mc² Environmental

Annual Compliance Report 2025-26

Tomago Road Industrial Development (EPBC 2007/3343)

Prepared For:

Northbank Enterprise Hub Pty Ltd

September 2026

PO Box 3104
Thornton NSW 2322
andrew@mc2enviro.com.au

mc² Environmental Consulting

Document Control

Project Name	Tomago Road Industrial Development
Title	Annual Compliance Report 2025-26
Client	Northbank Enterprise Hub Pty Ltd
Document Status	Final
Date	21 September 2026

Revision History

Version	Purpose	Author	Reviewer
1	Publication on the Proponent's website	Andrew Wu	RS/SR/SD

Acknowledgements:

MC² Environmental Consulting recognises the assistance provided by Torque Projects in the preparation of this document.

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1 Declaration of Accuracy

EPBC Approval	EPBC 2007/3343
Approval Holder	Northbank Enterprise Hub Pty Ltd
Name of the Action	Tomago Road Industrial Development (operates under the name "Tomago Estate")
Reporting Period	1 May 2025 to 30 June 2026 (**Section 2.4** explains why this Reporting Period is greater than 12 months)
Declaration of Accuracy: In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.	
Signed	
Full Name	Steve Robson
Position	Director, Property
Organisation	Northbank Enterprise Hub Pty Ltd (ABN 77 063 271 625)
Date	21 September 2026

2 Introduction

2.1 Overview of the Action

The Tomago Road Industrial Development (operating as "Tomago Estate") is a staged industrial subdivision located in the suburb of Tomago, approximately 12 km north-west of Newcastle, NSW (see **Figure 1**). The Action consists of multiple stages, as conceptually shown in **Figure 2**.

Stage 1 of the Action is occupied by WesTrac's head office for its NSW & ACT operations. WesTrac is one of the world's largest dealerships of Caterpillar industrial machinery. The WesTrac head office includes facilities for the following activities:

- Manufacturing, servicing and maintenance of earthmoving and mining machinery;
- Warehousing and distribution of machinery and component parts;
- Servicing of on-road trucks;
- Training of personnel (including apprentices); and
- Sales and administration activities.

Stages 2, 3, 4A and 4B of the Action are approved for subdivision to facilitate other industrial and commercial enterprises in the future.

Northbank Enterprise Hub Pty Ltd (NEH) commenced construction activities associated with Stage 3 during this Reporting Period. These activities are outlined in **Section 3.1**.

No activities associated with Stages 2, 4A and 4B of the Action have been undertaken.

Table 1 identifies the parcels of land included within each stage of the Action and the parties responsible.

Table 1 The Stages of the Approved Development

Stage	Proponent	Applicable Land	Current Status
1	WesTrac	Lot 212 & Part of Lot 211 DP 1174939	Completed
2	WesTrac	Lot 211 DP 1174939	Not Commenced
3	NEH	Lot 210 DP 1174939	Commenced
4A	NEH	Part of Lot 1001 DP 1127780	Not Commenced
4B	NEH	Part of Lot 1001 DP 1127780	Not Commenced

The approved Action under EPBC 2007/3343 includes a 22 ha conservation area (Lot 22 DP 1150980). In accordance with Condition 1 of EPBC 2007/3343, this conservation area was dedicated to the NSW National Parks and Wildlife Service (NPWS) and now forms part of the Hunter Wetlands National Park. The transfer of this land from NEH to NPWS was registered on 18 October 2010.

2.2 Regional Context

The suburb of Tomago is predominantly industrial in character and includes several well-established businesses such as Tomago Aluminium Smelter, Williams River Steel and Hunter Galvanising.

The Action is located west of the Hunter Estuary Wetlands, which is a site under the Ramsar convention. The 22 ha conservation area is part of the Hunter Wetlands National Park, but not part of the Ramsar site.

The Action is located on the northern arm of the Hunter River. Kooragang Island is located across the Hunter River to the south of the site. The southern portion of Kooragang Island supports significant industrial infrastructure, including Newcastle's port infrastructure.

There is no substantial residential development in the vicinity of the Action. Newcastle Airport, the major airport for the Hunter region, is located approximately 9 km east of the site.

2.3 Approvals History

2.3.1 EPBC Approval

The EPBC Referral with respect to the Action was lodged on 12 March 2007. The Action was subsequently declared to be a controlled action due to its potential to impact upon the following matters of national environmental significance (MNES):

- Wetlands of international importance;
- Listed threatened species and ecological communities; and
- Listed migratory species.

The application was assessed pursuant to the bilateral agreement between NSW and the Commonwealth, which accredited the assessment process under the *Environmental Planning and Assessment Act 1979* (NSW). EPBC 2007/3343 was granted on 18 November 2009.

EPBC 2007/3343 was varied under section 143 of the EPBC Act on 15 January 2010. This variation required the approval holder to establish the Conservation Area in **Figure 1.**

During the Reporting Period, the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) initiated a second variation of EPBC 2007/3343 to contemporise the conditions of approval. This variation was finalised on 5 December 2025. It is entirely administrative in nature and does not alter any activities approved under EPBC 2007/3343.

2.3.2 Management Plans

Condition 2 of EPBC 2007/3343 requires the preparation of Stormwater and Groundwater Management Plans for each stage of the Action. The Stage 1 plans were revised in 2025 and approved by DCCEEW on 7 April 2026. The management plans approved under Condition 2 of EPBC 2007/3343 are as follows:

- Stage 1:
  - '*Groundwater Monitoring and Management Plan Revision 3: Stage 1 Northbank Enterprise Hub (EPBC Approval 2007/3343)'* (Douglas Partners, 2025);
  - '*Soil and Water Management Plan including Stormwater Management Scheme, Site Water Balance and Erosion and Sediment Control for Stage 1 Northbank Enterprise Hub (WesTrac Facility) at Lot 212 and Part Lot 211 DP 1174939 WesTrac Drive, Tomago NSW*' (Torque Projects, 2025);
- Stage 3:
  - '*Groundwater Management Plan EPBC 2007/3343: Proposed Industrial Subdivision Stage 3, Lot 210 D.P. 1174939, 2 WesTrac Drive, Tomago*' (Douglas Partners, 2024);
  - '*Industrial Estate at Lot 210 DP 1174939 (Stage 3), Tomago: Stormwater Management Plan'* (WRM, 2024).

Management plans are not yet required for Stages 2, 4A and 4B of the Action, as those stages have not commenced.

2.4 Document Purpose

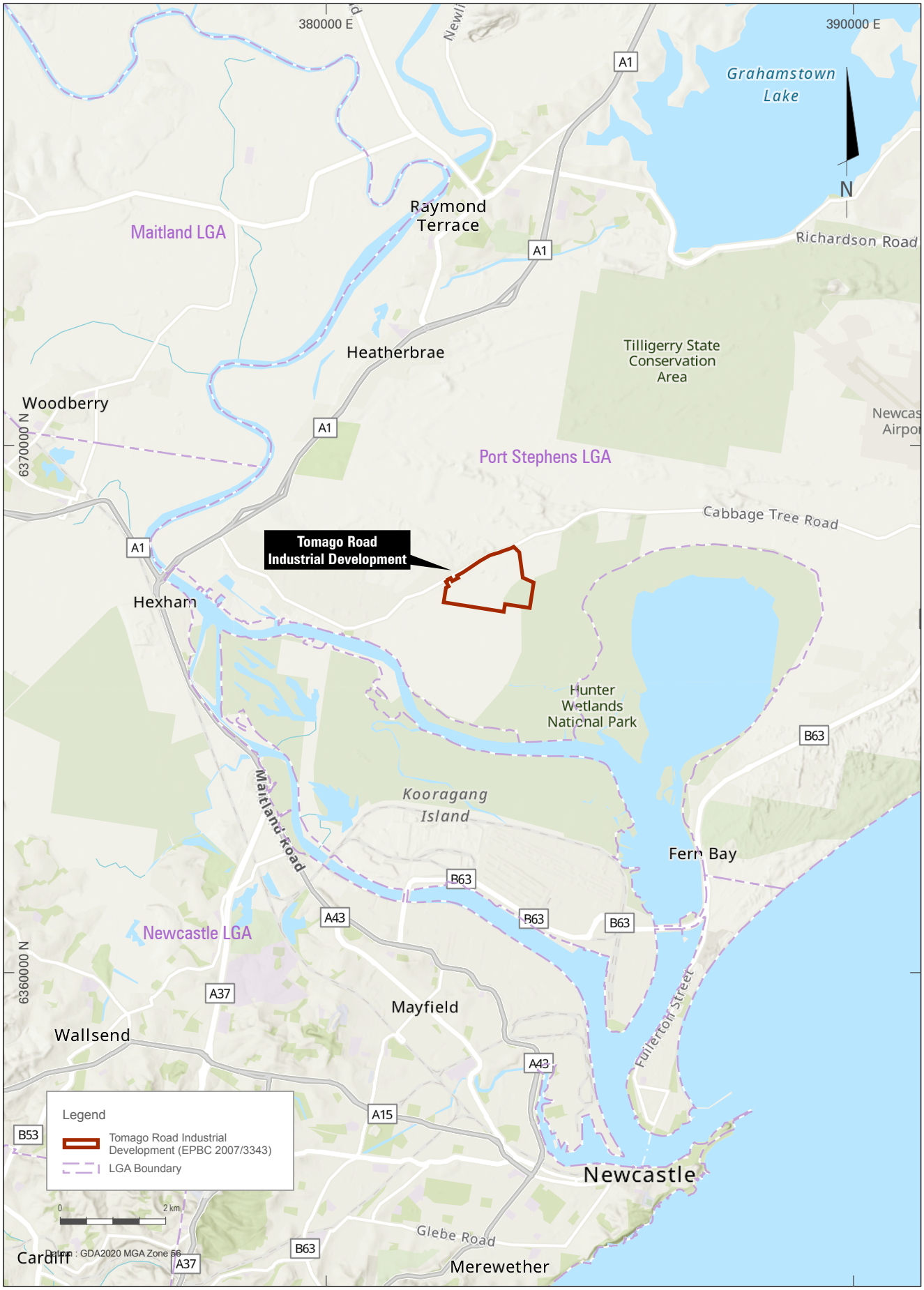
This Annual Compliance Report (ACR) has been prepared to satisfy the reporting requirements under Conditions 9, 9A and 9B of EPBC 2007/3343. This ACR has been structured with reference to the '*Annual Compliance Report Guidelines: Reporting under the Environment Protection and Biodiversity Conservation Act 1999*' (DCCEEW, 2023).

The 'Annual Compliance Report period' (ACR Period) is defined under EPBC 2007/3343 as the 12-month period ending on 30 June. That is, the ACR Period coincides with the Financial Year.

However, the definition of the ACR Period was altered by the section 143 variation approved on 5 December 2025. Prior to this variation, EPBC 2007/3343 required annual reporting of activities for the 12-month period ending on 30 April. The previous year's annual report (Torque Projects, 2025) therefore addressed compliance from 1 May 2024 to 30 April 2025.

To avoid a reporting gap due to the change of ACR period, this ACR considers the 14 month period from 1 May 2025 to 30 June 2026.

This AEMR discusses the environmental performance of Stage 3 of the development during the period from 1 May 2025 to 30 April 2026 (the Reporting Period).

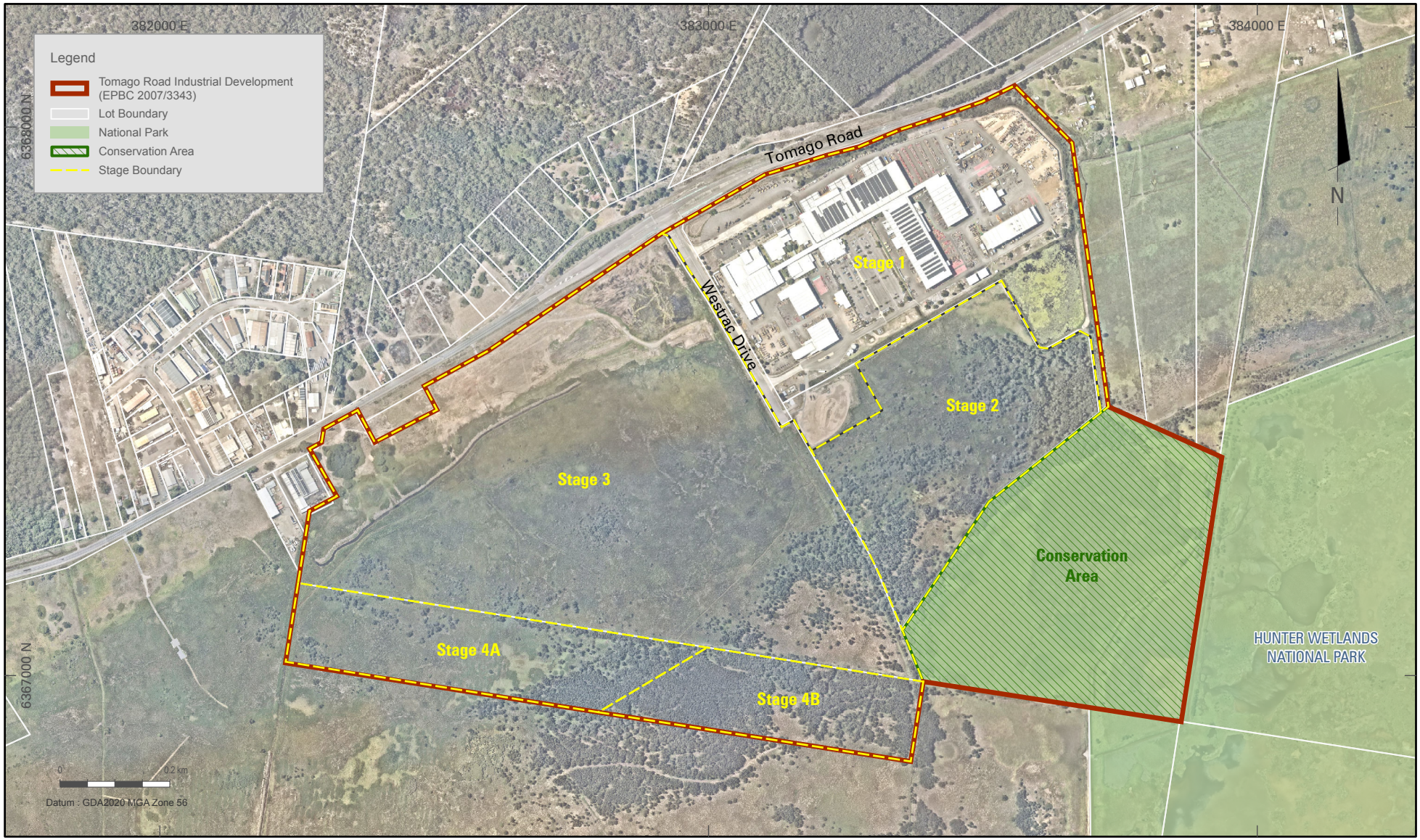


MC2 (2605) Tomago - (CR) Regional Locality.aprx (19/08/2026)

TOMAGO ESTATE

Regional Locality

FIGURE 1



MC2 (2605) Tomago - (CR) Approved Development Layout.aprx (19/08/2026)

TOMAGO ESTATE

Approved Development Layout

FIGURE 2

3 Activities During the Reporting Period

3.1 Stage 1

WesTrac's head office was operational throughout the Reporting Period. The ordinary business activities at WesTrac's head office include:

- Manufacturing and assembly of industrial machinery;
- Servicing and maintenance of machinery;
- Sales and distribution of machinery and parts (including on-site trialling of equipment by potential customers);
- Storage of machinery and component parts;
- Training of personnel via the WesTrac Academy; and
- Administration and business management associated with WesTrac's operations in NSW and ACT.

WesTrac completed internal alterations to its CRC building, which fall under Classes 5, 7b and 8 of the Building Code of Australia. These works did not involve any vegetation disturbance. No other construction activities occurred within Stage 1 during the Reporting Period.

3.2 Stage 3

Stage 3 of the Action commenced during this Reporting Period.

On 14 November 2025, NEH notified DCCEEW of the impending commencement of Stage 3. Construction activities commenced on 17 November 2025.

Construction activities during the Reporting Period included:

- Establishment of an access for continued construction activities;
- Clearing of vegetation; and
- Slashing of vegetation.

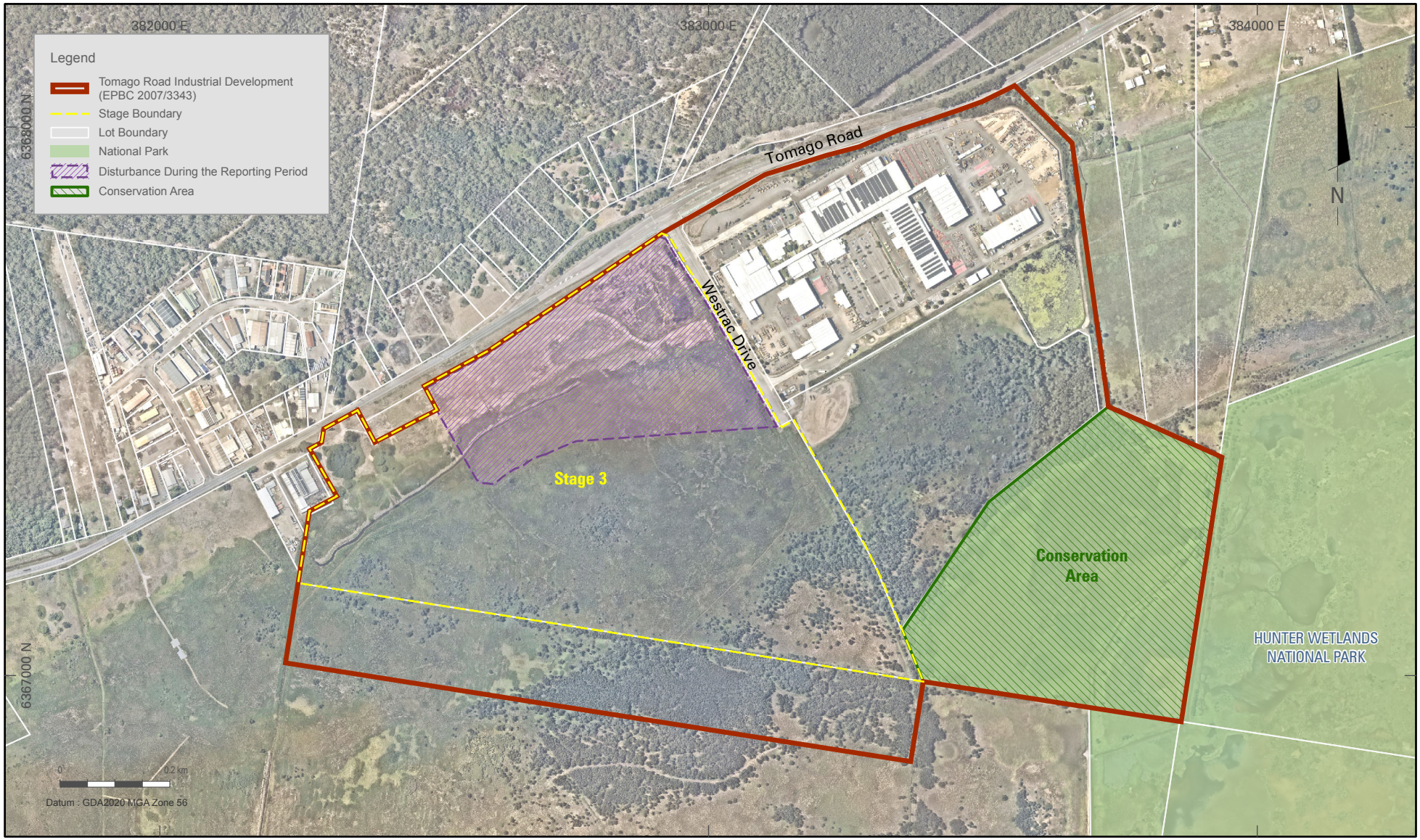
The disturbance footprint (including slashing and clearing) during the Reporting Period is shown in **Figure 3** and **Plate 1**.

The initial construction fleet consists of the following equipment:

- 7 tonne excavator;
- 20 tonne excavator with mulch head;
- Amphibious excavator;
- Truxor (amphibious machine); and
- Tractor with slasher.

The initial construction workforce consisted of seven personnel. The construction activities to date have been intermittent, with workers being on-site for only a few weeks at a time. All of these workers reside locally within the Hunter region. The equipment fleet and workforce size will change in the future proportionate to the scale of construction activities.

Due to the small workforce at present, only minor quantities of general waste are produced. All general waste is removed from the site by a licensed waste contractor. Vegetative matter is mulched and reused on-site to manage erosion and sedimentation.



MC2 (2605) Tomago - (CR) Activites During Reporting.aprx (24/08/2026)

TOMAGO ESTATE

Activities During the Reporting Period

FIGURE 3

Plate 1 Disturbance Completed within the Reporting Period

3.3 Other Stages

No activities have been undertaken within Stages 2, 4A or 4B of the Action.

4 Statement of Compliance

4.1 Conditions of Approval

The activities undertaken during the Reporting Period (as summarised in **Section 3**) have been assessed against the conditions of EPBC 2007/3343. Details of compliance with each condition are provided in **Appendix A**.

There were no non-compliances with EPBC 2007/3343 during the Reporting Period.

4.2 Incidents

Under the conditions of EPBC 2007/3343, the definition of 'incident' includes any:

- *event which has the potential to, or does,* ***harm*** *any* ***protected matter,*** *other than as authorised by this approval,*
- *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****, and/or*
- *actual non-compliance with one or more commitment made in a* ***plan****.*

There were no events or occurrences during the Reporting Period which meet this definition of 'incident'.

4.3 Management Plan Commitments

As required by Condition 9A of EPBC 2007/3343, this ACR also assesses whether the commitments of the relevant management plans (listed in **Section 2.3.2**) have been appropriately implemented during the Reporting Period.

As explained below, the management and monitoring commitments in the approved management plans were adequately implemented during the Reporting Period.

4.3.1 Stage 1

Soil and Water Management Plan

Stage 1 receives inflows from the Tomago Sandbeds to the north and drains towards the Hunter River to the south. The stormwater management scheme for Stage 1 has been designed to retain the natural flow direction.

Rainfall onto the buildings within the WesTrac facility is captured in a 2 ML rainfall tank and reused for operational purposes. Rainfall onto hardstand areas will drain towards a perimeter swale around the northern, eastern and southern boundaries of the industrial area. Along the southern boundary, the swale has been fitted with bioretention trenches for treatment of captured stormwater. This section of the perimeter swale also includes numerous Caisson wells which enhance infiltration of treated stormwater into the groundwater system.

Overflows from the perimeter swale are captured in a constructed wetland located south of the industrial area. This wetland has a surface area of approximately 1.9 ha and exceeds the sizing standards for sediment dams, as recommended by '*Managing Urban Stormwater: Soils and Construction*' (Landcom, 2004). Overflows from the constructed wetland will flow south before entering existing farm drainage and NPWS' floodgates upstream of the Hunter Estuary Wetlands.

The stormwater management scheme for Stage 1 was established in 2011. Ongoing maintenance of water management infrastructure includes the following:

- Clean-out of gross pollutant traps (GPTs);
- Clearing or slashing of vegetation within drains;
- Weed management within the constructed wetland;
- Inspection of structures and the constructed wetland after storm events; and
- Removal of excess sediment from swales and the constructed wetland.

The Soil and Water Management Plan requires inspections of water management structures every three months. The purpose of these inspections is to identify if any maintenance or repair works are required. WesTrac generally exceeds this monitoring frequency as its personnel conduct weekly inspections of stormwater drainage structures (which are documented fortnightly) and monthly inspections of landscaping works. In addition, inspections by an external consultant are undertaken six-monthly.

A large storm event occurred in May 2025 and August 2025 when Tomago Road was overtopped and daily inspections were undertaken to monitor water ingress. The stormwater management structures were inspected following these storm events, and no damage was identified.

The following management actions were undertaken during the Reporting Period:

- Regular weed management along the northern and southern extents of the perimeter swale;
- Regular maintenance of the constructed wetland embankment and access track, including the track adjacent to the Eastern Drain;
- Clean-out of GPTs in June 2025; and
- Slashing within the southern swale and Eastern Drain.

No substantial repairs or alterations to water management structures were required during the Reporting Period. Water flow measurements are undertaken at the constructed wetland outlet for water balance purposes. This monitoring indicates that the constructed wetland is performing adequately and that there is currently no need for de-silting.

The latest revision of the Soil and Water Management Plan requires water quality monitoring to be undertaken annually at four surface water monitoring stations (SW1, SW2, SW3 or SW3a, and SW4). Since that revision was only approved in the latter stages of the Reporting Period (on 7 April 2026), monitoring during the Reporting Period was undertaken in accordance with the previous version of the management plan. Accordingly, monitoring rounds were undertaken in July 2025, October 2025, January 2026 and March/April 2026. The results of surface water monitoring during the Reporting Period are presented in **Appendix B**.

Surface water monitoring for future Reporting Periods will be undertaken annually, consistent with the latest revision of the Soil and Water Management Plan (approved on 7 April 2026).

Groundwater Monitoring and Management Plan

To reduce the risk of impacts to groundwater quality, the Groundwater Monitoring and Management Plan committed to use of fill material with low contaminant levels. The construction of Stage 1 was completed before the Reporting Period and as such, there was no further importation of fill material.

The groundwater monitoring network for Stage 1 consists of seven monitoring wells. The latest revision of the Groundwater Monitoring and Management Plan requires annual water quality monitoring. However, groundwater monitoring during the Reporting Period was undertaken in accordance with the previous version of this Plan, which required:

- quarterly monitoring of Category 1 parameters;
- six-monthly monitoring of Category 2 parameters;
- annual monitoring of Category 3 parameters.

The parameters within each category are listed in **Table 2**.

Groundwater monitoring rounds were undertaken in July 2025, October 2025, January 2026 and March/April 2026. The results of groundwater monitoring during the Reporting Period are presented in **Appendix B**.

The Groundwater Management Plan defines assessment criteria for groundwater levels and quality based on site-specific data. Exceedance of an assessment criteria does not necessarily constitute an incident, although it does trigger further investigation. DCCEEW was notified of exceedances on 7 May 2025 and 31 March 2026. Subsequent investigations (including re-sampling) were conducted by Douglas Partners, which concluded that there was no gross contamination of surface water or groundwater resources.

Table 2 Water Quality Parameters for Stage 1

Category 1	Category 2	Category 3
pH Electrical Conductivity (EC) Total Suspended Solids (TSS) Dissolved Oxygen (DO) Oxidation Reduction Potential (ORP) Turbidity Temperature	Cations: • Calcium (Ca) • Iron (Fe) • Potassium (K) • Magnesium (Mg) • Sodium (Na) Anions: • Chloride (Cl) • Sulphate (SO4) • Ammonia (NH3) • Bicarbonate (HCO3) • Carbonate (CO3) • Total alkalinity • Nitrite (NO2) • Nitrate (NO3) • Total Kjeldahl Nitrogen (TKN) • Total Phosphorous (PO4) • Fluoride (F)	Heavy Metals: • Aluminium (Al) • Arsenic (As) • Cadmium (Cd) • Chromium (Cr) • Copper (Cu) • Iron (Fe) • Lead (Pb) • Manganese (Mn) • Mercury (Hg) • Molybdenum (Mo) • Nickel (Ni) • Zinc (Zn) Total Recoverable Hydrocarbons (TRH) Polycyclic Aromatic Hydrocarbons (PAH) BTEX: • Benzene • Toluene • Ethyl benzene • Xylene; Pesticides (OCP/OPP) Polychlorinated Biphenyl (PCB) Hydrogen Cyanide (HCN) Phenols

Groundwater monitoring for future Reporting Periods will be undertaken annually, consistent with the latest revision of the Groundwater Monitoring and Management Plan (approved on 7 April 2026).

4.3.2 Stage 3

Stormwater Management Plan

Stage 3 does not interact with the other stages of the development from a hydrological perspective, other than Westrac Drive (which is a public road established by Stage 1). Due to the drains established by Stage 1, the catchments of Stage 1 and Stage 3 are segregated.

Surface runoff from the developed Stage 3 catchment will be directed towards stormwater basins located in the south-eastern and south-western corners of Stage 3. These basins will ultimately discharge stormwater to the south-west corner of Stage 3 and existing drainage paths to the neighbouring Lot 1001 DP 1127780 (also owned by NEH). Artificial channels will be constructed within and surrounding the approved subdivision of Stage 3 to direct runoff towards these basins. However, this management system is not yet required as Stage 3 is currently in the early construction phase.

The implementation of erosion and sediment controls is the only commitment relevant to the current stage of construction. Erosion is currently managed through drain maintenance immediately south of the disturbed area. Runoff is initially directed towards the existing drains along WesTrac Drive before being re-directed west towards the south-western corner of Stage 3. Sediment fences have been installed adjacent to the cleared area. These erosion and sediment controls are consistent with the principles in the Stormwater Management Plan.

Groundwater Management Plan

The Groundwater Management Plan commits to the installation of live monitoring equipment in Stage 3 monitoring bores MW4 & MW101 as well as the Hunter Water Corporation's bore SK3520 prior to commencement of Stage 3. Live monitoring equipment was installed in MW4 & MW101 on 31 October 2025. SK3520 facilitates monitoring of off-site water levels. NEH initiated discussions with Hunter Water Corporation on 1 October 2025 (i.e. well prior to commencement of Stage 3) with the installation being completed in February 2026. Although the installation was completed after Stage 3, this delay was unlikely to have any practical consequences due to the following factors;

- SK3520 has recorded over 45 years of monthly data and remained functional from the commencement of Stage 3 until the installation of live monitoring equipment;
- Stage 3 has not yet involved any activities that may affect groundwater levels or quality (such as land raising or earthworks); and
- The delay in completing the installation was due to the bore owner's internal approvals process.

The water level results for MW4, MW101 and SK3520 are required to be provided to NPWS every 6 months from the commencement of Stage 3. This obligation was fulfilled on 20 May 2026 in accordance with this commitment.

The groundwater monitoring network for Stage 3 consists of nine bore locations. Baseline monitoring for Stage 3 was conducted in 2023 and 2024. Now that Stage 3 has commenced, the following scope of monitoring is applicable:

- Water quality sampling for Category 1 & 2 parameters on a six-monthly basis;
- Water quality sampling for Category 3 parameters on an annual basis; and

- Water level gauging on a quarterly basis (if datalogger monitoring is not undertaken).

The parameters within each category are listed in **Table 3**.

The first round of groundwater monitoring for Stage 3 was required to be completed by May 2026 (i.e. within 6 months of commencement). Consistent with this requirement, bi-annual monitoring of Category 1 & 2 parameters was completed in March 2026. The results of groundwater monitoring during the Reporting Period are presented in **Appendix C**.

Table 3 Groundwater Quality Parameters for Stage 3

Category 1	Category 2	Category 3
Temperature pH Electrical Conductivity (EC) Dissolved oxygen Oxidation reduction potential Turbidity	Total Suspended Solids (TSS) Cations: • Calcium (Ca) • Iron (Fe) • Potassium (K) • Magnesium (Mg) • Sodium (Na) Anions: • Chloride (Cl) • Sulphate (SO_4) • Ammonia (NH_3) • Bicarbonate (HCO_3) • Carbonate (CO_3) • Nitrite (NO_2) • Nitrate (NO_3) • Total Kjeldahl Nitrogen (TKN) • Total Phosphorus (PO_4) • Fluoride (F) • Total alkalinity Heavy Metals: • Aluminium (Al) • Arsenic (As) • Cadmium (Cd) • Chromium (Cr) • Copper (Cu) • Iron (Fe) • Lead (Pb) • Manganese (Mn) • Mercury (Hg) • Molybdenum (Mo) • Nickel (Ni) • Zinc (Zn)	Total Recoverable Hydrocarbons (TRH) Polycyclic Aromatic Hydrocarbons (PAH) BTEX: • Benzene • Toluene • Ethly benzene • Xylene; Pesticides (OCP/OPP) Polychlorinated Biphenyl (PCB) Phenols Per- and polyfluoroalkyl substances (PFAS)

5 References

- Department of Climate Change, Energy, the Environment and Water (2023). *Annual Compliance Report Guidelines: Reporting under the Environment Protection and Biodiversity Conservation Act 1999*.
- Douglas Partners (2024), *Groundwater Monitoring Program: Proposed Industrial Subdivision Stage 3, Lot 210 D.P. 1174939, 2 Westrac Drive, Tomago*.
- Douglas Partners (2025), *Groundwater Monitoring and Management Plan Revision 3: Stage 1 Northbank Enterprise Hub (EPBC Approval 2007/3343).*
- Landcom (2004), *Managing Urban Stormwater: Soils and Construction*.
- Torque Projects (2025), *Soil and Water Management Plan including Stormwater Management Scheme, Site Water Balance and Erosion and Sediment Control for Stage 1 Northbank Enterprise Hub (WesTrac Facility) at Lot 212 and Part Lot 211 DP 1174939 WesTrac Drive, Tomago NSW*.
- WRM (2025), *Industrial Estate at Lot 210 DP 1174939 (Stage 3), Tomago: Stormwater Management Plan*.

6 Abbreviations

Term	Definition
ACR	Annual Compliance Report
DCCEEW	Department of Climate Change, Energy, the Environment and Water
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
GPT	Gross Pollutant Trap
MNES	Matters of National Environmental Significance
NEH	Northbank Enterprise Hub Pty Ltd
NPWS	National Parks and Wildlife Service
WesTrac	WesTrac Pty Ltd

Appendix A

Compliance Table – Conditions of EPBC 2007/3343

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
1	In order to minimise potential impacts on the Hunter Estuary Wetlands Ramsar site, the person taking the Action must: a. establish a conservation area of at least 22 hectares (identified in Annexure A by the zone shaded in green and labelled 'Conservation Area Dedicated in Approval') prior to any works commencing.	Compliant	This requirement was fulfilled prior to this Reporting Period.
1	b. the title of the area referred to in condition 1a) must be transferred to the state of New South Wales (Department of Environment, Climate Change and Water) within 6 months from the commencement of works associated with Stage 1 (within this 6-month period only works associated with Stage 1 can be carried out).	Compliant	This requirement was fulfilled prior to this Reporting Period.
2	To mitigate harm to the Hunter Estuary Wetlands Ramsar site, the person taking the Action must submit a Stormwater and Groundwater Management Plan for each stage of the Action to the department for the Minister's approval. Each Stormwater and Groundwater Management Plan must commit to, and specify how the person taking the Action will implement: a. documented industry best practice water sensitive design principles and practices,	Compliant	**Stage 1** WesTrac has prepared the following management plans pursuant to this condition: • Soil and Water Management Plan (Torque Projects, 2025); and • Groundwater Monitoring and Management Plan (Douglas Partners, 2025). Original versions of these plans were approved prior to the commencement of Stage 1. These plans were revised during this Reporting Period and approved by DCCEEW on 7 April 2026. Section 9 of the Soil and Water Management Plan

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
			describes the measures to manage stormwater flows. Section 2.4 of the Groundwater Monitoring and Management Plan lists the guidelines and standards relevant to groundwater management. Measures to manage groundwater are documented in Sections 8 & 9. **<u>Stage 3</u>** NEH has prepared the following management plans pursuant to this condition: • Stormwater Management Plan (WRM, 2024); and • Groundwater Management Plan (Douglas Partners, 2024). These management plans were approved by DCCEEW prior to this Reporting Period. Sections 7.1 & 7.2 of the Stormwater Management Plan explain that the proposed water quality objectives were developed in accordance with the relevant local and state government guidelines. Section 3 of the Groundwater Management Plan lists the guidelines and standards relevant to groundwater management.
2	b. a review of the environmental values and water quality objectives for the Hunter Estuary Wetlands Ramsar site,	Compliant	**<u>Stage 1</u>** Section 3.8.3 of the Groundwater Monitoring and Management Plan provides a review of the environmental values and water quality objectives for the Hunter Estuary Wetlands Ramsar site. Section 4 of the Soil and Water Management Plan discusses the existing environmental values and water quality objectives for the Hunter Estuary

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
			Wetlands Ramsar site. **<u>Stage 3</u>** The environmental values of the Ramsar wetlands are summarised in Section 3.3 of the Stormwater Management Plan and Section 2 of the Groundwater Management Plan.
2	c. replication of natural surface and groundwater flows and water quality,	Compliant	**Stage 1** Section 5.1 and 5.2 of the Groundwater Monitoring and Management Plan explains how the development was undertaken to replicate natural surface and groundwater flows and water quality. Section 8.2.2 and Appendix B of the Soil and Water Management Plan outlines the measures implemented to replicate pre-development water quality. **Stage 3** Section 6 of the Stormwater Management Plan explains that surface water outflows from the development site will drain towards the Hunter River consistent with pre-development conditions. Sections 8 & 9 of the Groundwater Management Plan address the maintenance of pre-existing groundwater flow patterns.
2	d. protection of the environmental values of receiving waters, including the Hunter Estuary Wetlands Ramsar site, and	Complaint	**Stage 1** Measures to protect receiving waters are discussed in Section 4 of the Soil and Water Management Plan and Section 9.7 of the Groundwater Monitoring and Management Plan.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
			Stage 3 Measures to protect receiving waters are discussed in Sections 6.4, 6.5, 7.4.5 and 11 of the Stormwater Management Plan and Section 9.9 of the Groundwater Management Plan.
2	e. the principle of continuous improvement.	Compliant	**Stage 1** The principle of continuous improvement is addressed in Section 9.11 of the Groundwater Monitoring and Management Plan and Sections 6.5 and 9.3 of the Soil and Water Management Plan. **Stage 3** The principle of continuous improvement is addressed in Section 11 of the Stormwater Management Plan and Sections 9.1 and 9.10 of the Groundwater Management Plan.
2	Each Stormwater and Groundwater Management Plan must be prepared by a suitably qualified water resources expert. All commitments, including environmental outcomes, management measures, corrective measures, trigger values and performance indicators in the Stormwater and Groundwater Management Plan must be SMART and based on referenced or included evidence of effectiveness. Each Stormwater and Groundwater Management Plan must be consistent with the Environmental Management Plan Guidelines, and must include: a. details of the water treatment management practices and management practice treatment trains that will be implemented to achieve or exceed environmental performance targets as detailed in the final Redlake Enterprises Pty Ltd — Tomago Road, Tomago — Environmental Assessment Report dated 12 March 2008 'Concept Engineering,	Compliant	**Stage 1** Water treatment measures are discussed in Section 8.2.2 of the Soil and Water Management Plan. **Stage 3** Water treatment measures are discussed in Section 7 of the Stormwater Management Plan.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
	Servicing, Earthworks and Stormwater Management' Appendix F,		
2	b. details of how attainment of water quality objectives for these receiving waters will be supported by the Action,	Compliant	**Stage 1** Measures to achieve the water quality objectives are addressed in Section 9 of the Groundwater Monitoring and Management Plan and Section 8.2.2 of the Soil and Water Management Plan. **Stage 3** Measures to achieve the water quality objectives are addressed in Section 7 of the Stormwater Management Plan and Section 9 of the Groundwater Management Plan.
2	c. details of how monitoring activities will be undertaken to track environmental performance of the Action, and d. details of a groundwater and surface water monitoring program to be undertaken pre, during and post development. This monitoring must continue until the Minister notifies that the construction and operation of this Action is not harming the Hunter Estuary Wetlands Ramsar site except were authorised by this Approval.	Compliant	**Stage 1** The groundwater monitoring program is outlined in Section 9 of the Groundwater Monitoring and Management Plan. The surface water monitoring program is outlined in Section 8.5 of the Soil and Water Management Plan. **Stage 3** The groundwater monitoring program is outlined in Section 11 of the Stormwater Management Plan and Section 9 of the Groundwater Management Plan.
2	Note: This condition only applies to plans initially submitted for approval under this condition after the date this variation decision is signed. Plans submitted for approval prior to this variation decision being signed must be approved under the previous iteration of condition 2.		All management plans applicable to Stages 1 & 3 were submitted for approval prior to the December 2025 variation of EPBC 2007/3343. Although Condition 2 strictly does not apply, the current management plans include the information required by this condition (as demonstrated above).
2A	The person taking the Action must not commence works for the relevant stage of the Action unless the Minister has	Compliant	**Stage 1**

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
	approved in writing the Stormwater and Groundwater Management Plan for that stage of the Action under condition 2.		Commencement of Stage 1 and approval of the necessary management plans occurred prior to this Reporting Period. **Stage 3** The Stormwater Management Plan (WRM, 2024) and Groundwater Management Plan (Douglas Partners, 2024) were approved by a delegate of the Minister on 12 July 2024. Construction activities associated with Stage 3 commenced on 17 November 2025.
2B	The person taking the Action must commence implementing the Stormwater and Groundwater Management Plan approved under condition 2 for that stage of the Action no later than the date on which the Minister approves each plan and must continue to implement each plan until the expiry date of this approval.	Compliant	The relevant management plans for Stages 1 & 3 were implemented throughout the Reporting Period, as discussed in **Section 4.3**. Revisions of the Stage 1 management plans were approved near the end of the Reporting Period. As such, the previous iterations of these plans were implemented for the majority of the Reporting Period.
3	Revoked.		
4	Within 10 business days of the commencement of works for each stage of the Action, the person taking the Action must advise the department electronically of the actual date of commencement of works for the relevant stage of the Action	Compliant	**Stage 1** The commencement of Stage 1 occurred prior to this Reporting Period. **Stage 3** Stage 3 of the development commenced on 17 November 2025. DCCEEW was notified prior to commencement on 14 November 2025.
5	If, at any time after 3 years from the date of this approval, the person undertaking the Action has not reached substantial commencement, then the person undertaking the Action must not substantially commence the Action without the written consent of the Minister.	Compliant	This requirement was fulfilled prior to this Reporting Period.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
6	The person taking the Action must ensure that an independent audit of compliance with the conditions is conducted for every audit period. Note: This condition is only intended to apply to independent audits conducted subsequent to the date this variation decision is signed.	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to this date.
6A	The person taking the Action must submit details of the proposed independent auditor and their qualifications to the department within 10 business days following the end of each audit period.	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to this date.
6B	The person taking the Action must ensure the scope of each independent audit is sufficient to determine the compliance status for each condition of approval and each commitment made in each plan.	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to this date.
6C	The person taking the Action must ensure the criteria for each independent audit and the undertaking of each independent audit are consistent with the Independent Audit and Audit Report Guidelines.	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to this date.
6D	The person taking the Action must submit an audit report to the department for written agreement from the department within 3 months following the end of each audit period, or as otherwise directed by the Minister in writing.	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to this date.
6E	The person taking the Action must ensure each audit report is completed to the satisfaction of the Minister and is consistent with the Independent Audit and Audit Report Guidelines to the extent that the Independent Audit and Audit Report Guidelines are consistent with these conditions.	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to this date.
6F	The person taking the Action must publish each audit report for the relevant stage of the Action on the website, in a format that is easily accessible and downloadable, within 10 business days of the date the department agrees to that	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
	audit report in writing.		this date.
6G	The person taking the Action must keep each audit report published on the website from the first date which that audit report must be published and until the expiry date of this approval.	Not Applicable	The due date for the first independent audit is 5 December 2030 (i.e. within 5 years of the latest variation). An audit will be commissioned closer to this date.
7	The person taking the Action may, at any time, apply to the Minister for a variation to a management plan by submitting an application in accordance with the requirements of section 143A of the EPBC Act. If the Minister approves a revised management plan then, from the date specified by the Minister, the person taking the Action must implement the revised management plan in place of the previous management plan.	Compliant	**Stage 1** Updates to the Stage 1 management plans were submitted to DCCEEW in March 2025. The revised plans were approved on 7 April 2026. **Stage 3** The updates to the Stage 3 management plans were necessary during the Reporting Period.
7A	The person taking the Action may choose to revise a plan required to be implemented under condition 2 without submitting it for approval under section 143A of the EPBC Act, if: a. the taking of the Action in accordance with the revised plan would be consistent with the approved Action, b. the taking of the Action in accordance with the revised plan would be consistent with the conditions attached to this approval at the time the version of the plan was most recently approved by the Minister, c. the taking of the Action in accordance with the revised plan would not be likely to have a new or increased impact, and d. the person taking the Action notifies the department electronically that it has prepared a revised version of the plan for the relevant stage of the Action (the 'revised plan'). In notifying the department, the person taking the Action must	Not Applicable	NEH obtained approval from DCCEEW prior to WesTrac implementing the revised management plans for Stage 1. NEH and WesTrac have not implemented any revised management plans without obtaining prior approval from DCCEEW.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
	specify each condition which references the plan and provide the department with: i. an electronic copy of the revised plan, ii. an electronic copy of the revised plan marked up with track changes to show the differences between the plan and the revised plan, iii. a comprehensive explanation of all differences between the plan and the revised plan, iv. a declaration that the person taking the Action for the relevant stage of the Action has read and understands the Guidance on 'new or increased impact' relating to changes to approved management plans under EPBC Act environmental approvals, Commonwealth of Australia 2017, v. a comprehensive analysis and detailed discussion on the likelihood that taking the Action in accordance with the revised plan will not have, or will be not likely to have, a new or increased impact, vi. written notice of the date on which the person taking the Action will implement the revised plan (the 'revised plan implementation date'), being at least 60 business days after the date of providing notice of the revision of the plan, or a date agreed to in writing with the department, and vii. a copy of the compliance report for the latest ACR period and a statement of any relevant history of compliance (including non-compliance) in relation to the plan.		
7A	The person taking the Action must commence implementation of the revised plan from the revised plan implementation date unless otherwise notified in writing by the Minister.	Compliant	The revised management plans for Stage 1 were approved on 7 April 2026. All monitoring required for the Reporting Period had already been completed by April. The revised management plans will be

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
			implemented throughout the next Reporting Period.
7B	If, within 60 business days after the date the person taking the Action provides notice to the department of a revision to a plan under condition 7A the Minister notifies the person taking the Action that the Minister is satisfied that the taking of the Action in accordance with a plan which has been revised under condition 7A without submitting it for the Minister's approval would be likely to have a new or increased impact, then: a. the person taking the Action's ability to revise a plan without submitting the plan for Minister approval does not apply, or ceases to apply, in relation to the revised plan, b. the person taking the Action must implement the plan in force immediately prior to that revised plan or a version of the plan specified by the Minister in the notice, and c. the Minister may also notify that, for a specified period, the person taking the Action's ability to revise a plan without submitting the plan for Minister approval does not apply for one or more specified plans.	Not Applicable	The proponents have not implemented any revisions to management plans prior to receiving approval from DCCEEW.
7C	The person taking the Action may, at any time by giving written notice to the department, revoke its choice to implement a plan which has been revised without submitting it for the Minister's approval. If the person taking the Action revokes the choice to implement a revised plan, the person taking the Action must implement the plan in force immediately prior to that revised plan. Note: The above conditions are not intended to limit the operation of section 143A of the EPBC Act.	Not Applicable	The proponents have not implemented any revisions to management plans prior to receiving approval from DCCEEW.
7D	Wherever these conditions require the person taking the Action to submit any plan to the department, all such plans	Compliant	All management plans and their subsequent revisions have been submitted electronically.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
	must be submitted to the department electronically.		
7E	Unless otherwise agreed to in writing by the Minister, the person taking the Action must publish each plan on the website within 15 business days of the date: a. of this variation decision, if the version of the plan was approved by the Minister prior to the date of this variation decision and is required to be implemented by a condition of the approval, b. the plan is approved by the Minister in writing, if the plan requires the approval of the Minister, or c. the plan is submitted to the department in accordance with a requirement of these conditions, if the plan does not require the approval of the Minister.	Compliant	The management plans approved by DCCEEW are published on northbankenterprisehub.com
7F	The person taking the Action must keep all plans for the relevant stage of the Action published on the website, in a format that is easily accessible and downloadable, from the first date which that plan must be published and until the expiry date of this approval. This requirement applies to all current and superseded versions of plans.	Compliant	The management plans required by this EPBC Approval are published on northbankenterprisehub.com
7G	The person taking the Action is required to exclude or redact sensitive biodiversity data from any version of a plan before that plan is published on the website or otherwise provided to a member of the public. If sensitive biodiversity data is excluded or redacted from a plan, the person taking the Action must notify the department in writing what exclusions and redactions have been made in the version published on the website.	Not Applicable	Redaction of 'sensitive biodiversity data' has not been necessary for any management plans.
8	If the Minister believes that it is necessary or desirable for the better protection of listed threatened species and ecological communities the Minister may request that the person taking the Action make specified revisions to a plan approved pursuant to the conditions of this approval and	Not Applicable	The Minister has not directed the proponents to undertake any specified revisions to management plans.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
	submit the revised plan for the Minster's approval. The person taking the Action must comply with any such request. The person taking the Action must implement the revised plan from the date the Minister approves the revised plan and continue to implement the approved plan until at least the expiry date of the approval or alternative date specified by the Minister in writing.		
9	The person taking the Action must prepare a compliance report for each Annual Compliance Report period (ACR period).	Compliant	This report fulfils the requirement for an Annual Compliance Report.
9A	The person taking the Action must ensure each compliance report includes: a. accurate and complete details of compliance and any non-compliance with: i. each condition attached to this approval decision, and ii. all commitments made in each plan,	Compliant	**Section 4.1** and Error! Reference source not found. evaluate compliance with the conditions of EPBC 2007/3343 during this Reporting Period. **Section 4.3** evaluates the proponents' implementation of the management plans required by EPBC 2007/3343,
	b. a schedule of all plans in effect in relation to these conditions during the ACR period,	Compliant	**Section 2.3.2** lists the versions of management plans that have been approved by DCCEEW.
	c. accurate and complete details of how each plan was implemented during the ACR period, and	Compliant	**Section 4.3** evaluates the proponents' implementation of the management plans required by EPBC 2007/3343,
	d. if any incident occurred, accurate and complete details of each incident.	Compliant	As explained in **Section 4.2**, there were no incidents during the Reporting Period.
9B	The person taking the Action must ensure each compliance report is consistent with the Annual Compliance Report Guidelines, Commonwealth of Australia 2023.	Compliant	This report has been prepared with reference to the '*Annual Compliance Report Guidelines*' (DCCEEW, 2023).
9C	The person taking the Action must, within 60 business days following the end of each ACR period, in a format that is easily accessible and downloadable, publish each compliance report on the website.	Not Applicable	The due date for publication of this ACR is 22 September 2026. This required will be fulfilled by the due date.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
9D	The person taking the Action must: a. exclude or redact sensitive biodiversity data from each compliance report published on the website or otherwise provided to a member of the public, and b. if sensitive biodiversity data is excluded or redacted from a version of a compliance report published or otherwise provided to a member of the public, submit the full compliance report to the department within 5 business days of its publication on the website and notify the department in writing what exclusions and redactions have been made in the version published on the website or otherwise provided to a member of the public.	Not Applicable	This ACR does not include 'sensitive biodiversity data' (as defined by EPBC 2007/3343).
9E	The person taking the Action must notify the department electronically, within 5 business days of each date of publication that the compliance report has been published on the website. In this notification, the person taking the Action must provide the department with the web address for where the compliance report is published on the website.	Not Applicable	The due date for notification of DCCEEW is 29 September 2026. This requirement will be fulfilled by the due date.
9F	The person taking the Action must keep each compliance report published on the website from the first date which that compliance report must be published and until the expiry date of this approval. Note: Compliance reports may be published on the department's website.	Not Applicable	Prior to the December 2025 variation, EPBC 2007/3343 did not include a requirement to publish ACRs on the proponent's website This report will be first ACR that needs to be published electronically, and will remain on NEH's website until the expiry of EPBC 2007/3343.
10	The person taking the Action must maintain accurate and complete compliance records and document the procedure for recording and storing compliance records.	Compliant	The proponents have retained all documents required to demonstrate compliance with the conditions of EPBC 2007/3343.
10A	If the department makes a request in writing, the person taking the Action must provide electronic copies of compliance records to the department within the timeframe specified in the request.	Not Applicable	No such request was received from DCCEEW during the Reporting Period.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
	Note: Compliance records may be subject to audit by the department, or by an independent auditor in accordance with section 458 of the EPBC Act, and/or be used to verify compliance with the conditions. Summaries of the results of an audit may be published on the department's website or through the general media.		
11	The person undertaking the Action must notify the department electronically, within 5 business days of becoming aware of any incident. The person taking the Action must specify in each notification: a. The person undertaking the Action must notify the department electronically, within 5 business days of becoming aware of any incident. The person taking the Action must specify in each notification: b. a short description of the incident, c. the location (if applicable, including co-ordinates), date and time of the incident, and d. the date on which the person taking the Action became aware of the incident.	Not Applicable	There were no events or occurrences during the Reporting Period that met the definition of 'incident' under EPBC 2007/3343.

Condition Number	Condition	Is the Project Compliant with this Condition?	Evidence/Comments
12	The person taking the Action must provide to the department in writing, within 12 business days of becoming aware of an incident, the details of that incident. The person taking the Action must specify: a. all corrective measures and investigations which the person taking the Action has already taken in respect of the incident, b. the potential impacts of the incident, c. the method and timing of any corrective measures that the person taking the Action proposes to undertake to address the incident, and d. any variation of these conditions or revision of a plan that will be required to prevent recurrence of the incident and/or to address its consequences.	Not Applicable	There were no events or occurrences during the Reporting Period that met the definition of 'incident' under EPBC 2007/3343.
13	Within 20 business days after the completion of the Action, and in any event, at least 20 business days prior to the expiry date of this approval, the person taking the Action must notify the department electronically of the date of completion of the Action and provide completion data. The person taking the Action must submit any spatial data that comprises completion data as a shapefile. Note: Section 145C of the EPBC Act entitles the person taking the Action to request an extension to the period of effect of this approval.	Not Applicable	The Action has not been completed.

mc² Environmental

Appendix B

Water Monitoring Reports: Stage 1

Memorandum

To:	Northbank Enterprise Hub Pty Ltd	Date:	28 July 2025
Attention:	Bryant Stokes Shen Chiu	Project No:	39920.09
Email:	Bryant.Stokes@acequity.com.au shen.chiu@acequity.com.au	Reference:	R.023.Rev0
CC:	scottd@torqueprojects.com, Torque Projects Pty Ltd		
Subject:	Quarterly groundwater and surface water monitoring event – July 2025 Stage 1, Northbank Enterprise Hub, WesTrac Drive, Tomago		

The following memorandum provides the results of quarterly (three monthly) groundwater and surface water monitoring undertaken to meet the requirements of the Stage 1 *Groundwater Monitoring Plan* (Douglas, 2010) for Lots 210, 211, 212 DP 1174939 and Part Lot 1001 DP 1127780, WesTrac Drive, Tomago NSW. Monitoring is required under Environment Protection and Biodiversity Conservation Act (EPBC) approval 2007/3343 for the Northbank Enterprise Hub industrial development.

The following works were undertaken to meet the requirements of the *Groundwater Monitoring Plan* (Douglas, 2010). The purpose of the GMP is to monitor for potential impacts that may arise from the development and implement appropriate management and mitigation strategies, where required.

A revised GMP dated 3 March 2025 was prepared (Douglas, 2025) and submitted to DCCEEW on 5 March 2025. The revised GMP is relevant to the completed Stage 1 site and is proposed to supersede the 2010 GMP. The revised GMP is an improved document which considers long term monitoring data from 2010 to 2025, changes in site conditions and practices, and contemporary monitoring practices. The revised GMP includes removal of some monitoring well locations and laboratory parameters, and addition of others, to provide more effective locations and testing parameters. The revised plan also provides further clarity regarding the assessment of water quality data, actions prompted by monitoring results and timing of notification to department agencies, where appropriate.

The revised GMP is in the process of review by DCCEEW and interim comments have been provided to NEH. In the absence of review and approval of the revised GMP at the time of preparing this report, Douglas has implemented the requirements of both GMPs (Douglas, 2010; 2025).

Table 1: Summary of monitoring undertaken to meet the requirements of the GMP – Field work undertaken 11 July 2025

Item		Required monitoring frequency	Monitoring locations sampled (note 1)	Comments
Groundwater level monitoring		3 monthly	MW1A, MW02, MW04, MW06, MW8A, MW10, MW11, MW12, MW13	Routine monitoring requirement
Category 1 parameters	pH, EC, TSS, DO, ORP, turbidity, temperature	3 monthly	MW1A, MW02, MW04, MW06, MW8A, MW10, MW11, MW12, MW13, SW1	Routine monitoring requirement
Category 2 parameters	Cations – calcium (Ca), potassium (K), magnesium (Mg), sodium (Na) and iron (Fe). Anions – Chloride (Cl), sulphate (SO4), ammonia (NH3), bicarbonate (HCO3), carbonate (CO3), total alkalinity, nitrite (NO2), nitrate (NO3), total Kjeldahl nitrogen (TKN), total phosphorous (PO4) and fluoride (F).	6 monthly	Not required for current event	Not required for current event
Category 3 parameters	Heavy metals (extended suite) – aluminium, arsenic, cadmium, chromium, copper, iron, lead manganese, mercury, molybdenum, nickel and zinc TRH, PAH, BTEX OCP/OPP (low level) PCB HCN Phenols	12 monthly	Not required for current event	Not required for current event
Other	PFAS	Not required	Not required for current event	Not required for current event
Reporting		12 monthly	All locations	Plus interim review of results after each monitoring event

Notes:
(1) Monitoring wells MW5 and MW7 were not monitored as per historical monitoring to date (access restricted by dense vegetation)

The 2010 GMP (Douglas, 2010) for Stage 1 and future stages noted that groundwater criteria could be developed based on an assessment of ANZECC (2000) criteria (now largely superseded by ANZG (2018), *Australian Drinking Water Guidelines* (updated) and compilation of baseline data to develop site-specific trigger levels. This process recognises that some elevated contaminants (e.g. metals) naturally occur in the locality, above ecological guidelines.

The revised GMP (Douglas, 2025) is proposed to supersede the 2010 GMP and incorporates the current guidelines as well as the formalised trigger levels based on the compiled and reviewed monitoring data set (2015-2025).

The assessment criteria reflects updates to the guidelines. A comparison against the drinking water guidelines has not been undertaken for the current monitoring event as there are no potable receptors on site or downstream of the site.

The laboratory report sheets and summarised results are shown against the adopted water quality criteria in Table A1, attached.

