

- Assess the potential drainage pathways, both groundwater and surface water, from the wastewater disposal area at Woodcutters EcoCamp to the nearest surface water body (ephemeral or permanent);
- Sample surface water if present.

Groundwater and surface water monitoring points will be selected and/or installed using the following guidance:

- *ANZECC and ARMCANZ (2000), National Water Quality Management Strategy, No. 7, Australian Guidelines for Water Quality Monitoring and Reporting, October 2000, Australian and New Zealand Environment and Conservation Council, and Agriculture and Resource Management and Council of Australia and New Zealand, (ARMCANZ, 2000).*

- EPA Vic. (2000), *Groundwater Sampling Guidelines*, EPA Victorian Government, (EPA, 2000).

Quality Control (QC) samples will be collected and/or analysed in accordance with National Environment Protection Measure (NEPM) guidelines, (NEPC, 2013). A field duplicate sample is to be collected for every 10 primary samples. Details of MEH quality control and quality assurance procedures can be seen in **Appendix C**.

Details of EcoCamp location and operations of the Camps, Trials and sewage treatment plants can be found in other MEL and MEH reports, as listed below.

This report is the 6th monitoring report since the original baseline report was written in September 2019, as listed below:

- Surface Water Investigations for Baseline Data Collection Plan at Amphitheatre and Timber Getters EcoCamps, Main Range National Park, Queensland, Australia for Spicers Retreats Hotels & Lodges Pty Ltd, dated 5<sup>th</sup> September 2019, (MEL, 2019c).
- Surface Water Investigations for 1st Round of Annual Monitoring at Amphitheatre and Timber Getters EcoCamps, Main Range National Park, Queensland, Australia for Spicers Retreats Hotels & Lodges Pty Ltd, dated 14<sup>th</sup> October 2020, (MEL, 2020).
- Surface Water Investigations for 2nd Round of Annual Monitoring at Amphitheatre and Timber Getters EcoCamps, Main Range National Park, Queensland, Australia for Spicers Retreats Hotels & Lodges Pty Ltd, dated 27<sup>th</sup> July 2021, (MEH, 2021).
- Surface Water Investigations for 3rd Round of Annual Monitoring at Amphitheatre and Timber Getters EcoCamps, Main Range National Park, Queensland, Australia for Spicers Retreats Hotels & Lodges Pty Ltd, dated 7<sup>th</sup> December 2022, (MEH, 2022).
- Surface Water Investigations for 4th Round of Annual Monitoring at Amphitheatre and Timber Getters EcoCamps. Main Range National Park, Queensland, Australia for Spicers Retreats Hotels & Lodges Pty Ltd, dated 5 May 2024, (MEH, 2024b).
- Surface Water Investigations for 5th Round of Annual Monitoring at Amphitheatre and Timber Getters EcoCamps. Main Range National Park, Queensland, Australia for Spicers Retreats Hotels & Lodges Pty Ltd, dated 25 November 2024, (MEH, 2024c).

In addition, MEL and MEH have written the following reports or plans for THRL (previously Spicers):

- Soil and Surface Water Investigations for Baseline Data Collection Plan at Amphitheatre and Woodcutters EcoCamps, Main Range National Park, Queensland, Australia. Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC 2016/7847), dated 8 May 2019, (MEL, 2019b).
- MEDLI Modelling of Land Application of Treated Effluent at Amphitheatre and Woodcutters EcoCamps, Main Range National Park, Queensland, Australia, dated 18th April 2019, (MEL, 2019a).
- Reporting Hydraulic Assessment at Timber Getters EcoCamp. Main Range National Park, Queensland, Australia. Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC 2016/7847), dated 20th November 2024, (MEH, 2024a).
- Sewage and Wastewater Monitoring Plan (SWMP) for Amphitheatre and Woodcutters EcoCamps. Main Range National Park, Queensland, Australia, (MEH, 2025b).
- Plan for Wastewater and Sewage Management (PWaSM) for Amphitheatre and Woodcutters EcoCamps. Main Range National Park, Queensland, Australia, (MEH, 2025a).

## 4 Context of the Sites

### 4.1 Geology and Hydrogeology of the site

Dr John Harbison, a hydrogeologist, investigated the local geology during a site visit in March 2020 and made inferences on the interactions between surface water and groundwater at both sites.

#### 4.1.1 Local Geology

The predominant underlying geology of the Main Range National Park is basalt, agglomerate, shale, and dolomite of the Main Range Volcanics of Oligocene to Miocene age. Within the Main Range Volcanics, isolated outcrops of trachyte (derived from more explosive volcanic activity) form ridges and cliffs as exemplified by the Amphitheatre area. The Geology of the area is shown in **Figure 2** in **Figures**.

For details of the local geology, refer to MEL report *Surface Water Investigations for Baseline Data Collection Plan at Amphitheatre and Timber Getters EcoCamps, Main Range National Park, Queensland, Australia*, (MEL, 2019c).

#### 4.1.2 Local Streamflow

The geometry of the underlying consolidated rocks is significant for groundwater flow. It appears there is geologic control over sub-surface flow and this flow is also predominantly to the west.

For details of the local streamflow, refer to MEH report *Surface Water Investigations for Baseline Data Collection Plan at Amphitheatre and Timber Getters EcoCamps, Main Range National Park, Queensland, Australia*, (MEL, 2019c).

The Surface Water investigations for the 1<sup>st</sup> Round of Annual Monitoring at Amphitheatre and Woodcutters EcoCamps, Main Range National Park, Queensland, Australia, dated 14<sup>th</sup> October 2020, (MEL, 2020), demonstrated dry conditions. Annual rainfall in Main Range National Park in 2019 was 337 mm, 1165 mm in 2020, 1436 mm in 2021, and 2005 mm in 2022. Rainfall data for Cunningham's Gap National Park ceased in March 2023, although the nearest current station Mandala had 273 mm in 2019, 725.4 mm in 2020, 1043.2 mm in 2021, 1486.2 mm in 2022 and 671 mm in 2023. Therefore, rainfall increased in 2021 compared to 2020 and was close to the 90<sup>th</sup> percentile of 1541 mm for 2021 and 2022, with a decrease in 2023. Rainfall 2024 had above average rainfall in January and April, with other months showing rainfall at average levels ([www.bom.gov.au](http://www.bom.gov.au)). This calendar year (2025) has had 734.4 mm so far. Adding the mean monthly totals for November and December to this, the expected annual rainfall should be around 930 mm for all of 2025.

#### 4.1.3 Groundwater Bore Search

MEL conducted an extended groundwater bore search of the region around the sites including government bores within 10 km of the sites and private registered bores in the Goomburra, Upper Laidley Creek and Tarome areas. These are detailed in Table 3

below. All but two (2) of the ten (10) bores regularly monitored by government staff represent alluvial aquifers, as shown in **Figure 4** in **Figures**.

The bores are mainly near either Allora or Clintonvale and since these aquifers are predominantly alluvial and heavily utilised, with water levels heavily influenced by this use, no analysis or interpretation of these levels has been made in this report. Of the private bores, most have reports on bore yields and water quality (mostly only Electrical Conductivity), but there are almost no comprehensive chemical results for these private bores.

**Table 3. Borehole Search**

Borehole ID	Easting <sup>1</sup>	Northing <sup>1</sup>	Principal Aquifer(s)	Total depth (m) <sup>2</sup>	SWL (mbgl <sup>3</sup> )	Yield (L/s <sup>4</sup> )	Quality (EC units <sup>5</sup> )
<b>Monitored bores</b>							
RN14310211	447,171	6,901,604	Walloon_Coal_Measures	33	3.51		3,650
RN14321009	439,670	6,913,590	Alluvium	13	3.15		387
RN42230696	405,015	6,898,411	Alluvium	25	6.24		2,150
RN42230701	418,062	6,899,344	Alluvium	14.6	5.6	0.88	494
RN42230702	418,043	6,899,460	MRV <sup>6</sup>	66.1	6.7		830
RN42230745	420,131	6,895,555	Alluvium	21.5	7.51		710
RN42231330	401,452	6,898,533	Alluvium	19.4	8.35		1,397
RN42231331	400,462	6,897,350	Alluvium	18.5	7.14		1,177
RN42231336	424,450	6,894,881	Alluvium	11	7.67		
RN42231337	423,143	6,896,095	Alluvium	14	8.38		1,102
<b>Eastward bores</b>							
RN120241	442,051	6,901,181	MRV	25.91	3	16.25	950
RN134040	442,880	6,902,690	MRV	69	36	0.5	1,200
RN138079	445,098	6,903,718	WCM	27.4	4.6	5.3	740
RN138091	444,119	6,902,883	WCM	39	11.6	1.3	940
RN138104	443,003	6,902,536	MRV	36	27	0.7	450
RN145317	442,259	6,903,003	MRV	94	48	1.25	810
RN154165	443,675	6,902,816	MRV	95	48.7		870
<b>Upper Laidley Bores</b>							

Borehole ID	Easting <sup>1</sup>	Northing <sup>1</sup>	Principal Aquifer(s)	Total depth (m) <sup>2</sup>	SWL (mbgl) <sup>3</sup>	Yield (L/s) <sup>4</sup>	Quality (EC units) <sup>5</sup>
RN129135	439,009	6,910,109	MRV	64	9.5	0.6	975
RN129148	440,469	6,911,781	MRV	54.9	9.8	15.1	660
<b>Goomburra Bores</b>							
RN71848	429,461	6,904,232	MRV	40	24	0.3	430
RN80055	429,510	6,903,784	Alluvium	34	26	1.25	
RN80255	430,109	6,904,987	MRV	29	7	3	
RN80330	429,258	6,903,944	MRV	29	12		
RN108098	434,774	6,904,874	MRV	95	21	1.5	351
RN108285	430,584	6,904,837	MRV	85	8	0.6	628
RN108839	429,446	6,903,667	MRV	52	40	1.2	

Note:

1. \*UTM coordinates, Zone 55;
2. Meters (m);
3. Metres below ground level (mbgl);
4. Litres per second (L/s); and
5. Electrical Conductivity units (EC units, microS/cm).
6. MRV = Main Range Volcanics; WCM = Walloon Coal Measures

From analysis of all the groundwater bore records, it is concluded that:

- The local groundwater is being used as water supply, mainly from alluvial bores.
- Around Goomburra, the water table is either drawn down considerably by extraction or occurs well below ground level naturally.
- Bore yields are generally moderate at about 1 L/s. While bore yields cannot be directly correlated with measurements of aquifer permeability, it is likely that the volcanic aquifers in the Main Range Volcanics are moderately permeable.

#### 4.2 Water Quality Objectives for Dalrymple and Glengallan Creeks

The Water Quality Objectives (WQO) (Queensland, 2020) for the Condamine Basin including Dalrymple and Glengallan Creeks were finalised in October 2020 and the relevant catchments, including Dalrymple and Glengallan Creeks are shown in **Page 3 in Figures**. The Dalrymple Creek and the tributary Blackfellow Creek systems are considered middle Condamine River Water Type based on their major ion chemistry. The divide between middle and upper is a red line shown in **Page 3 in Figures**.

The draft WQO for Dalrymple Creek are shown below in Table 5 below and listed in south-eastern catchments waters in the Draft WQO for Condamine River Basin.

Low-flow Conditions are <0.3m<sup>3</sup>/s at gauge 422306A - Swan Creek at Swanfels.

High-flow Conditions are  $>0.3 \text{ m}^3/\text{s}$  at gauge 422306A - Swan Creek at Swanfels.

Mean daily flows for Cecil Weir (station no. 422316A), Loudoun Bridge (station no. 422333A) and Swan Creek at Swanfels (422306A) are shown in Table 4 below including a determination of whether conditions are considered to be either low-flow or high-flow.

Flows were taken from Swanfels as a priority and if flows were not available they were taken from Cecils weir or Loudoun Bridge.

**Table 4. Flows at Cecil Weir (422316A), Loudoun Bridge (22333A) and Swan Creek at Swanfels (422306A).**

Date of Sampling	Mean ( $\text{m}^3/\text{s}$ )	Max ( $\text{m}^3/\text{s}$ )	Determination of flow condition
05-March-2019	0	0	Low-Flow
03-April-2019	0	0	Low-Flow
10-April-2019	0	0	Low-Flow
25-June-2020	0.002	0.003	Low-Flow
22-January-2021	0.064	0.078	High-Flow
17-February-2021	0.013	0.015	Low-Flow
25-May-2021	0.041	0.044	Low-Flow
01-March-2022	3.83	5.681	High-Flow
14-March-2022	0.435	0.454	High-Flow
14-June-2022	0.474	0.486	High-Flow
20-March-2023	0.09	0.103	Low-Flow
18-May-2023	0.136	0.175	Low-Flow
18-July-2023	0.038	0.041	Low-Flow
13-September-2023	0.019	0.021	Low-Flow
18-January-2024	0.123	0.149	Low-Flow
10-April-2024	0.284	0.344	High-Flow
28-May-2024	0.038	0.04	Low-Flow
30-July-2024	0.012	0.015	Low-Flow

Date of Sampling	Mean (m <sup>3</sup> /s)	Max (m <sup>3</sup> /s)	Determination of flow condition
24-September-2024	0.015	0.015	Low-Flow
27th-March-2025	0.579	0.643	Low-Flow
5th-August-2025	0.116	0.124	Low-Flow
16th-October-2025	0.02	0.021	Low-Flow

Note:

Flows from Swanfel not available for 2019, so flows taken from Cecil's Weir

Swan Creek at Swanfels is located on Swan Creek and is shown in **Figure 3** in **Figures**.

**Table 5. Water Quality Objectives for South-Eastern Condamine high ecological value**

	Date Sampled	Ammonia-N	Oxidised-N	Total N	Filterable P	Total P	Chlorophyll-a	DO	Turbidity	Suspended Solids	pH	EC	Sulfate	Alkalinity
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	NTU	mg/L	pH Units	µS/cm	mg/L	mg/L (CaCO <sub>3</sub> )
<b>WQO Indicator percentiles Low-Flow, HEV</b>	20 <sup>th</sup>	2	2	200	30	80	2	60-110	4	6	7.7	330	2	140
	50 <sup>th</sup>	4	3	270	50	110	5		8	10	8.0	440	2	190
	80 <sup>th</sup>	12	70	450	80	150	16		20	25	8.3	650	5	250
<b>WQO Indicator percentiles High-Flow, HEV</b>	20 <sup>th</sup>	6	35	340	75	120	ID	60-110	80	9	7.5	145	1	50
	50 <sup>th</sup>	13	80	460	90	200			25	18	7.8	190	2	70
	80 <sup>th</sup>	40	270	1500	130	560			90	110	8.1	330	5	140

### 4.3 Site Visits

MEH's Principal Scientist, Dan Morton, visited the sites on 18<sup>th</sup> January 2024 and trained THRL's employee Grady Thompson to sample all sites. During the site visit, Dan taught and critiqued Grady's sampling and monitoring technique and was satisfied that the quality of sampling by Grady was sufficient to satisfy the data quality objectives for this project. Grady conducted the monitoring and sampling on the remainder of the monitoring dates on 10<sup>th</sup> April, 28<sup>th</sup> May, 30<sup>th</sup> July and 24<sup>th</sup> September 2024. In 2025 Grady Thompson trained Simon Harley who sampled the sites on behalf of MEH on the 27<sup>th</sup> March, 5<sup>th</sup> August and 16<sup>th</sup> October 2025.

It should be noted there was evidence of feral cattle in the upper catchments of Dalrymple Creek systems, especially on the trail up Unnamed creek.

In 2025, Swan fell Creek at Swanfels indicated the middle Condamine River had low-flow conditions for 27<sup>th</sup> March, 5<sup>th</sup> August and 16<sup>th</sup> October 2025, as shown in Table 4 above.

The MEH team took field measurements of pH, Temperature, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Dissolved Oxygen (DO) and Turbidity at ten sites: SW01, SW02, SW03, SW04, SW05, SW06, SW07, SW08, SW09 and SW10. The monitoring and sampling rationale for the above locations is shown in Table 6 in **section 5.2**.

The Unnamed creek (Unnamed Creek 1), Dalrymple Creek, Blackfellow Creek and all the surface water locations are shown in **Figure 5** in **Figures**.

In addition, during the original baseline assessment, MEH engaged Dr John Harbison, a hydrogeologist, to further investigate the local geology and make inferences on the surface water/groundwater interactions at both sites. Details of interactions between surface water and groundwater at both sites are further discussed in **Section 5.2** of this report.

## 5 Quality Assurance/Quality Control (QA/QC)

For any given project, all investigation data is potentially subject to sampling and data reduction errors. Therefore, data quality objectives (DQO) are established to control the sources of errors and quantify the errors whenever possible. Quality control (QC) procedures are designed to both increase sample data quality and help interpret discrepancies in results.

All work was conducted in accordance with industry-accepted standards and quality assured procedures. Field quality control included rigorous sample collection, decontamination procedures, and sample documentation.

Methodology of the quality assurance (QA) and quality control (QC) are further discussed in this section of the report with further details presented in **Appendix B**. Results are discussed in **Section 6**.

Laboratory QA and QC procedures included matrix spikes, laboratory duplicates and method blanks. The results of the QC testing are presented in the laboratory reports in **Appendix C** and the results of QC measures implemented on field duplicates are in the **Tables** section of this report.

### 5.1 Methodology

MEH sampled the surface waters directly into sample containers (new plastic 250mL bottles). This content was then transferred to sample containers with preservatives in them. The original sample containers, not containing preservative, were then refilled with water taken directly from the surface water body. All sample containers were return to a chilled darkened cooler and cooled to 4°C .

Surface water was placed into sample containers using disposable nitrile gloves and a new pair of nitrile gloves was used for each sample taken. All sample containers were labelled with the surface water location, site reference and date before being placed in a chilled, darkened cooler (maximum temperature of 4°C).

QC samples were collected and/or analysed in accordance with National Environmental Protection Measure (NEPM) guidelines, (NEPC, 2013a). One field duplicate and one field triplicate sample were collected per 10 primary samples. Further details of MEH quality control and quality assurance procedures are shown in Quality Assurance and Control (**Appendix B**).

The relative percentage differences (RPDs) for field or laboratory duplicates for nutrients resulted in an RPD of 18%, which is less than 30% and therefore the sampling effort is considered of sufficient quality to allow inferences on results.

The trip blanks, as shown in **Appendix C**, demonstrated no influence on samples due to travel.

All surface water monitoring locations were recorded, including Easting and Northing coordinates, using a hand-held GPS device.

## 5.2 Sample water analysis

THRL sampled ten (10) surface water locations on behalf of MEH during the monitoring events of the 27<sup>th</sup> March, 5<sup>th</sup> August and 16<sup>th</sup> October 2025: SW01, SW02, SW03, SW04, SW05, SW06, SW07, SW08, SW09 and SW10.

Explanations for the rationale of why the monitoring locations were chosen for continued monitoring over the 10-year period is given below in Table 6. It should be emphasised that this rationale for monitoring and surface water sampling encompasses monitoring of surface and groundwater impacts from wastewater disposal areas and impacts from creek crossings.

**Table 6. Surface Water Sample Locations and Rationale**

Sample ID	Rationale for locations	Rationale for locations	Field Parameters	Lab Analysis
SW01	450 m down-gradient of Amphitheatre site at the confluence of a gully and Unnamed Creek. Gully draining the area in the vicinity of Amphitheatre EcoCamp,	Monitoring <b>potential surface water impacts</b> .	Temperature, pH, DO, TDS, ORP, EC and Turbidity	E. coli (cfu / 100 mL); Ammonia (mg/L as N), Total Kjeldahl Nitrogen, Nitrate, Nitrite (mg/L as N); Total Phosphorus, Ortho Phosphate (mg/L); Major Anions (Cl, SO <sub>4</sub> , HCO <sub>3</sub> , F); Major Cations (Na, K, Ca, Mg); Total and dissolved metal concentrations (Al, Fe, Mn, As, Cd, Cr, Cu, Ni, Pb, Zn), Total Suspended Solids.
SW02	40 m upstream of SW01 in Unnamed Creek.	Upstream of SW01 as a background water quality sample. <b>Control site</b> .		
SW03	380 m down-gradient of Woodcutters EcoCamp on the confluence of a gully and Dalrymple Creek. This gully and next gully upstream are draining the area in the vicinity of Woodcutters EcoCamp.	Monitoring <b>potential surface water impacts</b> .		
SW04	640 m upstream of SW03 and up-gradient of Woodcutters EcoCamp in Dalrymple Creek.	Upstream of SW03 and SW06 as a background water quality sample. <b>Control site</b> .		
SW05	950 m down-gradient of SW01 in Unnamed Creek.	Monitoring <b>potential groundwater impacts</b> .		
SW06	550 m down-gradient of SW01 in Dalrymple Creek.	Monitoring <b>potential groundwater impacts</b> .		
SW07	Upstream of creek crossing on Blackfellow Creek	Upstream of creek crossing on Blackfellow Creek. <b>Control site</b> .		
SW08	Downstream of creek crossing on Blackfellow Creek	Monitoring <b>potential surface water impacts</b> .		
SW09	Downstream of creek crossing on Dalrymple Creek	Monitoring <b>potential surface water impacts</b> .		
SW10	Upstream of creek crossing on Dalrymple Creek	Upstream of SW09. Most upstream <b>control site</b> .		

The investigation was undertaken in accordance with MEH standard operating procedures (SOP\_PROC\_001-Soil sampling, SOP\_PROC\_002-Surface Water sampling, SOP\_PROC\_004-Quality Assurance and Quality Control) as shown in **Appendix B**, which are consistent with Qld Government-approved guidelines and industry standards, including the 2018 Monitoring and Sampling Manual, (Queensland, 2018a).

MEH has recommended the water quality conditions at the monitoring points must not vary more than 10% when compared to baseline conditions, using median values (see <https://www.waterquality.gov.au/anz-guidelines/monitoring/study-design/preparation#ecological>).

Therefore, in subsequent result tables in section 6, individual monitoring rounds above the maximum baseline study or median values above WQO are in **red text**.

The rationale for disregarding Ammonia-N and Oxidised-N values in the WQO triggers is that their low levels are below what is considered ambient levels in the Dalrymple and Blackfellow Creek systems and in addition are less than the limit of reporting (LOR). This factor is discussed later in the conclusions section of this report.

## 6 Surface Water Results.

The relief of the gully (Unnamed Creek 2) between the site at Amphitheatre and the tributary of the Dalrymple Creek (Unnamed Creek 1) is steep, with the possibility of sub-surface hydraulic connectivity between the two locations. However, it is unlikely the connectivity to stream, i.e. the path of groundwater migration, would be in a direct line and more likely to be subparallel to the stream.

The two creeks were sampled both upstream and downstream of the creek crossings.

The surface waters (SW) were monitored and sampled by trekking in via three (3) routes: a) Firstly, driving up Winder Trail from Mt Castle Lookout car park and trekking into the location of the Blackfellow Creek Crossing to gain access to SW07 and SW08; b) The second route involved driving to just past the confluence of Dalrymple and Unnamed Creek, then trekking up Unnamed Creek to locations SW05, SW01 and SW02; c) Lastly, by driving up to Woodcutters Lodge and trekking down the Cascades Trail, access was gained in Dalrymple Creek to locations SW10, SW09, SW04, SW03 and SW06. The rationale for these and all other monitoring points has been given in Table 6.

The field sheets of field measurements taken at the surface water monitoring points can be seen in **Appendix A** and all locations are shown in **Figures 9** in **Figures**.

A full summary of Surface Water Sampling Results is shown in Table 21 in **Tables** taken from laboratory results (**Appendix C**). Relevant WQO from Table 5 are compared to field and laboratory results in, and outlined in Table 7, Table 8 and Table 9 below.

Field and laboratory duplicates were taken during March and August events.

Mean daily flows for the sampling times are shown in Table 4 above and with low-flow conditions assumed for 27<sup>th</sup> March, 5<sup>th</sup> August and 16<sup>th</sup> October 2025.

As recommended in the monitoring and sampling manual under the Environmental Protection (Water) Policy 2009, revised in 2018 (Queensland, 2018a), The median values will be monitored annually and over the duration of the study and maximum conditions in any one monitoring event. In addition, to be conservative, where limit of reporting (LOR) has been reported (as is convention), MEH has calculated median values including results below LOR (by substituting half the value of the LOR for those results), and approximate E. coli results have been taken as absolute values.

Following discussions with DCCEEW, 2<sup>nd</sup> October 2025, it was agreed that MEH could adopt the last five years data (2019-2024) as water quality baseline for the Dalrymple and Blackfellows creek systems.

Therefore, as documented in the Sewage and Wastewater Monitoring Plan (SWMP) (MEH, 2025b), the following triggers have been assessed against water quality data collected in 2025.

1. Individual samples exceeding the maximum value of baseline data;
2. Median values exceeding WQO;

3. Non-parametric statistical analysis where:
  - a. The median value in the potentially impacted site is statistically greater than the control site; and/or
  - b. Trend analysis demonstrates an upward trend in nutrients.

The above triggers will be assessed as multiple lines of evidence and used to determine if an 'incident' has occurred as outlined in the SWMP

An **Incident** means any event which has the potential to, or does, **harm any protected matter**. **Protected matter** means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which the conditions of approval has effect. The **Rainforest Spinach, Fleay's** and **Mountain Frogs** habitat or **breeding habitat** or the world heritage values of the **GRAWHP** are the protected matters in the Main Range National Park.

The results tables in Section 6 have been updated with trigger values of the median above WQO or individual values above maximum baseline in this year's report.

## 6.1 Blackfellow Creek

Table 7 is the summary data for Blackfellow Creek, which includes the monitoring points SW07 and SW08 assessing the impact of Blackfellow Creek Crossing, with SW07 being upstream and SW08 being downstream of the crossing.

**Table 7. Comparison WQO and Baseline Values in Blackfellow Creek System in 2023**

	Date Sampled	Ammonia-N	Oxidised-N	Total Kjeldahl Nitrogen as N	Total N	Total P	Filterable P	DO	Turbidity	Suspended Solids	pH	EC	Sulfate	Alkalinity
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	NTU	mg/L	pH Units	mS/cm	mg/L	mg/L (CaCO <sub>3</sub> )
Low-Flow 50 <sup>th</sup> percentile HEV WQO		4	4		270	110	50	60-110	8	10	7.7-8.3	440	2	190
High-Flow 50 <sup>th</sup> percentile HEV WQO		13	80		460	200	90	60-110	25	18	7.5-8.1	190	2	70
<b>(Minimum) Maximum Value baseline</b>		<b>180</b>	<b>560</b>	<b>600</b>	<b>1100</b>	<b>110</b>	<b>260</b>	<b>27-141</b>	<b>6</b>	<b>20</b>	<b>5.43-6.94</b>	<b>40-109</b>	<b>16</b>	<b>33</b>
SW07 control site	27/3/2025	<10	20	<100	<100	60	40	90	0	<5	6.89	76	1	17
	5/8/2025	<10	20	100	100	40	40	93.7	1.37	<5	7.05	82	2	26
	16/10/2025	<10	<10	200	200	50	60	76.9	1.77	<5	6.89	86	2	22
SW07 Median value		<b>5</b>	<b>20</b>	<b>150</b>	<b>150</b>	<b>50</b>	<b>40</b>	<b>90</b>	<b>1.37</b>	<b>2.5</b>	<b>6.89</b>	<b>82</b>	<b>2</b>	<b>22</b>
SW08 impact site	27/3/2025	10	20	<100	<100	60	40	92.6	0	<5	6.87	75	1	17
	5/8/2025	<10	20	200	200	40	40	92.9	1.09	<5	7.07	80	2	26
	16/10/2025	<10	<10	300	300	50	60	78.8	1.93	<5	6.94	88	2	22
SW08 Median value		<b>5</b>	<b>20</b>	<b>250</b>	<b>250</b>	<b>50</b>	<b>40</b>	<b>92.6</b>	<b>1.09</b>	<b>2.5</b>	<b>6.94</b>	<b>80</b>	<b>2</b>	<b>22</b>

Notes:

NR – not recorded

NA – not applicable

Dates in blue are low -low conditions, dates in red are high-flow conditions.

Individual monitoring rounds above maximum values for the baseline study or median values above WQO are highlighted are in Red.

Ammonia-N, Oxidised-N and Filterable Phosphorus values above WQO triggers has not been highlighted see section 7.1.5.

### 6.1.1 Nitrogen

WQO for Ammonia-N, Oxidised-N in low flow conditions have a value of 4 µg/L, which is less than half the LOR and, therefore, the WQO for Ammonia-N, Oxidised-N are considered not practicable to use in this study

#### 6.1.1.1 Baseline (2019-2024)

The Nitrogen values (Ammonia-N, Oxidised-N and Total Kjeldahl Nitrogen (TKN)) were consistently above the 50<sup>th</sup> percentile WQO with values in the baseline study ranging from <10-1100 mg/L of and median values of <10 – 616 µg/L. In the baseline study, Total Nitrogen (TN) showed a maximum value of 1100 µg/L above the 50<sup>th</sup> percentile

WQO for that year in low-flow conditions and a median value of 65.5 µg/L within the WQO.

#### 6.1.1.2 SW07

The values of TKN and TN in the control site SW07 ranged from <100 to 200 µg/L, resulting in median values of 150 µg/L and all three low-flow monitoring events were below baseline and medians were below the low-flow 50<sup>th</sup> percentile HEV WQO of 270 mg/L.

#### 6.1.1.3 SW08

The values of TKN and TN in the potentially impacted site SW07 ranged from <100 to 200 µg/L, resulting in median values of 150 µg/L and all three low-flow monitoring events were below baseline and medians were below the low-flow 50<sup>th</sup> percentile HEV WQO of 270 mg/L.

Changes of Nitrogen over time can be seen in **Graph 1** following results on Phosphorus in Blackfellow Creek below with further discussion in **section 6.5** of this report.

### 6.1.2 Phosphorus

The Filterable Phosphorus values were consistently above the 50<sup>th</sup> percentile WQO value of 50 µg/L in the baseline study (low-flow) with a maximum value of 100 µg/L and a median value of 72.5 µg/L.

Total P values were above the WQO value of 110 (low flow) and 200 (high flow) µg/L in the baseline study with a maximum value of 260 µg/L and a median value of 45 µg/L.

The values for Filterable Phosphorus in the control site SW07 and the potentially impacted site SW08 for the Blackfellow Creek Crossing in 2025 for the three low-flow ranged from 40-60 µg/L, resulting in median values for both sites of 50 µg/L. The individual results and the median values were below the maximum baseline and 50<sup>th</sup> percentile WQO respectively. The individual results and the median values were below the maximum baseline and 50<sup>th</sup> percentile WQO respectively.

Further statistical analysis has been completed in section 6.6 of this report to demonstrate the variability of nutrients in the Blackfellow and Dalrymple Creek systems.

### 6.1.3 Sulphate and Alkalinity

Sulphate and Alkalinity results were within the 50<sup>th</sup> percentile WQO for all the locations over time in the baseline study, with a median of 1.38 µg/L and 21 µg/L respectively.

The Sulphate (reported on a mass of SO<sub>4</sub> basis) values in the control site SW07 and SW08 at the Blackfellow Creek Crossing ranged from 1 to 26 µg/L with levels above the 110% baseline during the high-flow event of April. The Alkalinity values (reported on a mass of CaCO<sub>3</sub> basis) in the control site SW07 and SW08 at the Blackfellow Creek Crossing ranged from 20 to 28 µg/L with levels below the maximum baseline and the 50<sup>th</sup> percentile WQO for low flows.

#### 6.1.4 Field Parameters DO, pH, EC

pH values were within the 50<sup>th</sup> percentile WQO in the baseline study, with a range of 5.43-6.94 and in 2025 with a similar but narrower range of 6.87-7.07.

EC in Blackfellow Creek in the baseline study shows fresher water systems than the 50<sup>th</sup> percentile WQO for the middle Condamine River. The range was 40-109  $\mu$ S/cm which was well below the 50<sup>th</sup> percentile WQO of 440 for low flow and 190 for high flow mS/cm.

DO in Blackfellow Creek in the baseline study was consistently within the 50<sup>th</sup> percentile WQO of 60-110%, with a range of 27-141%. Turbidity in the baseline study was consistently below the 50<sup>th</sup> percentile WQO with a median value of 1.29 and maximum value of 6 NTU.

The pH value in the control and potentially impacted sites SW07 and SW08 for the Blackfellow Creek Crossing during 2025 monitoring events was 6.87 – 7.07, which is similar to baseline study, and within the range of the WQO.

The EC value in the control and potentially impacted sites SW07 and SW08 for the Blackfellow Creek Crossing during 2025 monitoring events were 76 – 88 mS/cm, with median values of 82 and 80 mS/cm, for SW07 and SW08 respectively. The values for both sites are fresher or lower than the value for WQO in low and high flow conditions.

The DO value in the control and potentially impacted sites SW07 and SW08 for the Blackfellow Creek Crossing during the 2025 monitoring events were ~77-94%, resulting in a median value of ~90-92% for the study. The DO value in the potentially impacted site SW08 for the Blackfellow Creek Crossing during 2024 monitoring events were ~76-83%, resulting in a median value of 81% for the study.

The DO values during 2024 low-flow and high-flow monitoring events are within the 50<sup>th</sup> percentile of the WQO and maximum and median values of the baseline study.

The turbidity value in the control site SW07 and potentially impacted site SW08 for the Blackfellow Creek Crossing during 2025 monitoring events ranged from 0 to 1.93 NTU, which is below the 50<sup>th</sup> percentile WQO and the maximum values of the baseline study of 6 NTU.

Overall, the water quality in the control site, SW07, and the potentially impacted site, SW08, were below the median and maximum value for the baseline as well as WQO for Blackfellow Creek. Further statistical analysis has been completed in section 6.6 of this report to demonstrate the variability of nutrients in the Blackfellow Creek and Dalrymple Creek systems.

#### 6.2 Unnamed Creek

Table 8 contains the summary data for Unnamed Creek, a tributary of Dalrymple Creek, which includes the monitoring points SW01, SW02 and SW05 used for assessing the potential impact of disposal fields at Amphitheatre Lodge and the impact of wastewater from the Amphitheatre site on surface water and groundwater respectively. SW05 is the downstream monitoring point located to detect the groundwater contribution from

beneath Amphitheatre Lodge and SW01 is the upstream monitoring point. SW02 is downstream of the gully connecting the run-off (including overland flow) from Amphitheatre Lodge to Unnamed Creek and the Dalrymple Creek system. Refer to **Page 8 in Figures, Amphitheatre Groundwater Conceptual Site Model** for details on the relationship of surface and groundwater from Amphitheatre EcoCamp into the tributary Unnamed Creek.

**Table 8. Comparison WQO and Baseline Values in Unnamed Creek System in 2023**

	Date Sampled	Ammonia-N	Oxidised-N	Total Kjeldahl Nitrogen as N	Total N	Total P	Filterable P	DO	Turbidity	Suspended Solids	pH	EC	Sulfate	Alkalinity
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	NTU	mg/L	pH Units	mS/cm	mg/L	mg/L (CaCO <sub>3</sub> )
<b>Low-Flow 50<sup>th</sup> percentile HEV WQO</b>		4	4		270	110	50	60-110	8	10	7.7-8.3	440	2	190
<b>High-Flow 50<sup>th</sup> percentile HEV WQO</b>		13	80		460	200	90	60-110	25	18	7.5-8.1	190	2	70
<b>(Minimum) Maximum Value baseline</b>		<b>90</b>	<b>4860</b>	<b>600</b>	<b>5200</b>	<b>100</b>	<b>170</b>	<b>55.5-169</b>	<b>3.5</b>	<b>78</b>	<b>6.10-7.65</b>	<b>17-133.2</b>	<b>12</b>	<b>53</b>
SW01 potentially impacted SW site	27/3/2025	40	40	100	100	70	50	98.6	0.7	<5	7	75	1	19
	5/8/2025	<10	50	200	200	40	50	93.7	0.67	<5	7.28	83	2	32
	16/10/2025	10	40	200	200	50	70	87.9	1.91	<5	7.63	100	2	32
SW01 median value		10	40	200	200	50	50	93.7	0.7	2.5	7.28	83	2	32
SW02 control site	27/3/2025	<10	40	100	100	70	50	98.8	0.76	<5	7.01	75	1	20
	5/8/2025	<10	60	200	300	40	50	93.6	0.76	<5	7.24	84	2	30
	16/10/2025	10	40	200	200	50	70	87.3	1.91	<5	7.2	101	2	33
SW02 median value		5	40	200	200	50	50	93.6	0.76	2.5	7.2	84	2	30
SW05 potentially impacted GW site	27/3/2025	<10	30	100	100	80	50	100	2.41	<5	7.05	78	1	25
	5/8/2025	<10	30	200	200	40	40	84.6	0	<5	7.44	100	2	39
	16/10/2025	<10	20	300	300	60	80	90.7	1.77	6	7.26	123	2	43
SW05 median value		5	30	200	200	60	50	90.7	1.77	2.5	7.26	100	2	39

**Notes:**

NR – not recorded

NA – not applicable

Individual monitoring rounds above maximum or median values for the baseline study or WQO are in **Red**.

Ammonia-N, Oxidised-N and Filterable Phosphorus values above WQO triggers has not been highlighted see section 7.1.5.

### 6.2.1 Nitrogen

The Nitrogen values, Ammonia-N and Oxidised-N, were consistently above the 50<sup>th</sup> percentile WQO with baseline study values having a maximum value of 90 µg/L and 4860 µg/L and median of 5 µg/L and 60 µg/L for Ammonia-N and Oxidised-N

respectively. In the baseline study, TN showed a maximum value of 5,200 µg/L above the 50<sup>th</sup> percentile WQO and a median value of 200 µg/L which is within the WQO.

The values in the potentially surface water-impacted site SW01 during 2025 monitoring events for Ammonia-N and Oxidised-N ranged from <10 - 50 µg/L, with Total Kjeldahl Nitrogen (TKN) and TN ranging from 100 - 200 µg/L. The median values were 10, 40, 200 and 200 µg/L for Ammonia-N, Oxidised-N, TKN and TN respectively.

The values in the control site SW02 during 2025 monitoring events for Ammonia-N were 10 µg/L or below the LOR for the three low-flow monitoring and for Oxidised-N data ranged from 40 - 60 µg/L. TKN ranged from 100-200 µg/L and TN ranged from 100 - 300 µg/L for three of the monitoring events. Median values were 5, 40, 200 and 200 µg/L for Ammonia-N, Oxidised-N, TKN and TN respectively.

The values in the potentially impacted groundwater site SW05 during 2025 monitoring events for Ammonia-N were below the LOR for the three low-flow monitoring events and for Oxidised-N data ranged from 20 - 30 µg/L. TKN ranged from 100-200 µg/L and TN ranged from 100 - 300 µg/L for three of the monitoring events. Median values were 5, 30, 200 and 200 µg/L for Ammonia-N, Oxidised-N, TKN and TN respectively.

During the 2025 monitoring events the TN levels were below the maximum baseline level of 5,200 for all samples and the median values, all 200 µg/L were below the WQO of 270 µg/L.

Changes of Nitrogen over time can be seen in Table 9 below following results for Phosphorus in Blackfellow Creek with further discussion in section 6.5 of this report.

### 6.2.2 Phosphorus

The Total Phosphorus values in the baseline study showed a maximum value of 170 µg/L and a median value of 65 µg/L with the maximum value being above and the median value being below the 50<sup>th</sup> percentile WQO for low flow of 110 µg/L. The Filterable Phosphorus values in the baseline study showed a maximum value of 100 µg/L and a median value of 60 µg/L above the 50<sup>th</sup> percentile WQO for low flow of 50 µg/L.

The values during 2025 monitoring events for Total and Filterable Phosphorus for SW01, SW02 and SW05 were in the range of 40 – 80 µg/L, all below the 50<sup>th</sup> percentile WQO and below the maximum value for the baseline study.

The median values of Total and Filterable Phosphorus for SW01, SW02 and SW05 for the 2025 study were 50 or 60 µg/L, below the 50<sup>th</sup> percentile WQO.

### 6.2.3 Sulphate and Alkalinity

Sulphate and Alkalinity results were within the WQO and below the maximum value for the baseline study during the 2025 monitoring events.

#### 6.2.4 Field Parameters

**pH** values for all three sites, SW01, SW02 and SW05, for the three low flow 2025 monitoring events had a range of 7.0 – 7.63, which is similar albeit not quite as acidic to baseline, which had a range of 6.10 - 7.65.

These values are lower than the WQO (7.7 – 8.3), which reflects the slightly acid conditions due to the influence of groundwater or overland flow on surface waters (Queensland, 2018c) (Brodie, 2002).

**EC** in Unnamed Creek shows fresher water systems than the WQO for the south-east Condamine River at low flows and reflects the influence of groundwater on surface water systems in this area. The median values of 57-80 mS/cm are well below the low flow WQO of 440 mS/cm. The baseline in EC levels, ranged from 17 – 133 mS/cm and the Unnamed Creek EC in 2025 ranged from 75 – 123 mS/cm, reiterating the premise of the creek systems being dominantly groundwater-fed. Given typical EC values of the Condamine-Macintyre area of EC percentiles for Queensland salinity zones between 189 to 755 mS/cm in the 10<sup>th</sup> to 90<sup>th</sup> percentiles, as outlined in Queensland Water Quality Guidelines 2009, Table G1, and given the values are fresher than both low-flow and high-flow WQOs, the greater than 110% median value is of no concern (DEHP, 2009).

**DO** median values for the baseline study ranged from 55 - 169% and during the 2025 monitoring events for all locations in Unnamed Creek were consistently within the WQO of 60-110%, with a median value ranging from ~91 to 94%.

**Turbidity** was consistently below the low flow WQO of 8 NTU with values ranging from 0-1.41 NTU during 2025 monitoring events.

The **EC** values in the Unnamed Creek system reflect the contribution of groundwater in the creek system, and decreases in EC levels (fresher conditions) reflect higher groundwater contribution.

#### 6.3 Dalrymple Creek

Table 9 shows the summary data for Dalrymple Creek, which includes monitoring the impact of surface water run-off (SW03), groundwater (SW06) and control site (SW04) in the Creek system from the Woodcutters camp disposal areas and the Dalrymple Creek Crossing, with SW09 being downstream and SW10 being upstream of the crossing. It should also be noted that SW10 is the uppermost sampling point in Dalrymple Creek, and is, therefore, the ultimate background or control sample for the system.

**Table 9. Comparison WQO and Baseline Values in Dalrymple Creek in 2025**

	Date Sampled	Ammonia-N	Oxidised-N	Total Kjeldahl Nitrogen as N	Total N	Total P	Filterable P	DO	Turbidity	Suspended Solids	pH	EC	Sulfate	Alkalinity
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	NTU	mg/L	pH Units	mS/cm	mg/L	mg/L (CaCO <sub>3</sub> )
<b>Low-Flow 50<sup>th</sup> percentile HEV WQO</b>		4	4		270	110	50	60-110	8	10	7.7-8.3	440	2	190
<b>High-Flow 50<sup>th</sup> percentile HEV WQO</b>		13	80		460	200	90	60-110	25	18	7.5-8.1	190	2	70
<b>(Min) Max Value baseline</b>		160	970	1900	2000	500	100	60-182	29.9	31	5.3-7.7	163	12	56
SW03 Potential SW impact site	27/3/2025	----	40	200	200	80	----	99.4	3.97	----	----	----	----	----
	5/8/2025	10	30	200	200	50	50	93.4	0.31	<5	7.38	103	2	43
	16/10/2025	10	30	300	300	60	80	88.3	3.76	12	7.08	96	2	34
<b>SW03 Median value</b>		10	30	200	200	60	65	93.4	3.76	7.25	7.2	99.5	2	38.5
SW04 control site	27/3/2025	<10	50	100	200	80	50	99	3.39	<5	6.96	70	1	21
	5/8/2025	10	50	200	200	50	60	94.4	0.65	<5	7.39	93	2	36
	16/10/2025	<10	30	200	200	50	80	88.7	3.68	<5	7.08	95	2	34
<b>SW04 Median value</b>		5	50	200	200	50	60	94.4	3.39	2.5	7.1	93	2	34
SW06 Potential GW impact site	27/3/2025	<10	40	200	200	80	60	99.4	3.86	<5	7.0	82	1	26
	5/8/2025	<10	40	200	200	50	50	85.2	0	<5	7.5	98	2	40
	16/10/2025	20	30	200	200	60	80	88.3	3.8	<5	7.1	96	2	34
<b>SW06 Median value</b>		5	40	200	200	60	60	88.3	3.8	2.5	7.1	96	2	34
SW09 potentially SW impacted site	27/3/2025	<10	60	100	200	70	50	98.8	2.4	<5	7.1	74	1	26
	5/8/2025	<10	50	200	200	50	50	91.5	0	<5	7.4	92	2	38
	16/10/2025	10	50	300	400	50	80	92.4	3.78	<5	7.2	96	2	36
<b>SW09 Median value</b>		5	50	200	200	50	50	92.4	2.4	2.5	7.2	92	2	36
SW10 control site and the upper most site in Dalrymple Creek	27/3/2025	60	60	200	300	80	50	98.6	2.43	<5	7.1	75	1	26
	5/8/2025	<10	50	200	200	50	50	91.6	0	<5	7.4	93	2	37
	16/10/2025	20	50	200	200	50	70	88.9	3.9	<5	7.1	96	2	34
<b>SW10 Median value</b>		20	50	200	200	50	50	91.6	2.43	2.5	7.1	93	2	34

Notes:

NR – not recorded

NA – not applicable

Dates in blue are low-flow conditions, dates in red are high-flow conditions.

Individual monitoring rounds above maximum values for the baseline study or median values above WQO are highlighted are in Red.

Ammonia-N, Oxidised-N and Filterable Phosphorus values above WQO triggers has not been highlighted see section 7.1.5.

### 6.3.1 Nitrogen

#### 6.3.1.1 Baseline 2019 - 2024

The Nitrogen values Ammonia–N and Oxidised–N were consistently above the 50<sup>th</sup> percentile WQO, with values in the baseline study having a maximum for Ammonia-N of 160 µg/L and for Oxidised-N of 970 µg/L, resulting in median values of 5 µg/L and 60 µg/L for Ammonia–N and Oxidised-N respectively. In the baseline study, TN showed

a maximum value of 2,000 µg/L and a median value of 125 µg/L, being below the 50<sup>th</sup> percentile WQO.

#### **6.3.1.2 Assessment of disposal fields from Woodcutters Camp**

The values for Ammonia–N and Oxidised–N, during the three 2025 monitoring events were:

- In the control site, SW04, below LOR or 10 µg/L and 30 or 50 µg/L, respectively, resulting in median values of 5 and 50 µg/L respectively.
- In the potentially impact site, SW03, 10 µg/L and 30 or 40 µg/L, respectively, resulting in median values of 10 and 30 µg/L, respectively.
- In the potentially GW-impacted site, SW06, 10 µg/L and 30 or 40 µg/L, respectively, resulting in median values of 10 and 30 µg/L, respectively.

And individual sampling events were below the maximum baseline, and the median were below WQO.

The values for TN and TKN during the three 2025 monitoring events were:

- In the control site, SW04, below 200 µg/L and 100 or 200 µg/L, respectively, resulting in median values of 200 µg/L for each parameter.
- In the potentially impact site, SW03, 200 µg/L and 300 µg/L for each parameter, resulting in median values of 200 µg/L, for each parameter.
- In the potentially GW-impacted site, SW06, 200 µg/L, for each parameter, resulting in median values of 200 µg/L, for each parameter.

And individual sampling events were below the maximum baseline, and the median were below WQO.

#### **6.3.1.3 Assessment of Dalrymple Creek Crossing**

The values for Ammonia–N and Oxidised–N, during the three 2025 monitoring events were:

- At SW09, potentially impact site, below LOR or 10 µg/L, and 50 or 60 µg/L, respectively, resulting in median values of 5 and 50 µg/L respectively.
- In the control site, SW010, 200 µg/L and 300 µg/L, respectively, resulting in median values of 200 µg/L, for each parameter.

And individual sampling events were below the maximum baseline, and the median were below WQO.

### **6.3.2 Phosphorus**

#### **6.3.2.1 Assessment of disposal fields from Woodcutters Camp**

The Total and Filterable Phosphorus values had a maximum of 100 and 500 µg/L and median values of 70 and 60 µg/L, respectively, which were consistently above the 50<sup>th</sup> percentile WQO value of 110 and 50 µg/L for low flow and of 200 and 90 µg/L, respectively, for high flow in the baseline study (2019 – 2024).

During the three low flow 2025 monitoring events, the Total and Filterable Phosphorus values were:

- in the control site, SW04, ranging from 50-80 µg/L, in both parameters, resulting in median values for 2025 of 50 and 60 µg/L for respectively.
- At SW03, a potentially SW impacted site, the values were again between 50 and 80 µg/L, resulting in median values for 2025 of 60 and 65 µg/L respectively.
- At SW06, a potentially groundwater-impacted site, the values were between 50 and 80 µg/L, resulting in median values for 2025 of 60 µg/L for both parameters.

In summary, during the 2025 monitoring events, the values of Total and Filterable Phosphorus for SW03, SW04 and SW06 were all below the maximum value of the baseline study and the median values were below the 50<sup>th</sup> percentile WQO.

### 6.3.3 Sulphate and Alkalinity

During the three low flow 2025 monitoring events, Sulphate and Alkalinity values were below the maximum baseline value of 12 and 56 mg/L and equal to or below the 50<sup>th</sup> percentile WQO for individual and median values in 2025 in the Dalrymple Creek system.

### 6.3.4 Field Parameters for all locations in Dalrymple Creek (both Woodcutters Camp and Dalrymple Creek Crossing)

During the three low flow 2025 monitoring events **pH** values for all five sites, SW03, SW04, SW06, SW09 and SW10, ranged from 7.0 – 7.5 pH value within, albeit slightly more alkaline than, the baseline range of 5.3 – 7.7 pH value, within the WQO low and high flow ranges of 7.7-8.3 and 7.5-8.1, respectively.

The range of values over baseline (2019-2024) values are lower than the WQO, which reflects the slightly acid conditions due to the influence of groundwater or overland flow on surface waters (Queensland, 2018c) (Brodie, 2002).

**EC** in Dalrymple Creek shows fresher water systems in 2025 ranged from 70 – 103 µS/cm, resulting in median values of 90 – 100 µS/cm. This is lower than the low and high flow 50<sup>th</sup> percentile WQO of 440 and 190 µS/cm, respectively. The fresher values reflect the influence of groundwater on surface water systems in this area.

**DO** median values for the baseline study for all locations in Dalrymple Creek were consistently within the WQO of 60-110%, with values ranging from 60 - 182%. DO values during the 2025 monitoring events ranged from 85 to 99% and were therefore within the WQO range and compared favourably to the baseline study.

During the 2025 monitoring events **Turbidity** ranged from 0 – 4 NTU, with median values for the study ranging from 2.4 – 3.8 NTU, which was below the WQO 8 and 25 NTU for low and high flows. All sites have individual values below the maximum values of baseline of 30 NTU.

Notably, Dalrymple Creek Crossing values were within 3% RPD of the control site SW10 and the potentially impacted site SW09.

It should be noted that the value of 30 NTU in SW10 on the 3<sup>rd</sup> April 2019 is probably an error and if this value is omitted, the maximum value for Dalrymple Creek would be 7 NTU in baseline 2019 - 2024.

#### **6.4 Summary of metalloids, anions, cations & biological parameters - all creek systems**

The metalloid water concentrations for all locations were all below or equal to the LOR for the majority of the time during the 2025 round of sampling. There was the occasional value marginally above the LOR for metalloid water concentrations of Aluminium, Manganese, and Iron, reflecting the mineralisation in the waters.

The metalloid water concentrations for SW01, 02, 03, 04, 05, 06, 07, 08, 09 and 10 in this round of sampling showed low levels of Total Aluminium, Manganese and Iron with maximum levels of 0.73, 0.15 and 0.13 mg/L respectively. The other analysed metalloids of Arsenic, Cadmium, Chromium, Copper, Lead and Zinc were predominantly below or equal to the LOR.

The dissolved levels in the same samples showed levels at LOR or marginally above LOR, demonstrating that minor metalloid concentrations are chemically bound in the sediments and are naturally derived from the volcanic bedrock.

There has been no discernible change in metalloid levels in any of the creek systems over the 6 years of monitoring.

Other parameters measured during the 2025 monitoring events, such as Total Dissolved Salts, Total Hardness, Alkalinity, Chloride, Major Cations, Sodium Adsorption Ratio (SAR) can be seen in **Appendix C**. The values are all similar between all locations over time, including baseline conditions and this round of sampling. This adds to the weight of evidence that Blackfellow and Dalrymple Creeks and their tributaries are currently predominantly being groundwater-fed.

There were levels of E. coli above the LOR in the creeks at all locations with values mostly ranging from <1-710 CFU/100mL in the baseline study, with the exception of one value of 6700 CFU/100mL which is considered an anomaly.

The E. coli levels in all three creek systems in 2025 ranged from 3 (an approximate value) to 450 CFU/100mL. These levels of background E. coli of 3-450 CFU/100mL are consistent with low level E. coli presence in surface waters which cattle have access to within the Park.

#### **6.5 Changing nutrient levels over time**

It is understood from the data presented in **section 6**, that TN and Total Phosphorus in the Dalrymple and Blackfellow Creek systems have the potential to be increasing. In **Table 10** below you can see TKN or organic-N contributes to approximately half the nitrogen in the system as opposed to inorganic-N, demonstrating there is a plentiful supply of organic nitrogen being processed in the system (see **Schematic 2**, below).

Filterable (dissolved) Phosphorus contributes slightly more than 50% of the Phosphorus in the system as opposed to particulate Phosphorus associated with sediment loads,

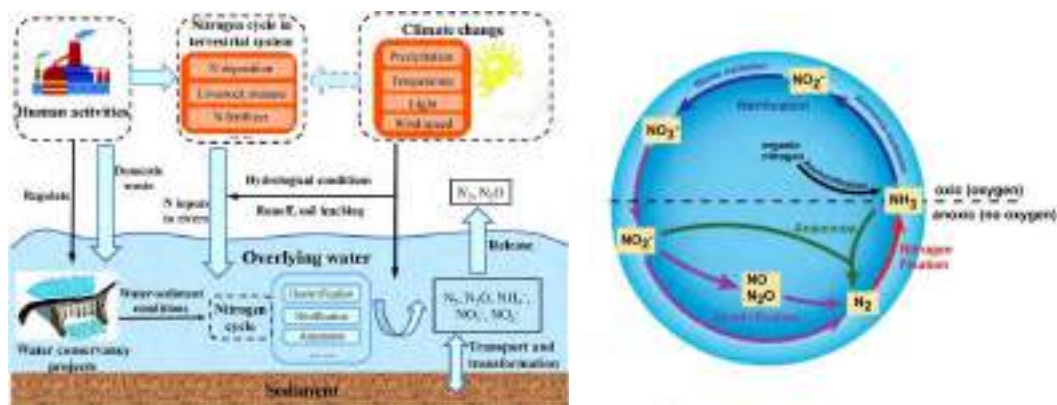
demonstrating Phosphorus sources are predominantly from the breakdown of organic matter or from fauna and feral cattle and pigs in the Main Range NP.

The median values for the year for both these Nitrogen forms and Phosphorus have been graphed over time in graph 1 and 2 below.

**Table 10. Descriptive Statistics TN, TKN, TP and Filterable P 2019 - 2025**

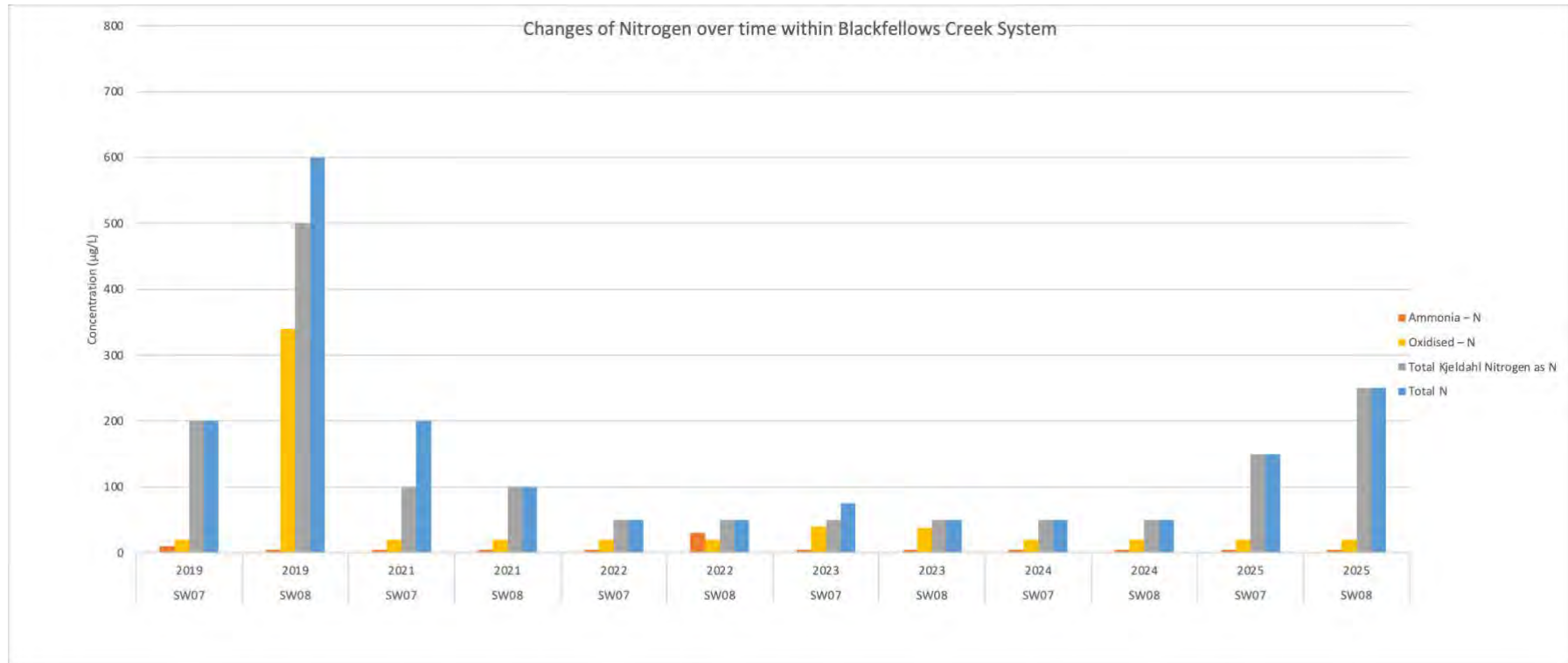
Descriptive Statistics: Total N, Total Kjeldahl Nitrogen as N, Total P, Filterable P

Variable	Total Count	Mean	SE Mean	StDev	Variance	Minimum	Q1	Median	Q3	Maximum
Total N	208	246.010	29.5483	426.151	181605	50	50	200	300	3200
Total Kjeldahl Nitrogen as N	208	135.388	12.5238	179.750	32370.1	5	5	100	200	1900
Total P	208	73.3077	1.72931	39.3627	1549.42	5	60	70	80	500
Filterable P	208	54.4066	1.32919	19.1237	365.716	20	40	50	70	110



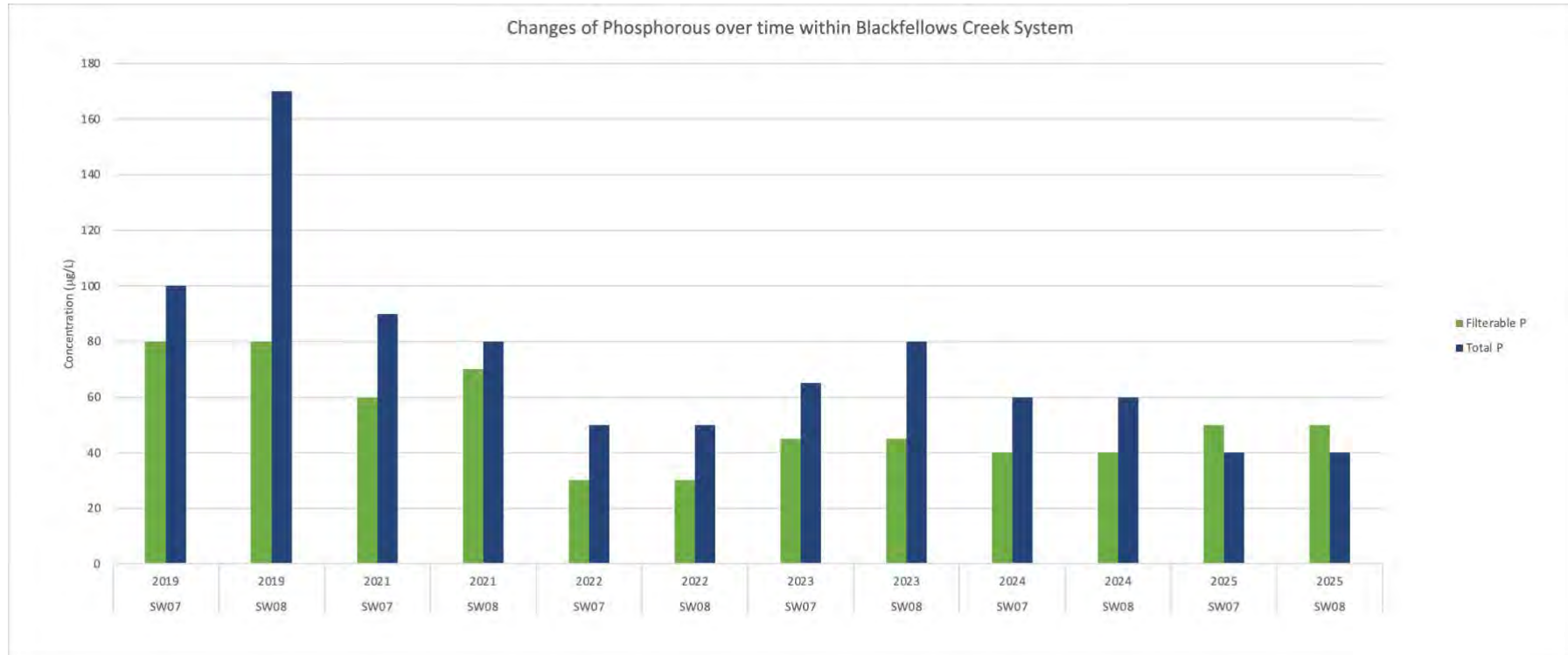
**Schematic 2. Nitrogen cycle in stream ecology, (Bernhard, 2010), (Xinghui Xia, 2008)**

**Graph 1. Changes of Nitrogen over time within Blackfellow Creek system**



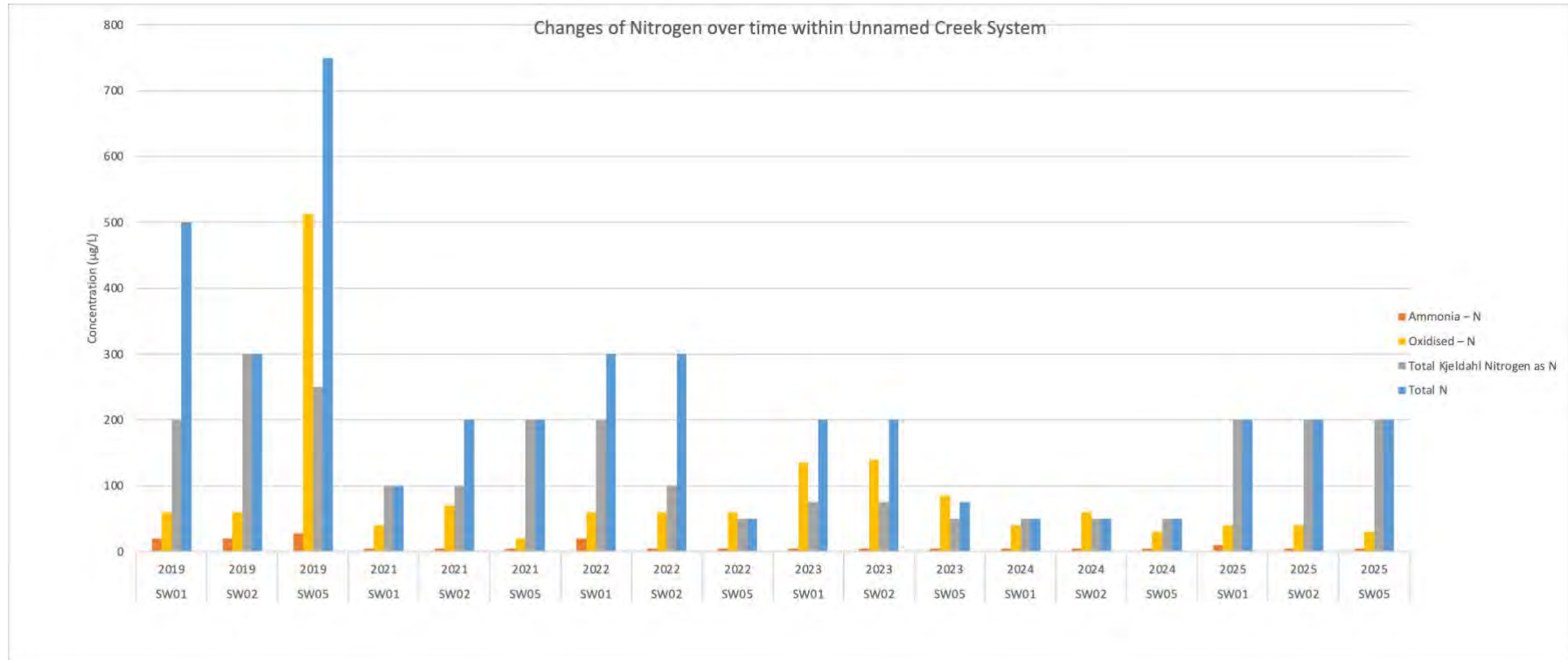
**Graph 1** above shows that there has not been an occurrence of a TN median value for a location above the WQO for low flows (270 µg/L) and high flows (460 µg/L) for the Blackfellow Creek system. After a spike of both Nitrogen and Phosphorus in the baseline study in 2019, there are no significant observable trends of an increase in Nitrogen levels in the Blackfellow Creek system.

**Graph 2. Changes of Phosphorus over time within Blackfellow Creek system**



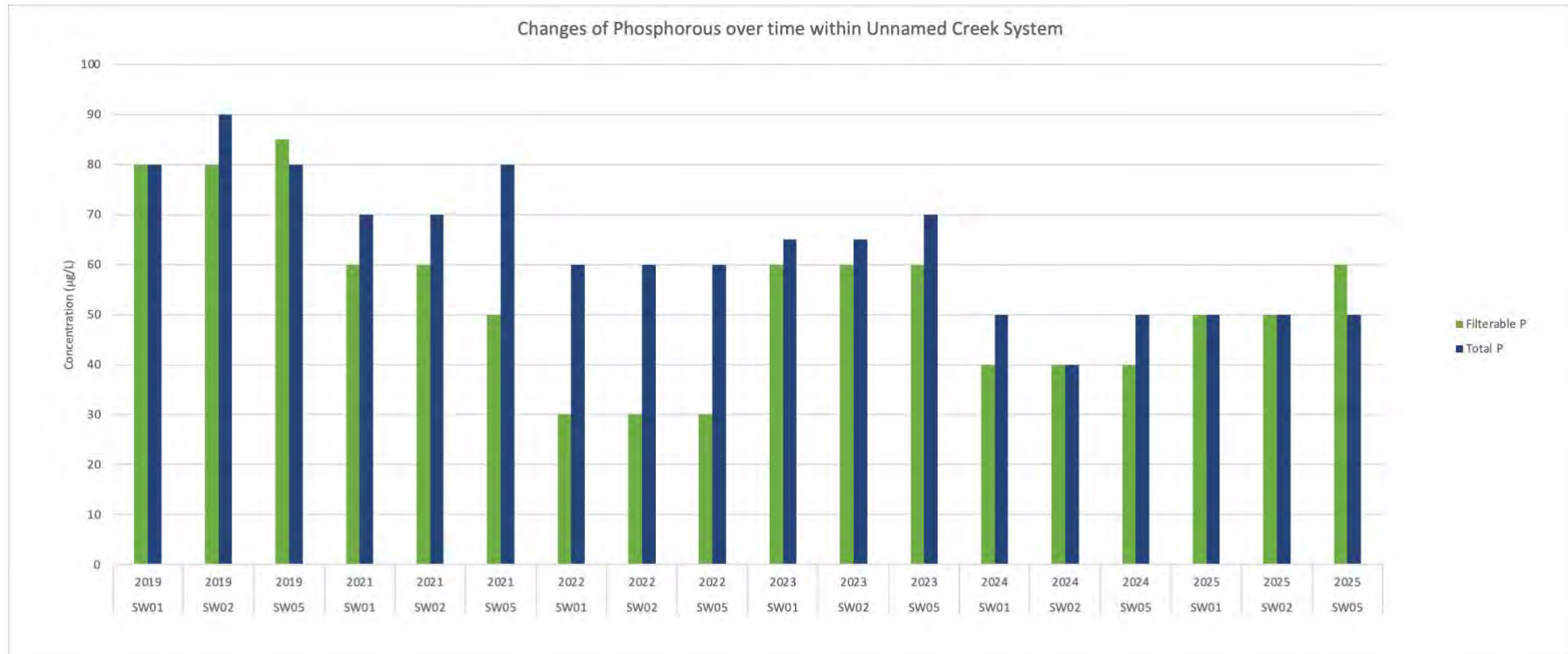
**Graph 2** above shows one occurrence where the median value in either SW07 or SW08 for Total Phosphorus has been above the WQO for low flows (110 µg/L) and high flows (200 µg/L) for the Blackfellow Creek system. After a spike of both Nitrogen and Phosphorus in the in 2019, there are no observable trends of increases in Phosphorus levels in the Blackfellow Creek system.

**Graph 3. Changes of Nitrogen over time within Unnamed Creek system.**



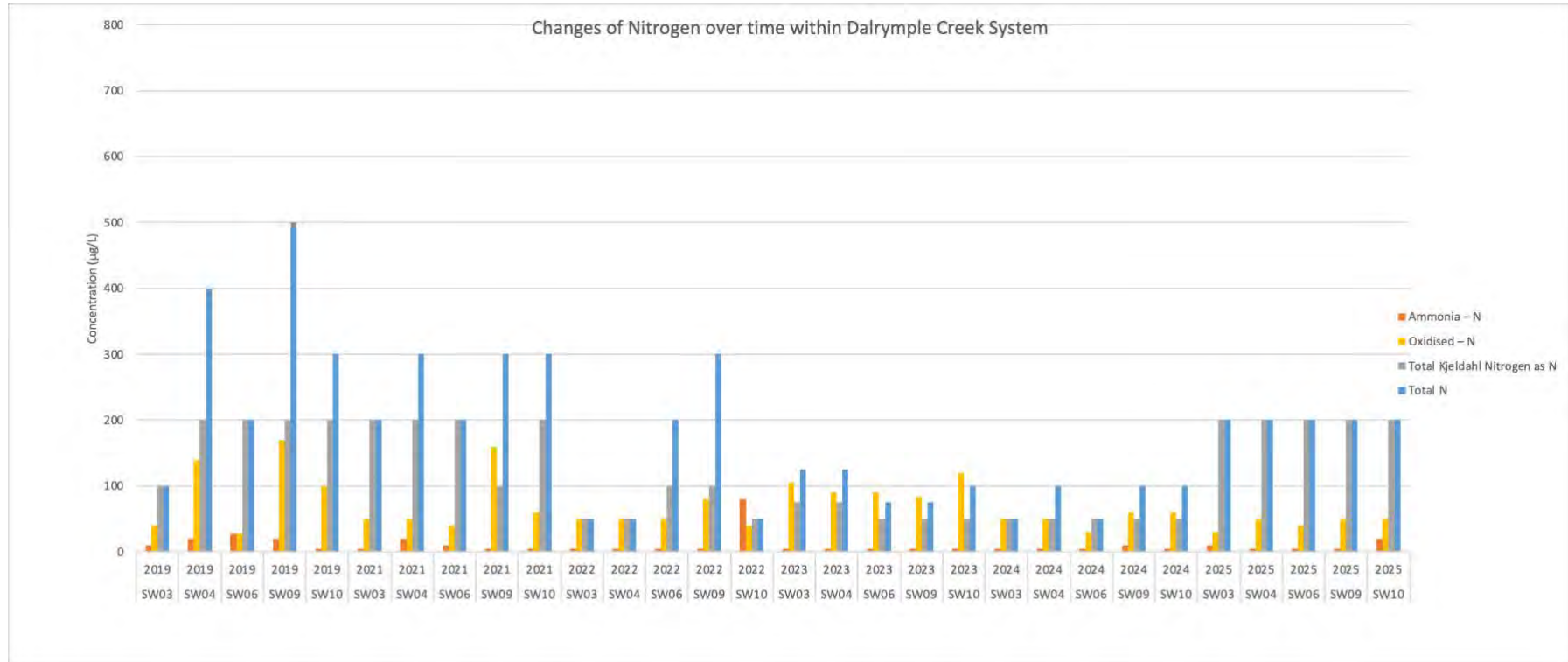
**Graph 3** above shows Total Nitrogen spiking at the two potentially impacted sites, SW01 and SW05, in the 2019, thereafter, the control site SW02 and potentially impacted site, SW01 have had similar values while the potentially impacted GW site SW05 had lower values. Levels have decreased between 2019 and 2024, increasing slightly in 2025.

**Graph 4. Changes of Phosphorus over time within Unnamed Creek system.**



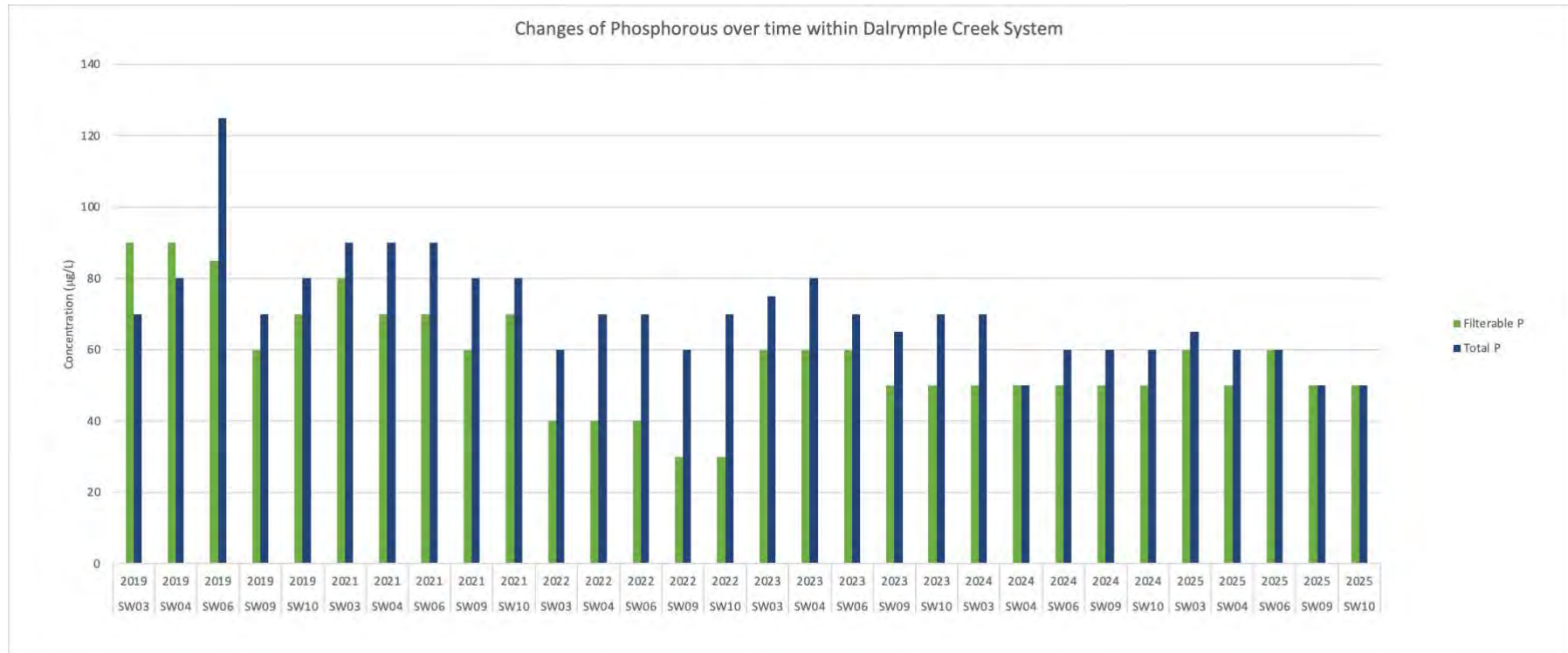
**Graph 4** above shows no occurrences in the Unnamed Creek system where the median value for any location for Total Phosphorus has been above the low flow water quality objectives of 110 µg/L, nor any observable trends of increase in Phosphorus levels.

**Graph 5. Changes of Nitrogen over time within Dalrymple Creek system.**



**Graph 5** above shows similar trends to the Unnamed Creek system, which is a tributary of Dalrymple with Nitrogen spiking in 2019, decreasing in 2022 and 2023, except in locations SW06 and SW09 where there were lower levels in 2024 and slightly increased levels in 2025.

**Graph 6. Changes of Phosphorus over time within Dalrymple Creek system**



**Graph 6** above shows that there has not been an occurrence where the median value for any location for Total Phosphorus has been above the low flow WQO of 110 µg/L, nor any observable trends of increase in Phosphorus levels in the Dalrymple Creek system.

From **Table 4** above it can be shown that of the 21 sampling events between 2019 and 2025, there was a high flow event in 2021, three in 2022 and one in 2024, which has not correlated with high nitrogen or Phosphorus levels in any of the creek systems.

For locations associated with **EcoCamp**, there have been 30 out of 124 occasions between 2019 and 2025 where Total Nitrogen or Phosphorus have exceeded the WQO, 28 during low-flow conditions and two during high-flow conditions, summarised in Table 11 below.

**Table 11. Exceedances of Water Quality Objectives for TN and TP for EcoCamp locations 2019 – 2025**

SAMPLE ID	STATUS OF FLOW	STUDY	Date Sampled	Rationale for Location	Total N mg/L	Total P mg/L
Low Flow 50 <sup>th</sup> percentile HEV WQO					270	110
High Flow 50 <sup>th</sup> percentile HEV WQO					460	200
SW01	LOW	2019	5/3/2019	The closest permanent surface water to Amphitheatre EcoCamp, <b>potentially surface water impacted site</b>	500	170
	LOW	2019	10/04/2019		500	
	HIGH	2022	14/6/2022		5,200	
	LOW	2023	20/03/2023		300	
	LOW	2023	18/05/2023		480	
	LOW	2024	24/09/2024		300	
SW02	LOW	2019	3/4/2019	Upstream of SW01 as a background water quality sample. <b>Control site.</b>	300	
	LOW	2019	10/4/2019		1000	
	LOW	2021	25/5/2021		300	
	HIGH	2022	14/6/2022		1000	
	LOW	2023	20/3/2023		300	
	LOW	2023	18/5/2023		480	
	LOW	2024	18/1/2024		600	
	LOW	2024	24/9/2024		400	
	LOW	2025	05/08/2025		300	
SW03	LOW	2019	3/4/2019	This gully and next gully upstream are draining the area in the vicinity of Woodcutters EcoCamp, <b>potential surface water impacted site.</b>	300	
	LOW	2021	17/2/2021		600	
	LOW	2023	18/5/2023		450	
	LOW	2025	16/10/2025		300	
SW04	LOW	2019	5/3/2019	Upstream of SW03 as a background water quality sample. <b>Control site.</b>	800	
	LOW	2019	3/4/2019		400	
	LOW	2019	10/4/2019		300	
	LOW	2021	25/5/2021		400	

SAMPLE ID	STATUS OF FLOW	STUDY	Date Sampled	Rationale for Location	Total N mg/L	Total P mg/L
<b>Low Flow 50<sup>th</sup> percentile HEV WQO</b>					<b>270</b>	<b>110</b>
<b>High Flow 50<sup>th</sup> percentile HEV WQO</b>					<b>460</b>	<b>200</b>
	LOW	2023	18/5/2023		460	
SW05	LOW	2019	10/4/2019	This location is considered far enough downstream of SW01 to have potential to be fed by groundwater from beneath Amphitheatre EcoCamp, <b>potentially surface water impacted site.</b>	1400	
	LOW	2021	17/2/2021		300	
	LOW	2023	18/5/2023		500	
	LOW	2024	16/10/2025		300	
SW06	LOW	2019	10/4/2019	This location is considered far enough downstream of SW03 to have potential to be fed by groundwater from beneath Woodcutters EcoCamp, <b>potential groundwater impact site.</b>		170
	LOW	2023	18/5/2023		510	

For locations associated with **creek crossing** monitoring, there have been 21 out of 84 occasions between 2019 and 2025 where Total Nitrogen or Phosphorus have exceeded the WQO, 20 during low-flow conditions, one during high-flow conditions, summarised in Table 12 below.

**Table 12. Exceedances of Water Quality Objectives for TN and TP for Creek Crossing locations 2019 – 2024**

SAMPLE ID	STATUS OF FLOW	STUDY	Date Sampled	Rationale for Location	Total N mg/L	Total P mg/L
<b>Low Flow 50<sup>th</sup> percentile HEV WQO</b>					<b>270</b>	<b>110</b>
<b>High Flow 50<sup>th</sup> percentile HEV WQO</b>					<b>460</b>	<b>200</b>
SW07	LOW	2023	18/5/2023	Upstream of creek crossing on Blackfellow Creek. <b>Control site.</b>	300	
	LOW	2024	24/9/2024		500	
SW08	LOW	2019	3/4/2019	Downstream of creek crossing on Blackfellow Creek, <b>potentially surface water impacted site</b>	500	
	LOW	2019	10/4/2019		1100	170
	LOW	2019	25/6/2020		600	260
	LOW	2021	17/2/2021		900	140
	LOW	2023	18/5/2023		330	
	LOW	2025	16/10/2025		300	
SW09	LOW	2019	3/4/2019	Downstream of creek crossing on Dalrymple Creek, <b>potentially surface water impacted site.</b>	1200	
	LOW	2019	10/4/2019		500	
	LOW	2021	17/2/2021		300	
	HIGH	2022	14/6/2022		800	

SAMPLE ID	STATUS OF FLOW	STUDY	Date Sampled	Rationale for Location	Total N mg/L	Total P mg/L
Low Flow 50 <sup>th</sup> percentile HEV WQO					270	110
High Flow 50 <sup>th</sup> percentile HEV WQO					460	200
	LOW	2023	18/5/2023		460	
	LOW	2025	16/10/2025		400	
<b>SW10</b>	LOW	2019	3/4/2019	Upstream of creek crossing on Dalrymple Creek and the most upstream reference on Dalrymple Creek. <b>Upmost control site.</b>	300	500
	LOW	2019	10/4/2019		2000	
	LOW	2021	17/2/2021		600	500
	LOW	2023	18/5/2023		450	
	LOW	2024	18/1/2024		300	
	LOW	2024	28/5/2024		300	

Considering **Graphs 1-6** and Table 11 and Table 12 above, the following observations are made:

1. There is no discernible trend between control sites and impacted sites;
2. The 51 relatively high results in the last 5 years, which were above the WQO for TN and Phosphorus, are across control and potentially impacted sites, as well as locations that monitor creek crossings and EcoCamps; and
3. There is no increase in Nitrogen or Phosphorus over time.

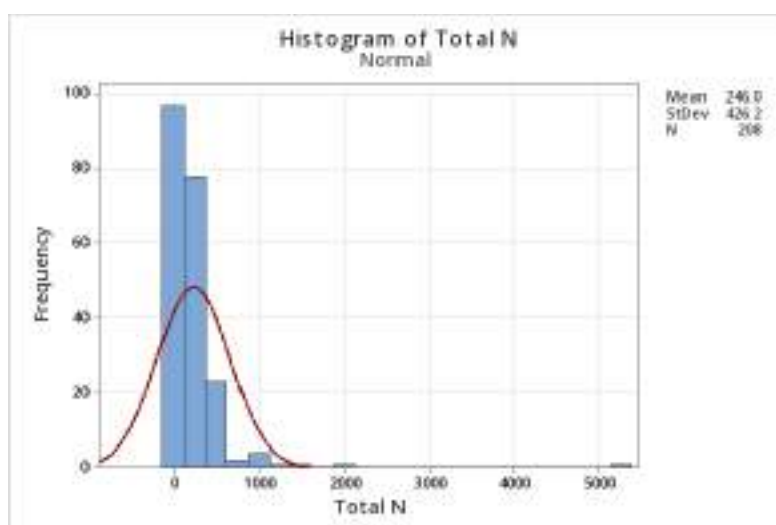
## 6.6 Statistical Analysis of Nutrient Results

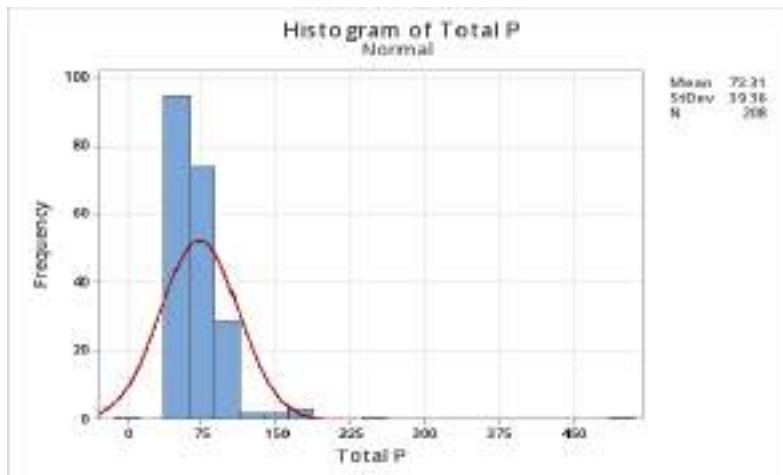
"Water quality data do not usually follow convenient probability distributions such as the well-known normal and lognormal distributions on which many classical statistical methods are based" (Lettenmaier et al., 1991).

The characteristics of environmental (and perhaps most other 'real') data drive analysis methods towards use of robust and nonparametric methods, (Helsel et al., 2020).

Water quality data often has the following characteristics:

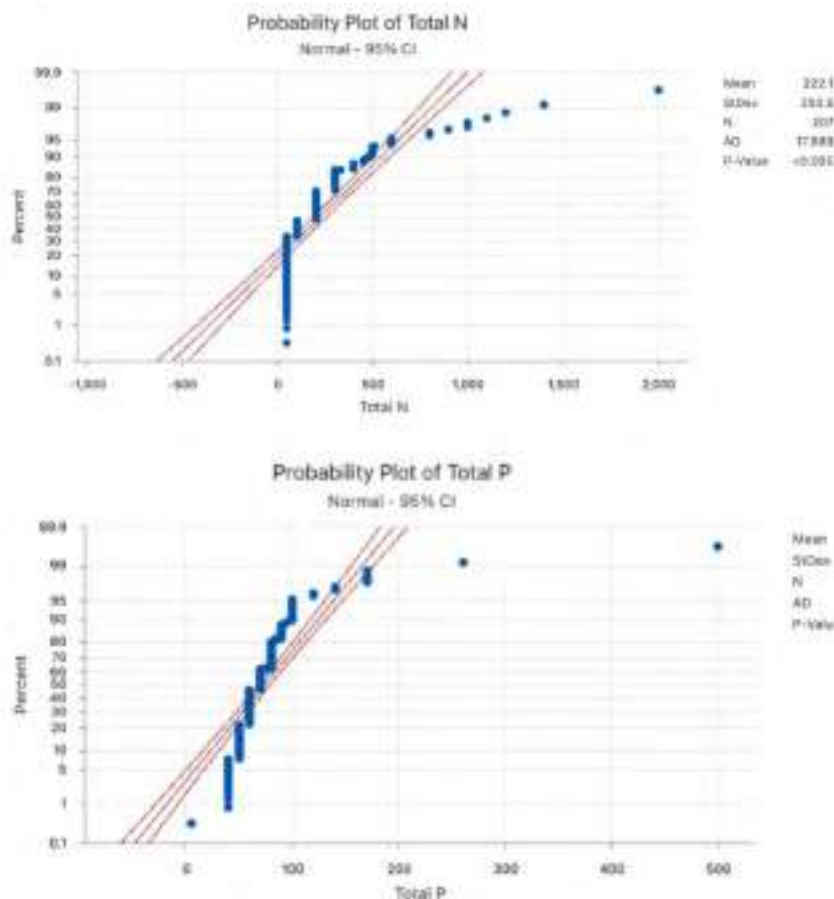
- A lower bound of zero;
  - The presence of outliers more common than in most data sets, with outliers on the high side being more common;
  - positive skewness;
  - non-normal distribution;
  - "censored data", particularly due to detection limits;
  - seasonal patterns;
  - dependence on uncontrolled variables.
- Considering the above and following examination of the local data sets, non-parametric statistical analysis of samples was conducted mainly due to the following evaluation of the local data sets: The current sample sizes are not large enough to be certain that the data is normally distributed. Frequency plots of TN and TP in Graph 7 below demonstrate the sample distribution is right-tailed dominant or showing characteristics of a non-normal probability distribution and the fit of a normal distribution curve in the graph demonstrates the data sets are not normally distributed.



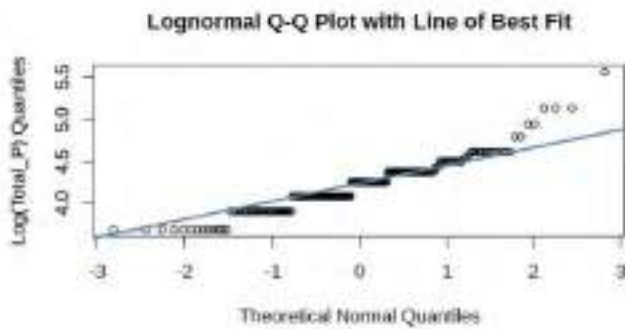
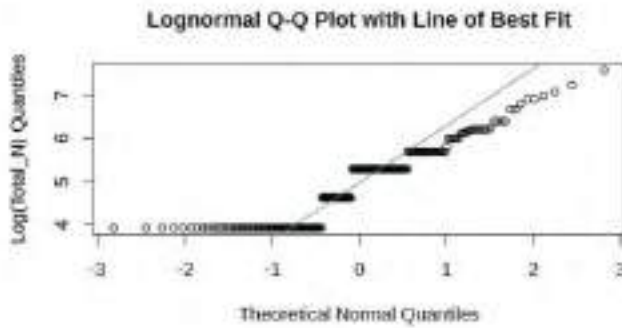
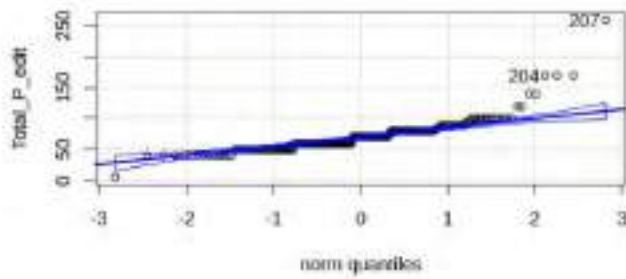
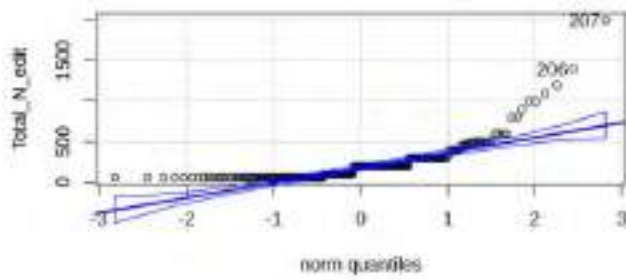


**Graph 7. Sample distribution of TN & TP**

The Log-normal Q-Q plots of TN and TP below in **Graph 9** and the Probability plots below in **Graph 8** both demonstrates the distribution of the data sets of TN and TP are not normally or lognormally distributed;



**Graph 8 : Probability Plots of TN and TP**



**Graph 9 : Lognormal Q-Q Plot with line of best fit for TN and TP**

For both the total TN and TP data, one upper outlier was removed. These two outliers do not relate to the same water sample. A large proportion of the low results were below the LOR and were "censored" by substituting the results with half the LOR. In the Q-Q plots, it can be seen that TN data is more heavily censored than the TP data. As a result of the high degree of censoring and the low precision of other low values, the heavy-tailed distribution of the elevated TN values are not adequately indicated by the lognormal line-of-best fit. The heavy-tailed distribution of TN values is more easily seen in the normal Q-Q plot where the line-of-best-fit is better aligned with the intermediate values.

- The heavy-tailed distributions for both data sets illustrate the problem with classifying and removing additional outliers, therefore using previous iterations of Graph 9 and Graph 8, that demonstrated the sample SW01 in 2022 resulted a TN value of 5,200 µg/L mostly contributed by a Nitrite value of 4,860 µg/L is an outlier worth censoring and therefore has been removed from the data set.
- However, nonparametric tests are not affected by the inclusion of outliers;
- for some datasets, nonparametric analyses provide an advantage because they assess the median rather than the mean. Of various nonparametric test methods, Mann-Whitney and Mood's Median test methods are the most suitable for comparison of sample medians.

The Null hypothesis  $H_0$  is that the medians are equal.

The alternative hypothesis,  $H_1$ , is that the medians are not equal.

Using Minitab 21 statistical software, we conducted Mann-Whitney tests to compare sample medians. However, these proved to be inconclusive, with  $P\text{-value} > \alpha$  (significance level). The difference between the medians is not statistically significant (Fail to reject or accept the  $H_0$ ).

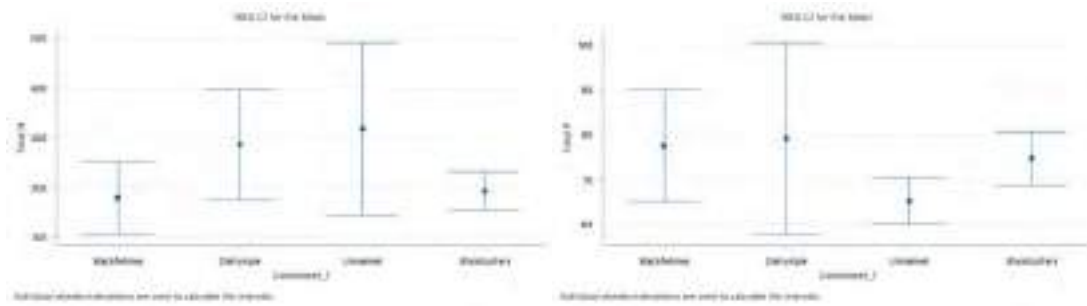
Throughout the statistical analysis  $\alpha$  (significance level) of 0.05 was adopted.

If the  $P$ -value is greater than the significance level, the decision is to accept the null hypothesis. We do not have enough evidence to conclude that the difference between the population medians is statistically significant.

Also using Minitab 21 statistical software, Mood's median tests were then conducted. Details of Statistical Analysis is shown in **Appendix D**.

The following sections describes the basic statistics of each population, followed by results of the Mann-Whitney and Mood's median tests.

The interval plots in Graph 10 demonstrate the variability of the various data sets within catchments, with Total Nitrogen in Amphitheatre (Unnamed) sub-catchment having the greatest variance, followed by Total Phosphorus in Dalrymple.



**Graph 10 : Interval plots of TN and TP in each catchment**

### 6.6.1 Blackfellow Creek Crossing

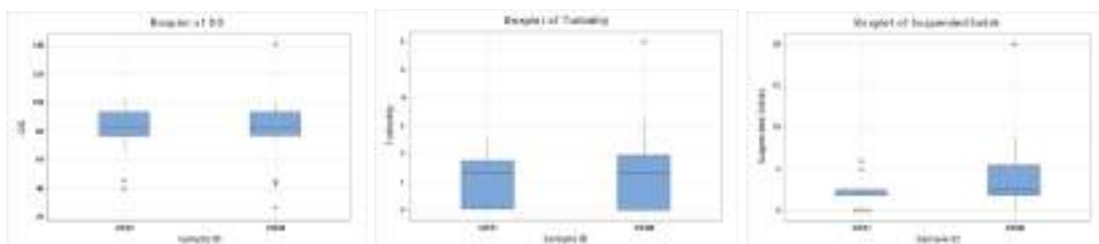
The parameters of interest in creek crossings are dissolved oxygen, turbidity and suspended solids.

The basic statistics in Table 13 below, show a comparison of dissolved oxygen, turbidity and suspended solids for SW07 and SW08. The means for SW07, the control site, are lower than those for SW08, the potentially impacted site and median values are the same. In addition, the box plots in **Graph 11** show potential for the median of TN to be greater in SW07 than SW08. These basic statistics demonstrate that the medians are similar in SW07 and SW08 for dissolved oxygen, turbidity and suspended solids.

**Table 13. Basic Statistics on dissolved oxygen, turbidity and suspended solids at Blackfellow Crossing**

Descriptive Statistics: DO, Turbidity, Suspended Solids

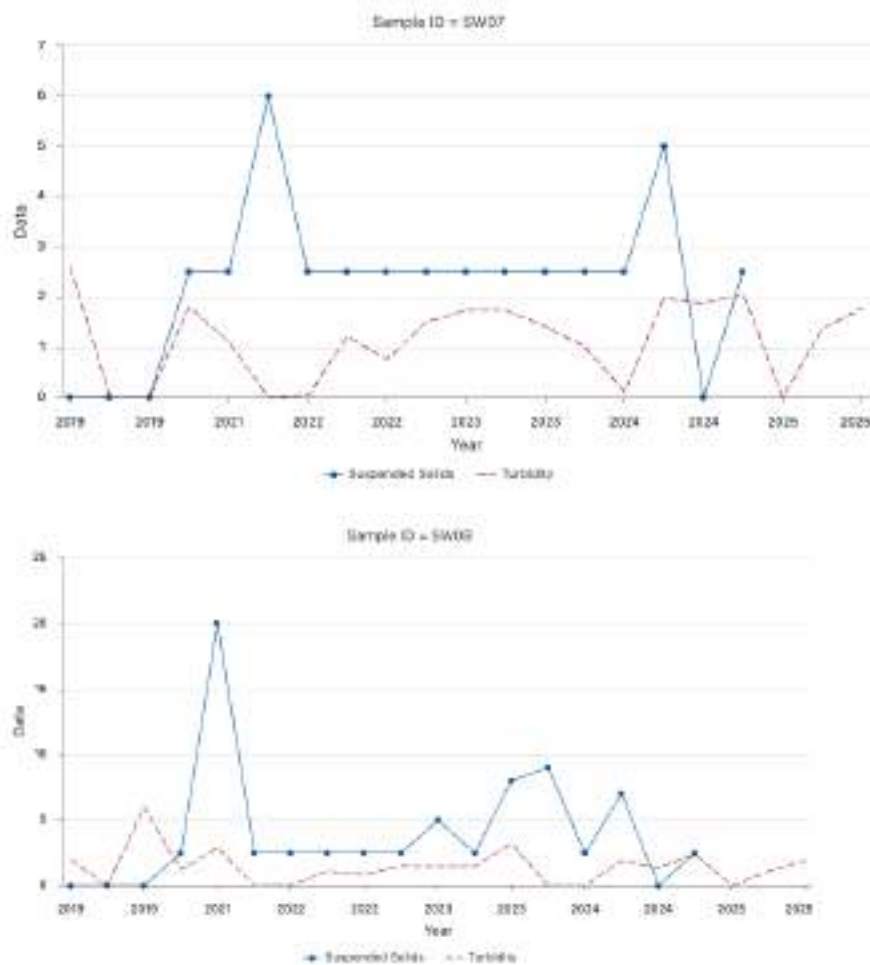
Statistics											
Variable	Sample ID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
DO	SW07	21	0	81.8905	3.48699	15.8374	40.2	77.35	82.8	93.80	103.2
	SW08	21	0	81.8	5.04171	23.1040	26.9	77.4	82.9	93.8	141.2
Turbidity	SW07	21	0	1.14048	0.180044	0.825067	0	0.066	1.37	1.780	2.6
	SW08	21	0	1.44905	0.311841	1.42093	0	0.015	1.98	1.985	8
Suspended Solids	SW07	18	3	2.27775	0.373165	1.58320	0	1.875	2.5	2.5	8
	SW08	18	3	3.97232	1.13673	4.79728	0	1.875	2.5	5.5	20



**Graph 11. Box Plot of dissolved oxygen, turbidity and suspended solids at Blackfellow Crossing**

From observing the basic statistics (Table 13) and Box Plots (**Graph 9 above**) for dissolved oxygen, turbidity and suspended solids in the Blackfellow Creek System 2019 - 2025 data, a potential difference in turbidity and suspended solids levels in the control site of SW07 and the potentially impacted site SW08 is identified.

The question to consider is whether the differences can be attributed to an increase in Turbidity and Suspended Solids levels over time in SW08, the potentially impacted site (Graph 12).



**Graph 12. Turbidity and Suspended Solids Blackfellow Creek**

To determine whether the exceedances in Turbidity and Suspended Solids at the potentially impacted site, Blackfellow Creek Crossing SW08, were significant, MEH completed Mann-Whitney testing, evaluating the difference in medians between the control site at Blackfellow Creek Crossing, SW07 and SW08, as shown in Table 24 in Appendix D Statistical Analysis. The results demonstrated that the medians for the population could be the same with a 95% confidence. The P-values were 0.763 and 0.448 for Turbidity and Suspended Solids respectively for the Mann Whitney tests,

being greater than the significance of 0.05. Therefore, the decision is to fail to reject or **accept the null hypothesis (H<sub>0</sub>)** that the medians are equal, although there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in **Table 24** in **Appendix D**. Therefore, Mood’s Median tests were undertaken.

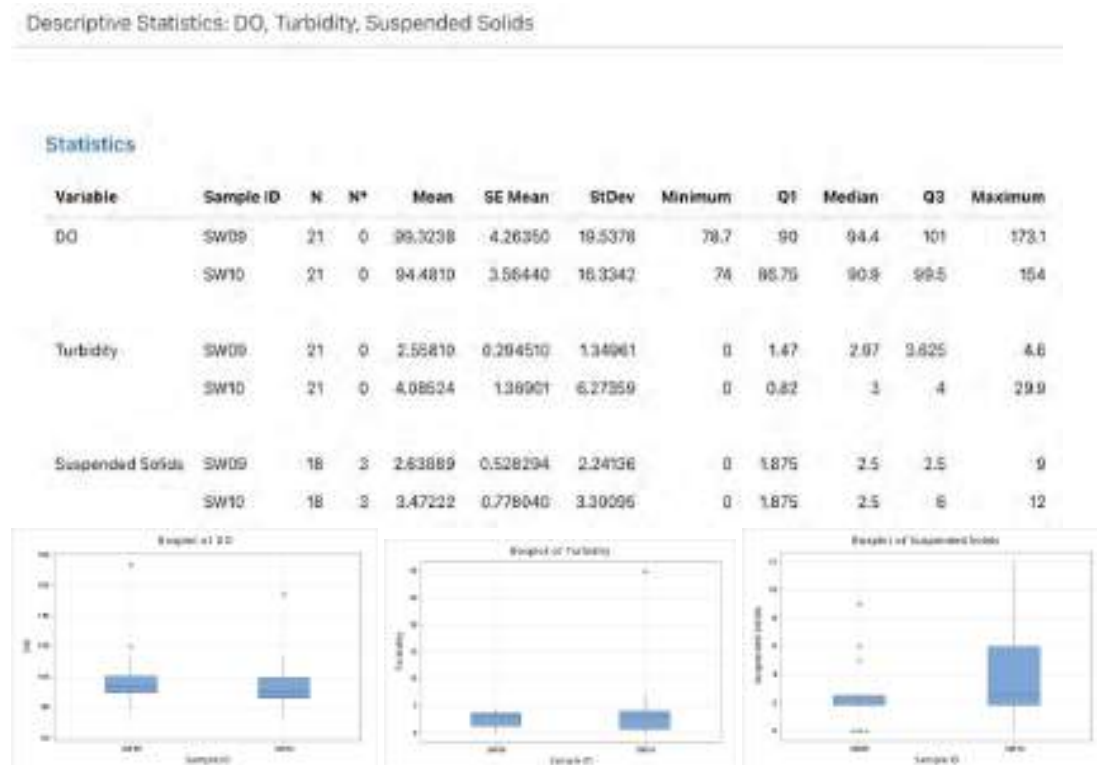
The Mood’s median test stated that the calculations could not be performed because there are not enough observations that are greater than the median, concluding **the medians are the same**, as shown in Appendix D Statistical Analysis.

The null hypothesis states that the population medians are all equal and because the P-value is greater than the significance level of 0.05, it is feasible to neither reject or **accept the H<sub>0</sub>**, stating that the differences between the sample medians are not statistically significant.

### 6.6.2 Dalrymple Creek Crossing

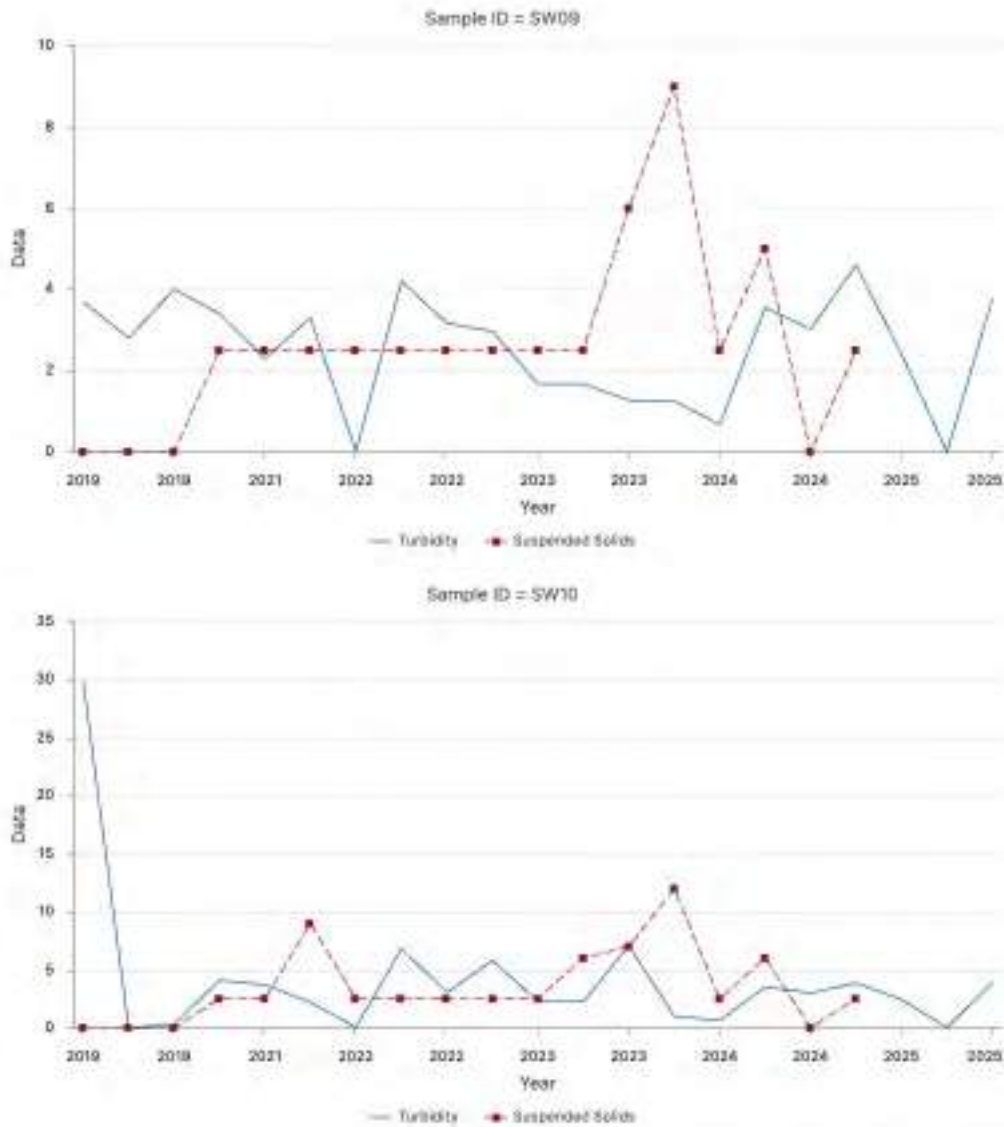
Basic statistics (Table 14) from 2019 to 2025 comparing SW09 and SW10 demonstrate no significant difference between the control site, SW10, and the potentially impacted site, SW09, albeit the box plot (Graph 11) shows higher variance in the control site than for the potentially impacted sites. Therefore, statistical analysis of Suspended Solids was completed to ascertain if the median in SW10 and SW09 are statistically different.

**Table 14. Basic Statistics on dissolved oxygen, turbidity and suspended solids at Dalrymple Creek Crossing**



**Graph 13. Box Plot of dissolved oxygen, turbidity and suspended solids at Dalrymple Creek Crossing**

The question to consider is whether the differences can be attributed to an increase in Suspended Solids levels over time in SW09, the potentially impacted site.



**Graph 14. Turbidity and Suspended Solids Dalrymple Creek**

To determine whether the levels in Turbidity and Suspended Solids at the potentially impacted site, Dalrymple Creek Crossing SW09, were significant, MEH completed Mann-Whitney testing, evaluating the difference in medians between the control site at Dalrymple Creek Crossing, SW09 and SW10, as shown in Table 25 below and in Appendix D Statistical Analysis. The results demonstrate that the medians for the population could be the same with a 95% confidence interval. The P-values of 0.602 and 0.213 for Turbidity and Suspended Solids respectively for the Mann Whitney tests are greater than the significance of 0.05. Therefore, the decision is to fail to

reject or **accept the null hypothesis (H<sub>0</sub>)** that the medians are equal, although there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in **Table 25** in **Appendix D**. Therefore, Mood’s Median tests were completed.

The Mood’s median test stated that the calculations could not be performed on Turbidity because there are not enough observations that are greater than the median, concluding **the medians are the same**. The P-values of 0.360 for Suspended Solids for the Moods tests being greater than the significance of 0.05. Therefore, the decision is to fail to reject or **accept the null hypothesis (H<sub>0</sub>)** that the medians are equal, although there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in **Table 26** in **Appendix D**.

The null hypothesis states that the population medians are all equal and because the P-value is greater than the significance level of 0.05, it is feasible to neither reject or **accept the H<sub>0</sub>**, stating that the differences between the sample medians are not statistically significant.

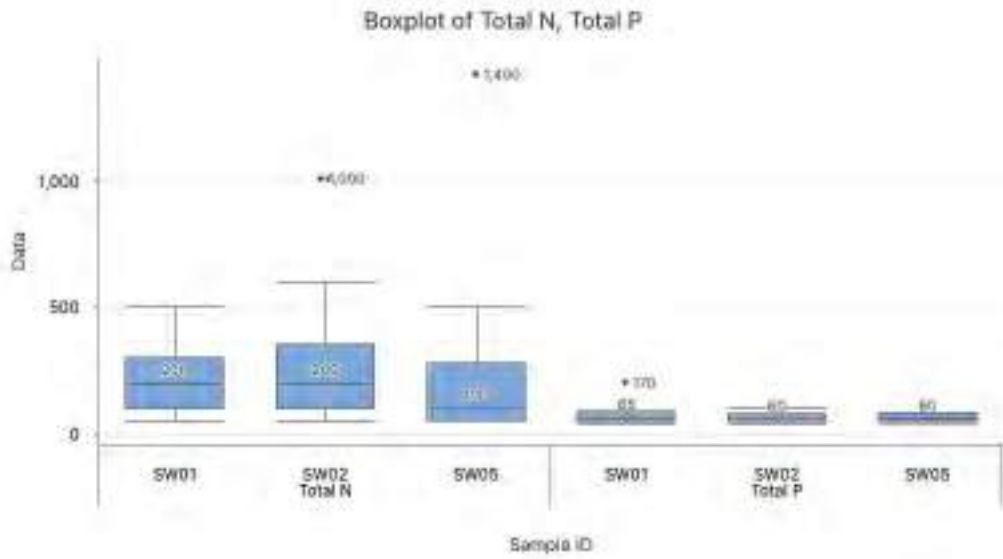
### 6.6.3 Amphitheatre EcoCamp

Basic statistics comparing SW01, SW02 and SW05 in the catchment of Unnamed creek below Amphitheatre EcoCamp demonstrate no significant difference between the control site SW02 and the potentially impacted sites SW01 and SW05, albeit the mean TN was higher for SW01 the potentially impacted site than for SW02 the control site. Therefore, further statistical analysis was required.

**Table 15. Basic Statistics on Total Nitrogen and Total Phosphorus in Unnamed Creek System in 2025**

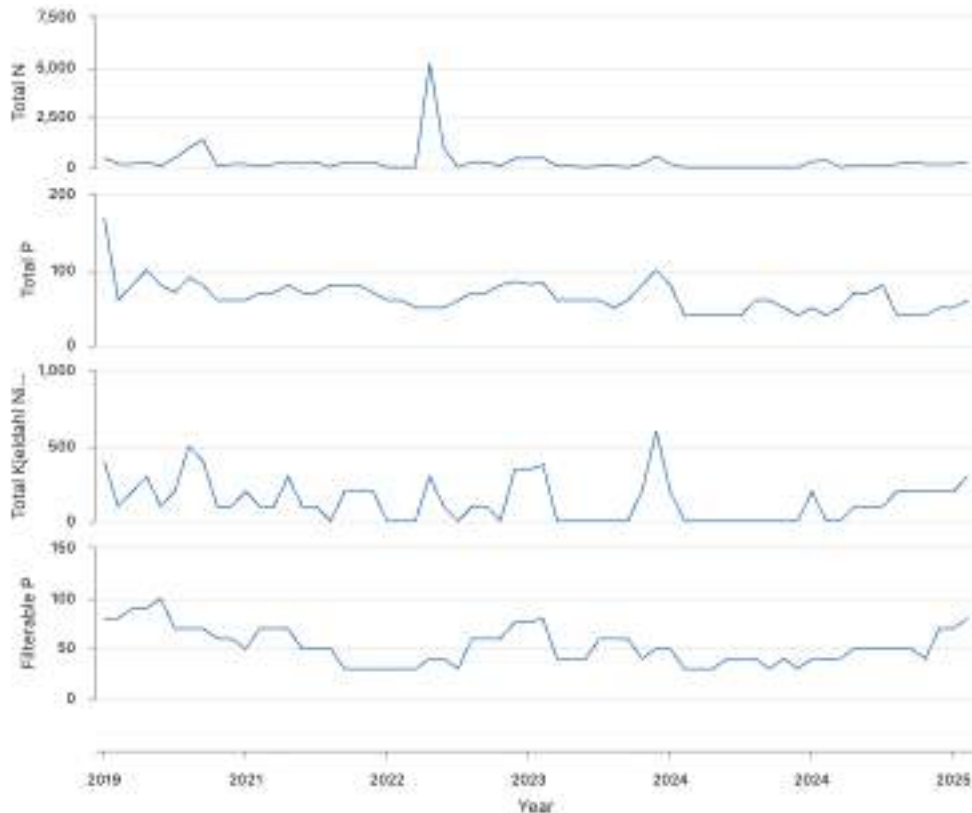
Descriptive Statistics: Total N, Total P

Statistics											
Variable	Sample ID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Total N	SW01	21	0	441.905	240.037	1099.99	50	100	200	300	5200
	SW02	21	0	299.048	60.2056	275.897	50	100	200	350	1000
	SW05	20	0	207.5	88.6506	307.055	50	50	100	275	1400
Total P	SW01	21	0	67.3810	5.83235	27.1854	40	50	60	75	170
	SW02	21	0	63.3810	4.11102	18.8427	40	50	60	75	100
	SW05	20	0	64.65	3.40145	15.2118	40	52.5	60	80	83



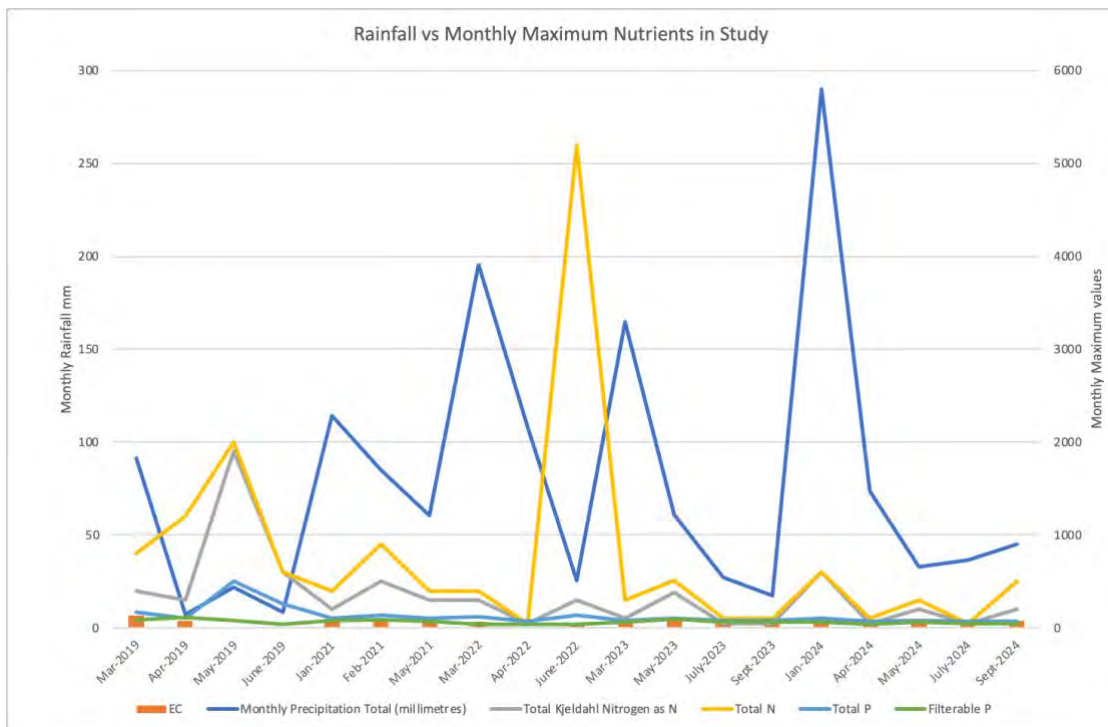
**Graph 15. Box Plot Graphs of Total Nitrogen and Total Phosphorus in Unnamed Creek System**

In addition, the display of Box Plots of TN and TP show similar distributions and, therefore, are consistent with the basic statistics above.



**Graph 16. Nutrients over time in Unnamed Creek**

**Graph 15**, above, clearly shows an outlier value of 1400 mg/L for Total N in the potentially impacted site SW05. This site has potential to impact the water quality due to being down-gradient (with estimated horizontal distance of 450 m) of Amphitheatre Lodge. However, given that the irrigation of treated effluent has not yet commenced at the Eco Lodges, this potential impact is unlikely to be a result of EcoCamp activity. The median values for the three sites over the six sampling seasons do not present any trend. **Graph 16** nutrients over time and **Graph 17** below compares trends in rainfall and maximum nutrient levels but shows no correlation between them.



**Graph 17. Annual Rainfall versus Annual median TN & TP**

The completion of a Mann-Whitney test to evaluate any SW impacts from the Amphitheatre EcoCamp by considering the difference in medians between the control site, SW02, and the potentially impacted site, SW01, resulted in P-values of 0.687, 0.538, 0.772 and 0.841 for TKN, TN, TP and FP, respectively, with P values > 0.05. Therefore, the decision is to fail to reject or **accept the null hypothesis (H<sub>0</sub>)** that the medians are equal. Given there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in **Table 27** in **Appendix D**, Mood’s median tests were conducted.

The Mood’s median test results for SW02 versus SW01 **reject the H<sub>0</sub>** and conclude that not all populations medians are statistically equal for TKN, TN, TP and FP, with P-values of 0.001, 0.008, 0.001 and 0.001 for TKN, TN, TP and FP, with P values >

0.05, shown in Table 28 in Appendix D. Therefore, the decision is **to reject the null hypothesis** ( $H_0$ ) that the medians are equal.