The results are summarised as follows:

- There were no observations of hydrocarbon slicks, odours or sheens to suggest the presence of gross contamination;
- Photoionisation detector (PID) screening of the groundwater/surface water headspace was <1 ppm for all locations;
- The results of laboratory testing were within the adopted trigger levels and ANZG (2018) guideline values as shown on Table A1 attached, with the exception of the analytes listed in Table 2 below for groundwater;
- There were no exceedances of the ANZG (2018) guideline values for surface water.

The GMP lists actions prompted by an exceedance of the trigger level including review of the result against the upper confidence level (UCL) 95% mean values and adopted trigger levels based on the 80th percentiles. In the absence of these formalised values, a qualitative assessment of the data, review of the trends and investigation of the likelihood of the data being indicative of a contaminant plume is initiated to determine whether other actions are required, such as re-sampling or further testing.

Table 2 summarises the exceedances of the adopted trigger levels and ANZG (2018) guideline values and in lieu of formal trigger levels provide comments on the significance of the monitoring data and whether further action is required. It is noted that there is not a trigger level criteria for TSS for marine or fresh water (Douglas, 2025) / ANZECC (2000) /ANZG (2018).

Table 2: Summary of review and recommended actions - quarterly monitoring, July 2025

Parameter	Well	Date	Concentration	Assessment criteria for clay aquitard / Tomago sandbeds wells (Douglas, 2025)	Guideline value (ANZG, 2018)	Comments / assessment of significance
pH	MW1A	11/7/25	pH 5.7	Tomago Sandbeds: 5.2 – 8.0	6.5-8.5 (ANZECC 2000)	The guideline value is based on ANZECC (2000) for marine ecosystems (in the absence of ANZG (2018) values). ANZG (2023) provides several methods for determining site reference data for assigning of trigger levels including both local reference data, typically based on 80th percentiles or default guideline values. The latter approach, as was adopted for the monitoring is noted as being "inherently conservative". ANZG (2023) goes on to say that the default guideline values are a good starting point when no reference guideline values are available, however, does not consider typical conditions for the locality. Historical monitoring on the site and adjacent sites has typically indicated that wells screened in the Tomago Sandbeds generally have lower pH values than those screened in the clay aquitard. pH in groundwater has varied widely between monitoring events and for wells in the sand aquifer has ranged from pH 4.1 to pH 7.5. Low pH is common for the area regionally and could be due to a number of reasons including former sand mining within the broader Tomago Sandbeds (upgradient); podzol soils in coastal dunes; and acid sulfate soils. The pH values for the July 2025 monitoring event are within the historical range of pH values for the site to date (2007-July 2025) for wells screened in the Tomago Sandbeds. On this basis, the exceedances of pH are therefore not considered significant. Rather, the results are considered representative of pH conditions at the site, and more regionally. The results are not considered indicative of a contaminant plume.
	MW8A	11/7/25	pH 5.6			
	MW10	11/7/25	pH 5.5			
	MW11	11/7/25	pH 5.0			
	MW12	11/7/25	pH 4.5			
	MW04	11/7/25	pH 6.5	Clay aquitard: 6.7-8.0	6.5-8.5 (ANZECC 2000)	
EC	MW06	11/7/25	14,200 µs/cm	Tomago Sandbeds: 3780	125-2,200 (ANZECC 2000)	The guideline value is based on ANZECC (2000) for marine ecosystems (in the absence of ANZG (2018) values) and in the absence of site specific 80th percentile data. MW04 and MW06 are located downgradient of the site. These wells have historically shown higher EC values (more saline / brackish) when compared to upgradient wells. Downgradient wells have shown influence from salt water inundation effects in the wetland areas to the south, which are representative conditions of this environment. EC for MW04 has ranged from 190 µs/cm to 50,900 µs/cm, but for the majority of monitoring events has remained > 10,000 µs/cm and above the default guideline value. Similarly, MW06 has ranged from 160 µs/cm to 38,000 µs/cm has remained > 10,000 µs/cm and above the default guideline value. The July 2025 results are within the historical range. The results are not considered indicative of a contaminant plume.
	MW04 (clay)	11/7/25	26,300 µS/cm	Clay aquitard: 15,900	125-2,200 (ANZECC 2000)	

In summary, the July 2025 monitoring event was undertaken to meet the requirements and objectives of the original GMP (Douglas, 2010). The monitoring results indicate solute concentrations which are considered representative of typical groundwater and surface water quality trends based on the collated historical monitoring data set from 2010 to 2025.

It is noted that the GMP requires notification where monitoring confirms exceedance of the 80th percentile of the dataset, with the intent to investigate potential harm such as a contaminant plume. On the basis that the assessment of the data indicates no obvious environmental risk to receptors, Douglas considers that the pH and EC values for the quarterly monitoring event are **not reportable exceedances**.

The revised GMP for department review / approval provides further clarity regarding the assessment of water quality data, actions prompted by monitoring results and timing of notification to department agencies, where appropriate.

Future scheduled monitoring with reference to the improved and revised GMP will enable further on-going assessment of trends in groundwater level and groundwater and surface water quality at the site.

The above interim advice is provided for the exclusive use of Northbank Enterprise Hub Pty Ltd. Further details and limitations will be provided in the annual groundwater monitoring report to be provided in May 2026 which includes the results of all monitoring for the annual reporting period.

References:

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

ANZG. (2023). *Using monitoring data to derive and assess against guideline values*. Retrieved from Australian and New Zealand Guidelines for Fresh & Marine Water Quality: https://www.waterquality.gov.au/anz-guidelines/monitoring/data-analysis/derivation-assessment.

Douglas. (2010). Groundwater Monitoring Plan, Proposed Industrial Subdivision Tomago Road, Tomago Doc Ref 39920.02-GMP Rev 1. Douglas Partners Pty Ltd (Douglas).

Douglas. (2025). *Revised Groundwater Monitoring Plan, Stage 1 Northbank Enterprise Hub (EPBC Approval 2007/3343), Lot 212 and Part Lot 211 DP 1174939, Westrac Drive, Tomago, NSW*. 39920.09.R.016.Rev0.GMP.Stage1: Douglas Partners Pty Ltd.

If you have any questions, please contact the undersigned.

Douglas Partners Pty Ltd

Dana Wilson

Dana Wilson
Senior Associate

Reviewed by

P W Wright

Will Wright
Principal

Attachments:

About this report

Table A1: July 2025 groundwater and surface water monitoring results (quarterly monitoring event)

Envirolab report (385679-R01)

Drawing 3 – Groundwater well and surface water monitoring location plan (Rev3)

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Table A1: July 2025 groundwater and surface water monitoring results (quarterly monitoring event)

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010)	Trigger Levels based on Revised GMP (Douglas, 2025)		Groundwater										Groundwater/Surface Water Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010)	Surface water
						Tomago Sandbeds Wells								Clay Aquitard wells			
	Unit	PQL	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	Assessment Criteria for Clay Aquitard	Assessment Criteria for Tomago Sandbeds Wells	MW1A	MW06	MW8A	MW10	MW10 (D1GW-11.7.25)	MW11	MW12	MW13	MW02	MW04	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	SW1
						11 Jul 2025	11 Jul 2025	11 Jul 2025	11 Jul 2025	11 Jul 2025	11 Jul 2025	11 Jul 2025	11 Jul 2025	11 Jul 2025	11 Jul 2025		11 Jul 2025
Field																	
pH	pH	0.1	**6.5-8.5**	**6.7-8.0**	**5.2-8.0**	**5.7**	**7.1**	**5.6**	**5.5**	**-**	**5.0**	**4.5**	**6.0**	**7.4**	**6.5**	**6.5-8.5**	**8.2**
EC	µS/cm	0.1	**125-2200**	**15900**	**3780**	**134**	**14200**	**150**	**178**	**-**	**212**	**141**	**324**	**1310**	**26300**	**125-2200**	**175**
Laboratory																	
Total Suspended Solids	mg/L	5	-	**-**	**-**	**350**	**94**	**410**	**1300**	**750**	**260**	**97**	**170**	**210**	**670**	-	<5

Bold - value greater than laboratory practical quantitation limit
Shaded/coloured result exceeds corresponding criteria
PQL - practical quantitation limit
D1GW-11.7.25 - field replicate for MW10

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 385679

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.09**
Number of Samples	11 Water
Date samples received	22/07/0725
Date completed instructions received	11/07/0725

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	22/07/2025
Date of Issue	22/07/2025
Reissue Details	This report replaces R00 created on 22/07/2025 due to: project ID error

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Laura Schofield, Lab Manager

Authorised By
Nancy Zhang, Laboratory Manager

Miscellaneous Inorganics						
Our Reference		385679-1	385679-2	385679-3	385679-4	385679-5
Your Reference	UNITS	MW1A	MW2	MW4	MW6	MW8A
Date Sampled		11/07/2025	11/07/2025	11/07/2025	11/07/2025	11/07/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	11/07/2025	11/07/2025	11/07/2025	11/07/2025	11/07/2025
Date analysed	-	11/07/2025	11/07/2025	11/07/2025	11/07/2025	11/07/2025
Total Suspended Solids	mg/L	350	210	670	94	410

Miscellaneous Inorganics						
Our Reference		385679-6	385679-7	385679-8	385679-9	385679-10
Your Reference	UNITS	MW10	MW11	MW12	MW13	D1GW-11.7.25
Date Sampled		11/07/2025	11/07/2025	11/07/2025	11/07/2025	11/07/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	11/07/2025	11/07/2025	11/07/2025	11/07/2025	11/07/2025
Date analysed	-	11/07/2025	11/07/2025	11/07/2025	11/07/2025	11/07/2025
Total Suspended Solids	mg/L	1,300	260	97	170	750

Miscellaneous Inorganics		
Our Reference		385679-11
Your Reference	UNITS	SW1
Date Sampled		11/07/2025
Type of sample		Water
Date prepared	-	11/07/2025
Date analysed	-	11/07/2025
Total Suspended Solids	mg/L	<5

Method ID	Methodology Summary
Ext-073_J	Analysis of Total Suspended Solids in Water by AS 2540 D and in-house method ENV-LAB009, Analysed by Envirolab Newcastle - NATA Site No. 18077

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			11/07/2025	11	11/07/2025	11/07/2025		11/07/2025	[NT]
Date analysed	-			11/07/2025	11	11/07/2025	11/07/2025		11/07/2025	[NT]
Total Suspended Solids	mg/L	5	Ext-073_J	<5	11	<5	<5	0	92	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

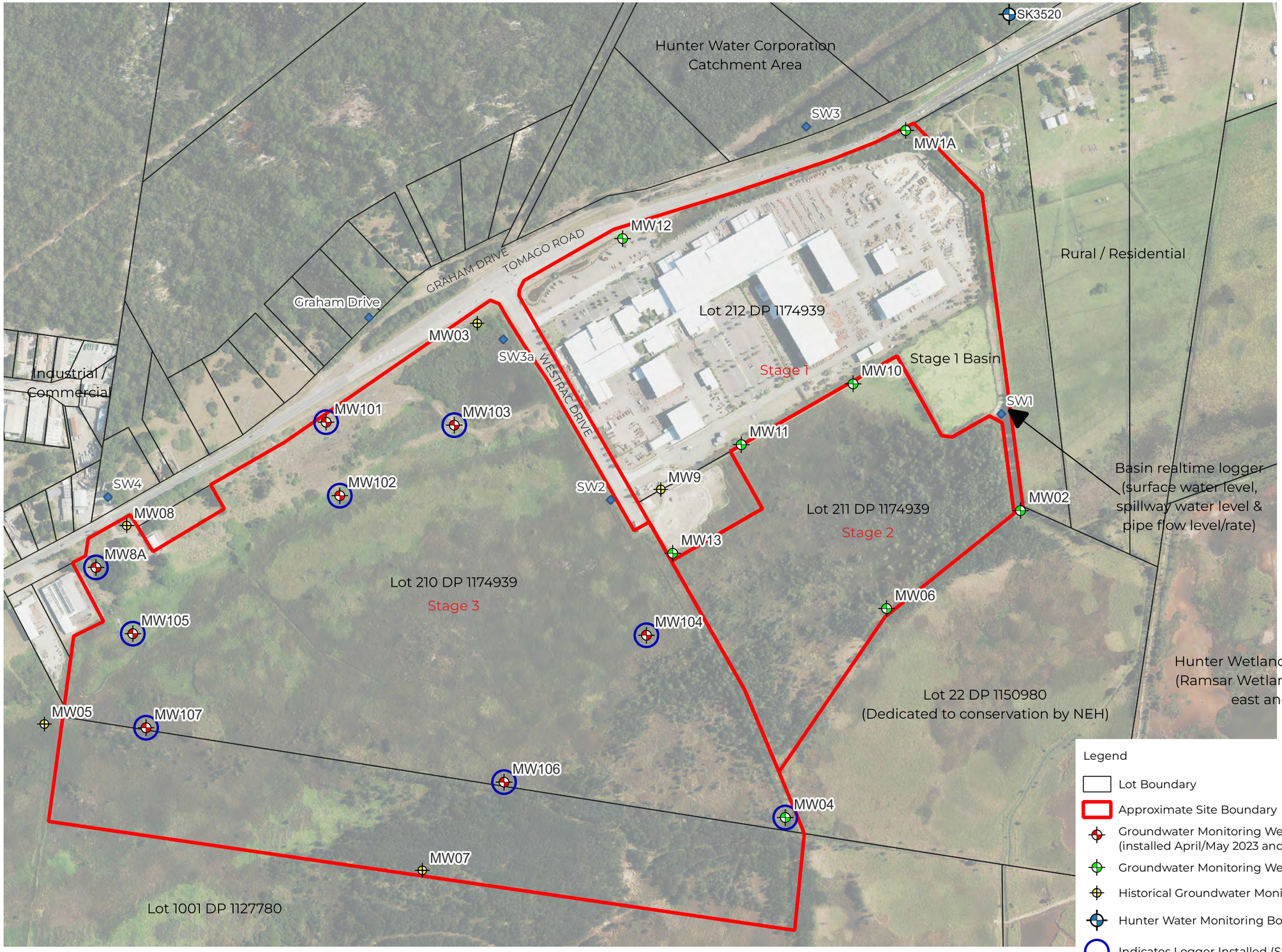
Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.



Site Location

Legend

- Lot Boundary
- Approximate Site Boundary
- Groundwater Monitoring Well (installed April/May 2023 and April 2024)
- Groundwater Monitoring Wells (2010 - existing)
- Historical Groundwater MonitoringWell (no longer suitable for monitoring)
- Hunter Water Monitoring Bore
- Indicates Logger Installed (Stage 3 Plan)
- Surface Water Monitoring Location (Stage 1-2 Plan)

0 100 200 m

Drawing adapted from Metromap Image dated 12.02.2023.
Test locations are approximate only. MW8A and MW100 series wells located using differential GPS.
MW1A & MW12 - Groundwater monitoring well (installed August 2024).

Douglas PARTNERS

CLIENT: Northbank Enterprise Hub Pty Ltd		TITLE: Groundwater Well and Surface Water Monitoring Location Plan Stage 1 to 3, Northbank Enterprise Hub Westrac Drive, Tomago	PROJECT No:39920.09
OFFICE: Newcastle	DRAWN BY: PLH		DRAWING No: 3
SCALE: 1:6000 @ A3	DATE: 27.11.2024		REVISION: 3

Memorandum

To:	Northbank Enterprise Hub Pty Ltd	Date:	16 December 2025
Attention:	Bryant Stokes Steve Robson	Project No:	39920.09
Email:	Bryant.Stokes@acequity.com.au steve.robson@acequity.com.au	Reference:	R.025.Rev0
CC:	scottd@torqueprojects.com, Torque Projects Pty Ltd		
Subject:	**Quarterly groundwater and surface water monitoring event – Oct 2025** **Stage 1, Northbank Enterprise Hub, WesTrac Drive, Tomago**		

The following memorandum provides the results of quarterly (three monthly) groundwater and surface water monitoring undertaken to meet the requirements of the Stage 1 *Groundwater Monitoring Plan* (Douglas, 2010) for Lots 210, 211, 212 DP 1174939 and Part Lot 1001 DP 1127780, WesTrac Drive, Tomago NSW. Monitoring is required under Environment Protection and Biodiversity Conservation Act (EPBC) approval 2007/3343 for the Northbank Enterprise Hub industrial development.

The following works were undertaken to meet the requirements of the *Groundwater Monitoring Plan* (Douglas, 2010) (GMP). The purpose of the GMP is to monitor for potential impacts that may arise from the existing development and implement appropriate management and mitigation strategies, where required.

A revised *Groundwater Monitoring and Management Plan* (GMMP) dated 3 March 2025 was prepared (Douglas, 2025) and submitted to DCCEEW on 5 March 2025 and has since been updated on 18 November 2025. The GMMP is relevant to the completed Stage 1 site and is proposed to supersede the 2010 GMP. The GMMP is an improved document which considers long term monitoring data from 2010 to 2025, changes in site conditions and practices, and contemporary monitoring practices. The GMMP includes removal of some monitoring well locations and laboratory parameters, and addition of others, to provide more effective locations and testing parameters. The revised plan also provides further clarity regarding the assessment of water quality data, actions prompted by monitoring results and timing of notification to department agencies, where appropriate.

The GMMP is in the process of final review by DCCEEW with comments incorporated into the plan. In the absence of review and approval of the GMMP at the time of preparing this report, Douglas has implemented the requirements of both the GMP and GMMP (Douglas, 2010; 2025).

A summary of groundwater and surface water monitoring conducted as part of the October 2025 monitoring event is provided in Table 1.

Table 1: Summary of monitoring undertaken to meet the requirements of the GMP – Field work undertaken 21 October 2025

Item		Required monitoring frequency	Monitoring locations sampled (note 1)	Comments
Groundwater level monitoring		3 monthly	MW1A, MW02, MW04, MW06, MW8A, MW10, MW11, MW12, MW13	Routine monitoring requirement
Category 1 parameters	pH, EC, TSS, DO, ORP, turbidity, temperature	3 monthly	MW1A, MW02, MW04, MW06, MW8A, MW10, MW11, MW12, MW13, SW1	Routine monitoring requirement
Category 2 parameters	Cations – calcium (Ca), potassium (K), magnesium (Mg), sodium (Na) and iron (Fe). Anions – Chloride (Cl), sulphate (SO4), ammonia (NH3), bicarbonate (HCO3), carbonate (CO3), total alkalinity, nitrite (NO2), nitrate (NO3), total Kjeldahl nitrogen (TKN), total phosphorous (PO4) and fluoride (F).	6 monthly	MW1A, MW02, MW04, MW06, MW8A, MW10, MW11, MW12, MW13, SW1	Routine monitoring requirement
Category 3 parameters	Heavy metals (extended suite) – aluminium, arsenic, cadmium, chromium, copper, iron, lead manganese, mercury, molybdenum, nickel and zinc TRH, PAH, BTEX OCP/OPP (low level) PCB HCN Phenols	12 monthly	Not required for current event	Not required for current event
Other	PFAS	Not required	Not required for current event	Not required for current event
Reporting		12 monthly	All locations	Plus interim review of results after each monitoring event

Notes:
(1) Monitoring wells MW5 and MW7 were not monitored as per historical monitoring to date (access restricted by dense vegetation)

The 2010 GMP (Douglas, 2010) for Stage 1 and future stages noted that groundwater criteria could be developed based on an assessment of ANZECC (2000) criteria. This criteria has now largely been superseded by ANZG (2018), *Australian Drinking Water Guidelines* (updated) and compilation of baseline data to develop site-specific trigger levels. This process recognises that some elevated contaminants (e.g. metals) naturally occur in the locality, above adopted ecological guidelines.

The revised GMMP (Douglas, 2025) is proposed to supersede the 2010 GMP and incorporates the current guidelines as well as the formalised trigger levels based on the compiled and reviewed monitoring data set (2015-2025).

The assessment criteria reflects updates to the guidelines. A comparison against the drinking water guidelines has not been undertaken for the current monitoring event as there are no potable receptors on site or downstream of the site (i.e. wetland to south-east).

The laboratory report sheets and summarised results are shown against the adopted water quality criteria in Table A1, attached.

The results are summarised as follows:

- There were no observations of hydrocarbon slicks, odours or sheens to suggest the presence of gross contamination;
- Photoionisation detector (PID) screening of the groundwater/surface water headspace was <1 ppm for all locations;
- The results of laboratory testing were within the adopted site-specific trigger levels and/or relevant ANZG (2018) guideline values as shown on Table A1 attached, with the exception of the analytes listed in Table 2 below.

The GMP lists actions prompted by an exceedance of the trigger level including review of the result against the upper confidence level (UCL) 95% mean values and adopted trigger levels based on the 80th percentiles. In the absence of these formalised values, a qualitative assessment of the data, review of the trends and investigation of the likelihood of the data being indicative of a contaminant plume is initiated to determine whether other actions are required, such as re-sampling or further testing.

Table 2 summarises the exceedances of the adopted trigger levels and ANZG (2018) guideline values and in lieu of formal trigger levels, provides comments on the significance of the monitoring data and whether further action is required. It is noted that there is not a trigger level criteria for TSS for marine or fresh water (Douglas, 2025) / ANZECC (2000) / ANZG (2018).

Table 2: Summary of review and recommended actions - quarterly monitoring, Oct 2025

Parameter	Well	Date	Value / Concentration	Assessment criteria for clay aquitard / Tomago sandbeds wells (Douglas, 2025)	Guideline value (ANZG, 2018)	Comments / assessment of significance
pH	MW1A	21/10/25	pH 5.6	Tomago Sandbeds: 5.2 – 8.0	7.0-8.0 (ANZECC 2000)	The guideline value is based on ANZECC (2000) for marine ecosystems (in the absence of ANZG (2018) values). ANZG (2023) provides several methods for determining site reference data for assigning of trigger levels including both local reference data, typically based on 80th percentiles or default guideline values. The latter approach, as was adopted for the monitoring is noted as being "inherently conservative". ANZG (2023) goes on to say that the default guideline values are a good starting point when no reference guideline values are available, however, does not consider typical conditions for the locality. Historical monitoring on the site and adjacent sites has typically indicated that wells screened in the Tomago Sandbeds generally have lower pH values than those screened in the clay aquitard. pH in groundwater has varied widely between monitoring events and for wells in the sand aquifer has ranged from pH 4.1 to pH 7.5. Low pH is common for the area regionally and could be due to a number of reasons including former sand mining within the broader Tomago Sandbeds (upgradient); podzol soils in coastal dunes; and acid sulfate soils. SW1 within the detention basin is usually slightly higher in pH compared to groundwater, representing fresher water. The value was slightly below the ANZG/ANZECC default range of pH 7.0-8.0. The pH values for the October 2025 monitoring event are within the historical range of pH values for the site to date (2007-July 2025). On this basis, the exceedances of pH are therefore not considered significant. Rather, the results are considered representative of pH conditions at the site, and more regionally. The results are not considered indicative of a contaminant plume.
	MW10	21/10/25	pH 5.0			
	MW11	21/10/25	pH 5.0			
	MW12	21/10/25	pH 4.6			
	MW13	21/10/25	pH 6.0			
	MW02	21/10/25	pH 6.7	Clay aquitard: 6.7-8.0	7.0-8.0 (ANZECC 2000)	
	MW04	21/10/25	pH 6.4			
	SW1	21/10/25	pH 6.9	ANZG/ANZECC default GV 7.0-8.0	7.0-8.0 (ANZECC 2000)	
EC	MW06	21/10/25	14,000 µs/cm	Tomago Sandbeds: 3,780 µs/cm	125-2,200 (ANZECC 2000)	The guideline value is based on ANZECC (2000) for marine ecosystems (in the absence of ANZG (2018) values) and in the absence of site specific 80th percentile data. MW04 and MW06 are located downgradient of the site. These wells have historically shown higher EC values (more saline / brackish) when compared to upgradient wells. Downgradient wells have shown influence from salt water inundation effects in the wetland areas to the south, which are representative conditions of this environment. EC for MW04 has ranged from 190 µs/cm to 50,900 µs/cm, but for the majority of monitoring events has remained > 10,000 µs/cm and above the default guideline value. Similarly, MW06 has ranged from 160 µs/cm to 38,000 µs/cm has remained > 10,000 µs/cm and above the default guideline value. The October 2025 results are within the historical range. The results are not considered indicative of a contaminant plume and are not of concern.
	MW04 (clay)	21/10/25	24,800 µS/cm	Clay aquitard: 15,900 µs/cm	125-2,200 (ANZECC 2000)	
Turbidity (field)	All wells	21/10/25	63 to >1000 NTU	-	0.5-10 NTU	Turbidity is a measure of the cloudiness of water caused by suspended particles like silt, clay, algae, and organic/inorganic matter, scattering light and making water less clear. TSS in groundwater and surface water can vary per monitoring event. It is a general indicator of the physical characteristics of water, rather than indicative of a contaminant of concern and as such a trigger value was not assigned for the revised GMMP. The TSS results for groundwater and surface water are therefore not of concern.
	SW1	21/10/25	544 NTU			
Chloride Sulphate	MW06	21/10/25	5400 mg/L 830 mg/L	Tomago Sandbeds: 1390 mg/L	-	Chloride and sulfate are measures of salt. Refer to comments for EC.
	MW04 (clay)	21/10/25	9800 mg/L 4800 mg/L	Clay aquitard: 4720 mg/L	-	
Ammonia	MW04	21/10/25	1.5 mg/L	Tomago Sandbeds: 0.91 mg/L	0.91 mg/L (ANZG 95% LOSP)	MW04 has indicated higher concentrations of ammonia which are typically greater than the ANZG criteria. Previous results have ranged from <0.1 mg/L to 2.8 mg/L, but typically values have been between 1 to 1.3 mg/L. The current result is within the historical range of results and does not suggest an increasing trend. Ammonia at MW13 is slightly above the trigger level and the highest value to date, however, the well is new and limited data has been collected to establish typical conditions at this well. Overall, higher nutrients are apparent for wells in the clay aquitard which is likely to be attributed to the organic rich clay soils rather than runoff impacts from site activities. The results are typical for MW04 and only slightly above the trigger level for MW13 and are not considered to be indicative of a contaminant plume.
	MW13	21/10/25	0.94 mg/L			

Parameter	Well	Date	Value / Concentration	Assessment criteria for clay aquitard / Tomago sandbeds wells (Douglas, 2025)	Guideline value (ANZG, 2018)	Comments / assessment of significance
Nitrate	MW12	21/10/25	0.43 mg/L	Tomago Sandbeds: 0.012 mg/L	-	There is no ANZG criteria for nitrate, nitrate or TKN. All are a measure of nitrogen compounds, as is ammonia. Their presence in groundwater may be due to human activities as well as the breakdown of organic matter. MW12 is a new well which was positioned to measure upgradient groundwater conditions. Nitrate at MW13, downgradient of MW12 is lower in concentration suggesting the absence of impacts from the site. The current results are within the historical range of results and does not suggest an increasing trend or contaminant plume.
	MW13	21/10/25	0.15 mg/L			
TKN	MW12	21/10/25	1.5 mg/L	Tomago Sandbeds: 1.05 mg/L	-	
Fluoride	MW2	21/10/25	0.8 mg/L	Clay aquitard: 0.27 mg/L	-	There is no ANZG criteria for fluoride. Fluorine (F) is the seventh-most common element, accounting for 0.06%–0.09% of the earth's crust (ANZG). It occurs as the fluoride ion (F^-) in rocks, soil, water and air. Fluoride can occur naturally at 1.3 mg/L in marine waters and lower from 0.01 to 0.3 mg/L in fresh waters. Higher concentrations can be encountered, particularly from human influences and industrial activities such as aluminium smelting. It is noted the desktop review and conceptual site model (CSM) in the GMMP did not identify fluoride as a contaminant of potential concern (CoPC) for site based activities. Fluoride was identified as a CoPC nearby site activities including (water treatment and aluminium smelter). Historical monitoring has indicated slightly higher fluoride concentrations for the clay aquitard up to 1.0 mg/L compared to 0.6 mg/L for the Tomago Sandbeds. The results are within the historical range of results and does not suggest an increasing trend or contaminant plume.
	MW6		0.4 mg/L	Tomago Sandbeds: 0.74 mg/L		
Iron (total/ non-filtered)	MW6	21/10/25	5.4 mg/L	Tomago Sandbeds: 2.8 mg/L	-	Iron is the fourth most abundant element in the Earth's crust and may be present in natural waters in varying quantities depending up on the geology of the area and other chemical components of the waterway. There is no ANZG criteria for iron. Historical monitoring has shown higher concentrations of iron for wells screened in the clay aquitard which is likely to be associated with the clay and organic rich soils. The results are within the historical range of results and does not suggest an increasing trend or contaminant plume.
	MW10	21/10/25	36 mg/L			
	MW12	21/10/25	6.4 mg/L			
	MW13	21/10/25	4.8 mg/L			
	MW2	21/10/25	160 mg/L	Clay aquitard: 55 mg/L		
	MW4	21/10/25	83 mg/L			
Iron (dissolved/ filtered)	MW6	21/10/25	4.5 mg/L	Tomago Sandbeds: 2.8 mg/L		
	MW13	21/10/25	3.9 mg/L			
	MW4	21/10/25	89 mg/L	Clay aquitard: 55 mg/L		
Total phosphor-us	MW10	21/10/25	1.1 mg/L	Tomago Sandbeds: 0.13 mg/L	-	Phosphorus makes up about 0.1% of the earth's crust. P and other nutrients are essential to ecosystem biota (life-forms) at certain concentrations. TP has ranged from <0.005 to 1.76 mg/L in the sandbeds aquifer and the results forMW10 and MW12 are therefore within this range. Historical monitoring has shown higher concentrations of phosphorus for wells screened in the clay aquitard which is likely to be associated with the clay and organic rich soils. The results are within the historical range of results and does not suggest an increasing trend or contaminant plume.
	MW12	21/10/25	0.99 mg/L			
	MW2	21/10/25	3.4 mg/L	Clay aquitard: 2.3 mg/L	-	

In summary, the October 2025 monitoring event was undertaken to meet the requirements and objectives of the original GMP (Douglas, 2010). The monitoring results indicate solute concentrations which are considered representative of typical groundwater and surface water quality trends based on the collated historical monitoring data set from 2010 to 2025 in the GMMP.

It is noted that the GMP requires notification where monitoring confirms an exceedance , with the intent to investigate potential harm such as a contaminant plume. On the basis that the assessment of the data indicates no obvious environmental risk to receptors, Douglas considers that the exceedances presented in Table 2 for the quarterly monitoring event are **not reportable exceedances**.

The revised GMMP for department review / approval provides further clarity regarding the assessment of water quality data, actions prompted by monitoring results and timing of notification to department agencies, where appropriate.

Future scheduled monitoring with reference to the improved and revised GMMP will enable further on-going assessment of trends in groundwater level and groundwater and surface water quality at the site.

The above interim advice is provided for the exclusive use of Northbank Enterprise Hub Pty Ltd. Further details and limitations will be provided in the annual groundwater monitoring report to be provided in May 2026 which includes the results of all monitoring for the annual reporting period.

References:

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

ANZG. (2023). *Using monitoring data to derive and assess against guideline values*. Retrieved from Australian and New Zealand Guidelines for Fresh & Marine Water Quality: https://www.waterquality.gov.au/anz-guidelines/monitoring/data-analysis/derivation-assessment.

Douglas. (2010). Groundwater Monitoring Plan, Proposed Industrial Subdivision Tomago Road, Tomago Doc Ref 39920.02-GMP Rev 1. Douglas Partners Pty Ltd (Douglas).

Douglas. (2025). *Revised Groundwater Monitoring and Manaement Plan, Stage 1 Northbank Enterprise Hub (EPBC Approval 2007/3343), Lot 212 and Part Lot 211 DP 1174939, Westrac Drive, Tomago, NSW*. 39920.09.R.016.Rev3.GMMP.Stage1: Douglas Partners Pty Ltd.

If you have any questions, please contact the undersigned.

Douglas Partners Pty Ltd

Dana Wilson

Dana Wilson
Senior Associate

Reviewed by

Patrick Heads

Patrick Heads
Senior Associate

Attachments:

About this report

Table A1: October 2025 groundwater and surface water monitoring results (quarterly monitoring event)

Envirolab report (393598-R01, 393598-R00)

Drawing 4 – Groundwater well and surface water monitoring location plan (Rev3)

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Douglas PARTNERS

Table A1: October 2025 groundwater and surface water monitoring results (quarterly monitoring event

			Groundwater/Surface Water Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010)	Trigger Levels based on GMMP (Douglas, 2025)		Groundwater									Groundwater/Surface Water Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010)	Surface water
						Clay Aquitard wells		Tomago Sandbeds Wells								
	Unit	PQL	ANZG Marine Water Toxicant DGVs LOSP 95%	Assessment Criteria for Clay Aquitard Wells	Assessment Criteria for Tomago Sandbeds Wells	MW02	MW04	MW1A	MW06	MW10	DVGW/ 21.10.25	MW11	MW12	MW13	ANZG Marine Water Toxicant DGVs LOSP 95%	SW1
						21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025		21/10/2025
Field																
pH (Field)	pH	0.1	7.0-8.0	6.7-8.0	5.2-8.0	6.7	6.4	5.6	7.1	5.0	-	5.0	4.6	6.0	7.0-8.0	6.9
Electrical Conductivity (field)	µS/cm	1	125-2200	15900	3780	1350	24,800	134	14,000	167	-	202	141	333	125-2200	148
DO (Field)	mg/L	0.1				2.1	4.0	2.0	2.4	2.9	-	1.7	1.6	7.7		1.9
DO (Field)	%	1	80-110%												80-110%	
Turbidity (Field)	NTU	1	0.5-10			>1000	197	314	63	>1000	-	234	>1000	166	0.5-10	544
Temperature (Field)	°C	0.1				17.3	16.1	18.3	17.3	20.6	-	19.9	19.7	20.5		21.9
Total Suspended Solids (Lab)	mg/L	5				1900	660	220	60	4,500	3,700	110	1,600	81		59
Inorganics																
Chloride	mg/L	1		4720	1390	51	9,800	28	5,400	38	35	45	32	16		30
Sulphate	mg/L	1		2560	310	30	4,800	2	830	4	4	1	10	1		3
Fluoride	mg/L	0.1		0.74	0.27	0.8	0.4	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	0.2		<0.1
Alkalinity (Hydroxide) as CaCO3	mg/L	5				<5	<5	<5	<5	<5	<5	<5	<5	<5		<5
Alkalinity (Carbonate as CaCO3)	mg/L	5				<5	<5	<5	<5	<5	<5	<5	<5	<5		<5
Alkalinity (Bicarbonate as CaCO3)	mg/L	5				760	870	17	380	27	23	25	<5	170		17
Alkalinity (total) as CaCO3	mg/L	5				760	870	17	380	27	23	25	<5	170		17
Ammonia as N (filtered)	mg/L	0.005	0.91	1.81	0.91	0.4	1.5	0.14	0.71	0.34	0.36	0.61	0.093	0.94	0.91	0.03
Nitrite (as N) (filtered)	mg/L	0.005		0.017	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
Nitrate (as N) (filtered)	mg/L	0.005		0.04	0.012	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	0.43	0.15		<0.005
Kjeldahl Nitrogen Total	mg/L	0.1		4.51	1.05	1.5	2.2	0.5	0.8	0.8	0.8	0.9	1.5	1		0.6
Total Phosphorus (Organic Phosphate)	mg/L	0.05		2.3	0.13	3.4	1.8	0.1	0.06	1.1	1.1	0.09	0.99	<0.05		0.1
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005		0.013	0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
Other																
Calcium (filtered)	mg/L	0.5				49	410	3	210	2	2	1	1	26		4
Magnesium (filtered)	mg/L	0.5				32	810	2	380	3	2	3	2	17		2
Potassium (filtered)	mg/L	0.5				17	170	2	79	3	3	2	<0.5	2		0.7
Sodium (filtered)	mg/L	0.5				260	5,000	17	2,600	26	26	32	21	15		19
Hardness (filtered)	mg/L	3				260	4,300	18	2,100	15	14	16	10	130		20
Iron	mg/L	0.01			2.8	160	83	2.3	5.4	36	38	1.7	6.4	4.8		5.1
Iron (filtered)	mg/L	0.01		55	2.8	5.2	89	1.6	4.5	0.45	0.43	0.36	1.1	3.9		0.36

Notes:

DVGW/21.10.25 -repliacte of MW10

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 393598

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.09, Tomago**
Number of Samples	10 Water
Date samples received	22/10/2025
Date completed instructions received	22/10/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	29/10/2025
Date of Issue	13/11/2025
Reissue Details	This report replaces R00 due to addition of sampling dates as per client.

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Results Approved By
Diego Bigolin, Inorganics Supervisor
Giovanni Agosti, Group Technical Manager
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

HM in water - dissolved						
Our Reference		393598-1	393598-2	393598-3	393598-4	393598-5
Your Reference	UNITS	MW1A	MW04	MW06	MW10	MW11
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	23/10/2025	23/10/2025	23/10/2025	23/10/2025	23/10/2025
Date analysed	-	23/10/2025	23/10/2025	23/10/2025	23/10/2025	23/10/2025
Iron-Dissolved	µg/L	1,600	89,000	4,500	450	360

HM in water - dissolved					
Our Reference		393598-6	393598-7	393598-8	393598-9
Your Reference	UNITS	MW12	MW13	DVGW/21.10.25	SW1
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	23/10/2025	23/10/2025	23/10/2025	23/10/2025
Date analysed	-	23/10/2025	23/10/2025	23/10/2025	23/10/2025
Iron-Dissolved	µg/L	1,100	3,900	430	360

HM in water - total						
Our Reference		393598-1	393598-2	393598-3	393598-4	393598-5
Your Reference	UNITS	MW1A	MW04	MW06	MW10	MW11
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	27/10/2025	27/10/2025	27/10/2025	27/10/2025	27/10/2025
Date analysed	-	27/10/2025	27/10/2025	27/10/2025	27/10/2025	27/10/2025
Iron-Total	µg/L	2,300	83,000	5,400	36,000	1,700

HM in water - total					
Our Reference		393598-6	393598-7	393598-8	393598-9
Your Reference	UNITS	MW12	MW13	DVGW/21.10.25	SW1
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	27/10/2025	27/10/2025	27/10/2025	27/10/2025
Date analysed	-	27/10/2025	27/10/2025	27/10/2025	27/10/2025
Iron-Total	µg/L	6,400	4,800	38,000	5,100

Ion Balance						
Our Reference		393598-1	393598-2	393598-3	393598-4	393598-5
Your Reference	UNITS	MW1A	MW04	MW06	MW10	MW11
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	27/10/2025	27/10/2025	27/10/2025	27/10/2025	27/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Calcium - Dissolved	mg/L	3	410	210	2	1
Potassium - Dissolved	mg/L	2	170	79	3	2
Sodium - Dissolved	mg/L	17	5,000	2,600	26	32
Magnesium - Dissolved	mg/L	2	810	380	3	3
Hardness (calc) equivalent $CaCO_3$	mg/L	18	4,300	2,100	15	16
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	17	870	380	27	25
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	17	870	380	27	25
Sulphate, SO4	mg/L	2	4,800	830	4	1
Chloride, Cl	mg/L	28	9,800	5,400	38	45
Ionic Balance	%	-2.0	-12	-6.0	-6.0	-1.0

Ion Balance					
Our Reference		393598-6	393598-7	393598-8	393598-9
Your Reference	UNITS	MW12	MW13	DVGW/21.10.25	SW1
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	27/10/2025	27/10/2025	27/10/2025	27/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Calcium - Dissolved	mg/L	1	26	2	4
Potassium - Dissolved	mg/L	<0.5	2	3	0.7
Sodium - Dissolved	mg/L	21	15	26	19
Magnesium - Dissolved	mg/L	2	17	2	2
Hardness (calc) equivalent $CaCO_3$	mg/L	10	130	14	20
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	<5	170	23	17
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	<5	170	23	17
Sulphate, SO4	mg/L	10	1	4	3
Chloride, Cl	mg/L	32	16	35	30
Ionic Balance	%	0	-7.0	-2.0	-1.0

Metals in Waters - Acid extractable						
Our Reference		393598-1	393598-2	393598-3	393598-4	393598-5
Your Reference	UNITS	MW1A	MW04	MW06	MW10	MW11
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/10/2025	24/10/2025	24/10/2025	24/10/2025	24/10/2025
Date analysed	-	28/10/2025	28/10/2025	28/10/2025	28/10/2025	28/10/2025
Phosphorus - Total	mg/L	0.1	1.8	0.06	1.1	0.09

Metals in Waters - Acid extractable					
Our Reference		393598-6	393598-7	393598-8	393598-9
Your Reference	UNITS	MW12	MW13	DVGW/21.10.25	SW1
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	24/10/2025	24/10/2025	24/10/2025	24/10/2025
Date analysed	-	28/10/2025	28/10/2025	28/10/2025	28/10/2025
Phosphorus - Total	mg/L	0.99	<0.05	1.1	0.1

Miscellaneous Inorganics						
Our Reference		393598-1	393598-2	393598-3	393598-4	393598-5
Your Reference	UNITS	MW1A	MW04	MW06	MW10	MW11
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Ammonia as N in water	mg/L	0.14	1.5	0.71	0.34	0.61
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate as N in water	mg/L	<0.005	<0.005	0.007	<0.005	<0.005
TKN in water	mg/L	0.5	2.2	0.8	0.8	0.9
Phosphate as P in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride, F	mg/L	<0.1	0.4	0.5	<0.1	<0.1
Total Suspended Solids	mg/L	220	660	60	4,500	110

Miscellaneous Inorganics					
Our Reference		393598-6	393598-7	393598-8	393598-9
Your Reference	UNITS	MW12	MW13	DVGW/21.10.25	SW1
Date Sampled		21/10/2025	21/10/2025	21/10/2025	21/10/2025
Type of sample		Water	Water	Water	Water
Date prepared	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Date analysed	-	22/10/2025	22/10/2025	22/10/2025	22/10/2025
Ammonia as N in water	mg/L	0.093	0.94	0.36	0.03
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005
Nitrate as N in water	mg/L	0.43	0.15	<0.005	<0.005
TKN in water	mg/L	1.5	1	0.8	0.6
Phosphate as P in water	mg/L	<0.005	<0.005	<0.005	<0.005
Fluoride, F	mg/L	<0.1	0.2	<0.1	<0.1
Total Suspended Solids	mg/L	1,600	81	3,700	59

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals/elements by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs. Where molecular anion forms are calculated from an element (e.g. SO4 from S or PO4 from P stoichiometrically), the assumption is that the element is only present in that molecular anion form.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	393598-3
Date prepared	-			23/10/2025	2	23/10/2025	23/10/2025		23/10/2025	23/10/2025
Date analysed	-			23/10/2025	2	23/10/2025	23/10/2025		23/10/2025	23/10/2025
Iron-Dissolved	µg/L	10	Metals-022	<10	2	89000	89000	0	103	#

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	393598-5
Date prepared	-			27/10/2025	1	27/10/2025	27/10/2025		27/10/2025	27/10/2025
Date analysed	-			27/10/2025	1	27/10/2025	27/10/2025		27/10/2025	27/10/2025
Iron-Total	µg/L	10	Metals-022	<10	1	2300	2300	0	100	#

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	393598-4
Date prepared	-			22/10/2025	2	27/10/2025	22/10/2025		22/10/2025	22/10/2025
Date analysed	-			22/10/2025	2	22/10/2025	22/10/2025		22/10/2025	22/10/2025
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	410	410	0	94	93
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	170	170	0	95	91
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	5000	4900	2	101	87
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	810	810	0	97	97
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	2	4300	4400	2	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	2	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	2	870	860	1	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	2	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	2	870	860	1	112	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	2	4800	[NT]		111	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	2	9800	[NT]		97	[NT]
Ionic Balance	%		Inorg-040	[NT]	2	-12	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	5	27/10/2025	22/10/2025		[NT]	[NT]
Date analysed	-			[NT]	5	22/10/2025	22/10/2025		[NT]	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	1	[NT]		[NT]	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	2	[NT]		[NT]	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	32	[NT]		[NT]	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	5	3	[NT]		[NT]	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	5	16	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	25	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	5	25	[NT]		[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	5	1	2	67	[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	5	45	46	2	[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	5	-1.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	393598-2
Date prepared	-			24/10/2025	1	24/10/2025	24/10/2025		24/10/2025	24/10/2025
Date analysed	-			28/10/2025	1	28/10/2025	28/10/2025		28/10/2025	28/10/2025
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.1	0.1	0	95	101

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	393598-7
Date prepared	-			22/10/2025	2	22/10/2025	22/10/2025		22/10/2025	22/10/2025
Date analysed	-			22/10/2025	2	22/10/2025	22/10/2025		22/10/2025	22/10/2025
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	2	1.5	[NT]		95	74
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	2	<0.005	[NT]		102	116
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	2	<0.005	[NT]		97	76
TKN in water	mg/L	0.1	Inorg-062	<0.1	2	2.2	[NT]		105	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	2	<0.005	[NT]		114	108
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	2	0.4	[NT]		101	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	2	660	[NT]		96	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	6	22/10/2025	22/10/2025		[NT]	[NT]
Date analysed	-			[NT]	6	22/10/2025	22/10/2025		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	6	0.093	0.11	17	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	6	<0.005	<0.005	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	6	0.43	0.43	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	6	1.5	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	6	<0.005	<0.005	0	[NT]	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	[NT]	6	<0.1	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	6	1600	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	8	22/10/2025	22/10/2025		[NT]	[NT]
Date analysed	-			[NT]	8	22/10/2025	22/10/2025		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	8	0.36	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	8	<0.005	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	8	<0.005	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	8	0.8	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	8	<0.005	[NT]		[NT]	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	[NT]	8	<0.1	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	8	3700	4000	8	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	9	22/10/2025	22/10/2025		[NT]	[NT]
Date analysed	-			[NT]	9	22/10/2025	22/10/2025		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	9	0.03	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	9	<0.005	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	9	<0.005	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	9	0.6	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	9	<0.005	[NT]		[NT]	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	9	59	[NT]		[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

8 HM in water - dissolved - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

8 HM in water - total - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 393598-A

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.09, Tomago**
Number of Samples	Additional testing request
Date samples received	22/10/2025
Date completed instructions received	12/11/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	13/11/2025
Date of Issue	13/11/2025

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Diego Bigolin, Inorganics Supervisor
Larry Ye, Senior Chemist
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

HM in water - dissolved		
Our Reference		393598-A-10
Your Reference	UNITS	MW02
Date Sampled		21/10/2025
Type of sample		Water
Date prepared	-	13/11/2025
Date analysed	-	13/11/2025
Iron-Dissolved	µg/L	5,200

HM in water - total		
Our Reference		393598-A-10
Your Reference	UNITS	MW02
Date Sampled		21/10/2025
Type of sample		Water
Date prepared	-	13/11/2025
Date analysed	-	13/11/2025
Iron-Total	µg/L	160,000

Ion Balance		
Our Reference		393598-A-10
Your Reference	UNITS	MW02
Date Sampled		21/10/2025
Type of sample		Water
Date prepared	-	13/11/2025
Date analysed	-	13/11/2025
Calcium - Dissolved	mg/L	49
Potassium - Dissolved	mg/L	17
Sodium - Dissolved	mg/L	260
Magnesium - Dissolved	mg/L	32
Hardness (calc) equivalent $CaCO_3$	mg/L	260
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	760
Carbonate Alkalinity as $CaCO_3$	mg/L	<5
Total Alkalinity as $CaCO_3$	mg/L	760
Sulphate, SO4	mg/L	30
Chloride, Cl	mg/L	51
Ionic Balance	%	-1.0

Metals in Waters - Acid extractable		
Our Reference		393598-A-10
Your Reference	UNITS	MW02
Date Sampled		21/10/2025
Type of sample		Water
Date prepared	-	13/11/2025
Date analysed	-	13/11/2025
Phosphorus - Total	mg/L	3.4

Miscellaneous Inorganics		
Our Reference		393598-A-10
Your Reference	UNITS	MW02
Date Sampled		21/10/2025
Type of sample		Water
Date prepared	-	22/10/2025
Date analysed	-	22/10/2025
Ammonia as N in water	mg/L	0.40
Nitrite as N in water	mg/L	<0.005
Nitrate as N in water	mg/L	<0.005
TKN in water	mg/L	1.5
Phosphate as P in water	mg/L	0.008
Fluoride, F	mg/L	0.8
Total Suspended Solids	mg/L	1,900

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals/elements by ICP-AES. Total Phosphate determined stochiometrically from Phosphorus (assumed to be present as Phosphate). Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs. Where molecular anion forms are calculated from an element (e.g. SO4 from S or PO4 from P stoichiometrically), the assumption is that the element is only present in that molecular anion form.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Date analysed	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	114	[NT]

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Date analysed	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Iron-Total	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Date analysed	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	97	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	89	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	89	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	115	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Date analysed	-			13/11/2025	[NT]	[NT]	[NT]	[NT]	13/11/2025	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/10/2025	10	22/10/2025	22/10/2025		22/10/2025	[NT]
Date analysed	-			22/10/2025	10	22/10/2025	22/10/2025		22/10/2025	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	10	0.40	[NT]		95	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	10	<0.005	[NT]		102	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	10	<0.005	[NT]		97	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	10	1.5	[NT]		98	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	10	0.008	[NT]		114	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	10	0.8	[NT]		114	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	10	1900	1900	0	102	[NT]

Result Definitions

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PQL	Practical Quantitation Limit
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>	Greater than
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LCS	Laboratory Control Sample
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Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

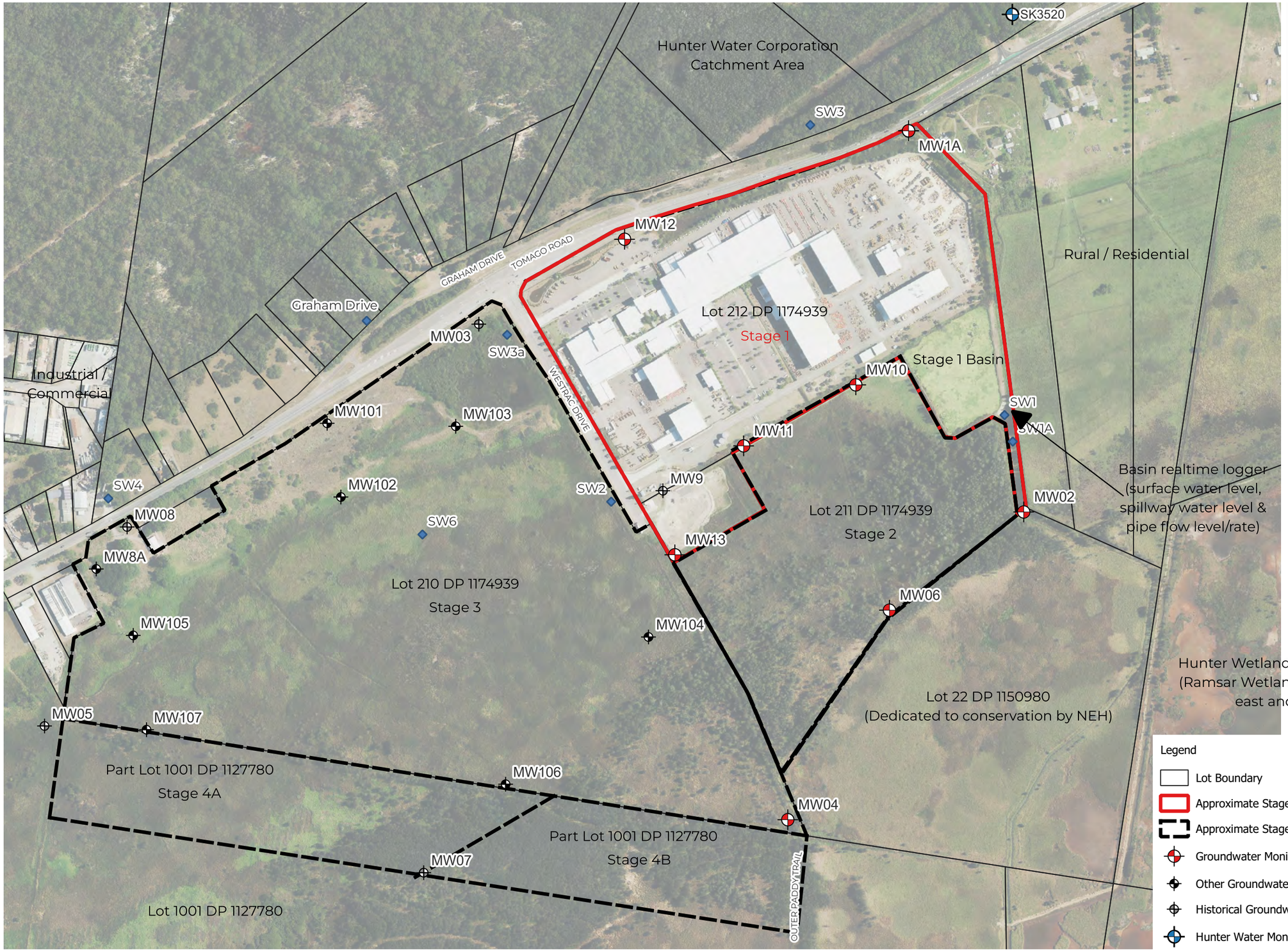
Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

Samples received in good order: Holding time exceedance



Site Location

Legend

- Lot Boundary
- Approximate Stage 1 Site Boundary
- Approximate Stage 2, 3 and 4 Site Boundary
- Groundwater Monitoring Well listed for monitoring under revised GMP
- Other Groundwater Monitoring Well
- Historical Groundwater MonitoringWell (unserviceable)
- Hunter Water Monitoring Bore
- Surface Water Monitoring Location

0 100 200 m

Drawing adapted from Metromap Image dated 12.02.2023.
Test locations are approximate only. MW8A and MW100 series wells located using differential GPS.
MW1A & MW12 - Groundwater monitoring well (installed August 2024).

Douglas PARTNERS

CLIENT: Northbank Enterprise Hub Pty Ltd		TITLE: Groundwater Monitoring Well Network Stage 1, Northbank Enterprise Hub Westrac Drive, Tomago	PROJECT No:39920.09
OFFICE: Newcastle	DRAWN BY: PLH		DRAWING No: 4
SCALE: 1:6000 @ A3	DATE: 17.09.2025		REVISION: 3

Memorandum

To:	WesTrac Pty Ltd	Date:	10 February 2026
Attention:	David Pilton	Project No.:	39920.20
Email:	David.Pilton@westrac.com.au	Reference:	R.001
CC:	Scott Day, Torque Projects Pty Ltd scottd@torqueprojects.com,		
Subject:	Quarterly groundwater and surface water monitoring event – Jan 2026 Stage 1, Northbank Enterprise Hub, WesTrac Drive, Tomago		

The following memorandum provides the results of groundwater and surface water monitoring undertaken to meet the requirements of the approved *Groundwater Monitoring Plan* (Douglas, 2010) for Lots 210, 211, 212 DP 1174939 and Part Lot 1001 DP 1127780, WesTrac Drive, Tomago NSW. Monitoring is required under Environment Protection and Biodiversity Conservation Act (EPBC) approval 2007/3343 for the Northbank Enterprise Hub industrial development.

The following works were undertaken to meet the requirements of the *Groundwater Monitoring Plan* (Douglas, 2010). The purpose of the GMP is to monitor for potential impacts that may arise from the development and implement appropriate management and mitigation strategies, where required.

A revised Groundwater Monitoring and Management Plan (GMMP) dated 3 March 2025 was prepared (Douglas, 2025) and submitted to DCCEEW on 5 March 2025 and has since been updated on 18 November 2025. The GMMP is relevant to the completed Stage 1 site and is proposed to supersede the 2010 GMP. The GMMP is an improved document which considers long term monitoring data from 2010 to 2025, changes in site conditions and practices, and contemporary monitoring practices. The GMMP includes removal of some monitoring well locations and laboratory parameters, and addition of others, to provide more effective locations and testing parameters. The revised plan also provides further clarity regarding the assessment of water quality data, actions prompted by monitoring results and timing of notification to department agencies, where appropriate.

The GMMP is in the process of final review by DCCEEW and the Minister. In the absence of review and approval of the GMMP at the time of preparing this report, Douglas has implemented the requirements of the GMP (Douglas, 2010).

Table 1: Summary of monitoring undertaken to meet the requirements of the GMP – Field work undertaken 27 January 2026

Item		Required monitoring frequency	Monitoring locations sampled (note 1)	Comments
Groundwater level monitoring		3 monthly	MW1A, MW02, MW04, MW06, MW8A, MW10, MW11, MW12, MW13	Routine monitoring requirement
Category 1 parameters	pH, EC, TSS, DO, ORP, turbidity, temperature	3 monthly	MW1A, MW02, MW04, MW06, MW8A, MW10, MW11, MW12, MW13, SW1	Routine monitoring requirement
Category 2 parameters	Cations – calcium (Ca), potassium (K), magnesium (Mg), sodium (Na) and iron (Fe). Anions – Chloride (Cl), sulphate (SO4), ammonia (NH3), bicarbonate (HCO3), carbonate (CO3), total alkalinity, nitrite (NO2), nitrate (NO3), total Kjeldahl nitrogen (TKN), total phosphorous (PO4) and fluoride (F).	6 monthly	Not required for current event	Not required for current event
Category 3 parameters	Heavy metals (extended suite) – aluminium, arsenic, cadmium, chromium, copper, iron, lead manganese, mercury, molybdenum, nickel and zinc TRH, PAH, BTEX OCP/OPP (low level) PCB HCN Phenols	12 monthly	Not required for current event	Not required for current event
Other	PFAS	Not required	Not required for current event	Not required for current event
Reporting		12 monthly	All locations	Plus interim review of results after each monitoring event

Notes:
(1) Monitoring wells MW5 and MW7 were not monitored as per historical monitoring to date (access restricted by dense vegetation)

The approved GMP provides a process for review of the results against trigger levels in the GMP which are proposed to be based on site baseline monitoring data and assessment against generic water quality guidelines. In the absence of confirmed trigger levels, the results have been compared against the ANZG (2018) marine water guidelines for 95% level of species protection (LOSP) as per the default assessment criteria in the GMP, which is expected to be a more conservative threshold exceedance level for key parameters.

The assessment criteria reflects updates to the guidelines. A comparison against the drinking water guidelines has not been undertaken for the current monitoring event as there are no potable receptors on site or downstream of the site.

The laboratory report sheets and summarised results are shown against the adopted water quality criteria in Table A1, attached.

The results are summarised as follows:

- There were no observations of hydrocarbon slicks, odours or sheens to suggest the presence of gross contamination in groundwater or surface water;
- Photoionisation detector (PID) screening of the groundwater/surface water headspace was <1 ppm for all locations; and
- The results of laboratory testing were within the adopted ANZG (2018) guideline values as shown on Table A1 attached, with the exception of the analytes listed in Table 2 below.

The approved GMP lists actions prompted by an exceedance of the trigger level including review of the result against the upper confidence level (UCL) 95% mean values and adopted trigger levels based on the 80th percentiles. In the absence of these formalised values, a qualitative assessment of the data, review of the trends and investigation of the likelihood of the data being indicative of a contaminant plume is initiated to determine whether other actions are required, such as re-sampling or further testing.

Table 2 summarises the exceedances of the ANZG (2018) guideline values and in lieu of formal trigger levels provide comments on the significance of the monitoring data and whether further action is required. It is noted that there is no ANZECC (2000) /ANZG (2018) criteria for TSS for marine or fresh water.

Table 2: Summary of review and recommended actions - quarterly monitoring, January 2026

Parameter	Well	Date	Concentration	Guideline value	Basis for review	Comments / assessment of significance
pH	MW1A MW4 MW8A MW10 MW11 MW12 MW13	27/1/2026 27/1/2026 27/1/2026 27/1/2026 27/1/2026 27/1/2026 27/1/2026	pH 5.5 pH 6.4 pH 5.5 pH 5.6 pH 5.1 pH 4.7 pH 6.3	6.5-8.5	ANZECC (2000) in the absence of ANZG values	The guideline value is based on ANZECC (2000) for marine ecosystems (in the absence of ANZG (2018) values). ANZG (2023) provides several methods for determining site reference data for assigning of trigger levels including both local reference data, typically based on 80th percentiles or default guideline values. The latter approach, as was adopted for the monitoring is noted as being "inherently conservative". ANZG (2023) goes on to say that the default guideline values are a good starting point when no reference guideline values are available, however, does not consider typical conditions for the locality. Historical monitoring on the site and adjacent sites has typically indicated that wells screened in the Tomago Sandbeds generally have lower pH values than those screened in the clay aquitard. pH in groundwater has varied widely between monitoring events and for wells in the sand aquifer has ranged from pH 4.1 to pH 7.5. Low pH is common for the area regionally and could be due to a number of reasons including former sand mining within the broader Tomago Sandbeds (upgradient); podzol soils in coastal dunes; and acid sulfate soils. The pH values for the January 2026 monitoring event are similar to January 2025 monitoring results. In addition, they are within the historical range of pH values for the site to date (2007-October 2025) for wells screened in the Tomago Sandbeds. Wells in the clay aquitard were within the default ANZECC (2000) value as they are more commonly within the range 6.5-8.5. On this basis, the exceedances of pH (in the absence of 80th percentile data), are therefore not considered significant. Rather, the results are considered representative of pH conditions at the site, and more regionally. The results are not considered indicative of a contaminant plume.
EC	MW04 MW06	27/1/2026 27/1/2026	23,700 µS/cm 13,900 µs/cm	125-2,200	ANZECC 2000 in the absence of ANZG values	The guideline value is based on ANZECC (2000) for marine ecosystems (in the absence of ANZG (2018) values) and in the absence of site specific 80th percentile data. MW04 and MW06 are located downgradient of the site. These wells have historically shown higher EC values (more saline / brackish) when compared to upgradient wells and are typically within the default guideline values indicative of fresh water flowing from the Tomago Sandbeds. Downgradient wells have shown influence from salt water inundation effects in the wetland areas to the south, which are representative conditions of this environment. EC for MW04 has ranged from 190 µs/cm to 50,900 µs/cm, but for the majority of monitoring events has remained > 10,000 µs/cm and above the default guideline value. Similarly, MW06 has ranged from 160 µs/cm to 38,000 µs/cm has remained > 10,000 µs/cm and above the default guideline value. The January 2026 results are similar to January 2025 monitoring results. In addition, they are within the historical range. The results are not considered indicative of a contaminant plume.

In summary, the January 2026 monitoring event was undertaken to meet the requirements and objectives of the approved GMP. The monitoring results indicate solute concentrations which are considered representative of typical groundwater and surface water quality trends based on the collated historical monitoring data set from 2010 to present.

It is noted that the approved GMP requires notification where monitoring confirms an exceedance, with the intent to investigate potential harm such as a contaminant plume. On the basis that assessment of the data indicates no obvious environmental risk to receptors, Douglas considers that the exceedances of pH and EC presented in Table 2 for the quarterly monitoring event are **not reportable exceedances**.

The revised GMMP for department review / approval provides further clarity regarding the assessment of water quality data, actions prompted by monitoring results and timing of notification to department agencies, where appropriate.

Further review and assessment of monitoring results will be undertaken in conjunction with the review and update of the Stage 1-2 GMP. This will include statistical assessment and derivation of site specific trigger levels, and UCL 95% mean values to allow further quantitative assessment against the actions in the revised GMP.

Ongoing monitoring as required by consent conditions will enable continued review of groundwater level and quality trends for assessment of any impacts and appropriate actions (if required).

References:

ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Australia and New Zealand Environment and Conservation Council.

ANZG. (2018). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality.* Canberra, ACT: Australian and New Zealand Governments and Australian state and territory governments.

ANZG. (2023). *Using monitoring data to derive and assess against guideline values*. Retrieved from Australian and New Zealand Guidelines for Fresh & Marine Water Quality: https://www.waterquality.gov.au/anz-guidelines/monitoring/data-analysis/derivation-assessment.

Douglas. (2010). Groundwater Monitoring Plan, Proposed Industrial Subdivision Tomago Road, Tomago Doc Ref 39920.02-GMP Rev 1. Douglas Partners Pty Ltd (Douglas).

Douglas. (2025). *Revised Groundwater Monitoring and Management Plan, Stage 1* Northbank Enterprise Hub (EPBC Approval 2007/3343), Lot 212 and Part Lot 211 DP 1174939, Westrac Drive, Tomago, NSW. 39920.09.R.016.Rev3.GMMP.Stage1: Douglas Partners Pty Ltd.

Limitations:

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Westrac Drive line with Douglas' proposal 39920.09.P.017A.Rev0 dated 19 January 2026 and acceptance received from David Pilton of WesTrac Pty Ltd. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of WesTrac Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental / groundwater components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Douglas Partners Pty Ltd

Dana Wilson

Dana Wilson
Senior Associate

Reviewed by

P W Wright

Will Wright
Principal

Attachments:

About this report

Table A1: January 2026 groundwater and surface water monitoring results (quarterly monitoring event)

Envirolab report (400616-R00)

Drawing 4 – Groundwater well and surface water monitoring location plan (Rev3)

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Table A1: January 2026 groundwater and surface water monitoring results (quarterly monitoring event)

				MW1A	MW02	MW04	MW06	MW8A	MW10	MW11	MW12	MW13	SW1
				27 Jan 2026	27 Jan 2026	27 Jan 2026	27 Jan 2026	27 Jan 2026	27 Jan 2026	27 Jan 2026	27 Jan 2026	27 Jan 2026	27 Jan 2026
	Unit	**PQL**	**ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)**										
Field													
pH (field)	**pH**	0.1	6.5-8.5	5.5	6.8	6.4	6.8	5.5	5.6	5.1	4.7	6.3	6.6
EC (field)	**µS/cm**	0.1	125-2200	165	1430	23700	13900	240	156	215	140	510	130
Miscellaneous Inorganics													
Total Suspended Solids (Lab)	**mg/L**	5		660	7100	350	71	390	3000	94	860	83	27

PQL - practical quantitation limit

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 400616

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.20, Tomago**
Number of Samples	16 Water
Date samples received	28/01/2026
Date completed instructions received	28/01/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	04/02/2026
Date of Issue	04/02/2026

NATA Accreditation Number 2901. This document shall not be reproduced except in full.

Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Nick Sarlamis, Assistant Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

Miscellaneous Inorganics						
Our Reference		400616-1	400616-7	400616-8	400616-9	400616-10
Your Reference	UNITS	MW04	MW06	MW02	SW1	MW10
Date Sampled		27/01/2026	27/01/2026	27/01/2026	27/01/2026	27/01/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	03/02/2026	03/02/2026	03/02/2026	03/02/2026	03/02/2026
Date analysed	-	03/02/2026	03/02/2026	03/02/2026	03/02/2026	03/02/2026
Total Suspended Solids	mg/L	350	71	7,100	27	3,000

Miscellaneous Inorganics						
Our Reference		400616-11	400616-12	400616-13	400616-14	400616-15
Your Reference	UNITS	MW13	MW11	MW1A	MW12	MW8A
Date Sampled		27/01/2026	27/01/2026	27/01/2026	27/01/2026	27/01/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	03/02/2026	03/02/2026	03/02/2026	03/02/2026	03/02/2026
Date analysed	-	03/02/2026	03/02/2026	03/02/2026	03/02/2026	03/02/2026
Total Suspended Solids	mg/L	83	94	660	860	390

Method ID	Methodology Summary
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			03/02/2026	1	03/02/2026	03/02/2026		03/02/2026	[NT]
Date analysed	-			03/02/2026	1	03/02/2026	03/02/2026		03/02/2026	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	350	360	3	82	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	8	03/02/2026	03/02/2026		[NT]	[NT]
Date analysed	-			[NT]	8	03/02/2026	03/02/2026		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	8	7100	7300	3	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

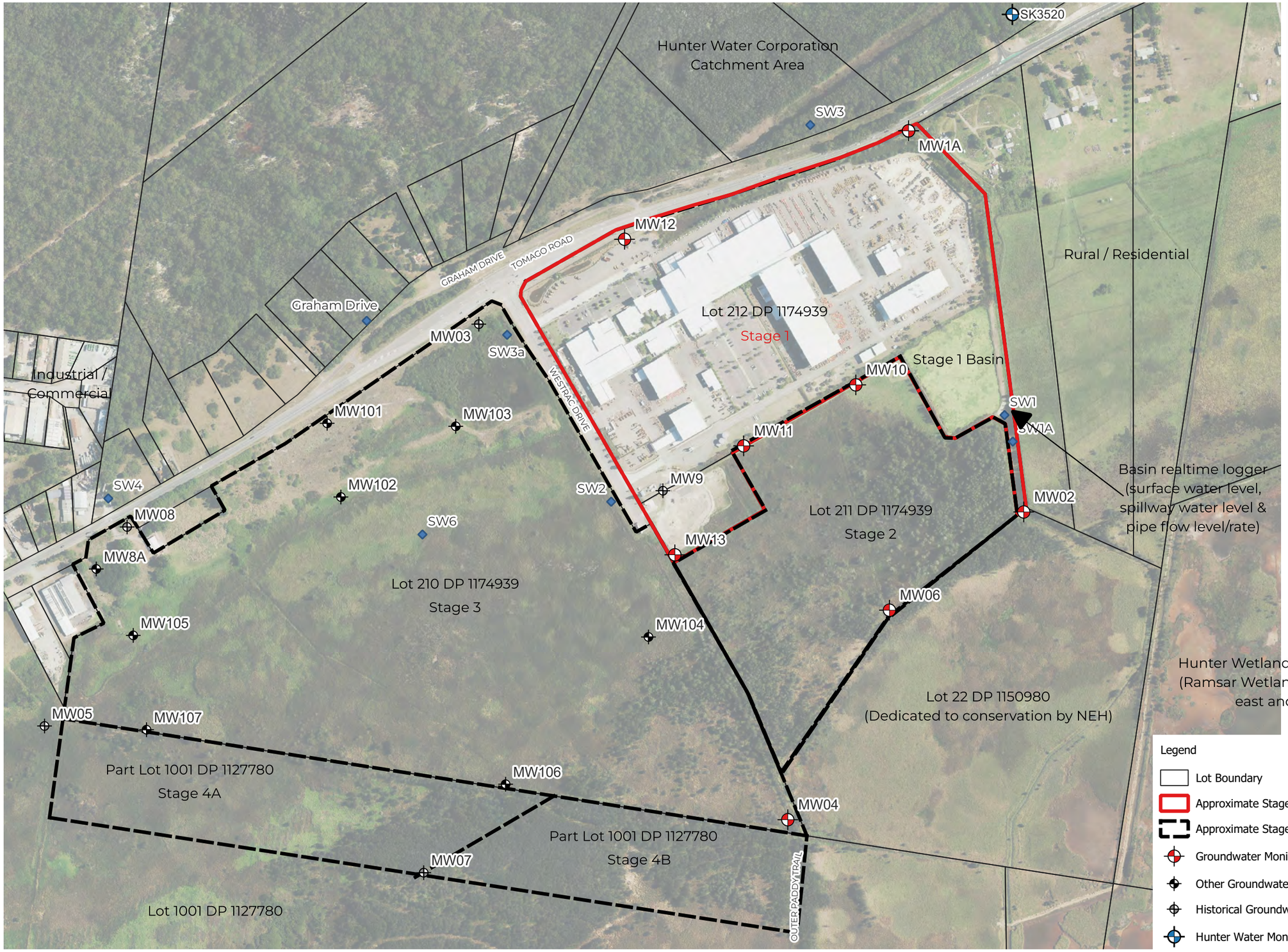
Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.



Site Location

Legend

- Lot Boundary
- Approximate Stage 1 Site Boundary
- Approximate Stage 2, 3 and 4 Site Boundary
- Groundwater Monitoring Well listed for monitoring under revised GMP
- Other Groundwater Monitoring Well
- Historical Groundwater MonitoringWell (unserviceable)
- Hunter Water Monitoring Bore
- Surface Water Monitoring Location

0 100 200 m

Drawing adapted from Metromap Image dated 12.02.2023.
Test locations are approximate only. MW8A and MW100 series wells located using differential GPS.
MW1A & MW12 - Groundwater monitoring well (installed August 2024).

Douglas PARTNERS

CLIENT: Northbank Enterprise Hub Pty Ltd		TITLE: Groundwater Monitoring Well Network Stage 1, Northbank Enterprise Hub Westrac Drive, Tomago	PROJECT No:39920.09
OFFICE: Newcastle	DRAWN BY: PLH		DRAWING No: 4
SCALE: 1:6000 @ A3	DATE: 17.09.2025		REVISION: 3

Douglas PARTNERS

GROUNDED EXPERTISE

Report on Annual Groundwater and Surface Water Monitoring – March & April 2026

Northbank Enterprise Hub - Stage 1

Lot 212 & Part 211 DP 1174939, WesTrac Drive, Tomago, NSW

Prepared for WesTrac Pty Ltd

Project 39920.20

18 June 2026

Douglas Partners Pty Ltd
ABN 75 053 980 117
douglaspartners.com.au
15 Callistemon Close, Warabrook, NSW 2304
(02) 4960 9600

Document History

Details

Project No.	39920.20
Document Title	Report on Annual Groundwater and Surface Water Monitoring – March & April 2026
Site Address	Lot 212 & Part 211 DP 1174939, WesTrac Drive, Tomago, NSW
Report Prepared For	WesTrac Pty Ltd
Filename	39920.20.R.003.Rev1.Annual2026

Status and Review

Status	Prepared by	Reviewed by	Date issued
Draft A	Mitchell Date Dana Wilson	Will Wright	25 May 2026
Revision 0	Dana Wilson	Will Wright	5 June 2026
Revision 1	Dana Wilson	Will Wright	18 June 2026

Distribution of Copies

Status	Issued to
Draft A	David Pilton, WesTrac Pty Ltd Scott Day, Torque Projects Pty Ltd
Revision 0	David Pilton, WesTrac Pty Ltd Scott Day, Torque Projects Pty Ltd
Revision 1	David Pilton, WesTrac Pty Ltd Scott Day, Torque Projects Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature		Date
Author	Dana Wilson	18 June 2026
Reviewer	P W Wright	18 June 2026

FS604853

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

Executive summary

This report summarises the annual groundwater and surface water monitoring undertaken in March and April 2026 for Stage 1 of the Northbank Enterprise Hub at Lot 212 and Part 211 DP 1174939, Tomago NSW.

Monitoring is required to meet consent conditions under Major Project Approval MP07_0086 for the established Stage 1 industrial development. At the time of field work and reporting, there remains some overlap of the requirements of the original Groundwater Monitoring Plan (GMP) (Douglas, 2010) and the DCCEEW approved revised Groundwater Monitoring and Management Plan (GMMP) (Douglas, 2025). Further details are provided in Section 1.

The overarching purpose of the GMP (Douglas, 2010) and GMMP (Douglas 2025) is to monitor for potential impacts that may arise from the development and implement appropriate management and mitigation strategies, where required.

The monitoring program comprised groundwater level measurement, surface water and groundwater field measurements, laboratory testing of the prescribed analytes, quality assurance / quality control (QA/QC) checks, assessment against the relevant default and site-specific criteria and trend review.

The March and April 2026 monitoring results indicate that groundwater levels remained within the historical range and continue to infer a general groundwater flow direction to the south-east. Field observations and laboratory testing identified no floating product, no hydrocarbon staining or slicks, and no evidence of gross contamination in groundwater or surface water.

Groundwater quality varied between the Tomago Sandbeds and the clay aquitard aquifers, consistent with historical patterns and the basis for separate trigger levels in the revised GMMP (Douglas, 2025). While some parameters exceeded default guideline values (DGVs) and site specific trigger levels, most exceedances were within the historical range for the respective locations or were resolved through follow-up testing, including re-sampling of MW13 in April 2026.

Overall, the results are considered representative of typical site conditions, and reflective of the transient nature of groundwater and surface water over time.

Future scheduled monitoring with reference to the improved and revised GMMP will enable further on-going assessment of trends in groundwater level and groundwater and surface water quality at the site.

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Appendix A: About This Report

Drawing 2 – Groundwater Monitoring Well and Surface Water Monitoring Location Plan

Appendix B: Field Work Methodology

Appendix C: Borehole Logs and Descriptions

Borehole Logs (Bores MW1A, MW6, MW8A, MW10, MW11, MW12, MW13,)–Douglas

Borehole Logs (Bores MW1, MW2, MW3, MW4, MW5) – Coffey

Appendix D: Figure D1: Groundwater Levels in Monitoring Wells (2024-2026)

Figure D2: Groundwater Levels in Monitoring Wells (2010-2026)

Groundwater Quality Monitoring Plots

Surface Water Quality Monitoring Plots

Appendix E: Table 1: Summary of Water Quality Monitoring Results – March and April 2026

Laboratory Report Sheets (404471, 404571, 404571-A, 405887)

Appendix F: Quality Assurance / Quality Control Report

Chain of Custody Sheets (Field and Despatch)

Sample Receipts

List of abbreviations

ADWJ	ADW Johnson Pty Ltd
AHD	Australian Height Datum
ANZECC	Australian and New Zealand Environment and Conservation Council
ANZG	Australian and New Zealand Governments
ASS	Acid Sulfate Soils
BTEX	Benzene, toluene, ethyl benzene and xylene
COC	Chain of custody
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DGV	Default guideline value
DO	Dissolved oxygen
DPHI	Department of Planning, Housing and Infrastructure
EC	Electrical conductivity
GMMP	Groundwater Monitoring and Management Plan
GMP	Groundwater Monitoring Plan
HCN	Hydrogen cyanide
HEPA	Heads of EPAs Australia and New Zealand
HWC	Hunter Water Corporation
LOR	Limit of reporting
LOSP	Level of species protection
MW	Monitoring well
N/A	Not applicable
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NEH	Northbank Enterprise Hub Pty Ltd
NOM	Natural organic matter
NTU	Nephelometric turbidity units
OCP	Organochlorine pesticides
OPP	Organophosphorus pesticides
ORP	Oxidation reduction potential
PAH	Polycyclic aromatic hydrocarbons

List of abbreviations

PCB	Polychlorinated biphenyls
PFAS	Per- and polyfluoroalkyl substances
PID	Photoionisation detector
QA/QC	Quality assurance / quality control
SW	Surface water
SWMP	Soil and Water Management Plan
TKN	Total Kjeldahl nitrogen
TOC	Top of casing
TPH	Total petroleum hydrocarbons
TRH	Total recoverable hydrocarbons
UCL	Upper confidence limit
VOCs	Volatile organic compounds

Report on Annual Groundwater and Surface Water Monitoring – March & April 2026
Northbank Enterprise Hub - Stage 1
Lot 212 & Part 211 DP 1174939, WesTrac Drive, Tomago, NSW

1. Introduction

This report, prepared by Douglas Partners Pty Ltd (Douglas), presents the results of the annual groundwater and surface water monitoring event undertaken in March and April 2026 for Stage 1 of the Major Project Approval MP07_0086 at Lot 212 & Part 211 DP 1174939, WesTrac Drive, Tomago NSW. The investigation was commissioned by WesTrac Pty Ltd (WesTrac) and was undertaken in accordance with Douglas' proposal 39920.20.P.018A.Rev0 dated 12 March 2026.

Groundwater and surface water monitoring is required to meet consent conditions for the industrial development. The following documents are presently applicable:

1. ADW Johnson (ADWJ, 2022) *Soil and Water Management Plan* (SWMP) which requires annual monitoring at one surface water location (SW1); and
2. Douglas (2010) *Groundwater Monitoring Plan* which requires monitoring pre-construction (baseline), during and post-construction ("on-going") and captures Stages 1 to 3.

A revised Stage 1 SWMP (Torque Projects, 2025) and *Groundwater Monitoring and Management Plan* (GMMP) (Douglas, 2025) was approved by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) (Federal) on 7 April 2026 under EPBC Approval 2007-3343 for the same Stage 1 area. In principle these plans supersede the GMP (Douglas, 2010) and SWMP (ADWJ, 2022) in relation to improved and contemporary monitoring and reporting requirements. The revised Stage 1 SWMP and GMMP were lodged with NSW Department of Planning, Housing and Infrastructure (DPHI).

The overarching purpose of the GMP (Douglas, 2010) and GMMP (Douglas 2025) is to monitor for potential impacts that may arise from the development and implement appropriate management and mitigation strategies, where required.

Stage 1 has been developed and WesTrac has operated a Caterpillar dealership and service centre on the site since 2012 whilst Stage 2 remains undeveloped. Stage 3 is subject to separate approved monitoring and management plans (Douglas, 2024a; 2024b), however, some of the monitoring wells are included in the original Stage 1-3 GMP (Douglas, 2010).

The revised GMMP is relevant to the completed Stage 1 site to supersede the 2010 GMP covering Stages 2 and 3. The revised GMMP is an improved document which considers long term monitoring data from 2010 to 2025, changes in site conditions and practices, and contemporary monitoring practices. The revised GMMP includes removal of some monitoring well locations and laboratory parameters, and addition of others, to provide more effective locations and testing parameters. The revised GMMP also provides further clarity regarding the assessment of water quality data, actions prompted by monitoring results and timing of notification to department agencies.

DPHI has acknowledged the federal approval of both revised plans and requested both of these placed on the project website. The revised plans will be used for all future monitoring for clarity, consistency and improved and contemporary monitoring requirements.

The groundwater monitoring network, current site layout and staging is shown on Drawing 2 in Appendix A.

This report must be read in conjunction with all appendices including the notes provided in Appendix A.

2. Scope of work

The investigation comprised the following:

- Preparation of field work and safety plans;
- Field investigation on 16 and 17 March 2026 at the locations summarised in Table 1 undertaken by an environmental scientist and environmental field assistant from Douglas. A re-sampling event was also undertaken for several locations on 1 April 2026. The work was undertaken with reference to the methods and procedures outlined in the monitoring plans (Douglas, 2010b; 2025) and comprised:
    - Measurement of water levels and assessment of possible floating product using an oil/water interface meter;
    - Groundwater purging and sampling using low flow peristaltic pump. Groundwater samples were collected in laboratory prepared containers for analysis. Samples for dissolved metals analyses were field filtered using a 45 µm disposable in line filter;
    - Surface water sampling using a long handled swing sampler and placement in laboratory prepared containers for analysis;
    - Measurement of pH, electrical conductivity (EC), turbidity, dissolved oxygen (DO), oxidation reduction potential (ORP) and temperature during sampling using a calibrated water quality meter ("Category 1 parameters");
    - Screening for the presence of volatile organic compounds (VOCs) at the top of each well and within groundwater headspace (where sampled) using a calibrated Photoionisation Detector (PID);
    - Download and re-installation of groundwater pressure transducers (dataloggers) where installed;
    - Collection of quality assurance and quality control (QA/QC) samples comprising:
        - One groundwater intra-laboratory replicate sample;
        - One surface water intra-laboratory replicate sample;
    - Analysis of samples for Category 2 and 3 parameters as per each GMP (refer Section 6) at a National Association of Testing Authorities (NATA) accredited laboratory;
    - Preparation of this report which includes comments of groundwater levels and assessment of the water quality data against the required site assessment criteria for each plan.

Table 1: Summary of field monitoring tasks and locations

Item	Monitoring plan			Total No.
	Stage 1-3 GMP (Douglas, 2010a)	Federal approved Revised Stage 1 GMMP (Douglas, 2025)	Revised Stage 1 SWMP (Torque Projects, 2025)	
Groundwater level measurement	MW1A, MW2, MW4*, MW6, MW8A*#, MW10 and MW11	MW1A, MW2, MW4*, MW6, MW8A*, MW12, MW13	N/A	**9**
Groundwater field testing, sampling and laboratory testing	MW2, MW4*, MW6, MW8A*, MW10 and MW11	MW1A, MW2, MW4*, MW6, MW10, MW11, MW12, MW13	N/A	**9**
Surface water field testing, sampling and laboratory testing	SW1 (based on ADWJ (2022))	Refer Revised Stage 1 SWMP	SW1, SW2, SW3, SW4 (SW3a and Graham Drive alternates for SW3 when dry)	**4**

Notes:
* Wells are also subject to monitoring under separate Stage 3 monitoring and management plans (Douglas, 2023b; 2024b)
Damaged / lost wells (MW7, MW9) from Stage 1-2 have not been included above.
MW1A and MW12 installed 22 August 2024
MW13 installed 18 November 2024
A full review and assessment of the monitoring well network is provided in the revised GMMP (Douglas, 2025)

Although not specified in the GMPs, the following was also undertaken:

- Surface water sampling at SW5, located in the north-eastern corner, for assessment of surface water coming on to the site;
- Groundwater level monitoring of other nearby monitoring wells to assist with groundwater level contouring and spatial extent.

The general sampling methods based on the monitoring plans are described in the field work methodology, included in Appendix B. Groundwater monitoring well logs and preceding notes are included in Appendix C.

3. Site identification

The lot boundaries, staging and monitoring locations are shown on Drawing 2 in Appendix A with relevant details summarised below.

Table 2: Site details

Street address	Lot and deposited plan (D.P.)	Approx. area (ha)	Current use	Zoning
1, 3 Westrac Drive, Tomago	Lot 212 D.P.1174939 and Part Lot 211 D.P. 1174939 by Major Project Approval MP07_0086. (Stage 1)	26.7 ha	WesTrac NSW/ACT Headquarters	IN1 General Industrial
3 Westrac Drive, Tomago	Major Part of Lot 211 D.P.1174939	15.8 ha	Undeveloped	
2 Westrac Drive, Tomago	Lot 210 D.P.1174939 (Stage 3)	50 ha	Undeveloped (Stage 3 pending construction)	

The mapped location of the Hunter River Estuary Ramsar Wetlands relative to the site is shown in Figure 1. Hunter Water Corporation's groundwater pumping bore field is located north (upgradient) within the broader Tomago Sandbeds.

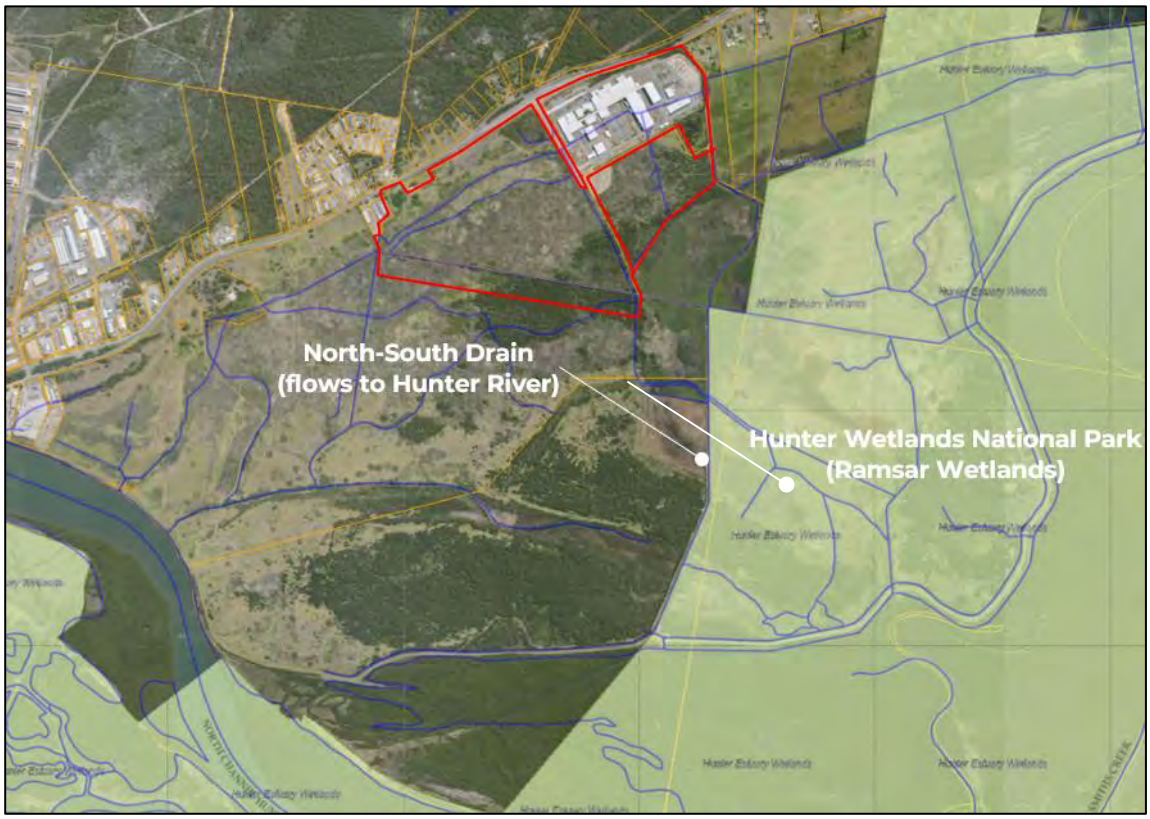

Figure 1: Stages 1-3 boundary (red)

4. Environmental setting

An updated description of the environmental and hydrogeological setting is included in the revised GMMP (Douglas, 2025). Key environmental features are summarised below.

Site Topography	Undeveloped areas comprise generally flat water-logged terrain with typical elevations between RL 0.5 and 2.0 AHD. The northern part of the Lot 210 adjacent to Tomago Road is elevated above this level, dominated by low sand dune formation with a maximum elevation of RL 4 AHD. The finished levels of the developed Stage 1 Westrac are 2.5 AHD around the perimeter road edges, with concrete floor levels of 3.5 to 4 AHD. The Stage 1 site is crested in the middle, draining north and south.
Site vegetation	Site vegetation in undeveloped areas includes dense reeds / scrubland, with reeds up to 3 m in height, mostly located in areas of water-logged terrain. Some mature trees are also located on the site.
Geology (Figure 2)	Reference to the NSW Seamless Geology mapping indicates four mapped zones: • QP-bd: Coastal deposits of marine-deposited and aeolian-reworked coastal sand dunes; partially consolidated. • QP_brs: Coastal deposits comprising fine to medium-grained quartz-lithic-carbonate (marine-deposited) sand, organic-rich mud, peat. • QH-es: estuarine swamp comprising organic-rich mud, peat, clay, silt, very fine to fine-grained sand (marine-deposited), fine- to medium-grained sand (fluvially deposited). • QH_er: Estuarine shoreline ridge and dune deposits comprising fine- to medium-grained lithic-quartz sand (fluvially deposited), very fine- to fine-grained lithic-carbonate-quartz sand (marine deposited), polymictic gravel, silt, clay, shell material.

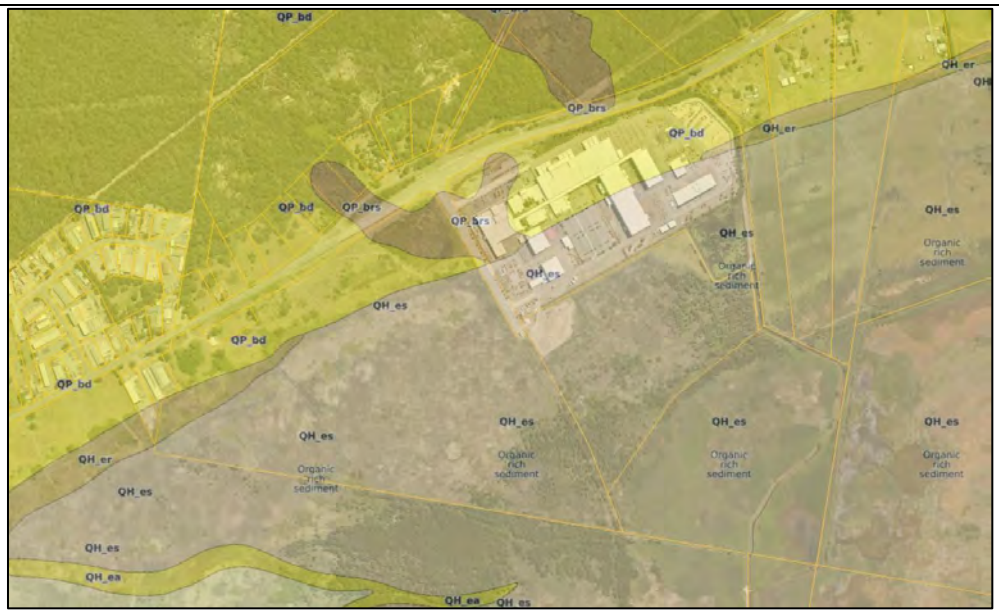

Figure 2: NSW Seamless Geology Map (Base Image source: MetroMap 2023)

Aquifers	Two groundwater systems are present within the project area: • The aquifer within the Tomago Sandbeds which daylight in the northern elevated parts of the site and include an extensive water-extraction bore field operated by the HWC. The aquifer is unconfined north of Stage 1 and 3 area and semi-confined where clay soils overly the Tomago Sandbeds. As discussed below, groundwater flows away from the bore field and towards the Stage 1-3 site. • The aquitard within the Quaternary clay soils overlying the Tomago Sandbeds in most of the project area. The aquitard acts as a semi-confining layer.
Acid Sulfate Soils (ASS)	Most of the site lies within an area of high risk of ASS conditions, most likely to be present between 1 m to 3 m below the ground surface, corresponding to lower-lying areas. The northern portion of the site (Stages 1 and 3) fronting Tomago Road and on higher ground lies within an area of low probability of ASS conditions, which if present is mostly likely at greater than 3 m below the ground surface, corresponding to the Aeolian sandplain, elevation >4 m). Douglas has prepared acid sulfate soil management plans (Douglas, 2010a; 2023b) based on the previous testing conducted on adjacent properties with similar conditions expected for the subject site. Additional targeted investigations for ASS in 2026 (Douglas, 2026) identified the presence of minor ASS conditions for aeolian sands / silty sands and low level Net Acidity. The presence of ASS will be managed under existing and supplementary ASS procedures.

Surface Water Bodies (refer Figure 1 above)	Stage 1 surface water flows include a drainage diversion swale/channel within and adjacent to the northern Stage 1 site boundary which collects groundwater that daylights from the north and directs it east around the site toward and into the Stage 1 drainage basin. It is understood that the level of the northern diversion swale was designed to intercept groundwater in periods of elevated levels so as to not restrict flow volumes or flow paths by the constructed Stage 1 development. The low-lying areas on the adjacent sites to the east (rural), west (Stage 3) and south (Stage 2) regularly contain surface water at the surface, derived from groundwater flows from the north as well as surface water runoff. Surface water flows generally follow the topography in these areas, however, flows are also directed by existing manmade open channels (former farm drains) to convey surface waters further downstream and alleviate surface ponding. Stage 1 surface water flows are directed onto Lot 22 D.P. 1150980 for dispersal prior to entering the head of the North South Drain. Stage 3 surface waters are directed to the west. Ultimately, surface water flows towards the Hunter River (North Arm) which is located to the south-west and south of the site, varying in distance from about 2.7 km to 3.5 km. Fullerton Cove is located about 1.5 km east-south-east of the Stage 1 site. Groundwater flowing towards the site from the Tomago Sandbeds is low in salinity and is considered to be a fresh water environment. The downgradient receiving environment and groundwater dependent ecosystems are considered to be an estuarine environment, receiving saline/marine tidal surface water flows which inundate the low-lying land areas of the Ramsar wetlands.

5. Results

5.1 Groundwater levels

Groundwater levels measured in monitoring wells are shown in Table 3. These levels are also plotted on Figures D1 and D2 in Appendix D against daily rainfall data for the nearby Williamtown Bureau of Meteorology (BOM) weather station. Groundwater level data (compensated for barometric pressure) are also plotted for wells with dataloggers.

It should be noted that groundwater levels are affected by factors such as climatic conditions, soil permeability, tidal influences and will therefore vary with time.

Table 3: Results of groundwater level measurement – March and April 2026

Bore ID	Easting	Northing	Well Details							Groundwater Gauging Event					
			Top of PVC Casing Level (TOC) (AHD)	Ground Level (AHD)	Stick up (m agl)	Well Depth (m bgl)	Screened interval (m bgl)	Screened interval (RL)	Target lithology	Date	Depth to Groundwater (m TOC)(3)	Groundwater (AHD)(3)	PID Well Headspace (ppm) (1)	Depth of Floating Product (mm) (2)	Comments
SK3520	383703.28	6368245	3.59	3.28	0.31	10.5	Unknown	Unknown	Assumed sand	16/03/2026	1.81	2.27	<1	<1	Not sampled
MW1A	383545	6368065	3.31	2.76	0.55	4.0	0.5-4.0	2.26 to -1.24	Sand, fine to med	16/03/2026	1.85	1.46	<1	<1	Pale brown, slightly turbid, slight sulfur odour
MW06	383516	6367333	1.26	0.57	0.69	9.0	6.0-9.0	-5.4 to -8.4	Sand, fine to med	16/03/2026	1.03	0.23	<1	<1	Brown, slightly turbid, no odour
MW8A	382304	6367396	3.86	3.10	0.76	7.0	0.5-7.0	2.6 to -3.9	Sand, fine to med	17/03/2026	2.24	1.62	<1	<1	Brown,moderately turbid, no odour
MW10	383467	6367675	2.11	0.78	1.33	10.6	4.6-8.3	-3.8 to -7.5	Sand, fine to med	16/03/2026	1.44	0.67	<1	<1	Grey-brown, very turbid, no odour
MW11	383293	6367584	2.42	1.23	1.19	10.6	Unknown	Unknown	Sand, fine to med	16/03/2026	1.47	0.95	<1	<1	Pale brown, slightly turbid, no odour
MW12	383111	6367899	3.57	3.00	0.57	4.0	0.5-4.0	2.5 to -1.0	Sand, fine to med	16/03/2026	2.04	1.54	<1	<1	pale brown, clear, no odour
MW13	383187	6367418	3.63	3.10	0.51	14.5	9.5-12.5	-6.4 to -9.4	Sand, fine to med	16/03/2026	3.14	0.49	<1	<1	Pale brown, slightly turbid, no odour
									Sand, fine to med	1/04/2026	3.28	0.36	<1	<1	Pale brown, very turbid. Slight sulfur odour
MW101	382657	6367619	4.09	3.22	0.87	7.0	0.3-7.0	2.9 to -3.8	Sand, fine to med	17/03/2026	2.46	1.63	<1	<1	Brown, slightly turbid, no odour
MW102	382678	6367506	2.52	1.76	0.76	4.0	0.3-4.0	1.5 to -2.2	Sand, fine to med	17/03/2026	1.26	1.27	<1	<1	Pale brown, slightly turbid, no odour
MW103	382853	6367614	3.31	2.34	0.97	7.0	0.3-7.0	2.0 to -4.7	Sand, fine to med	17/03/2026	1.98	1.33	<1	<1	Brown, slightly turbid, no odour
MW105	382360	6367294	2.05	1.50	0.55	6.0	0.3-6.0	1.2 to -4.5	Sand, fine to med	17/03/2026	0.82	1.23	<1	<1	Pale grey / brown, moderately turbid, slight sulfur odour
MW02	383721	6367483	1.25	~0.87	0.38	3.50	0.5-3.5	0.4 to -2.6	Clay	16/03/2026	0.89	0.37	<1	<1	Brown, slightly turbid, no odour
MW04	383360	6367013	1.28	0.52	0.76	3.70	0.7-3.8	-0.2 to -3.3	Clay	16/03/2026	1.84	-0.56	<1	<1	Pale brown, slightly turbid, no odour
MW104	383148	6367292	1.16	0.68	0.48	1.5	0.5-1.5	0.2 to -0.8	Clay	16/03/2026	1.00	0.17	<1	<1	Pale grey brown, moderately turbid, no odour
MW106	382929	6367067	1.35	0.70	0.65	2.0	0.5-2.0	0.2 to -1.3	Clay	16/03/2026	1.49	-0.14	<1	<1	Clear, pale brown, no odour
MW107	382381	6367150	1.52	0.70	0.80	2.2	0.5-2.2	0.2 to -1.5	Clay	17/03/2026	0.93	0.59	<1	<1	Pale brown,slightly turbid, no odour

Notes to Table 3:
AHD - metres Australian Height Datum
m agl = metres above ground level
m bgl = metres below ground level
TOC - top of PVC casing
(1) Minimum detection limit of 1 ppm
(2) Minimum detection limit of 1 mm
(3) - Water level gauged prior to purging and sampling

5.2 Groundwater and surface water field parameters

The field parameters and purging observations during sampling are shown in Table 4 below. The results of field testing indicated differing water quality for wells screened in the Tomago Sandbeds to those screened in the clay aquitard which is commensurate with the historical data. Based on the field testing, surface water was most comparable to the quality of groundwater in the Tomago Sandbeds wells.

The results of field testing indicated the following:

- pH:
  - Surface water: slightly acidic (pH 5.3 to 5.9);
  - Tomago Sandbeds wells: moderately acidic to neutral (pH 4.4 to pH 7.3);
  - Clay aquitard wells: slightly acidic to neutral (pH 5.6 to 6.8).
- EC:
  - Surface water: fresh / low in EC ranging from 155 to 190 µS/cm;
  - Tomago Sandbeds wells: fresh / low in EC ranging from 163 to 443 µS/cm, except MW6 which was brackish (6,580 µS/cm);
  - Clay aquitard wells: brackish in MW02 (1,090 µS/cm), and saline in MW04 (32,300 µS/cm).
- ORP:
  - Surface water: oxidising for waters coming on to the site (SW5) and the drainage basin at SW1 (73 mV), and reducing for SW3 (−21 mV) representing stagnant surface water;
  - Tomago Sandbeds wells: Reducing conditions (ORP -59 to 0 mV);
  - Clay aquitard wells: generally reducing conditions (−38 to −30 mV) except MW02 (ORP 9 mV).
- DO:
  - Surface water: Moderate DO concentrations (2.2 to 2.7 mg/L);
  - Groundwater: Low to moderate DO concentrations ranging from 0.8 to 2.1 mg/L.
- Turbidity:
  - Surface water: moderate to very high turbidity (58 to >1,000 NTU);
  - Tomago Sandbeds wells: low to very high turbidity (38.5 to >1,000 NTU);
  - Clay Aquitard wells: low to moderate turbidity (49 to 73 NTU).

Table 4: Results of groundwater and surface water field parameters during purging and sampling – March and April 2026

Well ID	Date	Depth to GW (m TOC) (3)	Depth to GW (m bgl) (3)	Reduced Water Level (AHD) (3)	PID Well Headspace (ppm) (1)	PID GW Headspace (ppm) (1)	Depth of Floating Product (mm) (2)	pH	EC (µS/cm)	ORP (mV)	Turbidity (NTU)	Temp (°C)	DO (mg/L)	Volume Purged (L)	Comments	Sampling Method
Surface Water																
SW1	17/03/2026	N/A	N/A	N/A	N/A	<1	N/A	5.9	190	73	123	29.5	2.7	N/A	Brown, moderately turbid, no odour, Still	Swing sampler
SW1A	16/03/2026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Dry	N/A
SW3	16/03/2026	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	N/A
SW3a	17/03/2026	N/A	N/A	N/A	N/A	<1	N/A	5.7	171	-21	>1000	24.7	2.2	N/A	Brown, very turbid, no odour, not flowing	Swing sampler
SW4	17/03/2026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Dry	N/A
SW5	16/03/2026	N/A	N/A	N/A	N/A	<1	N/A	5.3	155	9	58	24.2	2.4	N/A	Pale brown, not flowing, no odour	Grab Sample
Groundwater in Tomago Sandbeds Wells																
MW1A	16/03/2026	1.85	1.32	1.46	<1	<1	<1	5.6	169	-30	73	23.2	2.0	10	Pale brown, slightly turbid, slight sulfur odour	Peristaltic Pump low flow sampler
MW06	16/03/2026	1.03	0.42	0.23	<1	<1	<1	7.3	6,580	-44	102	18.6	2.0	8	Brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW8A	17/03/2026	2.24	1.50	1.62	<1	<1	<1	5.9	266	-16	198	21.5	1.9	12	Brown, moderately turbid, no odour	Peristaltic Pump low flow sampler
MW10	16/03/2026	1.44	0.79	0.67	<1	<1	<1	5.6	163	-59	>1000	23.2	1.9	10	Grey-brown, very turbid, no odour	Peristaltic Pump low flow sampler
MW11	16/03/2026	1.47	0.65	0.95	<1	<1	<1	5.1	227	-43	121	24.4	1.6	10	Pale brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW12	16/03/2026	2.04	1.47	1.54	<1	<1	<1	4.4	167	0	38.5	23.7	1.7	12	pale brown, clear, no odour	Peristaltic Pump low flow sampler
MW13	16/03/2026	3.14	2.63	0.49	<1	<1	<1	6.2	413	-31	90.4	23.3	1.2	8	Pale brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW13	1/04/2026	3.28	2.76	0.36	<1	<1	<1	6.0	443	-5	504	21.1	0.8	20	Pale brown, very turbid, slight sulfur odour	Micropurge
SK3520	16/03/2026	1.81	1.50	1.78	<1	<1	<1	-	-	-	-	-	-	-	Not sampled	-
Groundwater in Clay Aquitard Wells																
MW02	16/03/2026	0.89	0.60	0.37	<1	<1	<1	6.5	1090	9	49	20.9	1.8	12	Brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW04	16/03/2026	1.84	1.26	-0.56	<1	<1	<1	6.8	32,300	-38	55	18.7	2.1	9	Pale brown, slightly turbid, no odour	Peristaltic Pump low flow sampler

Notes to Table 4:
(1) - minimum limit of detection for PID 1 ppm
(2) - minimum limit of detection for oil-water interface meter 1 mm
(3) - Water level gauged prior to purging and sampling
AHD - Australian Height Datum
EC – Electrical Conductivity
m bgl – metres below ground level
N/A – not applicable
NTU - Nephelometric Turbidity Units
ORP – Oxidation Reduction Potential (mV)
PID – Photoionisation detector
ppm – parts per million

5.3 Contaminant observations

No floating product was detected by the oil/water interface meter during groundwater level measurement of wells as noted in Table 4. It is noted that the interface meter can detect floating product greater than 1 mm thick.

There were no observations of hydrocarbon staining, odours or slicks to the groundwater purged from the wells or at the surface of the surface water bodies at sampling locations. The PID groundwater/surface water headspace was <1 ppm for all surface water and groundwater wells. Slight sulfur odours (i.e. hydrogen sulfide) were noted for MW1A and MW13. The sulfur odours are typically associated with the presence of ASS and the organic rich and waterlogged clay soils which are present at the site. In addition to aromatic and chlorinated compounds, at times the PID is also capable of detecting some inorganic compounds including hydrogen sulfide and giving PID readings of < 1 ppm.

The field observations indicate the absence of gross contamination for the monitoring wells and surface water sample locations (i.e. absence of staining, hydrocarbon odours, and other observations of gross contamination).

6. Laboratory testing

6.1 Overview

Laboratory testing for the collected groundwater samples was undertaken by Envirolab Services Pty Ltd (Envirolab), a NATA registered laboratory. The analytical methods used are shown on the laboratory sheets in Appendix E.

The laboratory tested the contaminants listed in each plan, which were identified as Category 2 and 3 parameters. It is noted that the definition of Category 2 and 3 varies slightly between each plan as outlined in Table 5 below. Category 1 parameters relate to in situ field parameters as shown in Section 5.2.

Table 5: Laboratory Testing Program

Analytes	Stage 1-3 test suite (Douglas, 2010a)	Revised Stage 1 GMMP (Douglas, 2025)	Revised Stage 1 SWMP (ADWJ, 2022)	Revised Stage 1 SWMP (Torque Projects, 2025)
	Category 2 and 3	Category 2		
Total suspended solids (TSS)	✓	✓	✓	✓
Cations – calcium (Ca), potassium (K), magnesium (Mg), sodium (Na) and iron (Fe).	✓	✓	✓	✓
Anions – chloride (Cl), sulphate (SO_4), ammonia (NH_3), bicarbonate (HCO_3), carbonate (CO_3), total alkalinity, nitrite (NO_2), nitrate (NO_3), total Kjeldahl nitrogen (TKN), total phosphorous (PO_4) and fluoride (F).	✓	✓	✓	✓
Heavy metals – arsenic, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, nickel and zinc.	✓		✓ (total)	
Heavy metals (extended suite) – aluminium, arsenic, cadmium, chromium, copper, iron, lead manganese, mercury, molybdenum, nickel and zinc		✓		✓ (total and filtered)
Total recoverable hydrocarbons (TRH)	✓	✓	✓	✓
Polycyclic and aromatic hydrocarbons (PAH)	✓	✓	✓	✓
Benzene, toluene, ethyl benzene, xylene (BTEX)	✓	✓	✓	✓
Phenols	✓	✓	✓	✓
Organochlorine pesticides (OCP) and organophosphorus pesticides (OPP) – trace level	✓	Removed	✓	Removed
Polychlorinated biphenyls (PCB) - trace level	✓	✓	✓	✓
Hydrogen cyanide (HCN)	✓	✓	✓	✓
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) – trace level	Not listed	✓	Not listed	✓
Additional tests – where required to further assess initial test results (e.g. total petroleum hydrocarbon (TPH) for hydrocarbon speciation, or VOCs	Not specified	✓	Not specified	✓

TPH testing via the silica gel clean up method (SGC) was undertaken for SW1, SW3a, MW1A, MW2, MW4, MW10, MW11 and MW13 to further assess trace level TRH.

6.2 Results

The results of analytical testing of groundwater and surface water are included in the laboratory report sheets in Appendix E. The results are summarised in Table 1 and 2 in Appendix E against the relevant criteria for each monitoring plan (refer Section 7).

6.3 Quality assurance / quality control (QA/QC)

Quality assurance and quality control (QA/QC) procedures were adopted throughout the field sampling programme and comprised the following:

- Collection and analysis of one groundwater replicate sample (DGW/16.03.26 from MW12);
- Collection and analysis of one surface water replicate sample (DSW2/17.03.26 for SW3A);
- Following standard operating procedures and procedures in the GMPs;
- Storage of samples under secure, temperature-controlled conditions;
- Use of chain of custody (COC) documentation for the handling, transport and delivery of samples to the selected laboratory.

An overall assessment is included in the QA/QC Report in Appendix F. In summary, the QA/QC testing indicated that the accuracy and precision of the field and laboratory testing procedures is considered to be of sufficient standard to allow the data report to be used to interpret contamination conditions.

7. Assessment criteria

The 2010 GMP (Douglas, 2025) for Stage 1 and future stages noted that groundwater criteria could be developed based on an assessment of ANZECC (2000) criteria (now largely superseded by ANZG (2018), *Australian Drinking Water Guidelines* (updated) and compilation of baseline data to develop site-specific trigger levels. This process recognises that some elevated contaminants (e.g. metals) naturally occur in the locality above ecological guidelines.

The revised GMMP (Douglas, 2025) will supersede the 2010 GMP and incorporates the current guidelines as well as the formalised trigger levels based on the compiled and reviewed monitoring data set (2015-2025).

The assessment criteria for the GMP and GMMP are based on the following:

Groundwater:

- **2010 GMP (Douglas, 2010) – Default guideline values (DGVs) for marine water quality (ANZG, 2018)**
    - In the absence of confirmed trigger levels in the 2010 GMP, the results have been compared against the ANZG (2018) marine water guidelines for 95% level of species protection (LOSP) as per the default assessment criteria in the GMP. This a more conservative threshold exceedance level for key parameters.

- PFAS was not listed in the 2010 GMP and therefore the assessment criteria is based on **HEPA (2025) *National Environmental Management Plan 3.0* 95% LOSP** for ecological species as recommended in the revised GMMP below.

- **Revised GMMP (Douglas, 2025) – approved by DCCEEW (Federal)**
  - Different assessment criteria / trigger levels were adopted to reflect differing water quality conditions for wells screened in separate aquifers as well as background concentrations. The two aquifer systems are:
    - Tomago Sandbeds (grey shading); and
    - Clay aquitard (green shading).
  - For the two aquifers, the following process was adopted:
    - The ANZG (2018) marine water criteria at 95% LOSP is adopted as the DGV;
    - Unless the 80th percentile of the data set (2015-2025) is higher, then the 80th percentile value is appropriate for adoption. The 20th percentile will also be considered for pH as the lower bound;
    - Where no criteria or site based data exists, the trigger level has generally been adopted as the laboratory limit of reporting (LOR) for parameters which are not expected to be naturally occurring in the environment (e.g. hydrocarbons etc);
    - For other general water quality indicator parameters (e.g. hardness, alkalinity), a trigger value has not been set.
  - 95th upper confidence limit (UCL) mean values (UCL95-mean) were also determined based on the statistical analysis of the historical monitoring results (2015-2025) to indicate when values are above the average / mean;
  - **HEPA (2025) *National Environmental Management Plan 3.0* 95% LOSP** remains the relevant guidelines for PFAS and this has been adopted as the trigger level for both aquifers.

Surface water:

- Site specific trigger levels for surface water have not been determined, therefore the relevant criteria is the **DGVs for marine water quality (ANZG, 2018).** A 95% LOSP has been adopted.

It is noted that trigger levels do not guarantee a level of protection, rather, are defined as the 'concentration recorded by monitoring which would trigger further investigation to assess the potential for adverse impact on surface water and groundwater quality from the site. Periodic exceedances of the groundwater quality Trigger Levels can be expected to occur, particularly where values are based on the 20th/80th percentile calculations from the baseline data. Exceedances of DGVs for surface water can also be expected periodically as they capture a range of surface water locations and ecosystems risk.

The assessment criteria are shown on Table 1 and 2 in Appendix E against the groundwater and surface water results. UCL-mean values are also indicated for comparison purposes.

Drinking water guidelines have not been considered as there are no potable receptors on site or downstream of the site.

The GMPs lists actions that are prompted by the monitoring results where exceedances of the criteria occur. These include assessment of the results against statistical criteria (i.e. upper confidence limit – 95% mean values, 80th percentile trigger values) and where three consecutive trigger levels are exceeded. The trigger levels have been formalised in the revised GMMP (Douglas, 2025).

8. Discussion

8.1 Groundwater levels

Groundwater levels (heads) for the March and April 2026 monitoring event, reduced to AHD, ranged from -0.56 to 2.2 AHD as shown in Table 3 in Section 5.1. The full groundwater level record is shown plotted on Figures D1 and D2 in Appendix D. This includes data collected from dataloggers installed in Stage 3 wells and HWC Bore SK3520. The reduced levels infer a groundwater flow direction to the south-east, as per previous monitoring.

Groundwater levels for March and April 2026, were lower than those measured in the previous annual monitoring event in April 2025, however, were within the historical range gathered to date. Overall, rainfall for the preceding 12 months prior to March 2026 was higher than average but included periods of both very low and very high rainfall as summarised in Table 6.

Table 6: BOM Williamtown rainfall summary

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Totals
	2025								2026				
Monthly total (mm)	502	65.6	152.4	255.2	58.4	30.8	20.6	31.4	93.6	23.4	107.4	24.2	1365
Mean monthly total for Station (mm) *	115.8*	121.4*	76.4*	73.8*	60.1*	75.1*	81.8*	75.5*	100.2*	117.6*	127.2*	111.6*	-
Mean annual total for Station (mm)*	-	-	-	-	-	-	-	-	-	-	-	-	1134.4*
% mean rainfall (mm)	434%	54%	199%	346%	97%	41%	25%	42%	93%	20%	84%	22%	120%

Notes:
Green: higher than mean
Orange: lower than mean
* values as reported by BOM climate statistics (18 June 2026)

It is noted that the historical groundwater levels collected by HWC for Bore SK3520 indicate higher variability, whereas the site based data suggests groundwater levels have remained within a fairly consistent range. This may be a result of the more regular frequency of monitoring (monthly) for SK3520 which can identify seasonal changes which are not reflected in annual monitoring. The live monitoring equipment installed in Bore SK3520 from February 2026 will assist with the interpretation of upgradient groundwater level trends.

8.2 Groundwater and surface water quality

8.2.1 Overview

All chemical results of testing are summarised in Table 1 and 2 in Appendix E. Groundwater and surface water quality plots are included in Appendix D.

The results of monitoring generally indicated the following:

- The absence of gross contamination in groundwater and surface water at the tested locations based on field observations and testing of contaminants listed in the monitoring plans;
- Differing water quality for wells screened in the Tomago Sandbeds to those screened in clay aquitard, commensurate with rationale for setting different groundwater trigger levels for the revised GMMP. Surface water quality was comparable to groundwater in the Tomago Sandbeds.