The completion of a Mann-Whitney test to evaluate any GW impacts from the Amphitheatre EcoCamp by considering the difference in medians between the control site, SW02, and the potentially GW-impacted site, SW05, resulted in P-values of 0.629, 0.074, 0.696 and 0.602 for TKN, TN, TP and FP, with P values > 0.05. Therefore, the decision is to fail to reject or **to accept the null hypothesis** ( $H_0$ ) that the medians are equal. Again, as there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in **Table 29** in **Appendix D**, Mood’s median tests were conducted.

The Mood’s median test results concurred with the Mann-Whitney tests to **accept the  $H_0$**  that both sample populations had equal medians statistically for TKN, TN, TP and FP, with P-values of 0.729, 0.615, 0.689 and 0.420 for TN and TP, P values greater than significance level of 0.05, as shown in **Table 30** in **Appendix D**.

Details of Statistical Analysis are shown in **Appendix D**.

#### 6.6.4 Woodcutters EcoCamp

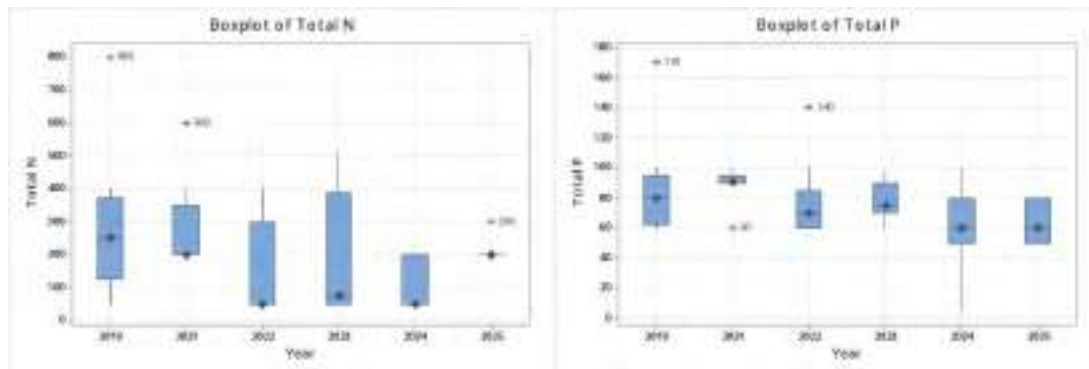
Basic statistics (see Table 16) used to compare results for SW03, SW04 and SW06 did not demonstrated differences in the means or medians between the control site SW04 and the potential impacted sites SW03 and SW06, although the mean value for control site SW04 was slightly higher than potential impacted sites SW03 and SW06.

**Table 16. Basic Statistics for Dalrymple Creek**

Descriptive Statistics: Total N, Total P

#### Statistics

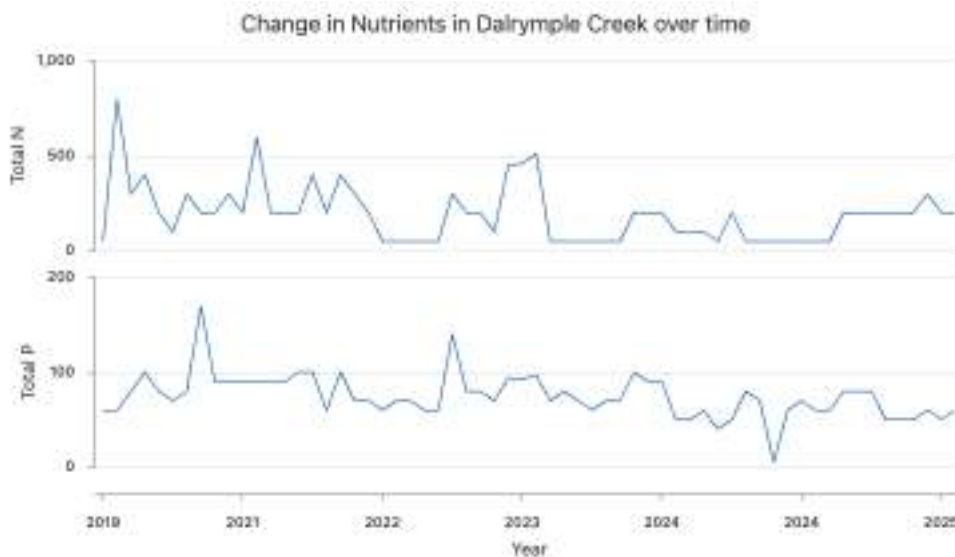
Variable	Sample ID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Total N		1	0	60	*	*	50	50	50	50	50
	SW03	20	0	190	34.7169	155.259	50	50	200	275	600
	SW04	21	0	226.667	39.8708	182.711	50	50	200	300	800
	SW06	20	0	165.5	24.9892	111.755	50	50	200	200	510
Total P		1	0	60	*	*	60	60	60	60	60
	SW03	20	0	73.7	4.04000	18.0674	40	60	70	90	100
	SW04	21	0	70.3810	4.89192	22.4176	5	55	70	90	100
	SW06	20	0	80.85	6.42252	25.7224	50	60	70	90	170



**Graph 18. Box Plots of TN and TP across Dalrymple Creek System**

The Box Plots of TN and TP across the Dalrymple Creek System shown in **Graph 18** demonstrate more variation of medians of TN over time than of TP, as well as more changes over time in TN.

Changes of TN and TP over time, shown in **Graph 19**, show a similar trend, although no general trend of increase.



**Graph 19. Change in Nutrients in Dalrymple Creek over time**

The completion of a Mann-Whitney test to evaluate any impacts from the Woodcutters EcoCamp by considering the difference in medians between the control site, SW04, and the potentially SW impacted site, SW03, resulted in P-values of 0.946, 0.543, 0.925 and 0.911 for TKN, TN, TP and FP, respectively, with P values > 0.05. Therefore, the decision is to fail to reject or **accept the null hypothesis ( $H_0$ )** that the medians are equal. However, as there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in Table 31 in Appendix D, Mood's median tests were conducted.

The Mood's median test results concurred with the Mann-Whitney tests to **accept the  $H_0$**  that both sample populations (SW04 and SW03) had equal medians statistically for TKN, TN, TP and FP, with P values of 0.475, 0.732 and 0.139 for TKN, TN and TP respectively, as shown in Table 32 in Appendix D. For Mood's median test for SW-04 versus SW03 for Filterable Phosphorus, the calculations could not be performed because there were not enough observations greater than the median, concluding the medians are the same.

The completion of a Mann-Whitney test to evaluate any GW impacts from the Woodcutters EcoCamp by considering the difference in medians between the control site, SW04, and the potentially GW-impacted site, SW06 resulted in P-values of 0.935, 0.344, 0.735 and 0.829 for TKN, TN, TP and FP, with P values > 0.05. Therefore, the decision is to fail to reject or to **accept the null hypothesis ( $H_0$ )** that the medians are equal. As there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in **Table 33** in **Appendix D**, Mood's median tests were conducted.

The Mood's median test results concurred with the Mann-Whitney tests to **accept the  $H_0$**  that both sample populations (SW04 and SW06) had equal medians statistically for TKN, TN, TP and FP, with P-values of 0.229, 0.393, 0.316 and 0.392 for TKN, TN, TP and FP, P values > 0.05, as shown in **Table 34** in **Appendix D**.

Details of Statistical Analysis is shown in **Appendix D**.

## 7 Conclusions and recommendations

### 7.1 Conclusions

MEH was engaged by THRL to provide water quality data for the potential impact from disposal areas at Amphitheatre and Woodcutters EcoCamps, as well as two creek crossings over Blackfellow and Dalrymple Creeks.

Surface water assessment has been, and will continue to be, conducted at monitoring sites in the Main Range National Park as part of a 10-year monitoring program, outlined in the Scenic Rim Trail Management Plan (SRTMP). This will determine whether activities associated with the operation of the Scenic Rim Trail Eco Camps, including disposal of treated effluent, have had an adverse impact on water quality and therefore potential to impact Matters of National Environmental Significance (MNES) and world heritage values of the Gondwana Rainforests of Australia World Heritage area (GRAWHA).

In accordance with **Condition 8A** in the Variation of Conditions attached to Approval (Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC ref 2016/7847)), dated 2019) monitoring will continue to detect any change from baseline outside the boundaries of the **Woodcutters Eco Camp** and **Amphitheatre View Wilderness Eco Camp** that might be attributable to onsite disposal of sewage or wastewater.

In addition, **Blackfellows Creek** and **Dalrymple Creek Crossings** are monitored in accordance with **Condition 8** in Variation of Conditions attached to Approval (Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC ref 2016/7847)), dated 2019) to detect any change from baseline **upstream** and **downstream** of the **crossings**.

This data collection is designed to ensure monitoring will detect any downstream changes in surface water (SW) and groundwater (GW) quality from impacts of the Timber Getters EcoCamp, the Amphitheatre View Wilderness (Timber Getters) EcoCamp, and creek crossings as per the Scenic Rim Trail Management Plan, dated 31<sup>st</sup> March 2019, (O’Hara, 2019), Sewage and Wastewater Monitoring Plan (SWMP), (MEH, 2025b), and is in accordance with the DES Monitoring and Sampling Manual, (Queensland, 2018a).

This report is the sixth monitoring report since the baseline report was written in September 2019. THRL, formerly Spicers, opened the two resorts in 2020 and commissioned the sewage treatment plants in the same year. However, as yet, disposal of treated effluent to land has not occurred. As there was an intention to do this in 2021, MEH recommended monitoring of surface water and groundwater at relevant surface water sites should resume in 2021. This monitoring occurred and was continued in 2022, 2023 and 2024.

Following consultation with DCCEEW, revised Conditions of Approval, and the production of the SWMP, MEH has revisited both baseline and trigger values for this project. It was agreed:

- that baseline data could now be the last five years of data, 2019 – 2024;
- That trigger points, determining whether there has been an incident (as defined by conditions and set out in the Glossary) shall be determined by a multiple lines of evidence approach based on criteria, including, but not limited to:
  - Individual sample results above the maximum baseline level;
  - Annual or median values above the WQO;
  - Annual medians of the potentially impact sites that are greater than their control;
  - Cumulative medians of potentially impacted sites that are statistically not the same using non parametric statistics;
  - Changes of parameters over time;
  - Trend analysis demonstrates a change in water quality; and
  - That there is a change in water quality that could harm a protected matter (as defined by conditions and set out in the Glossary).

During 2025 monitoring events, on the 27<sup>th</sup> March, 5<sup>th</sup> August and 16<sup>th</sup> October 2025, MEH sampled ten (10) surface water locations at the confluence of drainage channels originating in the vicinity of the disposal areas and the creeks, as well as creek crossings. Sampling on the three events were in low-flow conditions. Following laboratory analysis, interpretations of results and statistical analysis the following conclusions have been drawn by MEH.

Oxidised-N exceeded the WQO of 4 µg/L at both locations for 10 µg/L of the 30 µg/L low-flow results. As previously discussed in this and previous reports, WQO for Ammonia-N and Oxidised-N in low-flow conditions are set very low at 4 µg/L, which is below the limit of reporting of 10 µg/L. While Total Nitrogen (TN) reflects the TN in the system, levels of Ammonia and Oxidised-N can be more transient in the ecosystem. Therefore, TN is a superior indicator of the Nitrogen load being measured in the system, rather than individual forms of Nitrogen, meaning that exceedances of WQO of Ammonia and Oxidised-N are considered relevant in this study.

#### **7.1.1 Blackfellow Creek Crossing**

There were no median values (excluding Ammonia and Oxidised-N) above the WQO in 2025 and there were no individual sample results above the maximum baseline conditions (2019 – 2024) in 2025, see Table 7. The parameters of interest in creek crossings are: Dissolved Oxygen, Turbidity and Suspended Solids.

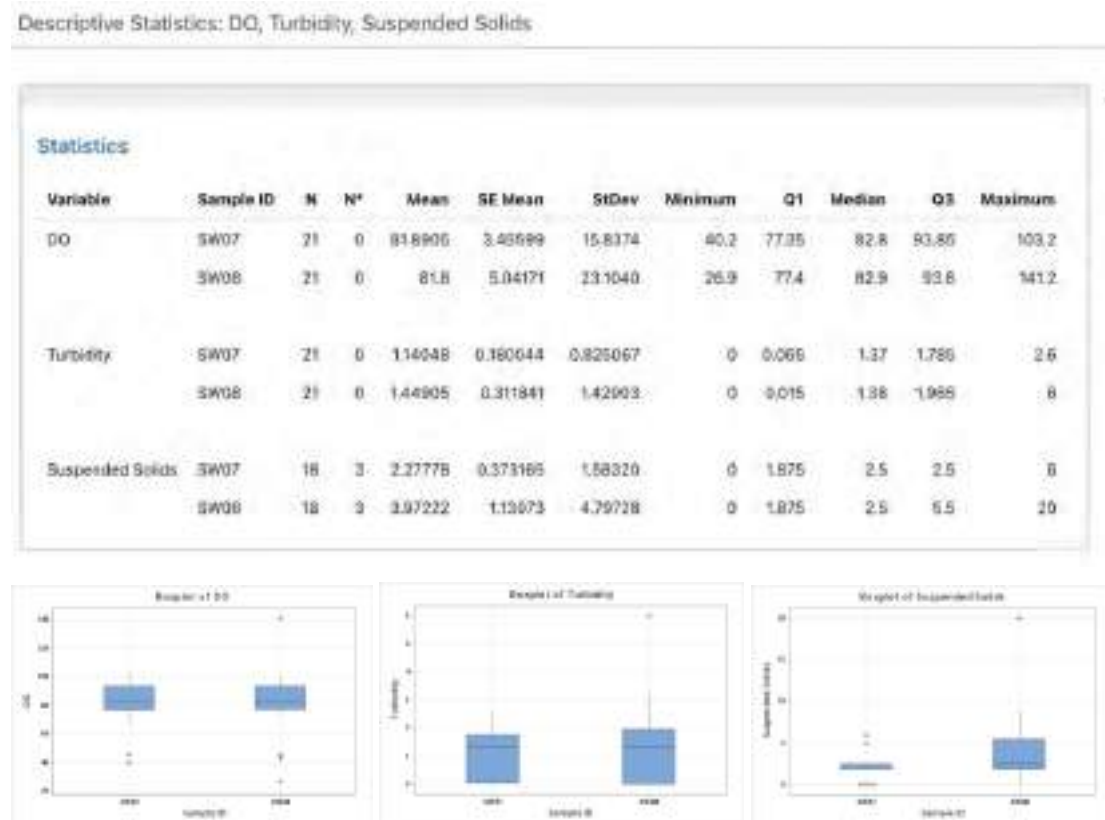
The water quality in the control site, SW07, and the potentially impacted site, SW08, were below the median and maximum value for the baseline, as well as WQO for Blackfellow Creek Crossing.

The median and mean values for 2019 to 2025 for DO in the potentially impacted site, SW08, were the same as the control site, SW07. The mean values for 2019 to 2025 in the potentially impacted site, SW08, was higher for Turbidity and

Suspended Solids than the control site SW07, as shown in **Table 13**; therefore, statistical analysis was completed.

There have been no observable trends of an increase in DO, Turbidity or Suspended Solids levels at the Blackfellow Creek Crossing as shown in Table 17 below and discussed in detail in **section 6.6.1**. The above mean values of Turbidity and Suspended Solids in SW08, compared to SW07, have been statistically shown to not be significant, as discussed below.

**Table 17. Basic Statistics on dissolved oxygen, turbidity and suspended solids at Blackfellow Crossing**



The Mann-Whitney and Mood tests evaluated the difference in medians between the control site at Blackfellow Creek Crossing, SW07, and the potentially impacted site, SW08, at Blackfellow Creek Crossing. The null hypothesis states that the population medians are all equal and because the P-value is greater than the significance level of 0.05, it is feasible to neither reject or **accept the H<sub>0</sub>**, stating that the differences between the sample medians are not statistically significant, see Table 24.

### 7.1.2 Dalrymple Creek Crossing

There were no median values (excluding Ammonia and Oxidised-N) above the WQO in 2025 and there were no individual sample results above the maximum baseline

conditions (2019 – 2024) in 2025 (see Table 9). The parameters of interest in creek crossings are dissolved oxygen, turbidity and suspended solids.

The water quality in the control site, SW10, and the potentially impacted site, SW09, were below the median and maximum value for the baseline as well as WQO for Dalrymple Creek Crossing.

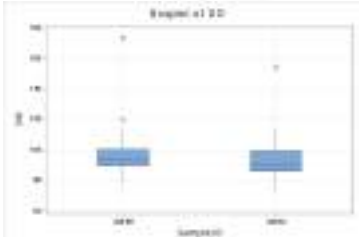
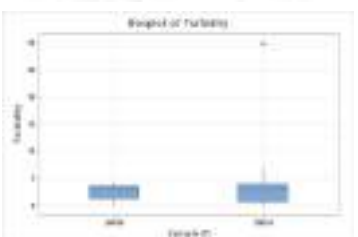
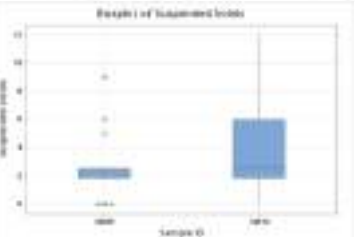
Basic statistics from 2019 to 2025 comparing SW09 and SW10 demonstrate no significant difference between the control site SW10 and the potentially impacted site SW09, albeit the box plot shows higher variance in the control site than for the potentially impacted sites, as shown in Table 18 below. Therefore, statistical analysis of Suspended Solids was completed to ascertain if the median in SW10 and SW09 are statistically different.

There have been no observable trends of an increase in DO, Turbidity or Suspended Solids levels at Blackfellow Creek Crossing as shown in Table 18 below and discussed in detail in **section 6.6.2**. The below mean values of Turbidity and Suspended Solids in SW08 compared to SW07 have been statistically shown to not be significant, as discussed below.

**Table 18. Basic Statistics on dissolved oxygen, turbidity and suspended solids at Dalrymple Creek Crossing**

Descriptive Statistics: DO, Turbidity, Suspended Solids

Statistics											
Variable	Sample ID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
DO	SW09	21	0	99.3238	4.26350	19.5378	78.7	90	94.4	101	173.1
	SW10	21	0	94.4810	3.56440	16.3342	74	88.75	90.8	99.5	154
Turbidity	SW09	21	0	2.55810	0.294510	1.34961	0	1.47	2.97	3.825	4.6
	SW10	21	0	4.08524	1.38901	6.27359	0	0.82	3	4	39.9
Suspended Solids	SW09	18	3	2.63889	0.528294	2.24136	0	1.875	2.5	2.5	9
	SW10	18	3	3.47222	0.778040	3.30095	0	1.875	2.5	6	12

The Mann-Whitney and Mood tests evaluated the difference in medians between the control site at Dalrymple Creek Crossing, SW10, and the potentially impacted site at Dalrymple Creek Crossing, SW09. The null hypothesis states that the population

medians are all equal and because the P-value is greater than the significance level of 0.05, it is feasible to neither reject or **accept the H<sub>0</sub>**, stating that the differences between the sample medians are not statistically significant, see Table 25 and Table 26.

### 7.1.3 Amphitheatre EcoCamp

Impacts from the Amphitheatre EcoCamp are monitored In the Unnamed Creek System, and during the 2025 monitoring events, Oxidised Nitrogen and Filterable Reactive Phosphorus exceeded the WQOs at all the monitoring locations.

Basic statistics comparing SW01, SW02 and SW05 in the catchment of Unnamed creek below Amphitheatre EcoCamp demonstrate no significant difference between the control site SW02 and the potentially impacted sites SW01 and SW05, albeit the mean TN was higher for the potentially impacted site, SW01, than for the control site, SW02.

The Nitrogen levels in 2025 have in general decreased from the baseline study data in 2019 to 2024, with spikes of Nitrogen at the two potentially impacted sites SW01 and SW05 at baseline in 2019. Thereafter, the control site SW02 and potentially SW-impacted site SW01 have had similar values, and the potentially GW-impacted site, SW05, had lower values. This reflects the high variability of Nitrogen levels in the Unnamed Creek System with no observable trends.

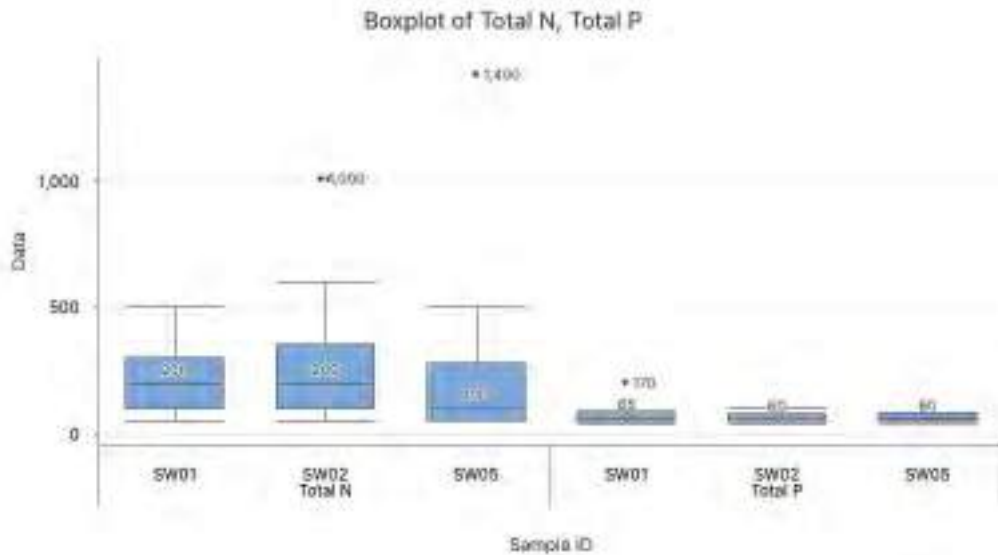
Graph 16, in **section 6.6.3**, clearly shows an outlier value of 5200 mg/L in the potentially impacted site SW01. This site has the potential to impact the water quality due to being down-gradient (with estimated horizontal distance of 450 m) of Amphitheatre Lodge. However, given that the irrigation of treated effluent has not yet commenced at the Eco Lodges, this potential impact is unlikely to be a result of EcoCamp activity. The median values for the three sites over the six sampling seasons do not present any trend, besides possibly a trend controlled by rainfall, which according to Graph 17 in **section 6.6.3**, monthly maximum values of nutrient loads versus rainfall does not show any trend associated with rainfall.

**Table 19. Basic Statistics on Total Nitrogen and Total Phosphorus in Unnamed Creek System in 2025**

Descriptive Statistics: Total N, Total P

Statistics

Variable	Sample ID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Total N	SW01	21	0	441.905	240.037	1009.99	50	100	200	300	5200
	SW02	21	0	299.048	60.2056	275.897	50	100	200	350	1000
	SW05	20	0	207.5	68.6506	307.055	50	50	100	275	1400
Total P	SW01	21	0	67.3810	5.93235	27.3854	40	50	60	75	170
	SW02	21	0	63.3810	4.11182	18.8427	40	50	60	75	100
	SW05	20	0	64.65	3.40145	15.2118	40	52.5	60	80	83



**Graph 20 : Box Plot TN and TP Unnamed Creek below Amphitheatre**

The completion of a Mann-Whitney test and Mood's median test results for SW02 versus SW01 **rejected the H<sub>0</sub>** and concluded that not all populations medians are statistically equal for TKN, TN, TP and FP as shown in Table 27 and Table 28 in **Appendix D**. Therefore, the decision is **to reject the null hypothesis (H<sub>0</sub>)** that the medians are equal.

In evaluating any GW impacts from the Amphitheatre EcoCamp by considering the difference in medians between the control site, SW02, and the potentially GW-impacted site, SW05, a Mann-Whitney resulted in the decision to fail to reject or **accept the null hypothesis (H<sub>0</sub>)** that the medians are equal, and a subsequent Mood's median test resulted in **accepting the H<sub>0</sub>** that both sample populations had

equal medians statistically for TKN, TN, TP and FP, as shown in Table 29 and Table 30 in **Appendix D**.

#### 7.1.4 Woodcutters EcoCamp

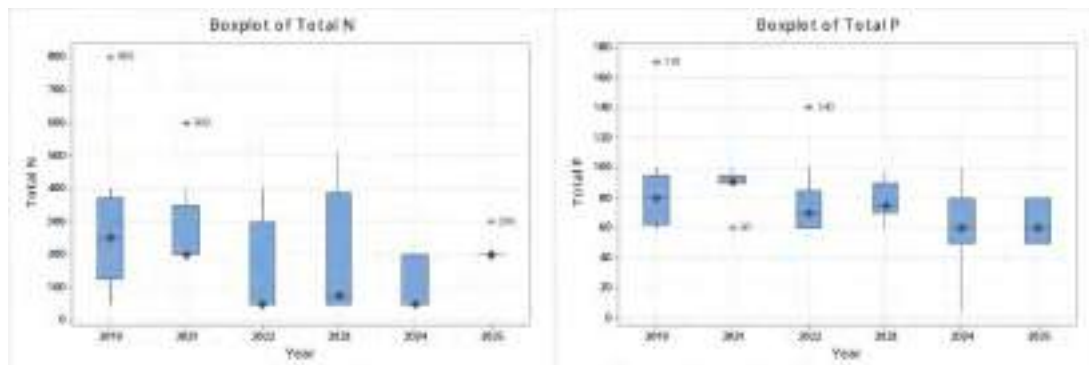
Basic statistics (see Table 20, below) were used to compare results for SW03, SW04 and SW06 did not demonstrated differences in the means or medians between the control site SW04 and the potential impacted sites SW03 and SW06, albeit, mean value for control site SW04 slightly higher than potential impacted sites SW03 and SW06.

**Table 20. Basic Statistics for Dalrymple Creek**

Descriptive Statistics: Total N, Total P

#### Statistics

Variable	Sample ID	N	N*	Mean	SE Mean	StDev	Minimum	Q1	Median	Q3	Maximum
Total N		1	0	60	*	*	50	50	50	50	50
	SW03	20	0	190	34.7169	155.259	50	50	200	275	600
	SW04	21	0	228.652	39.8708	182.711	50	50	200	300	800
	SW06	20	0	165.5	34.9892	111.755	50	50	200	200	510
Total P		1	0	60	*	*	60	60	60	60	60
	SW03	20	0	73.7	4.04000	18.0674	40	60	70	90	100
	SW04	21	0	70.3810	4.89192	22.4178	5	55	70	90	100
	SW06	20	0	80.85	6.42252	25.7224	50	60	70	90	170



In the Dalrymple Creek System, impacts from Woodcutters EcoCamp and the Dalrymple Creek Crossing have been monitored from 2019 to 2025.

Changes of TN and TP over time show a similar trend, although no general trend of increase (see Graph 5, Graph 6 and Graph 19).

The completion of a Mann-Whitney test to evaluate any impacts from the Woodcutters EcoCamp by considering the difference in medians between the control site, SW04, and the potentially SW-impacted site, SW03, resulted in P-values of 0.946, 0.543, 0.925 and 0.911 for TKN, TN, TP and FP, respectively, P values > 0.05. Therefore, the decision was to fail to reject or **accept the null hypothesis (H<sub>0</sub>)** that the medians are equal. However, as there could be insufficient evidence to conclude

any statistically significant difference between the sample medians, as shown in Table 31 in Appendix D, Mood's median tests were conducted.

The Mood's median test results concurred with the Mann-Whitney tests to **accept the H<sub>0</sub>** that both sample populations (SW04 and SW03) had equal medians statistically for TKN, TN, TP and FP, with P values of 0.475, 0.732 and 0.139 for TKN, TN and TP, respectively, as shown in Table 32 in Appendix D. In attempting Mood's median testing for SW-04 versus SW03 for Filterable Phosphorus, the calculations could not be performed because there were not enough observations greater than the median, concluding the medians are the same.

The completion of a Mann-Whitney test to evaluate any GW impacts from the Woodcutters EcoCamp by considering the difference in medians between the control site, SW04, and the potentially GW-impacted site, SW06 resulted in P-values of 0.935, 0.344, 0.735 and 0.829 for TKN, TN, TP and FP, P values > 0.05. Therefore, the decision was to fail to reject or to **accept the null hypothesis (H<sub>0</sub>)** that the medians are equal. As there could be insufficient evidence to conclude any statistically significant difference between the sample medians, as shown in Table 33 in Appendix D, Mood's median tests were conducted.

The Mood's median test results concurred with the Mann-Whitney tests to **accept the H<sub>0</sub>** that both sample populations (SW04 and SW06) had equal medians statistically for TKN, TN, TP and FP, with P-values of 0.229, 0.393, 0.316 and 0.392 for TKN, TN, TP and FP, P values > 0.05, as shown in Table 34 in Appendix D.

Details of Statistical Analysis is shown in **Appendix D**.

#### 7.1.5 Summary of Water Quality in all three creek systems

There have been six years of data and 10 sample locations, resulting in 60 medians being calculated over six years. The occurrences of the median values above the WQO as outlined in Tables 7-12 and Graphs 1-18 demonstrate that:

- Ammonia, Oxidised Nitrogen and Filterable Phosphorus have exceeded the WQO much of the time in the creek systems studied and therefore are not considered a reliable trigger level for exceedances of nutrients from impacts in the creek systems being studied.
- There have been 30 out of 124 occasions where Total Nitrogen or Phosphorus have exceeded the WQO for locations associated with EcoCamp monitoring between 2019 and 2025, 28 during low-flow conditions and two during high-flow conditions (see Table 11).
- There have been 21 out of 84 occasions where Total Nitrogen or Phosphorus have exceeded the WQO for locations associated with creek crossing monitoring between 2019 and 2025, 20 during low-flow conditions and one during high-flow conditions summarised (see summary in Table 12).
- Considering the **Graphs 1-6** and Table 11 and Table 12 above, the following observations are made:
  - a) There is no discernible trend between control sites and impacted sites;

- b) The 51 relatively high results in the last 6 years, which were above the WQO for TN and Phosphorus, are across control and potentially impacted sites, as well as locations that monitor creek crossings and EcoCamps; and
- c) There is no increase in Nitrogen or Phosphorus over time.
- There have been **7** occasions where individual samples have exceeded the WQO (excluding Ammonia, Oxidised Nitrogen and Filterable Phosphorus) over the last six years, shown in Table 21.
- There have been **no** occasions in 2025 where an individual sample has exceeded the maximum value of the baseline survey (2019-2024), as shown in Table 22.
- There are no occasions where median values of sample points have exceeded WQO in 2025.
- Considering the changes of nutrients over time in **section 6.5** and **Graph 1-6** and **Table 11**, the following observations are made:
  - a) There is no discernible trend between control sites and impacted sites;
  - b) The thirteen relatively high results in the last four years above the WQO for TN and TP are across both control and potentially impacted sites, as well as at locations monitoring creek crossings and EcoCamps; and
  - c) There is no increase in Nitrogen or Phosphorus over time.

MEH conducted statistical analysis, including basic descriptive statistic, Mann-Whitney tests, and Mood's median tests, to determine whether the difference in sample medians of the impacted sites and the control sites were statistically significant, as discussed in **section 6.6** of this report.

**Section 6.6** Statistical Analysis of Nutrient Results shows the Mann-Whitney test results that demonstrated that there is an insufficient number of samples to statistically determine if the sample medians in the impacted sites were or were not equal to the control sites (details of Statistical Analysis shown in Appendix D). To counter this issue, it is estimated that there needs to be in the order of 20 to 30 samples per site, depending on the variance in the data.

MEH conducted Mann-Whitney and Mood's test on Turbidity and Suspended Solids at the two creek crossings. The population medians are all equal and as the P-value is greater than the significance level of 0.05, it is feasible to neither reject or **accept the H<sub>0</sub>**, stating that the differences between the sample medians are not statistically significant.

MEH conducted Mann-Whitney and Mood's test on TKN, TN, TP and FP at the sample locations monitoring the two EcoCamps. The population medians are all equal and, as the P-value is greater than the significance level of 0.05, it is feasible to neither reject or **accept the H<sub>0</sub>**, stating that the differences between the sample medians are not statistically significant.

The minor metalloid concentrations, and difference between total and dissolved, demonstrates that the metalloids are locked up in the sediments and are naturally derived from the volcanic bedrock.

Other parameters measured during annual monitoring events of 2025, such as total dissolved salts, total hardness, alkalinity, chloride, major cations and SAR, can be seen in **Appendix C** or in Table 23 in **Tables**. For the 2025 round of sampling, the sampling values are all similar between all locations over time, including to baseline conditions. This adds to the weight of evidence that Blackfellow and Dalrymple Creeks and their tributaries are currently predominantly being groundwater-fed.

The E. coli levels in both creek systems in 2025 were 72% >10 CFU/100mL and 28 % <10 CFU/100mL, with a maximum value of 450 CFU/100mL and median value of 42 CFU/100mL, which are considered as a background concentrations of E. coli in Australian River Systems, (Sinclair, 2019).

Guidelines on primary contact (including bathing) in recreational waters indicates median values of over 150 CFU/100ml are considered likely to be disease-causing with long-term exposure, (ANZECC and ARMCANZ, 2000).

Multiple lines of evidence, such as breaches of WQO, statistical tests, time series and trend analysis, were evaluated to show any impacts on water quality with the likelihood of change in a population of the Matters of National Environmental Significance (MNES), or change in water quality referred to in condition **8A, 14.c. or 15A** of the Conditions of Approval (Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (EPBC ref 2016/7847)). MEH can conclude that in 2025 there has been no change in water quality referred to in conditions **8A, 14.c. or 15A** and no incident associated with the operation of the Scenic Rim Trail Eco Camps, including disposal of treated effluent, that has had an adverse impact on water quality and therefore potential to impact MNES and world heritage values of the Gondwana Rainforests of Australia World Heritage area (GRAWHA).

## 7.2 Recommendations

MEH recommends continued testing of surface water locations to monitor any potential surface and groundwater impacts from the disposal of treated effluent once the land disposal of treated effluent commences. MEH also recommends the continued monitoring of potential impacts on the use of creek crossings, as well as any influence of overland flow or groundwater flow from the sites.

MEH further proposes the following:

1. The continued use of Multiple lines of evidence approach based as outlined above.
2. The current regime of examining monitoring points for EcoCamps Amphitheatre (SW01, 02 and 05) and Woodcutters (SW03, 04, 06) to continue for the following parameters:
  - i.* E. coli (cfu/100 mL);
  - ii.* Ammonia-N (mg/L N as Ammonia), Total Kjeldahl Nitrogen (TKN), Nitrate (N), Nitrite (mg/L as N);
  - iii.* Total Phosphorus (TP), Ortho-Phosphate (mg/L);
  - iv.* Major Anions (Cl, SO<sub>4</sub>, HCO<sub>3</sub>, F);

- v. Major Cations (Na, K, Ca, Mg);
  - vi. Total and dissolved metal concentrations (Al, Fe, Mn, As, Cd, Cr, Cu, Ni, Pb, Zn);
  - vii. Field Parameters of pH, DO (surface water only), ORP (groundwater only), Temperature and EC.
3. The monitoring of creek Crossings at Blackfellows and Dalrymple Creeks will be limited to analysing for Suspended Solids and Field Parameters of pH, Temperature, Dissolved oxygen, ORP, EC and Turbidity.
  4. Further statistical analysis to be continued with increased inferences being possible once sample numbers have increased to between 20 and 30 samples in each data set representing seasonal variability.

## 8 Disclaimer

This report (the "Report") has been prepared for the exclusive use of the THRL Pty Ltd ("THRL") for its own use for the purpose of assessment of surface waters in the land application areas in Amphitheatre and Woodcutters EcoCamps (the "sites").

The Report must be read in light of:

- The limited readership and purposes for which it was intended.
- Its reliance upon information provided by the client and others which MEH has not verified and over which MEH has no control.
- The limitations and assumptions referred to throughout the Report.
- The cost and other constraints imposed on the Report.
- Other relevant issues which are not within the scope of the Report.

Subject to the limitations referred to above, MEH has exercised all due care in the preparation of the Report and believes that the information, conclusions, interpretations and recommendations of the Report are both reasonable and reliable.

No warranty or representation is made to finance or third parties (express or implied) in respect of the Report, particularly with regard to any commercial investment decision made on the basis of the Report. Use of the Report by Finance or third parties shall be at their own risk and extracts from the Report may only be published with permission of MEH. This disclaimer must accompany every copy of the Report, which is an integral document and must be read in its entirety.

## 9 Limitations of this report

The outcome of this Report is limited to information supplied for the activities associated with the scope of works only. It is intended that this assessment provide a description of the potential surface or groundwater contamination, and recommendations on how to address and manage any contamination issues at the site.

This Report has been prepared for THRL Pty Ltd for its own use and is based on information provided by THRL Pty Ltd. MEH takes no responsibility and disclaims all liability whatsoever for any loss or damage that THRL Pty Ltd may suffer as a result of using or relying on any such information or recommendations contained in this Report, except that expressly indicated in this Report where MEH has been able to verify the information to its satisfaction. This Report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein.

Should further information become available regarding the conditions at the site, including previously unknown likely sources of contamination, MEH reserves the right to review the Report in the context of the additional information.

The findings, observations and conclusions expressed in this report are not, and should not be considered as an opinion concerning the commercial feasibility of the property or asset.

The Report may contain various remarks about and observations on legal documents and arrangements such as contracts, supply arrangements, leases, licences, permits and authorities. A consulting scientist can make remarks and observations about the technical aspects and implications of those documents and general remarks and observations of a non-legal nature about the context of those documents. However, as a consulting scientist MEH is not qualified, cannot express and should not be taken as in any way expressing any opinion or conclusion about the legal status, validity, enforceability, effect, completeness or effectiveness of those arrangements or documents.

This report has been prepared by **Moreton Environmental and Health Pty Ltd** ABN: 68 169 746 123 in response to and subject to the following limitations:

1. The specific instructions received from THRL Pty Ltd;
2. The specific scope of works set out in PO24001, Proposal for the monitoring of groundwater dated 20<sup>th</sup> February 2024;
3. This report may not be relied upon by any third party not named in this report for any purpose except with the prior written consent of **Moreton Environmental and Health Pty Ltd** (which consent may or may not be given at the discretion of **Moreton Environmental and Health Pty Ltd**);
4. This report comprises the formal report, documentation sections, tables, figures and appendices as referred to in the index to this report and must not be released to any third party or copied in part without all the material included in this report for any reason;
5. The report only relates to the site referred to in the scope of works being located at the Scenic Rim Trail – Thornton Trailhead to Spicers Canopy Nature Reserve, Queensland (“the site”);
6. The report relates to the site as at the date of the report as conditions may change thereafter due to natural processes and/or site activities;
7. No warranty or guarantee is made in regard to any other use than as specified in the scope of works and only applies to the depth tested and reported in this report;
8. Fill, soil, groundwater and rock to the depth tested on the site may be fit for the use specified in this report. Unless it is expressly stated in this report, the fill, soil and/or rock may not be suitable for classification as clean fill if deposited off-site; and
9. Our General Limitations set out at the back of the body of this report.

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## 11 Glossary and Terms

**Acidify** addition of acid to lower pH.

**AHD** Australian Height Datum, equivalent to Mean Sea Level in south-east Queensland

**Aquifer** rock or sediment in a formation, group of formations, or part of a formation, which is/are saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

**Aquifer, confined** aquifer that is overlain by a confining bed with significantly lower hydraulic conductivity than the aquifer.

**Aquifer, perched** region in the unsaturated zone where the soil is locally saturated because it overlies soil or rock of low permeability.

**Aquitard** a unit of low permeability that can store groundwater and also transmit it slowly.

**Background** natural level of a property/parameter.

**Baseline** initial value of a measure.

**Borehole** an uncased well drill hole.

**Cobble** rock fragment rounded or abraded between 64 and 256 mm in diameter. Cobbles are larger than gravel and smaller than boulders.

**Coliform count** coliform bacteria are found in the gut of many vertebrates and are commonly associated with decaying organic matter.

**Conductivity (EC)** - Electrical Conductivity of water is an expression of its ability to conduct an electric current. This property is related to the ionic content of the sample, which is in turn a function of the Total Dissolved (ionisable) Solids (TDS) concentration. An estimate of TDS (mg/L) in fresh water can be obtained by multiplying EC ( $\mu\text{S}/\text{cm}$ ) by 0.65.

**Confidence Limits (statistics)** an interval so constructed as to have a prescribed probability of containing the true value of an unknown parameter.

**Confined (or Semi-confined) Aquifer** an aquifer with upper and/or lower boundaries confined (or semi-confined) by an almost impermeable geological formation, e.g. a clay layer (see **Confining layer**). The water in these aquifers is usually under hydraulic pressure, e.g. artesian or sub-artesian conditions with a hydraulic head (or “water head”) in a borehole that is elevated above the top of the saturated aquifer.

**Confining layer, Semi-confining layer** an aquitard or sparingly permeable layer that confines or semi-confines the upper limits of an underlying saturated aquifer.

**Contaminant** generally, any chemical species introduced into the soil or water. More particularly relates to those species that render soil or water unfit for beneficial use.

**Contamination** is considered to have occurred when the concentration of a specific element or compound is established as being greater than the normally expected (or actually quantified) background concentration.

**CSM** Conceptual Site Model(s), simplified diagrams /descriptions of physical settings and processes.

**Discrete sample** samples collected from different locations and depths that will not be composited but analysed individually.

**Effective Persons (EPs)** are a theoretical number of people to occupy a dwelling for the purposes of estimating influent loads on a wastewater treatment plant.

**Electrolytic Conductivity (EC)** (see **Conductivity**)

**Fracture** break in the geological formation, e.g. a shear or a fault.

**Gleyed soils** waterlogged soils. Develop where drainage is poor or the water table is high. A reducing environment exists in the saturated layers, which become mottled greyish-blue or brown because of the content of ferrous iron and organic matter.

**Gradational** lower boundary between soil layers (horizons) has a gradual transition to the next layer. The solum (soil horizon) becomes gradually more clayey with depth.

**Groundwater investigation level (GIL)** is the concentration of a ground-water parameter at which further investigation (point of extraction) or a response (point of use) is required. Includes Australian water quality guidelines/drinking water guidelines/guidelines for managing risk in recreational water criteria and site-specific derived criteria.

**Groundwater, (or “ground water”)** water held in the saturated pore spaces of an aquifer.

**Head space** air space at the top of a soil or water sample.

**Hectares (ha)** is a measure of area, equivalent to 10,000 meters squared.

**Heterogeneous** condition of having different characteristics in proximate locations. Non-uniform. (Opposite of **homogeneous**).

**Horizon** individual soil/sediment layer, based on texture and colour, which differs from those above and below.

**Humic/Humus** referring to organic matter within soil.

**Incident** means any:

- event which has the potential to, or does, harm any protected matter,
- potential non-compliance with these conditions, including the administrative requirements,
- actual non-compliance with these conditions, including the administrative requirements,
- potential non-compliance with one or more commitment made in a plan,
- actual non-compliance with one or more commitment made in a plan
- a decrease in a population of a protected matter species
- a decrease in soil, water or habitat quality that could harm a protected matter.

**Investigation levels and screening levels** are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required. Ecological investigation levels (EILs) may also be referred to as soil quality guidelines in relevant references (see NEPM Schedules B5b and B5c).

**Laboratory of Reporting (LOR)** is the lowest concentration a laboratory technique or procedure can report with the appropriate confidence of accuracy.

**Lithosol** shallow soils showing minimal profile development and dominated by the presence of weathered rock and rock fragments.

**Loam** median textured soil of approximate composition 10-25% clay, 25-50% silt and >50% sand.

**Massive** refers to the condition of the soil layer in which the layer appears to be as a coherent or solid mass, which is largely devoid of peds.

**Metals** are elements, compounds, or alloys that are good conductors of both electricity and heat. Common metals analysed are Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb), Mercury (Hg), Nickel (Ni), and Zinc (Zn).

**Mottled** a pattern where soils or sediments have masses, blobs or blotches of sub-dominant, varying colours indicating regular water saturation/unsaturation.

**National Association of Testing Authorities (NATA)**, NATA accreditation provides a means of determining, formally recognising and promoting the competence of facilities to perform specific types of testing, inspection, calibration, and other related activities

**National Environment Protection Measure (NEPM)**, NEPMs are broad framework-setting statutory instruments defined in the NEPC Act. They outline agreed national objectives for protecting or managing particular aspects of the environment.

**Occupational Health and Safety (OH&S)** is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment.

**Organics** chemical compounds comprising atoms of carbon, hydrogen and others (commonly oxygen, nitrogen, phosphorus, sulfur). Opposite is inorganic, referring to chemical species not containing carbon.

**ORP** Oxidation Reduction Potential, a physico-chemical measurement of the oxidizing or reducing potential of a water body.

**Oxidation** originally referred only to the addition of oxygen to elements. However, oxidation now encompasses the broader concept of the loss of electrons by electron transfer to other ions.

**Parameters** population value of a particular characteristic, which is descriptive of the distribution of a random variable.

**Perched Aquifer** (or water table) a body of water located above an impermeable geological formation. These perched aquifers (or water tables) are nearly always seasonal or periodic.

**Permeability** property of porous median relating to its ability to transmit or conduct liquid (usually water) under the influence of a driving force. Also referred to as hydraulic conductivity.

**pH** logarithmic index for the concentration of hydrogen ions in an aqueous solution, which is used as a measure of acidity.

**Plastic** soil material, which is in a condition, that allows it to undergo permanent deformation without appreciable volume change or elastic rebound, and without rupture.

**Potentiometric Surface** water level that represents the standing or total hydraulic standing head. In an aquifer system it represents the levels to which water will rise in tightly cased wells (e.g. a cased borehole).

**Precision** is a measure of the reproducibility of results under a given set of conditions and is assessed on the basis of agreement between a set of duplicate results obtained from duplicate analyses.

**Profile** the solum. This includes the soil A and B horizons and is basically the depth of soil to weathered rock.

**Protected matter** means a matter protected under a controlling provision in Part 3 of the **EPBC Act** for which this approval has effect.

**QA/QC** Quality Assurance / Quality Control involves all of the actions, procedures, checks and decisions undertaken to ensure the representativeness and integrity of samples, and accuracy and reliability of analytical results. Quality control is the component of QA, which monitors and measures the effectiveness of other procedures by the comparison of these measures to previously decided objectives.

**Reducing Conditions** can be simply expressed as the absence of oxygen, though chemically the meaning is more complex. For more details refer to OXIDATION.

**Relative Percentage Difference (RPD)** expresses the precision of results by comparing the difference between the two samples to the average of the two samples.

**Representative Sample** assumed not to be significantly different than the population of samples available. In many investigations, samples are collected to represent the worst-case situation.

**Standing water level (SWL)** is depth to groundwater (m) below a datum point or reference point, usually from the top of casing or natural ground surface.

**Stratigraphy** vertical sequence of geological units.

**Subsoil** subsurface material comprising the B and C horizons of soils with distinct profiles. They often have brighter colours and higher clay content than topsoils.

**Suspended Solids (SS)** matter, which is suspended in water, which will not pass through a 0.45 µm filter membrane.

**Texture** is the size of particles in the soil. Texture is divided into six groups, depending on the amount of coarse sand, fine sand, silt and clay in the soil.

**Topsoil** part of the soil profile, typically the A1 horizon, containing material, which is usually darker, more fertile and better, structured than the underlying layers.

**Total Acidity (TA)** difference between the soil CEC and ANC.

**Total Actual Acidity (TAA)** moles of titratable protons per unit mass of soil displaced by an un-buffered KCl solution, otherwise known as the salt-replaceable acidity.

**Toxicity** the inherent potential or capacity of a material to cause adverse effects in a living organism.

**Transmissivity** rate at which water is transmitted through a unit width aquifer under a unit hydraulic gradient.

**Unsaturated zone** vadose zone. The zone between the land surface and the water table, in which the rock or soil pores contain both air and water.

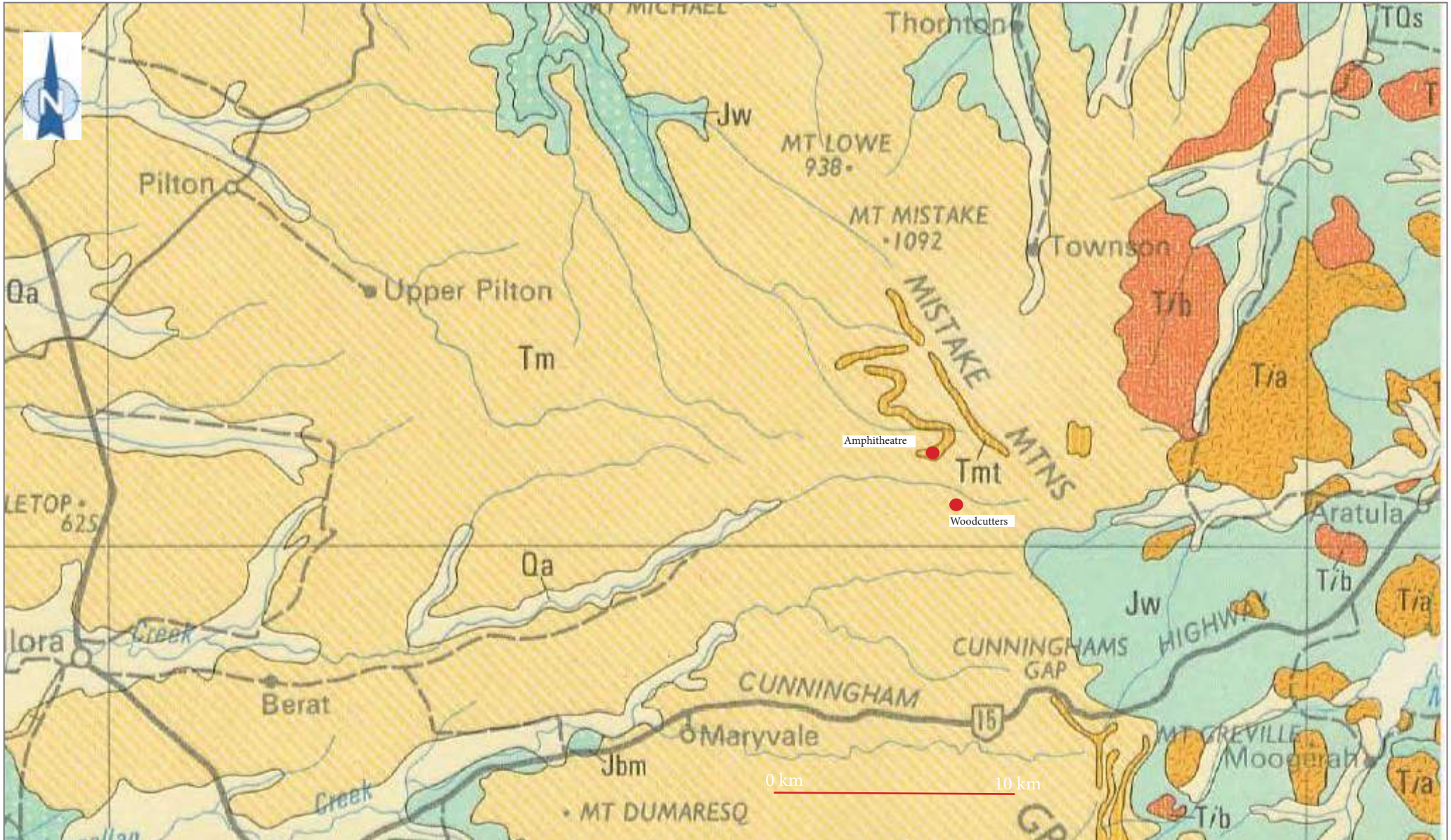
**Upper Confidence Limit (UCL)** is the upper confidence Interval of a two-sided estimated interval of a parameter. This interval is expected to include the true value of the parameter with a specified confidence percentage, e.g., 95% of such intervals are expected to include the true values of the estimated parameters.

**Water table** interface between the saturated zone and unsaturated zones. The surface in an aquifer at which pore water pressure is equal to atmospheric pressure.

**FIGURES**



Legend	<b>moreton</b> environmental and health		Title: Location Map
			Location: Main Range National Park, Queensland
	Client: Spicers Retreats Hotels & Lodges Pty Ltd		Source: Google Earth
	Drawn by: Dan Morton	Scale: Scale Bar	Job No: 25007
	Project Manager: Dan Morton	Date: July 2025	Page : 01



**Legend**



Main Range Volcanics - Basalt, agglomerate, shale, dolomite

Flood Plains, river terraces



Client: Spicers Retreats Hotels & Lodges Pty Ltd  
 Drawn by: Dan Morton  
 Project Manager: Dan Morton

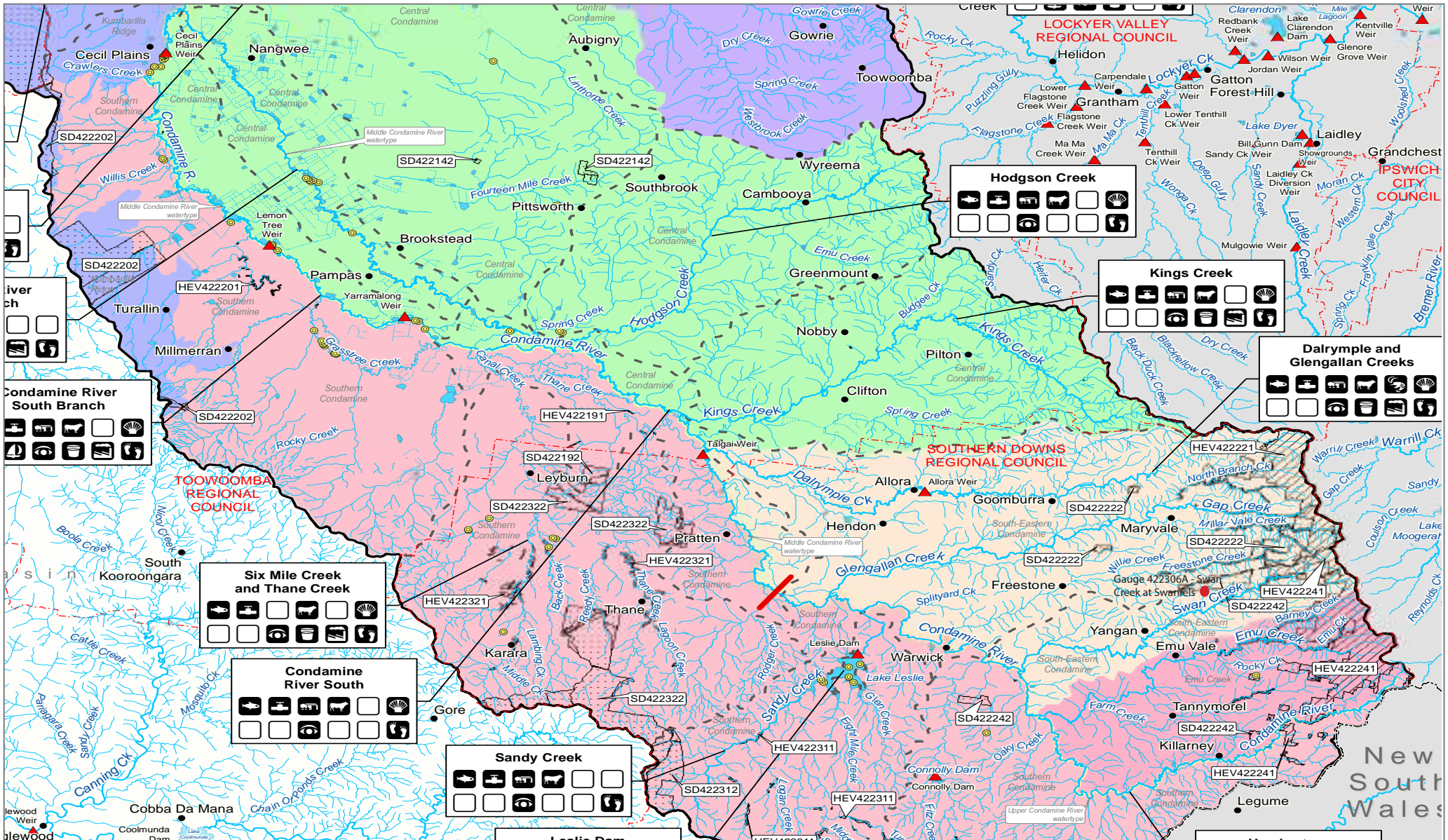
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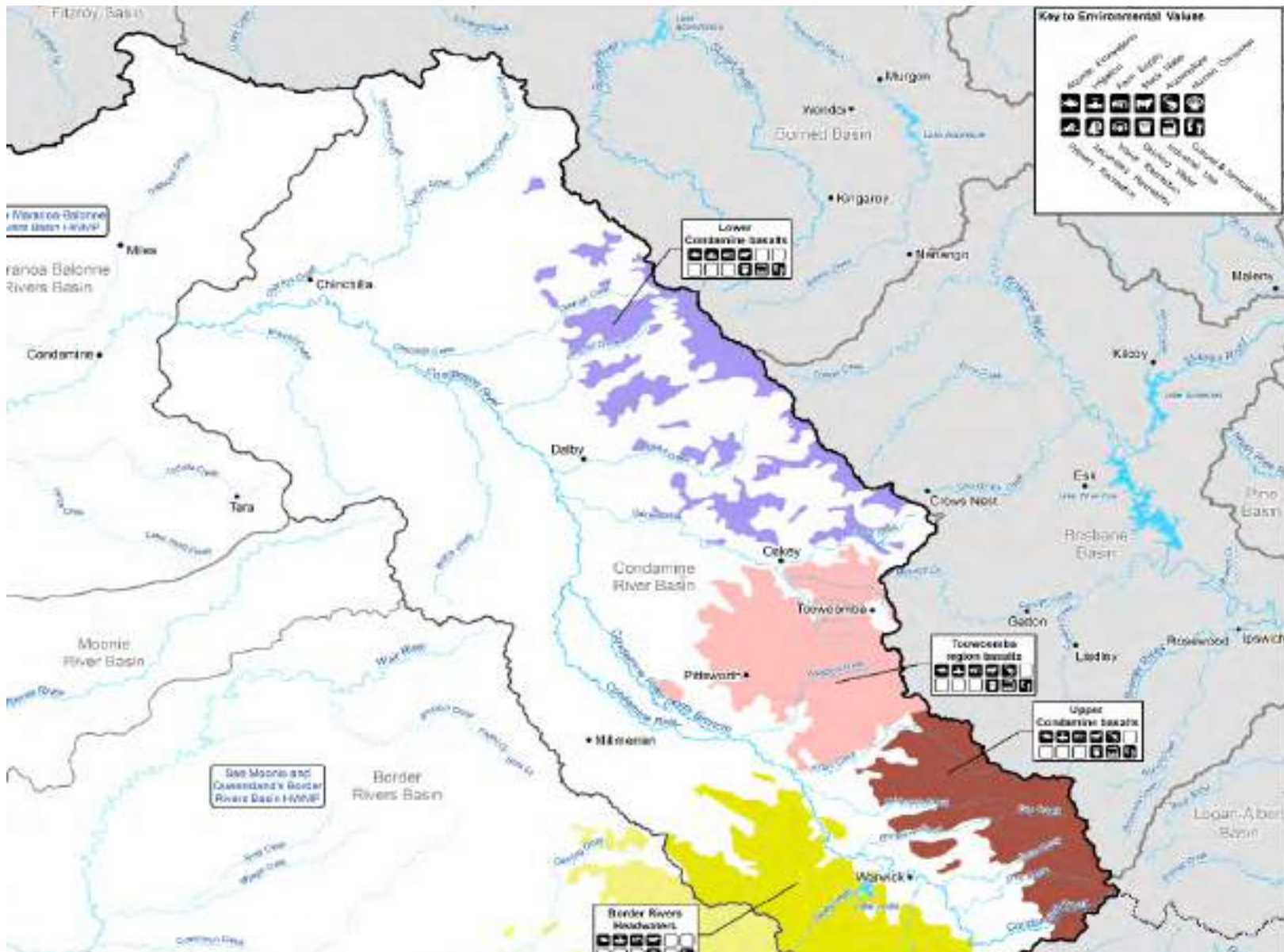
Source:

Scale: Scale Bar Job No: 25007

Date: July 2025 Page : 02



<b>Legend</b>			Title: Water Quality Objectives
	Client: Spicers Retreats Hotels & Lodges Pty Ltd		Location: Main Range National Park, Queensland
	Drawn by: Dan Morton	Project Manager: Dan Morton	Source: Scale Bar Job No: 25007
	Date: July 2025		Page : 03



### Condamine River Basin Groundwater - Fractured Rock

Prepared on: 9 February 2018  
Scale: 1:1,000,000 @ A3  
GCS GDA 1984

This map is for discussion purposes only.  
Not government policy.