The results are broadly summarised as follows:

- PAH, BTEX, phenol, OCP, OPP, PCB, and HCN were not detected above the laboratory limit of reporting (LOR);
- Low level PFAS was detected for most locations which is considered representative of background ambient conditions as per previous monitoring to date;
- TRH was detected above LOR at SW1, SW3a, MW1A, MW2, MW4, MW10, MW11 and MW13. Total petroleum hydrocarbons (TPH) less than LOR via the silica gel clean up method for all samples except SW3a, suggesting the absence of petroleum hydrocarbon impacts. TRH may be attributable to a non-petroleum based source, such as natural organic matter (NOM) which can be detected by the TRH test method. This has routinely occurred in previous monitoring;
- Trace TRH, TPH and toluene were detected above LOR at SW3a. This location is outside the Stage 1 boundary and receives surface water run-off from Tomago Road via the road culvert. The concentrations at SW3a were below the trigger level for toluene, but above the trigger level for TRH. The result is not considered an indication of impacts from Stage 1 or Stage 3 activities, rather suggests possible impact from road runoff which may have trace hydrocarbon residues from road and vehicle activities;
- Total metals (non-filtered) metals in surface water were generally higher than dissolved metals concentrations, attributable to suspended solids in surface water.

Further review of the results relevant to each plan is discussed below.

8.2.2 Comparison to assessment criteria

The results of groundwater and surface water quality testing are shown on Tables 1 and 2 in Appendix E against the relevant default and site-specific assessment criteria. There were more exceedances of the groundwater DGVs compared to site-specific trigger levels. The site-specific criteria better reflects the background range of water quality conditions that regularly fall outside the DGVs and is more specific to local conditions. Table 7 summarises results which were elevated above the criteria for both the initial sampling in March 2026 and re-sampling in April 2026.

It is noted that a precautionary notification to both state and federal authorities was made by Northbank Enterprise Hub Pty Ltd (NEH) (Federal Approval Holder) on 31 March 2026, as advised by Douglas, regarding the initial water quality results and exceedances of the trigger levels. This was made on the basis that some results were outside the historical testing range to date. Douglas recommended speciation testing for further characterisation of water quality and targeted re-sampling for MW13 to confirm the initial results or aberration, as per the procedures in the GMP/GMMP to review the significance of the results. At this time, Douglas advised WesTrac and NEH that the monitoring results did not suggest an imminent potential threat to receptors, and as such the actions recommended were adopted on this basis.

Table 7: Summary of results that were outside the site assessment criteria / trigger levels – March / April 2026 (initial and re-testing)

Analyte	2010 GMP (Douglas, 2010) – Default guideline values (DGVs)		Revised GMMP (Douglas, 2025) – trigger levels				Exceedances within historical range for well/surface water location?
	No. and location ANZG Marine water 95% criteria DGVs		No. and location Tomago Sandbeds Well criteria		No. and location Clay Aquitard Well criteria		
pH	9	MW1A, MW8A, MW10,MW11, MW12, MW13 (including re-sample), SW1, SW3A, SW5	2	MW11, MW12	1	MW2	Yes
EC	2	MW4, MW06	0	-	1	MW4	Yes
Chloride, sulphate	-	-	1	MW06	1	MW4	Yes
Fluoride	-	-	0	-	1	MW2	Yes
Ammonia	2	MW13 (including re-sample), MW4	1	MW13 (including re-sample)	0	-	**MW13 – No** MW4 – Yes
TKN	-	-	1	MW13 (including re-sample)	-	-	**MW13 – No (including re-sample)**
Nitrate	-	-	0	-	0	-	-
Total P	8	MW1A, MW6, MW8A, MW10, MW13 (re-sample event), SW1, SW3A, SW5	1	MW10	0	-	Yes
Reactive Phosphorus as P	1	MW13 (re-sample only), SW1	1	MW13 (re-sample event)	0	-	Yes
Iron	-	-	1	MW13 (re-sample < criteria)	1	MW4	Yes
Dissolved Aluminium	9	MW1A, MW8A, MW10, MW11, MW12, MW13 (including re-sample), SW1, SW3A, SW5	1	MW1A, MW13 (re-sample < criteria)	0	-	**MW13 – No (initial test only)** Re-test and all others – Yes
Total Aluminium		SW1, SW3A, SW5	-	-	-	-	Yes
Dissolved Arsenic	2	MW8A, MW2	0	0	0	-	Yes
Total Arsenic	2	SW1,SW3A	-	-	-	-	Yes
Total Chromium	1	SW3A	-	-	-	-	Yes
Total Copper	1	SW3A	-	-	-	-	Yes
Total Lead	1	SW3A	-	-	-	-	Yes
Dissolved Manganese	4	MW6, MW4, SW1, SW5	0	-	1	MW4	Yes
Total Manganese	3	SW1, SW3A, SW5	-	-	-	-	Yes
Dissolved Zinc	3	MW10, MW2, MW4	1	MW10	1	MW2	Yes
Total zinc	1	SW3A	-	-	-	-	Yes
TRH	3	SW1, SW3A, SW5	4	MW1A, MW10, MW11, MW13	2	MW2 , MW4	Yes

Notes to Table 7:
Groundwater was tested for dissolved metals only. Surface water was tested for total (unfiltered) and dissolved metals (field filtered)

Where elevated results were identified above the assessment criteria, these mostly occurred for pH, EC, nutrients and metals. Total (non-filtered) metals in surface water were higher than dissolved metals attributable to suspended solids in surface water as well as also representing the dissolved phase metals.

Dissolved aluminium in groundwater at MW13 was the highest for the data set at 2.2 mg/L compared to the trigger level of 0.31 mg/L. Aluminium has only been monitored from 2024 and a limited dataset has been captured. Re-sampling of MW13 indicated comparable results for other metals, nutrients and water quality indicators, however, dissolved aluminium was significantly lower at a concentration of 0.03 mg/L and below the trigger level. The re-testing suggests the first sample may have been affected by colloidal aluminium or fine suspended particulates despite being field filtered. The re-testing results suggests the initial result may have been an aberration. The re-test result for aluminium is similar to the dataset to date and reflective of typical dissolved aluminium groundwater conditions.

Ammonia and TKN were above the trigger levels for MW13. Nitrogen in these species suggest a reducing environment, with no oxidised nitrogen species identified (nitrate, nitrite, total oxidised N <LOR). Higher concentrations of manganese (below trigger level) and iron (above trigger level) are also indicative of reducing conditions, specifically iron-reducing conditions. The water chemistry at MW13 suggests that groundwater is affected natural organic-rich alluvial sediments. The current results suggest that groundwater chemistry for MW13 may be somewhat different to other wells screened in the Tomago Sandbeds, and more aligned with wells screened in the clay aquitard for some parameters (nutrients, iron, manganese).

Total phosphorus (organic phosphate) has been shown to vary orders of magnitude between monitoring events, but overall phosphorous is usually higher for wells screened in the clay aquitard. The elevated result at MW10 is within the historical range and also a decrease since the previous monitoring event.

pH at MW12 was pH 4.4 within the range of pH recorded to date for wells screened in the sand aquifer, however, is notably lower than other similar wells. The March 2026 result was the lowest on record for the well which was installed in 2024. This location receives groundwater flows from sites to the north and therefore groundwater quality is considered representatively of upgradient conditions. pH changes between monitoring events are common, however, the lower pH value may be a result of below average rainfall, reduced groundwater levels and oxidation within the acid sulfate soil environment upgradient of the site.

Low concentrations of TRH were identified for MW1A, MW10, MW11, MW13, SW1 and SW5. Although criteria are not reported for TRH, it is generally accepted that a TRH concentration above the LOR is above the trigger level as petroleum hydrocarbon are in most instances not naturally occurring. A TRH detect will trigger further TPH (silica gel cleanup) analysis to confirm petroleum hydrocarbon concentrations.

Additional speciation testing via the silica gel clean up method indicated total petroleum hydrocarbon (TOH) concentrations were less than LOR, suggesting that the initial detected TRH may be attributable to a non-petroleum based source, such as natural organic matter (NOM) which can be detected by the TRH test method. This has routinely occurred in previous monitoring.

Trace TRH, TPH and toluene were detected above LOR at SW3a. This location is outside the Stage 1 boundary and receives surface water run off from Tomago Road via the road culvert. The concentration was below the trigger levels for toluene, but above the trigger level for TRH. The result is not considered indicative of impacts from Stage 1 or Stage 3 activities, rather suggests possible impact from public road runoff which may have trace hydrocarbon residues from road and vehicle activities.

The low concentrations of PFAS identified in groundwater at the site are likely to be indicative of urban conditions which contain PFAS in the environment at trace concentrations.

The results of monitoring suggest water quality that is comparable to the typical long term data set and within the natural ranges of variability and fluctuation. The results are not considered indicative of an incident that requires action, corrective measures or revision of the GMMP.

Further comments on general trends are provided below.

8.2.3 Comparison to UCL95-mean values

The revised GMMP (Douglas, 2025), outlined a process to review water quality data against the $UCL_{95\text{-}mean}$ values to indicate when values are above average background levels, which may prompt review and closer scrutiny if levels are consistently above average/mean. This approach is relevant to groundwater only, as statistical review of surface water has not been undertaken.

Concentrations above the UCL95-mean are shown on Tables 1 and 2 in Appendix E and are summarised in Table 8 below for the previous three years of annual monitoring. It is noted that pH is excluded from the assessment as $UCL_{95\text{-}mean}$ values do not capture a range for assessment of pH.

Table 8: Summary of groundwater monitoring wells with concentrations above the UCL95-mean values – 2024, 2025 and 2026

	Tomago Sandbeds Well criteria						Clay aquitard Well criteria						
Parameter	**UCL95-mean**		**April 2024**	**April / May 2025**	**March/April 2026**	**Three consecutive results above the UCL95-mean value?**	**UCL95-mean**		**April 2024**	**April / May 2025**	**March/April 2026**	**Three consecutive results above the UCL95-mean value?**	**Comments**
EC	4870	µS/cm	MW6	MW6	-	No	22,400	µS/cm	-	MW4 (including re-sample)	MW4	No	
Chloride	1980	mg/L	MW6	MW6	MW6	**Yes**	7330	mg/L	MW4	MW4 (including re-sample)	MW4	**Yes** (MW4)	MW4 has consistently shown higher chloride and sulfate reflecting slightly higher saline conditions at this well
Sulphate	288	mg/L	MW6	MW6	-	No	3500	mg/L	MW4	MW4 (including re-sample)	MW4	**Yes** (MW4)	
Fluoride	0.22	mg/L	MW6	MW6	-	No	0.62	mg/L	MW2	MW2 (including re-sample) MW4 (including re-sample)	MW2	**Yes** (MW2)	MW2 has consistently shown higher chloride and sulfate reflecting slightly higher saline conditions at this well, possibly associated with upstream flows from the Tomago Sandbeds
Ammonia	0.44	mg/L	**MW11**	MW6, MW10, **MW11**, MW13	**MW11**, MW13 (including re-sample)	**Yes** (MW11)		mg/L			-	No	The groundwater quality plot for MW11 shows ammonia at consistent concentrations and below the trigger level since 2017.
TKN	0.817	mg/L	MW11	MW6, MW11	MW13	No	4.53	mg/L	-	-	-	No	
Nitrate	0.014	mg/L	-	MW12	-	No	0.08	mg/L	MW4	-	-	No	
Total P	0.038	mg/L	MW6	-	MW10	No	1.62	mg/L	-	MW2 (re-sample < criteria)	-	No	
Reactive Phosphorus as P	0.004	mg/L	-	MW1A	MW13 (re-sample event)	No	0.019	mg/L	-	MW2 (re-sample < criteria)	-	No	
Iron	2.2	mg/L	MW6	MW1A, MW6, MW13	MW13 (including re-sample	No	60	mg/L		MW4 (including re-sample)	MW4	No	
Dissolved Arsenic	0.001	mg/L	-	MW8A (replicate sample)	MW8A	No	0.005	mg/L		MW2 (re-sample < criteria)	-	No	UCL95-mean value close to LOR
Dissolved Aluminium	0.28	mg/L	MW1A, MW8A	MW1A (including re-sample), MW8A	MW1A, MW13 (re-sample < criteria)	**Yes** (MW1A)	0.015	mg/L	-	-	-	No	MW1A is reflective of groundwater flowing onto the site from upgradient.
Dissolved Chromium	0.001	mg/L	MW8A	MW1A, MW8A, MW10, MW11	MW8A, MW10, MW11, MW13	**Yes** (MW8A)	0.001	mg/L	-	-	-	No	UCL95-mean value close to LOR. MW8A is located at distance from Stage 1 and would represent baseline/background conditions. This location will not continue to be monitored under the revised GMMP.
Dissolved Copper	0.001	mg/L	MW8A, MW10	MW10	-	No	0.003	mg/L	-	-	-	No	UCL95-mean value close to LOR
Dissolved lead	0.001	mg/L	MW8A	MW8A	-	No	0.001	mg/L	-	-	-	No	
Dissolved Manganese	0.7	mg/L	-	MW6	MW6	No	9.2	mg/L	MW4	MW4 (including re-sample)	MW4	**Yes** (MW4)	
Dissolved nickel	0.001	mg/L	-	MW8A	-	No	0.001	mg/L	MW2 MW4	MW2 (re-sample < criteria) MW4 (re-sample)	MW4	**Yes** (MW4)	UCL95-mean value close to LOR. MW4 has shown high variability in nickel at times but remains below the trigger level. Results may reflect the different conditions at MW4 similar to. chloride/sulfate.
Dissolved molybdenum	0.002	mg/L	-	-	-	No	0.003	mg/L	MW2	MW2 (re-sample < criteria)	-	No	UCL95-mean value close to LOR
Dissolved Zinc	0.008	mg/L	-	-	MW10	No	0.31	mg/L	-		-	No	UCL95-mean value close to LOR

Notes to table:
Potassium, sodium, calcium, hardness are general water quality indicator parameters and therefore have not been considered in the above assessment
LOR - limit of reporting .

It is noted that the $UCL_{95\text{-Mean}}$ value for some parameters is close to the laboratory LOR and in these instances, the value may not be a statistically significant tool in assessing changes in water quality.

Concentrations above the $UCL_{95\text{-mean}}$ values occurred for a range of wells across the site. Three consecutive occurrences of the $UCL_{95\text{-mean}}$ were identified for a number of wells and locations as noted above, mostly related to anions (chloride, sulfate, fluoride). These analytes form part of the group of major ions present in groundwater and are general indicator parameters to indicate water ionic balance, rather than being contaminants of concern from possible site activities.

Dissolved metals concentrations have occasionally been above the $UCL_{95\text{-mean}}$ for annual monitoring events. Consistent occurrences were apparent for aluminium for MW1A and chromium for MW8A. It is to be noted the UCL95-mean value for chromium is equal to the laboratory LOR and chromium concentrations for MW8A have historically been higher than other wells.

Nutrients have also on occasion been above the $UCL_{95\text{-mean}}$ for annual monitoring. Consistent occurrences were apparent for ammonia for MW11 which have historically identified higher concentrations than other wells within the Tomago Sandbeds, however, ammonia concentrations have been stable since 2017 and remaining well below the trigger level. Future monitoring will allow identification of results that are persistently higher than the average / mean.

Overall, the review of $UCL_{95\text{-mean}}$ suggests that MW2, MW4, MW6, MW8A and MW11 may be outliers from their grouped aquifer in terms of major ions, some metals and nutrients (ammonia), and the results are not indicative of long-term changes in groundwater quality. Trends are further discussed in Section 8.2.4.

The concentrations above the $UCL_{95\text{-mean}}$ are not considered significant.

8.2.4 **Trends**

Groundwater and surface water concentrations higher than the DGVs are expected based on the long term data set which has indicated some parameters are routinely higher, influenced by the geology, hydrogeology and upgradient groundwater quality.

Groundwater concentrations higher than the 80th percentile derived trigger levels are expected to occur periodically (i.e. 20% of the historical data remains above the adopted level). As noted above, the trigger levels may not consider spatial variation that can occur for some wells.

In this regard, a key aspect of reviewing the water quality data is to review against the historical dataset for possible indicators of increasing or decreasing trends which could present an adverse risk to the environment.

Updated time series groundwater and surface water quality plots from 2007 to present are included in Appendix D and shown against the DGVs, aquifer specific trigger levels and most common laboratory LOR. The plots enable a visual review of parameter concentrations, ranges and trends for individual wells. Most parameters are plotted on a logarithmic scale due to the wide variation in values.

As shown in the plots, groundwater quality has varied over the course of monitoring to date, particularly for metals concentrations which in some instances have varied by an order of magnitude (or more) between monitoring events. The following pertinent trends are noted in reviewing overall trends for the March / April 2026 monitoring event:

- pH in groundwater from 2023 to 2026 has shown greater variability as a function of more frequent events as well as the influence of seasonal variability and climatic conditions preceding each event. Groundwater for the sand aquifer is usually lower in pH, which is not uncommon in an ASS environment;
- Total phosphorus (organic phosphate) has been shown to vary orders of magnitude between monitoring events, but overall phosphorous is usually higher for wells screened in the clay aquitard. The elevated result at MW10 is within the historical range and is also a decrease since the previous monitoring event;
- The trend plots indicate that nutrients (ammonia and nitrate (both forms of N) and phosphorus) are notably variable between events, and at times above the assessment criteria, depending on the state the nitrogen is present. For most wells, there are no obvious increasing trends for nitrogen and TP. MW13 suggests an increasing trend for TKN and ammonia for the plotted data, however, the absence of oxidised nitrogen species identified (nitrate, nitrite, total oxidised N <LOR) suggest that the nitrogen chemistry is influenced by a reducing environment (i.e. low oxygen). This is also shown for higher concentrations of manganese (below trigger level but increasing at MW13) and iron (above trigger level but stable) which are also indicative of reducing conditions, specifically iron-reducing conditions. The water chemistry at MW13 suggests groundwater is affected natural organic-rich alluvial sediments. The current results suggest that groundwater chemistry for MW13 may be somewhat different to other wells screened in the Tomago Sandbeds, and more aligned with wells screened in the clay aquitard for some parameters (nutrients, iron, manganese);
- Metals were within the historical range of the dataset, with the exception of dissolved aluminium and manganese at MW13 as noted above. Aluminium has not been subject to long-term monitoring. Manganese concentrations seem to vary across each well, in addition to each aquifer group, and require interpretation in the context of field parameters;
- Slightly higher PFAS concentrations are apparent for surface water, however, concentrations remain at trace levels and are considered ambient / urban concentrations.

In addition to typical transient / seasonal trends in groundwater quality, the long term data set may also be influenced by different sampling techniques, laboratory methods and LORs which may result in a higher range of results. As noted in the revised GMMP, standardisation field procedures have been in place since 2015. Laboratory methods and detection limits have also remained fairly consistent in recent years which assist with trend review.

Monitoring wells MW2, MW4 and MW6 remain outliers from their grouped aquifer in terms of EC, some metals (iron, manganese) and nutrients (phosphorus). Overall, the monitoring wells show similar groundwater quality to the historical data set and do not suggest impacts arising from the site.

Further assessment of trends, including the significance of groundwater and surface water concentrations, will continue to be assessed for future monitoring events.

9. Conclusions

Douglas has completed the groundwater and surface water quality monitoring as required under consent conditions and with reference the GMP (Douglas, 2010), revised GMMP (Douglas, 2025) and SWMPs (ADWJ, 2022; Torque Projects, 2025) in lieu of formal lodgement with DPHI.

The monitoring indicated the absence of gross contamination in groundwater and surface water at the monitoring locations based on field observations and testing of contaminants listed in each monitoring plan. Re-sampling was undertaken for one well (MW13) to confirm the initial results or aberration, as per the procedures in the GMP/GMMP. Additional speciation testing for TPH was also conducted.

The assessment of groundwater and surface water quality has considered the requirements of both the GMP and revised GMMP. This has included a review against default guideline values (DGVs), trigger levels derived for the separate aquifer systems as outlined in the revised GMMP and a review of the UCL95-mean values as per the procedures in the revised GMMP.

Concentrations above the relevant assessment criteria were noted for some wells and some test parameters which warranted further sampling and testing in accordance with Douglas (2010; 2025). The re-sampling and testing generally confirmed similar concentrations for most metals, nutrients and water quality indicators. Dissolved aluminium was significantly lower than the initial test suggesting the result may have been an aberration as discussed above.

Overall, the groundwater and surface water quality was generally within the historical data set and the results do not suggest increasing contaminant trends or impacts arising from the site operations. Concentrations above the trigger levels and $UCL_{95\text{-mean}}$ values can be expected when derived from historical data set (i.e. 20% of the historical data remains above the adopted indicator level). The transient nature of groundwater and surface water, as well as seasonal changes mean that water quality often varies over time. The trigger levels may not always represent the spatial variation that has been shown at some well locations, which often result in concentrations routinely outside of the adopted criteria range (e.g. MW2, MW4, MW6), MW13.

Overall, the results of the March and April 2026 monitoring are not considered significant, nor warrant further re-sampling or action.

In response to some results being above the assessment criteria for initial March 2026 sampling, Douglas advised Northbank Enterprise Hub Pty Ltd (Approval Holdler) to make a precautionary notification to DCCEEW and DPHI as an administrative reporting measure. The notification was to meet the reporting / notification conditions in the 2010 GMP (Douglas, 2010) and was made by NEH on 30 March 2026. The results of the April / May 2026 monitoring are not considered indicative of an incident that requires action, corrective measures or revision to the GMMP.

Future scheduled monitoring with reference to the improved and revised GMMP will enable further on-going assessment of trends in groundwater level and groundwater and surface water quality at the site.

10. References

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Douglas. (2023b). *Groundwater Monitoring Program, Proposed Industrial Subdivision, Stage 3, Lot 210 D.P.1174939, 2 Westrac Drive, Tomago.* Doc Ref 39920.09.R.001.Rev3.GMP dated 1 December 2023: Douglas Partners Pty Ltd (Douglas).

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11. Limitations

Douglas Partners (Douglas) has prepared this report for this project at Lots 211, and212 DP 1174939, Westrac Drive, Tomago in line with Douglas' proposal 39920.20.P.018A.Rev0 dated 12 March 2026 and acceptance received from WesTrac Pty Ltd. The work was carried out under Douglas' Engagement Terms. This report is provided for the exclusive use of WesTrac Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out, as reported by Douglas and others. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental / groundwater components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

About This Report

Drawing 2 - Groundwater Monitoring Well and Surface Water Monitoring Location Plan

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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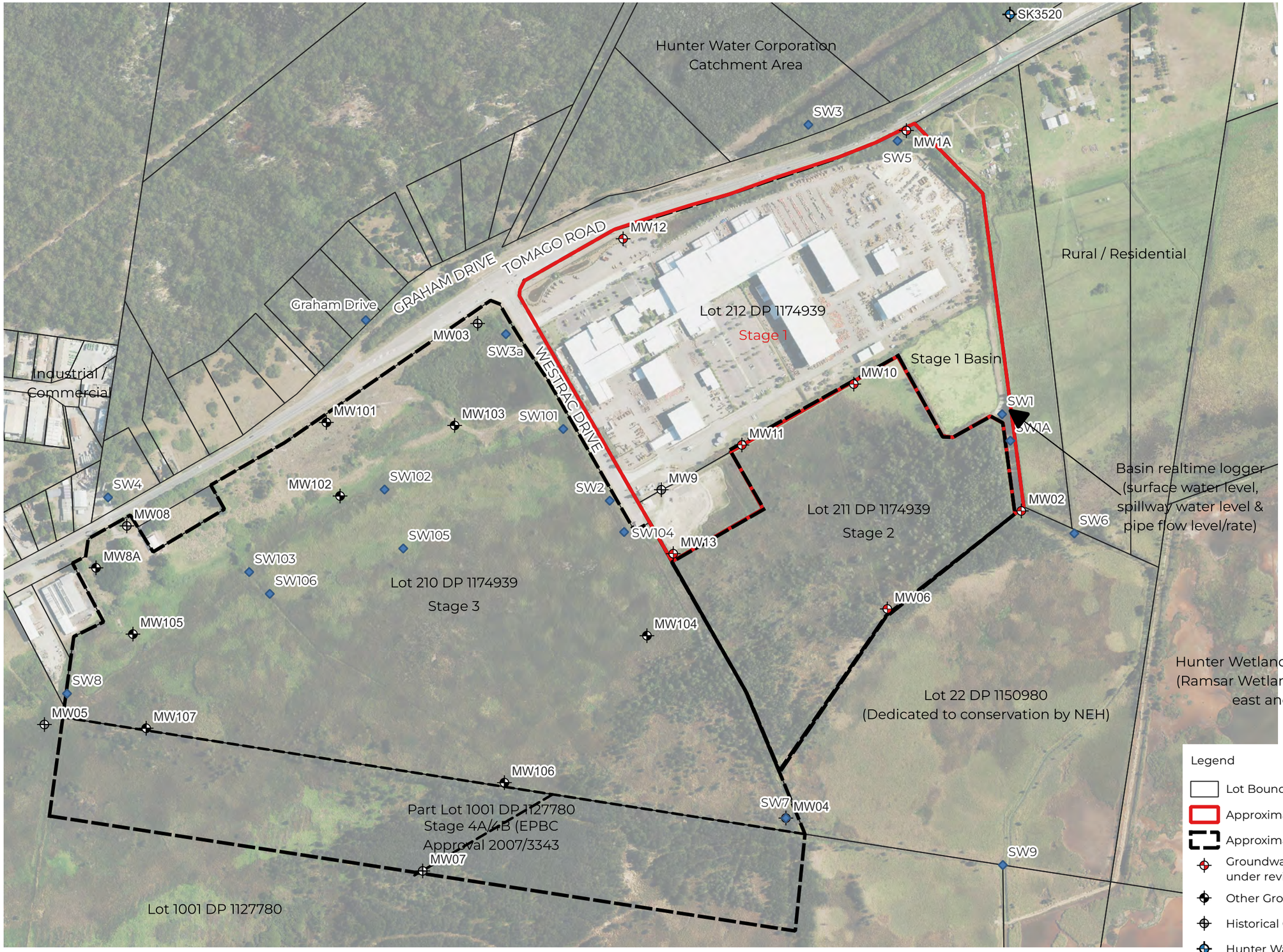

Site Location

Legend

- Lot Boundary
- Approximate Stage 1 Boundary
- Approximate Stage 2 and 3 Site Boundary
- Groundwater Monitoring Well listed for monitoring under revised Stage 1 GMP
- Other Groundwater Monitoring Well
- Historical Groundwater MonitoringWell (unserviceable)
- Hunter Water Monitoring Bore
- Surface Water Monitoring Location

0 100 200 m

Drawing adapted from Metromap Image dated 12.02.2023.
Test locations are approximate only. MW8A and MW100 series wells located using differential GPS.
MW1A, MW12 & MW13 - Groundwater monitoring well (installed August 2024).

Douglas PARTNERS

CLIENT: WesTrac Pty Ltd		TITLE: Groundwater and Surface Water Monitoring Locations Stage 1, Northbank Enterprise Hub Westrac Drive, Tomago	PROJECT No: 39920.20
OFFICE: Newcastle	DRAWN BY: MJD		DRAWING No: 2
SCALE: 1:6000 @ A3	DATE: 18.06.2026		REVISION: 1

Appendix B

Field Work Methodology

1. Guidelines

The following key guidelines were consulted for the field work methodology:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013);
- HEPA *PFAS National Environmental Management Plan (NEMP)* (HEPA, 2025);
- Australian/New Zealand Standard (AS/NZS) 5667.1:1998 Water quality: sampling part 1 – guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples;
- AS/NZS 5667.4 Water quality: sampling guidance on sampling from lakes, natural and manmade;
- AS/NZS 5667.6 Water quality: sampling guidance on sampling of rivers and streams;
- AS/NZS 5667.11 Water quality: sampling guidance on sampling of groundwaters.

2. Groundwater Sampling

Peristaltic Pump

Groundwater sampling is carried out in accordance with Douglas' standard operating procedures. Groundwater samples are collected using a low flow peristaltic pump via the micro-purge (minimal drawdown) method. The sampling method is described as follows:

- Measure the static water level using an electronic interface probe and record the thickness of any LNAPL (if encountered);
- Decontaminate the interface probe and cable between monitoring wells by rinsing in a diluted Liquinox solution and then rinsing in tap water;
- Lower the well-dedicated tubing into the well then clamped at a level estimated to be 1 m below the top of the water column (provided the depth of the pump is within the screened section) or to the approximate mid-point of the well screen;
- Set the pump at the lowest rate possible to minimise drawdown of the water column;
- Measure physical parameters by continuously passing the purged water through a flow cell;
- Following stabilisation of the field parameters, collect samples in laboratory-prepared bottles minimising headspace within the sample bottle and cap immediately.

Sample Handling

The general groundwater sample handling and management procedures comprise:

- Collect 10% replicate samples for QC purposes;
- Label sample containers with individual and unique identification details, including project number and sample location;
- Place the sample jars into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

Reference was made to HEPA (2025) for requirements specific to PFAS.

3. Surface Water Sampling

Surface water sampling is carried out in accordance with Douglas' standard operating procedures. Sample collection is completed using a telescopic pole and decontaminated sample container. A new pair of disposable nitrile gloves are worn at each sample site to minimise potential for cross-contamination. The sampling method is described as follows:

- Where possible, select a sampling point that is a reasonable distance from the edge;
- Immerse the sample container to at least 1 m below the surface, with the opening pointing directly down to maintain a volume of air in the container, thereby avoiding the collection of any surface films;
- Once under the surface of the water, point the mouth of the sample container up stream so that gloved hands, sample container and/or sample collection device are downstream of the sample being collected;
- If the water is still, move the sample container forward away from the sampler and any equipment to collect a continuous uncontaminated sample;
- Use a sample location specific laboratory-prepared glass bottle without preservatives;
- Decant the water sample into laboratory-prepared bottles, minimising headspace within the sample bottle and cap immediately. The sample location specific laboratory-prepared glass bottle can be used as the sample container for the last sample from that location;
- Dispose of any excess water downstream of the sampling point or at a reasonable distance from sample site;
- Label sample containers with individual and unique identification details, including project number and sample location;
- Place the sample jars into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

4. References

HEPA. (2025). *PFAS National Environmental Management Plan (NEMP).* Version 3.0: Heads of EPAs Australia and New Zealand and Australian Government Department of the Environment.

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Appendix C

Borehole Logs and Descriptions

Borehole Logs (Bores MW1A, MW6, MW8A, MW10, MW11, MW12, MW13,)–Douglas

Borehole Logs (Bores MW1, MW2, MW3, MW4, MW5) – Coffey

Terminology, Symbols and Abbreviations

November 2023

Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style XW. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example `PL` is used for plastic limit in the context of soil moisture condition, as well as in `PL(A)` for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when auguring in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example if drilling is commenced from the base of a hole predrilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example providing a description of the strength of a concrete pavement	NA

Graphic Symbols

Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Soil Descriptions

Introduction

All materials which are not considered to be "in-situ rock" are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:

The "classification" comprises a two character "group symbol" providing a general summary of dominant soil characteristics. The "name" summarises the particle sizes within the soil which most influence its behaviour. The detailed description presents more information about composition, condition, structure, and origin of the soil.

Classification, naming and description of soils require the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either "fine grained" (also known as "cohesive" behaviour) or "coarse grained" ("non cohesive" behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Designation	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as "oversize"	
Cobble	63 - 200		
Gravel[1]	2.36 - 63	Coarse	>65%
Sand[1]	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

[1] – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer "component proportions" below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a "Sandy CLAY", this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a "primary", "secondary", or "minor" component of the soil mixture, depending on its influence over the soil behaviour.

Component Proportion Designation	Definition[1]	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor[2]	Present in the soil, but not significant to its engineering properties	All other components	All other components

[1] As defined in AS1726-2017 6.1.4.4
[2] In the detailed material description, minor components are split into two further sub-categories. Refer "identification of minor components" below.

Composite Materials

In certain situations, a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example, "INTERBEDDED Silty CLAY AND SAND".

Soil Descriptions

Classification

The soil classification comprises a two character group symbol. The first character identifies the primary component. The second character identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils, the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way, the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component [1]	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

[1] – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	Clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	Clay/silt: 0-5% sand/gravel: 0-15%

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

Type		Particle size (mm)
Gravel	Coarse	19 - 63
	Medium	6.7 - 19
	Fine	2.36 – 6.7
Sand	Coarse	0.6 - 2.36
	Medium	0.21 - 0.6
	Fine	0.075 - 0.21

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular size or size range within the total range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	w<PL
	Near plastic limit	Can be moulded	w=PL
	Wet of plastic limit	Water residue remains on hands when handling	w>PL
	Near liquid limit	"oozes" when agitated	w=LL
	Wet of liquid limit	"oozes"	w>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code NDF, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials, the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered material origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description.

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example (VS).

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	St
Very stiff	Indented by thumbnail	>100 - ≤200	VSt
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	Fr

Relative Density (coarse grained soils)

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15 - ≤35	L
Medium dense	>35 - ≤65	MD
Dense	>65 - ≤85	D
Very dense	>85	VD

Note, tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided.

Soil Descriptions

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

AS1726-2017 considers weathered material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. less than very low strength rock). These materials may be identified as "extremely weathered material" in reports and by the abbreviation code XWM on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than 'very low' as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Fluvial	Deposited by channel fill and overbank (natural levee, crevasse splay or flood basin)	FLV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be "oversize" may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with "MIXTURE OF".

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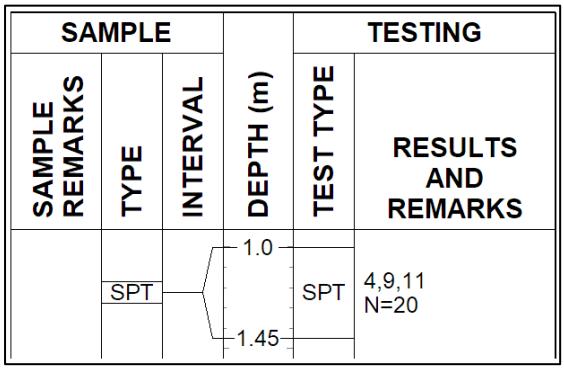
Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:



Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Driven Tube sample	DT
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U[1]
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

[1] – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y =x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(_)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP9/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

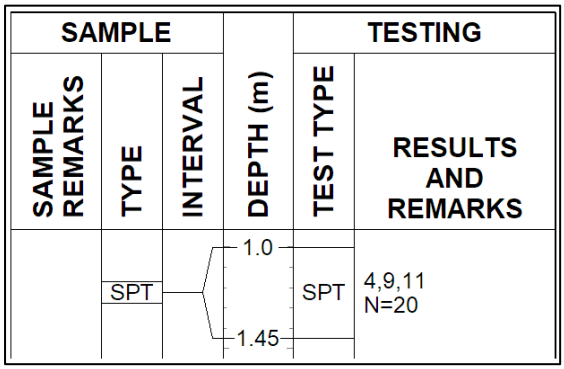
The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD[1]
Air Track	AT
Diatube	DT[1]
Hand auger	HA[1]
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA[1]
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT[1]
Ripping tyne/ripper	R
Rock roller	RR[1]
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON[1]
Mud/blade bucket	MB[1]
Toothed bucket	TB[1]
Vibrocore	VC[1]
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB[1]

[1] – numeric suffixes indicate tool diameter/width in mm

Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:



Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Driven Tube sample	DT
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U[1]
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

[1] – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y =*x* blows for *y* mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(_)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP9/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD[1]
Air Track	AT
Diatube	DT[1]
Hand auger	HA[1]
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA[1]
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT[1]
Ripping tyne/ripper	R
Rock roller	RR[1]
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON[1]
Mud/blade bucket	MB[1]
Toothed bucket	TB[1]
Vibrocore	VC[1]
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB[1]

[1] – numeric suffixes indicate tool diameter/width in mm

BOREHOLE LOG

CLIENT: WesTrac Pty Ltd
PROJECT: Westrac Industrial Site
LOCATION: 1 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 2.8 AHD
COORDINATE: E:383545.0, N:6368065.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW1A
PROJECT No: 39920.14
DATE: 22/08/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[1] / DENSITY.[1]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	0.15	FILL / Silty SAND: brown; fine to medium; with organics, rootlets.		FILL	NA	M		D		0.10				
		FILL / SAND, with gravel, trace silt: brown; fine to medium.		possibly FILL	NA	M		D		0.50	PID	<1ppm	Bentonite ncrete	50mm Class 18 PVC Casing
	0.70	SAND: grey; fine to medium.		AEO	D	M		D		0.90	PID	<1ppm		
Free ground water observed at 1.0m 22/08/24	1.00	Silty SAND: brown; fine to medium.		AEO	D	W		D		1.50	PID	<1ppm	Sand - 2mm	50mm Class 18 Machine Slotted PVC Screen
	4	Borehole discontinued at 4.00m depth. Limit of investigation.												

NOTES: [#] Soil origin is "probable" unless otherwise stated. [1] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Track Mounted
METHOD: Hollow Flight Auger
REMARKS: Top of casing level 3.31 AHD. Replacement for damaged MW1.

OPERATOR: Tuck Environmental
CASING: Uncased

LOGGED: Krebs

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

BOREHOLE LOG

CLIENT: WEPL Investments Pty Ltd
PROJECT: Tomago Industrial Estate
LOCATION: Tomago Road, Tomago

SURFACE LEVEL: --
EASTING: 383518
NORTHING: 6367336
DIP/AZIMUTH: 90°/--

BORE No: MW6
PROJECT No: 39920.03
DATE: 7/10/2010
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		SILTY CLAY - Dark grey silty clay, M>Wp							Stickup = 0.7m
	0.23	SILTY CLAY - Grey silty clay, M>>Wp							From 0m to 0.5m, Concrete
	1								From 0.5m to 2m, Backfill
	2								
	3								From 2m to 4.5m, Bentonite plug
	4								
	5								From 4.5m to 6m, 2.5mm washed gravel screen
	6	6.0 SAND - Grey/brown fine to medium grained sand with some silt and clay, trace shell fragments, saturated							
	7								
	8								From 6m to 9m, Collapsed strata From 6m to 9m, 50mm diameter Class 18 machine slotted PVC screen
	9	9.0 Bore discontinued at 9.0m, limit of investigation							End cap

RIG: 4WD Truck Mounted Drill Rig **DRILLER:** **LOGGED:** Prowse **CASING:** Nil

TYPE OF BORING: 130mm hollow flight auger

WATER OBSERVATIONS: Free groundwater encourtered at 0.3m whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Stage 3 Northbank Enterprise Hub
LOCATION: Lot 210 Westrac Drive, Tomago

SURFACE LEVEL: 3.1 AHD
EASTING: 382303.7
NORTHING: 6367395.9
DIP/AZIMUTH: 90°/--

BORE No: MW8A
PROJECT No: 39920.09
DATE: 12/4/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.25	SILTY SAND - fine to medium grained, dark grey, trace rootlets, moist		D	0.01				Stickup = 0.76 From 0m to 0.1m, concrete From 0.1m to 0.3m, bentonite From 0m to 0.5m, 50mm diameter Class 18 PVC Casing
	1.2	SAND - fine to medium grained, dark grey, trace rootlets, moist at 0.7m - colour change to brown		D	0.5				
		SAND - fine to medium grained, pale brown, trace sub-angular to sub-rounded gravel, moist at approximately 1.8m, wet		D	1.5				
				D	2.5				
				D	3.5				From 0.3m to 7.0m, 2mm sand From 0.5m to 7.0m, 50mm diameter Class 18 Machine Slotted PVC Screen
				D	4.5				
				D	5.5				
				D	6.5				
	7.0	Bore discontinued at 7.0m Limit of investigation							End cap

RIG: Geoprobe Dual Tube **DRILLER:** Tucker **LOGGED:** Krebs **CASING:** None

TYPE OF BORING: Push tube with disposable liners

WATER OBSERVATIONS: Free groundwater observed at 1.9m during drilling

REMARKS: Top of PVC casing level 3.86 AHD

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367418.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 1 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	3		FILL / Silty CLAY (CI), with gravel: brown; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		0.50	PID	<1ppm	Concrete	
		0.70	FILL / Silty CLAY (CI), trace gravel: grey; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		1.00	PID	<1ppm		
	1	2									2				
	2	2.10	FILL / Silty CLAY (CH): grey; high plasticity.		FILL	NA	w>PL		D/ES		2.50	PID	<1ppm		
		2.90	FILL / Silty SAND (SM): dark brown; fine to medium; possible old topsoil layer, trace organics, rootlets.		FILL	S to F	M		D/ES		3.00	PID	<1ppm		
Free groundwater observed at 3.4m 18/11/24	0	3.20	Silty Sandy CLAY (CH): brown; high plasticity; fine to medium sand.		ALV	S to F	w=PL w>PL		D/ES		4			Bentonite	50mm Class 18 PVC Casing
	-1	4													
	-2	5							D/ES		5.00	PID	<1ppm		
	-3	6									6				
	-4	7									7				
	-5	8									8				
		8.60	SAND: grey; fine to medium.		ALV	L	M								
	-6	9									9				

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

Gravel - 2mm graded gravel/sand

PLANT: Geoprobe
METHOD: Hollow Flight Auger
REMARKS: Top of PVC casing level 3.63 AHD. Stickup = 0.53

OPERATOR: Tuck Environmental (Tucker)

LOGGED: Krebs
CASING: Uncased

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Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367418.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	-7		[CONT] SAND: grey; fine to medium.						D/ES		10.00	PID	<1ppm		
	-8	11									11				
	-9	12			ALV	L	M				12			Gravel - 2mm graded gravel/sand	50mm Class 18 Machine Slotted PVC Screen
	-10	13									13			Bentonite	Blank Class 18 PVC
	-11	14									14				
	-12	15	Borehole discontinued at 14.50m depth.												
	-13	16													
	-14	17													
	-15	18													
	-16	19													

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe
METHOD: Hollow Flight Auger
REMARKS: Top of PVC casing level 3.63 AHD. Stickup = 0.53

OPERATOR: Tuck Environmental (Tucker)

LOGGED: Krebs
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 1
Sheet	1 of 1
Project No:	GEOTSGTE20301AA
Client:	ASQUITH & de WITT PTY LTD
Date started:	16.8.2007
Principal:	
Date completed:	16.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO
Logged by:	CW
Borehole Location:	REFER TO FIGURE 1
Checked by:	

drill model & mounting: Truck Mounted | Easting: 383658 | slope: -90° | R.L. Surface: 2.31

hole diameter: 200mm | Northing: 6367969 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C							SM	Silty SAND: fine to coarse grained, black.	D		ALLUVIAL
									SC	Clayey SAND: grey	M		
						2.0	0.5						
			▼			1.5	1.0				W		
						1.0	1.5						
						0.5	2.0						
						0.0	2.5						
						-0.5	3.0						
						-1.0	3.5						
						-1.5							
							4.0			Borehole terminated at 3.85m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g ADT

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 2		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted		Easting:	383725	slope:	-90°	R.L. Surface:	0.74
hole diameter:	200mm	Northing:	6367488	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material: soil type; plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency/ density index	structure and additional observations
HF		C	10:30am			0.5	0.5		CI	Silty CLAY: medium plasticity, dark brown-black, with rootlets.	M>Wp		TOPSOIL Root affected.
						0.0	1.0		CI	CLAY: medium plasticity, grey.			ALLUVIAL / ESTUARINE
						-0.5	1.5						
						-1.0	2.0						
						-1.5	2.5						
						-2.0	3.0						
						-2.5	3.5						
						-3.0	4.0			Borehole terminated at 3.5m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 3		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382895 | slope: -90° | R.L. Surface: 2.91

hole diameter: 200mm | Northing: 6367789 | bearing | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C					0.5		SM	Silty SAND: fine to coarse grained, black mottled white, with rootlets	M		TOPSOIL
			11:55am			2.5			SM	Silty SAND: fine to coarse grained, dark grey			AEOLIAN
						2.0	1.0			Becoming dark brown	W		
						1.5	1.5						
						1.0	2.0			Trace of fine grained rounded gravel.			Alluvial?
						0.5	2.5						
						0.0	3.0						
						-0.5	3.5						
						-1.0	4.0			Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
OT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g. ADT

support: C casing; N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 4		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting:	Truck Mounted	Easting:	383345	slope:	-90°	R.L. Surface:	0 35
hole diameter:	200mm	Northing:	6366996	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	structure and additional observations
HF		C	1:51pm			0 0	0.5		CH	CLAY: high plasticity, grey-brown some orange mottled, with rootlets.	M>Wp		ALLUVIAL
						-0 5	1.0			Becoming grey.			
						-1 0	1.5						
						-1 5	2.0						
						-2 0	2.5						
						-2 5	3.0						
						-3 0	3.5						
						-3 5	4.0			Borehole terminated at 3.9m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Table D1: Monitoring Well Summary

Bore ID	Easting	Northing	Elevation Ground Level (AHD)	Elevation top of PVC Casing Level (AHD)	Depth (m bgl)	Screened interval (m bgl)	Screened lithology	Proposed for monitoring in revised GMP for Stage 1-2	Comment
MW1	383552	6368062	2.0	2.84	3.8	0.8-3.8	Sand, clayey	No	Damaged/lost
MW1A	383545	6368065	2.8	3.31	4.0	0.5 - 4.0	Sand, fine to med	Yes	Installed Aug 2024 as replacement for MW1 and upgradient well
MW2	383721	6367483	0.7	1.25	3.5	0.5-3.5	Clay, silty	Yes	Damaged/lost
MW3	382900	6367780	2.9	3.56	3.0	0.5-3.0	Sand, fine to coarse, silt	No	Damaged/lost
MW4	383360	6367013	0.5	1.28	3.7	0.7-3.8	Clay	Yes	High EC readings assumed to be associated with elevated suspended solids (clay particles)
MW5	382225	6367156			3.8	0.8-3.8	Clay and sand	No	Damaged/lost
MW6	383516	6367333	0.6	1.26	9.0	6.0-9.0	Sand, fine to med	Yes	
MW7	382804	6366932	0.4	1.41	2.6	0.6-2.6	Clay, silty	No	Collapsed strata 6-9m - no gravel pack High EC readings assumed to be associated with elevated suspended solids (fine sand due to absence of gravel pack).
MW8	382351	6367460	3.4	4.72	5.5	2.5-5.5	Sand, fine to med	No	Damaged/lost
MW8A	382304	6367396	3.1	3.86	7.0	0.5-7.0	Sand, fine to med	No	Replacement for MW8
MW9	383165	6367492	0.6	1.54	10.6	4.6-8.3	Sand, fine to med	No	Damaged/lost
MW10	383467	6367675	0.8	2.11	10.6	4.6-8.3	Sand, fine to med	Yes	
MW11	383293	6367584	1.2	2.27	10.6		Sand, fine to med	Yes	
MW12	383111	6367900	3.0	3.57	4.0	0.5 - 4.0	Sand, fine to med	Yes	Installed Aug 2024 as new upgradient well
MW13	383188	6367418	3.1	3.63	14.5	9.5 - 12.6	Sand, fine to med	Yes	Installed Nov 2024
MW101	382657	6367619	3.2	4.09	7.0	0.3-7.0	Sand, fine to med	No	Stage 3 monitoring location
MW102	382678	6367506	1.8	2.52	4.0	0.3-4.0	Sand, fine to med	No	Stage 3 monitoring location
MW103	382853	6367614	2.3	3.31	7.0	0.3-7.0	Sand, fine to med	No	Stage 3 monitoring location
MW104	383148	6367292	0.7	1.16	1.5	0.5-1.5	Clay	No	High EC readings assumed to be associated with elevated suspended solids (clay particles). Stage 3 monitoring location
MW105	382360	6367294	1.5	2.05	6.0	0.3-6.0	Sand, fine to med	No	Stage 3 monitoring location
MW106	382929	6367067	0.7	1.35	2.0	0.5-2.0	Clay	No	High EC readings assumed to be associated with elevated suspended solids (clay particles). Stage 3 monitoring location
MW107	382381	6367150	0.72	1.52	2.2	0.5-2.2	Clay	No	Stage 3 monitoring location

Notes:

AHD = metres Australian Height Datum EC = electrical conductivity m bgl = metres below ground level

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Engineering Log - Piezometer

Borehole No.	MW 5		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	18.8.2007
Principal:		Date completed:	18.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382251 | slope: -90° | R.L. Surface: 0.71

hole diameter: 200mm | Northing: 6367165 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C	8:15am			0.5 / 0.0 / -0.5 / -1.0 / -1.5 / -2.0 / -2.5 / -3.0	0.5 / 1.0 / 1.5 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0		CI	Silty CLAY: medium plasticity, dark brown	M>Wp		ALLUVIAL
										Becoming dark grey-grey			
									SC	Clayey SAND / Sandy CLAY: fine to medium grained.			
										Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e g ADT

support
C casing N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Stage 3 Northbank Enterprise Hub
LOCATION: Lot 210 Westrac Drive, Tomago

SURFACE LEVEL: 3.1 AHD
EASTING: 382303.7
NORTHING: 6367395.9
DIP/AZIMUTH: 90°/--

BORE No: MW8A
PROJECT No: 39920.09
DATE: 12/4/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.25	SILTY SAND - fine to medium grained, dark grey, trace rootlets, moist		D	0.01				Stickup = 0.76 From 0m to 0.1m, concrete From 0.1m to 0.3m, bentonite From 0m to 0.5m, 50mm diameter Class 18 PVC Casing
	1.2	SAND - fine to medium grained, dark grey, trace rootlets, moist at 0.7m - colour change to brown		D	0.5				
		SAND - fine to medium grained, pale brown, trace sub-angular to sub-rounded gravel, moist at approximately 1.8m, wet		D	1.5				
				D	2.5				
				D	3.5				From 0.3m to 7.0m, 2mm sand From 0.5m to 7.0m, 50mm diameter Class 18 Machine Slotted PVC Screen
				D	4.5				
				D	5.5				
				D	6.5				
	7.0	Bore discontinued at 7.0m Limit of investigation							End cap

RIG: Geoprobe Dual Tube **DRILLER:** Tucker **LOGGED:** Krebs **CASING:** None

TYPE OF BORING: Push tube with disposable liners

WATER OBSERVATIONS: Free groundwater observed at 1.9m during drilling

REMARKS: Top of PVC casing level 3.86 AHD

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367417.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 1 of 2

CONDITIONS ENCOUNTERED							SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL / WELL PIPE
	3		FILL / Silty CLAY (CI), with gravel: brown; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		0.50	PID	<1ppm	Concrete - Stickup = 0.5 m
		0.70	FILL / Silty CLAY (CI), trace gravel: grey; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		1.00	PID	<1ppm	
	2	1									2			
	1	2.10	FILL / Silty CLAY (CH): grey; high plasticity.		FILL	NA	w>PL		D/ES		2.50	PID	<1ppm	
		2.90	FILL / Silty SAND (SM): dark brown; fine to medium; possible former topsoil layer, trace organics, rootlets.		FILL	S to F	M		D/ES		3.00	PID	<1ppm	
Free groundwater observed at 3.4m 18/11/24	0	3.20	Silty Sandy CLAY (CH): brown; high plasticity; fine to medium sand.		ALV	S to F	w=PL w>PL		D/ES		4			Bentonite
	-1	4												
	-2	5							D/ES		5.00	PID	<1ppm	50mm Class 18 PVC Casing
	-3	6									6			
	-4	7									7			
	-5	8									8			
		8.60	SAND: grey; fine to medium.		ALV	L	M							
	-6	9									9			Gravel - 2mm graded gravel/sand

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe
OPERATOR: Tuck Environmental (Tucker)
LOGGED: Krebs
METHOD: Hollow Flight Auger
CASING: Uncased
REMARKS: Top of PVC casing level 3.63 AHD
Coordinates and levels by dGPS and are therefore approximate only

Generated with CORE-GS by Geroc - Soil Log

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367417.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	-7		[CONT] SAND: grey; fine to medium.						D/ES		10.00	PID	<1ppm		
	-8	11									11				
	-9	12			ALV	L	M				12			Gravel - 2mm graded gravel/sand	50mm Class 18 Machine Slotted PVC Screen
	-10	13									13			Bentonite	Blank Class 18 PVC
	-11	14									14				
	-12	15	Borehole discontinued at 14.50m depth.												
	-13	16													
	-14	17													
	-15	18													
	-16	19													

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe
OPERATOR: Tuck Environmental (Tucker)
LOGGED: Krebs
METHOD: Hollow Flight Auger
CASING: Uncased
REMARKS: Top of PVC casing level 3.63 AHD
Coordinates and levels by dGPS and are therefore approximate only

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 1
Sheet	1 of 1
Project No:	GEOTSGTE20301AA
Client:	ASQUITH & de WITT PTY LTD
Date started:	16.8.2007
Principal:	
Date completed:	16.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO
Logged by:	CW
Borehole Location:	REFER TO FIGURE 1
Checked by:	

drill model & mounting: Truck Mounted | Easting: 383658 | slope: -90° | R.L. Surface: 2.31

hole diameter: 200mm | Northing: 6367969 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C							SM	Silty SAND: fine to coarse grained, black.	D		ALLUVIAL
									SC	Clayey SAND: grey	M		
						2.0	0.5						
			▼			1.5	1.0				W		
						1.0	1.5						
						0.5	2.0						
						0.0	2.5						
						-0.5	3.0						
						-1.0	3.5						
						-1.5							
							4.0			Borehole terminated at 3.85m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g ADT

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 2		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted		Easting:	383725	slope:	-90°	R.L. Surface:	0.74
hole diameter:	200mm	Northing:	6367488	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material: soil type; plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency/ density index	structure and additional observations
HF		C	10:30am			0.5	0.5		CI	Silty CLAY: medium plasticity, dark brown-black, with rootlets.	M>Wp		TOPSOIL Root affected.
						0.0	1.0		CI	CLAY: medium plasticity, grey.			ALLUVIAL / ESTUARINE
						-0.5	1.5						
						-1.0	2.0						
						-1.5	2.5						
						-2.0	3.0						
						-2.5	3.5						
						-3.0	4.0			Borehole terminated at 3.5m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 3		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382895 | slope: -90° | R.L. Surface: 2.91

hole diameter: 200mm | Northing: 6367789 | bearing | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C					0.5		SM	Silty SAND: fine to coarse grained, black mottled white, with rootlets	M		TOPSOIL
			11:55am			2.5			SM	Silty SAND: fine to coarse grained, dark grey			AEOLIAN
						2.0	1.0			Becoming dark brown	W		
						1.5	1.5						
						1.0	2.0			Trace of fine grained rounded gravel.			Alluvial?
						0.5	2.5						
						0.0	3.0						
						-0.5	3.5						
						-1.0	4.0			Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
OT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g. ADT

support: C casing; N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 4		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting:	Truck Mounted	Easting:	383345	slope:	-90°	R.L. Surface:	0 35
hole diameter:	200mm	Northing:	6366996	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	structure and additional observations
HF		C	1:51pm			0 0	0.5		CH	CLAY: high plasticity, grey-brown some orange mottled, with rootlets.	M>Wp		ALLUVIAL
						-0 5	1.0			Becoming grey.			
						-1 0	1.5						
						-1 5	2.0						
						-2 0	2.5						
						-2 5	3.0						
						-3 0	3.5						
						-3 5	4.0			Borehole terminated at 3.9m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 5		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	18.8.2007
Principal:		Date completed:	18.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382251 | slope: -90° | R.L. Surface: 0.71

hole diameter: 200mm | Northing: 6367165 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C	8:15am			0.5 / 0.0 / -0.5 / -1.0 / -1.5 / -2.0 / -2.5 / -3.0	0.5 / 1.0 / 1.5 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0		CI	Silty CLAY: medium plasticity, dark brown	M>Wp		ALLUVIAL
										Becoming dark grey-grey			
									SC	Clayey SAND / Sandy CLAY: fine to medium grained.			
										Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e g ADT

support
C casing N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

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VS	very soft
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VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Appendix D

Figure D1: Groundwater Levels in Monitoring Wells (2024-2026)

Figure D2: Groundwater Levels in Monitoring Wells (2010-2026)

Groundwater Quality Monitoring Plots

Surface Water Quality Monitoring Plots

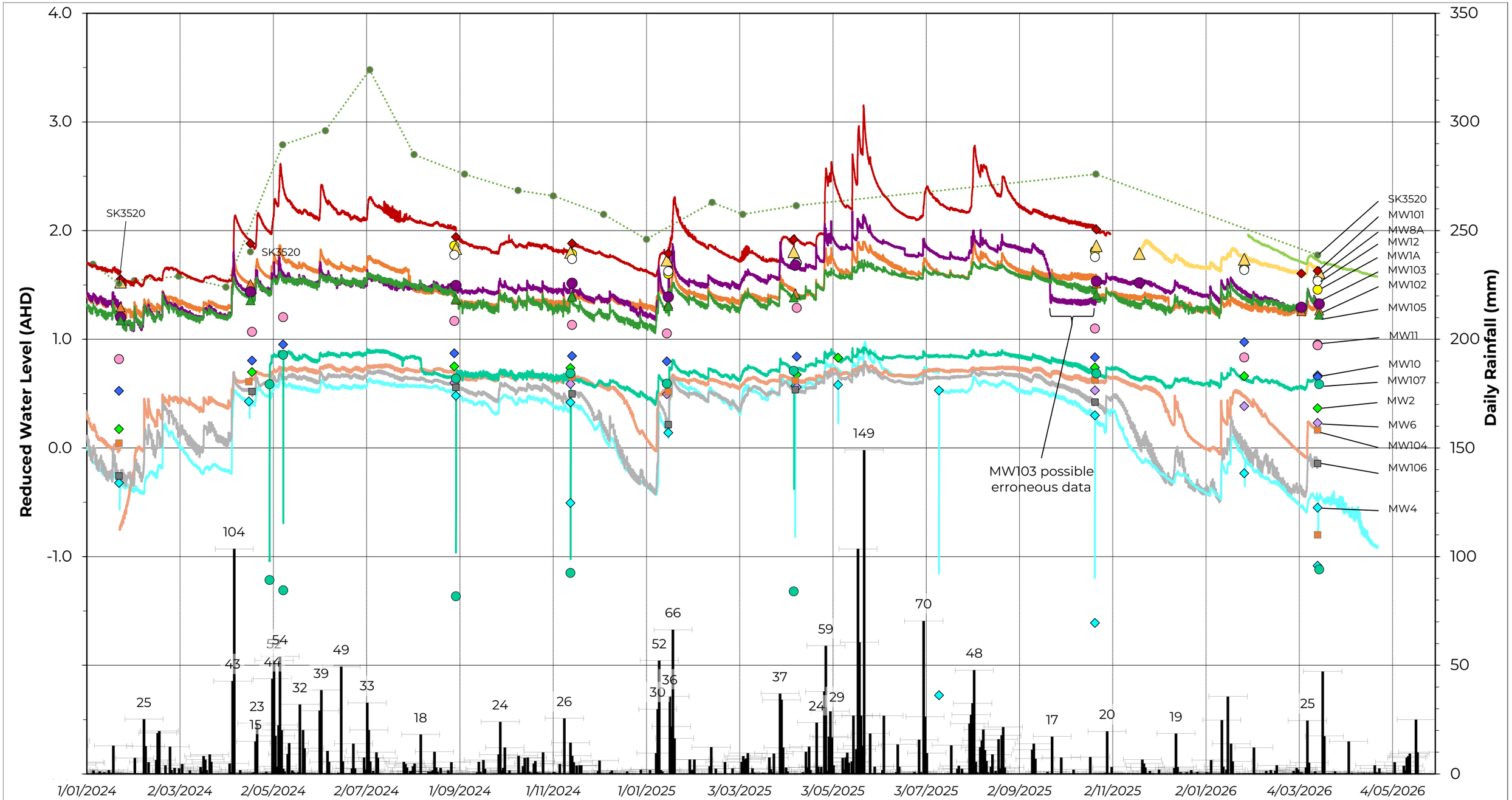


Figure D1: Groundwater Levels in Monitoring Wells (2024-2026)

Revison: Rev0

Douglas PARTNERS

MW1A
MW1
MW02
MW3
MW4
MW6
MW7
MW8
MW9
MW10
MW11
MW8A
MW12
MW101
MW102
MW103
MW104
MW105
MW106
SK3520
MW107
MW3 Datalogger
MW04 Logger
MW4 Datalogger
MW8A Logger
MW10 Datalogger
MW101 Logger
MW102 Logger
MW103 Logger
MW104 Logger
MW105 Logger
MW106 Logger
MW107 Logger
SK3520 Logger
MW4 logger
MW101 logger
Daily Rainfall (mm) - Williamtown RAAF

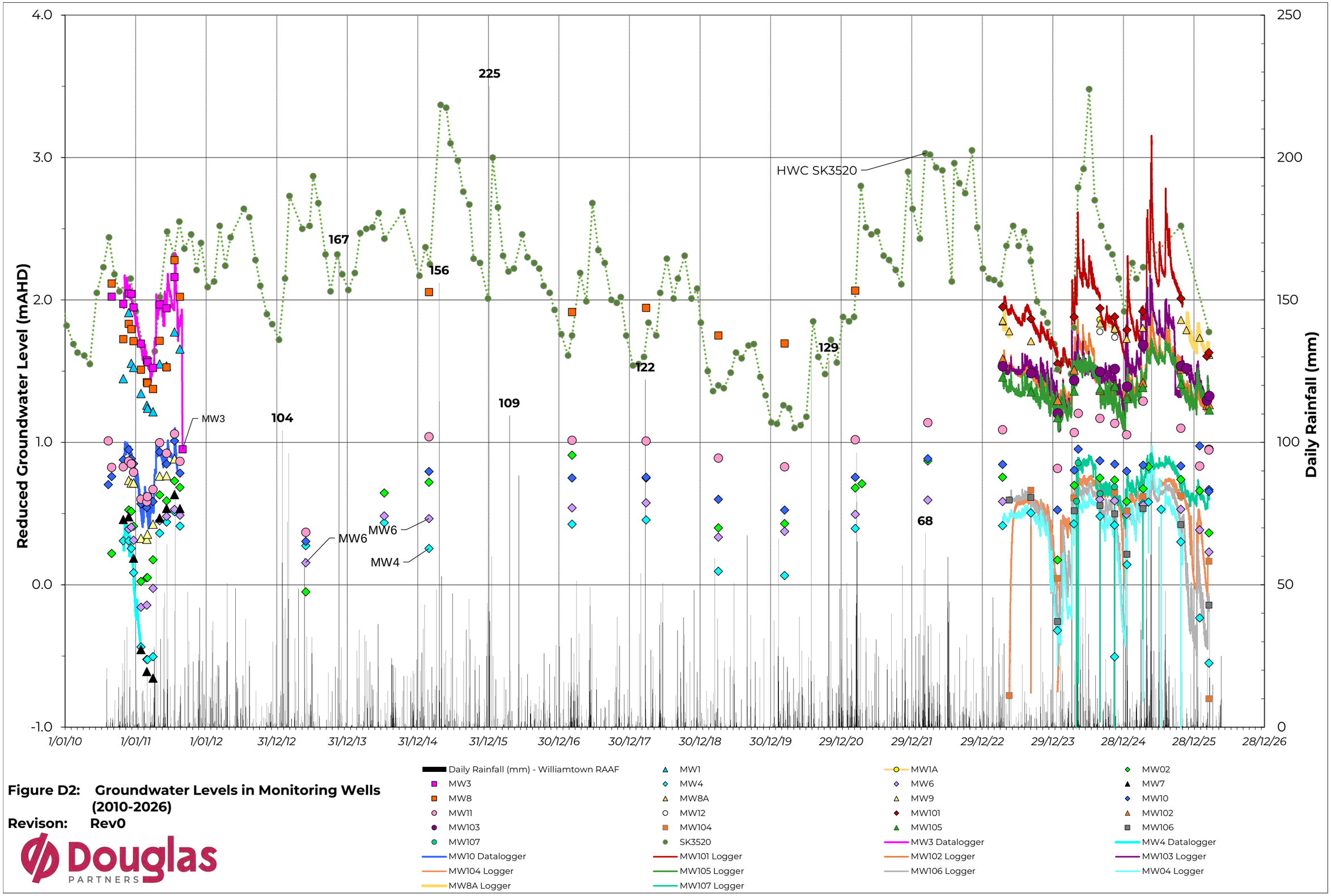


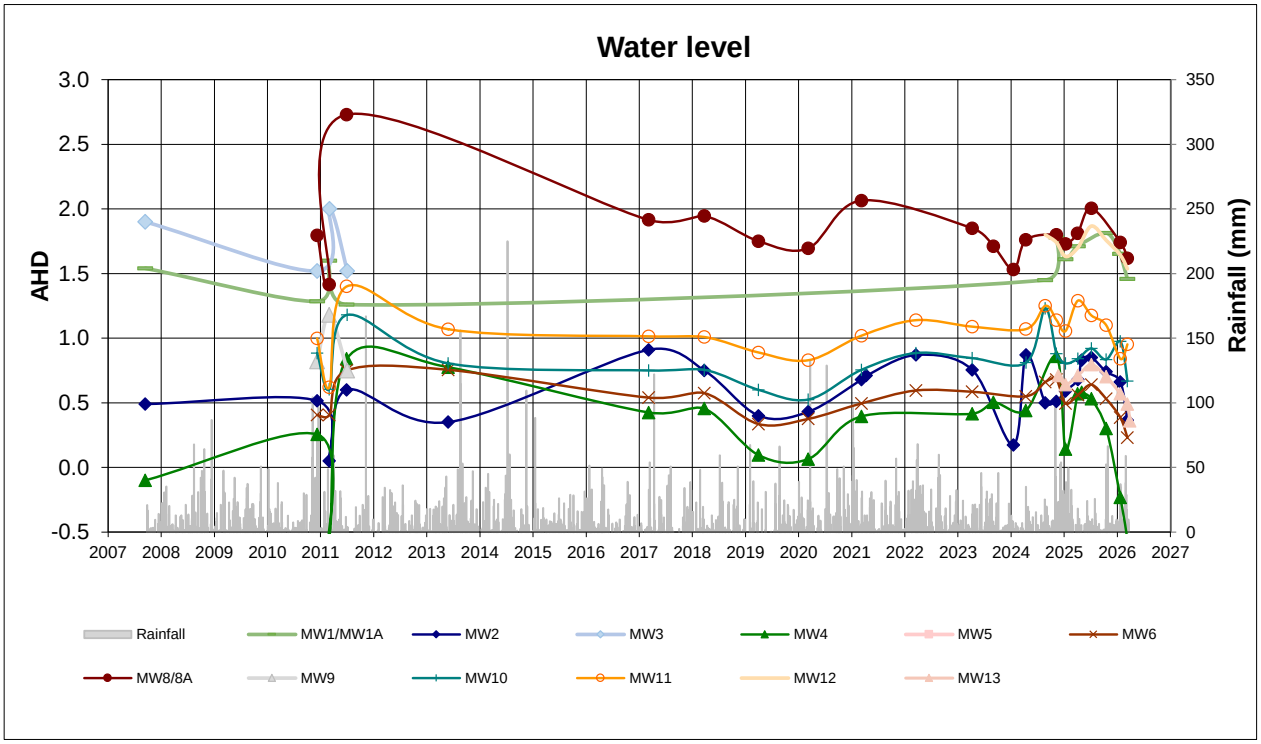
Figure D2: Groundwater Levels in Monitoring Wells (2010-2026)

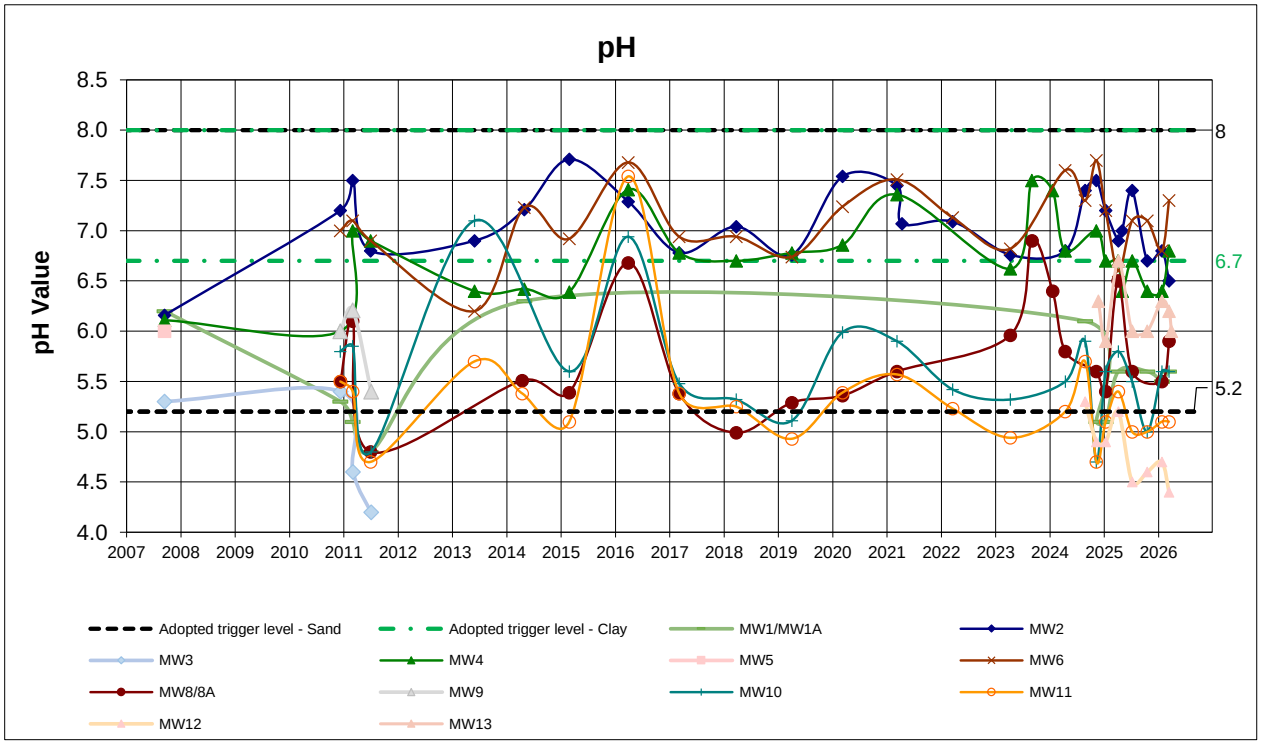
Revison: Rev0

Douglas PARTNERS

GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**

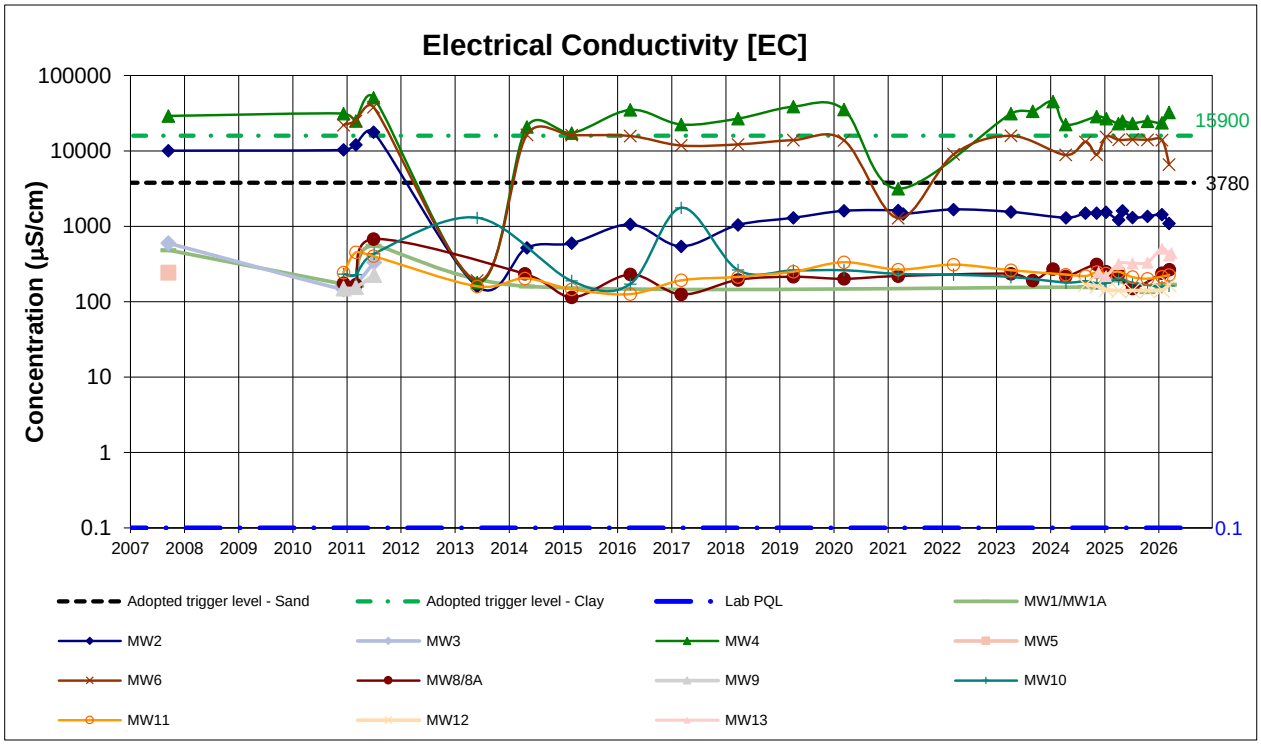


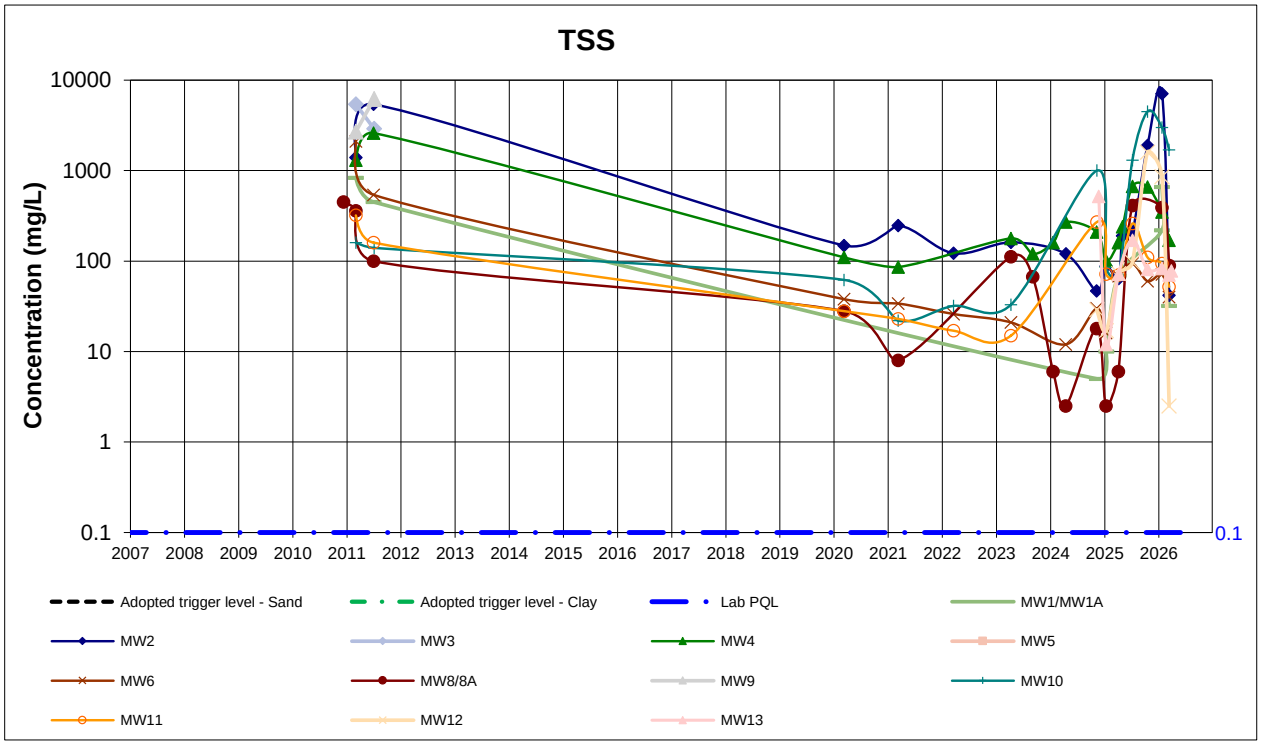


1. Values reported below PQL are plotted as half PQL
2. If a Criterion line is not plotted, there is no criteria

GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





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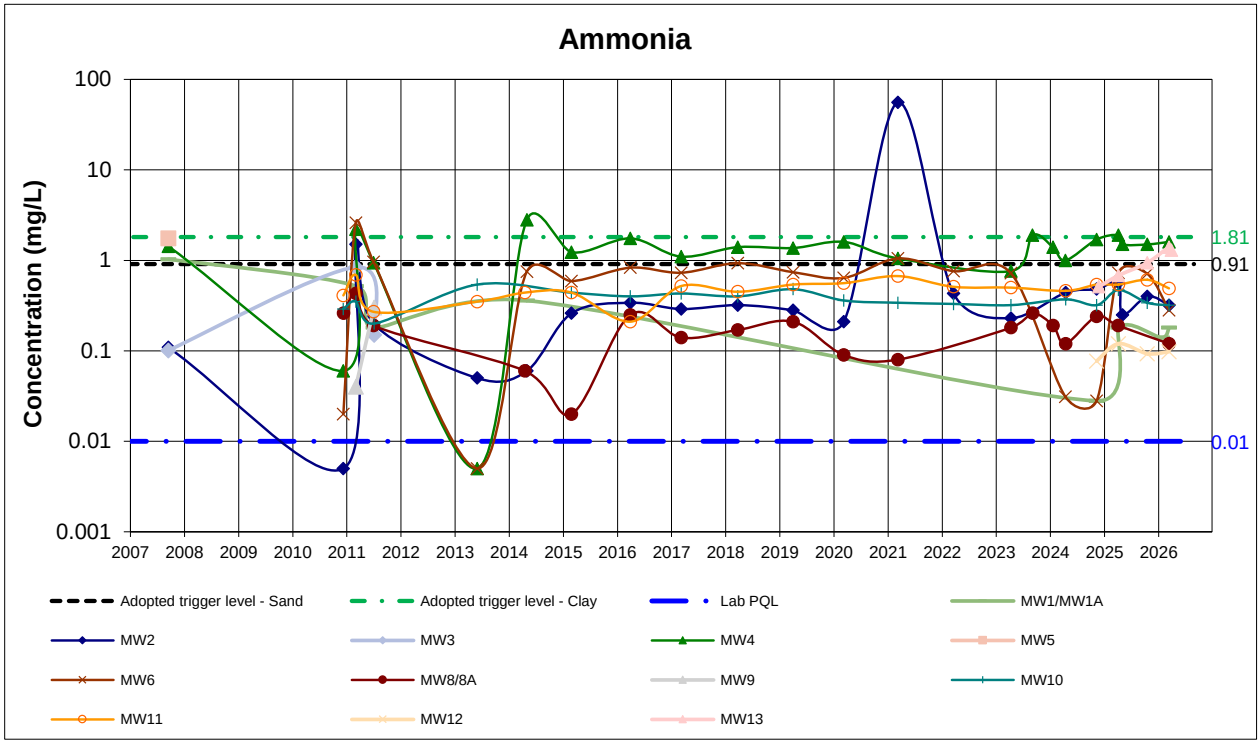
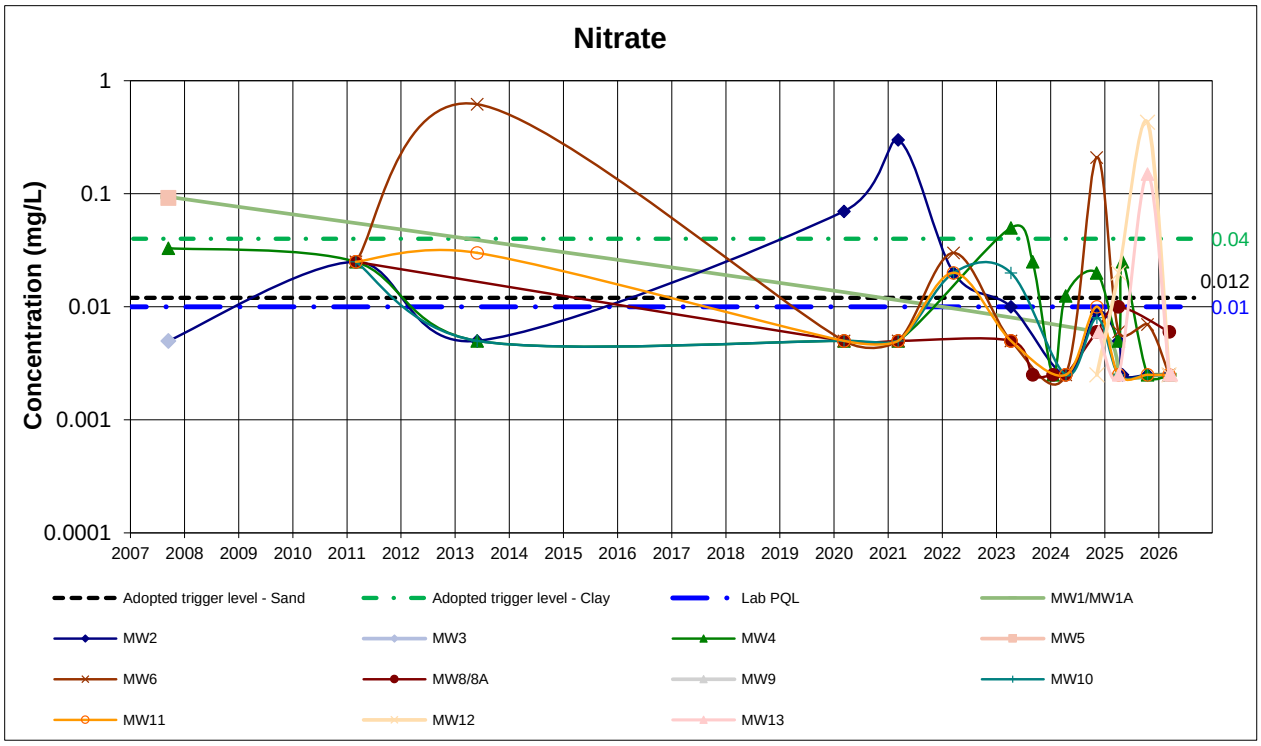
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





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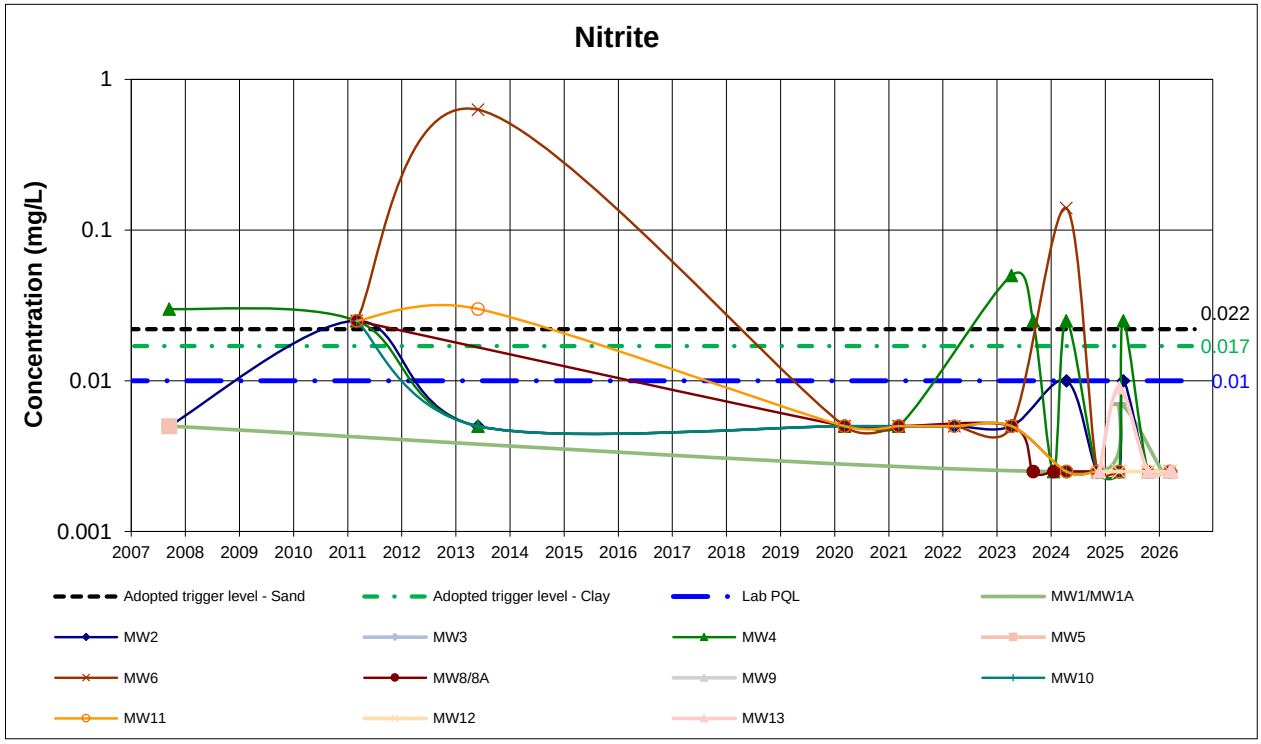
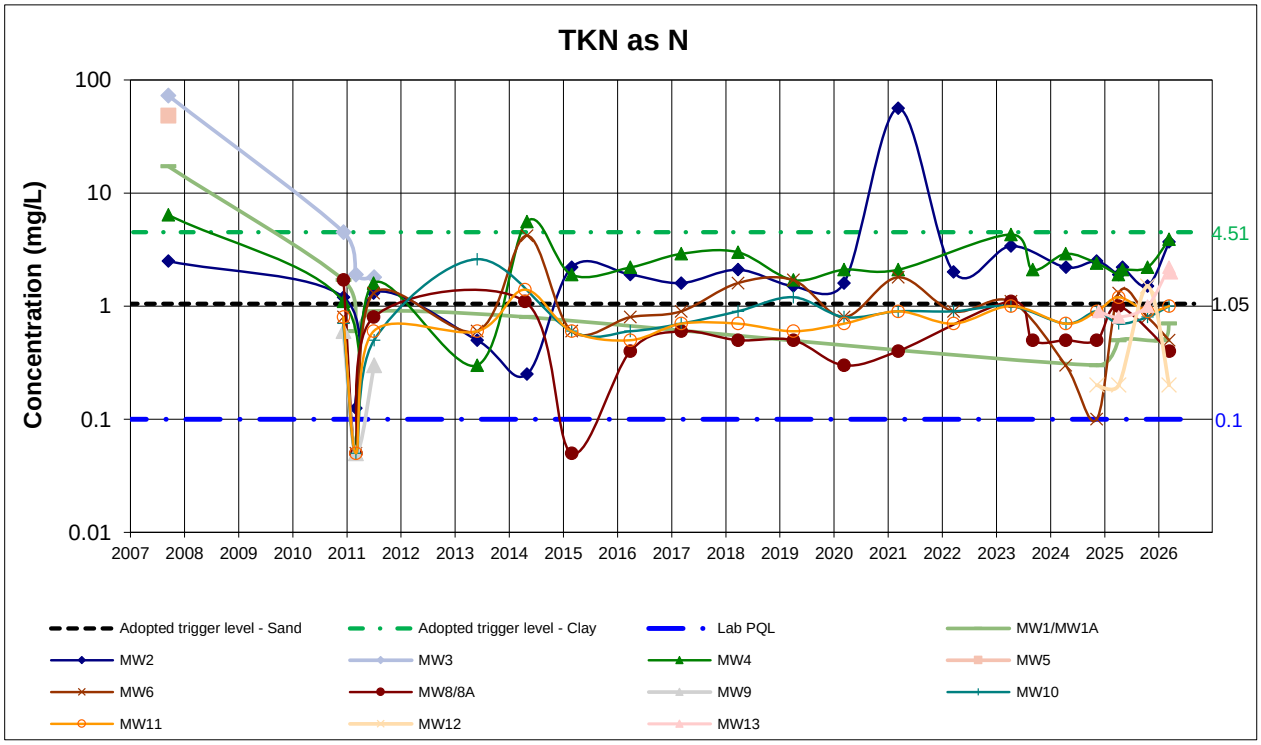
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





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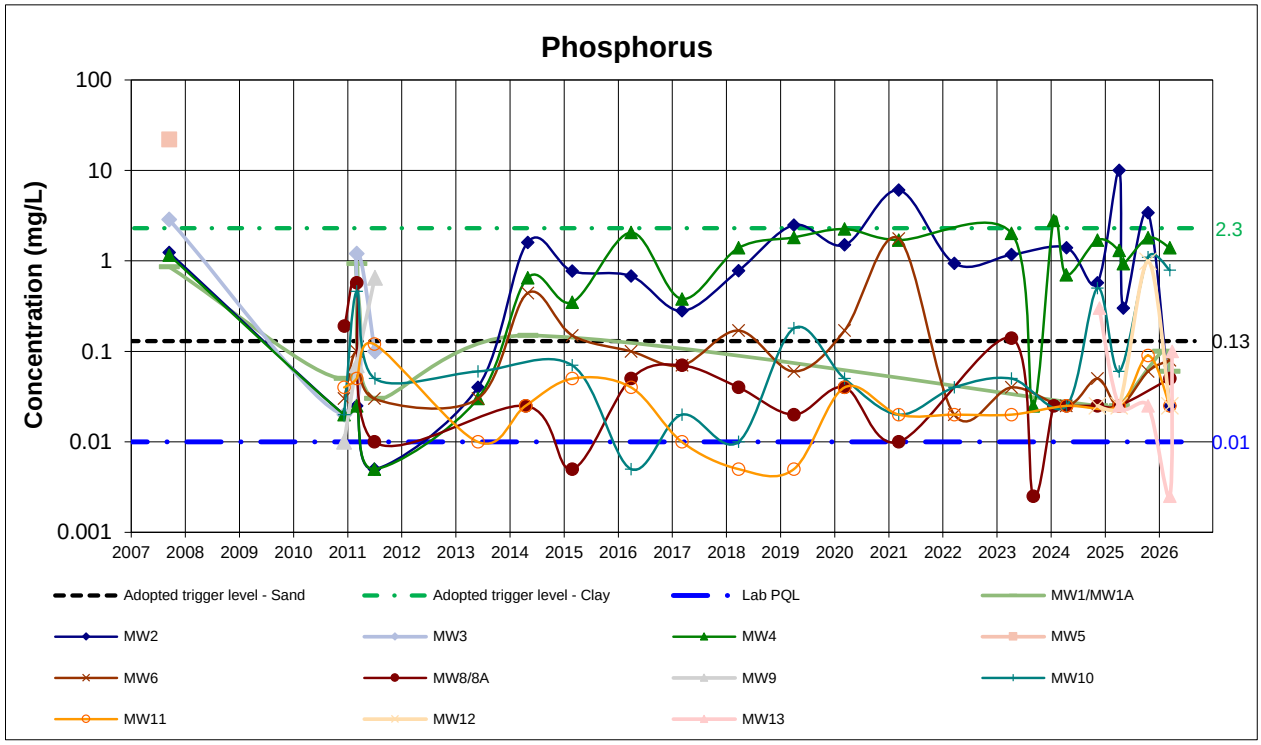
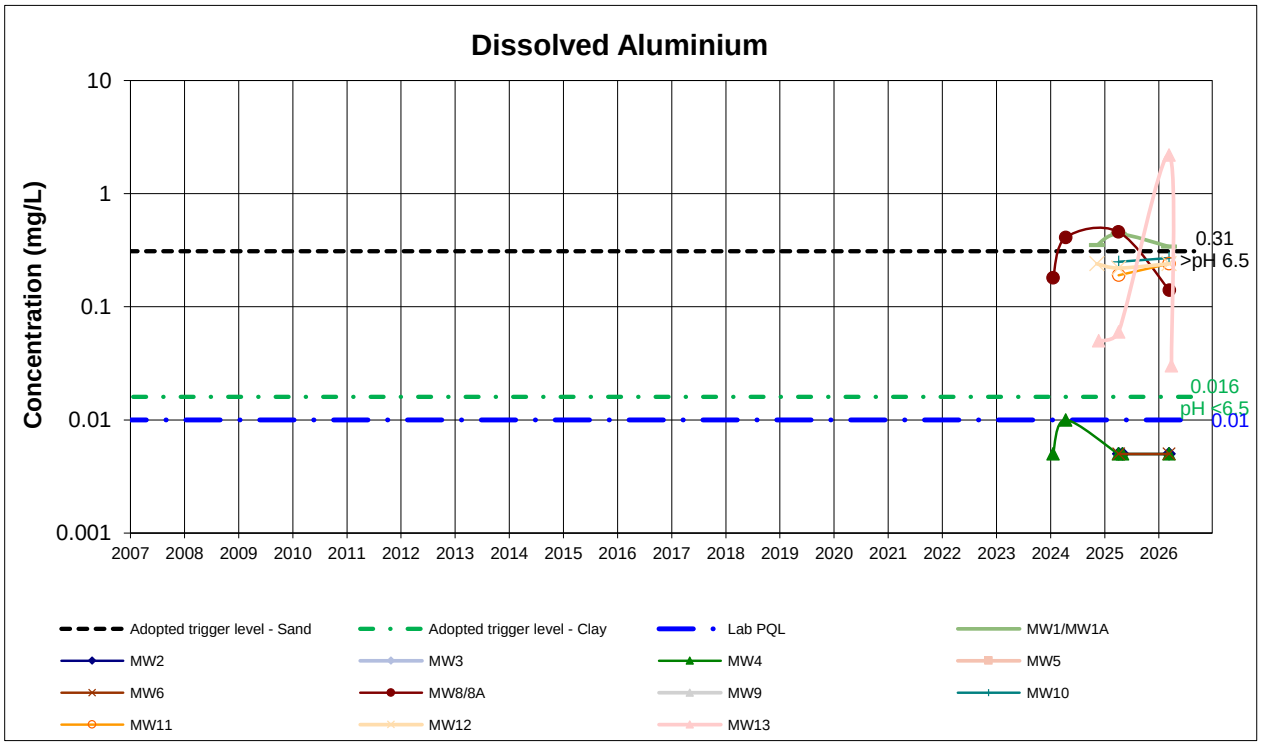
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





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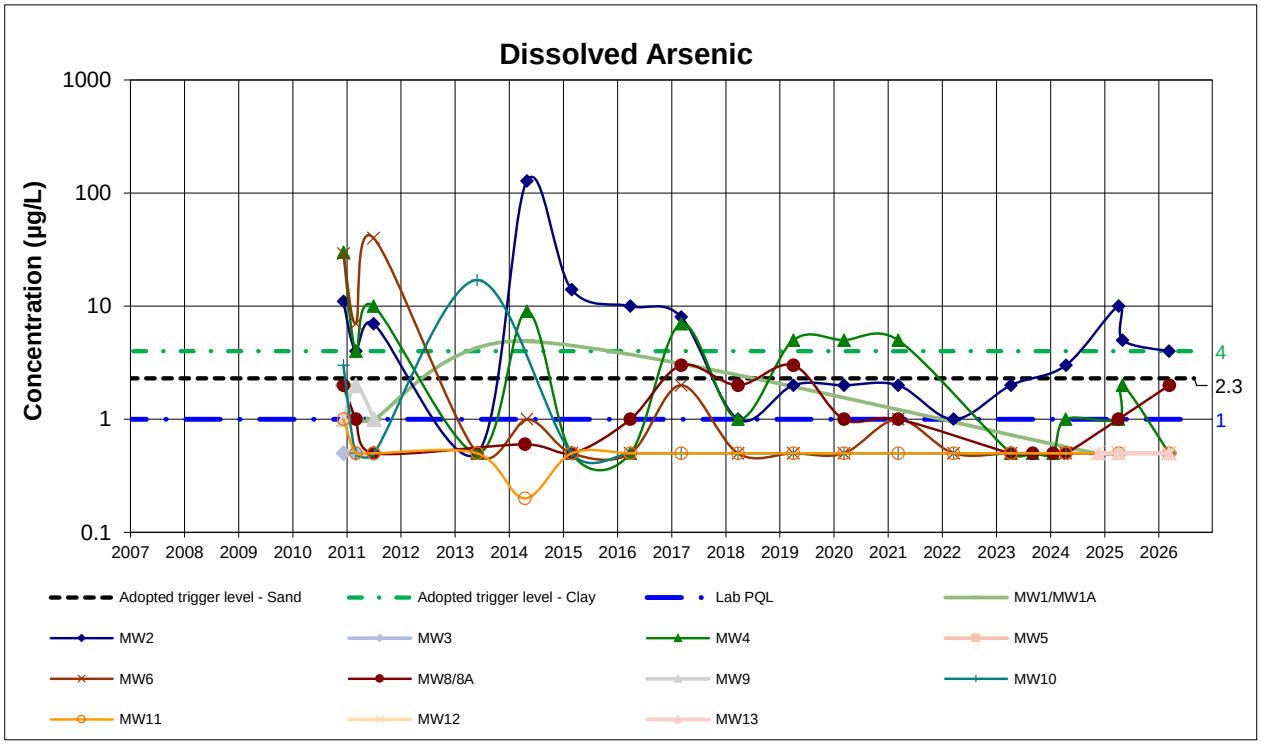
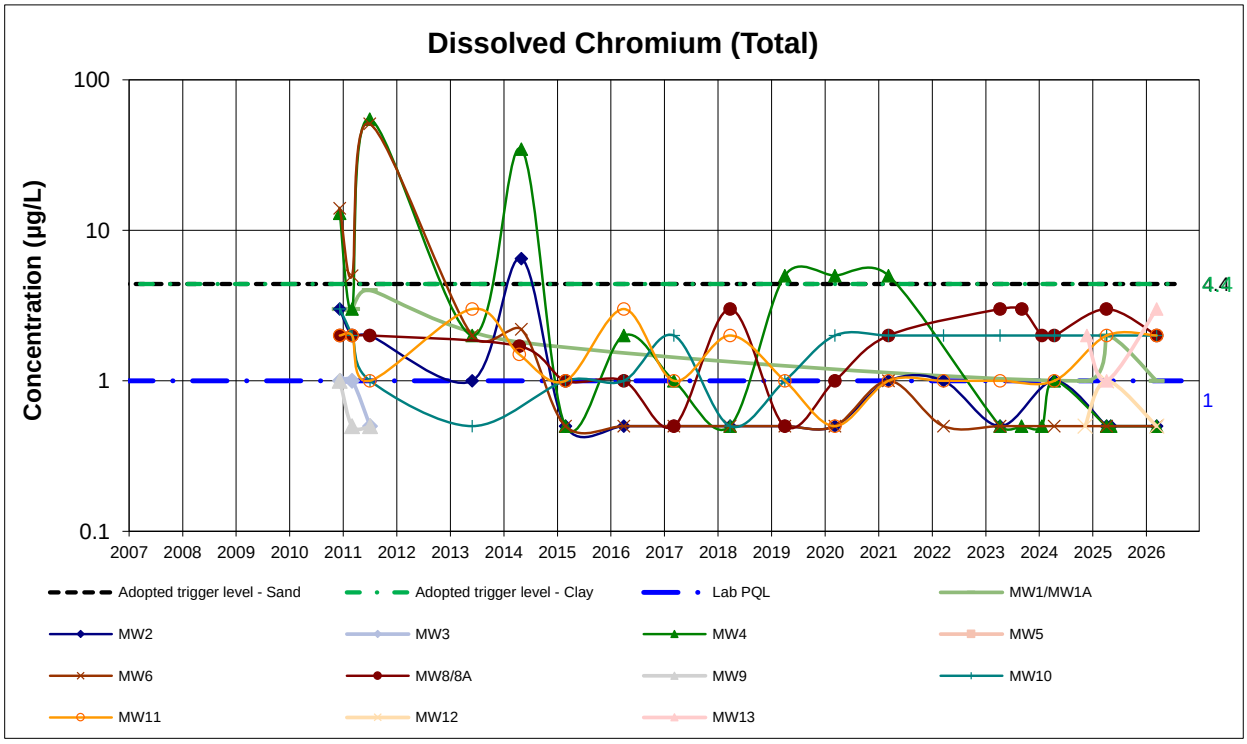
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**

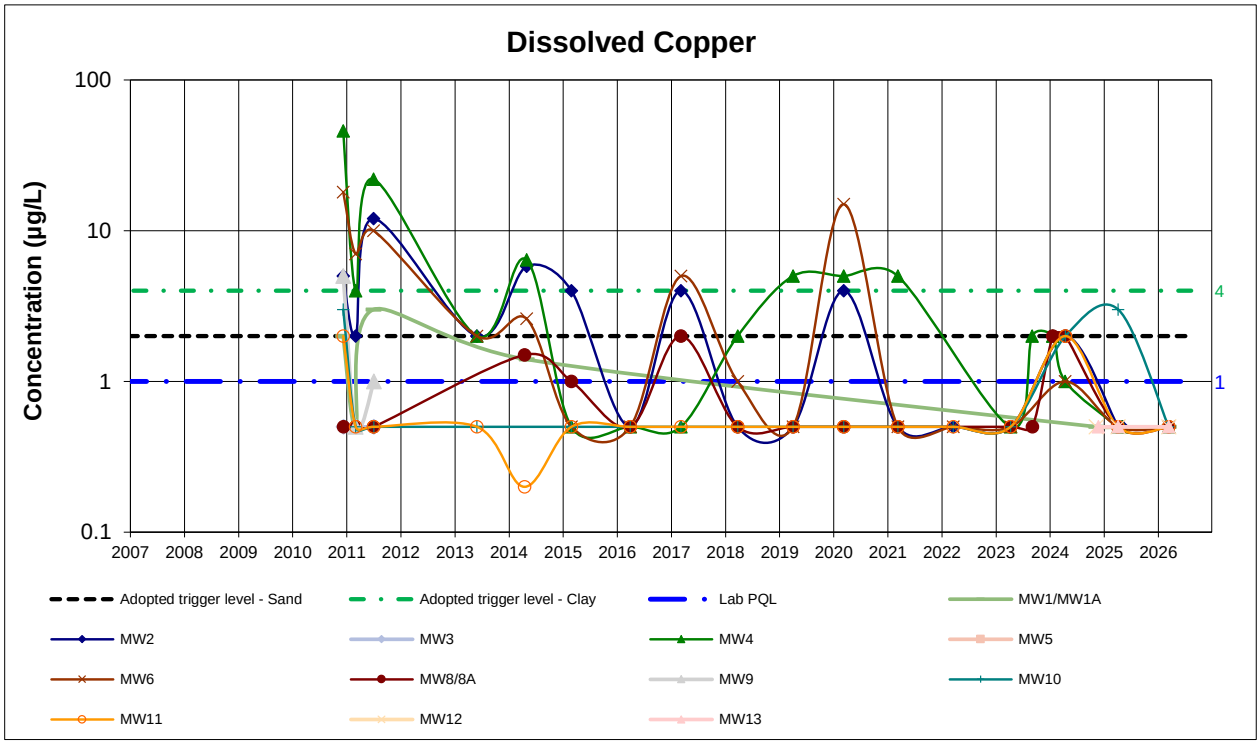


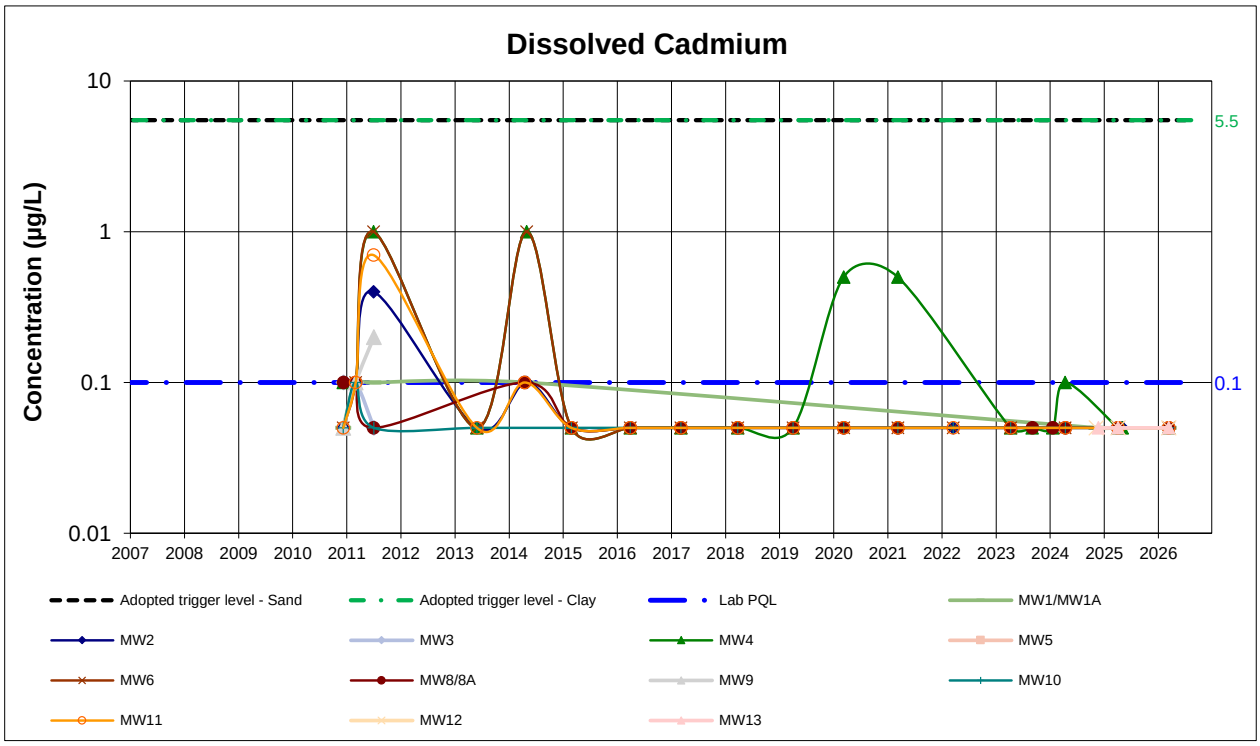


1. Values reported below PQL are plotted as half PQL
2. If a Criterion line is not plotted, there is no criteria

GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





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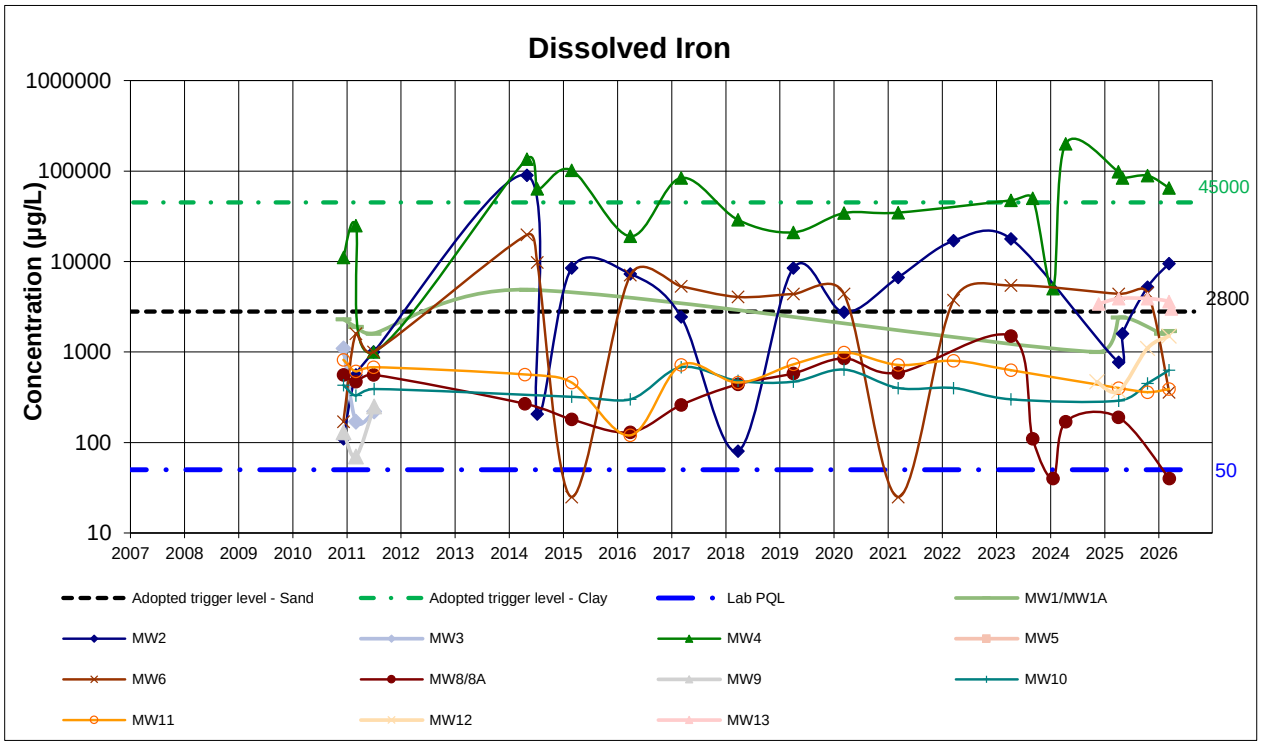
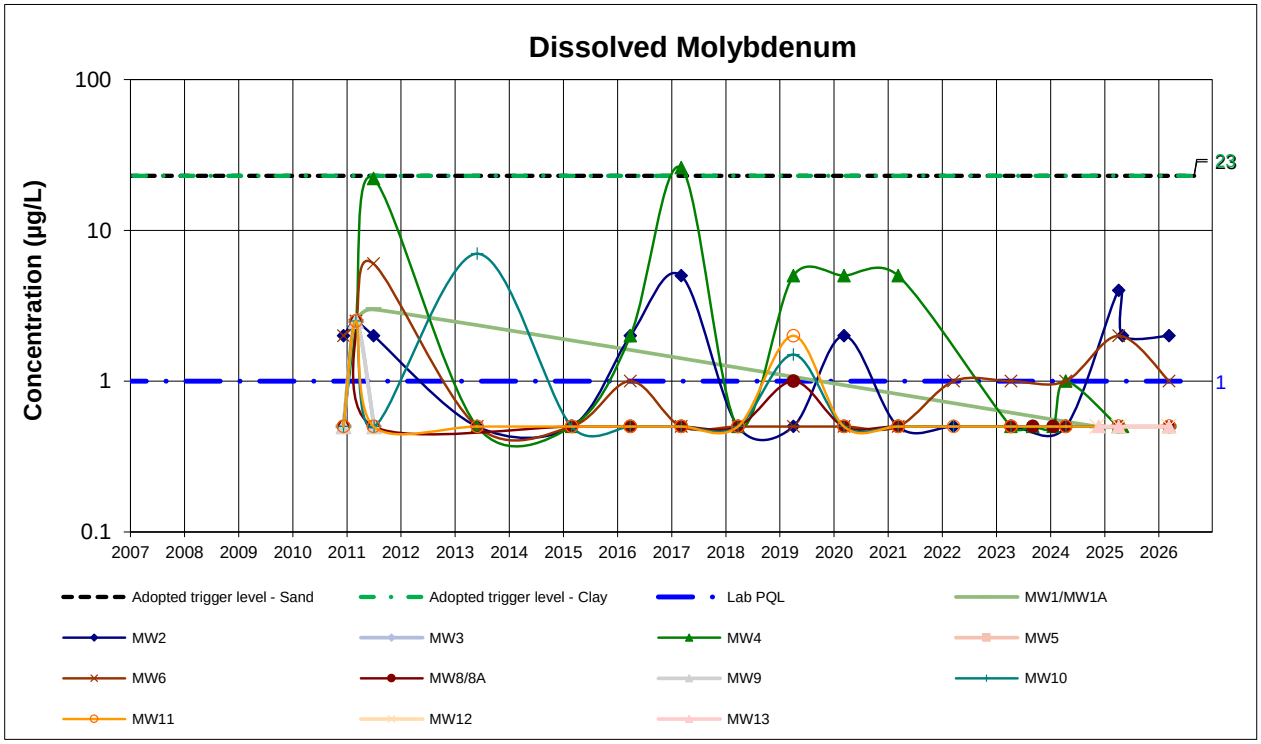
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





1. Values reported below PQL are plotted as half PQL
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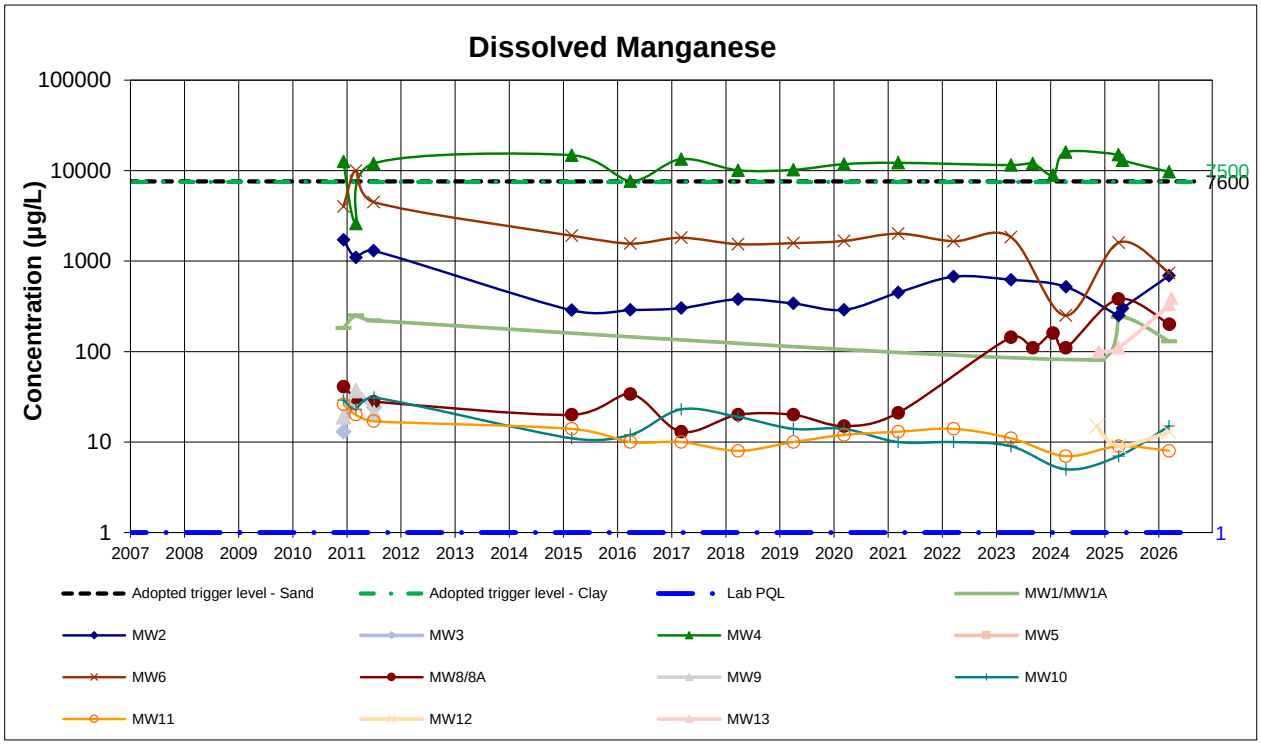
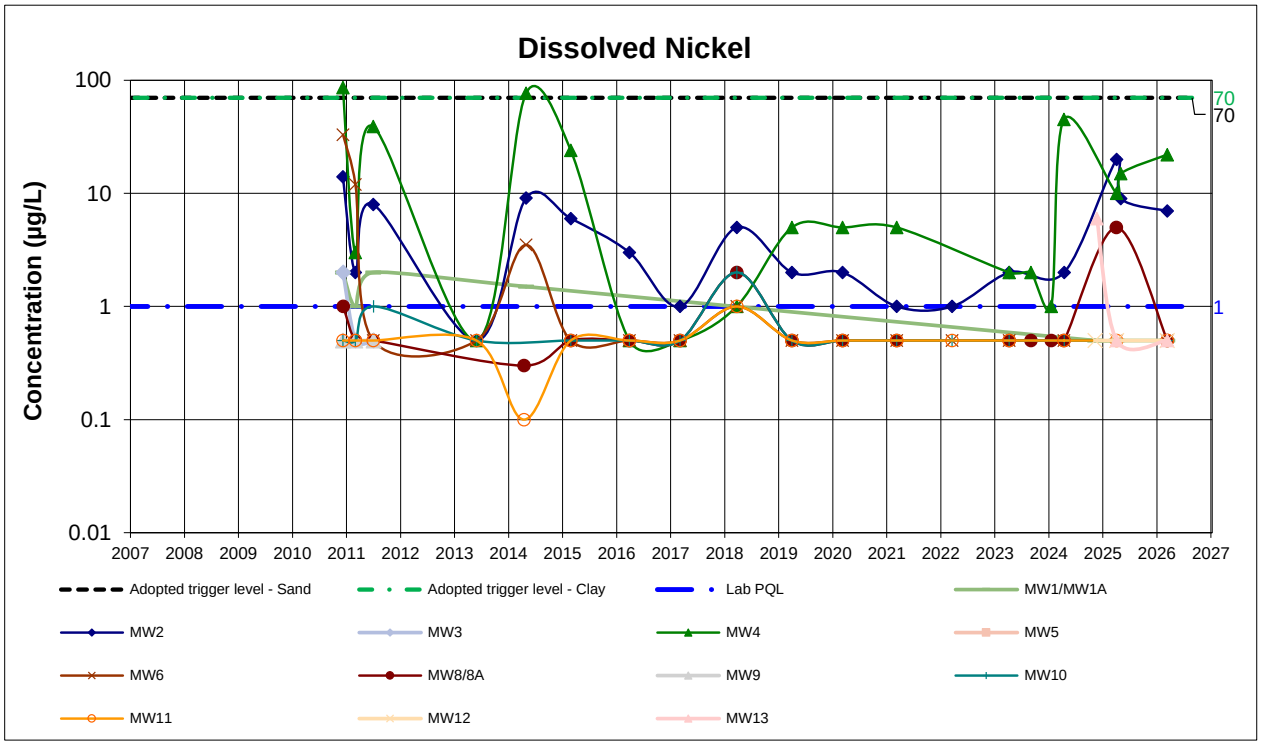
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**