#### Legend

**s2. Fractured Rock Zones**


- No aquifers of this type
- Border Rivers Headwaters
- Lower Condamine basalts
- New England Granite
- Toowoomba region basalts
- Upper Condamine basalts

Disclaimer: Information presented in this map is for general information only. It is not intended to be used as a basis for any legal or other action. The Queensland Government and its officers do not accept any responsibility for any loss or damage arising from the use of this map. The Queensland Government is not responsible for any loss or damage arising from the use of this map. The Queensland Government is not responsible for any loss or damage arising from the use of this map.

<p>Legend</p>	<p>Client: Spicers Retreats Hotels &amp; Lodges Pty Ltd</p> <p>Drawn by: Dan Morton</p> <p>Project Manager: Dan Morton</p>
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<p>Title: Groundwater Environmental Values</p> <p>Location: Main Range National Park, Queensland</p>	<p>Source:</p> <p>Scale: Scale Bar      Job No: 25007</p> <p>Date: July 2025      Page : 04</p>
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Legend			Title:	Bore Search
			Location:	Main Range National Park, Queensland
	Client:	Spicers Retreats Hotels & Lodges Pty Ltd	Source:	
	Drawn by:	Dan Morton	Scale:	Scale Bar      Job No: 25007
	Project Manager:	Dan Morton	Date:	July 2025      Page : 05



Legend



Title: Creeks and Watercourses

Location: Main Range National Park, Queensland

Client: Spicers Retreats Hotels & Lodges Pty Ltd

Source:

Drawn by: Dan Morton

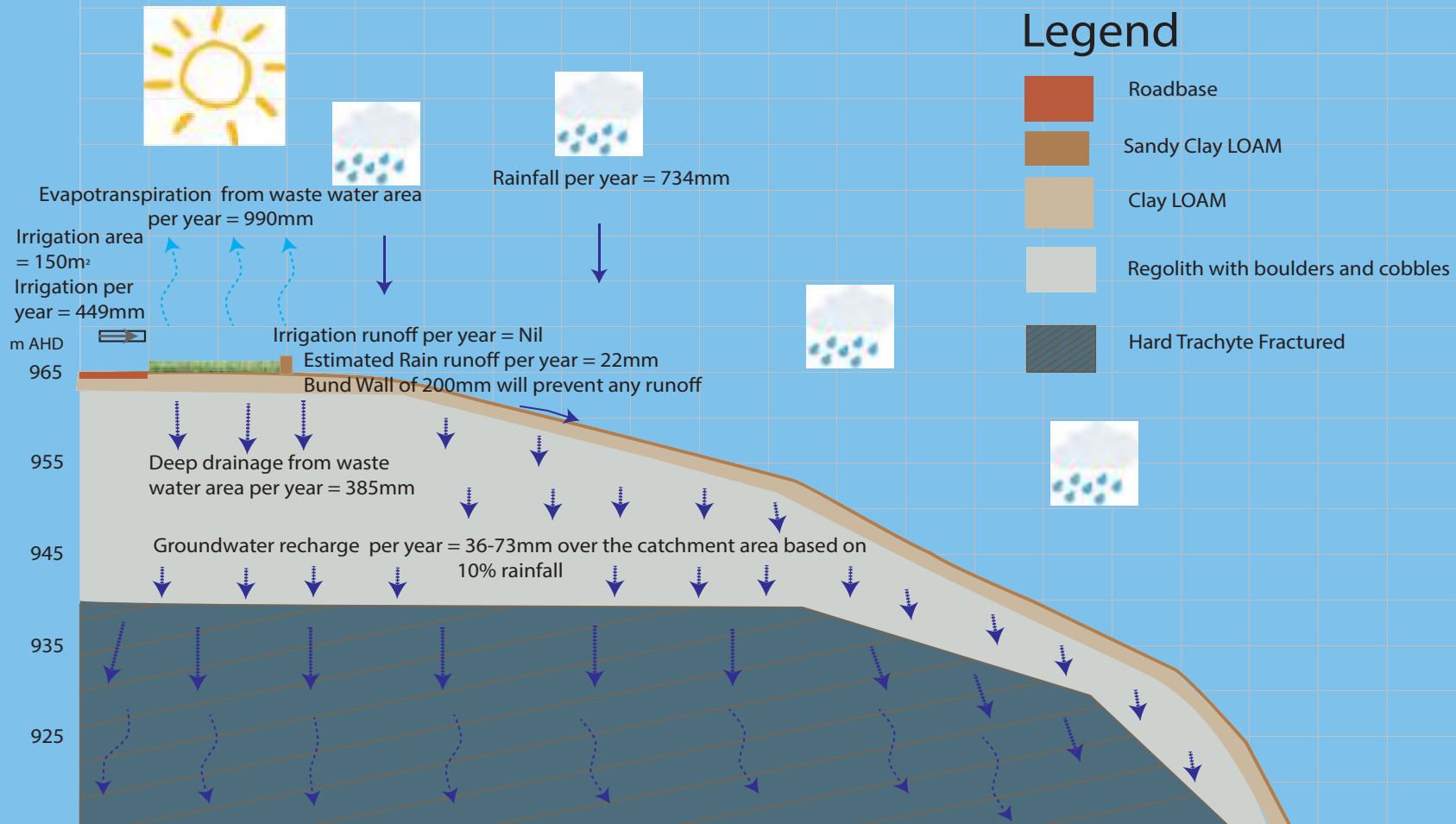
Scale: Scale Bar Job No: 25007

Project Manager: Dan Morton

Date: July 2025 Page : 06

meters Topographically 0 20 40 60 80 100 120 140 160 180

# Ecocamps waste water micro CSM using MEDLI modeling data



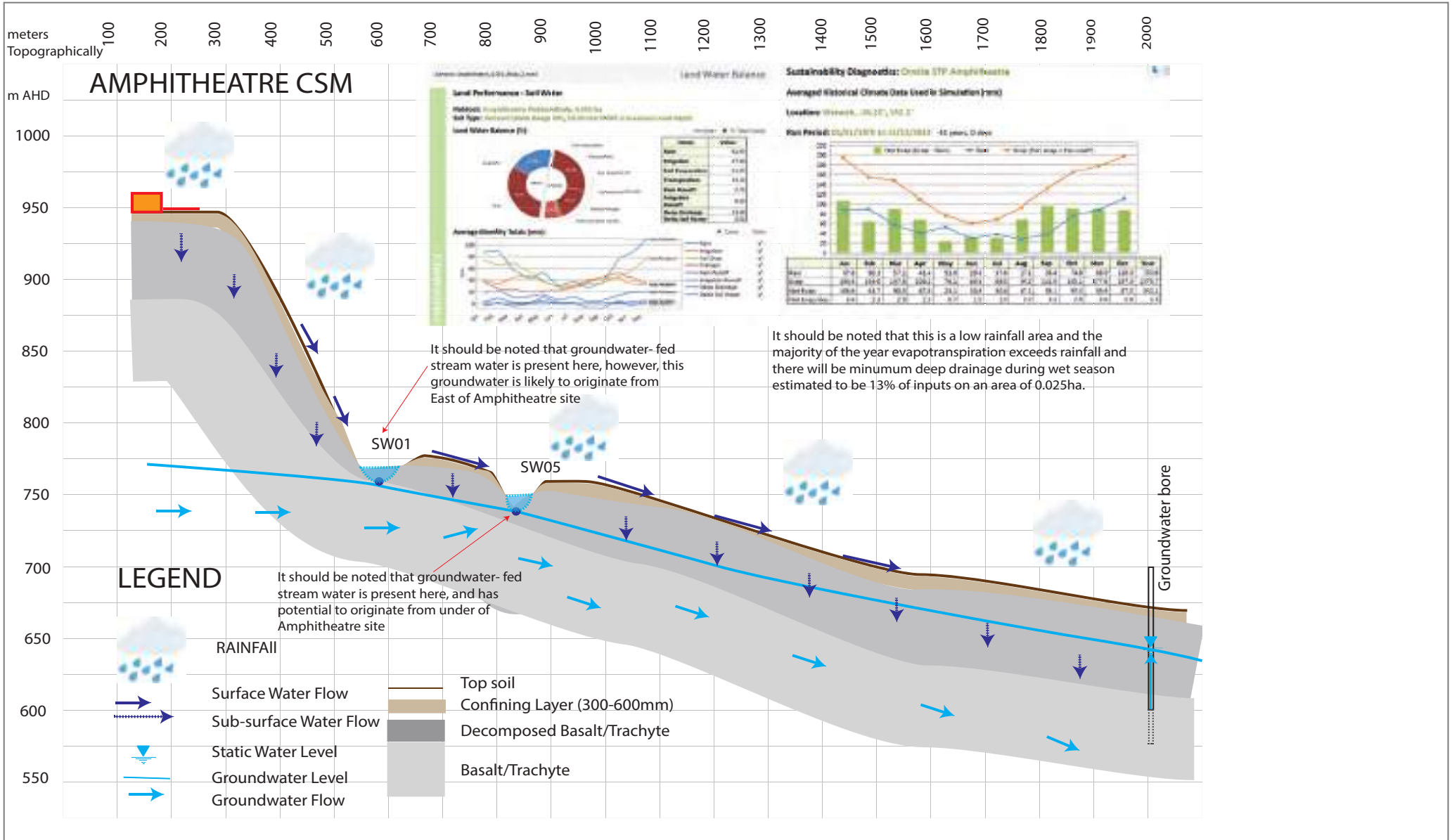
## Legend

- Roadbase
- Sandy Clay LOAM
- Clay LOAM
- Regolith with boulders and cobbles
- Hard Trachyte Fractured

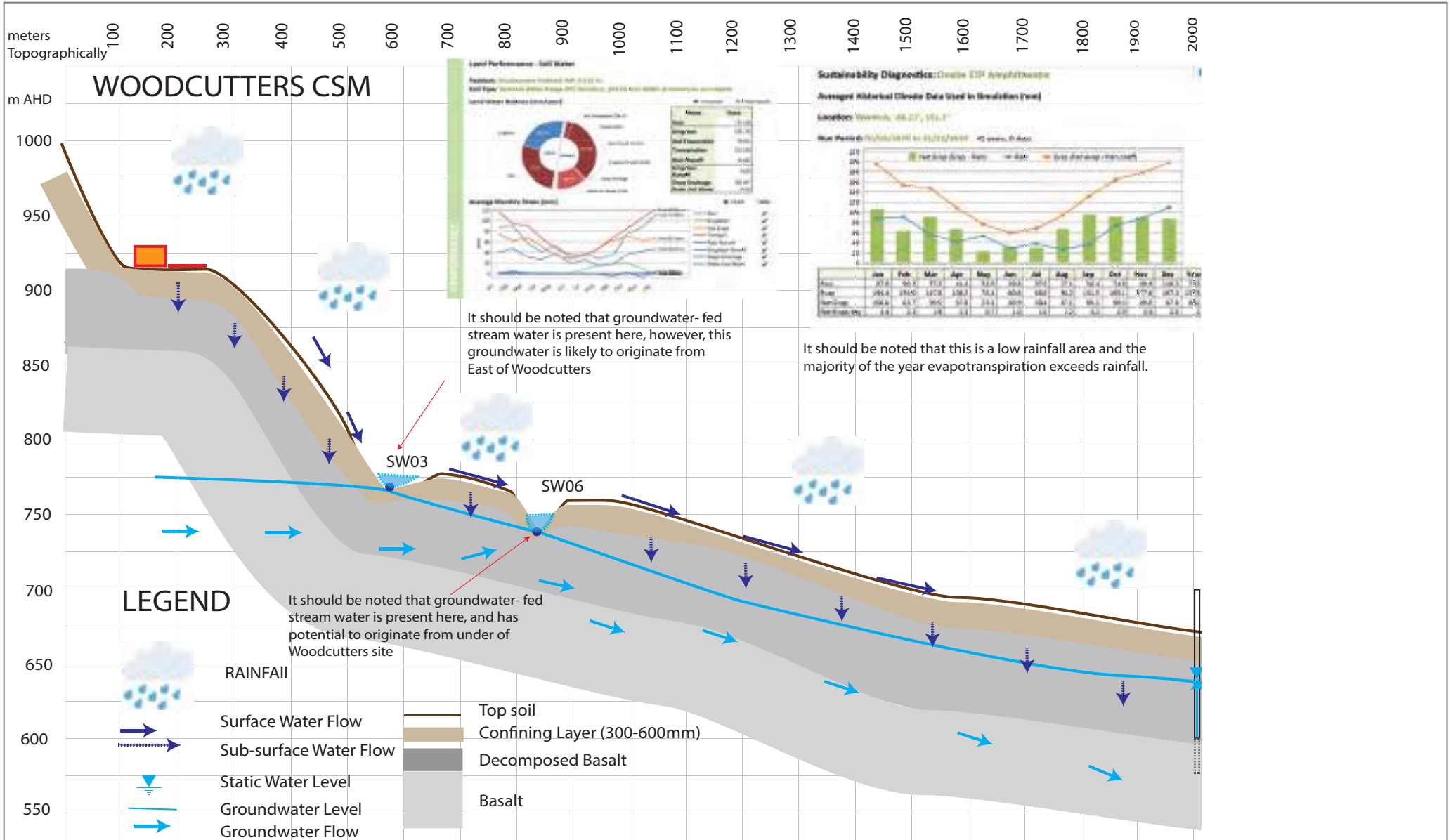
## Legend



Client: Spicers Retreats Hotels & Lodges Pty Ltd		Title: EcoCamps Waste Water Micro CSM using MEDLI Data	
Drawn by: Dan Morton		Location: Main Range National Park, Queensland	
Project Manager: Dan Morton		Source:	
		Scale: Scale Bar	Job No: 25007
		Date: July 2025	Page : 07







Legend			Title: Amphitheatre Groundwater Conceptual Site Model
			Location: Main Range National Park, Queensland
	Client: Spicers Retreats Hotels & Lodges Pty Ltd		Source:
	Drawn by: Dan Morton	Scale: Scale Bar	Job No: 25007
	Project Manager: Dan Morton	Date: July 2025	Page: 08



Legend			Title: Woodcutters Groundwater Conceptual Site Model
			Location: Main Range National Park, Queensland
	Client: Spicers Retreats Hotels & Lodges Pty Ltd		Source:
	Drawn by: Dan Morton	Project Manager: Dan Morton	Scale: Scale Bar      Job No: 25007
			Date: July 2025      Page : 09



<b>Legend</b>   Resource Groundwater Bore   SW01  Surface Water Monitoring Point	 Client: Spicers Retreats Hotels & Lodges Pty Ltd Drawn by: Dan Morton Project Manager: Dan Morton	Title: Recommended Surface Water Sampling
		Location: Main Range National Park, Queensland
	Source: Scale: Scale Bar      Job No: 25007 Date: July 2025      Page : 10	

**TABLES**

**Table 21. Summary of Assessable Surface Water Sampling Results highlighted above WQO in 2025**



Date Sampled	Ammonia - N	Nitrite as N	Nitrate as N	Nitrite + Nitrate as N	Total Kjeldahl Nitrogen as N	Total N	Total P	Filterable P	DO	Turbidity	Suspended Solids	pH	EC	Sulfate	Alkalinity	Escherichia coli
--------------	-------------	--------------	--------------	------------------------	------------------------------	---------	---------	--------------	----	-----------	------------------	----	----	---------	------------	------------------

Comparison with WQO Condamine South Eastern Basin

	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	NTUs	mg/L	pH units	µS/cm	mg/L	mg/L	CFU/100ml
--	------	------	------	------	------	------	------	------	---	------	------	----------	-------	------	------	-----------

LOR	0.01	1.01	2.01	0.01	0.01	0.1	0.01	0.01	0.01		5			1	1	1
WQO	4			4		270	110	50	60-110	8	10	7.7-8.3	440	2	190	
WQO	13			80		460	200	90	60-110	25	18	7.5-8.1	190	2	70	

STUDY  
 WQO Low Flow Conditions  
 WQO High Flow Conditions

Sample Date:  
 Sample Date:

SW01	Amphitheatre	DRY	Low Flow	2025	27/3/2025	40	<10	40	40	100	100	70	50	98.6	0.7 <5	7	75	1	19	100	
SW02	Amphitheatre	DRY	Low Flow	2025	27/3/2025	<10	<10	40	40	100	100	70	50	98.8	0.76 <5	7.01	75	1	20	73	
SW03	Woodcutters	DRY	Low Flow	2025	27/3/2025	---	---	---	40	200	200	80	---	99.4	3.97 ---	---	---	---	---	90	
SW04	Woodcutters	DRY	Low Flow	2025	27/3/2025	<10	<10	50	50	100	200	80	50	99	3.39 <5	6.96	70	1	21	90	
SW05	Amphitheatre	DRY	Low Flow	2025	27/3/2025	<10	<10	30	30	100	100	80	50	100	2.41 <5	7.05	78	1	25	100	
SW06	Woodcutters	DRY	Low Flow	2025	27/3/2025	<10	<10	40	40	200	200	80	60	99.4	3.86 <5	6.99	82	1	26	150	
SW07	Blackfellows	DRY	Low Flow	2025	27/3/2025	<10	<10	20	20 <100	<100		60	40	90	0 <5	6.89	76	1	17	450	
SW08	Blackfellows	DRY	Low Flow	2025	27/3/2025	10	<10	20	20 <100	<100		60	40	92.6	0 <5	6.87	75	1	17	410	
SW09	Dalrymple	DRY	Low Flow	2025	27/3/2025	<10	<10	60	60	100	200	70	50	98.8	2.4 <5	7.07	74	1	26	80	
SW10	Dalrymple	DRY	Low Flow	2025	27/3/2025	60	<10	60	60	200	300	80	50	98.6	2.43 <5	7.08	75	1	26	100	
SW01	Amphitheatre	WET	Low Flow	2025	5/8/2025	<10	<10	50	50	200	200	40	50	93.7	0.67 <5	7.28	83	2	32	~3	
SW02	Amphitheatre	WET	Low Flow	2025	5/8/2025	<10	<10	60	60	200	300	40	50	93.6	0.76 <5	7.24	84	2	30	~4	
SW03	Woodcutters	WET	Low Flow	2025	5/8/2025	10	<10	30	30	200	200	50	50	93.4	0.31 <5	7.38	103	2	43	15	
SW04	Woodcutters	WET	Low Flow	2025	5/8/2025	10	<10	50	50	200	200	50	60	94.4	0.65 <5	7.39	93	2	36	~8	
SW05	Amphitheatre	WET	Low Flow	2025	5/8/2025	<10	<10	30	30	200	200	40	40	84.6	0 <5	7.44	100	2	39	~3	
SW06	Woodcutters	WET	Low Flow	2025	5/8/2025	<10	<10	40	40	200	200	50	50	85.2	0 <5	7.45	98	2	40	13	
SW07	Blackfellows	WET	Low Flow	2025	5/8/2025	<10	<10	20	20	100	100	40	40	93.7	1.37 <5	7.05	82	2	26	~9	
SW08	Blackfellows	WET	Low Flow	2025	5/8/2025	<10	<10	20	20	200	200	40	40	92.9	1.09 <5	7.07	80	2	26	~7	
SW09	Dalrymple	WET	Low Flow	2025	5/8/2025	<10	<10	50	50	200	200	50	50	91.5	0 <5	7.4	92	2	38	~9	
SW10	Dalrymple	WET	Low Flow	2025	5/8/2025	<10	<10	50	50	200	200	50	50	91.6	0 <5	7.39	93	2	37	~4	
SW01	Amphitheatre	WET	Low Flow	2025	16/10/2025	10	<10	40	40	200	200	50	70	87.9	1.91 <5	7.63	100	2	32	40	
SW02	Amphitheatre	WET	Low Flow	2025	16/10/2025	10	<10	40	40	200	200	50	70	87.3	1.91 <5	7.2	101	2	33	45	
SW03	Woodcutters	WET	Low Flow	2025	16/10/2025	10	<10	30	30	300	300	60	80	88.3	3.76	12	7.08	96	2	34	66
SW04	Woodcutters	WET	Low Flow	2025	16/10/2025	<10	<10	30	30	200	200	50	80	88.7	3.68 <5	7.08	95	2	34	56	
SW05	Amphitheatre	WET	Low Flow	2025	16/10/2025	<10	<10	20	20	300	300	60	80	90.7	1.77	6	7.26	123	2	43	15
SW06	Woodcutters	WET	Low Flow	2025	16/10/2025	20	<10	30	30	200	200	60	80	88.3	3.8 <5	7.12	96	2	34	110	
SW07	Blackfellows	WET	Low Flow	2025	16/10/2025	<10	<10	<10	<10	200	200	50	60	76.9	1.77 <5	6.89	86	2	22	91	
SW08	Blackfellows	WET	Low Flow	2025	16/10/2025	<10	<10	<10	<10	300	300	50	60	78.8	1.93 <5	6.94	88	2	22	78	
SW09	Dalrymple	WET	Low Flow	2025	16/10/2025	10	<10	50	50	300	400	50	80	92.4	3.78 <5	7.22	96	2	36	54	
SW10	Dalrymple	WET	Low Flow	2025	16/10/2025	20	<10	50	50	200	200	50	70	88.9	3.9 <5	7.13	96	2	34	50	

Notes: Number of Parameters 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30

NR – not recorded

NA – not applicable

Dates in blue are low flow conditions, dates in red are high flow conditions.

Individual monitoring rounds above WQO are in Red

Ammonia-N, Oxidised-N and Filterable Phosphorous, DO, pH values above WQO triggers has not been highlighted see section 6.1.4.

**Table 22. Summary of Median Assessable Surface Water Sampling Results in 2025**

### Comparisons with Baseline

CATCHMENT	PARAMETER	SAMPLE ID	YEAR	FLOW CONDITIONS	Date Sampled	Units	Ammonia - N	Oxidised - N	Total Kjeldahl Nitrogen as N	Total N	Total P	Filtrable P	DO	Turbidity	Suspended Solids	pH	EC	Sulfate	Alkalinity
							µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	%	NTUs	mg/L	pH units	µS/cm	mg/L	mg/L
WQO	Low Flow Conditions				STUDY	Units	0.01			0.1	0.01	0.01			5			1	1
WQO	High Flow Conditions				Sample Date:	LOR	4	4	270	110	50	60-110	8	10	7.7-8.3	440	2	190	
WQO					Sample Date:		13	80	460	200	90	60-110	25	18	7.5-8.1	190	2	70	

Unnamed Creek	Individual Value	SW01	2025	Low Flow	27/3/2025		40	40	100	100	70	50	98.6	0.7	2.5	7	75	1	19	
Unnamed Creek	Individual Value	SW01	2025	Low Flow	5/8/2025		5	50	200	200	40	50	93.7	0.67	2.5	7.28	83	2	32	
Unnamed Creek	Individual Value	SW01	2025	Low Flow	16/10/2025		10	40	200	200	50	70	87.9	1.91	2.5	7.63	100	2	32	
Unnamed Creek	Individual Value	SW02	2025	Low Flow	27/3/2025		5	40	100	100	70	50	98.8	0.76	2.5	7.01	75	1	20	
Unnamed Creek	Individual Value	SW02	2025	Low Flow	5/8/2025		5	60	200	300	40	50	93.6	0.76	2.5	7.24	84	2	30	
Unnamed Creek	Individual Value	SW02	2025	Low Flow	16/10/2025		10	40	200	200	50	70	87.3	1.91	2.5	7.2	101	2	33	
Dalrymple	Individual Value	SW03	2025	Low Flow	27/3/2025		5	40	200	200	80	—	99.4	3.97	—	—	—	—		
Dalrymple	Individual Value	SW03	2025	Low Flow	5/8/2025		10	30	200	200	50	50	93.4	0.31	2.5	7.38	103	2	43	
Dalrymple	Individual Value	SW03	2025	Low Flow	16/10/2025		10	30	300	300	60	80	88.3	3.76	12	7.08	96	2	34	
Dalrymple	Individual Value	SW04	2025	Low Flow	27/3/2025		5	50	100	200	80	50	99	3.39	2.5	6.96	70	1	21	
Dalrymple	Individual Value	SW04	2025	Low Flow	5/8/2025		10	50	200	200	50	60	94.4	0.65	2.5	7.39	93	2	36	
Dalrymple	Individual Value	SW04	2025	Low Flow	16/10/2025		5	30	200	200	50	80	88.7	3.68	2.5	7.08	95	2	34	
Unnamed Creek	Individual Value	SW05	2025	Low Flow	27/3/2025		5	30	100	100	80	50	100	2.41	2.5	7.05	78	1	25	
Unnamed Creek	Individual Value	SW05	2025	Low Flow	5/8/2025		5	30	200	200	40	40	84.6	0	2.5	7.44	100	2	39	
Unnamed Creek	Individual Value	SW05	2025	Low Flow	16/10/2025		5	20	300	300	60	80	90.7	1.77	6	7.26	123	2	43	
Dalrymple	Individual Value	SW06	2025	Low Flow	27/3/2025		5	40	200	200	80	60	99.4	3.86	2.5	6.99	82	1	26	
Dalrymple	Individual Value	SW06	2025	Low Flow	5/8/2025		5	40	200	200	50	50	85.2	0	2.5	7.45	98	2	40	
Dalrymple	Individual Value	SW06	2025	Low Flow	16/10/2025		20	30	200	200	60	80	88.3	3.8	2.5	7.12	96	2	34	
Blackfellows	Individual Value	SW07	2025	Low Flow	27/3/2025		5	20	<100	<100	60	40	90	0	2.5	6.89	76	1	17	
Blackfellows	Individual Value	SW07	2025	Low Flow	5/8/2025		5	20	100	100	40	40	93.7	1.37	2.5	7.05	82	2	26	
Blackfellows	Individual Value	SW07	2025	Low Flow	16/10/2025		5	5	200	200	50	60	76.9	1.77	2.5	6.89	86	2	22	
Blackfellows	Individual Value	SW08	2025	Low Flow	27/3/2025		10	20	<100	<100	60	40	92.6	0	2.5	6.87	75	1	17	
Blackfellows	Individual Value	SW08	2025	Low Flow	5/8/2025		5	20	200	200	40	40	92.9	1.09	2.5	7.07	80	2	26	
Blackfellows	Individual Value	SW08	2025	Low Flow	16/10/2025		5	5	300	300	50	60	78.8	1.93	2.5	6.94	88	2	22	
Dalrymple	Individual Value	SW09	2025	Low Flow	27/3/2025		5	60	100	200	70	50	98.8	2.4	2.5	7.07	74	1	26	
Dalrymple	Individual Value	SW09	2025	Low Flow	5/8/2025		5	50	200	200	50	50	91.5	0	2.5	7.4	92	2	38	
Dalrymple	Individual Value	SW09	2025	Low Flow	16/10/2025		10	50	300	400	50	80	92.4	3.78	2.5	7.22	96	2	36	
Dalrymple	Individual Value	SW10	2025	Low Flow	27/3/2025		60	60	200	300	80	50	98.6	2.43	2.5	7.08	75	1	26	
Dalrymple	Individual Value	SW10	2025	Low Flow	5/8/2025		5	50	200	200	50	50	91.6	0	2.5	7.39	93	2	37	
Dalrymple	Individual Value	SW10	2025	Low Flow	16/10/2025		20	50	200	200	50	70	88.9	3.9	2.5	7.13	96	2	34	
ALL	Trigger Values for the three Creeks Monitored					It should be noted that the Unnamed Creek is part of the Dalrymple Creek System.														
Blackfellows	Max value 2019_2024 Blackfellows Creek						180	560	600	1100	260	110	27-141	6	20	5.43-6.94	40-109	16	33	
Unnamed Creek	Max value 2019_2024 Unnamed Creek						90	4860	600	5200	170	100	55.5-169	3.5	78	6.10-7.65	17-133.2	12	53	
Dalrymple	Max value 2019_2024 Dalrymple Creek						160	970	1900	2000	500	100	60-182	29.9	31	5.32-7.72	163	12	56	

Notes:  
 NR – not recorded  
 NA – not applicable

**Table 23. Summary of All Surface Water Sampling Results**









Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

ALS Sample Number:

Sample Date:

Client sample ID (1st):

Site:

Purchase Order:

LOR

WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB1909312002	EB1909312003	EB1909312004	EB1909312005	EB1909312006	EB1909312007	EB1909312008	EB1909312009	EB1909312010	EB2016997006	EB2016997002	EB2016997003	EB2016997004	EB2016997005	EB2101893011		
10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	25/06/2020	25/06/2020	25/06/2020	25/06/2020	25/06/2020	22/01/2021		
SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW07	SW08	SW09	SW10	DUP01		
Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple		Blackfellows	Blackfellows	Dalrymple	Dalrymple			
18006	18006	18006	18006	18006	18006	18006	18006	18006	18006	18006	18006	18006	18006	18006		

Analyte grouping/Analyte	CAS Number	Unit																
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	----	<0.001	<0.001	<0.001	<0.001	<0.001	----
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	----
Manganese	7439-96-5	mg/L	0.001															----
Nickel	7440-02-0	mg/L	0.001	0.002	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.006	----	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	----	<0.005	<0.005	<0.005	0.041	----
Iron	7439-89-6	mg/L	0.05															----
<b>EG020T: Total Metals by ICP-MS</b>																		
Aluminium	7429-90-5	mg/L	0.01															----
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001															----
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05															----
<b>EK040P: Fluoride by PC Titrator</b>																		
Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1	----
<b>Nutrients</b>																		
Ammonia as N	7664-41-7	mg/L	0.01	40	0.06	0.04	0.04	0.05	0.05	0.04	0.18	0.09	0.07	----	<0.01	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	0.01	0.01	0.02	0.02
Nitrate as N	14797-55-8	mg/L	0.01		<b>0.51</b>	<b>0.04</b>	<b>0.08</b>	<b>1.02</b>	<b>0.05</b>	<b>0.04</b>	<b>0.56</b>	<b>0.17</b>	<b>0.1</b>	----	<b>0.01</b>	<b>0.01</b>	<b>0.08</b>	<b>0.08</b>
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.51</b>	<b>0.04</b>	<b>0.08</b>	<b>1.02</b>	<b>0.05</b>	<b>0.04</b>	<b>0.56</b>	<b>0.17</b>	<b>0.1</b>	----	<b>0.02</b>	<b>0.02</b>	<b>0.10</b>	<b>0.10</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1		<b>0.5</b>	<b>0.1</b>	<b>0.2</b>	<b>0.4</b>	<b>0.2</b>	<b>0.2</b>	<b>0.5</b>	<b>0.3</b>	<b>1.9</b>	----	<b>&lt;0.1</b>	<b>0.6</b>	<b>&lt;0.1</b>	<b>0.1</b>
Total Nitrogen as N		mg/L	0.1	1.51	<b>1</b>	<b>0.1</b>	<b>0.3</b>	<b>1.4</b>	<b>0.2</b>	<b>0.2</b>	<b>1.1</b>	<b>0.5</b>	<b>2</b>	----	<b>&lt;0.1</b>	<b>0.6</b>	<b>0.1</b>	<b>0.2</b>
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.09</b>	<b>0.07</b>	<b>0.08</b>	<b>0.08</b>	<b>0.17</b>	<b>0.1</b>	<b>0.17</b>	<b>0.07</b>	<b>0.5</b>	----	<b>0.06</b>	<b>0.26</b>	<b>0.06</b>	<b>0.05</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.07</b>	<b>0.08</b>	<b>0.08</b>	<b>0.06</b>	<b>0.07</b>	----	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>
<b>EN055: Ionic Balance</b>																		
Total Anions		meq/L	0.01		<b>1.06</b>	<b>1.15</b>	<b>1.11</b>	<b>1.17</b>	<b>1.3</b>	<b>0.99</b>	<b>1.1</b>	<b>1.05</b>	<b>0.99</b>	----	<b>0.67</b>	<b>0.66</b>	<b>0.97</b>	<b>1.05</b>
Total Cations		meq/L	0.01		<b>1.05</b>	<b>1.14</b>	<b>1.06</b>	<b>1.18</b>	<b>1.14</b>	<b>0.9</b>	<b>0.9</b>	<b>1.01</b>	<b>1.01</b>	----	<b>0.66</b>	<b>0.61</b>	<b>0.96</b>	<b>0.96</b>
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>																		
Escherichia coli		CFU/100mL	1	~3	<1	14	<1	<1	~3	~6	~6	12	----	~2	~40	~3	~3	----



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:  
 LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2101893001	EB2101893002	EB2101893003	EB2101893004	EB2101893005	EB2101893006	EB2101893007	EB2101893008	EB2101893009	EB2101893010	EB2104379011	EB2104379001	EB2104379002	EB2104379003	EB2104379004			
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021			
SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01	SW02	SW03	SW04			
Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters			
0	18006	18006	18006	18006	18006	18006	18006	18006	18006	18006	20007	20007	20007	20007	20007	20007	

Analyte grouping/Analyte	CAS Number	Unit																	
<b>Field Parameters</b>																			
Temperature		•C		17.147	17.2	17.95	17.16	17.47		16.38	16.33	17.32	17.28		17.76	17.72	18.8	17.58	
pH		pH units	7.5-8.1	7.01	6.96	6.04	6.66	6.44		5.97	6.15	7.04	7.18		6.82	6.82	7.3	7.2	
Dissolved Oxygen - mg/L	mg/L																		
Dissolved Oxygen - %		%	60-110	146.4	68.6	73	78.7	76.5		40.2	43	78.7	74.4		55.7	55.5	119.6	112.7	
Total Dissolved Solids		mg/L																	
ORP		mV		146.4	146.3	182.2	154.6	172.7		164.6	153.8	144.6	145.4		159.7	169.2	153.7	161.6	
EC		µS/cm	335	90	99	100	88	114		109	67	84	92		71	17	97	87	
Turbidity		NTUs	90	0	0	2.7	3.8	0		1.8	1.2	3.4	4.1		0	3.5	1.4	2.6	
<b>EP025: Oxygen - Dissolved (DO)</b>																			
Dissolved Oxygen																			
Dissolved Oxygen - % Saturation			60-110																
<b>EA005P: pH by PC Titrator</b>																			
pH Value		pH Unit	0.01	7.5-8.1	6.74	7.02	7.25	7.21	7.32	7.26	6.60	6.60	7.25	7.28	----	7.50	7.46	7.67	7.57
<b>EA006: Sodium Adsorption Ratio (SAR)</b>																			
Sodium Adsorption Ratio			0.01	0.78	0.70	0.60	0.62	0.61	0.55	0.88	0.88	0.46	0.46	----	0.56	0.59	0.56	0.48	
<b>EA010P: Conductivity by PC Titrator</b>																			
Electrical Conductivity @ 25°C		µS/cm	1	94	94	100	89	117	113	70	70	90	97	----	90	86	95	88	
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>																			
Total Dissolved Solids (Calc.)		mg/L	1	61	61	65	58	76	73	46	46	58	63	----	58	56	62	57	
Suspended Solids (SS)		mg/L	5	7	<5	<5	<5	<5	5	<5	<5	<5	<5	----	<5	<5	<5	<5	
<b>EA065: Total Hardness as CaCO3</b>																			
Total Hardness as CaCO3		mg/L	1	31	31	34	31	40	40	16	16	31	31	----	29	26	29	29	
<b>ED037P: Alkalinity by PC Titrator</b>																			
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	----	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	----	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	25	24	31	26	32	39	11	11	29	32	----	29	29	35	30	
Total Alkalinity as CaCO3		mg/L	1	25	24	31	26	32	39	11	11	29	32	----	29	29	35	30	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>																			
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	2	2	1	2	2	1	2	2	1	1	----	2	2	1	1	
Chloride	16887-00-6	mg/L	1	11	11	9	9	12	10	10	10	8	8	----	9	9	8	8	
<b>ED093F: Dissolved Major Cations</b>																			
Calcium	7440-70-2	mg/L	1	6	6	7	6	8	8	3	3	6	6	----	5	4	5	5	
Magnesium	7439-95-4	mg/L	1	4	4	4	4	5	5	2	2	4	4	----	4	4	4	4	
Sodium	7440-23-5	mg/L	1	10	9	8	8	9	8	8	8	6	6	----	7	7	7	6	
Potassium	7440-09-7	mg/L	1	1	1	2	1	1	1	1	<1	1	2	----	1	1	2	1	
<b>EG020F: Dissolved Metals by ICP-MS</b>																			
Aluminium	7429-90-5	mg/L	0.01	0.07	0.07	0.08	0.11	0.04	0.11	0.11	0.09	0.12	0.17	----	0.05	0.06	0.10	0.11	

Matrix: WATER

Sample Type:

Workgroup: EB1905575

ALS Sample Number:

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LOR WQO



REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2101893001	EB2101893002	EB2101893003	EB2101893004	EB2101893005	EB2101893006	EB2101893007	EB2101893008	EB2101893009	EB2101893010	EB2104379011	EB2104379001	EB2104379002	EB2104379003	EB2104379004			
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021			
SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01	SW02	SW03	SW04			
Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters			
0	18006	18006	18006	18006	18006	18006	18006	18006	18006	18006	20007	20007	20007	20007	20007	20007	

Analyte grouping/Analyte	CAS Number	Unit	LOR	WQO	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG		
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	0.001	<0.001	
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	0.002	<0.001	<0.001	<0.001	
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	0.001	<0.001	
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	
Manganese	7439-96-5	mg/L	0.001		0.002	0.001	0.002	0.002	0.002	0.016	0.012	0.012	0.003	0.003	----	0.002	0.003	0.005	0.004
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	----	<0.001	<0.001	0.002	<0.001
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	----	<0.005	<0.005	0.008	<0.005
Iron	7439-89-6	mg/L	0.05		0.06	<0.05	0.08	0.08	<0.05	0.12	0.16	0.17	0.10	0.12	----	0.06	0.05	0.10	0.09
<b>EG020T: Total Metals by ICP-MS</b>																			
Aluminium	7429-90-5	mg/L	0.01		0.1	0.09	0.18	0.2	0.08	0.2	0.25	0.15	0.22	1.09	----	0.09	0.14	0.16	0.2
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	<0.001
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001		0.003	0.002	0.006	0.005	0.002	0.022	0.025	0.014	0.006	0.069	----	0.002	0.004	0.006	0.005
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	<0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.002	<0.001
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<b>0.013</b>	<0.005
Iron	7439-89-6	mg/L	0.05		<b>0.09</b>	<b>0.08</b>	<b>0.17</b>	<b>0.18</b>	<b>0.06</b>	<b>0.23</b>	<b>0.48</b>	<b>0.28</b>	<b>0.22</b>	<b>1.31</b>	----	<b>0.07</b>	<b>0.11</b>	<b>0.16</b>	<b>0.15</b>
<b>EK040P: Fluoride by PC Titrator</b>																			
Fluoride	16984-48-8	mg/L	0.1		0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1
<b>Nutrients</b>																			
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	0.04	<0.01
Nitrite as N	14797-65-0	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01		<b>0.04</b>	<b>0.05</b>	<b>0.03</b>	<b>0.11</b>	<b>&lt;0.01</b>	<b>0.05</b>	<b>&lt;0.01</b>	<b>&lt;0.01</b>	<b>0.19</b>	<b>0.06</b>	----	<b>0.04</b>	<b>0.07</b>	<b>0.07</b>	<b>0.05</b>
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.04</b>	<b>0.05</b>	<b>0.03</b>	<b>0.11</b>	<b>&lt;0.01</b>	<b>0.05</b>	<b>&lt;0.01</b>	<b>&lt;0.01</b>	<b>0.19</b>	<b>0.06</b>	<b>0.03</b>	<b>0.04</b>	<b>0.07</b>	<b>0.07</b>	<b>0.05</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1		<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.5</b>	<b>0.2</b>
Total Nitrogen as N		mg/L	0.1	1.51	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.4</b>	<b>0.3</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.6</b>	<b>0.2</b>
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.06</b>	<b>0.06</b>	<b>0.09</b>	<b>0.09</b>	<b>0.06</b>	<b>0.09</b>	<b>0.10</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.10</b>	<b>0.07</b>	<b>0.07</b>	<b>0.09</b>	<b>0.09</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.06</b>	<b>0.06</b>	<b>0.08</b>	<b>0.07</b>	<b>0.05</b>	<b>0.07</b>	<b>0.06</b>	<b>0.07</b>	<b>0.06</b>	<b>0.06</b>	----	<b>0.07</b>	<b>0.07</b>	<b>0.09</b>	<b>0.08</b>
<b>EN055: Ionic Balance</b>																			
Total Anions		meq/L	0.01		<b>0.85</b>	<b>0.83</b>	<b>0.89</b>	<b>0.81</b>	<b>1.02</b>	<b>1.08</b>	<b>0.54</b>	<b>0.54</b>	<b>0.82</b>	<b>0.88</b>	----	<b>0.87</b>	<b>0.87</b>	<b>0.94</b>	<b>0.84</b>
Total Cations		meq/L	0.01		<b>1.09</b>	<b>1.04</b>	<b>1.08</b>	<b>1.00</b>	<b>1.23</b>	<b>1.18</b>	<b>0.69</b>	<b>0.66</b>	<b>0.92</b>	<b>0.94</b>	----	<b>0.91</b>	<b>0.86</b>	<b>0.93</b>	<b>0.86</b>
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>																			
Escherichia coli		CFU/100mL	1		<b>26</b>	<b>22</b>	<b>430</b>	<b>46</b>	<b>~33</b>	<b>63</b>	<b>220</b>	<b>350</b>	<b>73</b>	<b>40</b>	----	<b>14</b>	<b>~50</b>	<b>260</b>	<b>140</b>



Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

ALS Sample Number:

Sample Date:

Client sample ID (1st):

Site:

Purchase Order:

LOR

WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2104379005	EB2104379006	EB2104379007	EB2104379008	EB2104379009	EB2104379010	EB2114407011	EB2114407001	EB2114407002	EB2114407003	EB2114407004	EB2114407005	EB2114407006	EB2114407007	EB2114407008		
17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021		
SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08		
Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows		
0	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007

Analyte grouping/Analyte	CAS Number	Unit																	
<b>Field Parameters</b>																			
Temperature		•C		18.29	20.61	16.38	16.15	17.55	17.34		11.17	11.18	12.26	12.2	10.87	12.6	11.8	11.74	
pH		pH units	7.5-8.1	6.41	7.38	5.43	5.84	7.14	7.04		6.89	6.85	7.27	7.01	6.45	7.23	5.87	5.91	
Dissolved Oxygen - mg/L	mg/L																		
Dissolved Oxygen - %		%	60-110	69	97.6	45.7	26.9	119.6	82		138	153	182.4	173	169	166	103.2	141.2	
Total Dissolved Solids		mg/L									33	35	44	38	43	36	41	35	
ORP		mV		173.4	148.6		174.3	162.1	157.7		166	173	167.1	176.1	181.6	168	180	181	
EC		µS/cm	335	96	99	92	68	81	92		65	71	75	76	85	69	82	69	
Turbidity		NTUs	90	0	0.5	1.1	2.9	2.3	3.7		0	0	0	1.2	0	0	0	0	
<b>EP025: Oxygen - Dissolved (DO)</b>																			
Dissolved Oxygen																			
Dissolved Oxygen - % Saturation			60-110																
<b>EA005P: pH by PC Titrator</b>																			
pH Value		pH Unit	0.01	7.5-8.1	7.63	7.65	6.90	6.91	7.59	7.67	----	7.43	7.40	7.57	7.55	7.58	7.63	7.20	7.18
<b>EA006: Sodium Adsorption Ratio (SAR)</b>																			
Sodium Adsorption Ratio			0.01	0.49	0.51	0.88	0.77	0.48	0.44	----	0.61	0.55	0.48	0.55	0.48	0.48	0.77	0.77	
<b>EA010P: Conductivity by PC Titrator</b>																			
Electrical Conductivity @ 25°C		µS/cm	1	107	103	71	71	88	97	----	75	75	84	79	86	88	69	69	
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>																			
Total Dissolved Solids (Calc.)		mg/L	1	70	67	46	46	57	63	----	49	49	55	51	56	57	45	45	
Suspended Solids (SS)		mg/L	5	<5	<5	<5	20	<5	<5	----	78	<5	<5	<5	<5	<5	6	<5	
<b>EA065: Total Hardness as CaCO3</b>																			
Total Hardness as CaCO3		mg/L	1	38	36	16	16	29	36	----	18	22	29	22	29	29	16	16	
<b>ED037P: Alkalinity by PC Titrator</b>																			
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	<1	<1	<1	<1	----	<1	<1	<1	<1	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	<1	<1	<1	<1	----	<1	<1	<1	<1	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	38	38	14	13	32	35	----	26	20	33	25	27	30	13	13	
Total Alkalinity as CaCO3		mg/L	1	38	38	14	13	32	35	----	26	20	33	25	27	30	13	13	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>																			
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	1	1	2	2	1	2	----	2	2	2	1	2	1	2	1	
Chloride	16887-00-6	mg/L	1	10	9	11	10	8	8	----	10	10	9	9	10	9	11	11	
<b>ED093F: Dissolved Major Cations</b>																			
Calcium	7440-70-2	mg/L	1	7	6	3	3	5	6	----	4	4	5	4	5	5	3	3	
Magnesium	7439-95-4	mg/L	1	5	5	2	2	4	5	----	2	3	4	3	4	4	2	2	
Sodium	7440-23-5	mg/L	1	7	7	8	7	6	6	----	6	6	6	6	6	6	7	7	
Potassium	7440-09-7	mg/L	1	1	1	<1	<1	1	2	----	<1	<1	<1	<1	<1	<1	<1	<1	
<b>EG020F: Dissolved Metals by ICP-MS</b>																			
Aluminium	7429-90-5	mg/L	0.01	0.03	0.09	0.11	0.10	0.10	0.09	----	0.06	0.04	0.09	0.09	<0.01	0.11	0.06	0.08	



Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

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LOR

WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2104379005	EB2104379006	EB2104379007	EB2104379008	EB2104379009	EB2104379010	EB2114407011	EB2114407001	EB2114407002	EB2114407003	EB2114407004	EB2114407005	EB2114407006	EB2114407007	EB2114407008			
17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021	25/05/2021			
SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08			
Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows			
0	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007

Analyte grouping/Analyte	CAS Number	Unit																
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.004	0.006	0.021	0.018	0.005	0.005	----	<0.001	<0.001	0.001	0.001	<0.001	0.002	0.004	0.005
Nickel	7440-02-0	mg/L	0.001	0.001	0.002	<0.001	<0.001	<0.001	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	0.010	0.006	0.006	<0.005	<0.005	<0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<0.05	0.10	0.37	0.40	0.11	0.12	----	<0.05	<0.05	0.06	0.06	<0.05	0.08	0.06	0.08

**EG020T: Total Metals by ICP-MS**

Aluminium	7429-90-5	mg/L	0.01	0.06	0.11	0.18	0.12	0.16	0.2	----	0.14	0.09	0.14	<0.01	0.09	0.12	0.13	0.15
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.005	0.006	0.026	0.025	0.006	0.006	----	0.003	0.002	0.004	<0.001	<0.001	0.004	0.008	0.012
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<b>0.006</b>	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<b>0.06</b>	<b>0.14</b>	<b>0.51</b>	<b>0.48</b>	<b>0.18</b>	<b>0.19</b>	----	<b>0.12</b>	<b>0.07</b>	<b>0.12</b>	<b>&lt;0.05</b>	<b>0.06</b>	<b>0.12</b>	<b>0.17</b>	<b>0.25</b>

**EK040P: Fluoride by PC Titrator**

Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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**Nutrients**

Ammonia as N	7664-41-7	mg/L	0.01	40	0.03	0.01	<0.01	0.01	0.01	<0.01	----	<0.01	0.02	<0.01	0.02	<0.01	0.03	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01	<b>0.02</b>	<b>0.02</b>	<b>0.05</b>	<b>0.51</b>	<b>0.16</b>	<b>0.46</b>	----	<b>0.05</b>	<b>0.24</b>	<b>0.05</b>	<b>0.05</b>	<b>0.02</b>	<b>0.04</b>	<b>0.02</b>	<b>0.02</b>	
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.02</b>	<b>0.02</b>	<b>0.05</b>	<b>0.51</b>	<b>0.16</b>	<b>0.46</b>	<b>0.17</b>	<b>0.05</b>	<b>0.24</b>	<b>0.05</b>	<b>0.05</b>	<b>0.02</b>	<b>0.04</b>	<b>0.02</b>	<b>0.02</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1	<b>0.3</b>	<b>0.2</b>	<b>0.1</b>	<b>0.4</b>	<b>0.1</b>	<b>0.1</b>	<b>&lt;0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.3</b>	<b>&lt;0.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>	
Total Nitrogen as N		mg/L	0.1	1.51	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>	<b>0.9</b>	<b>0.3</b>	<b>0.6</b>	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.2</b>	<b>0.4</b>	<b>&lt;0.1</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>&lt;0.1</b>
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.08</b>	<b>0.09</b>	<b>0.09</b>	<b>0.14</b>	<b>0.08</b>	<b>0.08</b>	<b>0.06</b>	<b>0.07</b>	<b>0.07</b>	<b>0.10</b>	<b>0.10</b>	<b>0.08</b>	<b>0.06</b>	<b>0.09</b>	<b>0.08</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.07</b>	<b>0.09</b>	<b>0.08</b>	<b>0.07</b>	<b>0.08</b>	<b>0.07</b>	----	<b>0.05</b>	<b>0.05</b>	<b>0.06</b>	<b>0.06</b>	<b>0.05</b>	<b>0.06</b>	<b>0.06</b>	

**EN055: Ionic Balance**

Total Anions		meq/L	0.01	<b>1.06</b>	<b>1.03</b>	<b>0.63</b>	<b>0.58</b>	<b>0.88</b>	<b>0.97</b>	----	<b>0.84</b>	<b>0.72</b>	<b>0.95</b>	<b>0.77</b>	<b>0.86</b>	<b>0.87</b>	<b>0.61</b>	<b>0.59</b>
Total Cations		meq/L	0.01	<b>1.09</b>	<b>1.04</b>	<b>0.66</b>	<b>0.62</b>	<b>0.86</b>	<b>1.02</b>	----	<b>0.62</b>	<b>0.71</b>	<b>0.84</b>	<b>0.71</b>	<b>0.84</b>	<b>0.84</b>	<b>0.62</b>	<b>0.62</b>

**MW006: Faecal Coliforms & E.coli by MF**

Escherichia coli		CFU/100mL	1	<10	~200	240	400	710	12	----	~7	<1	10	~10	<1	29	~9	25
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Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

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LOR

WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2114407009	EB2114407010	EB2205574011	EB2205574012	EB2205574001	EB2205574002	EB2205574003	EB2205574004	EB2205574005	EB2205574006	EB2205574007	EB2205574008	EB2205574009	EB2205574010	EB2205574010	EB2205574010	EB2206937011
25/05/2021	25/05/2021	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	14/03/2022
SW09	SW10	Dup 01	Dup 02	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	SW10	SW10	DUP01
Dalrymple	Dalrymple			Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple			
0	20007	20007	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	20007

Analyte grouping/Analyte	CAS Number	Unit																
<b>Field Parameters</b>																		
Temperature		•C		12.37	12.04			16.72	16.73	17.09	16.74	17.16	17.49	15.27	15.29	16.49	16	
pH		pH units	7.5-8.1	6.98	6.83			7.36	7.32	7.46	7.21	7.44	7.4	6.36	6.73	7.34	7.7	
Dissolved Oxygen - mg/L	mg/L							7.41	7.44	7.39	7.76	7.32	6.08	6.71	7.22	7.66	16.54	
Dissolved Oxygen - %		%	60-110	173.1	154			83.1	84.3	84.1	87.9	83.4	6.08	75.4	80.5	86.6	86.9	
Total Dissolved Solids		mg/L		39	37			32	21	35	33	336	38	36	34	14	33	
ORP		mV		176	169.8			2052	216	206.1	203.7	2093	205.6	197.4	177.2	186.1	194.8	
EC		µS/cm	335	79	74			65	40	70	65	62	76	55	54	28	66	
Turbidity		NTUs	90	3.3	2.2			3	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.03	
<b>EP025: Oxygen - Dissolved (DO)</b>																		
Dissolved Oxygen				----	----			9.2	9.9	9.8	9.5	10.2	9.6	10.0	10.6	9.7	10.2	
Dissolved Oxygen - % Saturation			60-110	----	----			102	107	105	103	112	106	109	118	104	110	
<b>EA005P: pH by PC Titrator</b>																		
pH Value		pH Unit	0.01 7.5-8.1	7.57	7.50	----	----	7.31	7.25	7.28	7.24	7.24	7.26	7.13	7.18	7.25	7.18	----
<b>EA006: Sodium Adsorption Ratio (SAR)</b>																		
Sodium Adsorption Ratio			0.01	0.55	0.58	----	----	0.66	0.66	0.66	0.55	0.61	0.61	0.77	0.77	0.55	0.66	----
<b>EA010P: Conductivity by PC Titrator</b>																		
Electrical Conductivity @ 25°C		µS/cm	1	78	73	----	----	71	70	70	66	73	70	71	72	67	64	----
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>																		
Total Dissolved Solids (Calc.)		mg/L	1	51	47	----	----	46	46	46	43	47	46	46	47	44	42	----
Suspended Solids (SS)		mg/L	5	<5	9	----	----	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	----
<b>EA065: Total Hardness as CaCO3</b>																		
Total Hardness as CaCO3		mg/L	1	22	20	----	----	16	16	16	16	18	18	16	16	16	16	----
<b>ED037P: Alkalinity by PC Titrator</b>																		
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	----	----	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	----	----	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	25	20	----	----	27	30	32	28	29	28	16	29	22	20	----
Total Alkalinity as CaCO3		mg/L	1	25	20	----	----	27	30	32	28	29	28	16	29	22	20	----
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>																		
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	1	1	----	----	2	2	1	1	2	1	1	1	1	1	----
Chloride	16887-00-6	mg/L	1	9	9	----	----	10	10	9	8	10	9	11	11	8	9	----
<b>ED093F: Dissolved Major Cations</b>																		
Calcium	7440-70-2	mg/L	1	4	3	----	----	3	3	3	3	4	4	3	3	3	3	----
Magnesium	7439-95-4	mg/L	1	3	3	----	----	2	2	2	2	2	2	2	2	2	2	----
Sodium	7440-23-5	mg/L	1	6	6	----	----	6	6	6	5	6	6	7	7	5	6	----
Potassium	7440-09-7	mg/L	1	<1	<1	----	----	1	1	1	1	1	1	<1	<1	1	<1	----
<b>EG020F: Dissolved Metals by ICP-MS</b>																		
Aluminium	7429-90-5	mg/L	0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	----



Matrix: WATER

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REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2114407009	EB2114407010	EB2205574011	EB2205574012	EB2205574001	EB2205574002	EB2205574003	EB2205574004	EB2205574005	EB2205574006	EB2205574007	EB2205574008	EB2205574009	EB2205574010	EB2205574010	EB2206937011		
25/05/2021	25/05/2021	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	01/03/2022	14/03/2022	
SW09	SW10	Dup 01	Dup 02	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10		DUP01		
Dalrymple	Dalrymple			Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple				
0	20007	20007	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	22003	20007

Analyte grouping/Analyte	CAS Number	Unit																	
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Manganese	7439-96-5	mg/L	0.001	0.001	<0.001	<0.001	----	<0.001	<0.001	0.001	0.002	0.001	0.002	0.003	0.004	0.002	0.001	----	
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	----
Iron	7439-89-6	mg/L	0.05	<0.05	<0.05	<0.05	----	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	----
<b>EG020T: Total Metals by ICP-MS</b>																			
Aluminium	7429-90-5	mg/L	0.01	0.24	0.4	----	0.25	0.28	0.27	0.33	0.37	0.45	0.38	0.12	0.1	0.28	0.23	----	
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	mg/L	0.001	0.001	0.001	----	<0.001	<0.001	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Manganese	7439-96-5	mg/L	0.001	0.009	0.032	----	0.004	0.004	0.004	0.006	0.007	0.006	0.007	0.008	0.006	0.008	0.006	----	
Nickel	7440-02-0	mg/L	0.001	<0.001	0.002	----	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Iron	7439-89-6	mg/L	0.05	0.26	0.49	----	0.22	0.22	0.21	0.28	0.32	0.4	0.32	0.13	0.11	0.26	0.19	----	
<b>EK040P: Fluoride by PC Titrator</b>																			
Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	
<b>Nutrients</b>																			
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	<0.01	----	<0.01	0.04	0.11	0.04	<0.01	<0.01	<0.01	0.04	<0.01	0.16	----	
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	----	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	
Nitrate as N	14797-55-8	mg/L	0.01	0.04	0.03	----	0.06	0.06	0.07	0.08	0.06	0.07	0.02	0.02	0.08	0.08	0.04	----	
Nitrite + Nitrate as N		mg/L	0.01	0.275	0.04	0.03	----	0.06	0.06	0.07	0.08	0.06	0.07	0.02	0.02	0.08	0.04	----	
Total Kjeldahl Nitrogen as N		mg/L	0.1	<0.1	0.2	----	0.2	0.2	0.3	0.2	0.2	0.1	<0.1	0.2	0.2	0.3	0.3	----	
Total Nitrogen as N		mg/L	0.1	1.51	<0.1	0.2	----	0.3	0.3	0.4	0.3	0.3	0.2	<0.1	0.2	0.3	0.3	----	
Total Phosphorus as P		mg/L	0.01	0.56	0.08	0.10	----	0.08	0.08	0.10	0.07	0.07	0.07	0.04	0.12	0.12	0.08	----	
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	0.05	0.07	----	0.03	0.03	0.03	0.03	0.03	0.04	0.02	0.02	0.03	0.02	----	
<b>EN055: Ionic Balance</b>																			
Total Anions		meq/L	0.01	0.77	0.67	----	0.86	0.92	0.91	0.80	0.90	0.83	0.65	0.91	0.69	0.67	----		
Total Cations		meq/L	0.01	0.71	0.66	----	0.60	0.60	0.60	0.56	0.65	0.65	0.62	0.62	0.56	0.58	----		
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>																			
Escherichia coli		CFU/100mL	1	15	9	----	100	220	62	47	~54	51	51	110	50	~50	----		



Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

ALS Sample Number:

Sample Date:

Client sample ID (1st):

Site:

Purchase Order:

LOR

WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2206937001	EB2206937002	EB2206937003	EB2206937004	EB2206937005	EB2206937006	EB2206937007	EB2206937008	EB2206937009	EB2206937010	EB2216991011	EB2216991001	EB2216991002	EB2216991003	EB2216991004		
14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022		
SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01	SW02	SW03	SW04		
Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters		
0	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	22003	22003	22003	22003	22003	22003