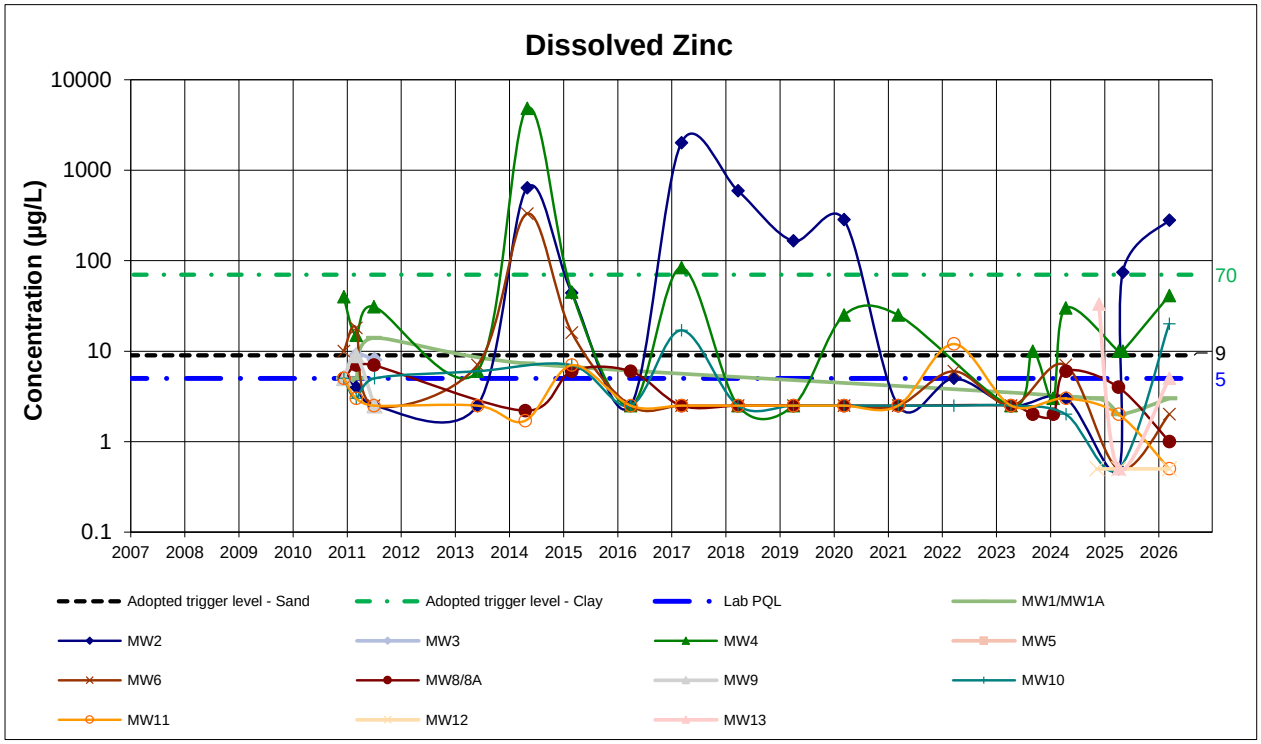


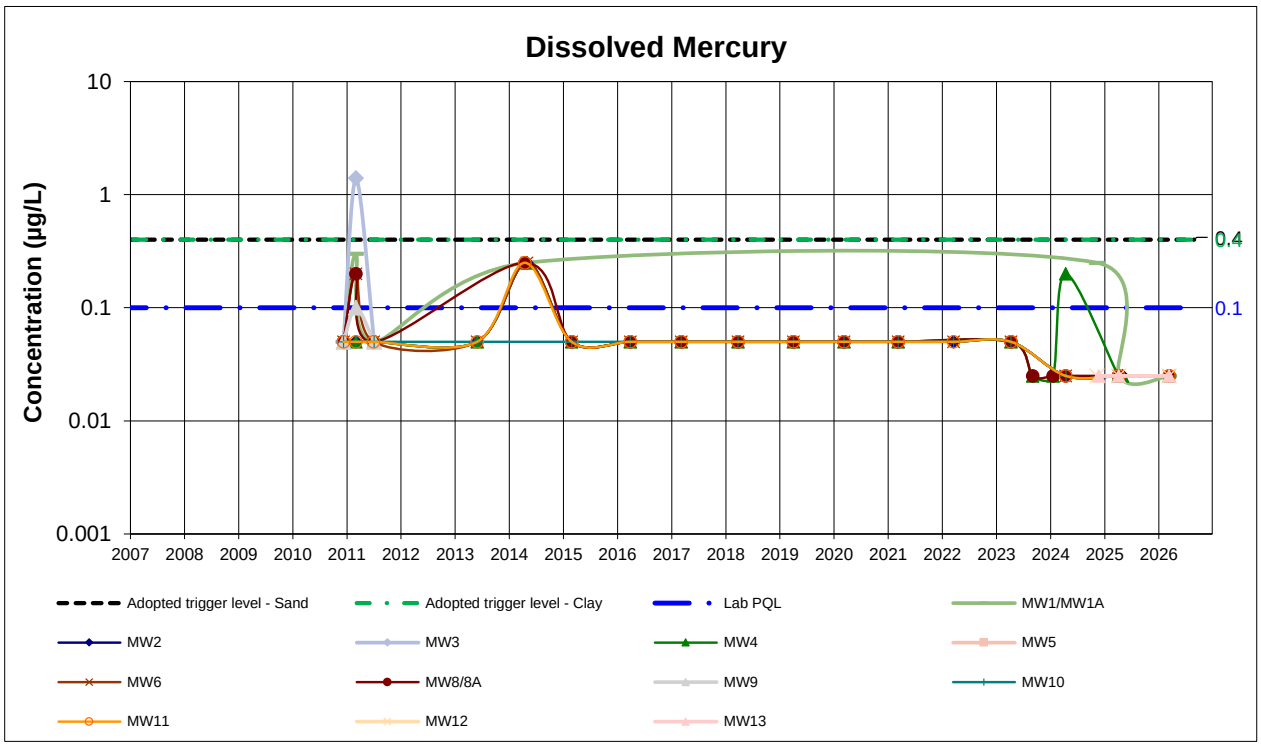


1. Values reported below PQL are plotted as half PQL
2. If a Criterion line is not plotted, there is no criteria

GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**

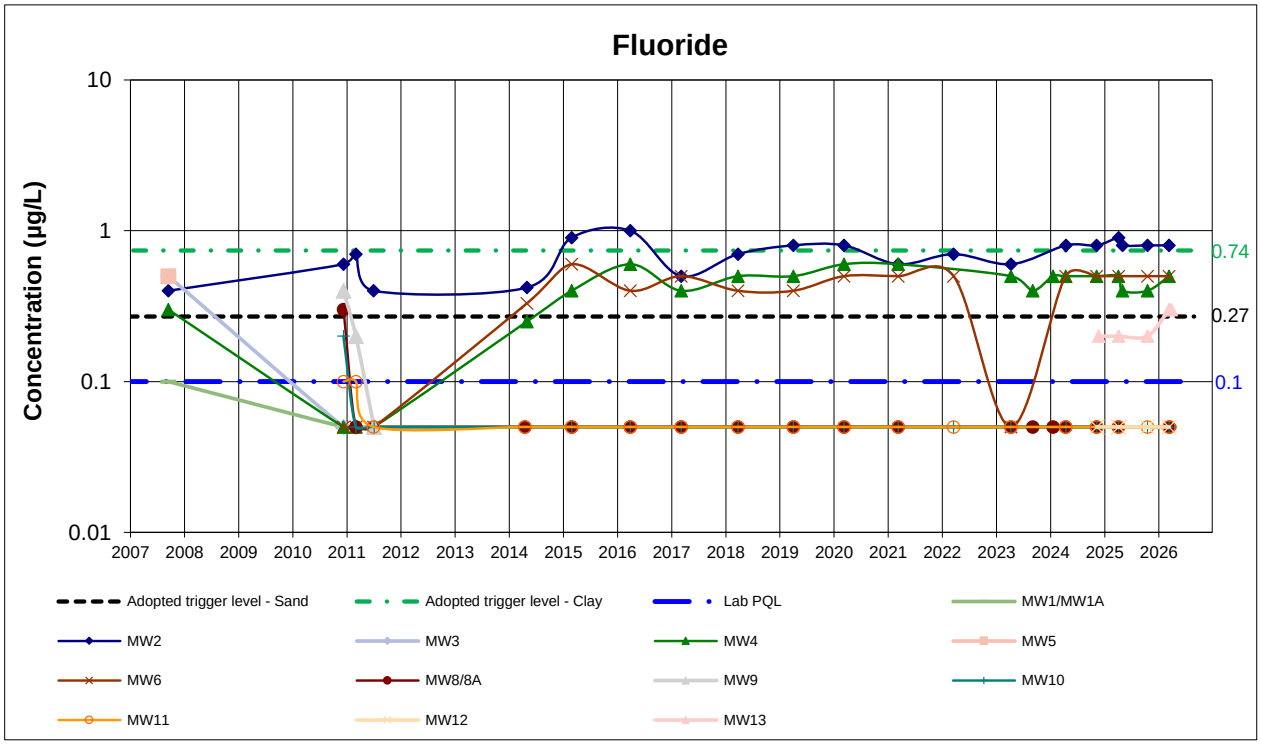


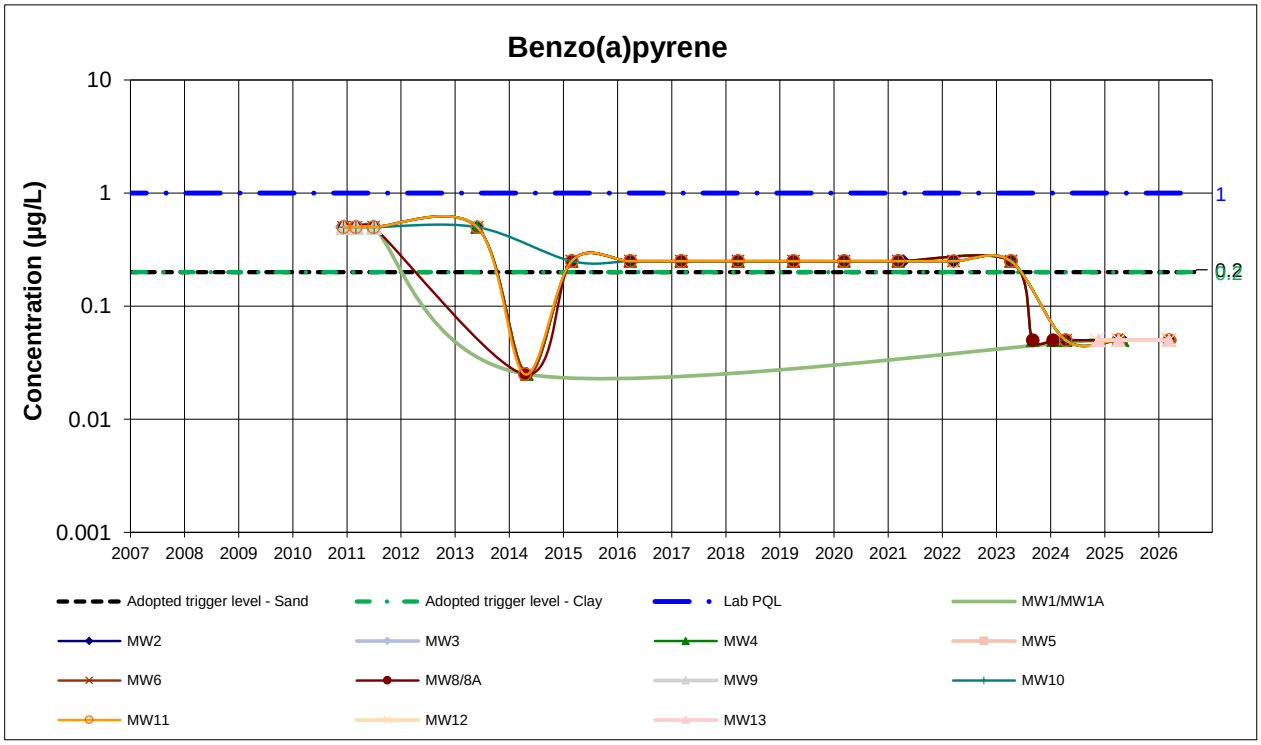


1. Values reported below PQL are plotted as half PQL
2. If a Criterion line is not plotted, there is no criteria

GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





1. Values reported below PQL are plotted as half PQL
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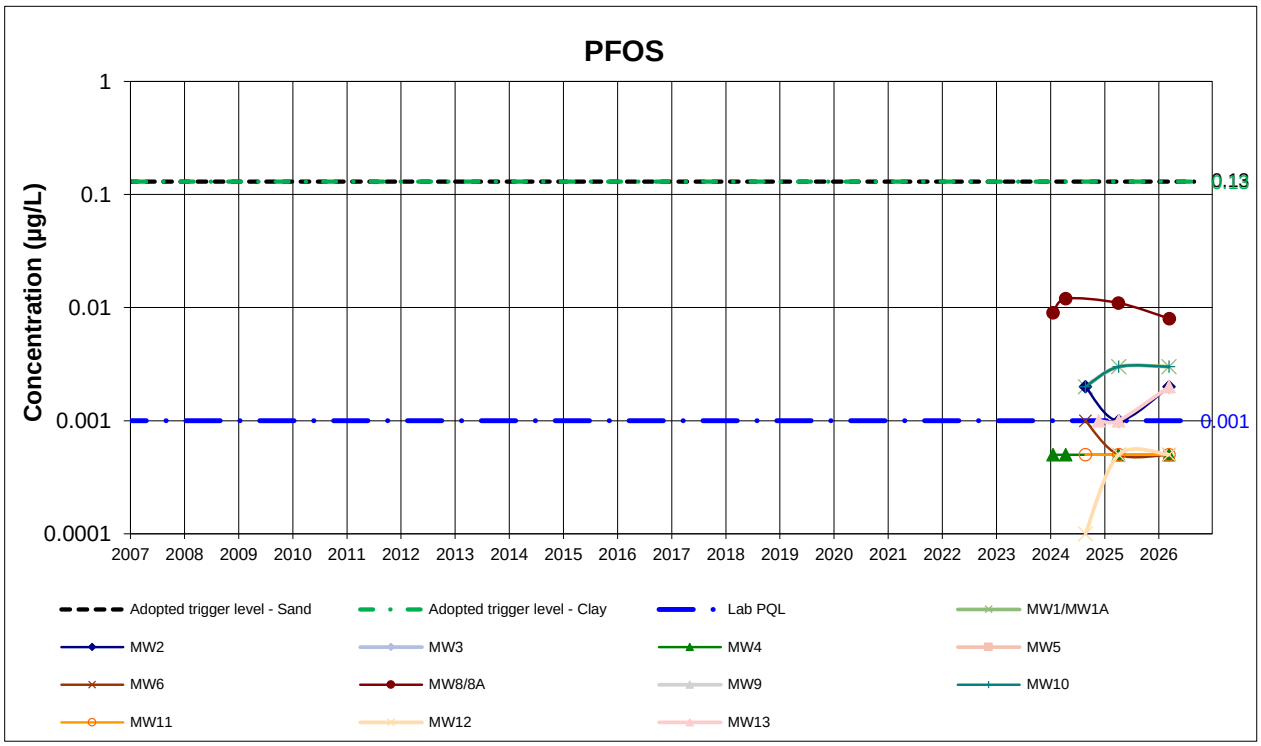
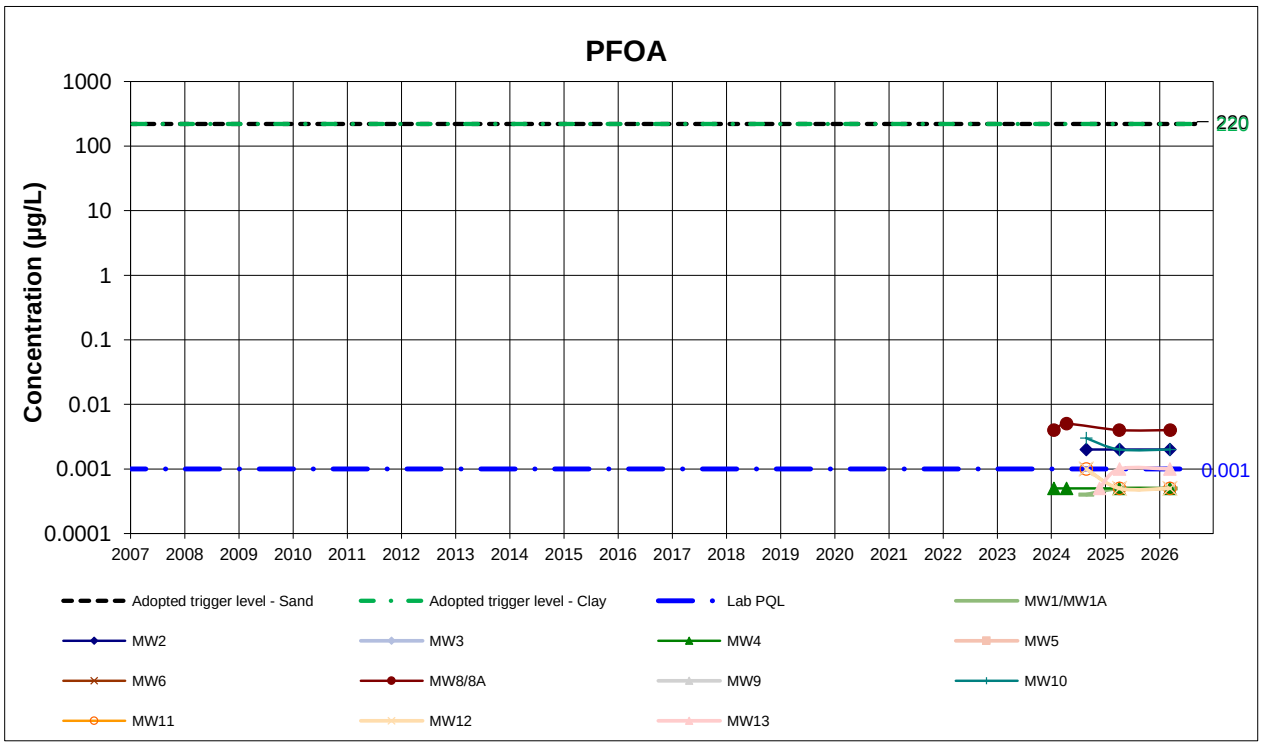
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





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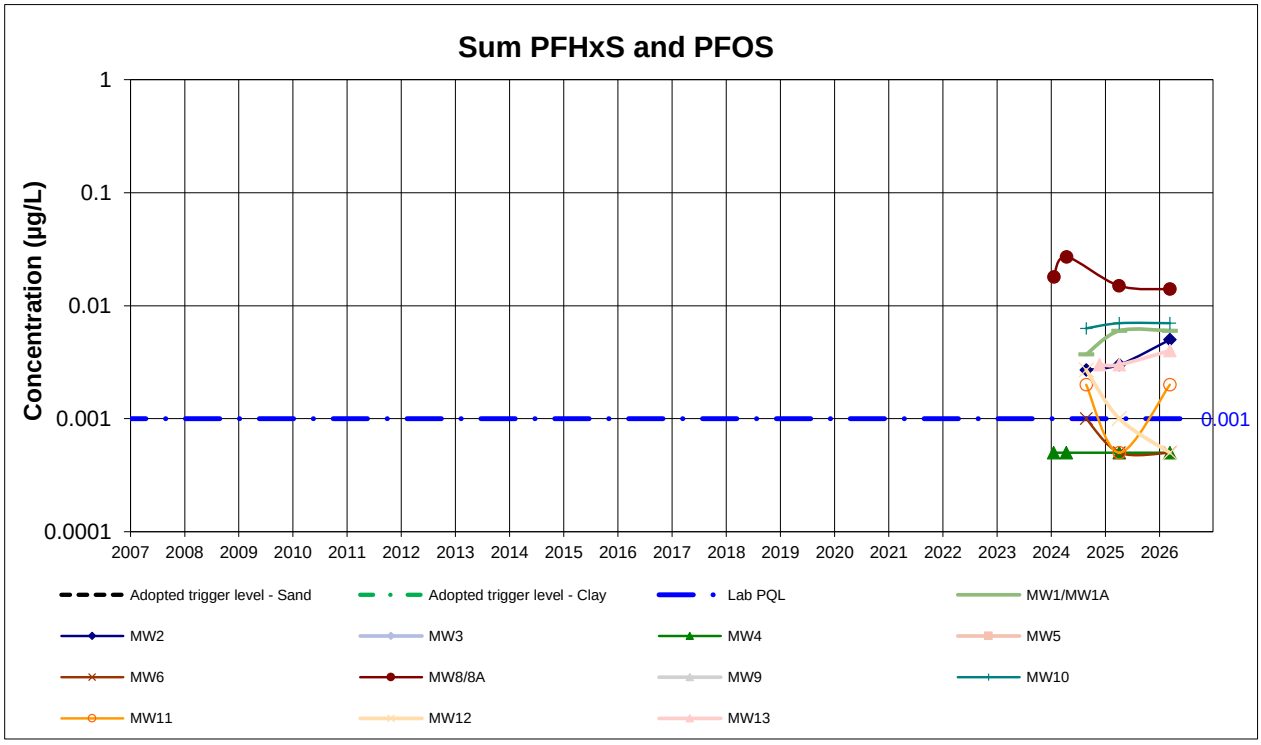
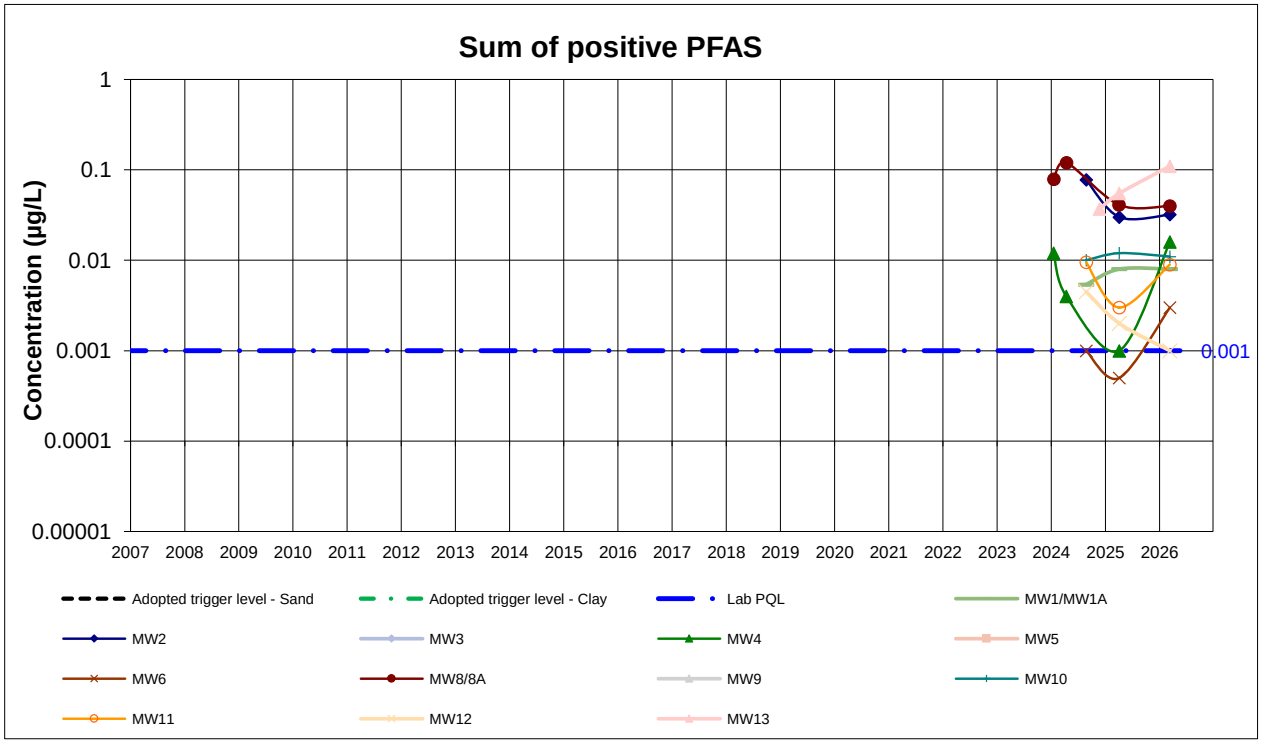
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**





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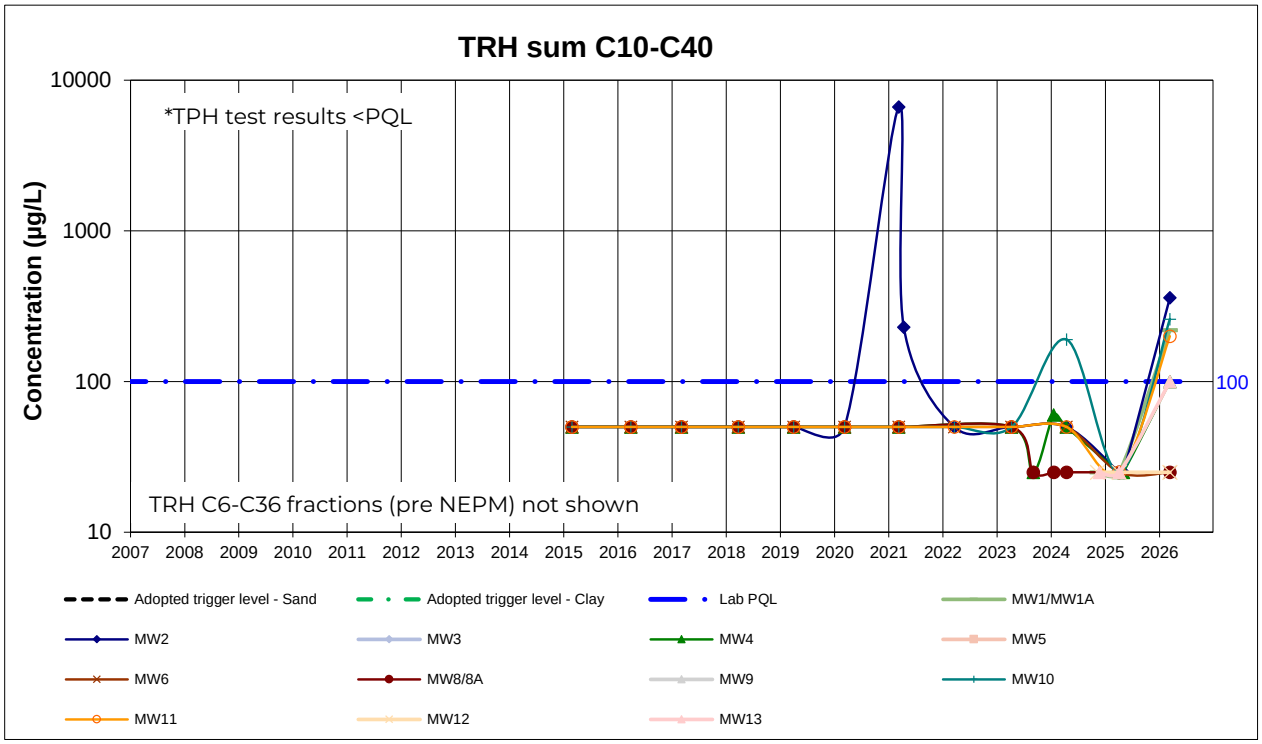
GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to April 2026

Data set: All data **Project: 39920.20**



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Tomago Northbank Enterprise Hub
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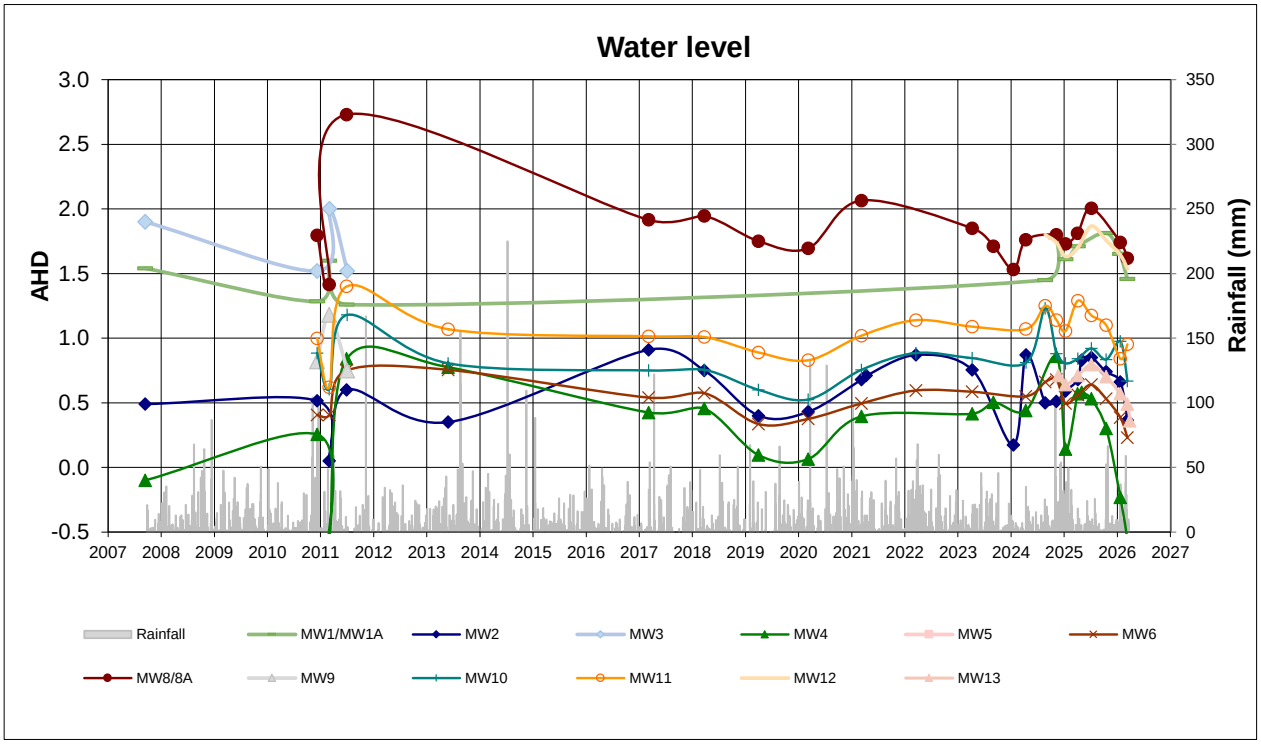

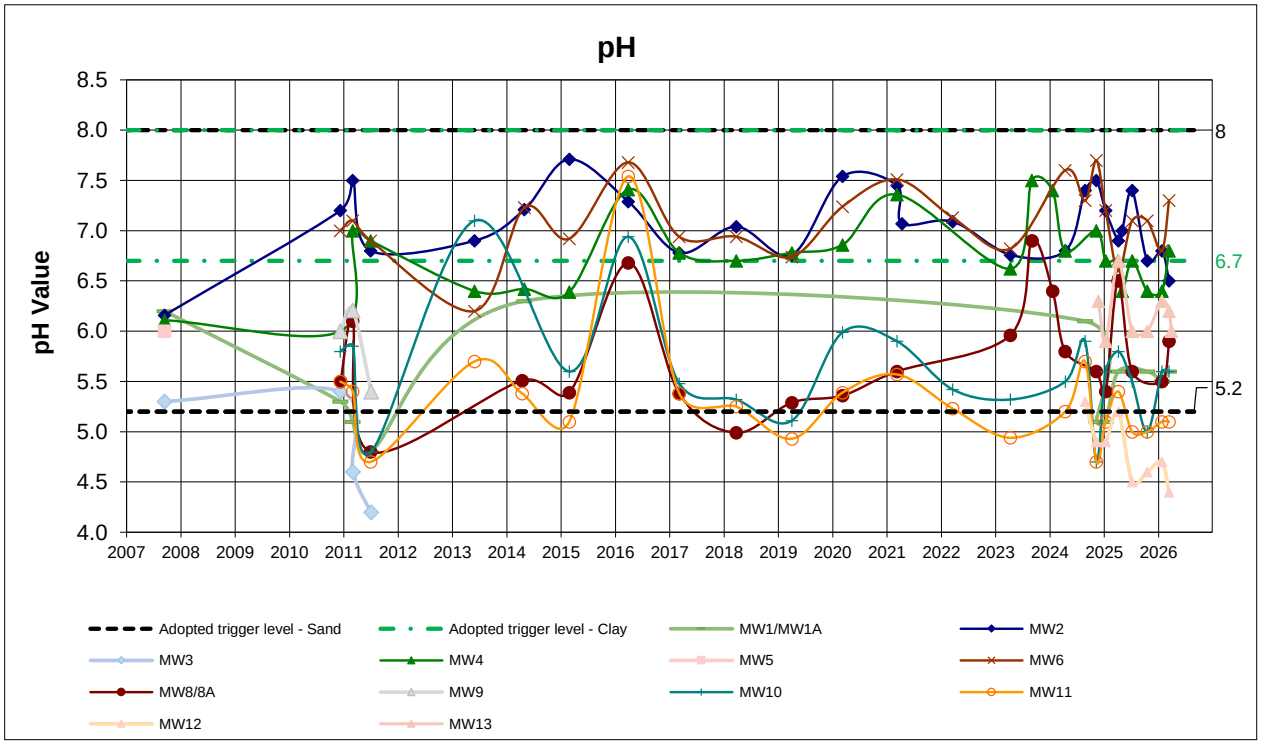

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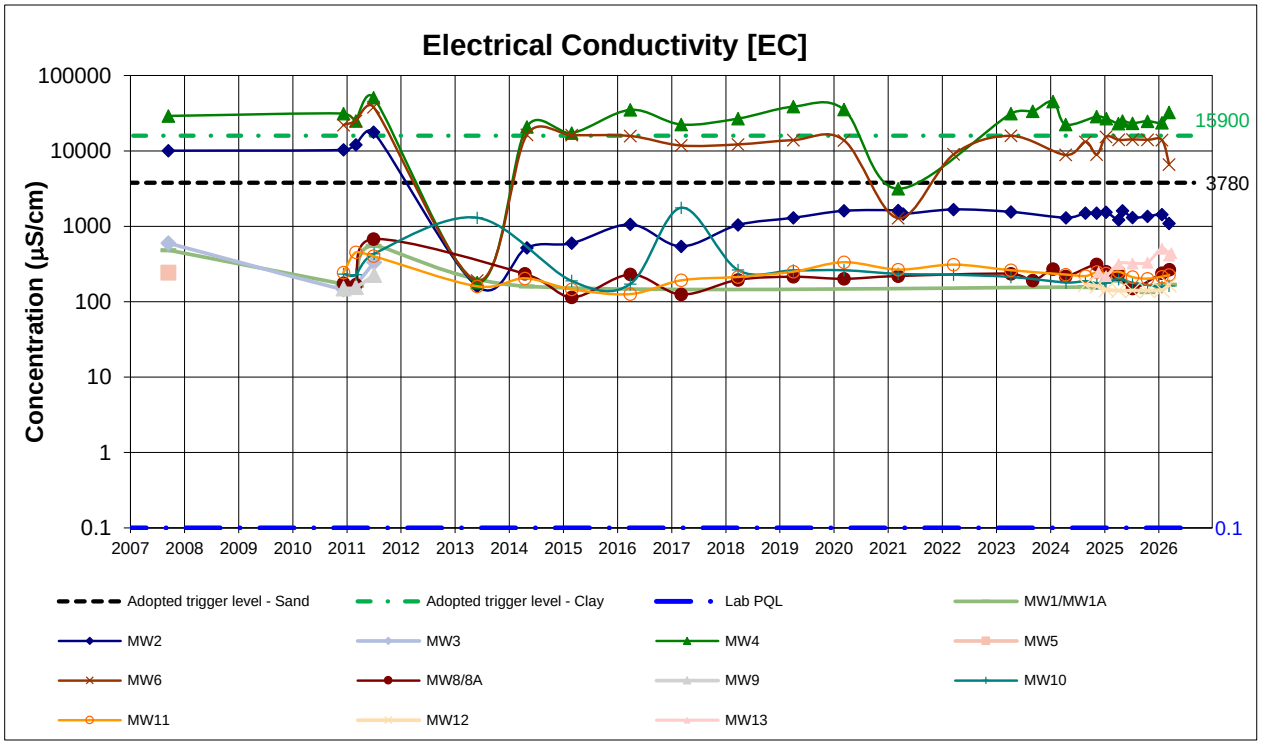

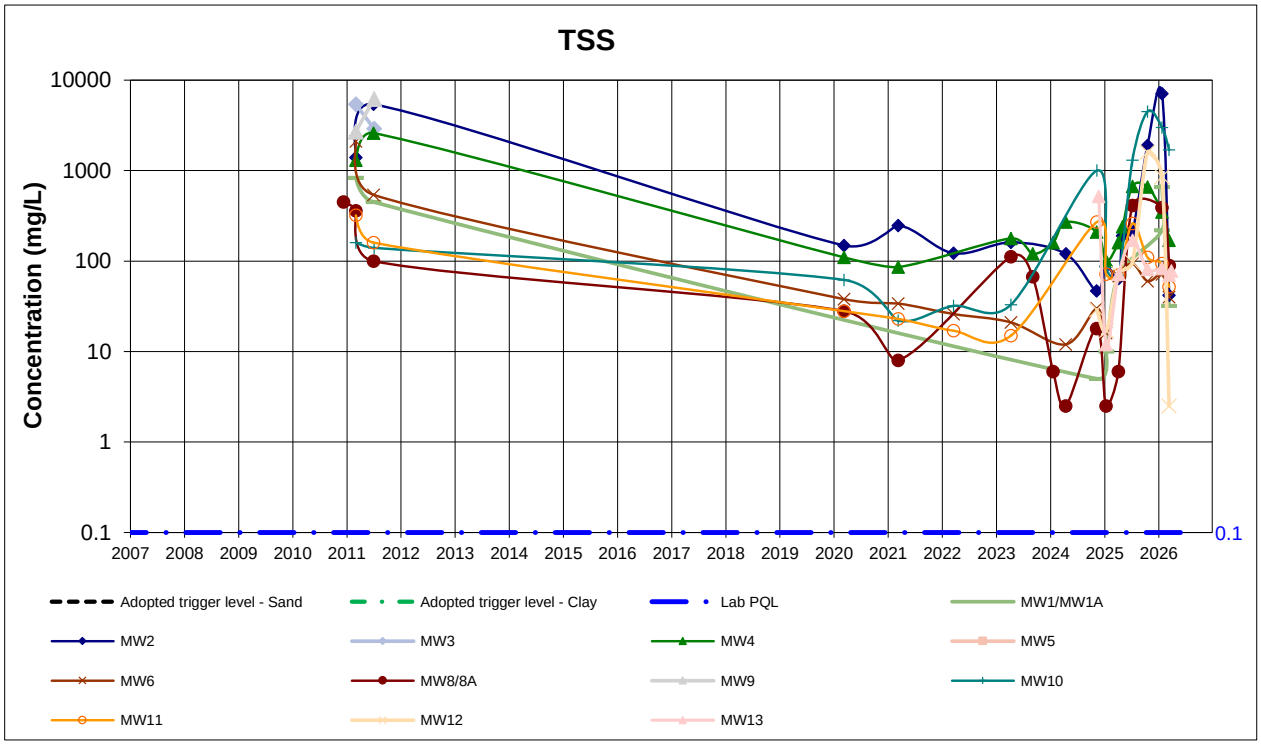

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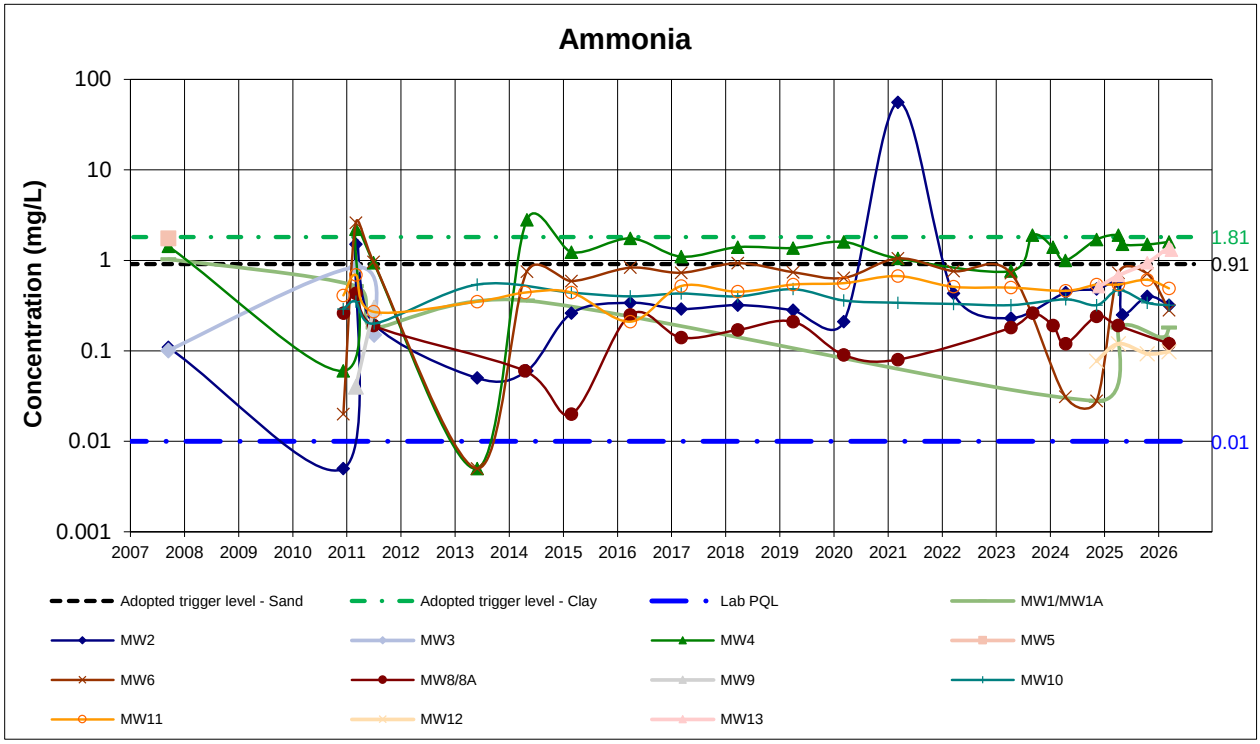

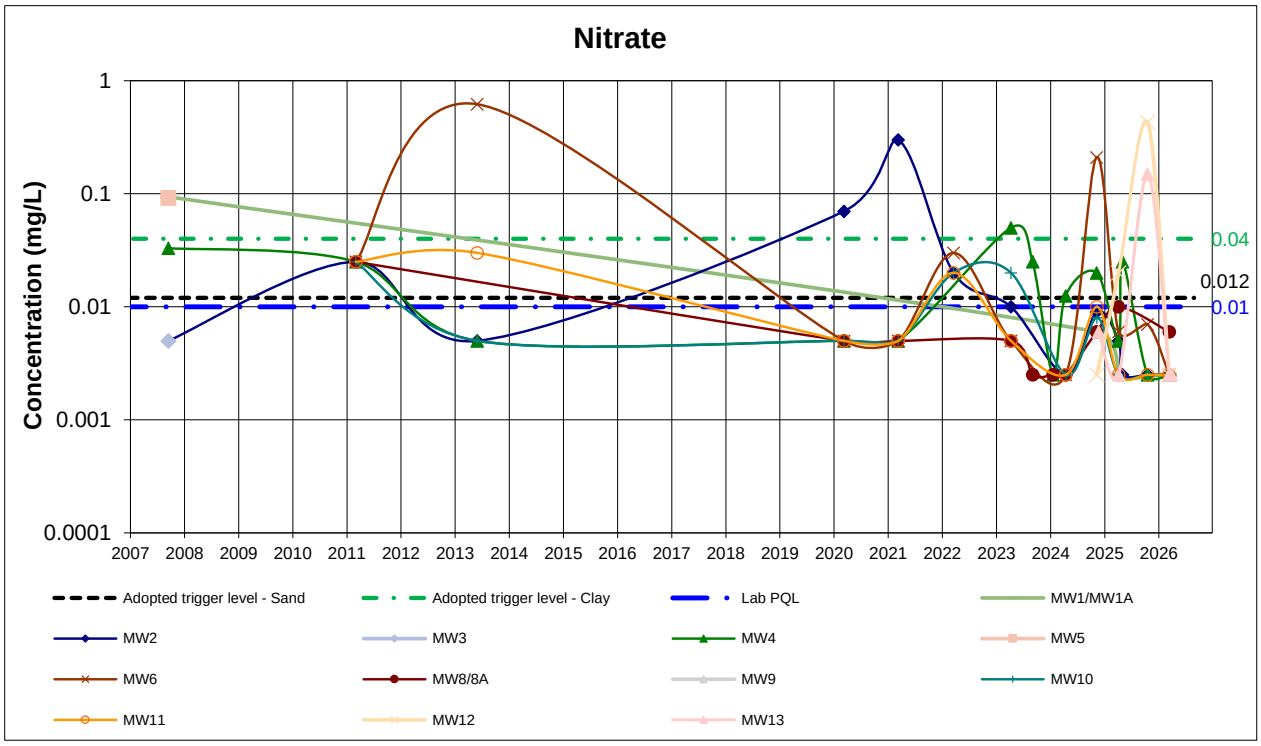

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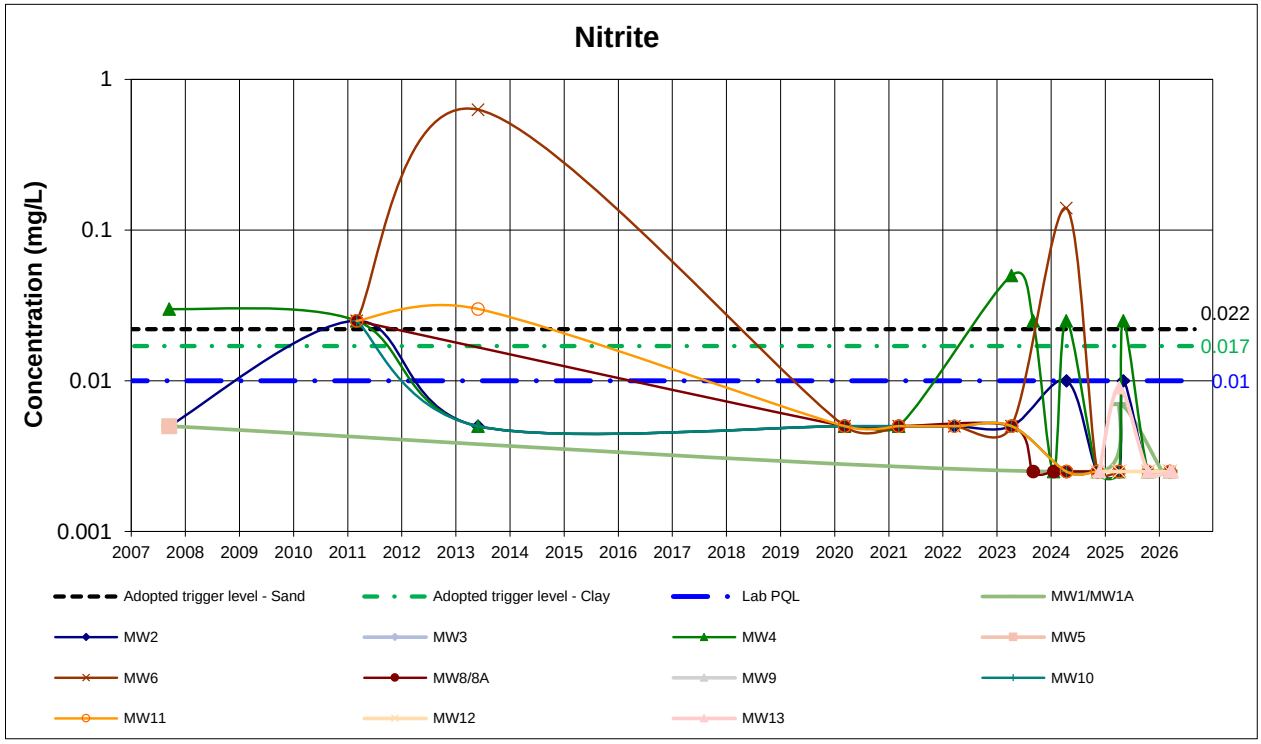

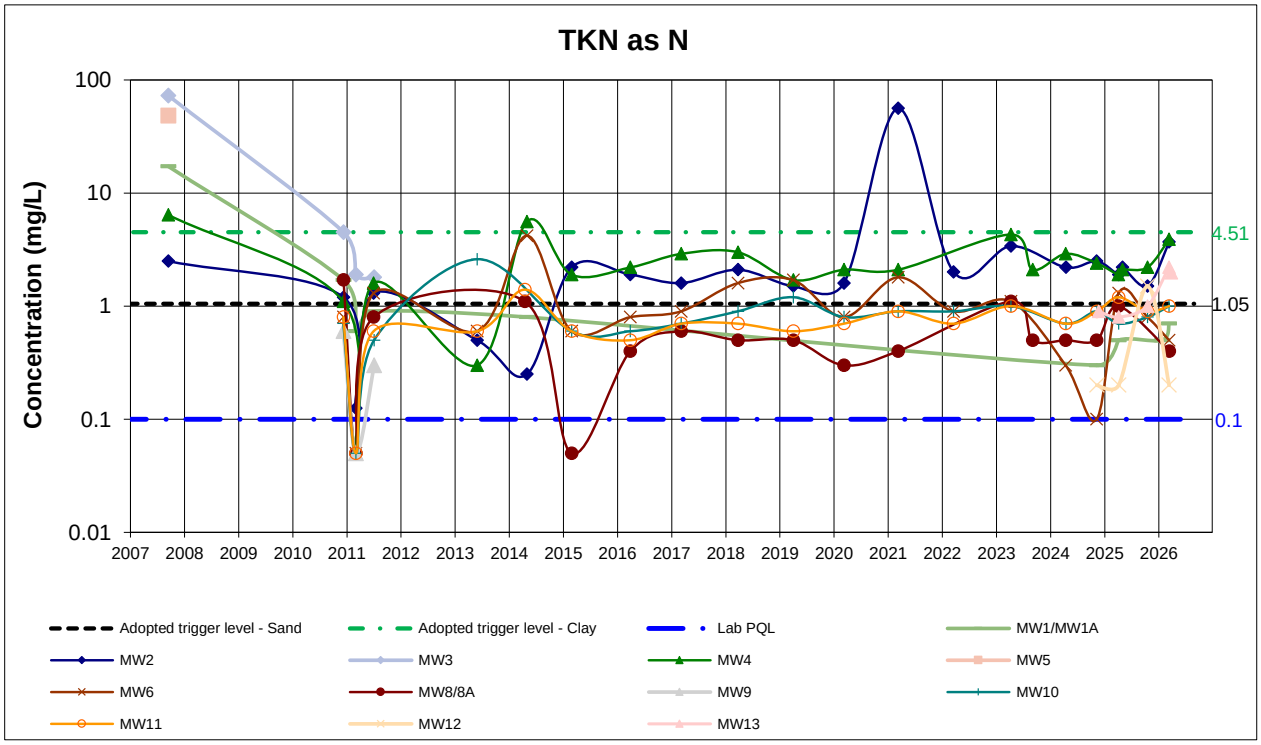

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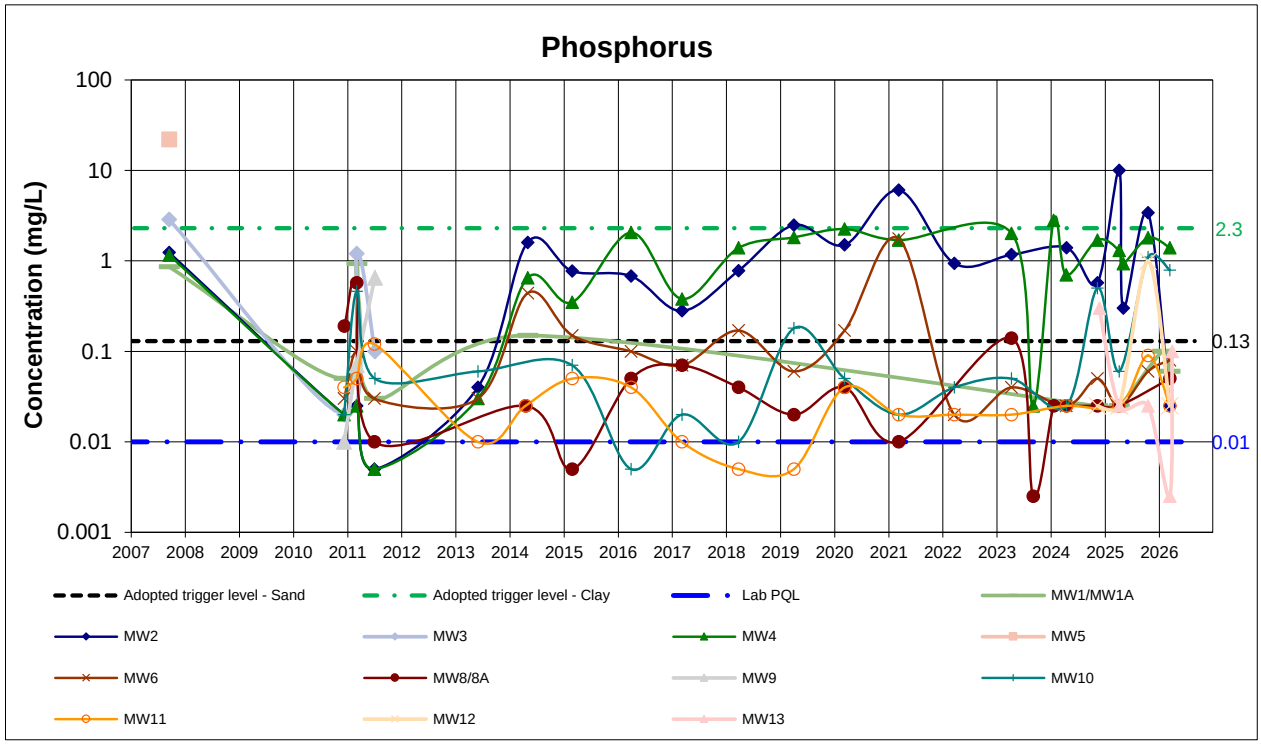