Analyte grouping/Analyte	CAS Number	Unit																	
<b>Field Parameters</b>																			
Temperature		°C		15.46	15.57	16.34	16.21	15.81	16.5	14.59	14.65	15.9	15.83		10.1	10.1	11	11.3	
pH		pH units	7.5-8.1	7.47	7.42	7.63	7.39	7.61	7.58	6.51	6.9	7.56	7.4		7.08	7.07	7.56	7.44	
Dissolved Oxygen - mg/L	mg/L			7.39	8.14	7.84	7.73	7.26	7.99	7.13	7.49	8.08	7.86		10.6	10.5	10.4	10.3	
Dissolved Oxygen - %		%	60-110	78.7	88.3	85.9	86	76.1	87.9	77.8	81.6	89.3	86.6		100	100	101	100	
Total Dissolved Solids		mg/L		37	37	39	36	40	40	36	37	36	35		52	52	55	49	
ORP		mV		177.4	173.7	166.1	172.5	172.4	170.3	170.1	151.1	155.9	157		179	162.1	154.5	162	
EC		µS/cm	335	73	73	78	73	90	91	71	74	73	70		30.5	40	65.2	55.9	
Turbidity		NTUs	90	2	2.2	3.5	5.8	1.6	2.8	1.2	1.1	4.2	6.8		0.92	0.77	1.97	2.96	
<b>EP025: Oxygen - Dissolved (DO)</b>																			
Dissolved Oxygen																			
Dissolved Oxygen - % Saturation			60-110																
<b>EA005P: pH by PC Titrator</b>																			
pH Value		pH Unit	0.01	7.5-8.1	7.32	7.29	7.43	7.38	7.34	7.44	7.07	7.22	7.38	7.32	----	7.24	7.25	7.15	7.25
<b>EA006: Sodium Adsorption Ratio (SAR)</b>																			
Sodium Adsorption Ratio			0.01	0.64	0.71	0.55	0.55	0.64	0.55	0.77	0.78	0.55	0.58	----	0.64	0.64	0.55	0.58	
<b>EA010P: Conductivity by PC Titrator</b>																			
Electrical Conductivity @ 25°C		µS/cm	1	79	79	81	76	84	84	78	78	76	74	----	78	77	82	73	
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>																			
Total Dissolved Solids (Calc.)		mg/L	1	51	51	53	49	55	55	51	51	49	48	----	51	50	53	47	
Suspended Solids (SS)		mg/L	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	----	<5	<5	<5	16	
<b>EA065: Total Hardness as CaCO3</b>																			
Total Hardness as CaCO3		mg/L	1	22	18	22	22	22	22	16	20	22	20	----	22	22	22	20	
<b>ED037P: Alkalinity by PC Titrator</b>																			
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	----	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	----	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	21	23	25	21	23	33	23	21	24	21	----	28	22	26	35	
Total Alkalinity as CaCO3		mg/L	1	21	23	25	21	23	33	23	21	24	21	----	28	22	26	35	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>																			
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	1	1	1	1	2	1	1	1	1	1	----	1	1	1	1	
Chloride	16887-00-6	mg/L	1	10	10	9	8	10	9	11	11	8	9	----	11	11	10	9	
<b>ED093F: Dissolved Major Cations</b>																			
Calcium	7440-70-2	mg/L	1	4	4	4	4	4	4	3	3	4	3	----	4	4	4	3	
Magnesium	7439-95-4	mg/L	1	3	2	3	3	3	3	2	3	3	3	----	3	3	3	3	
Sodium	7440-23-5	mg/L	1	7	7	6	6	7	6	7	8	6	6	----	7	7	6	6	
Potassium	7440-09-7	mg/L	1	1	1	1	1	1	1	<1	<1	1	1	----	<1	<1	<1	<1	
<b>EG020F: Dissolved Metals by ICP-MS</b>																			
Aluminium	7429-90-5	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	<0.01	<0.01	

Matrix: WATER

Sample Type:

Workgroup: EB1905575

ALS Sample Number:

Project name/number: 18006\_Scenic Rim Trail

Sample Date:

Client sample ID (1st):

Site:

Purchase Order:

LOR WQO



REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2206937001	EB2206937002	EB2206937003	EB2206937004	EB2206937005	EB2206937006	EB2206937007	EB2206937008	EB2206937009	EB2206937010	EB2216991011	EB2216991001	EB2216991002	EB2216991003	EB2216991004			
14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/03/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022			
SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUPO1	SW01	SW02	SW03	SW04			
Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters			
0	20007	20007	20007	20007	20007	20007	20007	20007	20007	20007	22003	22003	22003	22003	22003	22003	

Analyte grouping/Analyte	CAS Number	Unit																
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	----	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.001	<0.001	0.001	0.001	<0.001	0.002	0.003	0.003	0.002	0.002	----	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.030	<0.005	<0.005	<0.005	----	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	----	<0.05	<0.05	<0.05	<0.05
<b>EG020T: Total Metals by ICP-MS</b>																		
Aluminium	7429-90-5	mg/L	0.01	0.13	0.12	0.18	0.16	0.12	0.18	0.04	0.04	0.2	0.17	----	0.22	0.15	0.27	0.26
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.003	0.003	0.004	0.005	0.002	0.004	0.004	0.004	0.006	0.005	----	0.003	0.002	0.008	0.004
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	0.14	0.11	0.16	0.18	0.11	0.16	0.08	0.07	0.19	0.16	----	0.14	0.12	0.25	0.21
<b>EK040P: Fluoride by PC Titrator</b>																		
Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1
<b>Nutrients</b>																		
Ammonia as N	7664-41-7	mg/L	0.01	40 0.02	<0.01	<0.01	<0.01	0.02	0.01	0.04	0.03	0.03	0.08	----	<0.01	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01	0.04	0.04	0.05	0.05	0.04	0.05	0.02	0.01	0.04	0.03	----	4.86	0.87	0.04	0.04
Nitrite + Nitrate as N		mg/L	0.01	0.275 0.04	0.04	0.05	0.05	0.04	0.05	0.02	0.01	0.04	0.03	----	4.86	0.87	0.04	0.04
Total Kjeldahl Nitrogen as N		mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	0.3	0.1	<0.1	<0.1
Total Nitrogen as N		mg/L	0.1	1.51 <0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	5.2	1	<0.1	<0.1
Total Phosphorus as P		mg/L	0.01	0.56 0.06	0.06	0.06	0.07	0.05	0.07	0.05	0.05	0.06	0.07	----	0.05	0.05	0.06	0.06
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13 0.03	0.03	0.04	0.04	0.03	0.04	0.03	0.03	0.03	0.03	----	0.04	0.04	0.04	0.04
<b>EN055: Ionic Balance</b>																		
Total Anions		meq/L	0.01	0.72	0.76	0.77	0.67	0.78	0.93	0.79	0.75	0.73	0.69	----	0.89	0.77	0.82	0.97
Total Cations		meq/L	0.01	0.78	0.69	0.73	0.73	0.78	0.73	0.62	0.74	0.73	0.68	----	0.75	0.75	0.71	0.66
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>																		
Escherichia coli		CFU/100mL	1	31	38	25	45	43	35	18	22	35	29	----	20	~7	28	75



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:  
 LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2216991005	EB2216991006	EB2216991007	EB2216991008	EB2216991009	EB2216991010	EB2308319001	EB2308319002	EB2308319003	EB2308319004	EB2308319005	EB2308319006			
14/06/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022	20/03/2023	20/03/2023	20/03/2023	20/03/2023	20/03/2023	20/03/2023			
SW05	SW06	SW07	SW08	SW09	SW10	SW01	SW02	SW03	SW04	SW05	SW06			
Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple	Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters			
0	22003	22003	22003	22003	22003	22003	23001	23001	23001	23001	23001	23001	23001	23001

Analyte grouping/Analyte	CAS Number	Unit													
<b>Field Parameters</b>															
Temperature		•C		10.3	10.9	12.2	12.2	11.9	12	19.3	19.8	18.7	18.9	21.3	19.5
pH		pH units	7.5-8.1	7.41	7.52	6.05	6.08	7.36	7.36	7.2	7.26	7.25	7.35	7.35	7.28
Dissolved Oxygen - mg/L	mg/L			10.6	10.4	9.4	9.4	10.1	10.1	7.82	7.98	8.31	8.35	7.61	7.88
Dissolved Oxygen - %		%	60-110	101	101	96	96	101	100	84.9	87.4	89.1	89.9	85.9	85.9
Total Dissolved Solids		mg/L		62	57	51	50	49	50	70	69	69	71	87	77
ORP		mV		162.3	154.7	178.4	164.2	149.6	157.2	126.1	113	96.6	91.9	118.8	98.3
EC		µS/cm	335	68.1	64.6	40	40	57	56.3	96.1	95	94.1	96	133.2	105.5
Turbidity		NTUs	90	0.71	1.78	0.75	0.82	3.16	3.03	0.95	0.7	0.2	0.7	0	0.7
<b>EP025: Oxygen - Dissolved (DO)</b>															
Dissolved Oxygen															
Dissolved Oxygen - % Saturation			60-110												
<b>EA005P: pH by PC Titrator</b>															
pH Value		pH Unit	0.01 7.5-8.1	7.35	7.41	7	7.11	7.31	7.02	7.54	7.51	7.57	7.66	7.71	7.77
<b>EA006: Sodium Adsorption Ratio (SAR)</b>															
Sodium Adsorption Ratio			0.01	0.81	0.59	0.78	0.78	0.58	0.55	0.56	0.62	0.49	0.56	0.55	0.54
<b>EA010P: Conductivity by PC Titrator</b>															
Electrical Conductivity @ 25°C		µS/cm	1	92	86	74	75	74	80	102	98	102	101	127	117
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>															
Total Dissolved Solids (Calc.)		mg/L	1	60	56	48	49	48	52	66	64	66	66	82	76
Suspended Solids (SS)		mg/L	5	<5	31	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
<b>EA065: Total Hardness as CaCO3</b>															
Total Hardness as CaCO3		mg/L	1	29	26	20	20	20	22	38	31	38	38	51	42
<b>ED037P: Alkalinity by PC Titrator</b>															
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	28	28	20	21	24	13	38	36	40	42	50	56
Total Alkalinity as CaCO3		mg/L	1	28	28	20	21	24	13	38	36	40	42	50	56
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>															
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	1	1	1	1	1	1	1	1	2	1	1	1
Chloride	16887-00-6	mg/L	1	11	10	11	11	9	8	10	10	8	9	11	9
<b>ED093F: Dissolved Major Cations</b>															
Calcium	7440-70-2	mg/L	1	5	4	3	3	3	4	7	6	7	7	9	7
Magnesium	7439-95-4	mg/L	1	4	4	3	3	3	3	5	4	5	5	7	6
Sodium	7440-23-5	mg/L	1	10	7	8	8	6	6	8	8	7	8	9	8
Potassium	7440-09-7	mg/L	1	<1	<1	<1	<1	<1	<1	1	1	2	1	1	1
<b>EG020F: Dissolved Metals by ICP-MS</b>															
Aluminium	7429-90-5	mg/L	0.01	<0.01	<0.01	0.08 <0.01	<0.01	<0.01	<0.01	0.03 <0.01	<0.01	<0.01	<0.01	0.02 <0.01	<0.01



Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

ALS Sample Number:

Sample Date:

Client sample ID (1st):

Site:

Purchase Order:

LOR

WQO

				REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	
				EB2216991005	EB2216991006	EB2216991007	EB2216991008	EB2216991009	EB2216991010	EB2308319001	EB2308319002	EB2308319003	EB2308319004	EB2308319005	EB2308319006	
				14/06/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022	14/06/2022	20/03/2023	20/03/2023	20/03/2023	20/03/2023	20/03/2023	20/03/2023	
				SW05	SW06	SW07	SW08	SW09	SW10	SW01	SW02	SW03	SW04	SW05	SW06	
				Amphitheatre	Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple	Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre	Woodcutters	
				0	22003	22003	22003	22003	22003	22003	23001	23001	23001	23001	23001	23001
Analyte grouping/Analyte	CAS Number	Unit														
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.001	0.002	0.009	0.003	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.004
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EG020T: Total Metals by ICP-MS</b>																
Aluminium	7429-90-5	mg/L	0.01	0.3	0.7	0.19	0.12	0.25	0.27	0.09	0.12	0.09	0.1	0.06	0.08	0.08
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.011	0.05	0.014	0.005	0.006	0.006	0.004	0.004	0.004	0.004	0.004	0.004	0.005
Nickel	7440-02-0	mg/L	0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<b>0.3</b>	<b>0.75</b>	<b>0.25</b>	<b>0.14</b>	<b>0.22</b>	<b>0.24</b>	<b>0.09</b>	<b>0.12</b>	<b>0.1</b>	<b>0.1</b>	<b>0.08</b>	<b>0.09</b>	<b>0.09</b>
<b>EK040P: Fluoride by PC Titrator</b>																
Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<b>Nutrients</b>																
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01	<b>0.08</b>	<b>0.04</b>	<0.01	<b>0.02</b>	<b>0.72</b>	<b>0.05</b>	<b>0.16</b>	<b>0.18</b>	<b>0.12</b>	<b>0.1</b>	<b>0.11</b>	<b>0.1</b>	<b>0.1</b>
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.08</b>	<b>0.04</b>	<0.01	<b>0.02</b>	<b>0.72</b>	<b>0.05</b>	<b>0.16</b>	<b>0.18</b>	<b>0.12</b>	<b>0.1</b>	<b>0.11</b>	<b>0.1</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1	<0.1	<b>0.3</b>	<0.1	<0.1	<b>0.1</b>	<0.1	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<0.1	<0.1	<0.1
Total Nitrogen as N		mg/L	0.1	1.51	<0.1	<b>0.3</b>	<0.1	<0.1	<b>0.8</b>	<0.1	<b>0.3</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.06</b>	<b>0.14</b>	<b>0.06</b>	<b>0.05</b>	<b>0.06</b>	<b>0.06</b>	<b>0.07</b>	<b>0.07</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.07</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.03</b>	<b>0.04</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>
<b>EN055: Ionic Balance</b>																
Total Anions		meq/L	0.01	<b>0.89</b>	<b>0.86</b>	<b>0.73</b>	<b>0.75</b>	<b>0.75</b>	<b>0.51</b>	<b>1.06</b>	<b>1.02</b>	<b>1.07</b>	<b>1.11</b>	<b>1.33</b>	<b>1.39</b>	<b>1.39</b>
Total Cations		meq/L	0.01	<b>1.01</b>	<b>0.83</b>	<b>0.74</b>	<b>0.74</b>	<b>0.66</b>	<b>0.71</b>	<b>1.13</b>	<b>1</b>	<b>1.12</b>	<b>1.13</b>	<b>1.44</b>	<b>1.44</b>	<b>1.22</b>
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>																
Escherichia coli		CFU/100mL	1	<b>45</b>	<b>31</b>	<b>17</b>	<b>22</b>	<b>51</b>	<b>51</b>	<b>180</b>	<b>150</b>	<b>14</b>	<b>20</b>	<b>11</b>	<b>80</b>	<b>80</b>



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:  
 LOR WQO DUP01&02

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2308319007	EB2308319008	EB2308319009	EB2308319010	EB2308319011	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660
20/03/2023	20/03/2023	20/03/2023	20/03/2023	20/03/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023
SW07	SW08	SW09	SW10	DUP01	SW001	SW002	SW003	SW004	SW005		
Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre		
0	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001

Analyte grouping/Analyte	CAS Number	Unit	LOR	WQO	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02		
<b>Field Parameters</b>														
Temperature		•C			18.1	18.2	18	17.9		9.5	9.6	10.4	10.3	10
pH		pH units	7.5-8.1		6.6	6.63	6.86	7.1		7.23	7.19	7.72	7.58	7.44
Dissolved Oxygen - mg/L	mg/L				7.4	7.43		8.51		9.71	9.88	10.43	10.47	10.06
Dissolved Oxygen - %		%	60-110		78.4	78.8	89.4	89.9		85.1	86.7	93.3	93.4	89.1
Total Dissolved Solids		mg/L			57	57	63	65		65	63	65	67	81
ORP		mV			137	134.3	75.4	85.2		121	130.6	117.5	112.7	128.7
EC		µS/cm	335		88.1	76.1	84.3	85.9		70.7	68.6	72.5	73.8	89.2
Turbidity		NTUs	90		1.5	1.5	2.97	5.8		0.45	0.46	0.97	1.11	0.06
<b>EP025: Oxygen - Dissolved (DO)</b>														
Dissolved Oxygen										10	9.8	9.6	9.5	9.6
Dissolved Oxygen - % Saturation			60-110							104.1	101.7	100.4	99.1	100.5
<b>EA005P: pH by PC Titrator</b>														
pH Value		pH Unit	0.01	7.5-8.1	7.15	7.08	7.49	7.62	----	7.8	7.7	7.8	7.8	7.9
<b>EA006: Sodium Adsorption Ratio (SAR)</b>														
Sodium Adsorption Ratio			0.01		0.68	0.83	0.46	0.51	----	0.59	0.59	0.53	0.52	0.55
<b>EA010P: Conductivity by PC Titrator</b>														
Electrical Conductivity @ 25°C		µS/cm	1		83	80	91	95	----	100	89	95	96	110
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>														
Total Dissolved Solids (Calc.)		mg/L	1		54	52	59	62	----	66	57	61	61	70
Suspended Solids (SS)		mg/L	5	<5	<5	<5	<5	----	<5	<5	<5	<5	<5	<5
<b>EA065: Total Hardness as CaCO3</b>														
Total Hardness as CaCO3		mg/L	1		26	22	31	36	----	29	27	32	33	37
<b>ED037P: Alkalinity by PC Titrator</b>														
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	<1	<1	----	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	<1	<1	----	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1		26	25	35	38	----	29	27	31	32	35
Total Alkalinity as CaCO3		mg/L	1		26	25	35	38	----	29	27	31	32	35
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>														
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1		1	1	1	1	----	<3.0	<3.0	<3.0	<3.0	<3.0
Chloride	16887-00-6	mg/L	1		11	11	8	8	----	8.1	8	8.6	9.2	10
<b>ED093F: Dissolved Major Cations</b>														
Calcium	7440-70-2	mg/L	1		4	4	6	6	----	5.2	4.9	5.5	5.6	6.6
Magnesium	7439-95-4	mg/L	1		4	3	4	5	----	3.9	3.7	4.4	4.5	5.1
Sodium	7440-23-5	mg/L	1		8	9	6	7	----	7.4	6.9	6.6	6.5	7.4
Potassium	7440-09-7	mg/L	1	<1	<1		1	1	----	1.7	1.6	1.5	1.3	1.3
<b>EG020F: Dissolved Metals by ICP-MS</b>														
Aluminium	7429-90-5	mg/L	0.01		0.06	0.07	<0.01	<0.01	----	0.096	0.049	0.2	0.18	0.071



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2308319007	EB2308319008	EB2308319009	EB2308319010	EB2308319011	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660
20/03/2023	20/03/2023	20/03/2023	20/03/2023	20/03/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023
SW07	SW08	SW09	SW10	DUP01	SW001	SW002	SW003	SW004	SW005			
Blackfellows	Blackfellows	Dalrymple	Dalrymple		Amphitheatre	Amphitheatre	Woodcutters	Woodcutters	Amphitheatre			
0	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001
	LOR	WQO	DUP01&02									

Analyte grouping/Analyte	CAS Number	Unit	LOR	WQO	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02	DUP01&02
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.007	<0.007	<0.007	<0.007
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	----	<0.001	<0.001	<0.001	<0.001
Chromium	7440-47-3	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.005	<0.005	<0.005	<0.005
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.004	<0.004	<0.004	<0.004
Manganese	7439-96-5	mg/L	0.001		0.01	0.01	0.002	0.001	----	<0.002	<0.002	<0.002	<0.002
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.002	<0.002	<0.002	<0.002
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	<0.005	0.014	----	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05		0.11	0.12	<0.05	<0.05	----	0.066	0.046	0.11	0.1

EG020T: Total Metals by ICP-MS														
Aluminium	7429-90-5	mg/L	0.01		0.18	0.24	0.2	0.23	----	0.2	0.22	0.37	0.38	0.16
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.007	<0.007	<0.007	<0.007	<0.007
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	----	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	7440-47-3	mg/L	0.001		0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.005	<0.005	<0.005	<0.005	<0.005
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.01	<0.01	<0.01	<0.01	<0.01
Manganese	7439-96-5	mg/L	0.001		0.012	0.017	0.007	0.007	----	0.003	0.004	0.004	0.004	0.003
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	----	<0.002	<0.002	<0.002	<0.002	<0.002
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	<0.005	<0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05		0.27	0.35	0.19	0.22	----	0.15	0.18	0.25	0.25	0.12

EK040P: Fluoride by PC Titrator														
Fluoride	16984-48-8	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	----	<0.05	<0.05	<0.05	<0.05	<0.05

Nutrients														
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.004	<0.004	<0.004	<0.004
Nitrite as N	14797-65-0	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	----	<0.002	<0.002	<0.002	0.002	0.002
Nitrate as N	14797-55-8	mg/L	0.01		0.03	0.08	0.1	0.13	----	0.15	0.14	0.14	0.16	0.11
Nitrite + Nitrate as N		mg/L	0.01	0.275	0.03	0.08	0.1	0.13	0.03	0.15	0.14	0.14	0.16	0.12
Total Kjeldahl Nitrogen as N		mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	0.34	0.34	0.31	0.3	0.38
Total Nitrogen as N		mg/L	0.1	1.51	<0.1	<0.1		0.1	0.1	<0.1	0.48	0.48	0.45	0.5
Total Phosphorus as P		mg/L	0.01	0.56	0.07	0.08	0.07	0.07	----	0.085	0.081	0.094	0.093	0.083
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	0.05	0.05	0.05	0.05	----	0.076	0.076	0.085	0.083	0.08

EN055: Ionic Balance														
Total Anions		meq/L	0.01		0.85	0.83	0.94	1	----					
Total Cations		meq/L	0.01		0.88	0.84	0.92	1.04	----					

MW006: Faecal Coliforms & E.coli by MF														
Escherichia coli		CFU/100mL	1		100	79	160	41	----	52	30	70	57	31



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:  
 LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	EB2321794001	EB2321794002	EB2321794003
18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/07/2023	18/07/2023	18/07/2023
SW006	SW007	SW008	SW009	SW010	Duplicate 1 Lab QA (SW Duplicate 2 Field QA (S) SW01			SW02	SW03		
Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple							
0	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001

Analyte grouping/Analyte	CAS Number	Unit										
<b>Field Parameters</b>												
Temperature		°C		11	10.4	10.4	10.2	9.9		9.5	9.6	10.4
pH		pH units	7.5-8.1	7.47	6.67	6.65	7.69	7.38		7.23	7.19	7.72
Dissolved Oxygen - mg/L	mg/L			10.36	9.25	9.26	10.4	10.28		9.71	9.88	10.43
Dissolved Oxygen - %		%	60-110	94	82.8	82.9	92.5	90.9		85.1	86.7	93.3
Total Dissolved Solids		mg/L		81	53	54	60	61		65	63	65
ORP		mV		122.5	141.2	146	113.9	120.7		121	130.6	117.5
EC		µS/cm	335	91.3	59.3	60.5	66.5	66.7		70.7	68.6	72.5
Turbidity		NTUs	90	0.56	1.73	1.47	1.67	2.25		0.45	0.46	0.97
<b>EP025: Oxygen - Dissolved (DO)</b>												
Dissolved Oxygen				9.5	9.8	9.6	9.7	9.5				
Dissolved Oxygen - % Saturation			60-110	97.6	101.8	98.6	98.8	97.4				
<b>EA005P: pH by PC Titrator</b>												
pH Value		pH Unit	0.01 7.5-8.1	7.9	7.5	7.4	7.8	7.8		7.48	7.49	7.53
<b>EA006: Sodium Adsorption Ratio (SAR)</b>												
Sodium Adsorption Ratio			0.01	0.51	0.75	0.75	0.52	0.5		0.62	0.62	0.51
<b>EA010P: Conductivity by PC Titrator</b>												
Electrical Conductivity @ 25°C		µS/cm	1	100	82	82	87	89		98	95	103
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>												
Total Dissolved Solids (Calc.)		mg/L	1	66	53	52	55	57		64	62	67
Suspended Solids (SS)		mg/L	5	<5	<5	5	<5	<5		<5	<5	<5
<b>EA065: Total Hardness as CaCO3</b>												
Total Hardness as CaCO3		mg/L	1	36	21	22	29	30		31	31	36
<b>ED037P: Alkalinity by PC Titrator</b>												
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0		<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1.0	<1.0	<1.0	<1.0	<1.0		<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	35	21	21	28	30		33	32	37
Total Alkalinity as CaCO3		mg/L	1	36	21	21	28	30		33	32	37
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>												
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	<3.0	<3.0	<3.0	<3.0	<3.0		1	1	1
Chloride	16887-00-6	mg/L	1	9.3	10	9.7	8.6	8.4		10	10	9
<b>ED093F: Dissolved Major Cations</b>												
Calcium	7440-70-2	mg/L	1	6.2	3.5	3.6	4.7	5		6	6	6
Magnesium	7439-95-4	mg/L	1	5.1	3.1	3.2	4.1	4.2		4	4	5
Sodium	7440-23-5	mg/L	1	6.8	7.7	7.6	6.2	5.9		8	8	7
Potassium	7440-09-7	mg/L	1	1.4	0	1.1	1.2	1.4		<1	<1	1
<b>EG020F: Dissolved Metals by ICP-MS</b>												
Aluminium	7429-90-5	mg/L	0.01	0.28	0.048	<0.030	0.17	0.14		<0.01	<0.01	<0.01



Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

ALS Sample Number:

Sample Date:

Client sample ID (st):

Site:

Purchase Order:

LOR

WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660	23/04660
18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/5/2023	18/07/2023	18/07/2023
SW006	SW007	SW008	SW009	SW010	Duplicate 1 Lab QA (SW Duplicate 2 Field QA (S) SW01			SW02	SW03		
Woodcutters	Blackfellows	Blackfellows	Dalrymple	Dalrymple							
0	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001

Analyte grouping/Analyte	CAS Number	Unit													
Arsenic	7440-38-2	mg/L	0.001	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.001	<0.001	<0.001			
Cadmium	7440-43-9	mg/L	0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001			
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Copper	7440-50-8	mg/L	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001			
Lead	7439-92-1	mg/L	0.001	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.001	<0.001	<0.001			
Manganese	7439-96-5	mg/L	0.001	<0.002	<0.002	0.003	0.008	<0.002	<0.002		0.001	0.001	0.001	<0.001	
Nickel	7440-02-0	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001			
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
Iron	7439-89-6	mg/L	0.05		0.15	0.071	0.1	0.096	0.084	<0.05	<0.05	<0.05			
<b>EG020T: Total Metals by ICP-MS</b>															
Aluminium	7429-90-5	mg/L	0.01		0.38	0.18	0.57	0.34	0.34		0.06	0.08	0.1		
Arsenic	7440-38-2	mg/L	0.001	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.001	<0.001	<0.001			
Cadmium	7440-43-9	mg/L	0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001			
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001		0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
Copper	7440-50-8	mg/L	0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001			
Lead	7439-92-1	mg/L	0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001			
Manganese	7439-96-5	mg/L	0.001		0.005	0.007	0.034	0.006	0.006		0.003	0.003	0.002	0.002	
Nickel	7440-02-0	mg/L	0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		0.002	<0.001	<0.001		
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Iron	7439-89-6	mg/L	0.05		<b>0.25</b>	<b>0.22</b>	<b>0.9</b>	<b>0.25</b>	<b>0.26</b>		<b>0.07</b>	<b>0.06</b>	<b>0.09</b>		
<b>EK040P: Fluoride by PC Titrator</b>															
Fluoride	16984-48-8	mg/L	0.1		0.05	<0.05	<0.05	<0.05	<0.05		<0.1	<0.1	<0.1		
<b>Nutrients</b>															
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.01	<0.01	<0.01		
Nitrite as N	14797-65-0	mg/L	0.01		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	<0.01	<0.01	
Nitrate as N	14797-55-8	mg/L	0.01		<b>0.15</b>	<b>0.04</b>	<b>0.036</b>	<b>0.087</b>	<b>0.15</b>		<b>0.15</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.07</b>
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.15</b>	<b>0.04</b>	<b>0.036</b>	<b>0.087</b>	<b>0.15</b>		<b>0.15</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.07</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1		<b>0.36</b>	<b>0.26</b>	<b>0.29</b>	<b>0.38</b>	<b>0.3</b>		<b>0.28</b>	<0.1	<0.1	<0.1	
Total Nitrogen as N		mg/L	0.1	1.51	<b>0.51</b>	<b>0.3</b>	<b>0.33</b>	<b>0.46</b>	<b>0.45</b>		<b>0.43</b>	<b>0.1</b>	<b>0.1</b>	<0.1	
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.097</b>	<b>0.076</b>	<b>0.1</b>	<b>0.09</b>	<b>0.084</b>		<b>0.081</b>	<b>0.06</b>	<b>0.06</b>	<b>0.07</b>	
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.097</b>	<b>0.07</b>	<b>0.066</b>	<b>0.084</b>	<b>0.078</b>		<b>0.078</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	
<b>EN055: Ionic Balance</b>															
Total Anions		meq/L	0.01								<b>0.96</b>	<b>0.94</b>	<b>1.01</b>		
Total Cations		meq/L	0.01								<b>0.98</b>	<b>0.98</b>	<b>1.04</b>		
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>															
Escherichia coli		CFU/100mL	1		<b>60</b>	<b>70</b>	<b>90</b>	<b>56</b>	<b>20</b>		<b>~1</b>	<b>~1</b>	<b>13</b>		



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:  
 LOR WQO

	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2321794004	EB2321794005	EB2321794006	EB2321794007	EB2321794008	EB2321794009	EB2321794010	EB2321794011	EB2328436001	EB2328436002		
18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	13/09/2023	13/09/2023		
SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01	SW02		
0	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001

Analyte grouping/Analyte	CAS Number	Unit		DUP1&2									
<b>Field Parameters</b>													
Temperature		•C		10.3	10	11	10.4	10.4	10.2	9.9		11.2	11.2
pH		pH units	7.5-8.1	7.58	7.44	7.47	6.67	6.65	7.69	7.38		6.34	6.34
Dissolved Oxygen - mg/L	mg/L			10.47	10.06	10.36	9.25	9.26	10.4	10.28		9.4	9.6
Dissolved Oxygen - %		%	60-110	93.4	89.1	94	82.8	82.9	92.5	90.9		93	94
Total Dissolved Solids		mg/L		67	81	81	53	54	60	61		97	75
ORP		mV		112.7	128.7	122.5	142.5	146	113.9	120.7		123.1	121.1
EC		µS/cm	335	73.8	89.2	91.3	59.3	60.5	66.5	66.7		110.4	115.5
Turbidity		NTUs	90	1.11	0.06	0.56	1.73	1.47	1.67	2.25		0	0
<b>EP025: Oxygen - Dissolved (DO)</b>													
Dissolved Oxygen													
Dissolved Oxygen - % Saturation 60-110													
<b>EA005P: pH by PC Titrator</b>													
pH Value		pH Unit	0.01 7.5-8.1	7.6	7.59	7.85	7.01	7.12	7.5	7.47 ----		7.24	7.21
<b>EA006: Sodium Adsorption Ratio (SAR)</b>													
Sodium Adsorption Ratio			0.01	0.58	0.52	0.54	0.74	0.74	0.53	0.46 ----		0.56	0.58
<b>EA010P: Conductivity by PC Titrator</b>													
Electrical Conductivity @ 25°C		µS/cm	1	101	125	106	82	83	92	93 ----		114	109
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>													
Total Dissolved Solids (Calc.)		mg/L	1	66	81	69	53	54	60	60 ----		74	71
Suspended Solids (SS)		mg/L	5	<5	<5	<5	<5	<5	<5	6 ----	<5	<5	
<b>EA065: Total Hardness as CaCO3</b>													
Total Hardness as CaCO3		mg/L	1	36	45	42	22	22	33	31 ----		38	36
<b>ED037P: Alkalinity by PC Titrator</b>													
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	<1	<1	<1	<1	----	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	<1	<1	<1	<1	----	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	38	43	47	20	22	32	33 ----		40	38
Total Alkalinity as CaCO3		mg/L	1	38	43	47	20	22	32	33 ----		40	38
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>													
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	1	1	1	2	1	1	1 ----		2	1
Chloride	16887-00-6	mg/L	1	9	11	9	11	12	9	8 ----		11	11
<b>ED093F: Dissolved Major Cations</b>													
Calcium	7440-70-2	mg/L	1	6	8	7	4	4	5	6 ----		7	6
Magnesium	7439-95-4	mg/L	1	5	6	6	3	3	5	4 ----		5	5
Sodium	7440-23-5	mg/L	1	8	8	8	8	8	7	6 ----		8	8
Potassium	7440-09-7	mg/L	1	1	1	1 <1	<1	<1	1	1 ----		1	1
<b>EG020F: Dissolved Metals by ICP-MS</b>													
Aluminium	7429-90-5	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01	



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:  
 LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2321794004	EB2321794005	EB2321794006	EB2321794007	EB2321794008	EB2321794009	EB2321794010	EB2321794011	EB2328436001	EB2328436002		
18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023	13/09/2023	13/09/2023		
SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01	SW02		
23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001

Analyte grouping/Analyte	CAS Number	Unit		DUP1&2										
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001		0.001	0.001	0.002	0.006	0.006	0.002	<0.001	----	0.004	0.002
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	----	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	----	<0.05	<0.05

**EG020T: Total Metals by ICP-MS**

Aluminium	7429-90-5	mg/L	0.01		0.11	0.04	0.08	0.09	0.18	0.15	0.74	----	0.05	0.04
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001		0.001	0.002	----	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001		0.002	<0.001	<0.001	----	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001		0.004	0.002	0.003	0.006	0.011	0.006	0.006	----	0.005	0.002
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001		0.001	<0.001	0.001	----	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	----	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05		0.11	<0.05	0.1	0.15	0.27	0.15	0.19	----	0.07	<0.05

**EK040P: Fluoride by PC Titrator**

Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1	<0.1
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**Nutrients**

Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01		0.07	0.05	0.05	0.04	0.04	0.07	0.11	----	0.12	0.14
Nitrite + Nitrate as N		mg/L	0.01	0.275	0.07	0.05	0.05	0.04	0.04	0.07	0.11	----	0.05	0.12
Total Kjeldahl Nitrogen as N		mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrogen as N		mg/L	0.1	1.51	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.1
Total Phosphorus as P		mg/L	0.01	0.56	0.08	0.06	0.07	0.06	0.07	0.06	0.07	----	0.06	0.05
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	0.05	0.04	0.05	0.04	0.04	0.05	0.04	----	0.06	0.06

**EN055: Ionic Balance**

Total Anions		meq/L	0.01		1.03	1.19	1.21	0.75	0.8	0.91	0.9	----	1.15	1.09
Total Cations		meq/L	0.01		1.08	1.27	1.22	0.79	0.79	0.99	0.92	----	1.13	1.08

**MW006: Faecal Coliforms & E.coli by MF**

Escherichia coli		CFU/100mL	1	~6	~3	~2	~120		10	10	6	----	~5	~9
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Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
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 Purchase Order:  
 LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2328436003	EB2328436004	EB2328436005	EB2328436006	EB2328436007	EB2328436008	EB2328436009	EB2328436010	EB2328436011	EB2401676001		
13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	18/01/2024		
SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01		
0	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	24001

Analyte grouping/Analyte	CAS Number	Unit										
<b>Field Parameters</b>												
Temperature		•C		10.6	11	13.6	11.2	11.5	11.5	10.5	10.7	18.9
pH		pH units	7.5-8.1	6.21	6.44	6.84	6.57	6.18	6.05	6.05	5.88	7.93
Dissolved Oxygen - mg/L	mg/L			10.1	10	9.5	9.5	8.7	7.5	10.1	10.2	8.27
Dissolved Oxygen - %		%	60-110	97	98	99	93	88	76	98	99	89.1
Total Dissolved Solids		mg/L		74	76	93	83	58	63	68	69	59
ORP		mV		107.6	121	101.6	112.7	114.9	99.7	131.8	157	113
EC		µS/cm	335	113.5	116.4	111.7	94.4	65.9	72.1	75.6	77	79.8
Turbidity		NTUs	90	0.79	0.57	0	0.36	1.4	3.22	1.27	7.09	0
<b>EP025: Oxygen - Dissolved (DO)</b>												
Dissolved Oxygen												
Dissolved Oxygen - % Saturation 60-110												
<b>EA005P: pH by PC Titrator</b>												
pH Value		pH Unit	0.01 7.5-8.1	7.38	7.33	7.38	7.45	6.96	7.02	7.24	7.25 ----	7.36
<b>EA006: Sodium Adsorption Ratio (SAR)</b>												
Sodium Adsorption Ratio			0.01	0.49	0.54	0.55	0.52	0.74	0.74	0.51	0.44 ----	0.48
<b>EA010P: Conductivity by PC Titrator</b>												
Electrical Conductivity @ 25°C		µS/cm	1	111	110	139	129	82	82	101	100 ----	85
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>												
Total Dissolved Solids (Calc.)		mg/L	1	72	72	90	84	53	53	66	65 ----	55
Suspended Solids (SS)		mg/L	5	<5	<5	<5	<5	<5	8	6	7 ----	7
<b>EA065: Total Hardness as CaCO3</b>												
Total Hardness as CaCO3		mg/L	1	38	42	51	45	22	22	36	36 ----	29
<b>ED037P: Alkalinity by PC Titrator</b>												
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	<1	<1	<1	<1	<1	----	<1
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	<1	<1	<1	<1	<1	----	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	43	45	53	52	20	22	38	41 ----	32
Total Alkalinity as CaCO3		mg/L	1	43	45	53	52	20	22	38	41 ----	32
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>												
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	1	2	2	1	2	1	3	2 ----	1
Chloride	16887-00-6	mg/L	1	9	10	12	10	12	12	9	9 ----	9
<b>ED093F: Dissolved Major Cations</b>												
Calcium	7440-70-2	mg/L	1	7	7	9	8	4	4	6	6 ----	5
Magnesium	7439-95-4	mg/L	1	5	6	7	6	3	3	5	5 ----	4
Sodium	7440-23-5	mg/L	1	7	8	9	8	8	8	7	6 ----	6
Potassium	7440-09-7	mg/L	1	1	1	1	1 <1	<1	<1	1	1 ----	1
<b>EG020F: Dissolved Metals by ICP-MS</b>												
Aluminium	7429-90-5	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----	0.02



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
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 Client sample ID (fst):  
 Site:  
 Purchase Order:

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2328436003	EB2328436004	EB2328436005	EB2328436006	EB2328436007	EB2328436008	EB2328436009	EB2328436010	EB2328436011	EB2401676001		
13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	13/09/2023	18/01/2024		
SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01	SW01		
0	23001	23001	23001	23001	23001	23001	23001	23001	23001	23001	24001

Analyte grouping/Analyte	CAS Number	Unit	LOR	WQO	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001
Chromium	7440-47-3	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Manganese	7439-96-5	mg/L	0.001		<0.001	0.004	0.003	0.004	0.007	0.025	0.004	0.001	----	<0.001
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	----	<0.005
Iron	7439-89-6	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	----	<0.05
<b>EG020T: Total Metals by ICP-MS</b>														
Aluminium	7429-90-5	mg/L	0.01		0.09	0.1	0.05	0.07	0.15	0.17	0.11	0.16	----	0.76
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----	<0.0001
Chromium	7440-47-3	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	0.002
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----	<0.001
Manganese	7439-96-5	mg/L	0.001		0.003	0.007	0.005	0.006	0.012	0.026	0.006	0.005	----	0.006
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	----	0.001
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	----	<0.005
Iron	7439-89-6	mg/L	0.05		<b>0.08</b>	<b>0.11</b>	<b>0.06</b>	<b>0.08</b>	<b>0.28</b>	<b>0.44</b>	<b>0.11</b>	<b>0.16</b>	----	<b>0.52</b>
<b>EK040P: Fluoride by PC Titrator</b>														
Fluoride	16984-48-8	mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----	<0.1
<b>Nutrients</b>														
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01		<b>0.09</b>	<b>0.08</b>	<b>0.06</b>	<b>0.08</b>	<b>0.14</b>	<b>0.02</b>	<b>0.08</b>	<b>0.1</b>		<b>0.12 0.03</b>
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.09</b>	<b>0.08</b>	<b>0.06</b>	<b>0.08</b>	<b>0.14</b>	<b>0.02</b>	<b>0.08</b>	<b>0.1</b>		<b>0.12 0.03</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<b>0.2</b>
Total Nitrogen as N		mg/L	0.1	1.51	<0.1	<0.1	<0.1	<0.1	<b>0.1</b>	<0.1	<0.1	<b>0.1</b>		<b>0.1 0.2</b>
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.06</b>	<b>0.07</b>	<b>0.06</b>	<b>0.07</b>	<b>0.06</b>	<b>0.08</b>	<b>0.06</b>	<b>0.06</b>	----	<b>0.08</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	----	<b>0.04</b>
<b>EN055: Ionic Balance</b>														
Total Anions		meq/L	0.01		<b>1.13</b>	<b>1.22</b>	<b>1.44</b>	<b>1.34</b>	<b>0.78</b>	<b>0.8</b>	<b>1.08</b>	<b>1.11</b>	----	<b>0.91</b>
Total Cations		meq/L	0.01		<b>1.09</b>	<b>1.22</b>	<b>1.44</b>	<b>1.27</b>	<b>0.79</b>	<b>0.79</b>	<b>1.04</b>	<b>1</b>	----	<b>0.86</b>
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>														
Escherichia coli		CFU/100mL	1		~5	~2	~3	~2	55	57	28	14	----	~130





Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2401676002	EB2401676003	EB2401676004	EB2401676005	EB2401676006	EB2401676007	EB2401676008	EB2401676009	EB2401676010	EB2401676011		
18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024		
SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10	DUP01		
0	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001

Analyte grouping/Analyte	CAS Number	Unit	LOR	WQO	24001	24001	24001	24001	24001	24001	24001	24001	24001
DUPs													
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Manganese	7439-96-5	mg/L	0.001	<0.001	0.001	0.002	<b>0.001</b>	<b>0.002</b>	<b>0.007</b>	<b>0.077</b>	<b>0.002</b>	<b>0.002</b>	----
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	----
Iron	7439-89-6	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.34	<0.05	<0.05	----
<b>EG020T: Total Metals by ICP-MS</b>													
Aluminium	7429-90-5	mg/L	0.01	0.74	0.84	0.93	0.84	0.43	0.32	0.49	0.69	0.65	----
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.002	----
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	----
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	----
Manganese	7439-96-5	mg/L	0.001		0.005	0.007	0.007	0.006	0.007	0.012	0.051	0.008	0.007
Nickel	7440-02-0	mg/L	0.001		0.001	0.002	0.002	0.002	<0.001	<0.001	<0.001	0.002	0.002
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	----
Iron	7439-89-6	mg/L	0.05		<b>0.5</b>	<b>0.55</b>	<b>0.59</b>	<b>0.58</b>	<b>0.31</b>	<b>0.36</b>	<b>0.79</b>	<b>0.49</b>	<b>0.49</b>
<b>EK040P: Fluoride by PC Titrator</b>													
Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	----
<b>Nutrients</b>													
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	----
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	----
Nitrate as N	14797-55-8	mg/L	0.01	<b>0.02</b>	<b>0.03</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.04</b>	<b>0.06</b>	----
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.02</b>	<b>0.03</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.04</b>	<b>0.06</b>	<b>0.03</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1	<b>0.6</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.2</b>	<0.1
Total Nitrogen as N		mg/L	0.1	1.51	<b>0.6</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.3</b>	<0.1
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.10</b>	<b>0.09</b>	<b>0.08</b>	<b>0.09</b>	<b>0.07</b>	<b>0.09</b>	<b>0.08</b>	<b>0.08</b>	<b>0.06</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.05</b>	<b>0.06</b>	<b>0.04</b>	<b>0.03</b>	<b>0.05</b>	<b>0.05</b>
<b>EN055: Ionic Balance</b>													
Total Anions		meq/L	0.01	<b>0.86</b>	<b>0.98</b>	<b>1.00</b>	<b>1.06</b>	<b>1.06</b>	<b>0.82</b>	<b>0.70</b>	<b>0.92</b>	<b>0.94</b>	----
Total Cations		meq/L	0.01	<b>0.78</b>	<b>0.92</b>	<b>0.92</b>	<b>0.96</b>	<b>1.04</b>	<b>0.70</b>	<b>0.78</b>	<b>0.86</b>	<b>0.86</b>	----
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>													
Escherichia coli		CFU/100mL	1	~130	<b>300</b>	<b>190</b>	<b>80</b>	<b>110</b>	<b>150</b>	<b>220</b>	<b>210</b>	<b>90</b>	----





Matrix: WATER

Workgroup: EB1905575

Project name/number: 18006\_Scenic Rim Trail

Sample Type:

ALS Sample Number:

Sample Date:

Client sample ID (1st):

Site:

Purchase Order:

LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2411896001	EB2411896002	EB2411896003	EB2411896004	EB2411896005	EB2411896006	EB2411896007	EB2411896008	EB2411896009	EB2411896010		
10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024		
SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	SW10		
24001	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001

Analyte grouping/Analyte	CAS Number	Unit											
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.011	0.006	<0.001	<0.001
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EG020T: Total Metals by ICP-MS</b>													
Aluminium	7429-90-5	mg/L	0.01	0.24	0.2	0.25	0.24	0.35	0.31	0.09	0.12	0.24	0.28
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	0.002	0.003	0.003	<0.001	0.003	0.003	0.002	0.003	0.003	0.002
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.004	0.004	0.005	0.005	0.004	0.004	0.01	0.01	0.007	0.007
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<b>0.19</b>	<b>0.16</b>	<b>0.19</b>	<b>0.19</b>	<b>0.26</b>	<b>0.21</b>	<b>0.15</b>	<b>0.17</b>	<b>0.22</b>	<b>0.23</b>
<b>EK040P: Fluoride by PC Titrator</b>													
Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<b>Nutrients</b>													
Ammonia as N	7664-41-7	mg/L	0.01	40	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	0.01	0.05	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01	<b>0.08</b>	<b>0.08</b>	<b>0.12</b>	<b>0.10</b>	<b>0.07</b>	<b>0.10</b>	<b>0.08</b>	<b>0.07</b>	<b>0.13</b>	<b>0.12</b>
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.08</b>	<b>0.08</b>	<b>0.12</b>	<b>0.10</b>	<b>0.07</b>	<b>0.10</b>	<b>0.08</b>	<b>0.07</b>	<b>0.13</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrogen as N		mg/L	0.1	1.51	<0.1	<0.1	<b>0.1</b>	<b>0.1</b>	<0.1	<b>0.1</b>	<0.1	<b>0.1</b>	<b>0.1</b>
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	<b>0.04</b>	<b>0.06</b>	<b>0.05</b>	<b>0.05</b>	<b>0.07</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>	<b>0.03</b>	<b>0.04</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>
<b>EN055: Ionic Balance</b>													
Total Anions		meq/L	0.01	<b>1.76</b>	<b>1.66</b>	<b>1.81</b>	<b>1.76</b>	<b>1.81</b>	<b>1.91</b>	<b>1.85</b>	<b>1.84</b>	<b>1.80</b>	<b>1.71</b>
Total Cations		meq/L	0.01	<b>1.53</b>	<b>1.53</b>	<b>1.70</b>	<b>1.53</b>	<b>1.58</b>	<b>1.53</b>	<b>1.61</b>	<b>1.92</b>	<b>1.49</b>	<b>1.49</b>
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>													
Escherichia coli		CFU/100mL	1	<b>210</b>	<b>~170</b>	<b>32</b>	<b>27</b>	<b>27</b>	<b>58</b>	<b>46</b>	<b>42</b>	<b>15</b>	<b>19</b>





Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2411896011	EB2418107001	EB2418107002	EB2418107003	EB2418107004	EB2418107005	EB2418107006	EB2418107007	EB2418107008	EB2418107009	
10/04/2024	28/05/2024	28/05/2024	28/05/2024	28/05/2024	28/05/2024	28/05/2024	28/05/2024	28/05/2024	28/05/2024	
DUP01	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08	SW09	
0	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001

Analyte grouping/Analyte	CAS Number	Unit	LOR	WQO	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
Arsenic	7440-38-2	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.005	<0.001	<0.001
Nickel	7440-02-0	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	----	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EG020T: Total Metals by ICP-MS</b>														
Aluminium	7429-90-5	mg/L	0.01	----		0.16	0.16	0.22	0.21	0.16	0.24	0.25	0.15	0.25
Arsenic	7440-38-2	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	----	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
Copper	7440-50-8	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	----		0.004	0.004	0.004	0.004	0.003	0.004	0.016	0.011	0.007
Nickel	7440-02-0	mg/L	0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002
Zinc	7440-66-6	mg/L	0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	----		0.15	0.15	0.18	0.18	0.13	0.17	0.49	0.27	0.24
<b>EK040P: Fluoride by PC Titrator</b>														
Fluoride	16984-48-8	mg/L	0.1	----	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<b>Nutrients</b>														
Ammonia as N	7664-41-7	mg/L	0.01	40	0.01	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	----	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01	----	0.04	0.06	0.06	0.07	0.02	0.03	0.02	0.02	0.02	0.06
Nitrite + Nitrate as N		mg/L	0.01	0.275	0.98	0.04	0.06	0.06	0.07	0.02	0.03	0.02	0.02	0.06
Total Kjeldahl Nitrogen as N		mg/L	0.1		0.2	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	0.1
Total Nitrogen as N		mg/L	0.1	1.51	1.2	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	0.2
Total Phosphorus as P		mg/L	0.01	0.56	----	0.04	0.04	0.04	0.05	0.06	0.08	0.06	0.06	0.05
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	----	0.04	0.04	0.06	0.06	0.04	0.06	0.04	0.04	0.05
<b>EN055: Ionic Balance</b>														
Total Anions		meq/L	0.01	----	0.72	0.74	0.84	0.99	0.86	0.93	0.76	0.78	0.89	
Total Cations		meq/L	0.01	----	0.71	0.71	0.79	0.79	0.93	0.79	0.79	0.79	0.84	
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>														
Escherichia coli		CFU/100mL	1	----	~1	~2	~3	2	62	15	20	13	13	



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:  
 LOR WQO

	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2418107010	EB2418107011	EB2425923001	EB2425923002	EB2425923003	EB2425923004	EB2425923005	EB2425923006	EB2425923007	EB2425923008		
28/05/2024	28/05/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024		
SW10	DUP01	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08		
0	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001

Analyte grouping/Analyte	CAS Number	Unit											
<b>Field Parameters</b>													
Temperature		•C		12.8		6.7	6.7	7.7	7.2	6.5	7.3	7.7	7.5
pH		pH units	7.5-8.1	5.98		5.8	5.94	6.9	6.35	6.27	6.59	5.9	6.02
Dissolved Oxygen - mg/L	mg/L			9.8		11.23	11.37	11.72	11.46	11.74	11.64	10.47	10.56
Dissolved Oxygen - %		%	60-110	100		92	93	98.2	94.9	95.5	96.7	87.7	88.2
Total Dissolved Solids		mg/L		58		57	57	61	61	64	65	71	58
ORP		mV		237.2		262.5	260.1	220.1	257	253.2	239.3	236.6	190.8
EC		µS/cm	335	68.6		57.5	56.7	63.5	61.8	63.9	66.1	73.1	59.9
Turbidity		NTUs	90	3.52		1.57	1.61	2.46	2.47	1.21	2.04	1.87	1.38
<b>EP025: Oxygen - Dissolved (DO)</b>													
Dissolved Oxygen													
Dissolved Oxygen - % Saturation			60-110										
<b>EA005P: pH by PC Titrator</b>													
pH Value		pH Unit	0.01 7.5-8.1	6.64	----	6.83	6.67	7.09	6.91	7.00	6.94	6.75	6.78
<b>EA006: Sodium Adsorption Ratio (SAR)</b>													
Sodium Adsorption Ratio			0.01	0.48	----	0.64	0.83	0.56	0.48	0.56	0.56	0.74	0.74
<b>EA010P: Conductivity by PC Titrator</b>													
Electrical Conductivity @ 25°C		µS/cm	1	95	----	82	82	86	84	94	92	83	82
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>													
Total Dissolved Solids (Calc.)		mg/L	1	62	----	53	53	56	55	61	60	54	53
Suspended Solids (SS)		mg/L	5	6	----								
<b>EA065: Total Hardness as CaCO3</b>													
Total Hardness as CaCO3		mg/L	1	29	----	22	22	29	29	29	29	22	22
<b>ED037P: Alkalinity by PC Titrator</b>													
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	----	<1	<1	<1	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	----	<1	<1	<1	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	29	----	28	22	33	34	34	37	27	26
Total Alkalinity as CaCO3		mg/L	1	29	----	28	22	33	34	34	37	27	26
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>													
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	2	----	3	1	1	1	3	1	1	1
Chloride	16887-00-6	mg/L	1	9	----	10	10	9	9	11	9	12	12
<b>ED093F: Dissolved Major Cations</b>													
Calcium	7440-70-2	mg/L	1	5	----	4	4	5	5	5	5	4	4
Magnesium	7439-95-4	mg/L	1	4	----	3	3	4	4	4	4	3	3
Sodium	7440-23-5	mg/L	1	6	----	7	9	7	6	7	7	8	8
Potassium	7440-09-7	mg/L	1	<1	----	<1	<1	<1	<1	<1	<1	<1	<1
<b>EG020F: Dissolved Metals by ICP-MS</b>													
Aluminium	7429-90-5	mg/L	0.01	<0.01	----	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01



Matrix: WATER

Sample Type:

Workgroup: EB1905575

ALS Sample Number:

Project name/number: 18006\_Scenic Rim Trail

Sample Date:

Client sample ID (1st):

Site:

Purchase Order:

LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2418107010	EB2418107011	EB2425923001	EB2425923002	EB2425923003	EB2425923004	EB2425923005	EB2425923006	EB2425923007	EB2425923008			
28/05/2024	28/05/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024	30/07/2024			
SW10	DUP01	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08			
0	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001

Analyte grouping/Analyte	CAS Number	Unit											
Arsenic	7440-38-2	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	<0.001	----	<0.001	<0.001	0.001	<0.001	0.001	0.001	0.004	0.004
Nickel	7440-02-0	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<0.05	----	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

EG020T: Total Metals by ICP-MS													
Aluminium	7429-90-5	mg/L	0.01	0.23	----	0.2	0.08	0.14	0.21	0.07	0.16	0.06	0.04
Arsenic	7440-38-2	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	----	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	0.002	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.007	----	0.007	0.003	0.003	0.003	0.002	0.003	0.005	0.005
Nickel	7440-02-0	mg/L	0.001	<0.001	----	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	----	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	0.23	----	0.20	0.09	0.13	0.16	0.08	0.12	0.10	0.09

EK040P: Fluoride by PC Titrator													
Fluoride	16984-48-8	mg/L	0.1	<0.1	----	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Nutrients													
Ammonia as N	7664-41-7	mg/L	0.01	40 0.15	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	0.02	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	----	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01	0.07	----	0.04	0.05	0.05	0.05	0.03	0.04	0.02	0.01
Nitrite + Nitrate as N		mg/L	0.01	0.275 0.07	0.02	0.04	0.05	0.05	0.05	0.03	0.04	0.02	0.01
Total Kjeldahl Nitrogen as N		mg/L	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrogen as N		mg/L	0.1	1.51 0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Phosphorus as P		mg/L	0.01	0.56 0.05	----	0.06	0.05	0.07	<0.01	0.04	0.06	0.05	0.06
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13 0.05	----	0.03	0.04	0.05	0.04	0.03	0.04	0.04	0.04

EN055: Ionic Balance													
Total Anions		meq/L	0.01	0.87	----	0.90	0.74	0.93	0.95	1.05	1.01	0.90	0.88
Total Cations		meq/L	0.01	0.84	----	0.75	0.84	0.88	0.84	0.88	0.88	0.79	0.79

MW006: Faecal Coliforms & E.coli by MF													
Escherichia coli		CFU/100mL	1	8	----	~1	~3	~1	~1	<1	~2	~3	~8





Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):

Site:  
 Purchase Order:  
 LOR WQO

REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG	REG
EB2425923009	EB2425923010	EB2432826001	EB2432826002	EB2432826003	EB2432826004	EB2432826005	EB2432826006	EB2432826007	EB2432826015		
30/07/2024	30/07/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024	24/09/2024		
SW09	SW10	SW01	SW02	SW03	SW04	SW05	SW06	SW07	SW08		
0	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001	24001

Analyte grouping/Analyte	CAS Number	Unit												
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	<0.001	0.003	<0.001	0.001	<0.001	<0.001	0.002	0.009	0.008		
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<b>EG020T: Total Metals by ICP-MS</b>														
Aluminium	7429-90-5	mg/L	0.01	0.2	0.14	0.16	0.1	0.17	0.18	0.11	0.14	0.08	0.09	
Arsenic	7440-38-2	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.002	
Lead	7439-92-1	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	7439-96-5	mg/L	0.001	0.005	0.005	0.005	0.003	0.005	0.004	0.003	0.004	0.009	0.014	
Nickel	7440-02-0	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Iron	7439-89-6	mg/L	0.05	<b>0.18</b>	<b>0.16</b>	<b>0.16</b>	<b>0.11</b>	<b>0.16</b>	<b>0.15</b>	<b>0.11</b>	<b>0.12</b>	<b>0.15</b>	<b>0.21</b>	
<b>EK040P: Fluoride by PC Titrator</b>														
Fluoride	16984-48-8	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<b>Nutrients</b>														
Ammonia as N	7664-41-7	mg/L	0.01	40 0.01	0.02	<0.01	<0.01	0.01	<0.01	0.09	<0.01	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate as N	14797-55-8	mg/L	0.01	<b>0.06</b>	<b>0.06</b>	<b>0.08</b>	<b>0.36</b>	<0.01	<b>0.04</b>	<b>0.04</b>	<0.01	<b>0.49</b>	<b>0.06</b>	<b>0.06</b>
Nitrite + Nitrate as N		mg/L	0.01	0.275 <b>0.06</b>	<b>0.06</b>	<b>0.08</b>	<b>0.36</b>	<0.01	<b>0.04</b>	<b>0.04</b>	<0.01	<b>0.49</b>	<b>0.06</b>	<b>0.06</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1	<0.1	<0.1	<b>0.2</b>	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Nitrogen as N		mg/L	0.1	1.51 <0.1	<0.1	<b>0.3</b>	<b>0.4</b>	<0.1	<0.1	<0.1	<0.1	<b>0.5</b>	<0.1	<0.1
Total Phosphorus as P		mg/L	0.01	0.56 <b>0.06</b>	<b>0.06</b>	<b>0.05</b>	<b>0.04</b>	<b>0.07</b>	<b>0.06</b>	<b>0.05</b>	<b>0.06</b>	<b>0.06</b>	<b>0.06</b>	<b>0.07</b>
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13 <b>0.05</b>	<b>0.04</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	<b>0.04</b>	<b>0.05</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>
<b>EN055: Ionic Balance</b>														
Total Anions		meq/L	0.01	<b>0.93</b>	<b>0.93</b>	<b>1.40</b>	<b>1.33</b>	<b>0.95</b>	<b>0.93</b>	<b>0.98</b>	<b>1.04</b>	<b>1.48</b>	<b>2.11</b>	
Total Cations		meq/L	0.01	<b>0.88</b>	<b>0.93</b>	<b>1.10</b>	<b>1.06</b>	<b>1.00</b>	<b>0.95</b>	<b>1.04</b>	<b>1.00</b>	<b>1.23</b>	<b>1.62</b>	
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>														
Escherichia coli		CFU/100mL	1	~3	~5	38	45	25	82	~6	11	~7	16	

**Matrix:** WATER  
**Workgroup:** EB1905575  
**Project name/number:** 18006\_Scenic Rim Trail  
**Sample Type:**  
**ALS Sample Number:** EB2432826008 EB2432826009 EB2432826010 EB2432826011  
**Sample Date:** 24/09/2024 24/09/2024 24/09/2024 24/09/2024  
**Client sample ID (1st):** SW09 SW010 DUP01 DUP02  
**Site:**  
**Purchase Order:** 24001 24001 24001 24001  
**LOR WQO**



Analyte grouping/Analyte	CAS Number	Unit		REG	REG	REG	REG
<b>Field Parameters</b>							
Temperature		•C		12.7	12.5		
pH		pH units	7.5-8.1	7.3	7.16		
Dissolved Oxygen - mg/L	mg/L			10.13	9.97		
Dissolved Oxygen - %		%	60-110	95.4	93.5		
Total Dissolved Solids		mg/L		63	64		
ORP		mV		159.4	190.6		
EC		µS/cm	335	74.6	74.4		
Turbidity		NTUs	90	4.6	3.85		
<b>EP025: Oxygen - Dissolved (DO)</b>							
Dissolved Oxygen							
Dissolved Oxygen - % Saturation			60-110				
<b>EA005P: pH by PC Titrator</b>							
pH Value		pH Unit	0.01 7.5-8.1	7.40	7.55	----	----
<b>EA006: Sodium Adsorption Ratio (SAR)</b>							
Sodium Adsorption Ratio			0.01	0.65	0.65	----	----
<b>EA010P: Conductivity by PC Titrator</b>							
Electrical Conductivity @ 25°C		µS/cm	1	89	90	----	----
<b>Calculated TDS &amp; Total Suspended Solids dried at 104 ± 2°C</b>							
Total Dissolved Solids (Calc.)		mg/L	1	58	58	----	----
Suspended Solids (SS)		mg/L	5	<5	<5	----	----
<b>EA065: Total Hardness as CaCO3</b>							
Total Hardness as CaCO3		mg/L	1	29	29	----	----
<b>ED037P: Alkalinity by PC Titrator</b>							
Hydroxide Alkalinity as CaCO3	DMO-210-001	mg/L	1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	mg/L	1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	mg/L	1	34	35	----	----
Total Alkalinity as CaCO3		mg/L	1	34	35	----	----
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- DAED045G: Chloride</b>							
Sulfate as SO4 - Turbidimetric	14808-79-8	mg/L	1	1	1	----	----
Chloride	16887-00-6	mg/L	1	8	9	----	----
<b>ED093F: Dissolved Major Cations</b>							
Calcium	7440-70-2	mg/L	1	5	5	----	----
Magnesium	7439-95-4	mg/L	1	4	4	----	----
Sodium	7440-23-5	mg/L	1	8	8	----	----
Potassium	7440-09-7	mg/L	1	1	1	----	----
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Aluminium	7429-90-5	mg/L	0.01	<0.01	<0.01	----	----