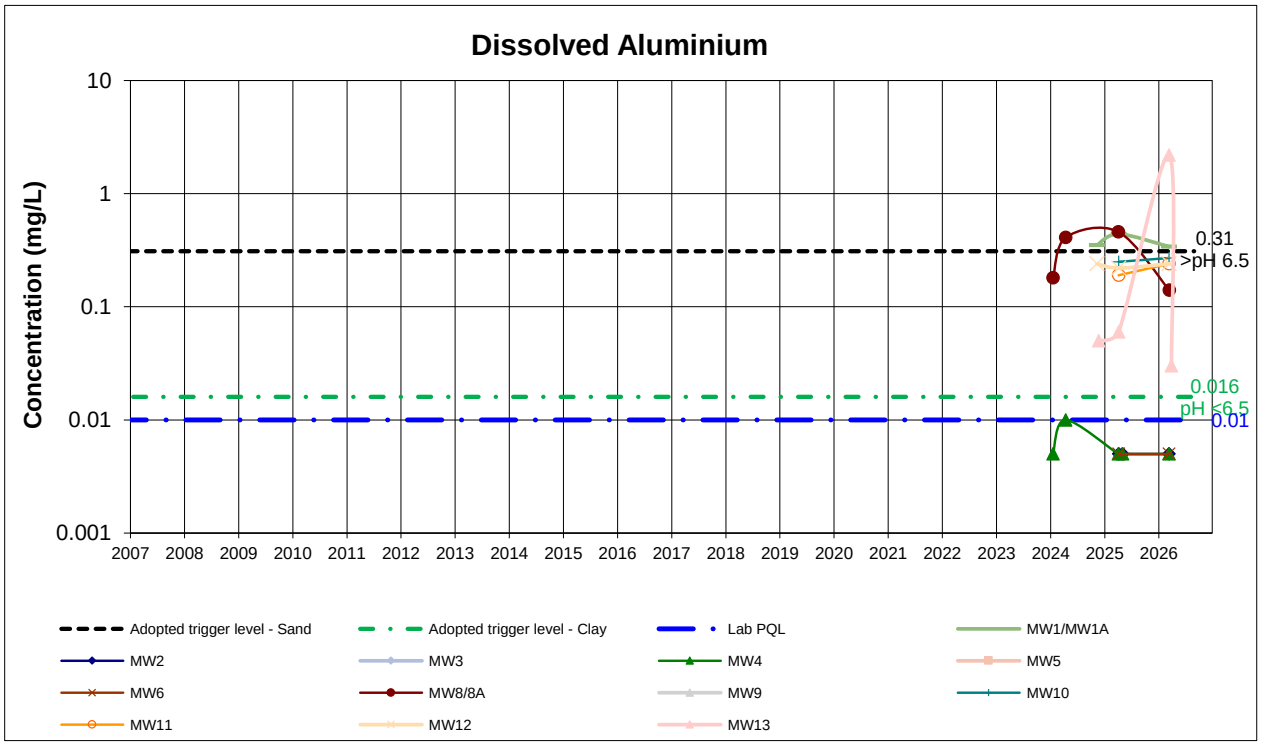

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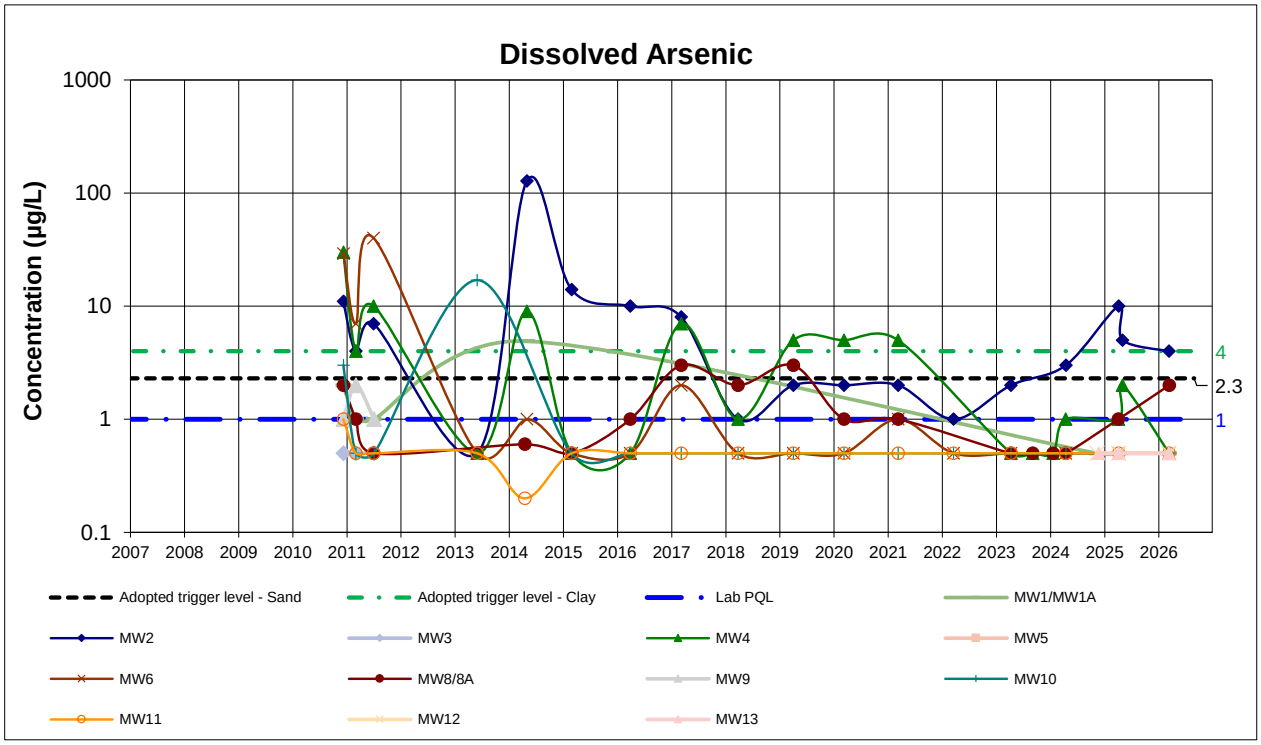

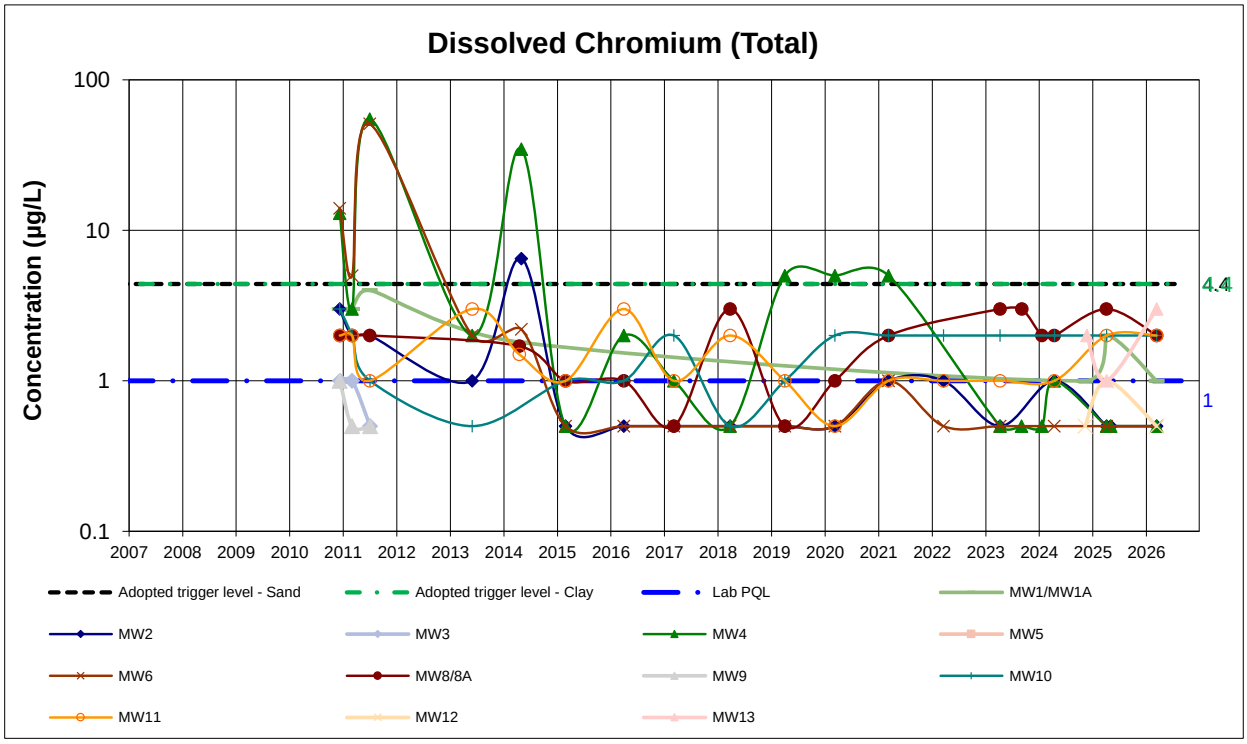

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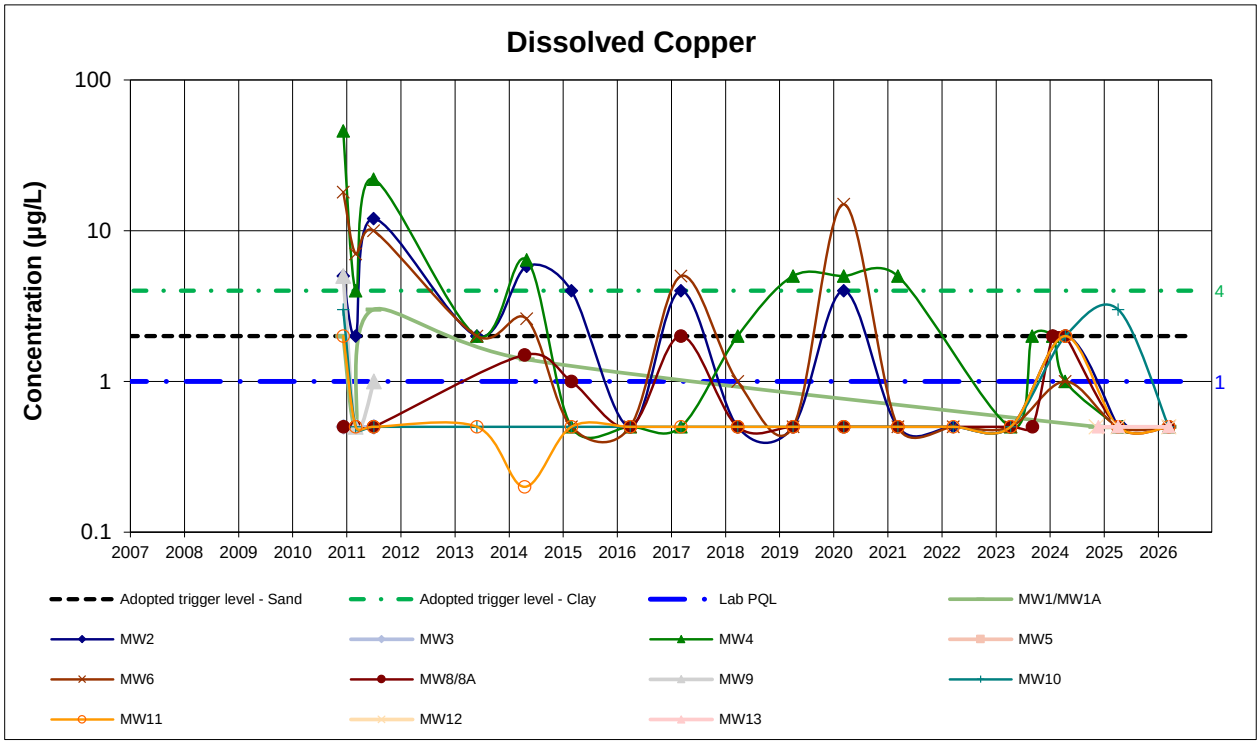

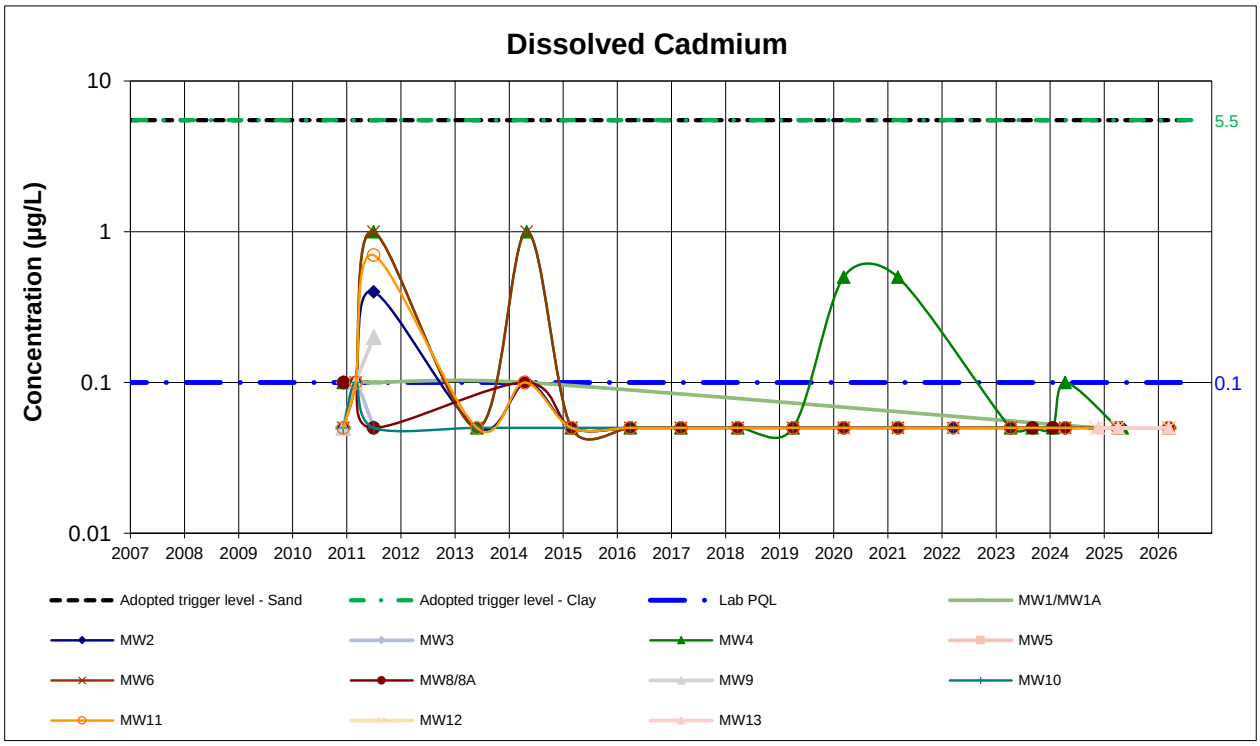

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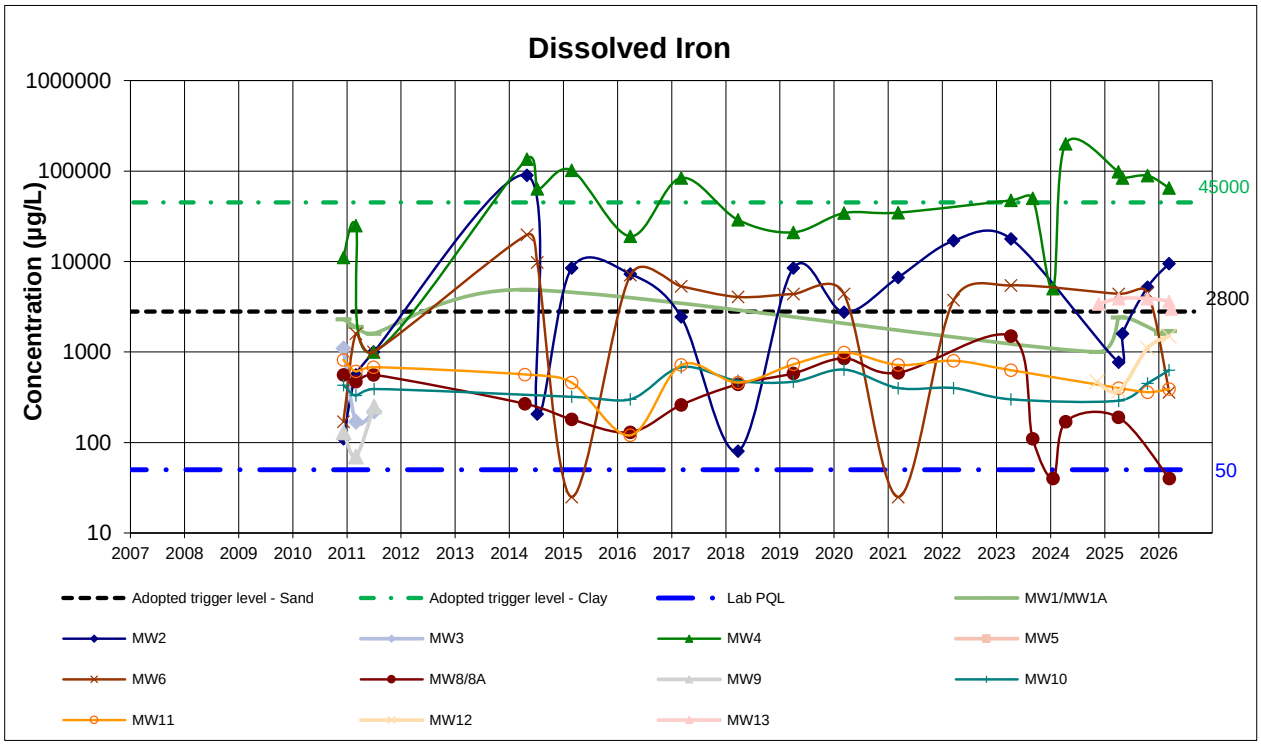

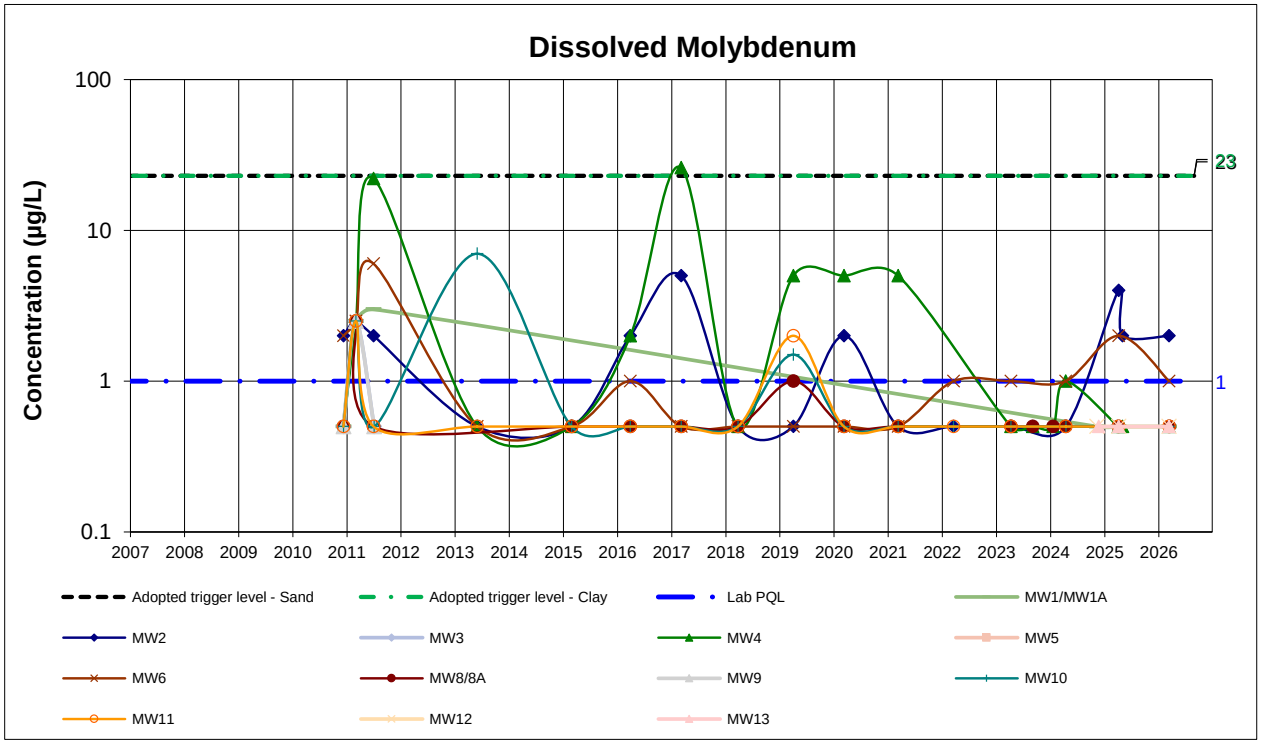

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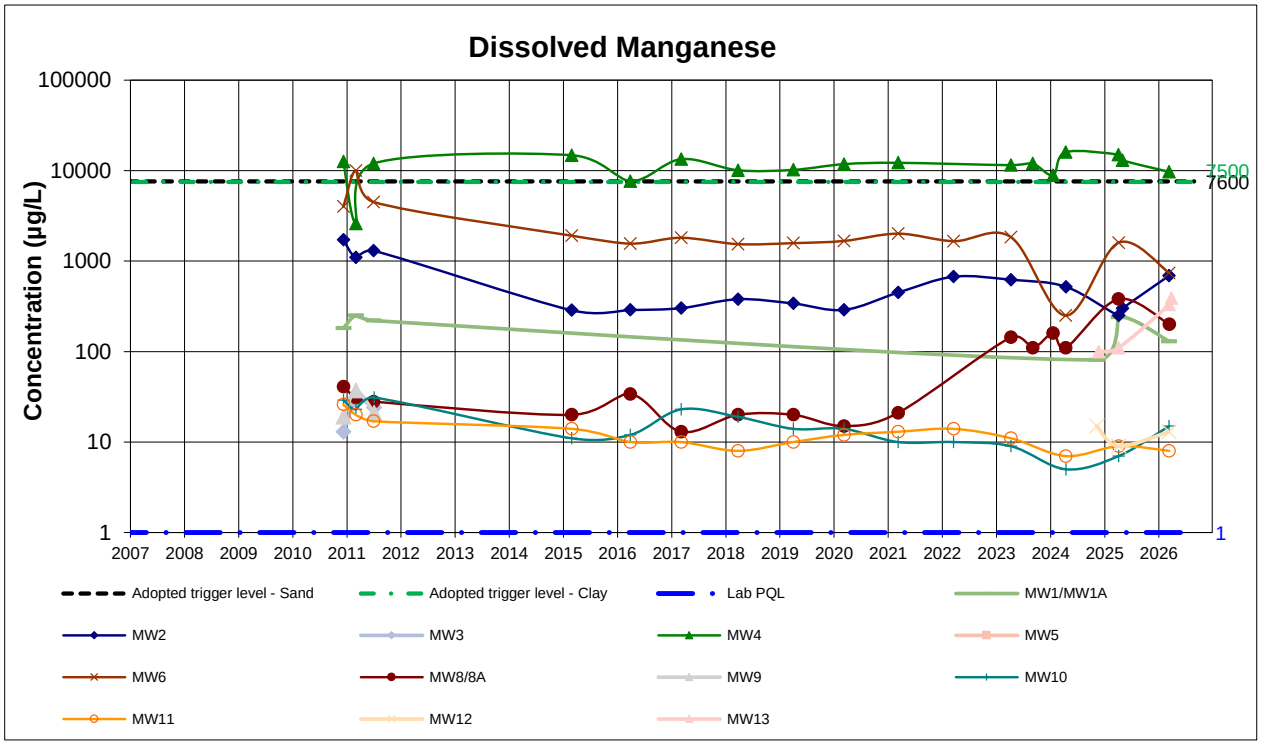

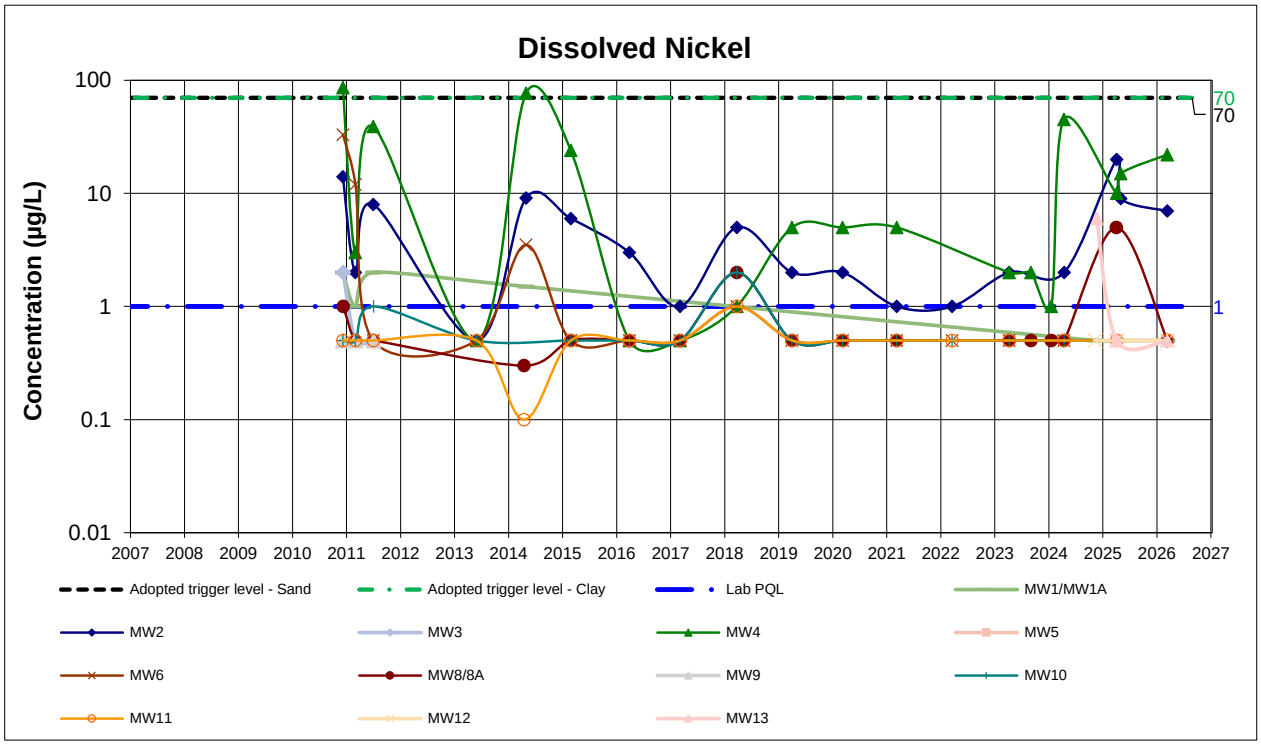

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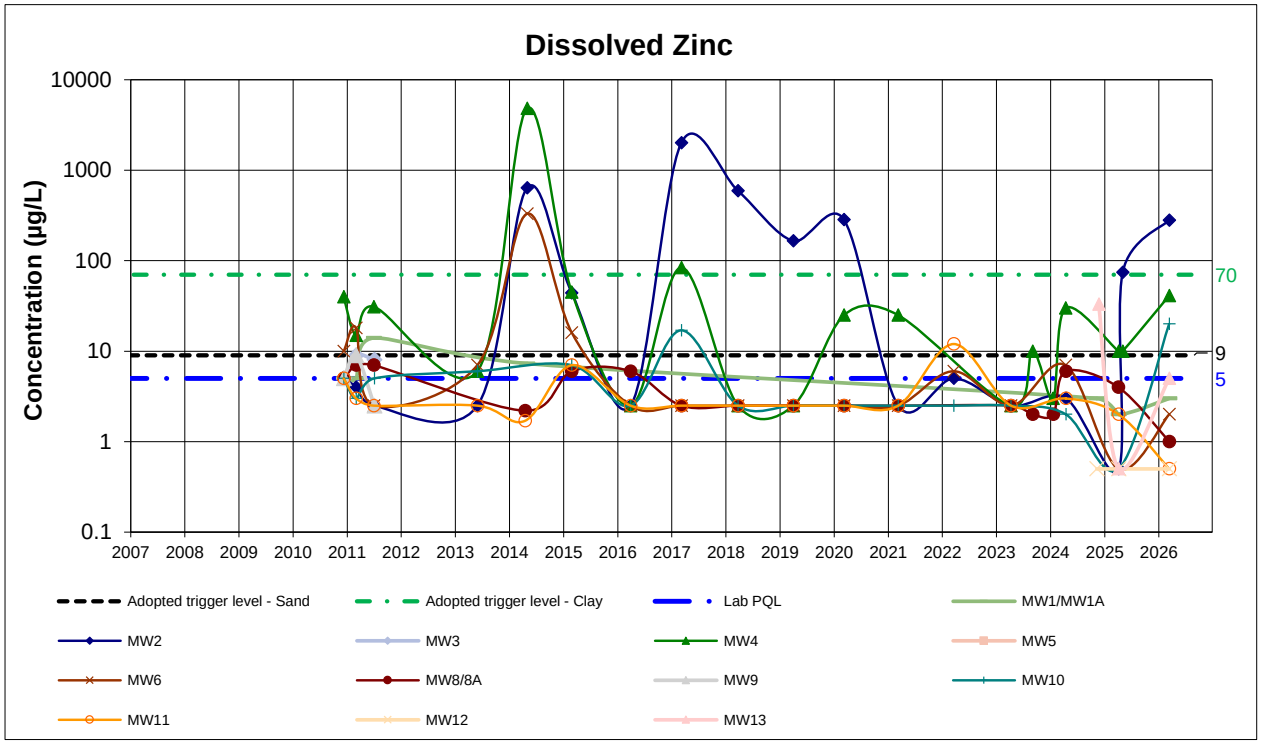

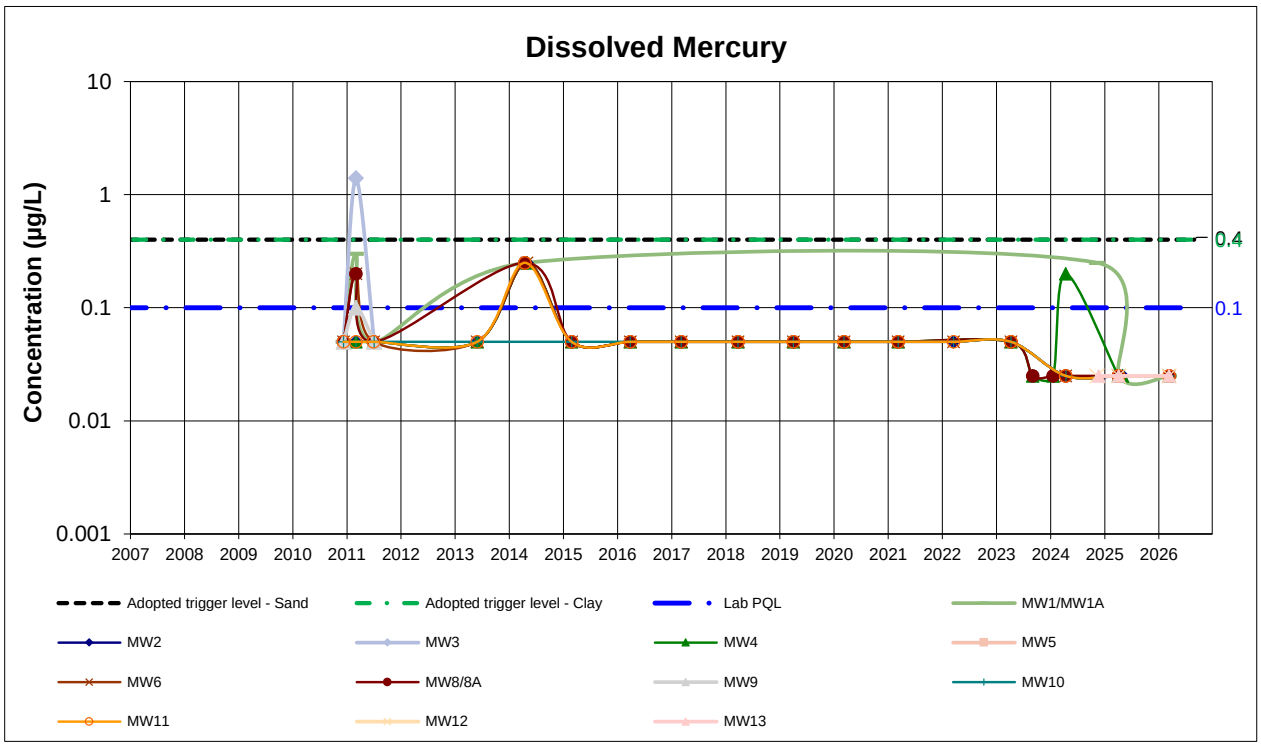

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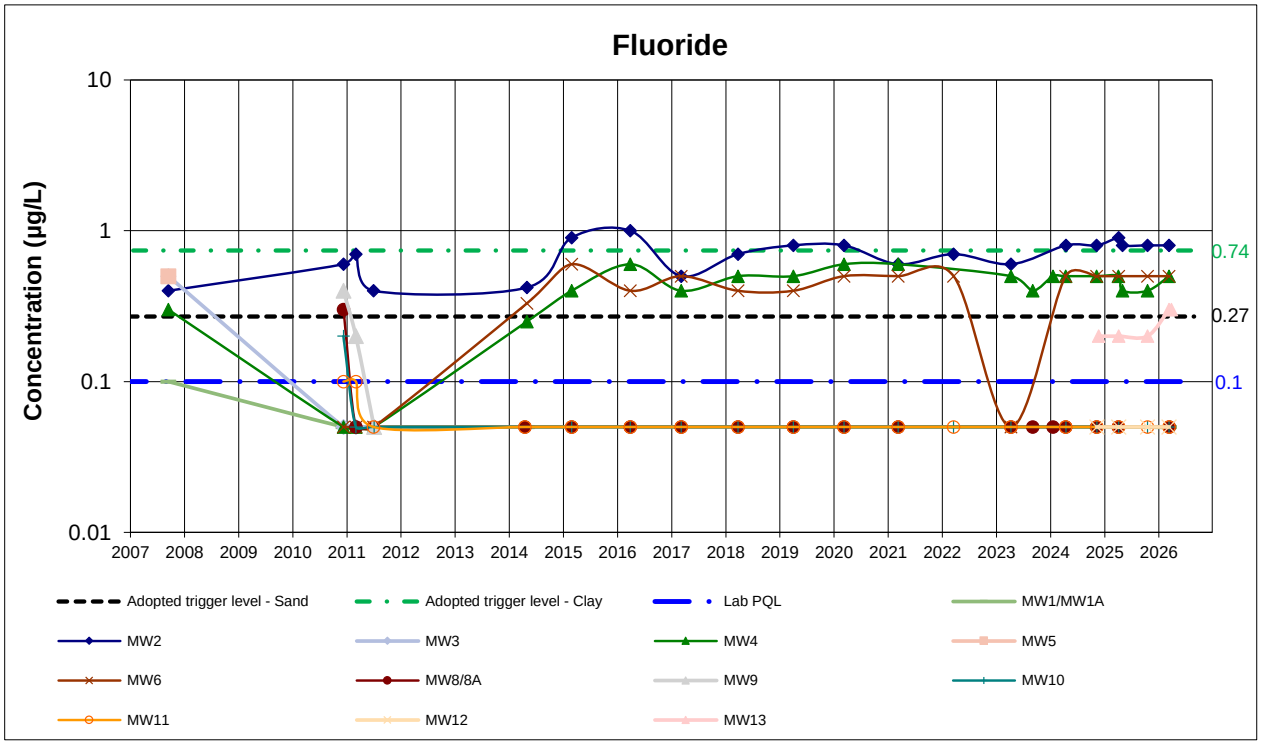

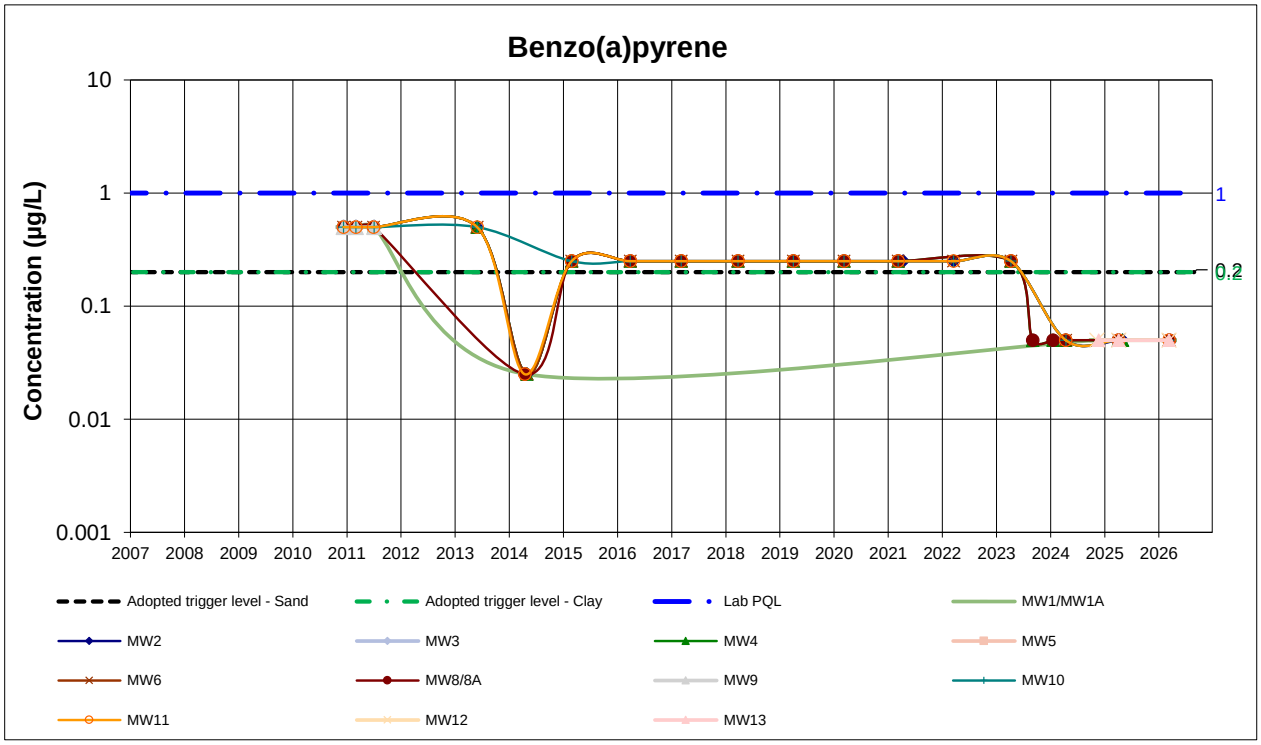

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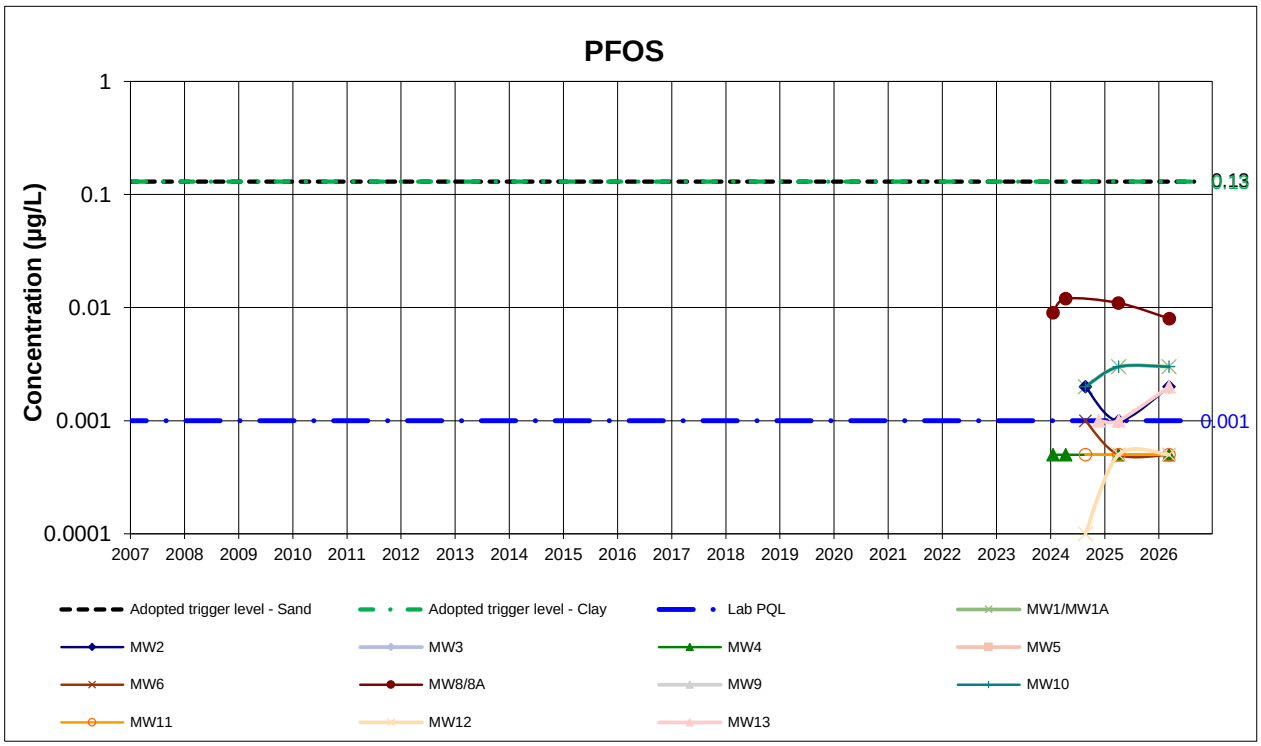

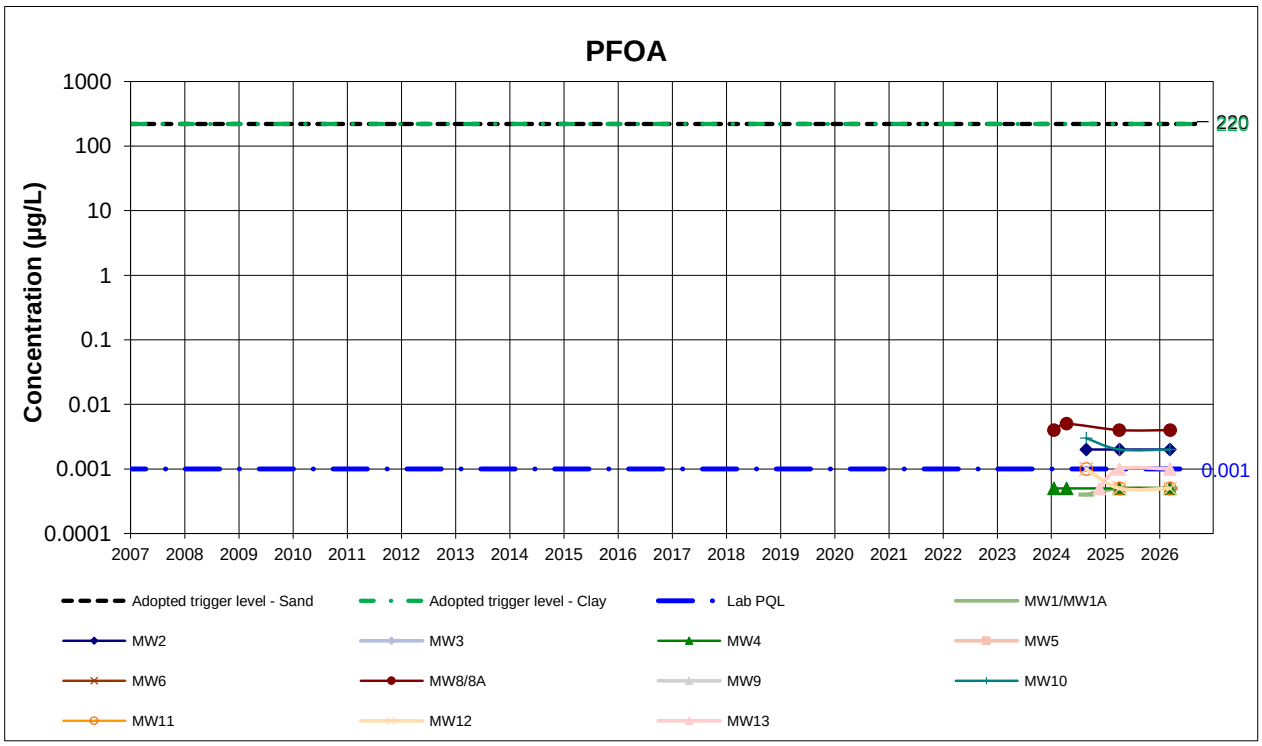

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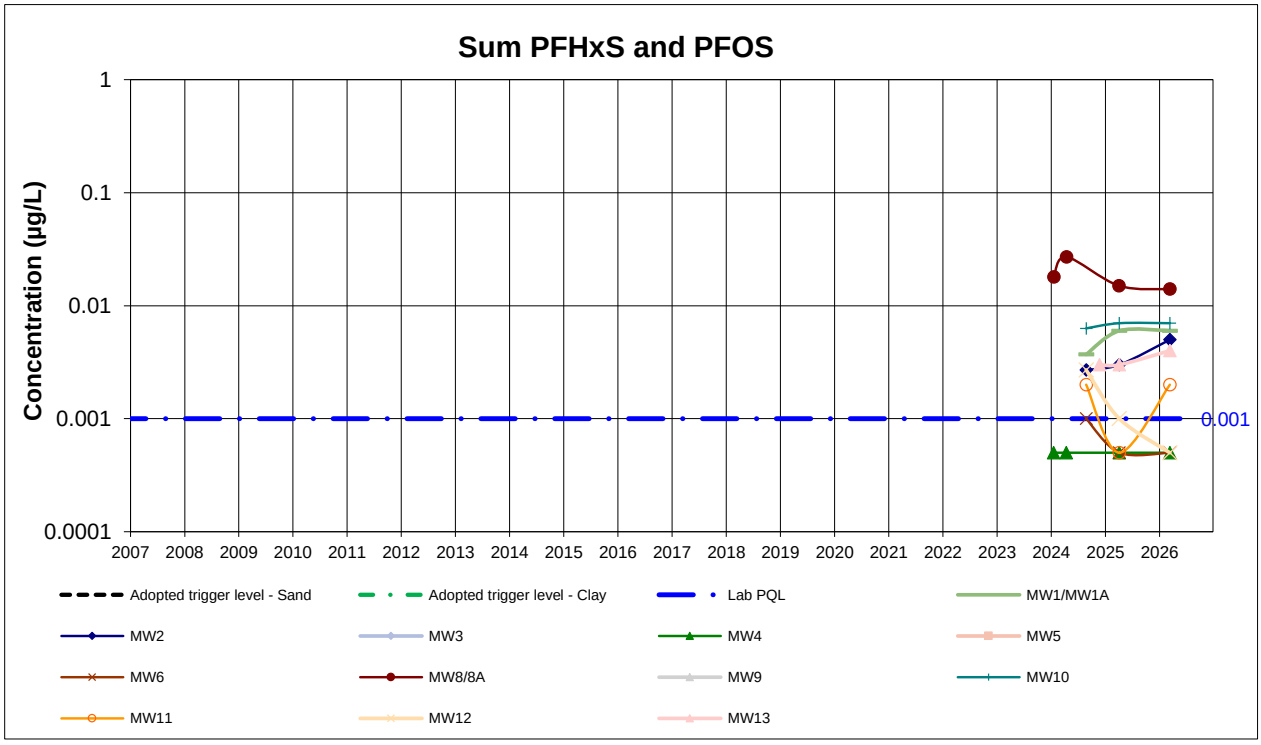

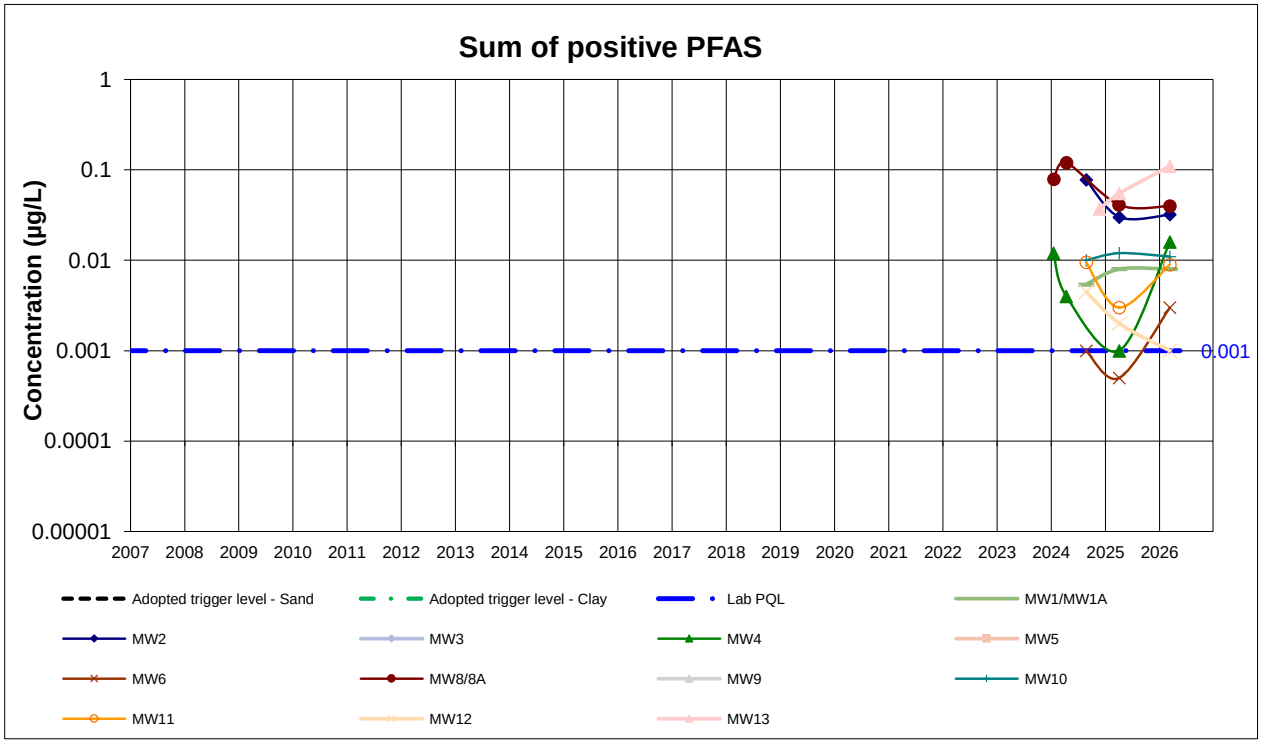

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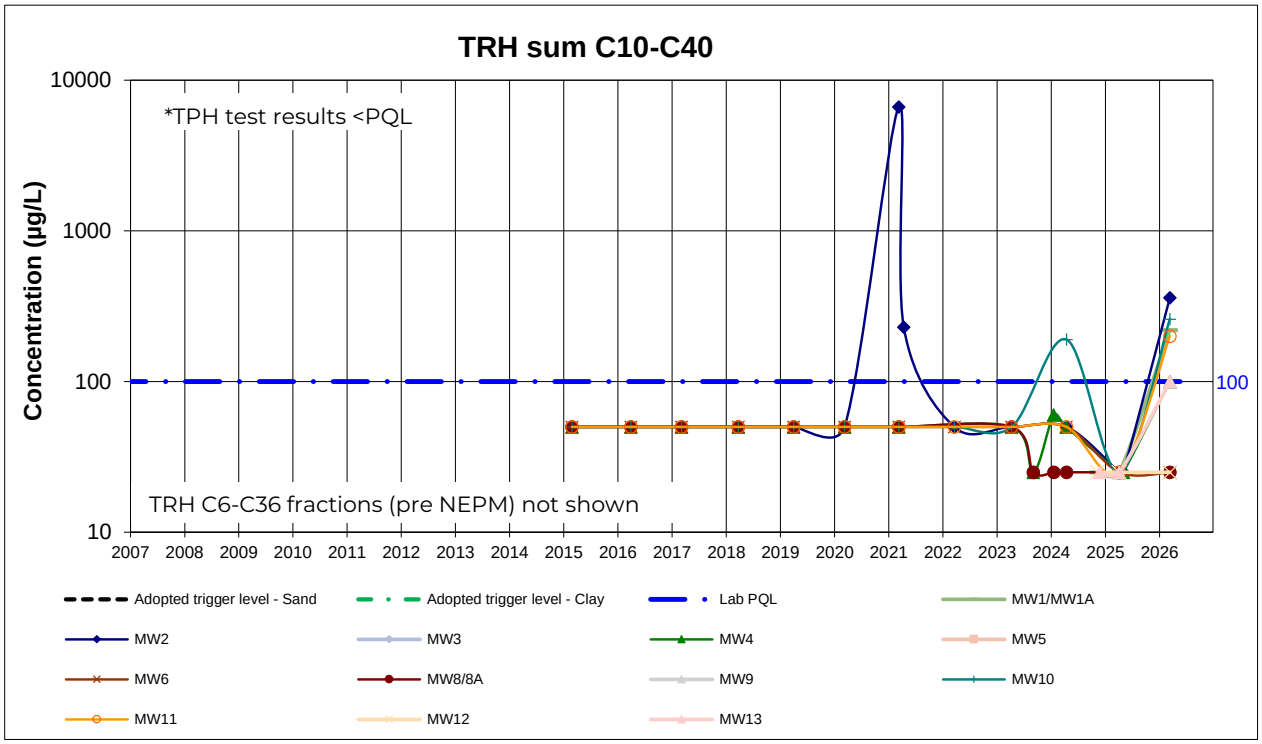

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Appendix E

Table 1: Summary of Water Quality Monitoring Results – March and April 2026

Laboratory Report Sheets (404471, 404571, 404571-A, 405887)

Douglas PARTNERS

Table 1: Summary of water quality monitoring results - March and April 2026

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Trigger Levels based on Revised GMMP (Douglas, 2025)		Groundwater - Tomago Sandbeds Wells								
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	Assessment Criteria for Tomago Sandbeds Wells	UCL95-mean for Tomago Sandbeds Wells	MW1A	MW6	MW8A	MW10	MW11	MW12	DGW/16.3.26	MW13	MW13
							16 Mar 2026	16 Mar 2026	17 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	01 Apr 2026
	Unit	PQL													
Field															
pH	-		6.5-8.5		5.2-8.0		5.6	7.3	5.9	5.6	5.1	4.4	4.4	6.2	6.0
Electrical Conductivity	µS/cm	1	125-2200		3780	4870	169	6580	266	163	227	167	167	413	443
Total Suspended Solids (Lab)	mg/L	5					32	40	89	1,700	52	<5	<5	70	78
Inorganics															
Chloride					1390	1980	36	2,300	21	32	55	37	38	15	14
Sulphate	mg/L	1			310	288	<1	250	58	1	2	10	11	5	4
Fluoride	mg/L	1			0.27	0.22	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.3
Alkalinity (Hydroxide) as CaCO3	mg/L	0.1				1.55	<5	<5	<5	<5	<5	<5	<5	<5	<5
Alkalinity (Carbonate as CaCO3)	mg/L	5				17.2	<5	<5	<5	<5	<5	<5	<5	<5	<5
Alkalinity (Bicarbonate as CaCO3)	mg/L	5				154	23	280	60	20	21	<5	<5	210	220
Alkalinity (total) as CaCO3	mg/L	1				135	23	280	60	20	21	<5	<5	210	220
Hardness (filtered)	mg/L	5				336	27	600	86	14	15	12	12	180	190
Ammonia as N (filtered)	mg/L	3	0.91		0.91	0.44	0.18	0.28	0.12	0.32	0.49	0.098	0.11	1.4	1.3
Nitrite (as N) (filtered)	mg/L	0.005			0.012	0.038	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (as N) (filtered)	mg/L	0.005			0.012	0.014	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Kjeldahl Nitrogen Total	mg/L	0.005			1.05	0.817	0.7	0.5	0.4	1	1	0.2	0.2	2.2	1.96
Nitrogen (Total Oxidised)	mg/L	0.1					<0.005	0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Phosphorus (Organic Phosphate)		0.05	0.03		0.13	0.186	0.06	0.08	0.05	0.79	<0.05	<0.05	<0.05	<0.05	0.1
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005	0.005		0.005	0.004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006
Sodium (filtered)	mg/L	0.5					19	1,100	17	24	34	19	19	14	15
Calcium (filtered)	mg/L	0.5					5	63	28	2	1	2	2	47	48
Magnesium (filtered)	mg/L	0.5					4	110	4	2	3	2	2	16	16
Iron (filtered)	mg/L	0.01			2.8	2.2	1.7	0.36	0.04	0.63	0.39	1.5	1.5	3.6	3
Metals															
Aluminium	mg/L	0.01	0.0005		0.31										
Aluminium (filtered)	mg/L	0.01	0.0005		0.31	0.28	0.34	<0.01	0.14	0.27	0.24	0.24	0.25	2.2	0.03
Arsenic	mg/L	0.001	0.0023		0.0023										
Arsenic (filtered)	mg/L	0.001	0.0023		0.0023	0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	-
Cadmium	mg/L	0.0001	0.0055		0.0055										
Cadmium (filtered)	mg/L	0.0001	0.0055		0.0055		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Chromium (III+VI)	mg/L	0.001	0.0044		0.0044										
Chromium (III+VI) (filtered)	mg/L	0.001	0.0044		0.0044	0.001	0.001	<0.001	0.002	0.002	0.002	<0.001	<0.001	0.003	-
Copper	mg/L	0.001	0.0013		0.002										
Copper (filtered)	mg/L	0.001	0.0013		0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Lead	mg/L	0.001	0.0044		0.0044										
Lead (filtered)	mg/L	0.001	0.0044		0.0044	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	-
Manganese	mg/L	0.005	0.08		0.76										
Manganese (filtered)	mg/L	0.005	0.08		0.76	0.7	0.13	0.74	0.2	0.015	0.008	0.013	0.013	0.33	0.39
Mercury	mg/L	0.00005	0.0004		0.0004										
Mercury (filtered)	mg/L	0.00005	0.0004		0.0004		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-
Molybdenum	mg/L	0.001	0.023		0.023										
Molybdenum (filtered)	mg/L	0.001	0.023		0.023	0.002	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Nickel	mg/L	0.001	0.07		0.07										
Nickel (filtered)	mg/L	0.001	0.07		0.07	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Zinc	mg/L	0.001	0.008		0.009	0.008									
Zinc (filtered)	mg/L	0.001	0.008		0.009	0.008	0.003	0.002	0.001	0.02	<0.001	<0.001	<0.001	0.005	-
Potassium (filtered)	mg/L	0.5					1	40	2	3	2	0.6	0.6	3	-