Matrix: WATER  
 Workgroup: EB1905575  
 Project name/number: 18006\_Scenic Rim Trail

Sample Type:  
 ALS Sample Number:  
 Sample Date:  
 Client sample ID (1st):  
 Site:  
 Purchase Order:

	REG	REG	REG	REG
EB2432826008	EB2432826009	EB2432826010	EB2432826011	
24/09/2024	24/09/2024	24/09/2024	24/09/2024	
SW09	SW010	DUP01	DUP02	
0	24001	24001	24001	24001

Analyte grouping/Analyte	CAS Number	Unit	LOR	WQO	REG	REG	REG	REG
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	----	----
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	----	----
Chromium	7440-47-3	mg/L	0.001		0.001	<0.001	----	----
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	----	----
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	----	----
Manganese	7439-96-5	mg/L	0.001		<0.001	<0.001	----	----
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	----	----
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	----	----
Iron	7439-89-6	mg/L	0.05		<0.05	<0.05	----	----
<b>EG020T: Total Metals by ICP-MS</b>								
Aluminium	7429-90-5	mg/L	0.01		0.2	0.15	----	----
Arsenic	7440-38-2	mg/L	0.001		<0.001	<0.001	----	----
Cadmium	7440-43-9	mg/L	0.0001		<0.0001	<0.0001	----	----
Chromium	7440-47-3	mg/L	0.001		<0.001	<0.001	----	----
Copper	7440-50-8	mg/L	0.001		<0.001	<0.001	----	----
Lead	7439-92-1	mg/L	0.001		<0.001	<0.001	----	----
Manganese	7439-96-5	mg/L	0.001		0.005	0.005	----	----
Nickel	7440-02-0	mg/L	0.001		<0.001	<0.001	----	----
Zinc	7440-66-6	mg/L	0.005		<0.005	<0.005	----	----
Iron	7439-89-6	mg/L	0.05		<b>0.18</b>	<b>0.16</b>	----	----
<b>EK040P: Fluoride by PC Titrator</b>								
Fluoride	16984-48-8	mg/L	0.1		<0.1	<0.1	----	----
<b>Nutrients</b>								
Ammonia as N	7664-41-7	mg/L	0.01	40	0.03	<0.01	<0.01	<0.01
Nitrite as N	14797-65-0	mg/L	0.01		<0.01	<0.01	----	----
Nitrate as N	14797-55-8	mg/L	0.01		<b>0.03</b>	<b>0.04</b>	----	----
Nitrite + Nitrate as N		mg/L	0.01	0.275	<b>0.03</b>	<b>0.04</b>	<b>0.08</b>	<b>0.11</b>
Total Kjeldahl Nitrogen as N		mg/L	0.1		<0.1	<0.1	<0.1	<0.1
Total Nitrogen as N		mg/L	0.1	1.51	<0.1	<0.1	<0.1	<b>0.1</b>
Total Phosphorus as P		mg/L	0.01	0.56	<b>0.06</b>	<b>0.06</b>	----	----
Reactive Phosphorus as P	14265-44-2	mg/L	0.01	0.13	<b>0.05</b>	<b>0.05</b>	----	----
<b>EN055: Ionic Balance</b>								
Total Anions		meq/L	0.01		<b>0.92</b>	<b>0.97</b>	----	----
Total Cations		meq/L	0.01		<b>0.95</b>	<b>0.95</b>	----	----
<b>MW006: Faecal Coliforms &amp; E.coli by MF</b>								
Escherichia coli		CFU/100mL	1		<b>26</b>	<b>13</b>	----	----

**Appendix A FIELD NOTES**



Observations 25007						Field Operations							
Sample ID	Date	Operative	GPS Coordinates	GPX	Weather	Temp C	pH	DO mg/L	DO%	TDS mg/L	ORP mV	C mS/cm	NTU
SW01	26/08/2025	Harley	-27.96700, 152.35626	<a href="#">GPX link 1</a>	Clear, cold, sunny	8.6	6.66	10.67	91.5	57	170.1	59.9	-0.33
SW02	26/08/2025	Harley	-27.96729, 152.35670	<a href="#">GPX link 2</a>	"	8.6	6.8	10.68	91.6	57	155.3	59.9	-0.14
SW03	26/08/2025	Harley	-27.98302, 152.36053	<a href="#">GPX link 3</a>	"	9.8	7.02	10.63	93.7	71	166	77.7	0.67
SW04	26/08/2025	Harley	-27.98623, 152.36633	<a href="#">GPX link 4</a>	"	9.3	7.18	10.75	93.6	66	161.6	70.6	0.76
SW05	26/08/2025	Harley	-27.97206, 152.35404	<a href="#">GPX link 5</a>	"	8.6	7.14	10.9	93.4	68	157.8	72	0.31
SW06	26/08/2025	Harley	-27.98289, 152.35648	<a href="#">GPX link 6</a>	"	9.3	7.35	10.83	94.4	52	151.1	56.2	0.65
SW07	26/08/2025	Harley	-27.95927, 152.36649	<a href="#">GPX link 7</a>	"	10	6.3	9.55	84.6	45	161.6	49.4	-1.67
SW08	26/08/2025	Harley	-27.95913, 152.36643	<a href="#">GPX link 8</a>	"	9.9	6.54	9.65	85.2	56	162.2	61.4	-1.79
SW09	26/08/2025	Harley	-27.98817, 152.36900	<a href="#">GPX link 9</a>	"	9.1	7.34	10.81	93.7	62	142.7	66.8	1.37
SW10	26/08/2025	Harley	-27.98808, 152.36936	<a href="#">GPX link 10</a>	"	9.1	7.26	10.72	92.9	62	147.2	66.6	1.09
Control 1 (DUP01)	26/08/2025	Harley	-27.96700, 152.35626	<a href="#">GPX link 1</a>	"	8.6	6.66	10.67	91.5	57	170.1	59.9	-0.33
Control 2 (DUP02)	26/08/2025	Harley	-27.96729, 152.35670	<a href="#">GPX link 2</a>	"	8.6	6.8	10.68	91.6	57	155.3	59.9	-0.14

Observations 25007						Field Operations							
Sample ID	Date	Operative	GPS Coordinates	GPX	Weather	Temp C	pH	DO mg/L	DO%	TDS mg/L	ORP mV	C mS/cm	NTU
SW01	16/10/2025	Harley	-27.96700, 152.35626	<a href="#">GPX link 1</a>	Partly cloudy/ Clearing	15.7	6.92	8.74	87.9	66	222.4	83.8	1.91
SW02	16/10/2025	Harley	-27.96729, 152.35670	<a href="#">GPX link 2</a>	Partly cloudy/ Clearing	15.7	6.83	8.67	87.3	67	229.9	84.5	1.91
SW03	16/10/2025	Harley	-27.98302, 152.36053	<a href="#">GPX link 3</a>	Clear skies	15.1	7.06	8.92	88.3	66	213.7	81.6	3.76
SW04	16/10/2025	Harley	-27.98623, 152.36633	<a href="#">GPX link 4</a>	Clear skies	15.2	7.12	8.9	88.7	65	208	81.7	3.68
SW05	16/10/2025	Harley	-27.97206, 152.35404	<a href="#">GPX link 5</a>	Partly cloudy/ Clearing	16.3	6.89	8.89	90.7	86	197.8	111	1.77
SW06	16/10/2025	Harley	-27.98289, 152.35648	<a href="#">GPX link 6</a>	Clear skies	15.2	7.2	8.92	88.3	66	212	81.7	3.8
SW07	16/10/2025	Harley	-27.95927, 152.36649	<a href="#">GPX link 7</a>	Overcast, mist/low lying cloud	14.4	6.15	7.85	76.9	91	216.3	112.8	1.77
SW08	16/10/2025	Harley	-27.95913, 152.36643	<a href="#">GPX link 8</a>	Overcast, mist/low lying cloud	14.3	6.14	8.06	78.8	58	221.7	71.5	1.93
SW09	16/10/2025	Harley	-27.98817, 152.36900	<a href="#">GPX link 9</a>	Clear skies	15.3	7.27	9.26	92.4	65	215	81.8	3.78
SW10	16/10/2025	Harley	-27.98808, 152.36936	<a href="#">GPX link 10</a>	Partly cloudy/ Clearing	15.2	6.91	8.93	88.9	66	206.8	81.9	3.9
Control 1 (DUP01)	16/10/2025	Harley	-27.96700, 152.35626	<a href="#">GPX link 1</a>	Partly cloudy/ Clearing	15.7	6.92	8.74	87.9	66	222.4	83.8	1.91
Control 2 (DUP02)	16/10/2025	Harley	-27.96729, 152.35670	<a href="#">GPX link 2</a>	Partly cloudy/ Clearing	15.7	6.83	8.67	87.3	67	229.9	84.5	1.91

**Appendix B Quality Assurance/Quality Control (QA/QC)**

# QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC)

## 1. Data Usability

### 1.1 Introduction

Information generated from environmental investigations requires some statement in regard to the usability of the data<sup>1</sup>, and therefore quality assurance (QA) and quality control (QC) are an integral part of the analysis and interpretation of environmental data. QA/QC used in contaminated sites investigations is briefly reviewed in this section.

Moreton Environmental and Health would like to acknowledge the NSW Auditor Mark Salmon, Principal Scientist in Easterly Point Environmental and colleague, mentor and friend of Dan Morton, originally produced the development of these QAQC procedures.

Quality assurance involves all of the actions, procedures, checks and decisions undertaken to ensure the representativity and integrity of samples, and accuracy and reliability of analytical results (NEPC 2013). Quality control is the component of QA, which monitors and measures the effectiveness of other procedures by the comparison of these measures to previously decided objectives.

There are various components of QA/QC, which address the operation of the laboratories and the routine procedures conducted to achieve a minimum level of quality. Examples of QA components include sample control, data transfer, instrument calibration, staff training, etc. Examples of QC components include the measurement of samples to assess the quality of reagents and standards, cleanliness of apparatus, accuracy and precision of methods and instruments, etc. Generally, the National Association of Testing Authorities (NATA) addresses the management of laboratory QA issues through accreditation, or similar, and monitoring of these issues is not addressed on a project-by-project basis.

On a project specific basis, those involved in collecting, assessing or reviewing the relevant data should ensure the minimum level of QA is conducted. Appropriate numbers and types of QC samples should be collected and analysed, both field QC samples and laboratory QC samples. While minimum levels of QA/QC are specified in some guidelines, e.g. (DEC 2006), (Council of Standards Australia 1999), (NEPC 2013), the minimum level required may vary between projects, based on site and project specific aspects. This means that the minimum specified requirements may not be sufficient for a particular project. As described in the NEPM (NEPC 2013):

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<sup>1</sup> To avoid confusion with the data quality objectives (DQOs) process, the term data usability is used rather than data quality.

*As a general rule, the level of required QC is that which adequately measures the effects of all possible influences upon sample integrity, accuracy and precision, and is capable of predicting their variation with a high degree of confidence.*

A common example of where site requirements dictate additional QA and associated QC samples is when site history indicates the use of petrol or volatile solvents, field procedures may need to be more stringently adhered to and additional QC samples may be required, including trip blanks and trip spikes.

## 2. PARCC parameters

Following receipt of laboratory analytical results, data validation is conducted to determine if the specified acceptance criteria have been met. This is conducted to ensure that all data, and subsequent decisions based on that data, are technically sound. Data quality is typically discussed in terms of precision, accuracy, representativity, comparability and completeness. These are referred to as the PARCC parameters<sup>2</sup>. Field QA/QC and laboratory QC is described below within the PARCC framework.

### 2.1 Precision

#### *Duplicates*

Precision is a measure of the reproducibility of results under a given set of conditions and is assessed on the basis of agreement between a set of duplicate results obtained from duplicate analyses. The precision of a duplicate determination is measured by comparing the difference between the two samples to the average of the two samples, expressed as a relative percentage difference (RPD).

The determination is:

$$RPD = (P-D)/(P+D/2) \times 100$$

P = primary sample

D = duplicate sample

Three types of duplicates are commonly used:

- A. field duplicates are used to measure the precision of the sampling and analytical process;
- B. inter-laboratory duplicates are used to check on the analytical performance of the primary laboratory; and
- C. laboratory duplicates are used to measure the precision of the analytical process.

#### *Field Duplicates*

Field duplicates (or blind replicates) are collected from the same location and submitted to the laboratory for analyses, as a primary sample. The sample

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<sup>2</sup> The PARCC parameters are sometimes referred to as data quality indicators (DQIs).

nomenclature is such that the laboratory is not aware which sample is a duplicate. The RPD is calculated to determine the degree of repeatability (precision) of results obtained from the duplicate analysis. Where results are below the practical quantification limit (PQLs) or limits of reporting (LORs), i.e. non detects, RPDs cannot be calculated. Where one result is detected, the results are considered to conform when the detected result is less than five times the PQL/LOR.

The PQL/LOR is the lowest concentration of an analyte that can be determined with acceptable precision (repeatability) and accuracy under the test conditions. The PQL/LOR is usually calculated as five times the lower limit of detection (or method detection limit). However, adjustments in PQLs/LORs may be required due to interference from high contaminant concentrations.

As environmental samples can exhibit a high degree of heterogeneity, field duplicates often exceed the acceptance criterion, particularly if the samples are co-collected, for example, because of the potential for losing volatiles during sample splitting. The NSW EPA require that before results which fail the acceptance criterion are described as due to low concentrations or sample heterogeneity, the sample should be re-analysed. This may not be necessary when the analytical results are significantly less than the landuse criteria.

RPDs in general for Field Duplicates will be non-conforming if the RPD is greater than 30% in water or greater than 50% in soil.

#### ***Inter-laboratory duplicates***

Inter-laboratory duplicates (or split samples) are field duplicates which are sent to a second laboratory and analysed for the same analytes and, as far as possible, by the same methods. These provide a check on the analytical performance of the primary laboratory.

#### ***Laboratory Duplicates***

Laboratory duplicates (or check samples) are field samples which are split by the laboratory and thereafter treated as separate samples. The RPD is calculated to determine the degree of repeatability (precision) of results obtained from the duplicate analysis.

USEPA (1994) specifies that for inorganics, if the results for laboratory duplicates fall outside of the recommended control limits for a particular analyte, all results for that analyte, in all associated samples of the same matrix, should be qualified as an estimated quantity. For organics, USEPA (1999) does not specify recommended actions for laboratory duplicates.

RPDs in general for Lab Duplicates will be non-conforming if the RPD is greater than 30% in water or greater than 50% in soil.

For volatiles in general for Lab Duplicates will be non-conforming if the RPD is greater than 20% in water and soil.

## **2.2 Accuracy**

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. Inasmuch as the true sample

concentrations are not known, the determination of accuracy is achieved through the analysis of known reference materials or assessed by the analysis of matrix spikes. Spiking of reference material into the actual sample matrix is the preferred technique because it provides a measure of the matrix effects on the analytical recovery.

Accuracy is measured in terms of percentage recovery as defined by:

$$\%R = ((SSR - SR) / SA) \times 100$$

%R = percentage recovery spike

SSR = spiked sample result

SR = sample result

SA = spike added

### ***Matrix spikes/matrix spike duplicates***

These are samples prepared in the laboratory by dividing a sample into two aliquots and then spiking each with identical concentrations of specific analytes. The matrix spike (MS) and matrix spike duplicate (MSD) are then analysed separately and the results compared to determine the accuracy and precision of the analytes.

### ***Surrogate spikes***

Surrogate spikes provide an indication of analytical accuracy. They are used only for analyses, which use gas chromatography and are compounds which are similar to the organic analytes of interest in chemical composition, extraction and chromatography, but which are not normally found in field samples. Surrogates are generally spiked into all sample aliquots prior to preparation and analysis.

If the surrogate spike recovery does not meet the prescribed DQO, the samples should be re-analysed.

### ***Laboratory control samples***

Laboratory control samples (quality control check samples) are laboratory prepared samples of an appropriate clean matrix (i.e. sand or distilled water) which are spiked with known concentrations of specific analytes. The laboratory control sample (LCS) is then analysed and the results are used to assess sample preparation and analytical accuracy, free of matrix effects. Certified reference material (CRM) is another form of LCS, and involves the analysis of a known standard as part of the laboratory batch, e.g. British Columbia sediment samples for analysis of metals.

## **2.3 Representativity**

Representativity refers to the degree to which the samples reflect the site specific conditions. It is primarily dependent on the design and implementation of the sampling program, with representativity of the data being partially ensured by the avoidance of cross-contamination, adherence to sample handling and analytical methods, use of field duplicates, ensuring that samples do not exceed holding times prior to analysis, use of chain-of-custody forms and other appropriate documentation.

There are a number of QC samples which can be collected to assist in the qualification of representativity, including:

#### ***Rinsate blanks***

Used to determine if sampling equipment has been adequately decontaminated to ensure that cross-contamination between samples has not occurred. The frequency for rinsate blanks is one per piece of equipment per day (AS 4482.1-1997), however it should be noted that cross-contamination will bias samples upwards, and the frequency should therefore be at the investigators discretion.

#### ***Trip blanks***

Used only when volatile organics are sampled to determine if transport in motor vehicles or similar has resulted in contamination of the samples. For trip blanks, a sufficient number should be analysed to allow the Representativity of the sampling to be determined. However, it should be noted that cross-contamination would bias samples upward, and the frequency should therefore be at the investigators discretion.

#### ***Trip spikes***

Used only when volatile organics are sampled to attempt to quantify loss of volatiles during the analytical process. For trip spikes, a sufficient number of samples should be analysed to allow qualification of the likely loss of volatiles during the field sampling.

#### ***Laboratory blanks***

Laboratory blanks (or method blanks, or analysis blanks) are used to verify that contaminants are not introduced into the samples during sample preparation and analysis. The NEPM (NEPC 1999) specifies that laboratory blanks should be conducted at a frequency of “at least one per process batch”. The DQO for laboratory blanks is non-detect at the PQL/LOR.

## **2.4 Comparability**

Comparability is a qualitative parameter designed to express the confidence with which one data set may be compared with another, including established criteria. Using consistent methods and ensuring that PQLs/LORs are below the relevant criteria maintain comparability.

#### ***QC sample completeness***

Quality control sample completeness is defined as the number of QC samples which should have been analysed, compared to the actual number analysed. If the appropriate number of QC samples are not analysed with each matrix or sample batch, then the data reviewer should use professional judgement to determine if the associated sample data should be qualified.

#### ***QC sample frequency and criteria***

Based on EPA made or approved guidelines, the following QC samples are required for all contaminated site investigations, unless otherwise specified as part of the data quality objectives (DQOs) process review. All data to be used for validation

should conform as a minimum to the requirements specified, regardless of minimum sample size.

**Table 1: Quality Control Samples**

Quality control sample	Frequency	Results <sup>1</sup>
<b><i>Precision</i></b>		
Field duplicates.	≥ 5%	≤ 30 - 50% <sup>2</sup>
Inter-laboratory duplicates.	≥ 5%	≤ 30 - 50% <sup>2</sup>
Laboratory duplicates.	≥ 10%	Lab specified <sup>3</sup>
<b><i>Accuracy</i></b>		
Surrogate spikes.	Organics by GC	70 – 130% <sup>4</sup>
Matrix spikes (MSs).	≥ 1/media type	70 - 130% <sup>5</sup>
Laboratory control samples (LCSs).	≥ 1/lab batch	70 - 130% <sup>6</sup>
Certified reference material (CRM).	LCS for metals	Lab specified <sup>7</sup>
<b><i>Representativity</i></b>		
Rinsate samples.	≥ 1/field batch	< LOR
Trip blanks.	≥ 1/field batch (volatiles)	< LOR
Trip spikes.	≥ 1/field batch (volatiles)	70 - 130%, ≤ 30 - 50% <sup>8</sup>
Laboratory blanks.	≥ 1/lab batch	< LOR

**Notes:**

- Where results are laboratory specified, the laboratory analytical reports should be consulted for specific information.
- Relative percentage differences (RPDs) for field duplicates from AS 4482.1 (1997).
- RPDs for laboratory duplicates specified by the laboratory. Based on the magnitude of the results compared to the level of reporting (LOR), e.g. ALS: result < 10 x LOR = no limit, 10 – 20 x LOR = 0-50%, > 20 x LOR = 0-20%. LabMark: < 5 x LOR = 0-100%, 5 – 10 x LOR = 0-75%, > 10 x LOR = 0-50% or 0-30% for metals.
- Surrogate recoveries specified by laboratory based on global acceptance criteria or dynamic recovery limits based on statistical evaluation of actual laboratory data.
- MS recoveries specified by laboratory based on global acceptance criteria.
- LCS recoveries specified by laboratory based on global acceptance criteria or dynamic recovery limits based on statistical evaluation of actual laboratory data.
- CRM recoveries specified by laboratory based on global acceptance criteria.
- Trip spike results are specified as either recoveries or RPDs.

## References

- Australian New Zealand Environment and Conservation Council (1996) *Guidelines for the laboratory analysis of contaminated soils*. ANZECC, Canberra, ACT.
- Australian Standard AS 4482.1 (2005) *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and Semi-volatile compounds*. Standards Australia, Homebush, NSW.
- National Environment Protection Council (NEPC) (1999) *National Environmental Protection (Assessment of Site Contamination) Measure, Schedule B(2) Guideline on Data Collection, Sample Design and Reporting*. National Environment Protection Council Service Corporation. Adelaide, SA.
- National Environment Protection Council (NEPC) (1999) *National Environmental Protection (Assessment of Site Contamination) Measure, Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soil*. National Environment Protection Council Service Corporation. Adelaide, SA.
- NSW Environment Protection Authority (1994) *Contaminated Sites: Guidelines for Assessing Service Station Sites*. NSW EPA, Chatswood, NSW.
- NSW Environment Protection Authority (1997) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites*. NSW EPA, Chatswood, NSW.
- United States Environmental Protection Agency, Contract Laboratory Program (1994) *National Functional Guidelines for Inorganic Data Review*. USEPA, Washington, DC.
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- Council of Standards Australia (1999). "AS 4482 2-1999 Guide to the sampling and investigation of potentially contaminated soil - Volatile substances."
- DEC, N. (2006). "Contaminated Sites: Guidelines for the NSW Site Auditor Scheme , Department of Environment and Conservation NSW." Publication DEC 121.
- NEPC (2013). "NEPM Schedule, B1 - Guideline on Investigation Levels for Soil and Groundwater." National Environment Protection Council, Canberra, ACT.

**Appendix C Laboratory CERTIFICATE OF ANALYSIS**





## CERTIFICATE OF ANALYSIS

Work Order	: <b>EB2510413</b>	Page	: 1 of 10
Client	: <b>Spicers Scenic Rim Trail</b>	Laboratory	: Environmental Division Brisbane
Contact	: DAN MORTON	Contact	: Customer Services EB
Address	: 1095 South Branch Road, Tregony QLD 4370 4370	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3552-8685
Project	: 24001_Scenic Rim Trail	Date Samples Received	: 27-Mar-2025 16:34
Order number	: 24001	Date Analysis Commenced	: 27-Mar-2025
C-O-C number	: ----	Issue Date	: 04-Apr-2025 09:18
Sampler	: Simon Harley		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 13		
No. of samples analysed	: 13		



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
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Stephen Tam	Microbiologist	Brisbane Microbiological, Stafford, QLD
Timothy Creagh	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD



## 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.

- MF = membrane filtration
- CFU = colony forming unit
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO<sub>2</sub> and Fluoride to the Anions.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEXN only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using volatile grade water spiked with TPH/BTEXN standard mixture. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2510413-001	EB2510413-002	EB2510413-003	EB2510413-004	EB2510413-005	
				Result	Result	Result	Result	Result	
<b>EA005P: pH by PC Titrator</b>									
pH Value	----	0.01	pH Unit	7.00	7.01	----	6.96	7.05	
<b>EA006: Sodium Adsorption Ratio (SAR)</b>									
^ Sodium Adsorption Ratio	----	0.01	-	0.55	0.55	----	0.46	0.52	
<b>EA010P: Conductivity by PC Titrator</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	75	75	----	70	78	
<b>EA016: Calculated TDS (from Electrical Conductivity)</b>									
Total Dissolved Solids (Calc.)	----	1	mg/L	49	49	----	46	51	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	<5	<5	----	<5	<5	
<b>EA065: Total Hardness as CaCO3</b>									
Total Hardness as CaCO3	----	1	mg/L	22	22	----	22	25	
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	----	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	19	20	----	21	25	
Total Alkalinity as CaCO3	----	1	mg/L	19	20	----	21	25	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1	1	----	1	1	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	10	10	----	8	10	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	4	4	----	4	5	
Magnesium	7439-95-4	1	mg/L	3	3	----	3	3	
Sodium	7440-23-5	1	mg/L	6	6	----	5	6	
Potassium	7440-09-7	1	mg/L	<1	<1	----	<1	<1	
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	0.01	<0.01	0.01	0.01	<0.01	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2510413-001	EB2510413-002	EB2510413-003	EB2510413-004	EB2510413-005	
				Result	Result	Result	Result	Result	
<b>EG020F: Dissolved Metals by ICP-MS - Continued</b>									
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<b>0.34</b>	<b>0.38</b>	<b>0.53</b>	<b>0.73</b>	<b>0.58</b>	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<b>0.002</b>	<b>0.002</b>	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<b>0.001</b>	<b>0.001</b>	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<b>0.001</b>	<b>0.002</b>	<b>0.001</b>	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<b>0.027</b>	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.006</b>	<b>0.006</b>	<b>0.009</b>	<b>0.008</b>	<b>0.007</b>	
Iron	7439-89-6	0.05	mg/L	<b>0.31</b>	<b>0.31</b>	<b>0.45</b>	<b>0.54</b>	<b>0.77</b>	
<b>EK040P: Fluoride by PC Titrator</b>									
Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	----	<0.1	<0.1	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	<b>0.04</b>	<0.01	----	<0.01	<0.01	
<b>EK057G: Nitrite as N by Discrete Analyser</b>									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	----	<0.01	<0.01	
<b>EK058G: Nitrate as N by Discrete Analyser</b>									
Nitrate as N	14797-55-8	0.01	mg/L	<b>0.04</b>	<b>0.04</b>	----	<b>0.05</b>	<b>0.03</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2510413-001	EB2510413-002	EB2510413-003	EB2510413-004	EB2510413-005	
				Result	Result	Result	Result	Result	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.04	0.04	0.05	0.03	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.1	0.1	0.2	0.1	0.1	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
<sup>^</sup> Total Nitrogen as N	----	0.1	mg/L	0.1	0.1	0.2	0.2	0.1	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	0.07	0.07	0.08	0.08	0.08	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.05	0.05	----	0.05	0.05	
<b>EN055: Ionic Balance</b>									
∅ Total Anions	----	0.01	meq/L	0.68	0.70	----	0.67	0.80	
∅ Total Cations	----	0.01	meq/L	0.71	0.71	----	0.66	0.76	
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>									
<i>Escherichia coli</i>	----	1	CFU/100mL	100	73	90	90	100	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2510413-006	EB2510413-007	EB2510413-008	EB2510413-009	EB2510413-010	
				Result	Result	Result	Result	Result	
<b>EA005P: pH by PC Titrator</b>									
pH Value	----	0.01	pH Unit	<b>6.99</b>	<b>6.89</b>	<b>6.87</b>	<b>7.07</b>	<b>7.08</b>	
<b>EA006: Sodium Adsorption Ratio (SAR)</b>									
^ Sodium Adsorption Ratio	----	0.01	-	<b>0.55</b>	<b>0.66</b>	<b>0.77</b>	<b>0.46</b>	<b>0.46</b>	
<b>EA010P: Conductivity by PC Titrator</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	<b>82</b>	<b>76</b>	<b>75</b>	<b>74</b>	<b>75</b>	
<b>EA016: Calculated TDS (from Electrical Conductivity)</b>									
Total Dissolved Solids (Calc.)	----	1	mg/L	<b>53</b>	<b>49</b>	<b>49</b>	<b>48</b>	<b>49</b>	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	<5	<5	<5	<5	<5	
<b>EA065: Total Hardness as CaCO3</b>									
Total Hardness as CaCO3	----	1	mg/L	<b>22</b>	<b>16</b>	<b>16</b>	<b>22</b>	<b>22</b>	
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<b>26</b>	<b>17</b>	<b>17</b>	<b>26</b>	<b>26</b>	
Total Alkalinity as CaCO3	----	1	mg/L	<b>26</b>	<b>17</b>	<b>17</b>	<b>26</b>	<b>26</b>	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	<b>9</b>	<b>11</b>	<b>11</b>	<b>8</b>	<b>8</b>	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	<b>4</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>4</b>	
Magnesium	7439-95-4	1	mg/L	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	
Sodium	7440-23-5	1	mg/L	<b>6</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>5</b>	
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1	
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<b>0.01</b>	<b>0.02</b>	<0.01	<b>0.01</b>	<b>0.01</b>	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2510413-006	EB2510413-007	EB2510413-008	EB2510413-009	EB2510413-010	
				Result	Result	Result	Result	Result	
<b>EG020F: Dissolved Metals by ICP-MS - Continued</b>									
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.002</b>	<b>0.006</b>	<b>0.005</b>	<b>0.001</b>	<b>0.001</b>	
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<b>0.57</b>	<b>0.15</b>	<b>0.18</b>	<b>0.43</b>	<b>0.40</b>	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<b>0.001</b>	<0.001	<0.001	<b>0.001</b>	<b>0.001</b>	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<b>0.002</b>	<0.001	<0.001	<b>0.001</b>	<b>0.001</b>	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.009</b>	<b>0.010</b>	<b>0.010</b>	<b>0.009</b>	<b>0.009</b>	
Iron	7439-89-6	0.05	mg/L	<b>0.48</b>	<b>0.20</b>	<b>0.22</b>	<b>0.34</b>	<b>0.35</b>	
<b>EK040P: Fluoride by PC Titrator</b>									
Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<b>0.01</b>	<0.01	<b>0.06</b>	
<b>EK057G: Nitrite as N by Discrete Analyser</b>									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EK058G: Nitrate as N by Discrete Analyser</b>									
Nitrate as N	14797-55-8	0.01	mg/L	<b>0.04</b>	<b>0.02</b>	<b>0.02</b>	<b>0.06</b>	<b>0.06</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2510413-006	EB2510413-007	EB2510413-008	EB2510413-009	EB2510413-010	
				Result	Result	Result	Result	Result	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	<b>0.04</b>	<b>0.02</b>	<b>0.02</b>	<b>0.06</b>	<b>0.06</b>	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<b>0.2</b>	<0.1	<0.1	<b>0.1</b>	<b>0.2</b>	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
<sup>^</sup> Total Nitrogen as N	----	0.1	mg/L	<b>0.2</b>	<0.1	<0.1	<b>0.2</b>	<b>0.3</b>	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	<b>0.08</b>	<b>0.06</b>	<b>0.06</b>	<b>0.07</b>	<b>0.08</b>	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<b>0.06</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	
<b>EN055: Ionic Balance</b>									
∅ Total Anions	----	0.01	meq/L	<b>0.79</b>	<b>0.67</b>	<b>0.67</b>	<b>0.76</b>	<b>0.76</b>	
∅ Total Cations	----	0.01	meq/L	<b>0.71</b>	<b>0.58</b>	<b>0.62</b>	<b>0.66</b>	<b>0.66</b>	
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>									
<i>Escherichia coli</i>	----	1	CFU/100mL	<b>150</b>	<b>450</b>	<b>410</b>	<b>80</b>	<b>100</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	DUP01	Trip Spike 1	ALS Trip Spike	----	----
Sampling date / time				27-Mar-2025 00:00	27-Mar-2025 00:00	27-Mar-2025 00:00	----	----	
Compound	CAS Number	LOR	Unit	EB2510413-011	EB2510413-012	EB2510413-013	-----	-----	
				Result	Result	Result	----	----	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	<b>0.01</b>	----	----	----	----	----
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	----	----	----	----	----
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	<0.1	----	----	----	----	----
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	<b>0.06</b>	----	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	20	µg/L	----	<b>190</b>	<b>230</b>	----	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	20	µg/L	----	<b>230</b>	<b>280</b>	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<b>140</b>	<b>180</b>	----	----	----
<b>EP080: BTEXN</b>									
Benzene	71-43-2	1	µg/L	----	<b>17</b>	<b>18</b>	----	----	----
Toluene	108-88-3	2	µg/L	----	<b>15</b>	<b>15</b>	----	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<b>14</b>	<b>15</b>	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<b>30</b>	<b>31</b>	----	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<b>16</b>	<b>17</b>	----	----	----
^ Total Xylenes	----	2	µg/L	----	<b>46</b>	<b>48</b>	----	----	----
^ Sum of BTEX	----	1	µg/L	----	<b>92</b>	<b>96</b>	----	----	----
Naphthalene	91-20-3	5	µg/L	----	<b>17</b>	<b>21</b>	----	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	2	%	----	<b>113</b>	<b>113</b>	----	----	----
Toluene-D8	2037-26-5	2	%	----	<b>102</b>	<b>102</b>	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	<b>112</b>	<b>110</b>	----	----	----



### Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	66	138
Toluene-D8	2037-26-5	79	120
4-Bromofluorobenzene	460-00-4	74	118



## QUALITY CONTROL REPORT

<b>Work Order</b>	<b>: EB2510413</b>	<b>Page</b>	: 1 of 12
<b>Client</b>	<b>: Spicers Scenic Rim Trail</b>	<b>Laboratory</b>	: Environmental Division Brisbane
<b>Contact</b>	<b>: DAN MORTON</b>	<b>Contact</b>	: Customer Services EB
<b>Address</b>	<b>: 1095 South Branch Road, Tregony QLD 4370</b>	<b>Address</b>	<b>: 2 Byth Street Stafford QLD Australia 4053</b>
<b>Telephone</b>	<b>: ----</b>	<b>Telephone</b>	<b>: +61-7-3552-8685</b>
<b>Project</b>	<b>: 24001_Scenic Rim Trail</b>	<b>Date Samples Received</b>	<b>: 27-Mar-2025</b>
<b>Order number</b>	<b>: 24001</b>	<b>Date Analysis Commenced</b>	<b>: 27-Mar-2025</b>
<b>C-O-C number</b>	<b>: ----</b>	<b>Issue Date</b>	<b>: 04-Apr-2025</b>
<b>Sampler</b>	<b>: Simon Harley</b>		
<b>Site</b>	<b>: ----</b>		
<b>Quote number</b>	<b>: EN/333</b>		
<b>No. of samples received</b>	<b>: 13</b>		
<b>No. of samples analysed</b>	<b>: 13</b>		



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 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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Beatriz Llarinas	Senior Chemist - Inorganics	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Stephen Tam	Microbiologist	Brisbane Microbiological, Stafford, QLD
Timothy Creagh	Senior Chemist - Organics	Brisbane Organics, Stafford, QLD



## 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 (%)
<b>EA005P: pH by PC Titrator (QC Lot: 6470754)</b>									
EB2510368-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.28	7.38	1.4	0% - 20%
EB2510413-004	SW04	EA005-P: pH Value	----	0.01	pH Unit	6.96	7.04	1.1	0% - 20%
<b>EA005P: pH by PC Titrator (QC Lot: 6474315)</b>									
EB2510398-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.05	7.12	1.0	0% - 20%
<b>EA010P: Conductivity by PC Titrator (QC Lot: 6470750)</b>									
EB2510368-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	198	203	2.2	0% - 20%
EB2510413-004	SW04	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	70	73	3.9	0% - 20%
<b>EA010P: Conductivity by PC Titrator (QC Lot: 6474311)</b>									
EB2510398-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	908	906	0.2	0% - 20%
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6471938)</b>									
EB2510303-008	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	20	21	4.8	No Limit
EB2510374-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	9	6	40.0	No Limit
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6471939)</b>									
EB2510413-005	SW05	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EB2510430-007	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	48	51	7.1	0% - 50%
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 6470752)</b>									
EB2510368-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	61	63	3.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	61	63	3.0	0% - 20%
EB2510413-004	SW04	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit



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 (%)
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 6470752) - continued</b>									
EB2510413-004	SW04	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	21	22	7.4	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	21	22	7.4	0% - 20%
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 6474312)</b>									
EB2510398-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	18	18	0.0	0% - 50%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	18	18	0.0	0% - 50%
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6472023)</b>									
EB2510399-007	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	82	81	0.0	0% - 20%
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6474263)</b>									
EB2510336-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	25	24	4.4	0% - 20%
EB2510594-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	18	18	0.0	0% - 50%
<b>ED045G: Chloride by Discrete Analyser (QC Lot: 6472019)</b>									
EB2510399-007	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	467	471	0.8	0% - 20%
EB2510413-004	SW04	ED045G: Chloride	16887-00-6	1	mg/L	8	8	0.0	No Limit
<b>ED045G: Chloride by Discrete Analyser (QC Lot: 6474264)</b>									
EB2510336-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1200	1210	0.9	0% - 20%
EB2510594-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	84	86	2.2	0% - 20%
<b>ED093F: Dissolved Major Cations (QC Lot: 6473967)</b>									
EB2510415-015	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EB2510415-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	118	116	2.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	97	95	1.8	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	247	241	2.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6473965)</b>									
EB2510415-015	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	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: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit		



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 (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6473965) - continued</b>									
EB2510415-015	Anonymous	EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EB2510415-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	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: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6473945)</b>									
EB2510413-005	SW05	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.58	0.59	0.0	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.77	0.59	26.3	0% - 50%
EB2510418-016	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.12	0.12	0.0	0% - 50%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6473948)</b>									
EB2510081-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.001	0.001	0.0	No Limit



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 (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6473948) - continued</b>									
EB2510081-006	Anonymous	EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.532	0.546	2.7	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.021	0.022	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.12	0.13	0.0	0% - 50%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.52	0.52	0.0	0% - 50%
EB2510430-004	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.053	0.052	0.0	0% - 20%
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.043	0.042	0.0	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.002	0.003	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.142	0.139	1.8	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.14	0.13	0.0	0% - 50%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	7.70	7.56	1.8	0% - 20%
<b>EK040P: Fluoride by PC Titrator (QC Lot: 6470748)</b>									
EB2510368-001	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.1	0.2	0.0	No Limit
EB2510413-004	SW04	EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
<b>EK040P: Fluoride by PC Titrator (QC Lot: 6474313)</b>									
EB2510398-001	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.4	0.4	0.0	No Limit
<b>EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6476858)</b>									
EB2510413-005	SW05	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2510413-001	SW01	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.04	0.0	No Limit
<b>EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6472021)</b>									
EB2510399-007	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2510413-004	SW04	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6474266)</b>									
EB2510336-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2510594-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6476702)</b>									
EB2510425-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	13.6	13.5	1.0	0% - 20%
EB2510268-007	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6476861)</b>									
EB2510413-005	SW05	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.03	0.03	0.0	No Limit
EB2510413-001	SW01	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.04	0.0	No Limit



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 (%)
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6473042)</b>									
EB2510413-008	SW08	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	<0.1	0.0	No Limit
EB2510332-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6473041)</b>									
EB2510413-008	SW08	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.06	0.0	No Limit
EB2510332-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.03	0.04	0.0	No Limit
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6472025)</b>									
EB2510399-007	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	0.0	No Limit
EB2510413-004	SW04	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.05	0.05	0.0	No Limit
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6474265)</b>									
EB2510336-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2510594-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6474483)</b>									
EB2510072-003	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EB2510423-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	30	30	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6474483)</b>									
EB2510072-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EB2510423-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	30	30	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 6474483)</b>									
EB2510072-003	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EB2510423-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### 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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
<b>EA005P: pH by PC Titrator (QCLot: 6470754)</b>								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	99.5	98.0	102
				----	7 pH Unit	100	98.0	102
<b>EA005P: pH by PC Titrator (QCLot: 6474315)</b>								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	99.8	98.0	102
				----	7 pH Unit	100	98.0	102
<b>EA010P: Conductivity by PC Titrator (QCLot: 6470750)</b>								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	99.6	90.0	106
				<1	12890 µS/cm	99.8	90.0	106
<b>EA010P: Conductivity by PC Titrator (QCLot: 6474311)</b>								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	101	90.0	106
				<1	12890 µS/cm	98.6	90.0	106
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6471938)</b>								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	102	88.0	112
				<5	1000 mg/L	100	88.0	112
				<5	828 mg/L	106	84.9	115
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6471939)</b>								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	103	88.0	112
				<5	1000 mg/L	102	88.0	112
				<5	828 mg/L	100	84.9	115
<b>ED037P: Alkalinity by PC Titrator (QCLot: 6470752)</b>								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	50 mg/L	103	80.0	120
<b>ED037P: Alkalinity by PC Titrator (QCLot: 6474312)</b>								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	98.3	80.0	120
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6472023)</b>								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	92.9	85.0	118
				<1	100 mg/L	99.8	85.0	118
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6474263)</b>								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.6	85.0	118
				<1	100 mg/L	95.6	85.0	118
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6472019)</b>								



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6472019) - continued</b>								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	96.4	90.0	115
				<1	1000 mg/L	102	90.0	115
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6474264)</b>								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	95.6	90.0	115
				<1	1000 mg/L	99.7	90.0	115
<b>ED093F: Dissolved Major Cations (QCLot: 6473967)</b>								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	106	70.0	130
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	98.0	70.0	130
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	96.6	70.0	130
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	98.8	70.0	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6473965)</b>								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	97.3	79.0	118
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.1	88.0	116
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.2	88.0	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.0	87.0	113
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.0	88.0	114
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.1	89.0	110
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.2	89.0	120
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.9	89.0	113
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	95.5	87.0	113
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.6	82.0	114
<b>EG020T: Total Metals by ICP-MS (QCLot: 6473945)</b>								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	99.8	80.0	114
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.0	88.0	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	101	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.9	89.0	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	88.0	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	88.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.0	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	102	82.0	118
<b>EG020T: Total Metals by ICP-MS (QCLot: 6473948)</b>								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	102	80.0	114



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
					LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 6473948) - continued</b>								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	106	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	102	88.0	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	104	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.7	89.0	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	104	88.0	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	101	88.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	105	82.0	118
<b>EK040P: Fluoride by PC Titrator (QCLot: 6470748)</b>								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	0.5 mg/L	98.8	80.0	117
<b>EK040P: Fluoride by PC Titrator (QCLot: 6474313)</b>								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	0.5 mg/L	100	80.0	117
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6476858)</b>								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	94.2	83.5	114
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6472021)</b>								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	92.4	90.0	110
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6474266)</b>								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	93.3	90.0	110
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6476702)</b>								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	97.5	85.7	111
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6476861)</b>								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	98.1	85.7	111
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6473042)</b>								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	1 mg/L	102	70.1	108
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6473041)</b>								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.442 mg/L	106	84.7	106
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6472025)</b>								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	102	81.7	117
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6474265)</b>								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	100	81.7	117
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 6474483)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	180 µg/L	94.3	77.0	122
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6474483)</b>								



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
						LCS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6474483) - continued</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	225 µg/L	95.7	76.0	121
EP080: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
<b>EP080: BTEXN (QCLot: 6474483)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	100	79.8	115
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	91.2	78.6	116
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	90.3	77.3	115
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	93.6	82.0	118
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	97.0	86.0	119
EP080: Total Xylenes	----	2	µg/L	<2	----	----	----	----
EP080: Sum of BTEX	----	1	µg/L	<1	----	----	----	----
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	96.9	77.8	116

### 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	Spike Recovery(%)	Acceptable Limits (%)	
					MS	Low	High
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6472023)</b>							
EB2510399-008	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	20 mg/L	105	70.0	130
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6474263)</b>							
EB2510336-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	20 mg/L	104	70.0	130
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6472019)</b>							
EB2510399-008	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	109	70.0	130
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6474264)</b>							
EB2510336-003	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	106	70.0	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6473965)</b>							
EB2510425-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	107	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	96.9	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	106	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	106	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	89.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	105	70.0	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6473965) - continued</b>							
EB2510425-001	Anonymous	EG020A-F: Nickel	7440-02-0	1 mg/L	99.4	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	101	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 6473945)</b>							
EB2510413-004	SW04	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.3	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.9	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	99.8	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	103	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	101	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	99.3	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	98.9	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 6473948)</b>							
EB2510430-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	110	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	98.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	113	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	106	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	105	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	111	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.9	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	99.7	70.0	130
<b>EK040P: Fluoride by PC Titrator (QCLot: 6470748)</b>							
EB2510368-002	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	91.4	70.0	130
<b>EK040P: Fluoride by PC Titrator (QCLot: 6474313)</b>							
EB2510398-002	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	92.9	70.0	130
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6476858)</b>							
EB2510413-006	SW06	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	96.7	70.0	130
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6472021)</b>							
EB2510399-008	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	93.1	70.0	130
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6474266)</b>							
EB2510336-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	97.3	70.0	130
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6476702)</b>							
EB2510532-005	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	96.9	70.0	130
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6476861)</b>							
EB2510413-006	SW06	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	95.7	70.0	130
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6473042)</b>							
EB2510413-001	SW01						

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 Work Order : EB2510413  
 Client : Spicers Scenic Rim Trail  
 Project : 24001\_Scenic Rim Trail



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
Laboratory sample ID		Sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low High
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6473042) - continued</b>							
EB2510413-001	SW01	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	91.6	70.0	130
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6473041)</b>							
EB2510413-001	SW01	EK067G: Total Phosphorus as P	----	1 mg/L	93.6	70.0	130
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6472025)</b>							
EB2510399-008	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	102	70.0	130
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6474265)</b>							
EB2510336-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	96.1	70.0	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 6474483)</b>							
EB2510161-001	Anonymous	EP080: C6 - C9 Fraction	----	40 µg/L	87.5	70.0	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6474483)</b>							
EB2510161-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	40 µg/L	94.2	70.0	130
<b>EP080: BTEXN (QCLot: 6474483)</b>							
EB2510161-001	Anonymous	EP080: Benzene	71-43-2	10 µg/L	106	70.0	130
		EP080: Toluene	108-88-3	10 µg/L	93.2	70.0	130



## QA/QC Compliance Assessment to assist with Quality Review

Work Order	: <b>EB2510413</b>	Page	: 1 of 10
Client	: <b>Spicers Scenic Rim Trail</b>	Laboratory	: Environmental Division Brisbane
Contact	: DAN MORTON	Telephone	: +61-7-3552-8685
Project	: 24001_Scenic Rim Trail	Date Samples Received	: 27-Mar-2025
Site	: ----	Issue Date	: 04-Apr-2025
Sampler	: Simon Harley	No. of samples received	: 13
Order number	: 24001	No. of samples analysed	: 13

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, where applicable to the methodology, **NO surrogate recovery outliers occur.**

#### Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

#### Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**





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	
<b>EA010P: Conductivity by PC Titrator</b>								
Clear Plastic Bottle - Natural (EA010-P) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	31-Mar-2025	24-Apr-2025	✓
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>								
Clear Plastic Bottle - Natural (EA025H) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	28-Mar-2025	03-Apr-2025	✓
<b>EA065: Total Hardness as CaCO3</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	29-Mar-2025	24-Apr-2025	✓
<b>ED037P: Alkalinity by PC Titrator</b>								
Clear Plastic Bottle - Natural (ED037-P) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	31-Mar-2025	10-Apr-2025	✓
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>								
Clear Plastic Bottle - Natural (ED041G) SW01, SW04, SW06, SW10	SW02, SW05, SW09	27-Mar-2025	----	----	----	28-Mar-2025	24-Apr-2025	✓
Clear Plastic Bottle - Natural (ED041G) SW07,	SW08	27-Mar-2025	----	----	----	29-Mar-2025	24-Apr-2025	✓



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	
<b>ED045G: Chloride by Discrete Analyser</b>								
Clear Plastic Bottle - Natural (ED045G) SW01, SW04, SW06, SW10	SW02, SW05, SW09	27-Mar-2025	----	----	----	28-Mar-2025	24-Apr-2025	✓
Clear Plastic Bottle - Natural (ED045G) SW07,	SW08	27-Mar-2025	----	----	----	29-Mar-2025	24-Apr-2025	✓
<b>ED093F: Dissolved Major Cations</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	29-Mar-2025	24-Apr-2025	✓
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW01, SW03, SW05, SW07, SW09	SW02, SW04, SW06, SW08, SW10	27-Mar-2025	----	----	----	29-Mar-2025	23-Sep-2025	✓
<b>EG020T: Total Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SW01, SW03, SW05, SW07, SW09	SW02, SW04, SW06, SW08, SW10	27-Mar-2025	28-Mar-2025	23-Sep-2025	✓	01-Apr-2025	23-Sep-2025	✓
<b>EK040P: Fluoride by PC Titrator</b>								
Clear Plastic Bottle - Natural (EK040P) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	31-Mar-2025	24-Apr-2025	✓



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	
<b>EK055G: Ammonia as N by Discrete Analyser</b>								
Clear Plastic Bottle - Sulfuric Acid (EK055G) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	31-Mar-2025	24-Apr-2025	✓
<b>EK057G: Nitrite as N by Discrete Analyser</b>								
Clear Plastic Bottle - Natural (EK057G) SW01, SW04, SW06, SW10	SW02, SW05, SW09	27-Mar-2025	----	----	----	28-Mar-2025	29-Mar-2025	✓
Clear Plastic Bottle - Natural (EK057G) SW07,	SW08	27-Mar-2025	----	----	----	29-Mar-2025	29-Mar-2025	✓
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>								
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW03,	DUP01	27-Mar-2025	----	----	----	01-Apr-2025	24-Apr-2025	✓
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW01, SW04, SW06, SW08, SW10	SW02, SW05, SW07, SW09	27-Mar-2025	----	----	----	31-Mar-2025	24-Apr-2025	✓
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>								
Clear Plastic Bottle - Sulfuric Acid (EK061G) SW01, SW03, SW05, SW07, SW09, DUP01	SW02, SW04, SW06, SW08, SW10	27-Mar-2025	28-Mar-2025	24-Apr-2025	✓	28-Mar-2025	24-Apr-2025	✓
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>								
Clear Plastic Bottle - Sulfuric Acid (EK067G) SW01, SW03, SW05, SW07, SW09, DUP01	SW02, SW04, SW06, SW08, SW10	27-Mar-2025	28-Mar-2025	24-Apr-2025	✓	28-Mar-2025	24-Apr-2025	✓



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	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>								
<b>Clear Plastic Bottle - Natural (EK071G)</b> SW01, SW04, SW06, SW10	SW02, SW05, SW09,	27-Mar-2025	----	----	----	28-Mar-2025	29-Mar-2025	✓
<b>Clear Plastic Bottle - Natural (EK071G)</b> SW07,	SW08	27-Mar-2025	----	----	----	29-Mar-2025	29-Mar-2025	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> Trip Spike 1,	ALS Trip Spike	27-Mar-2025	29-Mar-2025	10-Apr-2025	✓	30-Mar-2025	10-Apr-2025	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> Trip Spike 1,	ALS Trip Spike	27-Mar-2025	29-Mar-2025	10-Apr-2025	✓	30-Mar-2025	10-Apr-2025	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> Trip Spike 1,	ALS Trip Spike	27-Mar-2025	29-Mar-2025	10-Apr-2025	✓	30-Mar-2025	10-Apr-2025	✓
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>								
<b>Sterile Plastic Bottle - Sodium Thiosulfate (MW006)</b> SW01, SW03, SW05, SW07, SW09,	SW02, SW04, SW06, SW08, SW10	27-Mar-2025	----	----	----	27-Mar-2025	28-Mar-2025	✓



## 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity by Auto Titrator	ED037-P	3	28	10.71	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	27	14.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	29	10.34	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	3	23	13.04	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	37	10.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	4	26	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	3	19	15.79	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	4	23	17.39	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	23	13.04	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	37	10.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity by Auto Titrator	ED037-P	2	28	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	27	14.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	29	13.79	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	19	21.05	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	23	17.39	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	6	37	16.22	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Method Blanks (MB)</b>							



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	29	6.90	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NO <sub>x</sub> ) by Discrete Analyser	EK059G	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO <sub>4</sub> 2- by Discrete Analyser	ED041G	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>							
Ammonia as N by Discrete analyser	EK055G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NO <sub>x</sub> ) by Discrete Analyser	EK059G	2	37	5.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	26	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO <sub>4</sub> 2- by Discrete Analyser	ED041G	2	23	8.70	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	15	6.67	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM Schedule B(3)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of 'non-filterable' residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. PC Titrate) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.
Fluoride by Auto Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.5

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.



3/31/25, 12:54 PM

Mail - SH\_EnviroSampleBris - Outlook

Good afternoon Elise

Yes, I can confirm that the attached COC and container belong together.

**Please be advised; ALS has received a 60ml purple container labelled "Control 2", ALS has identified this as "DUP62" on the Chain of Custody. If this is incorrect or you have any questions please Sample "DUP62" has been forwarded to Eurofins . as requested. Please note that this will incur a freight forwarding fee.**

Thank you for checking to confirm,

Regards,

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarrie QLD 4172 +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise Mount Wellington Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road Gate Pa Tauranga 3112 +64 9 525 0568 IANZ# 1402

## Sample Receipt Advice

**Company name:** Spicers Tamarind Retreat  
**Contact name:** Dan  
**Project name:** 24001\_SCENIC RIM TRAIL  
**Project ID:** 24001  
**Turnaround time:** 5 Day  
**Date/Time received:** Mar 28, 2025 3:45 PM  
**Eurofins reference:** 1203647

## Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

## Notes

Due to no unpreserved volume received, the whole total nitrogen set can not be tested, specifically nitrate & nitrite. If there are any questions please contact your ASM.

## Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

**Zoe Flynn on phone : 0499 572 666 or by email: [Zoe.Flynn@eurofinsanz.com](mailto:Zoe.Flynn@eurofinsanz.com)**

Results will be delivered electronically via email to Dan - [dan@envhealth.com.au](mailto:dan@envhealth.com.au).



**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

<b>Melbourne</b> 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	<b>Geelong</b> 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	<b>Sydney</b> 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	<b>Canberra</b> Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	<b>Brisbane</b> 1/21 Smallwood Place Murarrie QLD 4172 +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	<b>Newcastle</b> 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079	<b>Perth</b> 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554	<b>Auckland</b> 35 O'Rorke Road Penrose Auckland 1061 +64 9 526 4551 IANZ# 1327	<b>Auckland (Focus)</b> Unit C1/4 Pacific Rise Mount Wellington Auckland 1061 +64 9 525 0568 IANZ# 1308	<b>Christchurch</b> 43 Detroit Drive Rolleston Christchurch 7675 +64 3 343 5201 IANZ# 1290	<b>Tauranga</b> 1277 Cameron Road Gate Pa Tauranga 3112 +64 9 525 0568 IANZ# 1402
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web: www.eurofins.com.au  
email: EnviroSales@eurofinsanz.com

**Company Name:** Spicers Tamarind Retreat  
**Address:** 88 Obi Lane South  
Maleny  
QLD 4552  
**Project Name:** 24001\_SCENIC RIM TRAIL  
**Project ID:** 24001

**Order No.:** 24001  
**Report #:** 1203647  
**Phone:** 5420 5420  
**Fax:**

**Received:** Mar 28, 2025 3:45 PM  
**Due:** To Be Advised  
**Priority:** 5 Day  
**Contact Name:** Dan

**Eurofins Analytical Services Manager : Zoe Flynn**

<b>Sample Detail</b>						Phosphate total (as P)	Total Nitrogen Set (as N)
<b>Melbourne Laboratory - NATA # 1261 Site # 1254</b>						X	X
<b>External Laboratory</b>							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	DUP02	Mar 27, 2025		Water	B25-Ma0073648	X	X
<b>Test Counts</b>						1	1





## CERTIFICATE OF ANALYSIS

**Work Order** : **EB2526947**  
**Client** : **Spicers Scenic Rim Trail**  
**Contact** : DAN MORTON  
**Address** : 1095 South Branch Road, Tregony QLD 4370  
4370  
**Telephone** : ----  
**Project** : 24001\_Scenic Rim Trail  
**Order number** : 24001  
**C-O-C number** : ----  
**Sampler** : Simon Harley  
**Site** : ----  
**Quote number** : EN/333  
**No. of samples received** : 14  
**No. of samples analysed** : 14

**Page** : 1 of 10  
**Laboratory** : Environmental Division Brisbane  
**Contact** : Customer Services EB  
**Address** : 2 Byth Street Stafford QLD Australia 4053  
**Telephone** : +61-7-3552-8685  
**Date Samples Received** : 05-Aug-2025 17:42  
**Date Analysis Commenced** : 05-Aug-2025  
**Issue Date** : 18-Aug-2025 12:40



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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Liam Cooley	Chemist	Brisbane Organics, Stafford, QLD
Stephen Tam	Microbiologist	Brisbane Microbiological, Stafford, QLD



## 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.

- It is recognised that EK067G (Total Phosphorus) is less than EK071G (Reactive Phosphorus) for some samples. However, the difference is within experimental variation of the methods.
- MF = membrane filtration
- CFU = colony forming unit
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H+ to the Cations and Nitrate, SiO<sub>2</sub> and Fluoride to the Anions.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- The TRIP SPIKE and TRIP SPIKE CONTROL have been analysed for volatile TPH and BTEXN only. The TRIP SPIKE and TRIP SPIKE CONTROL were prepared in the lab using volatile grade water spiked with TPH/BTEXN standard mixture. The TRIP SPIKE was dispatched from the lab and the TRIP SPIKE CONTROL retained. The spike samples were extracted and analysed concurrently with samples reported in this batch.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2526947-001	EB2526947-002	EB2526947-003	EB2526947-004	EB2526947-005	
				Result	Result	Result	Result	Result	
<b>EA005P: pH by PC Titrator</b>									
pH Value	----	0.01	pH Unit	<b>7.28</b>	<b>7.24</b>	<b>7.38</b>	<b>7.39</b>	<b>7.44</b>	
<b>EA006: Sodium Adsorption Ratio (SAR)</b>									
^ Sodium Adsorption Ratio	----	0.01	-	<b>0.55</b>	<b>0.64</b>	<b>0.51</b>	<b>0.48</b>	<b>0.54</b>	
<b>EA010P: Conductivity by PC Titrator</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	<b>83</b>	<b>84</b>	<b>103</b>	<b>93</b>	<b>100</b>	
<b>EA016: Calculated TDS (from Electrical Conductivity)</b>									
Total Dissolved Solids (Calc.)	----	1	mg/L	<b>54</b>	<b>55</b>	<b>67</b>	<b>60</b>	<b>65</b>	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	<5	<5	<5	<5	<5	
<b>EA065: Total Hardness as CaCO3</b>									
Total Hardness as CaCO3	----	1	mg/L	<b>22</b>	<b>22</b>	<b>36</b>	<b>29</b>	<b>31</b>	
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<b>32</b>	<b>30</b>	<b>43</b>	<b>36</b>	<b>39</b>	
Total Alkalinity as CaCO3	----	1	mg/L	<b>32</b>	<b>30</b>	<b>43</b>	<b>36</b>	<b>39</b>	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	<b>11</b>	<b>12</b>	<b>10</b>	<b>10</b>	<b>12</b>	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	<b>4</b>	<b>4</b>	<b>6</b>	<b>5</b>	<b>6</b>	
Magnesium	7439-95-4	1	mg/L	<b>3</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>4</b>	
Sodium	7440-23-5	1	mg/L	<b>6</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>7</b>	
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1	
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<b>0.18</b>	<0.01	<0.01	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2526947-001	EB2526947-002	EB2526947-003	EB2526947-004	EB2526947-005	
				Result	Result	Result	Result	Result	
<b>EG020F: Dissolved Metals by ICP-MS - Continued</b>									
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<0.001	<b>0.001</b>	<b>0.007</b>	<0.001	<0.001	
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	<b>0.13</b>	<0.05	<0.05	
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<b>0.20</b>	<b>0.20</b>	<b>0.24</b>	<b>0.24</b>	<b>0.23</b>	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<b>0.014</b>	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.003</b>	<b>0.003</b>	<b>0.007</b>	<b>0.004</b>	<b>0.004</b>	
Iron	7439-89-6	0.05	mg/L	<b>0.16</b>	<b>0.17</b>	<b>0.20</b>	<b>0.20</b>	<b>0.19</b>	
<b>EK040P: Fluoride by PC Titrator</b>									
Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<b>0.01</b>	<b>0.01</b>	<0.01	
<b>EK057G: Nitrite as N by Discrete Analyser</b>									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EK058G: Nitrate as N by Discrete Analyser</b>									
Nitrate as N	14797-55-8	0.01	mg/L	<b>0.05</b>	<b>0.06</b>	<b>0.03</b>	<b>0.05</b>	<b>0.03</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2526947-001	EB2526947-002	EB2526947-003	EB2526947-004	EB2526947-005	
				Result	Result	Result	Result	Result	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	0.05	0.06	0.03	0.05	0.03	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.2	0.2	0.2	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
<sup>^</sup> Total Nitrogen as N	----	0.1	mg/L	0.2	0.3	0.2	0.2	0.2	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	0.04	0.04	0.05	0.05	0.04	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.05	0.05	0.05	0.06	0.04	
<b>EN055: Ionic Balance</b>									
∅ Total Anions	----	0.01	meq/L	0.99	0.98	1.18	1.04	1.16	
∅ Total Cations	----	0.01	meq/L	0.71	0.75	1.02	0.84	0.93	
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>									
<i>Escherichia coli</i>	----	1	CFU/100mL	~3	~4	15	~8	~3	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2526947-006	EB2526947-007	EB2526947-008	EB2526947-009	EB2526947-010	
				Result	Result	Result	Result	Result	
<b>EA005P: pH by PC Titrator</b>									
pH Value	----	0.01	pH Unit	7.45	7.05	7.07	7.40	7.39	
<b>EA006: Sodium Adsorption Ratio (SAR)</b>									
^ Sodium Adsorption Ratio	----	0.01	-	0.46	0.64	0.68	0.65	0.56	
<b>EA010P: Conductivity by PC Titrator</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	98	82	80	92	93	
<b>EA016: Calculated TDS (from Electrical Conductivity)</b>									
Total Dissolved Solids (Calc.)	----	1	mg/L	64	53	52	60	60	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	<5	<5	<5	<5	<5	
<b>EA065: Total Hardness as CaCO3</b>									
Total Hardness as CaCO3	----	1	mg/L	31	22	20	29	29	
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	40	26	26	38	37	
Total Alkalinity as CaCO3	----	1	mg/L	40	26	26	38	37	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	2	2	2	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	10	14	14	10	11	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	6	4	3	5	5	
Magnesium	7439-95-4	1	mg/L	4	3	3	4	4	
Sodium	7440-23-5	1	mg/L	6	7	7	8	7	
Potassium	7440-09-7	1	mg/L	<1	<1	<1	<1	<1	
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2526947-006	EB2526947-007	EB2526947-008	EB2526947-009	EB2526947-010	
				Result	Result	Result	Result	Result	
<b>EG020F: Dissolved Metals by ICP-MS - Continued</b>									
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.002</b>	<b>0.006</b>	<b>0.006</b>	<b>0.004</b>	<b>0.001</b>	
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<b>0.24</b>	<b>0.09</b>	<b>0.12</b>	<b>0.28</b>	<b>0.24</b>	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<b>0.001</b>	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<b>0.008</b>	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.005</b>	<b>0.007</b>	<b>0.010</b>	<b>0.007</b>	<b>0.004</b>	
Iron	7439-89-6	0.05	mg/L	<b>0.19</b>	<b>0.13</b>	<b>0.18</b>	<b>0.21</b>	<b>0.20</b>	
<b>EK040P: Fluoride by PC Titrator</b>									
Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EK057G: Nitrite as N by Discrete Analyser</b>									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EK058G: Nitrate as N by Discrete Analyser</b>									
Nitrate as N	14797-55-8	0.01	mg/L	<b>0.04</b>	<b>0.02</b>	<b>0.02</b>	<b>0.05</b>	<b>0.05</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	05-Aug-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2526947-006	EB2526947-007	EB2526947-008	EB2526947-009	EB2526947-010	
				Result	Result	Result	Result	Result	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.02	0.02	0.05	0.05	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.1	0.2	0.2	0.2	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
^ Total Nitrogen as N	----	0.1	mg/L	0.2	0.1	0.2	0.2	0.2	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	0.05	0.04	0.04	0.05	0.05	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.05	0.04	0.04	0.05	0.05	
<b>EN055: Ionic Balance</b>									
∅ Total Anions	----	0.01	meq/L	1.12	0.96	0.96	1.08	1.09	
∅ Total Cations	----	0.01	meq/L	0.89	0.75	0.70	0.93	0.88	
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>									
<i>Escherichia coli</i>	----	1	CFU/100mL	13	~9	~7	~9	~4	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	DUP01	Trip Blank 210724	Trip Spike 1	ALS_CONTROL_SPIKE _1	----
Sampling date / time				05-Aug-2025 00:00	01-Aug-2025 00:00	01-Aug-2025 00:00	01-Aug-2025 00:00	----	
Compound	CAS Number	LOR	Unit	EB2526947-011	EB2526947-012	EB2526947-013	EB2526947-014	-----	
				Result	Result	Result	Result	----	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	0.05	----	----	----	----	----
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	----	----	----	----	----
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
<sup>^</sup> Total Nitrogen as N	----	0.1	mg/L	0.2	----	----	----	----	----
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	0.04	----	----	----	----	----
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	20	µg/L	----	<20	180	250	----	----
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	220	320	----	----
<sup>^</sup> C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	120	210	----	----
<b>EP080: BTEXN</b>									
Benzene	71-43-2	1	µg/L	----	<1	17	18	----	----
Toluene	108-88-3	2	µg/L	----	<2	18	17	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	17	17	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	33	35	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	18	19	----	----
<sup>^</sup> Total Xylenes	----	2	µg/L	----	<2	51	54	----	----
<sup>^</sup> Sum of BTEX	----	1	µg/L	----	<1	103	106	----	----
Naphthalene	91-20-3	5	µg/L	----	<5	19	20	----	----
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	2	%	----	104	107	112	----	----
Toluene-D8	2037-26-5	2	%	----	96.2	98.1	98.0	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	95.7	104	104	----	----



### Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	66	138
Toluene-D8	2037-26-5	79	120
4-Bromofluorobenzene	460-00-4	74	118



## QUALITY CONTROL REPORT

**Work Order** : **EB2526947** **Page** : 1 of 13

**Client** : **Spicers Scenic Rim Trail** **Laboratory** : Environmental Division Brisbane  
**Contact** : DAN MORTON **Contact** : Customer Services EB  
**Address** : 1095 South Branch Road, Tregony QLD 4370 **Address** : 2 Byth Street Stafford QLD Australia 4053  
4370

**Telephone** : ---- **Telephone** : +61-7-3552-8685  
**Project** : 24001\_Scenic Rim Trail **Date Samples Received** : 05-Aug-2025  
**Order number** : 24001 **Date Analysis Commenced** : 05-Aug-2025  
**C-O-C number** : ---- **Issue Date** : 18-Aug-2025  
**Sampler** : Simon Harley  
**Site** : ----  
**Quote number** : EN/333  
**No. of samples received** : 14  
**No. of samples analysed** : 14



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 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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Liam Cooley	Chemist	Brisbane Organics, Stafford, QLD
Stephen Tam	Microbiologist	Brisbane Microbiological, Stafford, QLD



## 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  
 \* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

## 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 (%)
<b>EA005P: pH by PC Titrator (QC Lot: 6767230)</b>									
EB2526413-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.35	8.30	0.6	0% - 20%
EB2526947-006	SW06	EA005-P: pH Value	----	0.01	pH Unit	7.45	7.42	0.4	0% - 20%
<b>EA010P: Conductivity by PC Titrator (QC Lot: 6767229)</b>									
EB2526413-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3020	3000	0.4	0% - 20%
EB2526947-006	SW06	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	98	98	0.0	0% - 20%
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6773981)</b>									
EB2526587-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	5	6	0.0	No Limit
EB2526947-001	SW01	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 6767231)</b>									
EB2526413-002	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	15	# <1	175	0% - 50%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	303	317	4.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	318	317	0.4	0% - 20%
EB2526947-006	SW06	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	40	40	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	40	40	0.0	0% - 20%
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6767255)</b>									
EB2526917-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	609	608	0.2	0% - 20%
EB2526947-002	SW02	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	0.0	No Limit



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 (%)
<b>ED045G: Chloride by Discrete Analyser (QC Lot: 6767261)</b>									
EB2526917-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	10100	10200	0.4	0% - 20%
EB2526947-002	SW02	ED045G: Chloride	16887-00-6	1	mg/L	12	12	0.0	0% - 50%
<b>ED093F: Dissolved Major Cations (QC Lot: 6767245)</b>									
EB2526923-005	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	87	90	2.5	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	50	51	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	245	250	1.9	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
EB2526947-002	SW02	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	7	6	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
<b>ED093F: Dissolved Major Cations (QC Lot: 6770209)</b>									
EB2526808-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	89	89	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	25	25	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	120	121	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	20	19	0.0	0% - 50%
EB2526808-018	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	27	29	6.2	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	53	55	3.8	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	673	705	4.6	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	2	2	0.0	No Limit
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6767241)</b>									
EB2526923-005	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.327	0.337	3.2	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.35	0.36	0.0	No Limit
EB2526947-002	SW02	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	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



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 (%)		
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6767241) - continued</b>											
EB2526947-002	SW02	EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit		
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6770207)</b>											
EB2526808-008	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.0	No Limit		
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.403	0.401	0.5	0% - 20%		
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit		
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit		
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit		
		EG020A-F: Iron	7439-89-6	0.05	mg/L	15.7	15.6	0.9	0% - 20%		
EB2526808-018	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.002	0.001	0.0	No Limit		
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	1.70	1.76	3.6	0% - 20%		
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.010	0.010	0.0	0% - 50%		
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.059	0.062	5.4	0% - 50%		
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.02	0.02	0.0	No Limit		
		EG020A-F: Iron	7439-89-6	0.05	mg/L	1.23	1.21	1.5	0% - 20%		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6767247)</b>											
EB2526923-007	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit		
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.006	0.006	0.0	No Limit		
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit		
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	3.07	3.10	1.2	0% - 20%		
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.013	0.012	0.0	0% - 50%		
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.021	0.014	36.1	No Limit		
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.01	0.01	0.0	No Limit		
		EG020A-T: Iron	7439-89-6	0.05	mg/L	10.3	10.3	0.2	0% - 20%		
		EB2526947-003	SW03	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



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 (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6767247) - continued</b>									
EB2526947-003	SW03	EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.007	0.008	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.009	52.4	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.24	0.26	9.3	0% - 20%
EG020A-T: Iron	7439-89-6	0.05	mg/L	0.20	0.22	12.3	No Limit		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6770319)</b>									
EB2526808-015	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.005	0.009	59.7	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.023	0.026	12.6	0% - 20%
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.119	0.125	5.1	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.021	0.025	16.0	0% - 20%
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.624	0.649	3.9	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.011	0.015	32.9	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.143	0.155	8.1	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	12.9	12.0	7.0	0% - 20%
EG020A-T: Iron	7439-89-6	0.05	mg/L	26.9	27.4	1.9	0% - 20%		
EB2526969-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.004	0.003	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.272	0.283	4.1	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.013	0.012	0.0	0% - 50%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.023	0.011	69.2	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	5.22	5.54	6.0	0% - 20%
EG020A-T: Iron	7439-89-6	0.05	mg/L	4.46	3.98	11.4	0% - 20%		
<b>EK040P: Fluoride by PC Titrator (QC Lot: 6767228)</b>									
EB2526413-002	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	0.6	0.6	0.0	No Limit
EB2526947-006	SW06	EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
<b>EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6769360)</b>									
EB2526947-006	SW06	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.02	0.0	No Limit
EB2526953-006	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.06	0.06	0.0	No Limit
<b>EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6769361)</b>									



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 (%)
<b>EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6769361) - continued</b>									
EB2526947-001	SW01	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2526721-004	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.05	0.0	No Limit
<b>EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6767257)</b>									
EB2526917-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01 (0.05)*	mg/L	<0.05	<0.05	0.0	No Limit
EB2526947-002	SW02	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6769357)</b>									
EB2526947-006	SW06	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.04	0.0	No Limit
EB2526953-006	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.42	0.42	0.0	0% - 20%
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6769358)</b>									
EB2526947-001	SW01	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.05	0.04	0.0	No Limit
EB2526721-004	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6776143)</b>									
EB2526887-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
EB2526947-001	SW01	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6776144)</b>									
EB2526947-011	DUP01	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
ET2503891-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	14.4	14.2	0.9	0% - 20%
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6776142)</b>									
EB2526887-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	1.63	1.56	4.4	0% - 20%
EB2526947-001	SW01	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.04	0.0	No Limit
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6776145)</b>									
EB2526947-011	DUP01	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.04	0.04	0.0	No Limit
ET2503891-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	3.58	3.61	0.9	0% - 20%
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6767259)</b>									
EB2526917-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2526947-002	SW02	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.05	0.04	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6774473)</b>									
EB2526581-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EB2526687-002	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<0.02 mg/L	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6774473)</b>									
EB2526581-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EB2526687-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<0.02 mg/L	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 6774473)</b>									
EB2526581-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit

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 Work Order : EB2526947  
 Client : Spicers Scenic Rim Trail  
 Project : 24001\_Scenic Rim Trail



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 (%)
<b>EP080: BTEXN (QC Lot: 6774473) - continued</b>									
EB2526581-002	Anonymous	EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EB2526687-002	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<0.001 mg/L	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<0.002 mg/L	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<0.005 mg/L	<5	0.0	No Limit



### 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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
<b>EA005P: pH by PC Titrator (QCLot: 6767230)</b>									
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.0	102	
				----	7 pH Unit	99.7	98.0	102	
<b>EA010P: Conductivity by PC Titrator (QCLot: 6767229)</b>									
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	4000 µS/cm	95.3	90.0	106	
				<1	12890 µS/cm	99.0	90.0	106	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6773981)</b>									
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	106	88.0	112	
				<5	1000 mg/L	98.5	88.0	112	
				<5	824 mg/L	98.5	85.0	115	
<b>ED037P: Alkalinity by PC Titrator (QCLot: 6767231)</b>									
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	105	80.0	120	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6767255)</b>									
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	96.9	85.0	118	
				<1	100 mg/L	102	85.0	118	
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6767261)</b>									
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	111	90.0	115	
				<1	1000 mg/L	104	90.0	115	
<b>ED093F: Dissolved Major Cations (QCLot: 6767245)</b>									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	96.4	70.0	130	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	101	70.0	130	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.8	70.0	130	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.2	70.0	130	
<b>ED093F: Dissolved Major Cations (QCLot: 6770209)</b>									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	90.1	70.0	130	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	103	70.0	130	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	98.6	70.0	130	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.4	70.0	130	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6767241)</b>									
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	97.5	79.0	118	
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.6	88.0	116	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
					LCS	Low	High	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6767241) - continued</b>								
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.4	88.0	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.8	87.0	113
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.4	88.0	114
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	92.8	89.0	110
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	98.1	89.0	120
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.1	89.0	113
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.0	87.0	113
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	98.8	82.0	114
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6770207)</b>								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	96.9	79.0	118
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.4	88.0	116
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.6	88.0	108
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.0	87.0	113
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.5	88.0	114
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.4	89.0	110
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.0	89.0	120
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	93.0	89.0	113
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	90.4	87.0	113
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	96.2	82.0	114
<b>EG020T: Total Metals by ICP-MS (QCLot: 6767247)</b>								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	99.5	80.0	114
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	103	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	96.7	88.0	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.2	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	89.4	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.5	89.0	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	102	88.0	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	96.1	88.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	107	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	100	82.0	118
<b>EG020T: Total Metals by ICP-MS (QCLot: 6770319)</b>								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	98.2	80.0	114
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.7	88.0	111



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
					LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 6770319) - continued</b>								
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.6	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.1	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.3	89.0	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	101	88.0	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	98.0	88.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	106	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.5	82.0	118
<b>EK040P: Fluoride by PC Titrator (QCLot: 6767228)</b>								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	10 mg/L	89.3	80.0	117
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6769360)</b>								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	98.4	83.5	114
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6769361)</b>								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	97.4	83.5	114
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6767257)</b>								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	102	90.0	110
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6769357)</b>								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	97.4	85.7	111
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6769358)</b>								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	96.2	85.7	111
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6776143)</b>								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	88.4	70.1	108
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6776144)</b>								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	1 mg/L	100	70.1	108
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6776142)</b>								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	96.4	84.7	106
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6776145)</b>								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.442 mg/L	85.9	84.7	106
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6767259)</b>								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	105	81.7	117
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 6774473)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	180 µg/L	102	77.0	122
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6774473)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	225 µg/L	101	76.0	121



Sub-Matrix: **WATER**

				Method Blank (MB) Report Result	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit			LCS	Low	High
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6774473) - continued</b>								
EP080: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
<b>EP080: BTEXN (QCLot: 6774473)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	93.3	79.8	115
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	107	78.6	116
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	101	77.3	115
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	103	82.0	118
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	99.9	86.0	119
EP080: Total Xylenes	----	2	µg/L	<2	----	----	----	----
EP080: Sum of BTEX	----	1	µg/L	<1	----	----	----	----
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	97.2	77.8	116

### 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**

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6767255)</b>							
EB2526917-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	20 mg/L	# Not Determined	70.0	130
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6767261)</b>							
EB2526917-002	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	# Not Determined	70.0	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6767241)</b>							
EB2526923-006	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	106	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	97.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	104	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	102	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	112	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	99.7	70.0	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6770207)</b>							
EB2526808-009	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	104	70.0	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6770207) - continued</b>							
EB2526808-009	Anonymous	EG020A-F: Cadmium	7440-43-9	0.25 mg/L	101	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	105	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	99.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	100	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	98.8	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	98.3	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	96.7	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 6767247)</b>							
EB2526923-008	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	106	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.6	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	105	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	94.6	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	97.2	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	91.4	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	95.9	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	101	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 6770319)</b>							
EB2526808-017	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	108	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	103	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	107	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	106	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	104	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	106	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	104	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	102	70.0	130
<b>EK040P: Fluoride by PC Titrator (QCLot: 6767228)</b>							
EB2526413-003	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	89.0	70.0	130
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6769360)</b>							
EB2526953-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	91.6	70.0	130
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6769361)</b>							
EB2526947-003	SW03	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	93.4	70.0	130
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6767257)</b>							
EB2526917-002	Anonymous	EK057G: Nitrite as N	14797-65-0	2.5 mg/L	100	70.0	130
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6769357)</b>							
EB2526953-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	94.3	70.0	130
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6769358)</b>							

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 Work Order : EB2526947  
 Client : Spicers Scenic Rim Trail  
 Project : 24001\_Scenic Rim Trail



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
Laboratory sample ID		Sample ID	Method: Compound	CAS Number	Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low High
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6769358) - continued</b>							
EB2526947-003	SW03	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	95.1	70.0	130
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6776143)</b>							
EB2526887-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	89.1	70.0	130
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6776144)</b>							
EB2527024-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6776142)</b>							
EB2526887-002	Anonymous	EK067G: Total Phosphorus as P	----	5 mg/L	92.8	70.0	130
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6776145)</b>							
EB2527024-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6767259)</b>							
EB2526917-002	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	105	70.0	130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 6774473)</b>							
EB2526581-001	Anonymous	EP080: C6 - C9 Fraction	----	40 µg/L	114	70.0	130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6774473)</b>							
EB2526581-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	40 µg/L	115	70.0	130
<b>EP080: BTEXN (QCLot: 6774473)</b>							
EB2526581-001	Anonymous	EP080: Benzene	71-43-2	10 µg/L	96.7	70.0	130
		EP080: Toluene	108-88-3	10 µg/L	110	70.0	130



## QA/QC Compliance Assessment to assist with Quality Review

Work Order	: <b>EB2526947</b>	Page	: 1 of 10
Client	: <b>Spicers Scenic Rim Trail</b>	Laboratory	: Environmental Division Brisbane
Contact	: DAN MORTON	Telephone	: +61-7-3552-8685
Project	: 24001_Scenic Rim Trail	Date Samples Received	: 05-Aug-2025
Site	: ----	Issue Date	: 18-Aug-2025
Sampler	: Simon Harley	No. of samples received	: 14
Order number	: 24001	No. of samples analysed	: 14

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** Laboratory Control outliers occur.
- Duplicate outliers exist - please see following pages for full details.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, where applicable to the methodology, **NO** surrogate recovery outliers occur.

#### Outliers : Analysis Holding Time Compliance

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

#### Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



### Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: WATER

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Duplicate (DUP) RPDs</b>							
ED037P: Alkalinity by PC Titrator	EB2526413--002	Anonymous	Carbonate Alkalinity as CaCO3	3812-32-6	175 %	0% - 50%	RPD exceeds LOR based limits
<b>Matrix Spike (MS) Recoveries</b>							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	EB2526917--002	Anonymous	Sulfate as SO4 - Turbidimetric	14808-79-8	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
ED045G: Chloride by Discrete Analyser	EB2526917--002	Anonymous	Chloride	16887-00-6	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	EB2527024--001	Anonymous	Total Kjeldahl Nitrogen as N	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK067G: Total Phosphorus as P by Discrete Analyser	EB2527024--001	Anonymous	Total Phosphorus as P	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

### 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	
<b>EA005P: pH by PC Titrator</b>								
Clear Plastic Bottle - Natural (EA005-P)								
SW01, SW03, SW05, SW07, SW09,	SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	06-Aug-2025	06-Aug-2025	✓



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
<b>EA006: Sodium Adsorption Ratio (SAR)</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW03, SW05, SW07, SW02, SW04, SW06, SW08	05-Aug-2025	----	----	----	06-Aug-2025	02-Sep-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW09, SW10	05-Aug-2025	----	----	----	07-Aug-2025	02-Sep-2025	✓
<b>EA010P: Conductivity by PC Titrator</b>							
Clear Plastic Bottle - Natural (EA010-P) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	06-Aug-2025	02-Sep-2025	✓
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>							
Clear Plastic Bottle - Natural (EA025H) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	08-Aug-2025	12-Aug-2025	✓
<b>EA065: Total Hardness as CaCO3</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW03, SW05, SW07, SW02, SW04, SW06, SW08	05-Aug-2025	----	----	----	06-Aug-2025	02-Sep-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW09, SW10	05-Aug-2025	----	----	----	07-Aug-2025	02-Sep-2025	✓
<b>ED037P: Alkalinity by PC Titrator</b>							
Clear Plastic Bottle - Natural (ED037-P) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	06-Aug-2025	19-Aug-2025	✓



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
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>							
Clear Plastic Bottle - Natural (ED041G) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	05-Aug-2025	02-Sep-2025	✓
<b>ED045G: Chloride by Discrete Analyser</b>							
Clear Plastic Bottle - Natural (ED045G) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	05-Aug-2025	02-Sep-2025	✓
<b>ED093F: Dissolved Major Cations</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW03, SW05, SW07, SW02, SW04, SW06, SW08	05-Aug-2025	----	----	----	06-Aug-2025	02-Sep-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW09, SW10	05-Aug-2025	----	----	----	07-Aug-2025	02-Sep-2025	✓
<b>EG020F: Dissolved Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW01, SW03, SW05, SW07, SW02, SW04, SW06, SW08	05-Aug-2025	----	----	----	06-Aug-2025	01-Feb-2026	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW09, SW10	05-Aug-2025	----	----	----	07-Aug-2025	01-Feb-2026	✓
<b>EG020T: Total Metals by ICP-MS</b>							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SW01, SW03, SW05, SW07, SW02, SW04, SW06, SW08	05-Aug-2025	05-Aug-2025	01-Feb-2026	✓	08-Aug-2025	01-Feb-2026	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SW09, SW10	05-Aug-2025	06-Aug-2025	01-Feb-2026	✓	07-Aug-2025	01-Feb-2026	✓



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
<b>EK040P: Fluoride by PC Titrator</b>							
Clear Plastic Bottle - Natural (EK040P) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	06-Aug-2025	02-Sep-2025	✔
<b>EK055G: Ammonia as N by Discrete Analyser</b>							
Clear Plastic Bottle - Sulfuric Acid (EK055G) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	08-Aug-2025	02-Sep-2025	✔
<b>EK057G: Nitrite as N by Discrete Analyser</b>							
Clear Plastic Bottle - Natural (EK057G) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	05-Aug-2025	07-Aug-2025	✔
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW01, SW03, SW05, SW07, SW09, DUP01, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	08-Aug-2025	02-Sep-2025	✔
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>							
Clear Plastic Bottle - Sulfuric Acid (EK061G) SW01, SW03, SW05, SW07, SW09, DUP01, SW02, SW04, SW06, SW08, SW10	05-Aug-2025	08-Aug-2025	02-Sep-2025	✔	13-Aug-2025	02-Sep-2025	✔



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	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>								
<b>Clear Plastic Bottle - Sulfuric Acid (EK067G)</b> SW01, SW03, SW05, SW07, SW09, DUP01	SW02, SW04, SW06, SW08, SW10,	05-Aug-2025	08-Aug-2025	02-Sep-2025	✓	13-Aug-2025	02-Sep-2025	✓
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>								
<b>Clear Plastic Bottle - Natural (EK071G)</b> SW01, SW03, SW05, SW07, SW09,	SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	05-Aug-2025	07-Aug-2025	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> Trip Blank - 210724, ALS_CONTROL_SPIKE_1	Trip Spike 1,	01-Aug-2025	12-Aug-2025	15-Aug-2025	✓	12-Aug-2025	15-Aug-2025	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> Trip Blank - 210724, ALS_CONTROL_SPIKE_1	Trip Spike 1,	01-Aug-2025	12-Aug-2025	15-Aug-2025	✓	12-Aug-2025	15-Aug-2025	✓
<b>EP080: BTEXN</b>								
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b> Trip Blank - 210724, ALS_CONTROL_SPIKE_1	Trip Spike 1,	01-Aug-2025	12-Aug-2025	15-Aug-2025	✓	12-Aug-2025	15-Aug-2025	✓
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>								
<b>Sterile Plastic Bottle - Sodium Thiosulfate (MW006)</b> SW01, SW03, SW05, SW07, SW09,	SW02, SW04, SW06, SW08, SW10	05-Aug-2025	----	----	----	06-Aug-2025	06-Aug-2025	✓



## 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity by Auto Titrator	ED037-P	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	34	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity by Auto Titrator	ED037-P	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	3	20	15.00	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	34	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Method Blanks (MB)</b>							



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
Ammonia as N by Discrete analyser	EK055G	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	34	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>							
Ammonia as N by Discrete analyser	EK055G	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	34	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM Schedule B(3)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of 'non-filterable' residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. Auto Titrator) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.
Fluoride by Auto Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with orthophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.5

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.



# CHAIN OF CUSTODY

ALS Laboratory please tick ✓

1 Sydney 777 Woodville Rd, Southfield NSW 2178  
Ph: 02 8754 8555 E: samples@als.com.au  
2 Melbourne 5 Thompson Rd, Werribee VIC 3046  
Ph: 02 4968 9433 E: samples@als.com.au

3 Brisbane 32 Stated St, Stafford QLD 4051  
Ph: 07 3243 7223 E: samples@als.com.au  
4 Townsville 14-15 Deane Ct, Mifflin QLD 4812  
Ph: 07 4709 9400 E: samples@als.com.au

5 Melbourne 2-4 Woodville Rd, Springvale VIC 3171  
Ph: 03 8243 9000 E: samples@als.com.au  
6 Adelaide 21 Burns Rd, Prospect SA 5095  
Ph: 08 8259 0660 E: samples@als.com.au

7 Perth 10 Hartley St, Mirrabooka WA 6000  
Ph: 08 9359 7852 E: samples@als.com.au  
8 Lakeland 27 Wollaston St, Lakeland TAS 7250  
Ph: 03 6371 2188 E: samples@als.com.au

#1253732

CLIENT: Scenic Rim Trail	TURNAROUND REQUIREMENTS: <input type="checkbox"/> Standard TAT (List due date): 0-14 <input checked="" type="checkbox"/> 15-30 <input type="checkbox"/> 31-45 <input type="checkbox"/> 46-60 <input type="checkbox"/> 61-90 <input type="checkbox"/> 91-120		FOR LABORATORY USE ONLY (Circle)	
OFFICE:	Note: Standard TAT may be longer for some tests e.g. Urea, Trace Organics		<input type="checkbox"/> Non Standard or urgent TAT (List due date): Contaminant Detected? Yes No NA Free Ice / Frozen on Arrival (present upon receipt)? Yes No NA Maximum Sample Temperature on Receipt: °C Other comment:	
PROJECT NUMBER: 24891	ALS QUOTE NO.:	COC SEQUENCE NUMBER (Circle)		
PROJECT MANAGER: Dan Morley	CONTACT PH: 0480 823 993	COC: 1 2 3 4 5 6 7		
SAMPLER: Simon Harley	SAMPLER MOBILE: 0438 944 658	OP: 1 2 3 4 5 6 7		
COC enabled to ALS? (YES)	EDD FORMAT (or default):	RELINQUISHED BY: Kira Kehn	RECEIVED BY: ALS Brisbane	RELINQUISHED BY:
Email Reports to: <a href="mailto:den@envhealth.com.au">den@envhealth.com.au</a> ; <a href="mailto:gm.scerimtrail@spicersstreets.com">gm.scerimtrail@spicersstreets.com</a>		DATE/TIME: 05/08/2025 5:40PM	DATE/TIME:	RECEIVED BY: S. Neufeld
Email Invoice to: <a href="mailto:sp@salesbrotherscapitalty.com">sp@salesbrotherscapitalty.com</a> ; <a href="mailto:gm.scerimtrail@spicersstreets.com">gm.scerimtrail@spicersstreets.com</a>			DATE/TIME:	DATE/TIME: 05/08/25 17:42

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY		CONTAINER INFORMATION				ANALYSIS REQUIRED including SUITES (NB: Suite Codes must be listed in title)							Environmental Division Brisbane	
LAB ID	SAMPLE ID	DATE	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	Where Metals are required, specify Total (unless suite requires) or Dissolved (also filter code)							Work Order Reference	
						EA0201 TSS	HW008 (Sc) (E. coli by Membrane Filtration)	W-017 metals (Total + W-61 7 Metals (Dissolved) and EA0201 (Additional Dissolved Metals AL, Fe, Pb) + EA0201 (Additional) Total Metals AL, Fe, Pb)	Extended Water Suite 8 (W-14)	Th-466 TP	WTEX	EB2526947	Telephone: +61 7 2552-0660	
1	SW01	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
2	SW02	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
3	SW03	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
4	SW04	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
5	SW05	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
6	SW06	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
7	SW07	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
8	SW08	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
9	SW09	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
10	SW10	5/08/2025	Water	None, Samples kept at 4°C	5	1	1	1	1					
11	DUP01	5/08/2025	Water	None, Samples kept at 4°C	2									
-	DUP02	5/08/2025	Water	None, Samples kept at 4°C	2									
12	Trip Blank	5/08/2025	Lab	None, Samples kept at 4°C	1									
13	Trip Blank	5/08/2025	Lab	None, Samples kept at 4°C	1									
TOTAL					66	10	10	10	10	2	2	0	0	

MICRO

SCANNED COPY

6/8 2:20pm  
6/8  
Mustaan

Send to Eurofins

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; DNC = Nitric Preserved DNC; SH = Sodium Hydroxide Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Disulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airtight Unpreserved Vial SO<sub>4</sub> = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass  
 Z = Zirconium Preserved Bottle; E = EDTA Preserved Bottle; ST = Sterile Bottle; ABS = Plastic Bag for Acid Sulphate Salts; B = Unpreserved Bag



# CHAIN OF CUSTODY

ALS Laboratory: please tick →

□ Sydney: 277 Woodpark Rd, Smithfield NSW 2176  
Ph: 02 8784 8555 E:samples.sydney@alsenviro.com  
□ Newcastle: 5 Rosegem Rd, Warabrook NSW 2304  
Ph:02 4968 9433 E:samples.newcastle@alsenviro.com

□ Brisbane: 32 Shand St, Stafford QLD 4053  
Ph:07 3243 7222 E:samples.brisbane@alsenviro.com  
□ Townsville: 14-15 Desma Ct, Bohle QLD 4818  
Ph:07 4796 0600 E:townsville.environmental@alsenviro.com

□ Melbourne: 2-4 Westall Rd, Springvale VIC 3171  
Ph:03 8549 9600 E: samples.melbourne@alsenviro.com  
□ Adelaide: 2-1 Burma Rd, Pooraka SA 5095  
Ph: 08 8359 0890 E:adelaide@alsenviro.com

□ Perth: 10 Hod Way, Malaga WA 6090  
Ph: 08 9209 7655 E: samples.perth@alsenviro.com  
□ Launceston: 27 Wellington St, Launceston TAS 7250  
Ph: 03 6331 2158 E: launceston@alsenviro.com

<b>CLIENT:</b> Spicers Retreat	<b>TURNAROUND REQUIREMENTS :</b> <input type="checkbox"/> Standard TAT (List due date): (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)		<input type="checkbox"/> Non Standard or urgent TAT (List due date):		<b>FOR LABORATORY USE ONLY (Circle)</b>				
<b>OFFICE:</b>	<b>ALS QUOTE NO.:</b>		<b>COC SEQUENCE NUMBER (Circle)</b>		Custody Seal Intact? Yes No N/A				
<b>PROJECT:</b> 24001_Scenic Rim Trail			<b>COC:</b> 1 2 3 4 5 6 7		Free ice / frozen ice bricks present upon receipt? Yes No N/A				
<b>ORDER NUMBER:</b> 24001			<b>OF:</b> 1 2 3 4 5 6 7		Random Sample Temperature on Receipt: °C				
<b>PROJECT MANAGER:</b> Dan Morton		<b>CONTACT PH:</b> 0400 823 993		<b>RECEIVED BY:</b>		<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>	
<b>SAMPLER:</b>		<b>SAMPLER MOBILE:</b>		<b>RELINQUISHED BY:</b> Dan Morton		<b>RECEIVED BY:</b> ALS Brisbane		<b>RECEIVED BY:</b>	
<b>COC emailed to ALS? ( YES / NO)</b>		<b>EDD FORMAT (or default):</b>		<b>DATE/TIME:</b>		<b>DATE/TIME:</b>		<b>DATE/TIME:</b>	
Email Reports to (will default to PM if no other addresses are listed): dan@envhealth.com.au; gm.scenicrimtrail@spicersretreats.com		Email Reports to (will default to PM if no other addresses are listed): ap@salterbrothershospitality.com; gm.scenicrimtrail@spicersretreats.com		<b>DATE/TIME:</b>		<b>DATE/TIME:</b>		<b>DATE/TIME:</b>	
<b>Email Invoice to</b> (will default to PM if no other addresses are listed): ap@salterbrothershospitality.com; gm.scenicrimtrail@spicersretreats.com				<b>DATE/TIME:</b>		<b>DATE/TIME:</b>		<b>DATE/TIME:</b>	
<b>COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:</b>									

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).						Additional Information		
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	EA025H TSS	IMW006 (Ec) E.coli by Membrane Filtration	W-017 metals (Total) + W-017 Metals (Dissolved) and EGO20F (Additional Dissolved Metals Al, Fe, Mn) + EGO20T (Additional Total Metals Al, Fe, Mn)	Extended Water Suite B NT - 14	TN and TP	BTEX			Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
	SW01		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW02		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW03		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW04		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW05		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW06		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW07		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW08		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW09		Water	None, Samples kept at 4°C	5	1	1	1	1					
	SW10		Water	None, Samples kept at 4°C	5	1	1	1	1					
	DUP01		Water	None, Samples kept at 4°C	2					1				
	DUP02		Water	None, Samples kept at 4°C	2					1				
	Trip Blank		Lab	None, Samples kept at 4°C	1						1			
<b>TOTAL</b>					<b>55</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	

**Water Container Codes:** P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic  
 V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;  
 Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag.

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

Melbourne	Geelong	Sydney	Canberra	Brisbane	Newcastle
6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	1/21 Smallwood Place Murarie QLD 4172 +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

Perth
46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

Auckland	Auckland (Focus)	Christchurch	Tauranga
35 O'Rorke Road Penrose Auckland 1061 +64 9 526 4551 IANZ# 1327	Unit C1/4 Pacific Rise Mount Wellington Auckland 1061 +64 9 525 0568 IANZ# 1308	43 Detroit Drive Rolleston Christchurch 7675 +64 3 343 5201 IANZ# 1290	1277 Cameron Road Gate Pa Tauranga 3112 +64 9 525 0568 IANZ# 1402

## Sample Receipt Advice

**Company name:** Spicers Tamarind Retreat  
**Contact name:** Dan  
**Project name:** 24001\_SCENIC RIM TRAIL  
**Project ID:** 24001  
**Turnaround time:** 5 Day  
**Date/Time received:** Aug 6, 2025 2:20 PM  
**Eurofins reference:** 1253732

## Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✗ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✗ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

## Notes

Please note: Sample has been renamed DUP02

## Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

**Zoe Flynn on phone : 0499 572 666 or by email: [Zoe.Flynn@eurofinsanz.com](mailto:Zoe.Flynn@eurofinsanz.com)**

Results will be delivered electronically via email to Dan - [dan@envhealth.com.au](mailto:dan@envhealth.com.au).

**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

**Eurofins Environment Testing NZ Ltd**

NZBN: 9429046024954

<b>Melbourne</b> 6 Monterey Road Dandenong South VIC 3175 +61 3 8564 5000 NATA# 1261 Site# 1254	<b>Geelong</b> 19/8 Lewalan Street Grovedale VIC 3216 +61 3 8564 5000 NATA# 1261 Site# 25403	<b>Sydney</b> 179 Magowar Road Girraween NSW 2145 +61 2 9900 8400 NATA# 1261 Site# 18217	<b>Canberra</b> Unit 1,2 Dacre Street Mitchell ACT 2911 +61 2 6113 8091 NATA# 1261 Site# 25466	<b>Brisbane</b> 1/21 Smallwood Place Murarrie QLD 4172 +61 7 3902 4600 NATA# 1261 Site# 20794 & 2780	<b>Newcastle</b> 1/2 Frost Drive Mayfield West NSW 2304 +61 2 4968 8448 NATA# 1261 Site# 25079	<b>Perth</b> 46-48 Banksia Road Welshpool WA 6106 +61 8 6253 4444 NATA# 2377 Site# 2370 & 2554	<b>Auckland</b> 35 O'Rorke Road Penrose Auckland 1061 +64 9 526 4551 IANZ# 1327	<b>Auckland (Focus)</b> Unit C1/4 Pacific Rise Mount Wellington Auckland 1061 +64 9 525 0568 IANZ# 1308	<b>Christchurch</b> 43 Detroit Drive Rolleston Christchurch 7675 +64 3 343 5201 IANZ# 1290	<b>Tauranga</b> 1277 Cameron Road Gate Pa Tauranga 3112 +64 9 525 0568 IANZ# 1402
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web: www.eurofins.com.au

email: EnviroSales@eurofinsanz.com

**Company Name:** Spicers Tamarind Retreat  
**Address:** 88 Obi Lane South  
 Maleny  
 QLD 4552

**Project Name:** 24001\_SCENIC RIM TRAIL  
**Project ID:** 24001

**Order No.:**  
**Report #:** 1253732  
**Phone:** 5420 5420  
**Fax:**

**Received:** Aug 6, 2025 2:20 PM  
**Due:** To Be Advised  
**Priority:** 5 Day  
**Contact Name:** Dan

**Eurofins Analytical Services Manager : Zoe Flynn**

<b>Sample Detail</b>						Phosphate total (as P)	Total Nitrogen Set (as N)
<b>Melbourne Laboratory - NATA # 1261 Site # 1254</b>						X	X
<b>External Laboratory</b>							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	DUP02	Aug 05, 2025		Water	B25-Au0020080	X	X
<b>Test Counts</b>						1	1



# CHAIN OF CUSTODY

ALS Laboratory - Brisbane

1. Brisbane: 171 Wickham St, Brisbane QLD 4000  
Tel: 61 61 949 9500 Fax: 61 61 949 9501  
2. Melbourne: 2 Riverside Pk, Werribee VIC 3046  
Tel: 61 3 949 9500 Fax: 61 3 949 9501


3. Sydney: 171 Wickham St, Brisbane QLD 4000  
Tel: 61 61 949 9500 Fax: 61 61 949 9501  
4. Perth: 171 Wickham St, Brisbane QLD 4000  
Tel: 61 61 949 9500 Fax: 61 61 949 9501

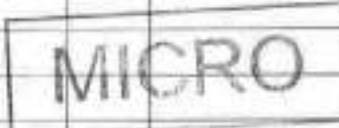
5. Perth: 171 Wickham St, Brisbane QLD 4000  
Tel: 61 61 949 9500 Fax: 61 61 949 9501  
6. Adelaide: 171 Wickham St, Brisbane QLD 4000  
Tel: 61 61 949 9500 Fax: 61 61 949 9501

7. Perth: 171 Wickham St, Brisbane QLD 4000  
Tel: 61 61 949 9500 Fax: 61 61 949 9501  
8. Perth: 171 Wickham St, Brisbane QLD 4000  
Tel: 61 61 949 9500 Fax: 61 61 949 9501

<b>CLIENT:</b> Spicers Retreat	<b>TURNAROUND REQUIREMENTS:</b> <input type="checkbox"/> Standard TAT (List due date): (Standard TAT may be longer for some tests e.g. Micro Toxin Screen)		<input type="checkbox"/> Non Standard or urgent TAT (List due date):		<b>FOR LABORATORY USE ONLY (Client)</b>			
<b>OFFICE:</b>	<b>ALS QUOTE NO.:</b>				Carboys used (incl)?	Yes	No	NA
<b>PROJECT:</b> 24001_Scenic Rim Trail					Flow (no / from / to) (only provide upon receipt)	Yes	No	NA
<b>ORDER NUMBER:</b> 24001					Random Sample Temperature (if Request)			
<b>PROJECT MANAGER:</b> Dan Morlan	<b>CONTACT PH:</b> 0950 823 993				Other comment:			
<b>SAMPLER:</b> Simon Harley	<b>SAMPLER MOBILE:</b> 0438 944 658		<b>RELINQUISHED BY:</b> Simon Harley		<b>RECEIVED BY:</b> EC ALS Brisbane	<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>
<b>COC emailed to ALS? [ YES ]</b>	<b>EDD FORMAT (or default):</b>		<b>DATE/TIME:</b> 16/10/25 13:05		<b>DATE/TIME:</b> 16/10/25 13:00	<b>DATE/TIME:</b>		<b>DATE/TIME:</b>
Email Reports to (will default to PM if no other addresses are listed) <a href="mailto:als@environment.com.au">als@environment.com.au</a> , <a href="mailto:gm.donnan@brisbane@epsc.com.au">gm.donnan@brisbane@epsc.com.au</a>								
Email Invoice to (will default to PM if no other addresses are listed) <a href="mailto:ap@scicobrothershospitality.com">ap@scicobrothershospitality.com</a> , <a href="mailto:gm.spench@scicobrothershospitality.com">gm.spench@scicobrothershospitality.com</a>								

### COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED (including SUITES (NB: Suite Codes must be listed to attract their price) <small>(Where Matrix is required, specify Total (influent only required) or Dissolved (effluent only required))</small>						Additional Information		
	LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	PHOSPHORUS	AMMONIA (IC) (col by Membrane Filtration)	W 0117 metals (Total + W 017 Metals (Dissolved) and W 0130 (Additional Dissolved Metals - Al, Fe, Ni) + W 0087 (Dissolved Total Metals - Al, Fe, Ni)	Extended Water Suite B NR - 24	TN and TP	BTEX	Comments on daily containment events, dilutions, or variances impacting specific COC analysis etc.  <b>Environmental Division Brisbane</b> Work Order Reference <b>EB2536296</b>   Telephone: +61 7 3992 8399	
1	SW01			Water	None, Samples kept at 4°C	5	1	1	1	1				
2	SW02			Water	None, Samples kept at 4°C	5	1	1	1	1				
3	SW03			Water	None, Samples kept at 4°C	5	1	1	1	1				
4	SW04			Water	None, Samples kept at 4°C	5	1	1	1	1				
5	SW05			Water	None, Samples kept at 4°C	5	1	1	1	1				
6	SW06			Water	None, Samples kept at 4°C	5	1	1	1	1				
7	SW07			Water	None, Samples kept at 4°C	5	1	1	1	1				
8	SW08			Water	None, Samples kept at 4°C	5	1	1	1	1				
9	SW09			Water	None, Samples kept at 4°C	5	1	1	1	1				
10	SW10			Water	None, Samples kept at 4°C	5	1	1	1	1				
11	DUP01			Water	None, Samples kept at 4°C	2					1			
12	DUP02			Water	None, Samples kept at 4°C	2					1			
13	Tip Blank			Lab	None, Samples kept at 4°C	1						1		
<b>TOTAL</b>						55	10	10	10	10	2	1	0	0



Water Container Codes: P = Unpreserved Plastic; N = Nitro-Preserved Plastic; DR = Nitro-Preserved DRC; SH = Sodium Hydroxide/Cl Preserved; S = Sodium Hydroxide Preserved Plastic; AS = Amber Glass Unpreserved; AP = Airtight Unpreserved Plastic  
 V = VOA Vol-CI Preserved; V2 = VOA Vol-Codium Bisulfate Preserved; VS = VOA Vol-Sulfate Preserved; AV = Airtight Unpreserved Vol-SO4 Sulfate Preserved; Amber Glass; H = HDI preserved Plastic; HS = HDI preserved Separation bottle; SP = Surface Preserved Plastic; F = Ferric Chloride Preserved Glass  
 Z = Zinc Acetate Preserved Bottle; B = EDTA Preserved Bottle; ST = Sterile Bottle; ASE = Nitro-Bag for Acid Sulphate Salts; R = Unpreserved Bag



## CERTIFICATE OF ANALYSIS

**Work Order** : **EB2536296**  
**Client** : **Spicers Scenic Rim Trail**  
**Contact** : DAN MORTON  
**Address** : 1095 South Branch Road, Tregony QLD 4370  
4370  
**Telephone** : ----  
**Project** : 24001\_Scenic Rim Trail  
**Order number** : 24001  
**C-O-C number** : ----  
**Sampler** : Simon Harley  
**Site** : ----  
**Quote number** : EN/333  
**No. of samples received** : 14  
**No. of samples analysed** : 13

**Page** : 1 of 10  
**Laboratory** : Environmental Division Brisbane  
**Contact** : Customer Services EB  
**Address** : 2 Byth Street Stafford QLD Australia 4053  
**Telephone** : +61-7-3552-8685  
**Date Samples Received** : 16-Oct-2025 15:30  
**Date Analysis Commenced** : 16-Oct-2025  
**Issue Date** : 14-Nov-2025 10:21



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.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Liam Cooley	Chemist	Brisbane Organics, Stafford, QLD
Stephen Tam	Microbiologist	Brisbane Microbiological, Stafford, QLD



## 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.

- It is recognised that EK067G (Total Phosphorus) is less than EK071G (Reactive Phosphorus) for some samples. However, the difference is within experimental variation of the methods.
- MF = membrane filtration
- CFU = colony forming unit
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H<sup>+</sup> to the Cations and Nitrate, SiO<sub>2</sub> and Fluoride to the Anions.
- MW006 is ALS's internal code and is equivalent to AS4276.5.
- Microbiological Comment: In accordance with ALS work instruction QWI-MIC/04, membrane filtration result is reported an approximate (~) when the count of colonies on the filtered membrane is outside the range of 10 - 100cfu.
- EA016: Calculated TDS is determined from Electrical conductivity using a conversion factor of 0.65.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2536296-001	EB2536296-002	EB2536296-003	EB2536296-004	EB2536296-005	
				Result	Result	Result	Result	Result	
<b>EA005P: pH by PC Titrator</b>									
pH Value	----	0.01	pH Unit	7.63	7.20	7.08	7.08	7.26	
<b>EA006: Sodium Adsorption Ratio (SAR)</b>									
^ Sodium Adsorption Ratio	----	0.01	-	0.56	0.54	0.54	0.56	0.52	
<b>EA010P: Conductivity by PC Titrator</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	100	101	96	95	123	
<b>EA016: Calculated TDS (from Electrical Conductivity)</b>									
Total Dissolved Solids (Calc.)	----	1	mg/L	65	66	62	62	80	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	<5	<5	12	<5	6	
<b>EA065: Total Hardness as CaCO3</b>									
Total Hardness as CaCO3	----	1	mg/L	29	31	31	29	45	
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	32	33	34	34	43	
Total Alkalinity as CaCO3	----	1	mg/L	32	33	34	34	43	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	2	2	2	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	12	11	9	9	12	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	5	6	6	5	8	
Magnesium	7439-95-4	1	mg/L	4	4	4	4	6	
Sodium	7440-23-5	1	mg/L	7	7	7	7	8	
Potassium	7440-09-7	1	mg/L	<1	<1	1	1	<1	
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2536296-001	EB2536296-002	EB2536296-003	EB2536296-004	EB2536296-005	
				Result	Result	Result	Result	Result	
<b>EG020F: Dissolved Metals by ICP-MS - Continued</b>									
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<b>0.002</b>	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.001</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	<b>0.002</b>	
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<b>0.15</b>	<b>0.08</b>	<b>0.19</b>	<b>0.19</b>	<b>0.12</b>	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<b>0.002</b>	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.004</b>	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	
Iron	7439-89-6	0.05	mg/L	<b>0.14</b>	<b>0.11</b>	<b>0.18</b>	<b>0.17</b>	<b>0.14</b>	
<b>EK040P: Fluoride by PC Titrator</b>									
Fluoride	16984-48-8	0.1	mg/L	<0.1	<b>0.1</b>	<0.1	<0.1	<0.1	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<0.01	<0.01	
<b>EK057G: Nitrite as N by Discrete Analyser</b>									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EK058G: Nitrate as N by Discrete Analyser</b>									
Nitrate as N	14797-55-8	0.01	mg/L	<b>0.04</b>	<b>0.04</b>	<b>0.03</b>	<b>0.03</b>	<b>0.02</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW01	SW02	SW03	SW04	SW05
Sampling date / time				16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2536296-001	EB2536296-002	EB2536296-003	EB2536296-004	EB2536296-005	
				Result	Result	Result	Result	Result	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	<b>0.04</b>	<b>0.04</b>	<b>0.03</b>	<b>0.03</b>	<b>0.02</b>	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.2</b>	<b>0.3</b>	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
<sup>^</sup> Total Nitrogen as N	----	0.1	mg/L	<b>0.2</b>	<b>0.2</b>	<b>0.3</b>	<b>0.2</b>	<b>0.3</b>	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	<b>0.05</b>	<b>0.05</b>	<b>0.06</b>	<b>0.05</b>	<b>0.06</b>	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<b>0.07</b>	<b>0.07</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	
<b>EN055: Ionic Balance</b>									
∅ Total Anions	----	0.01	meq/L	<b>1.02</b>	<b>1.01</b>	<b>0.97</b>	<b>0.97</b>	<b>1.24</b>	
∅ Total Cations	----	0.01	meq/L	<b>0.88</b>	<b>0.93</b>	<b>0.96</b>	<b>0.91</b>	<b>1.24</b>	
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>									
<i>Escherichia coli</i>	----	1	CFU/100mL	<b>40</b>	<b>45</b>	<b>66</b>	<b>56</b>	<b>15</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2536296-006	EB2536296-007	EB2536296-008	EB2536296-009	EB2536296-010	
				Result	Result	Result	Result	Result	
<b>EA005P: pH by PC Titrator</b>									
pH Value	----	0.01	pH Unit	7.12	6.89	6.94	7.22	7.13	
<b>EA006: Sodium Adsorption Ratio (SAR)</b>									
^ Sodium Adsorption Ratio	----	0.01	-	0.54	0.78	0.74	0.54	0.51	
<b>EA010P: Conductivity by PC Titrator</b>									
Electrical Conductivity @ 25°C	----	1	µS/cm	96	86	88	96	96	
<b>EA016: Calculated TDS (from Electrical Conductivity)</b>									
Total Dissolved Solids (Calc.)	----	1	mg/L	62	56	57	62	62	
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>									
Suspended Solids (SS)	----	5	mg/L	<5	<5	<5	<5	<5	
<b>EA065: Total Hardness as CaCO3</b>									
Total Hardness as CaCO3	----	1	mg/L	31	20	22	31	36	
<b>ED037P: Alkalinity by PC Titrator</b>									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1	
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1	
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	34	22	22	36	34	
Total Alkalinity as CaCO3	----	1	mg/L	34	22	22	36	34	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	2	2	2	
<b>ED045G: Chloride by Discrete Analyser</b>									
Chloride	16887-00-6	1	mg/L	9	13	13	9	9	
<b>ED093F: Dissolved Major Cations</b>									
Calcium	7440-70-2	1	mg/L	6	3	4	6	6	
Magnesium	7439-95-4	1	mg/L	4	3	3	4	5	
Sodium	7440-23-5	1	mg/L	7	8	8	7	7	
Potassium	7440-09-7	1	mg/L	1	<1	<1	1	1	
<b>EG020F: Dissolved Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2536296-006	EB2536296-007	EB2536296-008	EB2536296-009	EB2536296-010	
				Result	Result	Result	Result	Result	
<b>EG020F: Dissolved Metals by ICP-MS - Continued</b>									
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.002</b>	<b>0.010</b>	<b>0.014</b>	<b>0.001</b>	<0.001	
Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	
<b>EG020T: Total Metals by ICP-MS</b>									
Aluminium	7429-90-5	0.01	mg/L	<b>0.15</b>	<b>0.10</b>	<b>0.08</b>	<b>0.16</b>	<b>0.23</b>	
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	
Manganese	7439-96-5	0.001	mg/L	<b>0.005</b>	<b>0.013</b>	<b>0.015</b>	<b>0.006</b>	<b>0.006</b>	
Iron	7439-89-6	0.05	mg/L	<b>0.16</b>	<b>0.19</b>	<b>0.20</b>	<b>0.17</b>	<b>0.21</b>	
<b>EK040P: Fluoride by PC Titrator</b>									
Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	
<b>EK055G: Ammonia as N by Discrete Analyser</b>									
Ammonia as N	7664-41-7	0.01	mg/L	<b>0.02</b>	<0.01	<0.01	<b>0.01</b>	<b>0.02</b>	
<b>EK057G: Nitrite as N by Discrete Analyser</b>									
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	
<b>EK058G: Nitrate as N by Discrete Analyser</b>									
Nitrate as N	14797-55-8	0.01	mg/L	<b>0.03</b>	<0.01	<0.01	<b>0.05</b>	<b>0.05</b>	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	SW06	SW07	SW08	SW09	SW10
Sampling date / time				16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	
Compound	CAS Number	LOR	Unit	EB2536296-006	EB2536296-007	EB2536296-008	EB2536296-009	EB2536296-010	
				Result	Result	Result	Result	Result	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	0.03	<0.01	<0.01	0.05	0.05	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.3	0.3	0.2	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
<sup>^</sup> Total Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.3	0.4	0.2	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	0.06	0.05	0.05	0.05	0.05	
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.08	0.06	0.06	0.08	0.07	
<b>EN055: Ionic Balance</b>									
∅ Total Anions	----	0.01	meq/L	0.97	0.85	0.85	1.01	0.97	
∅ Total Cations	----	0.01	meq/L	0.96	0.74	0.79	0.96	1.04	
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>									
<i>Escherichia coli</i>	----	1	CFU/100mL	110	91	78	54	50	



## Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	DUP01	DUP02	Trip Blank	----	----
Sampling date / time				16-Oct-2025 00:00	16-Oct-2025 00:00	16-Oct-2025 00:00	----	----	
Compound	CAS Number	LOR	Unit	EB2536296-011	EB2536296-012	EB2536296-013	-----	-----	
				Result	Result	Result	----	----	
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>									
Nitrite + Nitrate as N	----	0.01	mg/L	<b>0.04</b>	<b>0.04</b>	----	----	----	
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<b>0.3</b>	<b>0.3</b>	----	----	----	
<b>EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser</b>									
<sup>^</sup> Total Nitrogen as N	----	0.1	mg/L	<b>0.3</b>	<b>0.3</b>	----	----	----	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>									
Total Phosphorus as P	----	0.01	mg/L	<b>0.05</b>	<b>0.03</b>	----	----	----	
<b>EP080/071: Total Petroleum Hydrocarbons</b>									
C6 - C9 Fraction	----	20	µg/L	----	----	<20	----	----	
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>									
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	<20	----	----	
<sup>^</sup> C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	<20	----	----	
<b>EP080: BTEXN</b>									
Benzene	71-43-2	1	µg/L	----	----	<1	----	----	
Toluene	108-88-3	2	µg/L	----	----	<2	----	----	
Ethylbenzene	100-41-4	2	µg/L	----	----	<2	----	----	
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	----	<2	----	----	
ortho-Xylene	95-47-6	2	µg/L	----	----	<2	----	----	
<sup>^</sup> Total Xylenes	----	2	µg/L	----	----	<2	----	----	
<sup>^</sup> Sum of BTEX	----	1	µg/L	----	----	<1	----	----	
Naphthalene	91-20-3	5	µg/L	----	----	<5	----	----	
<b>EP080S: TPH(V)/BTEX Surrogates</b>									
1,2-Dichloroethane-D4	17060-07-0	2	%	----	----	<b>96.6</b>	----	----	
Toluene-D8	2037-26-5	2	%	----	----	<b>96.5</b>	----	----	
4-Bromofluorobenzene	460-00-4	2	%	----	----	<b>110</b>	----	----	



### Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
<b>EP080S: TPH(V)/BTEX Surrogates</b>			
1,2-Dichloroethane-D4	17060-07-0	66	138
Toluene-D8	2037-26-5	79	120
4-Bromofluorobenzene	460-00-4	74	118



## QUALITY CONTROL REPORT

Work Order	: <b>EB2536296</b>	Page	: 1 of 15
Client	: <b>Spicers Scenic Rim Trail</b>	Laboratory	: Environmental Division Brisbane
Contact	: DAN MORTON	Contact	: Customer Services EB
Address	: 1095 South Branch Road, Tregony QLD 4370	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: ----	Telephone	: +61-7-3552-8685
Project	: 24001_Scenic Rim Trail	Date Samples Received	: 16-Oct-2025
Order number	: 24001	Date Analysis Commenced	: 16-Oct-2025
C-O-C number	: ----	Issue Date	: 14-Nov-2025
Sampler	: Simon Harley		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 14		
No. of samples analysed	: 13		



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 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
Beatriz Llarinas	Senior Chemist	Brisbane Inorganics, Stafford, QLD
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Liam Cooley	Chemist	Brisbane Organics, Stafford, QLD
Stephen Tam	Microbiologist	Brisbane Microbiological, Stafford, QLD



## 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

\* = The final LOR has been raised due to dilution or other sample specific cause; adjusted LOR is shown in brackets. The duplicate ranges for Acceptable RPD% are applied to the final LOR where applicable.

## 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 (%)
<b>EA005P: pH by PC Titrator (QC Lot: 6935959)</b>									
EB2536296-008	SW08	EA005-P: pH Value	----	0.01	pH Unit	6.94	7.02	1.1	0% - 20%
EB2536256-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.90	7.91	0.1	0% - 20%
<b>EA005P: pH by PC Titrator (QC Lot: 6935966)</b>									
EB2536296-010	SW10	EA005-P: pH Value	----	0.01	pH Unit	7.13	7.23	1.4	0% - 20%
EB253629-008	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.67	7.68	0.1	0% - 20%
<b>EA010P: Conductivity by PC Titrator (QC Lot: 6935961)</b>									
EB2536296-008	SW08	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	88	87	1.3	0% - 20%
EB2536256-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3270	3290	0.7	0% - 20%
<b>EA010P: Conductivity by PC Titrator (QC Lot: 6935968)</b>									
EB2536296-010	SW10	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	96	96	0.0	0% - 20%
EB253629-008	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	884	900	1.9	0% - 20%
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6944045)</b>									
EB253650-002	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EB2536293-001	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	116	114	2.2	0% - 20%
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QC Lot: 6944046)</b>									
EB2536296-008	SW08	EA025H: Suspended Solids (SS)	----	5	mg/L	<5	<5	0.0	No Limit
EB2536683-004	Anonymous	EA025H: Suspended Solids (SS)	----	5	mg/L	5610	5700	1.7	0% - 20%
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 6935963)</b>									
EB2536256-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit



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 (%)
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 6935963) - continued</b>									
EB2536256-001	Anonymous	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	352	350	0.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	352	350	0.5	0% - 20%
<b>ED037P: Alkalinity by PC Titrator (QC Lot: 6935969)</b>									
EB2536296-010	SW10	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	34	36	3.6	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	34	36	3.6	0% - 20%
EB253629-008	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	206	208	0.9	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	206	208	0.9	0% - 20%
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 6938380)</b>									
EB2536296-001	SW01	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	3	0.0	No Limit
EB2536296-010	SW10	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	2	2	0.0	No Limit
<b>ED045G: Chloride by Discrete Analyser (QC Lot: 6938378)</b>									
EB2536296-001	SW01	ED045G: Chloride	16887-00-6	1	mg/L	12	11	0.0	0% - 50%
EB2536296-010	SW10	ED045G: Chloride	16887-00-6	1	mg/L	9	9	0.0	No Limit
<b>ED093F: Dissolved Major Cations (QC Lot: 6938225)</b>									
EB2536296-007	SW07	ED093F: Calcium	7440-70-2	1	mg/L	3	3	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	3	3	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	8	8	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EB2536210-008	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	109	106	3.2	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	<1	<1	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	515	513	0.5	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	89	88	1.1	0% - 20%
<b>ED093F: Dissolved Major Cations (QC Lot: 6938370)</b>									
EB2536296-001	SW01	ED093F: Calcium	7440-70-2	1	mg/L	5	5	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	4	4	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	7	7	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
EB2536302-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	155	150	3.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	326	318	2.3	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	2680	2620	2.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	114	112	1.9	0% - 20%
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6938223)</b>									
EB2536296-007	SW07	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit



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 (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6938223) - continued</b>									
EB2536296-007	SW07	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.010	0.010	0.0	0% - 50%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit
EB2536210-008	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.056	0.055	3.0	0% - 20%
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.007	0.007	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	1.91	1.89	0.9	0% - 20%
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6938368)</b>									
EB2536296-001	SW01	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	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: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.0	No Limit		
EB2536302-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.271	0.273	0.7	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit		



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 (%)
<b>EG020F: Dissolved Metals by ICP-MS (QC Lot: 6938368) - continued</b>									
EB2536302-002	Anonymous	EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.14	0.14	0.0	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6937651)</b>									
ET2504866-008	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.009	0.008	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.007	0.008	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.014	0.014	0.0	0% - 50%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.82	0.90	9.0	0% - 20%
EG020A-T: Iron	7439-89-6	0.05	mg/L	1.21	1.23	1.5	0% - 20%		
EB2536210-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.024	0.024	0.0	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.594	0.599	0.8	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.237	0.239	0.8	0% - 20%
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.061	0.059	2.7	0% - 50%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.91	0.94	3.7	0% - 20%
EG020A-T: Iron	7439-89-6	0.05	mg/L	2.02	2.08	2.9	0% - 20%		
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6938349)</b>									
EB2536278-002	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	0.0001	0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.159	0.156	2.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.001	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.024	0.022	10.3	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.88	0.85	3.6	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	1.22	1.09	11.1	0% - 20%
		EB2535976-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001
EG020A-T: Arsenic	7440-38-2			0.001	mg/L	<0.001	<0.001	0.0	No Limit
EG020A-T: Chromium	7440-47-3			0.001	mg/L	0.002	0.002	0.0	No Limit



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 (%)
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6938349) - continued</b>									
EB2535976-001	Anonymous	EG020A-T: Copper	7440-50-8	0.001	mg/L	0.058	0.056	2.1	0% - 20%
		EG020A-T: Lead	7439-92-1	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.026	0.026	0.0	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.002	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.160	0.156	2.8	0% - 20%
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.26	0.25	4.8	0% - 20%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.13	0.12	0.0	No Limit
<b>EG020T: Total Metals by ICP-MS (QC Lot: 6938533)</b>									
EB2536296-009	SW09	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.006	0.006	0.0	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01	mg/L	0.16	0.16	0.0	0% - 50%
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.17	0.17	0.0	No Limit
EB2536303-001	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001 (0.0005)*	mg/L	<0.0005	<0.0005	0.0	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Chromium	7440-47-3	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Copper	7440-50-8	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Lead	7439-92-1	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Manganese	7439-96-5	0.001 (0.005) *	mg/L	0.009	0.010	11.1	No Limit
		EG020A-T: Nickel	7440-02-0	0.001 (0.005) *	mg/L	<0.005	<0.005	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005 (0.026) *	mg/L	<0.026	<0.026	0.0	No Limit
		EG020A-T: Aluminium	7429-90-5	0.01 (0.05)*	mg/L	0.05	<0.05	0.0	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.09	0.09	0.0	No Limit
<b>EK040P: Fluoride by PC Titrator (QC Lot: 6935964)</b>									
EB2536256-001	Anonymous	EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
<b>EK040P: Fluoride by PC Titrator (QC Lot: 6935967)</b>									



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 (%)
<b>EK040P: Fluoride by PC Titrator (QC Lot: 6935967) - continued</b>									
EB2536296-010	SW10	EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	<0.1	0.0	No Limit
<b>EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6939121)</b>									
EB2536240-018	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.42	0.43	0.0	0% - 20%
EB2535976-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	53.8	53.7	0.2	0% - 20%
<b>EK055G: Ammonia as N by Discrete Analyser (QC Lot: 6939122)</b>									
EB2536296-012	DUP02	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.08	109	No Limit
EB2536451-006	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.04	0.03	0.0	No Limit
<b>EK057G: Nitrite as N by Discrete Analyser (QC Lot: 6938384)</b>									
EB2536296-001	SW01	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EB2536296-010	SW10	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6939124)</b>									
EB2536240-018	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.03	0.03	0.0	No Limit
EB2535976-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 6939125)</b>									
EB2536296-012	DUP02	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.04	0.0	No Limit
EB2536451-006	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6939506)</b>									
EB2536236-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.9	2.8	5.0	0% - 20%
EB2536296-004	SW04	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.2	0.2	0.0	No Limit
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 6939508)</b>									
EB2536308-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.5)*	mg/L	3.5	3.7	4.9	No Limit
EB2536523-008	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.5	1.3	12.3	0% - 50%
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 6939507)</b>									
EB2536236-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	2.75	2.69	2.1	0% - 20%
EB2536296-004	SW04	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.05	0.06	0.0	No Limit
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 6938382)</b>									
EB2536296-001	SW01	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.07	0.07	0.0	No Limit
EB2536296-010	SW10	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.07	0.07	0.0	No Limit
<b>EP080/071: Total Petroleum Hydrocarbons (QC Lot: 6941181)</b>									
EB2536164-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EB2536210-027	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 6941181)</b>									
EB2536164-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EB2536210-027	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
<b>EP080: BTEXN (QC Lot: 6941181)</b>									
EB2536164-001	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit



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 (%)
<b>EP080: BTEXN (QC Lot: 6941181) - continued</b>									
EB2536164-001	Anonymous	EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EB2536210-027	Anonymous	EP080: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP080: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit



### 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: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%) LCS	Acceptable Limits (%) Low High	
<b>EA005P: pH by PC Titrator (QCLot: 6935959)</b>								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.0	102
				----	7 pH Unit	100	98.0	102
<b>EA005P: pH by PC Titrator (QCLot: 6935966)</b>								
EA005-P: pH Value	----	----	pH Unit	----	4 pH Unit	100	98.0	102
				----	7 pH Unit	100	98.0	102
<b>EA010P: Conductivity by PC Titrator (QCLot: 6935961)</b>								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	2100 µS/cm	94.2	90.0	106
				<1	24800 µS/cm	98.8	90.0	106
<b>EA010P: Conductivity by PC Titrator (QCLot: 6935968)</b>								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	2100 µS/cm	94.0	90.0	106
				<1	12890 µS/cm	103	90.0	106
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6944045)</b>								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	104	88.0	112
				<5	1000 mg/L	98.3	88.0	112
				<5	816 mg/L	96.9	84.9	115
<b>EA025: Total Suspended Solids dried at 104 ± 2°C (QCLot: 6944046)</b>								
EA025H: Suspended Solids (SS)	----	5	mg/L	<5	150 mg/L	99.5	88.0	112
				<5	1000 mg/L	102	88.0	112
				<5	816 mg/L	98.0	84.9	115
<b>ED037P: Alkalinity by PC Titrator (QCLot: 6935963)</b>								
ED037-P: Total Alkalinity as CaCO <sub>3</sub>	----	----	mg/L	----	200 mg/L	93.8	80.0	120
<b>ED037P: Alkalinity by PC Titrator (QCLot: 6935969)</b>								
ED037-P: Total Alkalinity as CaCO <sub>3</sub>	----	----	mg/L	----	50 mg/L	95.1	80.0	120
<b>ED041G: Sulfate (Turbidimetric) as SO<sub>4</sub> 2- by DA (QCLot: 6938380)</b>								
ED041G: Sulfate as SO <sub>4</sub> - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	97.3	85.0	118
				<1	100 mg/L	106	85.0	118
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6938378)</b>								
ED045G: Chloride	16887-00-6	1	mg/L	<1	10 mg/L	102	90.0	115
				<1	1000 mg/L	112	90.0	115
<b>ED093F: Dissolved Major Cations (QCLot: 6938225)</b>								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	90.0	70.0	130



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
					Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)
Method: Compound	CAS Number	LOR	Unit					LCS	Low
<b>ED093F: Dissolved Major Cations (QCLot: 6938225) - continued</b>									
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.7	70.0	130	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	97.6	70.0	130	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	93.6	70.0	130	
<b>ED093F: Dissolved Major Cations (QCLot: 6938370)</b>									
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	92.9	70.0	130	
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	93.3	70.0	130	
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	94.8	70.0	130	
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	97.7	70.0	130	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6938223)</b>									
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	100	79.0	118	
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.5	88.0	116	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	95.7	88.0	108	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.5	87.0	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.7	88.0	114	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.4	89.0	110	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	98.0	89.0	120	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.8	89.0	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.2	87.0	113	
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	97.7	82.0	114	
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6938368)</b>									
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.6	79.0	118	
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	90.7	88.0	116	
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	88.6	88.0	108	
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	87.0	113	
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	100	88.0	114	
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	100	89.0	110	
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.5	89.0	120	
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.3	89.0	113	
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	89.7	87.0	113	
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	87.1	82.0	114	
<b>EG020T: Total Metals by ICP-MS (QCLot: 6937651)</b>									
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	104	80.0	114	
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	107	88.0	112	
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	104	88.0	111	



Sub-Matrix: **WATER**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
					LCS	Low	High	
<b>EG020T: Total Metals by ICP-MS (QCLot: 6937651) - continued</b>								
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	104	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	103	89.0	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	106	88.0	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	104	88.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	109	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	109	82.0	118
<b>EG020T: Total Metals by ICP-MS (QCLot: 6938349)</b>								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	98.2	80.0	114
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	99.4	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.3	88.0	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	100	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	99.8	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	99.1	89.0	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.8	88.0	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	99.1	88.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.8	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	107	82.0	118
<b>EG020T: Total Metals by ICP-MS (QCLot: 6938533)</b>								
EG020A-T: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	99.6	80.0	114
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	102	88.0	112
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	98.8	88.0	111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	99.1	89.0	115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	98.2	88.0	116
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.2	89.0	112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.4	88.0	114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.4	88.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	99.6	84.0	114
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	101	82.0	118
<b>EK040P: Fluoride by PC Titrator (QCLot: 6935964)</b>								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	97.2	80.0	117
<b>EK040P: Fluoride by PC Titrator (QCLot: 6935967)</b>								
EK040P: Fluoride	16984-48-8	0.1	mg/L	<0.1	5 mg/L	98.1	80.0	117
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6939121)</b>								



Sub-Matrix: **WATER**

				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%)	Acceptable Limits (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	Low	High
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6939121) - continued</b>								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	100	83.5	114
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6939122)</b>								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	102	83.5	114
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6938384)</b>								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	97.1	90.0	110
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6939124)</b>								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	95.7	85.7	111
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6939125)</b>								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	96.7	85.7	111
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6939506)</b>								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	88.5	70.1	108
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6939508)</b>								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	1 mg/L	100	70.1	108
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6939507)</b>								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	96.8	84.7	106
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6938382)</b>								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	105	81.7	117
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 6941181)</b>								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	180 µg/L	104	77.0	122
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6941181)</b>								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	225 µg/L	104	76.0	121
EP080: C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX X	20	µg/L	<20	----	----	----	----
<b>EP080: BTEXN (QCLot: 6941181)</b>								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.7	79.8	115
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	103	78.6	116
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	98.5	77.3	115
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	102	82.0	118
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	96.3	86.0	119
EP080: Total Xylenes	----	2	µg/L	<2	----	----	----	----
EP080: Sum of BTEX	----	1	µg/L	<1	----	----	----	----
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	90.4	77.8	116



### 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

				Matrix Spike (MS) Report			
				Spike	Spike Recovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 6938380)</b>							
EB2536296-002	SW02	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	20 mg/L	95.5	70.0	130
<b>ED045G: Chloride by Discrete Analyser (QCLot: 6938378)</b>							
EB2536296-002	SW02	ED045G: Chloride	16887-00-6	400 mg/L	118	70.0	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6938223)</b>							
EB2536296-008	SW08	EG020A-F: Arsenic	7440-38-2	1 mg/L	92.7	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	93.0	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	95.9	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	95.9	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	95.4	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	92.8	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	95.4	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	94.6	70.0	130
<b>EG020F: Dissolved Metals by ICP-MS (QCLot: 6938368)</b>							
EB2536296-002	SW02	EG020A-F: Arsenic	7440-38-2	1 mg/L	99.9	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	105	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	110	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	111	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	112	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	105	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	108	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	103	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 6937651)</b>							
EB2535980-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	102	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	95.9	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	93.0	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	93.0	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	95.6	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	97.2	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	98.3	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	101	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 6938349)</b>							
EB2536288-001	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	97.0	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.2	70.0	130



Sub-Matrix: WATER

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
<b>EG020T: Total Metals by ICP-MS (QCLot: 6938349) - continued</b>							
EB2536288-001	Anonymous	EG020A-T: Chromium	7440-47-3	1 mg/L	94.9	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	98.8	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	99.4	70.0	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	97.2	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	100	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	99.0	70.0	130
<b>EG020T: Total Metals by ICP-MS (QCLot: 6938533)</b>							
EB2536296-010	SW10	EG020A-T: Arsenic	7440-38-2	2 mg/L	93.6	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.5 mg/L	93.3	70.0	130
		EG020A-T: Chromium	7440-47-3	2 mg/L	98.0	70.0	130
		EG020A-T: Copper	7440-50-8	2 mg/L	98.0	70.0	130
		EG020A-T: Lead	7439-92-1	2 mg/L	95.3	70.0	130
		EG020A-T: Manganese	7439-96-5	2 mg/L	95.5	70.0	130
		EG020A-T: Nickel	7440-02-0	2 mg/L	98.2	70.0	130
		EG020A-T: Zinc	7440-66-6	2 mg/L	94.6	70.0	130
<b>EK040P: Fluoride by PC Titrator (QCLot: 6935964)</b>							
EB2536296-001	SW01	EK040P: Fluoride	16984-48-8	5 mg/L	96.0	70.0	130
<b>EK040P: Fluoride by PC Titrator (QCLot: 6935967)</b>							
EB2535059-001	Anonymous	EK040P: Fluoride	16984-48-8	5 mg/L	95.9	70.0	130
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6939121)</b>							
EB2536240-009	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	119	70.0	130
<b>EK055G: Ammonia as N by Discrete Analyser (QCLot: 6939122)</b>							
EB2536317-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.5 mg/L	93.9	70.0	130
<b>EK057G: Nitrite as N by Discrete Analyser (QCLot: 6938384)</b>							
EB2536296-002	SW02	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	92.2	70.0	130
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6939124)</b>							
EB2536240-009	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	78.2	70.0	130
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 6939125)</b>							
EB2536317-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	86.5	70.0	130
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6939506)</b>							
EB2536293-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 6939508)</b>							
EB2536308-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	25 mg/L	88.2	70.0	130
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6939507)</b>							

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 Work Order : EB2536296  
 Client : Spicers Scenic Rim Trail  
 Project : 24001\_Scenic Rim Trail



Sub-Matrix: WATER

				Matrix Spike (MS) Report		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Spike Concentration	Spike Recovery(%) MS	Acceptable Limits (%) Low High
<b>EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 6939507) - continued</b>						
EB2536293-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0 130
<b>EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 6938382)</b>						
EB2536296-002	SW02	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	102	70.0 130
<b>EP080/071: Total Petroleum Hydrocarbons (QCLot: 6941181)</b>						
EB2536164-002	Anonymous	EP080: C6 - C9 Fraction	----	40 µg/L	105	70.0 130
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 6941181)</b>						
EB2536164-002	Anonymous	EP080: C6 - C10 Fraction	C6_C10	40 µg/L	110	70.0 130
<b>EP080: BTEXN (QCLot: 6941181)</b>						
EB2536164-002	Anonymous	EP080: Benzene	71-43-2	10 µg/L	108	70.0 130
		EP080: Toluene	108-88-3	10 µg/L	110	70.0 130



## QA/QC Compliance Assessment to assist with Quality Review

Work Order	: <b>EB2536296</b>	Page	: 1 of 10
Client	: <b>Spicers Scenic Rim Trail</b>	Laboratory	: Environmental Division Brisbane
Contact	: DAN MORTON	Telephone	: +61-7-3552-8685
Project	: 24001_Scenic Rim Trail	Date Samples Received	: 16-Oct-2025
Site	: ----	Issue Date	: 14-Nov-2025
Sampler	: Simon Harley	No. of samples received	: 14
Order number	: 24001	No. of samples analysed	: 13

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.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, where applicable to the methodology, **NO** surrogate recovery outliers occur.

#### Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

#### Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



**Outliers : Quality Control Samples**

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
<b>Matrix Spike (MS) Recoveries</b>							
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser	EB2536293--001	Anonymous	Total Kjeldahl Nitrogen as N	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EK067G: Total Phosphorus as P by Discrete Analyser	EB2536293--001	Anonymous	Total Phosphorus as P	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

**Outliers : Analysis Holding Time Compliance**

Matrix: **WATER**

Method	Extraction / Preparation			Analysis			
	Container / Client Sample ID(s)	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
<b>EA005P: pH by PC Titrator</b>							
<b>Clear Plastic Bottle - Natural</b>							
SW01, SW03, SW05, SW07, SW09,	SW02, SW04, SW06, SW08, SW10	----	----	----	20-Oct-2025	17-Oct-2025	3

**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	Sample Date	Extraction / Preparation			Analysis			
		Container / Client Sample ID(s)	Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
<b>EA005P: pH by PC Titrator</b>								
<b>Clear Plastic Bottle - Natural (EA005-P)</b>								
SW01, SW03, SW05, SW07, SW09,	16-Oct-2025	SW02, SW04, SW06, SW08, SW10	----	----	----	20-Oct-2025	17-Oct-2025	*



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
<b>EA006: Sodium Adsorption Ratio (SAR)</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW03, SW05, SW09, SW02, SW04, SW06, SW10	16-Oct-2025	----	----	----	18-Oct-2025	13-Nov-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW07, SW08	16-Oct-2025	----	----	----	21-Oct-2025	13-Nov-2025	✓
<b>EA010P: Conductivity by PC Titrator</b>							
Clear Plastic Bottle - Natural (EA010-P) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	20-Oct-2025	13-Nov-2025	✓
<b>EA025: Total Suspended Solids dried at 104 ± 2°C</b>							
Clear Plastic Bottle - Natural (EA025H) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	21-Oct-2025	23-Oct-2025	✓
<b>EA065: Total Hardness as CaCO3</b>							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW03, SW05, SW09, SW02, SW04, SW06, SW10	16-Oct-2025	----	----	----	18-Oct-2025	13-Nov-2025	✓
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW07, SW08	16-Oct-2025	----	----	----	21-Oct-2025	13-Nov-2025	✓
<b>ED037P: Alkalinity by PC Titrator</b>							
Clear Plastic Bottle - Natural (ED037-P) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	20-Oct-2025	30-Oct-2025	✓



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	
<b>ED041G: Sulfate (Turbidimetric) as SO4 2- by DA</b>								
Clear Plastic Bottle - Natural (ED041G) SW01, SW03, SW05, SW07, SW09	SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	17-Oct-2025	13-Nov-2025	✔
<b>ED045G: Chloride by Discrete Analyser</b>								
Clear Plastic Bottle - Natural (ED045G) SW01, SW03, SW05, SW07, SW09	SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	17-Oct-2025	13-Nov-2025	✔
<b>ED093F: Dissolved Major Cations</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW01, SW03, SW05, SW09	SW02, SW04, SW06, SW10	16-Oct-2025	----	----	----	18-Oct-2025	13-Nov-2025	✔
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SW07	SW08	16-Oct-2025	----	----	----	21-Oct-2025	13-Nov-2025	✔
<b>EG020F: Dissolved Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW01, SW03, SW05, SW09	SW02, SW04, SW06, SW10	16-Oct-2025	----	----	----	18-Oct-2025	14-Apr-2026	✔
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SW07	SW08	16-Oct-2025	----	----	----	21-Oct-2025	14-Apr-2026	✔
<b>EG020T: Total Metals by ICP-MS</b>								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SW01, SW03, SW05, SW07	SW02, SW04, SW06, SW08	16-Oct-2025	17-Oct-2025	14-Apr-2026	✔	17-Oct-2025	14-Apr-2026	✔
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) SW09	SW10	16-Oct-2025	17-Oct-2025	14-Apr-2026	✔	18-Oct-2025	14-Apr-2026	✔



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
<b>EK040P: Fluoride by PC Titrator</b>							
Clear Plastic Bottle - Natural (EK040P) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	20-Oct-2025	13-Nov-2025	✔
<b>EK055G: Ammonia as N by Discrete Analyser</b>							
Clear Plastic Bottle - Sulfuric Acid (EK055G) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	17-Oct-2025	13-Nov-2025	✔
<b>EK057G: Nitrite as N by Discrete Analyser</b>							
Clear Plastic Bottle - Natural (EK057G) SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	17-Oct-2025	18-Oct-2025	✔
<b>EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser</b>							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SW01, SW03, SW05, SW07, SW09, DUP01, SW02, SW04, SW06, SW08, SW10, DUP02	16-Oct-2025	----	----	----	17-Oct-2025	13-Nov-2025	✔
<b>EK061G: Total Kjeldahl Nitrogen By Discrete Analyser</b>							
Clear Plastic Bottle - Sulfuric Acid (EK061G) SW01, SW03, SW05, SW07, SW09, DUP01, SW02, SW04, SW06, SW08, SW10, DUP02	16-Oct-2025	18-Oct-2025	13-Nov-2025	✔	21-Oct-2025	13-Nov-2025	✔



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
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>							
<b>Clear Plastic Bottle - Sulfuric Acid (EK067G)</b>							
SW01, SW03, SW05, SW07, SW09, DUP01, SW02, SW04, SW06, SW08, SW10, DUP02	16-Oct-2025	18-Oct-2025	13-Nov-2025	✓	21-Oct-2025	13-Nov-2025	✓
<b>EK071G: Reactive Phosphorus as P by discrete analyser</b>							
<b>Clear Plastic Bottle - Natural (EK071G)</b>							
SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	17-Oct-2025	18-Oct-2025	✓
<b>EP080/071: Total Petroleum Hydrocarbons</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>							
Trip Blank	16-Oct-2025	20-Oct-2025	30-Oct-2025	✓	21-Oct-2025	30-Oct-2025	✓
<b>EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>							
Trip Blank	16-Oct-2025	20-Oct-2025	30-Oct-2025	✓	21-Oct-2025	30-Oct-2025	✓
<b>EP080: BTEXN</b>							
<b>Amber VOC Vial - Sulfuric Acid (EP080)</b>							
Trip Blank	16-Oct-2025	20-Oct-2025	30-Oct-2025	✓	21-Oct-2025	30-Oct-2025	✓
<b>MW006: Thermotolerant Coliforms &amp; E.coli by MF</b>							
<b>Sterile Plastic Bottle - Sodium Thiosulfate (MW006)</b>							
SW01, SW03, SW05, SW07, SW09, SW02, SW04, SW06, SW08, SW10	16-Oct-2025	----	----	----	17-Oct-2025	17-Oct-2025	✓



## 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	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Laboratory Duplicates (DUP)</b>							
Alkalinity by Auto Titrator	ED037-P	3	27	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	4	30	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	25	16.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	30	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	4	29	13.79	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	26	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	4	31	12.90	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	6	50	12.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Laboratory Control Samples (LCS)</b>							
Alkalinity by Auto Titrator	ED037-P	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	25	16.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	17	11.76	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	29	6.90	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	4	26	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	15	13.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	6	31	19.35	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	50	6.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Method Blanks (MB)</b>							



Matrix: **WATER** Evaluation: \* = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<b>Analytical Methods</b>							
<b>Method Blanks (MB) - Continued</b>							
Ammonia as N by Discrete analyser	EK055G	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	25	8.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	17	11.76	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	29	6.90	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NO <sub>x</sub> ) by Discrete Analyser	EK059G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO <sub>4</sub> 2- by Discrete Analyser	ED041G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Suspended Solids (High Level)	EA025H	2	31	6.45	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	50	6.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
<b>Matrix Spikes (MS)</b>							
Ammonia as N by Discrete analyser	EK055G	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	13	7.69	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	30	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Fluoride by Auto Titrator	EK040P	2	17	11.76	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NO <sub>x</sub> ) by Discrete Analyser	EK059G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO <sub>4</sub> 2- by Discrete Analyser	ED041G	1	15	6.67	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	3	50	6.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	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
pH by Auto Titrator	EA005-P	WATER	In house: Referenced to APHA 4500 H+ B. This procedure determines pH of water samples by automated ISE. This method is compliant with NEPM Schedule B(3)
Conductivity by Auto Titrator	EA010-P	WATER	In house: Referenced to APHA 2510 B. This procedure determines conductivity by automated ISE. This method is compliant with NEPM Schedule B(3)
Calculated TDS (from Electrical Conductivity)	EA016	WATER	In house: Calculation from Electrical Conductivity (APHA 2510 B) using a conversion factor specified in the analytical report. This method is compliant with NEPM Schedule B(3)
Suspended Solids (High Level)	EA025H	WATER	In house: Referenced to APHA 2540D. A gravimetric procedure employed to determine the amount of 'non-filterable' residue in a aqueous sample. The prescribed GFC (1.2um) filter is rinsed with deionised water, oven dried and weighed prior to analysis. A well-mixed sample is filtered through a glass fibre filter (1.2um). The residue on the filter paper is dried at 104+/-2C . This method is compliant with NEPM Schedule B(3)
Alkalinity by Auto Titrator	ED037-P	WATER	In house: Referenced to APHA 2320 B This procedure determines alkalinity by automated measurement (e.g. Auto Titrator) on a settled supernatant aliquot of the sample using pH 4.5 for indicating the total alkalinity end-point. This method is compliant with NEPM Schedule B(3)
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm.
Major Cations - Dissolved	ED093F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM Schedule B(3) Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM Schedule B(3) Hardness parameters are calculated based on APHA 2340 B. This method is compliant with NEPM Schedule B(3)
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.
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. 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.
Fluoride by Auto Titrator	EK040P	WATER	In house: Referenced to APHA 4500-F C: CDTA is added to the sample to provide a uniform ionic strength background, adjust pH, and break up complexes. Fluoride concentration is determined by either manual or automatic ISE measurement. This method is compliant with NEPM Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Ammonia as N by Discrete analyser	EK055G	WATER	In house: Referenced to APHA 4500-NH3 G Ammonia is determined by direct colorimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrite as N by Discrete Analyser	EK057G	WATER	In house: Referenced to APHA 4500-NO2- B. Nitrite is determined by direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Nitrate as N by Discrete Analyser	EK058G	WATER	In house: Referenced to APHA 4500-NO3- F. Nitrate is reduced to nitrite by way of a chemical reduction followed by quantification by Discrete Analyser. Nitrite is determined seperately by direct colourimetry and result for Nitrate calculated as the difference between the two results. This method is compliant with NEPM Schedule B(3)
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	WATER	In house: Referenced to APHA 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 4500-Norg D (In house). An aliquot of sample is digested using a high temperature Kjeldahl digestion to convert nitrogenous compounds to ammonia. Ammonia is determined colorimetrically by discrete analyser. This method is compliant with NEPM Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 4500-Norg / 4500-NO3-. This method is compliant with NEPM Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 4500-P H, Jirka et al, Zhang et al. This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM Schedule B(3)
Reactive Phosphorus as P-By Discrete Analyser	EK071G	WATER	In house: Referenced to APHA 4500-P F Ammonium molybdate and potassium antimonyl tartrate reacts in acid medium with othophosphate to form a heteropoly acid -phosphomolybdic acid - which is reduced to intensely coloured molybdenum blue by ascorbic acid. Quantification is by Discrete Analyser. This method is compliant with NEPM Schedule B(3)
Ionic Balance by PCT DA and Turbi SO4 DA	* EN055 - PG	WATER	In house: Referenced to APHA 1030E. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	WATER	In house: Referenced to USEPA SW 846 - 8260 Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. Alternatively, a sample is equilibrated in a headspace vial and a portion of the headspace determined by GCMS analysis. This method is compliant with the QC requirements of NEPM Schedule B(3)
Thermotolerant Coliforms & E.coli by Membrane Filtration	MW006	WATER	AS 4276.5

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	In house: Referenced to USEPA SW846-3005. Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM Schedule B(3)
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.

## Appendix D Statistical Analysis

### Repeat of Table 6 Surface Water Sample Locations and Rationale

Sample ID	Rationale for locations	Rationale for locations	Field Parameters	Lab Analysis
SW01	450 m down-gradient of Amphitheatre site at the confluence of a gully and Unnamed Creek. Gully draining the area in the vicinity of Amphitheatre EcoCamp,	Monitoring <b>potential surface water impacts</b> .	Temperature, pH, DO, TDS, ORP, EC and Turbidity	E. coli (cfu / 100 mL); Ammonia (mg/L as N); Total Kjeldahl Nitrogen; Nitrate, Nitrite (mg/L as N); Total Phosphorus, Ortho Phosphate (mg/L); Major Anions (Cl, SO <sub>4</sub> , HCO <sub>3</sub> , F); Major Cations (Na, K, Ca, Mg); Total and dissolved metal concentrations (Al, Fe, Mn, As, Cd, Cr, Cu, Ni, Pb, Zn); Total Suspended Solids.
SW02	40 m upstream of SW01 in Unnamed Creek.	Upstream of SW01 as a background water quality sample. <b>Control site</b> .		
SW03	380 m down-gradient of Woodcutters EcoCamp on the confluence of a gully and Dalrymple Creek. This gully and next gully upstream are draining the area in the vicinity of Woodcutters EcoCamp.	Monitoring <b>potential surface water impacts</b> .		
SW04	640 m upstream of SW03 and up-gradient of Woodcutters EcoCamp in Dalrymple Creek.	Upstream of SW03 and SW06 as a background water quality sample. <b>Control site</b> .		
SW05	950 m down-gradient of SW01 in Unnamed Creek.	Monitoring <b>potential groundwater impacts</b> .		
SW06	550 m down-gradient of SW01 in Dalrymple Creek.	Monitoring <b>potential groundwater impacts</b> .		
SW07	Upstream of creek crossing on Blackfellow Creek	Upstream of creek crossing on Blackfellow Creek. <b>Control site</b> .		
SW08	Downstream of creek crossing on Blackfellow Creek	Monitoring <b>potential surface water impacts</b> .		
SW09	Downstream of creek crossing on Dalrymple Creek	Monitoring <b>potential surface water impacts</b> .		
SW10	Upstream of creek crossing on Dalrymple Creek	Upstream of SW09. Most upstream <b>control site</b> .		

**Table 24. Mann-Whitney tests for Blackfellow Creek Crossing**

Mann-Whitney: SW07_DO, SW08_DO	Mann-Whitney: SW07_Turbid, SW08_Turbid	Mann-Whitney: SW07_SS, SW08_SS																											
<p><b>Method</b></p> <p><math>\eta_1</math>: median of SW07_DO  <math>\eta_2</math>: median of SW08_DO            Difference: <math>\eta_1 - \eta_2</math></p>	<p><b>Method</b></p> <p><math>\eta_1</math>: median of SW07_Turbid  <math>\eta_2</math>: median of SW08_Turbid            Difference: <math>\eta_1 - \eta_2</math></p>	<p><b>Method</b></p> <p><math>\eta_1</math>: median of SW07_SS  <math>\eta_2</math>: median of SW08_SS            Difference: <math>\eta_1 - \eta_2</math></p>																											
<p><b>Descriptive Statistics</b></p> <table border="1"> <thead> <tr> <th>Sample</th> <th>N</th> <th>Median</th> </tr> </thead> <tbody> <tr> <td>SW07_DO</td> <td>21</td> <td>82.8</td> </tr> <tr> <td>SW08_DO</td> <td>21</td> <td>82.8</td> </tr> </tbody> </table>	Sample	N	Median	SW07_DO	21	82.8	SW08_DO	21	82.8	<p><b>Descriptive Statistics</b></p> <table border="1"> <thead> <tr> <th>Sample</th> <th>N</th> <th>Median</th> </tr> </thead> <tbody> <tr> <td>SW07_Turbid</td> <td>21</td> <td>1.37</td> </tr> <tr> <td>SW08_Turbid</td> <td>21</td> <td>1.38</td> </tr> </tbody> </table>	Sample	N	Median	SW07_Turbid	21	1.37	SW08_Turbid	21	1.38	<p><b>Descriptive Statistics</b></p> <table border="1"> <thead> <tr> <th>Sample</th> <th>N</th> <th>Median</th> </tr> </thead> <tbody> <tr> <td>SW07_SS</td> <td>18</td> <td>2.0</td> </tr> <tr> <td>SW08_SS</td> <td>18</td> <td>2.5</td> </tr> </tbody> </table>	Sample	N	Median	SW07_SS	18	2.0	SW08_SS	18	2.5
Sample	N	Median																											
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SW08_DO	21	82.8																											
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SW08_Turbid	21	1.38																											
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<p><b>Estimation for Difference</b></p> <table border="1"> <thead> <tr> <th>Difference</th> <th>CI for Difference</th> <th>Achieved Confidence</th> </tr> </thead> <tbody> <tr> <td>-0.100000</td> <td>(-7.1, 6.3)</td> <td>95.03%</td> </tr> </tbody> </table>	Difference	CI for Difference	Achieved Confidence	-0.100000	(-7.1, 6.3)	95.03%	<p><b>Estimation for Difference</b></p> <table border="1"> <thead> <tr> <th>Difference</th> <th>CI for Difference</th> <th>Achieved Confidence</th> </tr> </thead> <tbody> <tr> <td>-0.010000</td> <td>(-0.82, 0.41)</td> <td>95.63%</td> </tr> </tbody> </table>	Difference	CI for Difference	Achieved Confidence	-0.010000	(-0.82, 0.41)	95.63%	<p><b>Estimation for Difference</b></p> <table border="1"> <thead> <tr> <th>Difference</th> <th>CI for Difference</th> <th>Achieved Confidence</th> </tr> </thead> <tbody> <tr> <td>1.50872E-13</td> <td>(-2.5, 1.88507E-13)</td> <td>95.30%</td> </tr> </tbody> </table>	Difference	CI for Difference	Achieved Confidence	1.50872E-13	(-2.5, 1.88507E-13)	95.30%									
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For Mood's median test for SW07 versus SW08 for DO, Turbidity and Suspend Solids, calculations could not be performed because there were not enough observations greater than the median, concluding the medians are the same.

**Table 25. Mann-Whitney tests for Impact at Dalrymple Creek Crossing**

Mann-Whitney: SS_SW10, SS_SW09			Mann-Whitney: DO_SW10, DO_SW09		
<b>Method</b>			<b>Method</b>		
$\eta_1$ : median of SS_SW10			$\eta_2$ : median of DO_SW10		
$\eta_2$ : median of SS_SW09			$\eta_1$ : median of DO_SW09		
Difference: $\eta_1 - \eta_2$			Difference: $\eta_1 - \eta_2$		
<b>Descriptive Statistics</b>			<b>Descriptive Statistics</b>		
<b>Sample</b>	<b>N</b>	<b>Median</b>	<b>Sample</b>	<b>N</b>	<b>Median</b>
SS_SW10	18	2.5	DO_SW10	21	90.9
SS_SW09	18	2.5	DO_SW09	21	94.4
<b>Estimation for Difference</b>			<b>Estimation for Difference</b>		
<b>Difference</b>	<b>CI for Difference</b>	<b>Achieved Confidence</b>	<b>Difference</b>	<b>CI for Difference</b>	<b>Achieved Confidence</b>
3.03662E-13	(-3.98101E-14, 2.5]	95.20%	-3.1	(-9.5, 2]	95.03%
<b>Test</b>			<b>Test</b>		
<b>Null hypothesis</b>	$H_0: \eta_1 - \eta_2 = 0$		<b>Null hypothesis</b>	$H_0: \eta_1 - \eta_2 = 0$	
<b>Alternative hypothesis</b>	$H_a: \eta_1 - \eta_2 \neq 0$		<b>Alternative hypothesis</b>	$H_a: \eta_1 - \eta_2 \neq 0$	
<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>	<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>
Not adjusted for ties	350.00	0.602	Not adjusted for ties	401.50	0.213
Adjusted for ties	350.00	0.564	Adjusted for ties	401.50	0.213

**Table 26. Mood’s median tests at Dalrymple Creek Crossing**

Mood’s Median test: SW10 versus SW09 for DO and Turbidity. The calculations could not be performed because there were not enough observations greater than the median, concluding the medians are the same.

Mood’s Median Test: SS\_SW10 versus SS\_SW09

**Descriptive Statistics**

SS_SW09	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
0.0	0.0	4	0	0	(0, 0)
2.5	2.5	9	2	0	(2.5, 2.78772)
5.0	6.0	0	1	*	(6, 8)
6.0	7.0	0	1	*	(7, 7)
9.0	12.0	0	1	*	(12, 12)
Overall	2.5				

Levels with < 5 observations have confidence < 95.0%

**Test**

Null hypothesis: H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis: H<sub>a</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
1	0.84	0.360

**Table 27. Mann-Whitney test for Amphitheatre SW Impacts**

Mann-Whitney: TKN_SW02, TKN_SW01			Mann-Whitney: Total N_SW02, Total N_SW01		
<b>Method</b>			<b>Method</b>		
$\eta_1$ : median of TKN_SW02			$\eta_1$ : median of Total N_SW02		
$\eta_2$ : median of TKN_SW01			$\eta_2$ : median of Total N_SW01		
Difference: $\eta_1 - \eta_2$			Difference: $\eta_1 - \eta_2$		
<b>Descriptive Statistics</b>			<b>Descriptive Statistics</b>		
<b>Sample</b>	<b>N</b>	<b>Median</b>	<b>Sample</b>	<b>N</b>	<b>Median</b>
TKN_SW02	21	100	Total N_SW02	21	200
TKN_SW01	21	100	Total N_SW01	21	200
<b>Estimation for Difference</b>			<b>Estimation for Difference</b>		
<b>Difference</b>	<b>CI for Difference</b>	<b>Achieved Confidence</b>	<b>Difference</b>	<b>CI for Difference</b>	<b>Achieved Confidence</b>
2.51170E-13	(-100, 95)	95.03%	-4.25476E-13	(-50, 150)	95.03%
<b>Test</b>			<b>Test</b>		
Null hypothesis	$H_0: \eta_1 - \eta_2 = 0$		Null hypothesis	$H_0: \eta_1 - \eta_2 = 0$	
Alternative hypothesis	$H_a: \eta_1 - \eta_2 \neq 0$		Alternative hypothesis	$H_a: \eta_1 - \eta_2 \neq 0$	
<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>	<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>
Not adjusted for ties	435.00	0.687	Not adjusted for ties	476.50	0.538
Adjusted for ties	435.00	0.677	Adjusted for ties	476.50	0.531

Mann-Whitney: Total P\_SW02, Total P\_SW01

Method

$\eta_1$ : median of Total P\_SW02

$\eta_2$ : median of Total P\_SW01

Difference:  $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
Total P_SW02	21	60
Total P_SW01	21	60

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
7.31454E-14	(-10, 10)	95.03%

Test

Null hypothesis  $H_0: \eta_1 - \eta_2 = 0$

Alternative hypothesis  $H_a: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	439.50	0.772
Adjusted for ties	439.50	0.769

Mann-Whitney: FP\_SW02, FP\_SW01

Method

$\eta_1$ : median of FP\_SW02

$\eta_2$ : median of FP\_SW01

Difference:  $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
FP_SW02	21	50
FP_SW01	21	50

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
4.39151E-14	(-10, 10)	95.03%

Test

Null hypothesis  $H_0: \eta_1 - \eta_2 = 0$

Alternative hypothesis  $H_a: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	460.00	0.841
Adjusted for ties	460.00	0.838

**Table 28. Mood's median tests for Amphitheatre SW Impacts**

Mood's Median Test: TKN\_SW02 versus TKN\_SW01

**Descriptive Statistics**

TKN_SW01	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
5	5	5	0	0	(5, 5)
100	100	5	0	0	(100, 100)
200	200	1	0	300	(148, 026,007)
300	100	1	0	*	(100, 100)
340	360	0	1	*	(340, 300)
400	100	1	0	*	(100, 100)
<b>Overall</b>	<b>100</b>				

Levels with \* & observations have confidence = 95.0%

**Test**

Null hypothesis H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis H<sub>1</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
2	14.14	0.001

Mood's Median Test: Total N\_SW02 versus Total N\_SW01

**Descriptive Statistics**

Total N_SW01	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
50	50	4	0	0	(50, 50)
100	100	5	0	100	(100, 200)
200	100	1	4	300	(200, 600)
300	300	0	3	100	(300, 400)
480	480	0	1	*	(480, 400)
600	600	1	1	*	(200, 1000)
5200	1000	0	1	*	(1000, 1000)
<b>Overall</b>	<b>200</b>				

Levels with \* & observations have confidence = 95.0%

**Test**

Null hypothesis H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis H<sub>1</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
4	13.67	0.008

Mood's Median Test: Total P\_SW02 versus Total P\_SW01

Descriptive Statistics

Total P_SW01	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
40	40	3	0	0	(40, 40)
50	50	3	0	10	(40, 50)
60	60	5	0	10	(50, 60)
70	70	2	5	10	(70, 80)
80	100	0	3	20	(80, 100)
85	85	0	1	*	(85, 85)
100	60	1	0	*	(80, 60)
Overall	60				

Level with = 0 otherwise have confidence = 95.0%

Test

Null hypothesis H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis H<sub>1</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
4	18.00	0.001

Mood's Median Test: FP\_SW02 versus FP\_SW01

Descriptive Statistics

FP_SW01	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
30	30	4	0	7.5	(30, 40)
40	40	5	0	5.0	(40, 50)
50	50	3	0	0.0	(50, 50)
60	60	0	3	0.0	(60, 60)
70	70	0	3	0.0	(70, 70)
75	75	0	1	*	(75, 75)
80	80	0	1	*	(80, 80)
90	90	0	1	*	(90, 90)
Overall	60				

Level with = 0 otherwise have confidence = 95.0%

Test

Null hypothesis H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis H<sub>1</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
4	18.00	0.001

**Table 29. Mann-Whitney test for Amphitheatre GW Impacts**

Mann-Whitney: TKN_SW02, TKN_SW05			Mann-Whitney: Total N_SW02, Total N_SW05		
<b>Method</b>			<b>Method</b>		
$\eta_1$ : median of TKN_SW02			$\eta_1$ : median of Total N_SW02		
$\eta_2$ : median of TKN_SW05			$\eta_2$ : median of Total N_SW05		
Difference: $\eta_1 - \eta_2$			Difference: $\eta_1 - \eta_2$		
<b>Descriptive Statistics</b>			<b>Descriptive Statistics</b>		
<b>Sample</b>	<b>N</b>	<b>Median</b>	<b>Sample</b>	<b>N</b>	<b>Median</b>
TKN_SW02	21	100.0	Total N_SW02	21	200
TKN_SW05	20	52.5	Total N_SW05	20	100
<b>Estimation for Difference</b>			<b>Estimation for Difference</b>		
<b>Difference</b>	<b>CI for Difference</b>	<b>Achieved Confidence</b>	<b>Difference</b>	<b>CI for Difference</b>	<b>Achieved Confidence</b>
2.59609E-13	(-95, 95)	95.11%	100	(5.31966E-14, 200)	95.11%
<b>Test</b>			<b>Test</b>		
Null hypothesis	$H_0: \eta_1 - \eta_2 = 0$		Null hypothesis	$H_0: \eta_1 - \eta_2 = 0$	
Alternative hypothesis	$H_a: \eta_1 - \eta_2 \neq 0$		Alternative hypothesis	$H_a: \eta_1 - \eta_2 \neq 0$	
<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>	<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>
Not adjusted for ties	460.00	0.629	Not adjusted for ties	510.00	0.074
Adjusted for ties	460.00	0.614	Adjusted for ties	510.00	0.067

Mann-Whitney: Total P\_SW02, Total P\_SW05

Method

$\eta_1$ : median of Total P\_SW02

$\eta_2$ : median of Total P\_SW05

Difference:  $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
Total P_SW02	21	60
Total P_SW05	20	60

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
-1.64775E-13	(-10, 10)	95.11%

Test

Null hypothesis  $H_0: \eta_1 - \eta_2 = 0$

Alternative hypothesis  $H_a: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	425.50	0.696
Adjusted for ties	425.50	0.691

Mann-Whitney: FP\_SW02, FP\_SW05

Method

$\eta_1$ : median of FP\_SW02

$\eta_2$ : median of FP\_SW05

Difference:  $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
FP_SW02	21	50
FP_SW05	20	50

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
5.28729E-14	(-10, 10)	95.11%

Test

Null hypothesis  $H_0: \eta_1 - \eta_2 = 0$

Alternative hypothesis  $H_a: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	461.50	0.602
Adjusted for ties	461.50	0.597

**Table 30. Mood's median tests for Amphitheatre GW Impacts**

Mood's Median Test: TKN\_SW02 versus TKN\_SW05

---

**Descriptive Statistics**

TKN_SW05	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
5	52.5	7	3	230.00	(5, 347.928)
100	52.5	2	0	*	(5, 100)
200	100.0	3	1	371.25	(5, 900)
300	150.0	1	1	*	(100, 200)
380	100.0	1	0	*	(100, 100)
400	500.0	0	1	*	(300, 300)
Overall	100.0				

Levels with \* & observations have confidence < 95.0%

**Test**

Null hypothesis: H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis: H<sub>a</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
3	1.33	0.729

Mood's Median Test: Total N\_SW02 versus Total N\_SW05

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**Descriptive Statistics**

Total N_SW05	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
50	100	6	3	340	(50, 438.977)
100	400	1	3	800	(200, 1000)
200	100	2	1	900	(100, 1000)
300	300	1	3	100	(200, 300)
500	300	0	1	*	(100, 300)
1400	300	0	1	*	(100, 300)
Overall	250				

Levels with \* & observations have confidence < 95.0%

**Test**

Null hypothesis: H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis: H<sub>a</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
3	1.80	0.615

Mood's Median Test: Total P\_SW02 versus Total P\_SW06

Descriptive Statistics

Total P_SW05	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
45	70	1	2	80.00	(40, 100)
50	65	1	1	*	(50, 80)
60	60	4	2	43.25	(40, 56.7857)
70	70	0	1	*	(70, 70)
80	60	5	2	20.00	(47.3333, 70)
85	70	0	1	*	(70, 70)
Overall	60				

Leads with 8 observations have confidence = 95.0%

Test

Null hypothesis:  $H_0$ : The population medians are all equal  
 Alternative hypothesis:  $H_a$ : The population medians are not all equal

DF	Chi-Square	P-Value
5	1.47	0.989

Mood's Median Test: Total P\_SW02 versus Total P\_SW06

Descriptive Statistics

Total P_SW05	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
45	70	1	2	80.00	(40, 100)
50	65	1	1	*	(50, 80)
60	60	4	2	43.25	(40, 56.7857)
70	70	0	1	*	(70, 70)
80	60	5	2	20.00	(47.3333, 70)
85	70	0	1	*	(70, 70)
Overall	60				

Leads with 8 observations have confidence = 95.0%

Test

Null hypothesis:  $H_0$ : The population medians are all equal  
 Alternative hypothesis:  $H_a$ : The population medians are not all equal

DF	Chi-Square	P-Value
5	1.47	0.989

**Table 31. Mann-Whitney tests for Woodcutters SW Impacts**

Mann-Whitney: TKN_SW04, TKN_SW03				Mann-Whitney: Total N_SW04, Total N_SW03			
<b>Method</b>				<b>Method</b>			
$\eta_1$ : median of TKN_SW04				$\eta_1$ : median of Total N_SW04			
$\eta_2$ : median of TKN_SW03				$\eta_2$ : median of Total N_SW03			
Difference: $\eta_1 - \eta_2$				Difference: $\eta_1 - \eta_2$			
<b>Descriptive Statistics</b>				<b>Descriptive Statistics</b>			
<b>Sample</b>	<b>N</b>	<b>Median</b>		<b>Sample</b>	<b>N</b>	<b>Median</b>	
TKN_SW04	20	150		Total N_SW04	20	200	
TKN_SW03	20	150		Total N_SW03	20	200	
<b>Estimation for Difference</b>				<b>Estimation for Difference</b>			
<b>Difference</b>	<b>CI for Difference</b>		<b>Achieved Confidence</b>	<b>Difference</b>	<b>CI for Difference</b>		<b>Achieved Confidence</b>
2.03663E-13	(-100, 95)		95.01%	5.88681E-14	(-50, 150)		95.01%
<b>Test</b>				<b>Test</b>			
Null hypothesis		$H_0: \eta_1 - \eta_2 = 0$		Null hypothesis		$H_0: \eta_1 - \eta_2 = 0$	
Alternative hypothesis		$H_1: \eta_1 - \eta_2 \neq 0$		Alternative hypothesis		$H_1: \eta_1 - \eta_2 \neq 0$	
<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>		<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>	
Not adjusted for ties	407.00	0.946		Not adjusted for ties	433.00	0.543	
Adjusted for ties	407.00	0.943		Adjusted for ties	433.00	0.529	

Mann-Whitney: Total P\_SW04, Total P\_SW03

Method

$\eta_1$ : median of Total P\_SW04  
 $\eta_2$ : median of Total P\_SW03  
 Difference:  $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
Total P_SW04	20	75
Total P_SW03	20	70

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
4.22586E-13	(-10, 10)	95.01%

Test

Null hypothesis:  $H_0: \eta_1 - \eta_2 = 0$   
 Alternative hypothesis:  $H_1: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	406.00	0.925
Adjusted for ties	406.00	0.924

Mann-Whitney: FP\_SW04, FP\_SW03

Method

$\eta_1$ : median of FP\_SW04  
 $\eta_2$ : median of FP\_SW03  
 Difference:  $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
FP_SW04	20	60
FP_SW03	19	60

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
-4.35530E-13	(-10, 10)	95.24%

Test

Null hypothesis:  $H_0: \eta_1 - \eta_2 = 0$   
 Alternative hypothesis:  $H_1: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	395.50	0.911
Adjusted for ties	395.50	0.909

**Table 32. Mood's median tests for Woodcutters SW Impacts**

Mood's Median Test: TKN\_SW04 versus TKN\_SW03

**Descriptive Statistics**

TKN_SW03	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
0	52.5	5	3	195	(5, 205.438)
100	152.5	1	1	*	(5, 208)
200	150.0	3	3	195	(5, 208)
300	250.0	0	2	*	(200, 208)
310	150.0	1	0	*	(100, 208)
500	200.0	0	1	*	(200, 208)
Overall	150.0				

(Levels with 0 observations have confidence = 95.0%)

**Test**

Null hypothesis: H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis: H<sub>a</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
3	3.50	0.475

Mood's Median Test: Total N\_SW04 versus Total N\_SW03

**Descriptive Statistics**

Total N_SW03	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
50	150	5	3	200	(50, 352.667)
100	200	1	1	*	(200, 400)
200	125	5	1	170	(50, 264.286)
300	300	1	1	*	(200, 400)
400	400	0	1	*	(400, 400)
450	300	1	0	*	(300, 300)
600	300	0	1	*	(300, 300)
Overall	200				

(Levels with 0 observations have confidence = 95.0%)

**Test**

Null hypothesis: H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis: H<sub>a</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
5	1.29	0.752

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Mood's Median Test: Total P\_SW04 versus Total P\_SW03

Descriptive Statistics

Total P_SW03	Median	N = Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
40	50.0	1	0	*	(50, 50)
50	85.0	0	2	*	(80, 90)
60	70.0	3	1	22.5	(50, 80)
70	71.5	2	2	82.0	(5, 100)
80	60.0	3	0	0.0	(60, 60)
90	85.0	0	2	*	(80, 90)
94	80.0	0	1	*	(80, 80)
100	90.0	1	2	80.0	(70, 100)
<b>Overall</b>	<b>75.0</b>				

Level with 4 observations have confidence = 95.0%

Test

Null hypothesis:  $H_0$ : The population medians are all equal  
 Alternative hypothesis:  $H_a$ : The population medians are not all equal

DF	Chi-Square	P-Value
0	0.33	0.120

Mood's median test for SW-04 versus SW03 for Filterable Phosphorus. The calculations could not be performed because there were not enough observations greater than the median, concluding the medians are the same.

**Table 33. Mann-Whitney tests for Woodcutters GW Impacts**

Mann-Whitney: TKN_SW04, TKN_SW06				Mann-Whitney: Total N_SW04, Total N_SW06			
<b>Method</b>				<b>Method</b>			
$\eta_1$ : median of TKN_SW04				$\eta_1$ : median of Total N_SW04			
$\eta_2$ : median of TKN_SW06				$\eta_2$ : median of Total N_SW06			
Difference: $\eta_1 - \eta_2$				Difference: $\eta_1 - \eta_2$			
<b>Descriptive Statistics</b>				<b>Descriptive Statistics</b>			
<b>Sample</b>	<b>N</b>	<b>Median</b>		<b>Sample</b>	<b>N</b>	<b>Median</b>	
TKN_SW04	20	150		Total N_SW04	20	200	
TKN_SW06	20	200		Total N_SW06	20	200	
<b>Estimation for Difference</b>				<b>Estimation for Difference</b>			
<b>Difference</b>	<b>CI for Difference</b>		<b>Achieved Confidence</b>	<b>Difference</b>	<b>CI for Difference</b>		<b>Achieved Confidence</b>
-1.56255E-13	(-95, 95)		95.01%	1.22095E-13	(-3.84861E-14, 150)		95.01%
<b>Test</b>				<b>Test</b>			
Null hypothesis		$H_0: \eta_1 - \eta_2 = 0$		Null hypothesis		$H_0: \eta_1 - \eta_2 = 0$	
Alternative hypothesis		$H_1: \eta_1 - \eta_2 \neq 0$		Alternative hypothesis		$H_1: \eta_1 - \eta_2 \neq 0$	
<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>		<b>Method</b>	<b>W-Value</b>	<b>P-Value</b>	
Not adjusted for ties	413.50	0.935		Not adjusted for ties	445.50	0.344	
Adjusted for ties	413.50	0.931		Adjusted for ties	445.50	0.320	

Mann-Whitney: Total P\_SW04, Total P\_SW06

Mann-Whitney: FP\_SW04, FP\_SW06

Method

$\eta_1$ : median of Total P\_SW04  
 $\eta_2$ : median of Total P\_SW06  
 Difference:  $\eta_1 - \eta_2$

Method

$\eta_1$ : median of FP\_SW04  
 $\eta_2$ : median of FP\_SW06  
 Difference:  $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
Total P_SW04	20	76
Total P_SW06	20	70

Descriptive Statistics

Sample	N	Median
FP_SW04	20	60
FP_SW06	20	60

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
1.61458E-13	(-17, 10)	95.01%

Estimation for Difference

Difference	CI for Difference	Achieved Confidence
-3.02128E-13	(-10, 10)	95.01%

Test

Null hypothesis  $H_0: \eta_1 - \eta_2 = 0$   
 Alternative hypothesis  $H_1: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	397.00	0.735
Adjusted for ties	397.00	0.732

Test

Null hypothesis  $H_0: \eta_1 - \eta_2 = 0$   
 Alternative hypothesis  $H_1: \eta_1 - \eta_2 \neq 0$

Method	W-Value	P-Value
Not adjusted for ties	401.50	0.829
Adjusted for ties	401.50	0.825

**Table 34. Mood's median tests for Woodcutters GW Impacts**

Mood's Median Test: TKN\_SW04 versus TKN\_SW06

**Descriptive Statistics**

TKN_SW06	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
E	52.5	5	3	195.0	(5, 206.436)
100	200.0	0	1	*	(300, 300)
200	200.0	3	6	147.5	(26.5512, 200)
300	5.0	1	0	*	(5, 5)
360	100.0	1	0	*	(100, 300)
Overall	150.0				

Levels with \* if observations have zero count = 30.0%

**Test**

Null hypothesis: H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis: H<sub>a</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
1	1.45	0.228

Mood's Median Test: Total N\_SW04 versus Total N\_SW06

**Descriptive Statistics**

Total N_SW06	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
50	150	4	2	230.0	(50, 402.837)
100	125	2	0	*	(50, 300)
200	250	5	5	227.5	(158.649, 400)
300	50	1	0	*	(50, 50)
670	200	1	0	*	(200, 300)
Overall	200				

Levels with \* if observations have zero count = 66.2%

**Test**

Null hypothesis: H<sub>0</sub>: The population medians are all equal  
 Alternative hypothesis: H<sub>a</sub>: The population medians are not all equal

DF	Chi-Square	P-Value
2	1.67	0.393

Mood's Median Test: Total P\_SW04 versus Total P\_SW06

Descriptive Statistics

Total P_SW06	Median	N <= Overall Median	N > Overall Median	Q3 - Q1	95% Median CI
50	80	0	1	*	(80, 80)
60	50	2	2	62.5	(5, 90)
70	80	2	3	31.5	(80, 100)
80	60	1	0	10.0	(50, 60)
94	80	1	2	30.0	(70, 90)
97	80	0	1	*	(80, 80)
140	70	1	0	*	(70, 70)
170	100	0	1	*	(100, 100)
Overall	75				

\*Cells with a 1 observation have confidence = 95.0%

Test

Null hypothesis:  $H_0$ : The population medians are all equal  
 Alternative hypothesis:  $H_a$ : The population medians are not all equal

DF	Chi-Square	P-Value
3	3.54	0.316

Mood's Median Test: FP\_SW04 versus FP\_SW06

Descriptive Statistics

FP_SW06	Median	N <= Overall Median	N >= Overall Median	Q3 - Q1	95% Median CI
40	50	3	3	25	(30, 60)
50	50	2	1	43	(40, 80)
60	50	4	2	26	(40, 72.857)
70	85	0	2	*	(70, 100)
80	80	0	1	*	(80, 80)
90	70	0	1	*	(70, 70)
97	60	0	1	*	(60, 60)
100	90	0	1	*	(90, 90)
Overall	60				

\*Cells with a 1 observation have confidence = 95.0%

Test

Null hypothesis:  $H_0$ : The population medians are all equal  
 Alternative hypothesis:  $H_a$ : The population medians are not all equal

DF	Chi-Square	P-Value
3	3.00	0.382