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							16 Mar 2026	16 Mar 2026	17 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	01 Apr 2026
	Unit	PQL													
TRH															
C6-C10 Fraction (F1)	mg/L	0.01			0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
C6-C10 (F1 minus BTEX)	mg/L	0.01			0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
>C10-C16 Fraction (F2)	mg/L	0.05			0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
>C16-C34 Fraction (F3)	mg/L	0.05			0.05		0.22	<0.1	<0.1	0.26	0.2	<0.1	<0.1	0.1	-
>C34-C40 Fraction (F4)	mg/L	0.1			0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
>C10-C40 Fraction (Sum)	mg/L	0.1			0.1		0.22	<0.05	<0.05	0.26	0.2	<0.05	<0.05	0.1	-
>C10-C16 Fraction (F2 minus Naphthalene)	mg/L	0.05			0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
C6-C9 Fraction	mg/L	0.01			0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
C10-C14 Fraction	mg/L	0.05			0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
C15-C28 Fraction	mg/L	0.1			0.1		0.16	<0.1	<0.1	0.18	0.14	<0.1	<0.1	<0.1	-
C29-C36 Fraction	mg/L	0.1			0.1		<0.1	<0.1	<0.1	0.12	<0.1	<0.1	<0.1	<0.1	-
C10-C36 Fraction (Sum)	mg/L	0.05			0.05		0.16	<0.05	<0.05	0.3	0.14	<0.05	<0.05	<0.05	-
TPH															
C10-C14 Fraction (SG)	mg/L	0.05			0.05		<0.05	-	-	<0.05	<0.05	-	-	<0.05	-
C15-C28 Fraction (SG)	mg/L	0.1			0.1		<0.1	-	-	<0.1	<0.1	-	-	<0.1	-
C29-C36 Fraction (SG)	mg/L	0.1			0.1		<0.1	-	-	<0.1	<0.1	-	-	<0.1	-
>C10-C16 Fraction (SG)	mg/L	0.05			0.05		<0.05	-	-	<0.05	<0.05	-	-	<0.05	-
>C16-C34 Fraction (SG)	mg/L	0.1			0.1		<0.1	-	-	<0.1	<0.1	-	-	<0.1	-
>C34-C40 Fraction (SG)	mg/L	0.1			0.1		<0.1	-	-	<0.1	<0.1	-	-	<0.1	-
Cyanide Total	mg/L	0.004	0.007		0.007		<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	-	<0.004	-
Ionic Balance	%														
BTEX															
Benzene	mg/L	0.001	0.7		0.7		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Toluene	mg/L	0.001	0.18		0.18		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Ethylbenzene	mg/L	0.001	0.08		0.08		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Xylene (m & p)	mg/L	0.002	0.075[#2]		0.078		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-
Xylene (o)	mg/L	0.001	0.35		0.35		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Naphthalene (VOC)	mg/L	0.001	0.07		0.07		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Phenols															
2,4,5-Trichlorophenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
2,4,6-Trichlorophenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
2,4-Dichlorophenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
2,4-Dimethylphenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
2,6-Dichlorophenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
2-Chlorophenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
2-Methylphenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
2-Nitrophenol	mg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
3&4-Methylphenol (m&p-cresol)	mg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-
4-chloro-3-methylphenol	mg/L	0.005					<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-
4-Nitrophenol															
Pentachlorophenol	mg/L	0.005	0.022		0.22		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-
Phenol	mg/L	0.001	0.4		0.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Naphthalene (VOC)	mg/L	0.0001	0.07		0.07		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Phenanthrene	mg/L	0.0001	0.002		0.002		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Anthracene	mg/L	0.0001	0.00001		0.00001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Fluoranthene	mg/L	0.0001	0.001		0.001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Benzo(a) pyrene	mg/L	0.0001	0.0001		0.00001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Acenaphthene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Acenaphthylene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Benzo(a)anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Benzo(a)pyrene TEQ	mg/L	0.0005					<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-
Benzo(b+j+k)fluoranthene	mg/L	0.0002					<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-
Benzo(g,h,i)perylene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Chrysene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Dibenz(a,h)anthracene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Fluorene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Indeno(1,2,3-c,d)pyrene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Pyrene	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
PAHs (Sum of positives)	mg/L	0.0001					<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-
Organophosphorous Pesticides															
Dichlorvos	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Dimethoate	µg/L	0.1					<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-
Diazinon	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
Chlorpyrifos-methyl	mg/L	0.00005					<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-	<0.00005	-
Methyl parathion	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Malathion	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Fenthion	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Chlorpyrifos	µg/L	0.009	0.009		0.009		<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	-	<0.009	-
Parathion	µg/L	0.004					<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	-	<0.004	-
Bromophos-ethyl	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-

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Table 1: Summary of water quality monitoring results - March and April 2026

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Trigger Levels based on Revised GMMP (Douglas, 2025)		Groundwater - Tomago Sandbeds Wells								
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	Assessment Criteria for Tomago Sandbeds Wells	UCL95-mean for Tomago Sandbeds Wells	MW1A	MW6	MW8A	MW10	MW11	MW12	DGW/16.3.26	MW13	MW13
							16 Mar 2026	16 Mar 2026	17 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	16 Mar 2026	01 Apr 2026
	Unit	PQL													
Fenamiphos	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Ethion	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Azinophos methyl	µg/L	0.02					<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	-
Disulfoton	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Fenitrothion	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Methidathion	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Mevinphos (Phosdrin)	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Phorate	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Phosalone	mg/L	0.00005					<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	-	<0.00005	-
Ronnel	µg/L	0.05					<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	-
Organochlorine Pesticides															
a-BHC	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Hexachlorobenzene	µg/L	0.001	**0.0001**		**0.1**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
b-BHC	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
g-BHC (Lindane)	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
d-BHC	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Heptachlor	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Aldrin	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Heptachlor epoxide	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Chlordane (trans)	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Endosulfan I	µg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-
Chlordane (cis)	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Dieldrin	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
4,4-DDE	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Endrin	µg/L	0.001	**0.008**		**0.008**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Endosulfan II	µg/L	0.002					<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	-	<0.002	-
DDD	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Endrin aldehyde	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Endosulfan sulphate	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
DDT	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
Methoxychlor	µg/L	0.001					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	-
PCBs															
Arochlor 1016	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
Arochlor 1221	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
Arochlor 1232	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
Arochlor 1242	µg/L	0.01000	**0.3**		**0.3**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
Arochlor 1248	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
Arochlor 1254	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
Arochlor 1260	µg/L	0.01					<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	-
PFAS															
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.001		**0.13**	**0.13**		**0.003**	<0.001	**0.008**	**0.003**	<0.001	<0.001	<0.001	**0.002**	-
Perfluorooctanoic acid (PFOA)	µg/L	0.001		**220**	**220**		<0.001	<0.001	**0.004**	**0.002**	<0.001	<0.001	<0.001	**0.001**	-
Sum of PFHxS and PFOS	µg/L	0.001					**0.006**	<0.001	**0.014**	**0.007**	**0.002**	<0.001	<0.001	**0.004**	-

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Table 1: Summary of water quality monitoring results - March and April 2026

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Trigger Levels based on Revised GMMP (Douglas, 2025)		Groundwater - Clay Wells	
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	Assessment Criteria for Clay Aquitard	UCL95-mean for Clay Aquitard	MW2	MW4
							16 Mar 2026	16 Mar 2026
	Unit	PQL						
Field								
pH	-		6.5-8.5		6.7-8.0		6.5	6.8
Electrical Conductivity	µS/cm	1	125-2200		15900	22400	1090	32300
Total Suspended Solids (Lab)	mg/L	5					42	170
Inorganics								
Chloride					4720	7330	37	9,500
Sulphate	mg/L	1			2560	3500	16	5,100
Fluoride	mg/L	1			0.74	0.62	0.8	0.5
Alkalinity (Hydroxide) as CaCO3	mg/L	0.1				1.75	<5	<5
Alkalinity (Carbonate as CaCO3)	mg/L	5				247	<5	<5
Alkalinity (Bicarbonate as CaCO3)	mg/L	5				676	680	870
Alkalinity (total) as CaCO3	mg/L	1				767	680	870
Hardness (filtered)	mg/L	5				4770	280	4,700
Ammonia as N (filtered)	mg/L	3	0.91		1.81	3	0.32	1.6
Nitrite (as N) (filtered)	mg/L	0.005			0.017	0.02	<0.005	<0.005
Nitrate (as N) (filtered)	mg/L	0.005			0.04	0.08	<0.005	<0.005
Kjeldahl Nitrogen Total	mg/L	0.005			4.51	4.53	3.7	3.9
Nitrogen (Total Oxidised)	mg/L	0.1			0.11	0.2	<0.005	<0.005
Total Phosphorus (Organic Phosphate)		0.05	0.03		2.3	1.62	<0.05	1.4
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005	0.005		0.013	0.019	<0.005	<0.005
Sodium (filtered)	mg/L	0.5				4660	250	6,500
Calcium (filtered)	mg/L	0.5				291	54	370
Magnesium (filtered)	mg/L	0.5				842	36	930
Iron (filtered)	mg/L	0.01			45	60	9.5	65
Metals								
Aluminium	mg/L	0.01	0.0005		0.016			
Aluminium (filtered)	mg/L	0.01	0.0005		0.016	0.015	<0.01	<0.01
Arsenic	mg/L	0.001	0.0023		0.004			
Arsenic (filtered)	mg/L	0.001	0.0023		0.004	0.005	0.004	<0.001
Cadmium	mg/L	0.0001	0.0055		0.0055			
Cadmium (filtered)	mg/L	0.0001	0.0055		0.0055		<0.0001	<0.0001
Chromium (III+VI)	mg/L	0.001	0.0044		0.0044			
Chromium (III+VI) (filtered)	mg/L	0.001	0.0044		0.0044	0.001	<0.001	<0.001
Copper	mg/L	0.001	0.0013		0.004			
Copper (filtered)	mg/L	0.001	0.0013		0.004	0.003	<0.001	<0.001
Lead	mg/L	0.001	0.0044		0.0044			
Lead (filtered)	mg/L	0.001	0.0044		0.0044	0.001	<0.001	<0.001
Manganese	mg/L	0.005	0.08		7.5			
Manganese (filtered)	mg/L	0.005	0.08		7.5	9.2	0.69	9.7
Mercury	mg/L	0.00005	0.0004		0.0004			
Mercury (filtered)	mg/L	0.00005	0.0004		0.0004		<0.00005	<0.00005
Molybdenum	mg/L	0.001	0.023		0.023			
Molybdenum (filtered)	mg/L	0.001	0.023		0.023	0.003	0.002	<0.001
Nickel	mg/L	0.001	0.07		0.07			
Nickel (filtered)	mg/L	0.001	0.07		0.07	0.01	0.007	0.022
Zinc	mg/L	0.001	0.008		0.07			
Zinc (filtered)	mg/L	0.001	0.008		0.07	0.313	0.28	0.041
Potassium (filtered)	mg/L	0.5				131	19	240

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			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Trigger Levels based on Revised GMMP (Douglas, 2025)		Groundwater - Clay Wells	
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	Assessment Criteria for Clay Aquitard	UCL95-mean for Clay Aquitard	MW2	MW4
							16 Mar 2026	16 Mar 2026
	Unit	PQL						
TRH								
C6-C10 Fraction (F1)	mg/L	0.01			0.01		<0.01	<0.01
C6-C10 (F1 minus BTEX)	mg/L	0.01			0.01		<0.01	<0.01
>C10-C16 Fraction (F2)	mg/L	0.05			0.05		<0.05	0.1
>C16-C34 Fraction (F3)	mg/L	0.05			0.05		0.36	<0.1
>C34-C40 Fraction (F4)	mg/L	0.1			0.1		<0.1	<0.1
>C10-C40 Fraction (Sum)	mg/L	0.1			0.1		0.36	0.1
>C10-C16 Fraction (F2 minus Naphthalene)	mg/L	0.05			0.05		<0.05	0.1
C6-C9 Fraction	mg/L	0.01			0.01		<0.01	<0.01
C10-C14 Fraction	mg/L	0.05			0.05		<0.05	<0.05
C15-C28 Fraction	mg/L	0.1			0.1		0.26	0.14
C29-C36 Fraction	mg/L	0.1			0.1		0.14	<0.1
C10-C36 Fraction (Sum)	mg/L	0.05			0.05		0.4	0.14
TPH								
C10-C14 Fraction (SG)	mg/L	0.05			0.05		<0.05	<0.05
C15-C28 Fraction (SG)	mg/L	0.1			0.1		<0.1	<0.1
C29-C36 Fraction (SG)	mg/L	0.1			0.1		<0.1	<0.1
>C10-C16 Fraction (SG)	mg/L	0.05			0.05		<0.05	<0.05
>C16-C34 Fraction (SG)	mg/L	0.1			0.1		<0.1	<0.1
>C34-C40 Fraction (SG)	mg/L	0.1			0.1		<0.1	<0.1
Cyanide Total	mg/L	0.004	0.007		0.007		<0.004	<0.004
Ionic Balance	%							
BTEX								
Benzene	mg/L	0.001	0.7		0.7		<0.001	<0.001
Toluene	mg/L	0.001	0.18		0.18		<0.001	<0.001
Ethylbenzene	mg/L	0.001	0.08		0.08		<0.001	<0.001
Xylene (m & p)	mg/L	0.002	0.075[#2]		0.078		<0.002	<0.002
Xylene (o)	mg/L	0.001	0.35		0.35		<0.001	<0.001
Naphthalene (VOC)	mg/L	0.001	0.07		0.07		<0.001	<0.001
Phenols								
2,4,5-Trichlorophenol	mg/L	0.001					<0.001	<0.001
2,4,6-Trichlorophenol	mg/L	0.001					<0.001	<0.001
2,4-Dichlorophenol	mg/L	0.001					<0.001	<0.001
2,4-Dimethylphenol	mg/L	0.001					<0.001	<0.001
2,6-Dichlorophenol	mg/L	0.001					<0.001	<0.001
2-Chlorophenol	mg/L	0.001					<0.001	<0.001
2-Methylphenol	mg/L	0.001					<0.001	<0.001
2-Nitrophenol	mg/L	0.001					<0.001	<0.001
3&4-Methylphenol (m&p-cresol)	mg/L	0.002					<0.002	<0.002
4-chloro-3-methylphenol	mg/L	0.005					<0.005	<0.005
4-Nitrophenol								
Pentachlorophenol	mg/L	0.005	0.022		0.22		<0.005	<0.005
Phenol	mg/L	0.001	0.4		0.4		<0.001	<0.001
Naphthalene (VOC)	mg/L	0.0001	0.07		0.07		<0.001	<0.001
Phenanthrene	mg/L	0.0001	0.002		0.002		<0.0001	<0.0001
Anthracene	mg/L	0.0001	0.00001		0.00001		<0.0001	<0.0001
Fluoranthene	mg/L	0.0001	0.001		0.001		<0.0001	<0.0001
Benzo(a) pyrene	mg/L	0.0001	0.0001		0.00001		<0.0001	<0.0001
Acenaphthene	mg/L	0.0001					<0.0001	<0.0001
Acenaphthylene	mg/L	0.0001					<0.0001	<0.0001
Benzo(a)anthracene	mg/L	0.0001					<0.0001	<0.0001
Benzo(a)pyrene TEQ	mg/L	0.0005					<0.0005	<0.0005
Benzo(b+j+k)fluoranthene	mg/L	0.0002					<0.0002	<0.0002
Benzo(g,h,i)perylene	mg/L	0.0001					<0.0001	<0.0001
Chrysene	mg/L	0.0001					<0.0001	<0.0001
Dibenz(a,h)anthracene	mg/L	0.0001					<0.0001	<0.0001
Fluorene	mg/L	0.0001					<0.0001	<0.0001
Indeno(1,2,3-c,d)pyrene	mg/L	0.0001					<0.0001	<0.0001
Pyrene	mg/L	0.0001					<0.0001	<0.0001
PAHs (Sum of positives)	mg/L	0.0001					<0.0001	<0.0001
Organophosphorous Pesticides								
Dichlorvos	µg/L	0.05					<0.05	<0.05
Dimethoate	µg/L	0.1					<0.1	<0.1
Diazinon	µg/L	0.01					<0.01	<0.01
Chlorpyrifos-methyl	mg/L	0.00005					<0.00005	<0.00005
Methyl parathion	µg/L	0.05					<0.05	<0.05
Malathion	µg/L	0.05					<0.05	<0.05
Fenthion	µg/L	0.05					<0.05	<0.05
Chlorpyrifos	µg/L	0.009	0.009		0.009		<0.009	<0.009
Parathion	µg/L	0.004					<0.004	<0.004
Bromophos-ethyl	µg/L	0.05					<0.05	<0.05

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Table 1: Summary of water quality monitoring results - March and April 2026

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Trigger Levels based on Revised GMMP (Douglas, 2025)		Groundwater - Clay Wells	
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	Assessment Criteria for Clay Aquitard	UCL95-mean for Clay Aquitard	MW2	MW4
							16 Mar 2026	16 Mar 2026
	Unit	PQL						
Fenamiphos	µg/L	0.05					<0.05	<0.05
Ethion	µg/L	0.05					<0.05	<0.05
Azinophos methyl	µg/L	0.02					<0.02	<0.02
Disulfoton	µg/L	0.05					<0.05	<0.05
Fenitrothion	µg/L	0.05					<0.05	<0.05
Methidathion	µg/L	0.05					<0.05	<0.05
Mevinphos (Phosdrin)	µg/L	0.05					<0.05	<0.05
Phorate	µg/L	0.05					<0.05	<0.05
Phosalone	mg/L	0.00005					<0.00005	<0.00005
Ronnel	µg/L	0.05					<0.05	<0.05
Organochlorine Pesticides								
a-BHC	µg/L	0.001					<0.001	<0.001
Hexachlorobenzene	µg/L	0.001	0.0001		0.001		<0.001	<0.001
b-BHC	µg/L	0.001					<0.001	<0.001
g-BHC (Lindane)	µg/L	0.001					<0.001	<0.001
d-BHC	µg/L	0.001					<0.001	<0.001
Heptachlor	µg/L	0.001					<0.001	<0.001
Aldrin	µg/L	0.001					<0.001	<0.001
Heptachlor epoxide	µg/L	0.001					<0.001	<0.001
Chlordane (trans)	µg/L	0.001					<0.001	<0.001
Endosulfan I	µg/L	0.002					<0.002	<0.002
Chlordane (cis)	µg/L	0.001					<0.001	<0.001
Dieldrin	µg/L	0.001					<0.001	<0.001
4,4-DDE	µg/L	0.001					<0.001	<0.001
Endrin	µg/L	0.001	0.008		0.008		<0.001	<0.001
Endosulfan II	µg/L	0.002					<0.002	<0.002
DDD	µg/L	0.001					<0.001	<0.001
Endrin aldehyde	µg/L	0.001					<0.001	<0.001
Endosulfan sulphate	µg/L	0.001					<0.001	<0.001
DDT	µg/L	0.001					<0.001	<0.001
Methoxychlor	µg/L	0.001					<0.001	<0.001
PCBs								
Arochlor 1016	µg/L	0.01					<0.01	<0.01
Arochlor 1221	µg/L	0.01					<0.01	<0.01
Arochlor 1232	µg/L	0.01					<0.01	<0.01
Arochlor 1242	µg/L	0.01000	0.3		0.3		<0.01	<0.01
Arochlor 1248	µg/L	0.01					<0.01	<0.01
Arochlor 1254	µg/L	0.01					<0.01	<0.01
Arochlor 1260	µg/L	0.01					<0.01	<0.01
PFAS								
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.001		0.13	0.13		0.002	<0.001
Perfluorooctanoic acid (PFOA)	µg/L	0.001		220	220		0.002	<0.001
Sum of PFHxS and PFOS	µg/L	0.001					0.005	<0.001

Table 1: Summary of water quality monitoring results - March and April 2026

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Surface Water			
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	SW1	SW3A	DSW2/17.3.26	SW5
					17 Mar 2026	17 Mar 2026	17 Mar 2026	16 Mar 2026
	Unit	PQL						
Field								
pH	-		6.5-8.5		5.9	5.7		5.3
Electrical Conductivity	µS/cm	1	125-2200		190	171		155
Total Suspended Solids (Lab)	mg/L	5			87	1,100	800	<5
Inorganics								
Chloride					37	33	31	35
Sulphate	mg/L	1			<1	10	9	3
Fluoride	mg/L	1			0.1	<0.1	<0.1	<0.1
Alkalinity (Hydroxide) as CaCO3	mg/L	0.1			<5	<5	<5	<5
Alkalinity (Carbonate as CaCO3)	mg/L	5			<5	<5	<5	<5
Alkalinity (Bicarbonate as CaCO3)	mg/L	5			21	11	9	12
Alkalinity (total) as CaCO3	mg/L	1			21	11	9	12
Hardness (filtered)	mg/L	5			14	18	18	17
Ammonia as N (filtered)	mg/L	3	0.91		0.15	0.007	0.02	0.20
Nitrite (as N) (filtered)	mg/L	0.005			<0.005	<0.005	<0.005	<0.005
Nitrate (as N) (filtered)	mg/L	0.005			<0.005	<0.005	<0.005	0.007
Kjeldahl Nitrogen Total	mg/L	0.005			1.6	1.2	3.5	1.0
Nitrogen (Total Oxidised)	mg/L	0.1			<0.005	<0.005	<0.005	0.007
Total Phosphorus (Organic Phosphate)		0.05	0.03		0.2	0.4	0.50	0.06
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005	0.005		0.01	<0.005	<0.005	<0.005
Sodium (filtered)	mg/L	0.5			20	17	17	19
Calcium (filtered)	mg/L	0.5			3	5	5	2
Magnesium (filtered)	mg/L	0.5			2	1	1	3
Iron (filtered)	mg/L	0.01			0.19	2.1	1.9	0.32
Metals								
Aluminium	mg/L	0.01	0.0005		0.18	9.9	9.3	0.29
Aluminium (filtered)	mg/L	0.01	0.0005		0.02	0.18	0.18	0.2
Arsenic	mg/L	0.001	0.0023		0.003	0.004	0.004	<0.001
Arsenic (filtered)	mg/L	0.001	0.0023		0.002	<0.001	<0.001	<0.001
Cadmium	mg/L	0.0001	0.0055		<0.0001	0.0003	0.0003	<0.0001
Cadmium (filtered)	mg/L	0.0001	0.0055		<0.0001	<0.0001	<0.0001	<0.0001
Chromium (III+VI)	mg/L	0.001	0.0044		<0.001	0.011	0.008	0.001
Chromium (III+VI) (filtered)	mg/L	0.001	0.0044		<0.001	0.001	0.001	0.001
Copper	mg/L	0.001	0.0013		0.001	0.012	0.019	<0.001
Copper (filtered)	mg/L	0.001	0.0013		<0.001	<0.001	<0.001	<0.001
Lead	mg/L	0.001	0.0044		<0.001	0.018	0.022	<0.001
Lead (filtered)	mg/L	0.001	0.0044		<0.001	<0.001	<0.001	<0.001
Manganese	mg/L	0.005	0.08		0.18	0.14	0.13	0.1
Manganese (filtered)	mg/L	0.005	0.08		0.16	0.049	0.048	0.11
Mercury	mg/L	0.00005	0.0004		<0.00005	<0.00005	<0.00005	<0.00005
Mercury (filtered)	mg/L	0.00005	0.0004		<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	mg/L	0.001	0.023		<0.001	<0.001	<0.001	<0.001
Molybdenum (filtered)	mg/L	0.001	0.023		<0.001	<0.001	<0.001	<0.001
Nickel	mg/L	0.001	0.07		<0.001	0.006	0.005	<0.001
Nickel (filtered)	mg/L	0.001	0.07		<0.001	<0.001	<0.001	<0.001
Zinc	mg/L	0.001	0.008		0.007	0.15	0.16	0.001
Zinc (filtered)	mg/L	0.001	0.008		0.001	0.003	0.003	0.001
Potassium (filtered)	mg/L	0.5			1	1	1	1

Table 1: Summary of water quality monitoring results - March and April 2026

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Surface Water			
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	SW1	SW3A	DSW2/17.3.26	SW5
					17 Mar 2026	17 Mar 2026	17 Mar 2026	16 Mar 2026
	Unit	PQL						
TRH								
C6-C10 Fraction (F1)	mg/L	0.01			<0.01	<0.01	<0.01	<0.01
C6-C10 (F1 minus BTEX)	mg/L	0.01			<0.01	<0.01	<0.01	<0.01
>C10-C16 Fraction (F2)	mg/L	0.05			<0.05	**0.051**	<0.05	<0.05
>C16-C34 Fraction (F3)	mg/L	0.05			**0.34**	**0.46**	**0.11**	**0.22**
>C34-C40 Fraction (F4)	mg/L	0.1			**0.12**	**0.12**	<0.1	<0.1
>C10-C40 Fraction (Sum)	mg/L	0.1			**0.47**	**0.63**	**0.11**	**0.22**
>C10-C16 Fraction (F2 minus Naphthalene)	mg/L	0.05			<0.05	**0.051**	<0.05	<0.05
C6-C9 Fraction	mg/L	0.01			<0.01	<0.01	<0.01	<0.01
C10-C14 Fraction	mg/L	0.05			<0.05	<0.05	<0.05	<0.05
C15-C28 Fraction	mg/L	0.1			**0.23**	**0.34**	<0.1	**0.14**
C29-C36 Fraction	mg/L	0.1			**0.18**	**0.19**	<0.1	**0.11**
C10-C36 Fraction (Sum)	mg/L	0.05			**0.41**	**0.53**	<0.05	**0.26**
TPH								
C10-C14 Fraction (SG)	mg/L	0.05			<0.05	<0.05	<0.05	<0.05
C15-C28 Fraction (SG)	mg/L	0.1			<0.1	<0.1	<0.1	<0.1
C29-C36 Fraction (SG)	mg/L	0.1			<0.1	**0.270**	<0.1	<0.1
>C10-C16 Fraction (SG)	mg/L	0.05			<0.05	<0.05	<0.05	<0.05
>C16-C34 Fraction (SG)	mg/L	0.1			<0.1	**0.260**	<0.1	<0.1
>C34-C40 Fraction (SG)	mg/L	0.1			<0.1	<0.1	<0.1	<0.1
Cyanide Total	mg/L	0.004	**0.007**		<0.004			
Ionic Balance	%							
BTEX								
Benzene	mg/L	0.001	**0.7**		<0.001	<0.001	<0.001	<0.001
Toluene	mg/L	0.001	**0.18**		<0.001	**0.002**	**0.003**	<0.001
Ethylbenzene	mg/L	0.001	**0.08**		<0.001	<0.001	<0.001	<0.001
Xylene (m & p)	mg/L	0.002	**0.075**[#2]		<0.002	<0.002	<0.002	<0.002
Xylene (o)	mg/L	0.001	**0.35**		<0.001	<0.001	<0.001	<0.001
Naphthalene (VOC)	mg/L	0.001	**0.07**		<0.001	<0.001	<0.001	<0.001
Phenols								
2,4,5-Trichlorophenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
2,4,6-Trichlorophenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
2,4-Dichlorophenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
2,4-Dimethylphenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
2,6-Dichlorophenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
2-Chlorophenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
2-Methylphenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
2-Nitrophenol	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
3&4-Methylphenol (m&p-cresol)	mg/L	0.002			<0.002	<0.002	<0.002	<0.002
4-chloro-3-methylphenol	mg/L	0.005			<0.005	<0.005	<0.005	<0.005
4-Nitrophenol								
Pentachlorophenol	mg/L	0.005	**0.022**		<0.005	<0.005	<0.005	<0.005
Phenol	mg/L	0.001	**0.4**		<0.001	<0.001	<0.001	<0.001
Naphthalene (VOC)	mg/L	0.0001	**0.07**		<0.001	<0.001	<0.001	<0.001
Phenanthrene	mg/L	0.0001	**0.002**		<0.0001	<0.0001	<0.0001	<0.0001
Anthracene	mg/L	0.0001	**0.00001**		<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	mg/L	0.0001	**0.001**		<0.0001	<0.0001	<0.0001	<0.0001
Benzo(a) pyrene	mg/L	0.0001	**0.0001**		<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Benzo(a)anthracene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Benzo(a)pyrene TEQ	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Benzo(b+j+k)fluoranthene	mg/L	0.0002			<0.0002	<0.0002	<0.0002	<0.0002
Benzo(g,h,i)perylene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Dibenz(a,h)anthracene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Fluorene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Indeno(1,2,3-c,d)pyrene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Pyrene	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
PAHs (Sum of positives)	mg/L	0.0001			<0.0001	<0.0001	<0.0001	<0.0001
Organophosphorous Pesticides								
Dichlorvos	µg/L	0.05			<0.05	<0.05		
Dimethoate	µg/L	0.1			<0.1	<0.1		
Diazinon	µg/L	0.01			<0.01	<0.01		
Chlorpyrifos-methyl	mg/L	0.00005			<0.00005	<0.00005		
Methyl parathion	µg/L	0.05			<0.05	<0.05		
Malathion	µg/L	0.05			<0.05	<0.05		
Fenthion	µg/L	0.05			<0.05	<0.05		
Chlorpyrifos	µg/L	0.009	**0.009**		<0.009	<0.009		
Parathion	µg/L	0.004			<0.004	<0.004		
Bromophos-ethyl	µg/L	0.05			<0.05	<0.05		

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Table 1: Summary of water quality monitoring results - March and April 2026

			Groundwater Default Guideline Values under Groundwater Monitoring Plan (Douglas, 2010		Surface Water			
			ANZG (2018) Marine Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Interim marine 95%	SW1	SW3A	DSW2/17.3.26	SW5
					17 Mar 2026	17 Mar 2026	17 Mar 2026	16 Mar 2026
	Unit	PQL						
Fenamiphos	µg/L	0.05			<0.05	<0.05		
Ethion	µg/L	0.05			<0.05	<0.05		
Azinophos methyl	µg/L	0.02			<0.02	<0.02		
Disulfoton	µg/L	0.05			<0.05	<0.05		
Fenitrothion	µg/L	0.05			<0.05	<0.05		
Methidathion	µg/L	0.05			<0.05	<0.05		
Mevinphos (Phosdrin)	µg/L	0.05			<0.05	<0.05		
Phorate	µg/L	0.05			<0.05	<0.05		
Phosalone	mg/L	0.00005			<0.00005	<0.00005		
Ronnel	µg/L	0.05			<0.05	<0.05		
Organochlorine Pesticides								
a-BHC	µg/L	0.001			<0.001	<0.001		
Hexachlorobenzene	µg/L	0.001	0.0001		<0.001	<0.001		
b-BHC	µg/L	0.001			<0.001	<0.001		
g-BHC (Lindane)	µg/L	0.001			<0.001	<0.001		
d-BHC	µg/L	0.001			<0.001	<0.001		
Heptachlor	µg/L	0.001			<0.001	<0.001		
Aldrin	µg/L	0.001			<0.001	<0.001		
Heptachlor epoxide	µg/L	0.001			<0.001	<0.001		
Chlordane (trans)	µg/L	0.001			<0.001	<0.001		
Endosulfan I	µg/L	0.002			<0.002	<0.002		
Chlordane (cis)	µg/L	0.001			<0.001	<0.001		
Dieldrin	µg/L	0.001			<0.001	<0.001		
4,4-DDE	µg/L	0.001			<0.001	<0.001		
Endrin	µg/L	0.001	0.008		<0.001	<0.001		
Endosulfan II	µg/L	0.002			<0.002	<0.002		
DDD	µg/L	0.001			<0.001	<0.001		
Endrin aldehyde	µg/L	0.001			<0.001	<0.001		
Endosulfan sulphate	µg/L	0.001			<0.001	<0.001		
DDT	µg/L	0.001			<0.001	<0.001		
Methoxychlor	µg/L	0.001			<0.001	<0.001		
PCBs								
Arochlor 1016	µg/L	0.01			<0.01	<0.01		
Arochlor 1221	µg/L	0.01			<0.01	<0.01		
Arochlor 1232	µg/L	0.01			<0.01	<0.01		
Arochlor 1242	µg/L	0.01000	0.3		<0.01	<0.01		
Arochlor 1248	µg/L	0.01			<0.01	<0.01		
Arochlor 1254	µg/L	0.01			<0.01	<0.01		
Arochlor 1260	µg/L	0.01			<0.01	<0.01		
PFAS								
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.001		0.13	**0.002**	**0.005**	**0.005**	**0.003**
Perfluorooctanoic acid (PFOA)	µg/L	0.001		220	**0.002**	**0.003**	**0.003**	<0.001
Sum of PFHxS and PFOS	µg/L	0.001			**0.005**	**0.010**	**0.0099**	**0.006**

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 404571-A

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.20, Tomago**
Number of Samples	Additional analysis
Date samples received	18/03/2026
Date completed instructions received	27/03/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	07/04/2026
Date of Issue	07/04/2026

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Results Approved By
Dragana Tomas, Senior Chemist
Nancy Zhang, Laboratory Manager, Sydney

Authorised By
Nancy Zhang, Laboratory Manager

svTRH (C10-C40) in Water NEPM Silica gel				
Our Reference		404571-A-2	404571-A-3	404571-A-4
Your Reference	UNITS	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	31/03/2026	31/03/2026	31/03/2026
Date analysed	-	01/04/2026	01/04/2026	01/04/2026
TRH (Silica) C_{10} - C_{14}	µg/L	<50	<50	<50
TRH (Silica) C_{15} - C_{28}	µg/L	<100	<100	<100
TRH (Silica) C_{29} - C_{36}	µg/L	270	<100	<100
TRH (Silica) >C_{10} - C_{16}	µg/L	<50	<50	<50
TRH (Silica) >C_{16} - C_{34}	µg/L	260	100	<100
TRH (Silica) >C_{34} - C_{40}	µg/L	<100	<100	<100
Surrogate 1-Chlorooctadecane	%	71	71	71

Miscellaneous Inorganics			
Our Reference		404571-A-1	404571-A-3
Your Reference	UNITS	MW8A	SW1
Date Sampled		17/03/2026	17/03/2026
Type of sample		Water	Water
Date prepared	-	30/03/2026	30/03/2026
Date analysed	-	30/03/2026	30/03/2026
Total Cyanide	mg/L	<0.004	<0.004

Method ID	Methodology Summary
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

QUALITY CONTROL: svTRH (C10-C40) in Water NEPM Silica gel						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			31/03/2026	[NT]	[NT]	[NT]	[NT]	31/03/2026	[NT]
Date analysed	-			01/04/2026	[NT]	[NT]	[NT]	[NT]	01/04/2026	[NT]
TRH (Silica) C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH (Silica) C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH (Silica) C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH (Silica) >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH (Silica) >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH (Silica) >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate 1-Chlorooctadecane	%		Org-020	102	[NT]	[NT]	[NT]	[NT]	120	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			30/03/2026	[NT]	[NT]	[NT]	[NT]	30/03/2026	[NT]
Date analysed	-			30/03/2026	[NT]	[NT]	[NT]	[NT]	30/03/2026	[NT]
Total Cyanide	mg/L	0.004	Inorg-014	<0.004	[NT]	[NT]	[NT]	[NT]	113	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 405887

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.20 Tomago**
Number of Samples	1 Water
Date samples received	02/04/2026
Date completed instructions received	02/04/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	09/04/2026
Date of Issue	20/04/2026
Reissue Details	This report replaces R00 created on 09/04/2026 due to: Sampling date amended (client request)

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Results Approved By
Jenny He, Inorganic Team Leader
Larry Ye, Senior Chemist
Priya Samarawickrama, Senior Chemist
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

HM in water - dissolved		
Our Reference		405887-1
Your Reference	UNITS	MW13
Date Sampled		01/04/2026
Type of sample		Water
Date prepared	-	07/04/2026
Date analysed	-	07/04/2026
Aluminium-Dissolved	µg/L	30
Iron-Dissolved	µg/L	3,000
Manganese-Dissolved	µg/L	390

Miscellaneous Inorganics		
Our Reference		405887-1
Your Reference	UNITS	MW13
Date Sampled		01/04/2026
Type of sample		Water
Date prepared	-	02/04/2026
Date analysed	-	02/04/2026
Total Suspended Solids	mg/L	78
Fluoride, F	mg/L	0.3
Ammonia as N in water	mg/L	1.3
Nitrite as N in water	mg/L	<0.005
Nitrate as N in water	mg/L	<0.005
NOx as N in water	mg/L	<0.005
TKN in water	mg/L	1.963
Phosphate as P in water	mg/L	0.006
Dissolved Organic Carbon	mg/L	8

Metals in Waters - Acid extractable		
Our Reference		405887-1
Your Reference	UNITS	MW13
Date Sampled		01/04/2026
Type of sample		Water
Date prepared	-	07/04/2026
Date analysed	-	07/04/2026
Phosphorus - Total	mg/L	0.1

Ion Balance		
Our Reference		405887-1
Your Reference	UNITS	MW13
Date Sampled		01/04/2026
Type of sample		Water
Date prepared	-	02/04/2026
Date analysed	-	02/04/2026
Calcium - Dissolved	mg/L	48
Potassium - Dissolved	mg/L	3
Sodium - Dissolved	mg/L	15
Magnesium - Dissolved	mg/L	16
Hardness (calc) equivalent $CaCO_3$	mg/L	190
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	220
Carbonate Alkalinity as $CaCO_3$	mg/L	<5
Total Alkalinity as $CaCO_3$	mg/L	220
Sulphate, SO4	mg/L	4
Chloride, Cl	mg/L	14
Ionic Balance	%	-5.0

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-079	TOC determined using a TOC analyser using the combustion method. Dissolved requires filtering prior to determination. Analysis using APHA latest edition 5310B.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals/elements by ICP-AES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Where molecular anion forms are calculated from an element (e.g. SO4 from S or PO4 from P stoichiometrically), the assumption is that the element is only present in that molecular anion form. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs.

Method ID	Methodology Summary
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			07/04/2026	[NT]	[NT]	[NT]	[NT]	07/04/2026	[NT]
Date analysed	-			07/04/2026	[NT]	[NT]	[NT]	[NT]	07/04/2026	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	92	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			02/04/2026	[NT]	[NT]	[NT]	[NT]	02/04/2026	[NT]
Date analysed	-			02/04/2026	[NT]	[NT]	[NT]	[NT]	02/04/2026	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	[NT]	[NT]	[NT]	[NT]	109	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	106	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	103	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	98	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	98	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	[NT]	[NT]	[NT]	[NT]	87	[NT]
Dissolved Organic Carbon	mg/L	1	Inorg-079	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			07/04/2026	[NT]	[NT]	[NT]	[NT]	07/04/2026	[NT]
Date analysed	-			07/04/2026	[NT]	[NT]	[NT]	[NT]	07/04/2026	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	81	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			02/04/2026	[NT]	[NT]	[NT]	[NT]	02/04/2026	[NT]
Date analysed	-			02/04/2026	[NT]	[NT]	[NT]	[NT]	02/04/2026	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	91	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	88	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	85	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	92	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	82	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
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Quality Control Definitions

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Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

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Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

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Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

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When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Appendix F

Quality Assurance / Quality Control Report

Chain of Custody Sheets (Field and Despatch)

Sample Receipts

1. Field and Laboratory Data Quality Assurance and Quality Control

The field and laboratory data quality assurance and quality control (QA/QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other field QC samples are included at the end of this appendix.

Table 1: Field and Laboratory Quality Control

Item	Evaluation / acceptance criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	C
Intra-laboratory replicates	10% of primary samples; <30% RPD	PC
Laboratory / Reagent Blanks	1 per batch; <PQL	C
Laboratory Duplicate	1 per lab batch; As laboratory certificate	C
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Standard Operating Procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:
C = compliance; PC = partial compliance; NC = non-compliance

1.1 Field Replicates

RPDs for groundwater were low and reflect small differences in concentrations which were close to the PQL.

RPDs surface water were notably higher and up to 141%. The results suggest some heterogeneity between the primary and replicate sample which may be attributable to suspended sediments, limited, organics and stagnant surface water available for sampling at SW3a. Testing of TSS is also indicative of some difference between the samples.

Elevated RPDs are indicated in Table QA1 (results in bold). The exceedances are not, however, considered to be of concern given that:

- The actual differences in the concentrations of the replicate pairs where RPD exceedances occurred were typically low;

- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater analytical variability between replicate pairs can be expected;
- Most of the recorded concentrations were relatively close to the PQL;
- The majority of RPD results from a replicate pair were within the acceptable limits; and
- All other QA/QC parameters met the data quality indicators.

2. Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQI) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

Table 2: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole logs, sample location plan and chain of custody records.
	Preparation of field groundwater sampling sheets.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the groundwater monitoring plans (Douglas, 2010; 2023a).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced samplers used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with Data Quality Objectives
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQI have been complied with.

3. Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQI it is concluded that the field and laboratory test data obtained are generally reliable and useable for this assessment.

4. Reference

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

Table QA1: Results of Field Replicate Testing – March/April 2026

			404471	404471		404571	404571	
			MW12	DGW/16.3.26		SW3A	DSW2/17.3.26	
			16 Mar 2026	16 Mar 2026		17 Mar 2026	17 Mar 2026	
			Water	Water	RPD	Water	Water	RPD
	Unit	EQL						
Inorganics								
Hardness (filtered)	mg/L	3	**12**	**12**	0	**18**	**18**	0
Chloride	mg/L	1	**37**	**38**	3	**33**	**31**	6
Sulphate	mg/L	1	**10**	**11**	10	**10**	**9**	11
Fluoride	mg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0
Alkalinity (Hydroxide) as CaCO3	mg/L	5	<5	<5	0	<5	<5	0
Alkalinity (Carbonate as CaCO3)	mg/L	5	<5	<5	0	<5	<5	0
Alkalinity (total) as CaCO3	mg/L	5	<5	<5	0	**11**	**9**	20
Ammonia as N (filtered)	mg/L	0.005	**0.098**	**0.11**	12	**0.007**	**0.02**	**96**
Alkalinity (Bicarbonate as CaCO3)	mg/L	5	<5	<5	0	**11**	**9**	20
Ionic Balance	%		**-8.0**	**-8.0**	0	**-9.0**	**-5.0**	57
Kjeldahl Nitrogen Total	mg/L	0.1	**0.2**	**0.2**	0	**1.2**	**3.5**	**98**
Nitrate (as N) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0
Nitrite (as N) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0
Nitrogen (Total Oxidised)	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0
Total Phosphorus (Organic Phosphate)	mg/L	0.05	<0.05	<0.05	0	**0.4**	**0.50**	22
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0
Sodium (filtered)	mg/L	0.5	**19**	**19**	0	**17**	**17**	0
Total Suspended Solids (Lab)	mg/L	5	<5	<5	0	**1,100**	**800**	**32**
Metals								
Aluminium	mg/L	0.01				**9.9**	**9.3**	6
Aluminium (filtered)	mg/L	0.01	**0.24**	**0.25**	4	**0.18**	**0.18**	0
Arsenic	mg/L	0.001				**0.004**	**0.004**	0
Arsenic (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Cadmium	mg/L	0.0001				**0.0003**	**0.0003**	0
Cadmium (filtered)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Calcium (filtered)	mg/L	0.5	**2**	**2**	0	**5**	**5**	0
Chromium (III+VI)	mg/L	0.001				**0.011**	**0.008**	32
Chromium (III+VI) (filtered)	mg/L	0.001	<0.001	<0.001	0	**0.001**	**0.001**	0
Copper	mg/L	0.001				**0.012**	**0.019**	45
Copper (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Iron	mg/L	0.01				**14**	**12**	15
Iron (filtered)	mg/L	0.01	**1.5**	**1.5**	0	**2.1**	**1.9**	10
Lead	mg/L	0.001				**0.018**	**0.022**	20
Lead (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Magnesium (filtered)	mg/L	0.5	**2**	**2**	0	**1**	**1**	0
Manganese	mg/L	0.005				**0.14**	**0.13**	7
Manganese (filtered)	mg/L	0.005	**0.013**	**0.013**	0	**0.049**	**0.048**	2
Mercury	mg/L	0.00005				<0.00005	<0.00005	0
Mercury (filtered)	mg/L	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0
Molybdenum	mg/L	0.001				<0.001	<0.001	0
Molybdenum (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Nickel	mg/L	0.001				**0.006**	**0.005**	18
Nickel (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Potassium (filtered)	mg/L	0.5	**0.6**	**0.6**	0	**1**	**1**	0
Zinc	mg/L	0.001				**0.15**	**0.16**	6
Zinc (filtered)	mg/L	0.001	<0.001	<0.001	0	**0.003**	**0.003**	0
TRH								
C6-C10 Fraction (F1)	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
C6-C10 (F1 minus BTEX)	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
>C10-C16 Fraction (F2)	mg/L	0.05	<0.05	<0.05	0	**0.051**	<0.05	2
>C10-C16 Fraction (F2 minus Naphthalene)	mg/L	0.05	<0.05	<0.05	0	**0.051**	<0.05	2
>C16-C34 Fraction (F3)	mg/L	0.1	<0.1	<0.1	0	**0.46**	**0.11**	**123**
>C34-C40 Fraction (F4)	mg/L	0.1	<0.1	<0.1	0	**0.12**	<0.1	18
>C10-C40 Fraction (Sum)	mg/L	0.05	<0.05	<0.05	0	**0.63**	**0.11**	**141**
C6-C9 Fraction	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
C10-C14 Fraction	mg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0
C15-C28 Fraction	mg/L	0.1	<0.1	<0.1	0	**0.34**	<0.1	**109**
C29-C36 Fraction	mg/L	0.1	<0.1	<0.1	0	**0.19**	<0.1	62
C10-C36 Fraction (Sum)	mg/L	0.05	<0.05	<0.05	0	**0.53**	<0.05	**166**
BTEX								
Benzene	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Toluene	mg/L	0.001	<0.001	<0.001	0	**0.002**	**0.003**	40
Ethylbenzene	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Xylene (m & p)	mg/L	0.002	<0.002	<0.002	0	<0.002	<0.002	0
Xylene (o)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Naphthalene (VOC)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
Phenols								
3&4-Methylphenol (m&p-cresol)	mg/L	0.002	<0.002	<0.002	0	<0.002	<0.002	0
2,3,4,6-Tetrachlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2,4,5-Trichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2,4,6-Trichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2,4-Dichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2,4-Dimethylphenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2,4-Dinitrophenol	mg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0
2,6-Dichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2-Chlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2-Methylphenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
2-Nitrophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
4,6-Dinitro-2-methylphenol	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
4-chloro-3-methylphenol	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0
4-Nitrophenol	mg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0
Pentachlorophenol	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0
Phenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0
PAHs								
Acenaphthene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Acenaphthylene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Anthracene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Benzo(a)anthracene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Benzo(b+j+k)fluoranthene	mg/L	0.0002	<0.0002	<0.0002	0	<0.0002	<0.0002	0

Table QA1: Results of Field Replicate Testing – March/April 2026

			404471	404471		404571	404571	
			MW12	DGW/16.3.26		SW3A	DSW2/17.3.26	
Benzo(a) pyrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Benzo(g,h,i)perylene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Chrysene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Dibenz(a,h)anthracene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Fluoranthene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Fluorene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Indeno(1,2,3-c,d)pyrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Naphthalene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Phenanthrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Pyrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
PAHs (Sum of positives)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
PFAS								
Perfluorobutane sulfonic acid (PFBS)	mg/L	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluoropentane sulfonic acid (PFPeS)	mg/L	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluorohexane sulfonic acid (PFHxS)	mg/L	0.000001	<0.000001	<0.000001	0	**0.000006**	**0.000005**	18
Perfluoroheptane sulfonic acid (PFHpS)	mg/L	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluorooctane sulfonic acid (PFOS)	mg/L	0.000001	<0.000001	<0.000001	0	**0.000005**	**0.000005**	0
Perfluorodecane sulfonic acid (PFDS)	mg/L	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0
Perfluorobutanoic acid (PFBA)	mg/L	0.000002	<0.00001	<0.00001	0	<0.00001	<0.00001	0
Perfluorohexanoic acid (PFHxA)	mg/L	0.000001	<0.000001	<0.000001	0	**0.000001**	**0.000001**	0
Perfluoropentanoic acid (PFPeA)	mg/L	0.000002	<0.000004	<0.000004	0	<0.000004	<0.000004	0
Perfluoroheptanoic acid (PFHpA)	mg/L	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluorooctanoic acid (PFOA)	mg/L	0.000001	<0.000001	<0.000001	0	**0.000003**	**0.000003**	0
Perfluorodecanoic acid (PFDA)	mg/L	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0
Perfluorododecanoic acid (PFDoDA)	mg/L	0.000005	<0.000005	<0.000005	0	<0.000005	<0.000005	0
Perfluorononanoic acid (PFNA)	mg/L	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluorotetradecanoic acid (PFTeDA)	mg/L	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0
Perfluorotridecanoic acid (PFTrDA)	mg/L	0.00001	<0.00001	<0.00001	0	<0.00001	<0.00001	0
Perfluoroundecanoic acid (PFUnDA)	mg/L	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	mg/L	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	mg/L	0.000001	**0.000001**	**0.000001**	0	<0.000001	<0.000001	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	mg/L	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	mg/L	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0
Perfluorooctane sulfonamide (FOSA)	mg/L	0.00001	<0.00001	<0.00001	0	<0.00001	<0.00001	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	mg/L	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	mg/L	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	mg/L	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	mg/L	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	mg/L	0.0005	<0.0005	<0.0005	0	<0.0005	<0.0005	0
Sum of PFHxS and PFOS	mg/L	0.000001	<0.000001	<0.000001	0	**0.000010**	**0.0000099**	1
Sum of PFAS	mg/L	0.000001	**0.000001**	**0.000001**	0	**0.000014**	**0.000014**	0
Sum of PFAS (PFOS + PFOA)	mg/L	0.000001	<0.000001	<0.000001	0	**0.000007**	**0.000007**	0

***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 81 (1 - 10 x EQL); 50 (10 - 30 x EQL); 30 (> 30 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY FIELD SHEET

Project No:	39920.20	**Client Project Name:**	Stage 3 Northbank Enterprise Hub
Client:	Northbank Enterprise Hub Pty Ltd	**Location:**	Lot 210 Westrac Drive, Tomago
Project Manager:	Dana Wilson	**DP Lab Received**	By: Date:

Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)

Field									DP Lab	For Despatch to			Notes
Sample ID	Depth (m)	Duplicate Sample	Sample Type S - soil W - water	Container Type G - glass P - plastic	ASS Samples	Sampling By	Sampling Date	Sampling Time	Storage Locn *	Lab 1 A Envirolab Date 16/3/26	Lab 2 B Envirolab Date 17/3/26	Lab 3 C Date	
MW4			W	G, P		SBK/MSD	16/3/26	07:00	Esky				
MW6													
MW2													
MW10													
MW13													
MW11													
MW1A													
SW5													
MW12		DSW1/16/3/26						16:00					
~~[illegible]~~											17/3/26		
MW8A			W	G, P		SBK/MSD	17/3/26	07:00	Esky				
SW3A		DSW2/17/3/26											
SW1													

980243061456-5 TNT

980243061052-8 TNT

* **Default storage: glass containers in fridge, plastic containers shelved, ASS in freezer, water samples in fridge**

A Provide name of Lab 1 Envirolab Services B Provide name of Lab 2 C Provide name of Lab 3

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY FIELD SHEET

Project No:	39920.2	**Client Project Name:**	Stage 1-2
Client:	Westrac	**Location:**	LWestrac Drive, Tomago
Project Manager:	Dana Wilson	**DP Lab Received**	By: Date:

Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)

Field									DP Lab	For Despatch to			Notes
Sample ID	Depth (m)	Duplicate Sample	Sample Type S - soil W - water	Container Type G - glass P - plastic	ASS Samples	Sampling By	Sampling Date	Sampling Time	Storage Locn *	Lab 1 A Date	Lab 2 B Date	Lab 3 C Date	
MW13			W	G1P		SBK	01/04/26	0900	Esky	01/04/26			

* **Default storage: glass containers in fridge, plastic containers shelved, ASS in freezer, water samples in fridge**

A Provide name of Lab 1 Envirolab Services B Provide name of Lab 2 C Provide name of Lab 3

Coc 17/3/26 1300.

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	39920.20	**Suburb:**	Tomago	**To:**	Envirolab Services
Project Manager:	Dana Wilson	**Order Number:**	NC234735	**Sampler:**	SBK/MJD
					12 Ashley St, Chatswood NSW 2067
Email:	Dana.Wilson | Sarah.Krebs | Lachlan.Helbig | Mitchell.Date @douglaspartners.com.au			**Attn:**	Sample Receipt
Turnaround time:	[X] Standard [ ] 72 hour [ ] 48 hour [ ] 24 hour [ ] Same day				(02) 9910 6200 samplereceipt@envirolab
Prior Storage:	[ ] Fridge [ ] Freezer [X] Esky [ ] Shelf	**Do samples contain 'potential' HBM?**	[X] No [ ] Yes (If YES, then handle, transport and store in accordance with FPM HAZ		

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type (S - soil, W - water, M - Material)	Container Type (G - glass, P - plastic)	TSS [Cat 1]	Cations– Ca, K, Mg,Na and iron (Fe). Anions – Cl, SO4, NH3, HCO3, CO3, total alk, NO2, NO3, NOx, TKN, total phosphorous (PO4) & F [Cat 2]	TRH/BTEX / PAH (low)/ phenols / metals; Combo 4 DISSOLVED METALS [Cat 3]	Surface water; Total metals [Cat 3]	Trace level OCP/OPP/ PCB [Cat 3]	Cyanide [Cat 3 - St1-2]	PFAS low level extended suite [Cat 3 St3]	If TRH detected, conduct silica gel clean up	TRH/BTEX (trip spike/blank)	
1	MW4	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
2	MW6	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
3	MW2	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
4	MW10	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
5	MW13	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
6	MW11	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
7	MW1A	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
8	SW5	-	-	16/03/26	W	G,P	X	X	X	X			X	hold		
9	MW12	-	-	16/03/26	W	G,P	X	X	X		X		X	hold		
10	DGW/16.3.26			16/03/26	W	G,P	X	X	X				X	hold		

ENVIROLAB GROUP

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 404471
Date Received: 17/3/26
Time Received: 1020
Received By: ST
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Metals to analyse: Al, As, Cd, Cr, Cu, Fe, Pb Mn, Hg, Mo, Ni, Zn (Mg, Fe, K, Na, Ca - in ionic suite)			**LAB RECEIPT**
Number of samples in container:	10	**Transported to laboratory by:** TNT overnight 16/3/26	**Lab Ref. No:** 404471
Send results to:	Douglas Partners Pty Ltd		**Received by:** Shann Tolc
Address:	15 Callistemon Close, Warabrook NSW 2	**Phone:** (02) 4960 9600	**Date & Time:** 17/3/26 1620
Relinquished by:	MJD/SBK	**Date:** 16/03/2026 **Signed:** SBK	**Signed:** ST

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	39920.20	**Suburb:**	Tomago	**To:**	Envirolab Services
Project Manager:	Dana Wilson	**Order Number:**	NC234735	**Sampler:**	SBK/MJD	12 Ashley St, Chatswood NSW 2067
Email:	Dana.Wilson | Sarah.Krebs | Lachlan.Helbig | Mitchell.Date @douglaspartners.com.au			**Attn:**	Sample Receipt
Turnaround time:	☐ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				(02) 9910 6200 samplereceipt@envirolab
Prior Storage:	☐ Fridge ☐ Freezer ☐ Esky ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZ		

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type (S - soil, W - water, M - Material)	Container Type (G - glass, P - plastic)	Analytes: TSS [Cat 1]	Cations– Ca, K, Mg,Na and iron (Fe). Anions – Cl, SO4, NH3, HCO3, CO3, total alk, NO2, NO3, NOx, TKN, total phosphorous (PO4) & F [Cat 2]	TRH/BTEX / PAH (low)/ phenols / metals / **Combo 4 DISSOLVED METALS** [Cat 3]	Surface water / **Total metals** [Cat 3]	Trace level OCP/OPP/ PCB [Cat 3]	Cyanide [Cat 3 - St1-2]	PFAS low level extended suite [Cat 3 St3]	**If TRH detected, conduct silica gel clean up**	TRH/BTEX (trip spike/blank)	
1	MW8A	-	-	17/03/26	W	G,P	X	X	X		X		X	hold		
2	SW3A	-	-	17/03/26	W	G,P	X	X	X	X	X		X	hold		
3	SW1	-	-	17/03/26	W	G,P	X	X	X	X	X		X	hold		
4	DSW2/17.3.26			17/03/26	W	G,P	X	X	X	X			X	hold		

Metals to analyse: Al, As, Cd, Cr, Cu, Fe, Pb Mn, Hg, Mo, Ni, Zn (Mg, Fe, K, Na, Ca - in ionic suite)

Number of samples in container:	4	**Transported to laboratory by:**	TNT overnight 16/3/26
Send results to:	Douglas Partners Pty Ltd		
Address:	15 Callistemon Close, Warabrook NSW 2	**Phone:**	(02) 4960 9600
Relinquished by:	MJD/SBK	**Date:** 17/03/2026	**Signed:** SBK

LAB RECEIPT

Lab Ref. No: 404571

Received by:

Date & Time: 18/03/2026 10:50

Signed:

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	39920.20	**Suburb:**	Tomago		**To:** Envirolab Services
Project Manager:	Dana Wilson	**Order Number:**	NC234735	**Sampler:** MJD/SBK	12 Ashley St, Chatswood NSW 2067
Email:	Dana.Wilson | Sarah.Krebs | Lachlan.Helbig | Mitchell.Date @douglaspartners.com.au				**Attn:** Sample Receipt
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				(02) 9910 6200 samplereceipt@envirolab.com.au
Prior Storage:	☐ Fridge ☐ Freezer ☑ Esky ☐ Shelf	**Do samples contain 'potential' HBM?**	☑ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZID)		

Lab ID	Sample ID: Location / Other ID	Depth From	Depth To	Date Sampled	Sample Type (S - soil, W - water, M - Material)	Container Type (G - glass, P - plastic)	TSS [Cat 1]	Cations– Ca, K, Mg,Na and iron (Fe). Anions – Cl, SO4, NH3, HCO3, CO3, total alk, NO2, NO3, NOx, TKN, total phosphorous (PO4) & F [Cat 2]	TRH/BTEX / PAH (low)/ phenols / metals – Combo 4 DISSOLVED METALS [Cat 3]	Surface water – Total metals [Cat 3]	Trace level OCP/OPP/PCB [Cat 3]	Cyanide [Cat 3 - St1-2]	PFAS low level extended suite [Cat 3 St3]	If TRH detected, conduct silica gel clean up	TRH/BTEX (trip spike/blank)	On Hold	Notes/ Preservation/ Additional Requirements
1	MW8A			17/3/26	W	G, P										X	
2	SW3A			↓	↓	↓										X	
3	SW1															X	
4	DSW2/17.3.26															X	

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 40457
Date Received: 18/3/26
Time Received: 1050
Received By: CK
Temp: Cool/Ambient
Cooling: Ice/icepack
Security: Intact/Broken/None

Metals to analyse: Al, As, Cd, Cr, Cu, Fe, Pb Mn, Hg, Mo, Ni, Zn (Mg, Fe, K, Na, Ca - in ionic suite)			**LAB RECEIPT**
Number of samples in container: 8	**Transported to laboratory by:** TNT overnight		**Lab Ref. No:** 40457
Send results to: Douglas Partners Pty Ltd			**Received by:** CK
Address: 15 Callistemon Close, Warabrook NSW 2	**Phone:** (02) 4960 9600		**Date & Time:** 18/3/26 1050
Relinquished by: MJD/SBK	**Date:** 17/3/26	**Signed:**	**Signed:**

1557

404571 - A Request 27/3/26

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	39920.20	**Suburb:**	Tomago	**To:**	Envirolab Services
Project Manager:	Dana Wilson	**Order Number:**	NC234735	**Sampler:**	SBK/MJD	12 Ashley St, Chatswood NSW 2067
Email:	Dana.Wilson | Sarah.Krebs | Lachlan.Helbig | Mitchell.Date @douglaspartners.com.au			**Attn:**	Sample Receipt
Turnaround time:	☐ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				(02) 9910 6200 samplereceipt@envirolab
Prior Storage:	☐ Fridge ☐ Freezer ☐ Esky ☐ Shelf	**Do samples contain 'potential' HBM?**	☐ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZ		

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type (S - soil, W - water, M - Material)	Container Type (G - glass, P - plastic)	TSS [Cat 1]	Cations– Ca, K, Mg,Na and iron (Fe), Anions – Cl, SO4, NH3, HCO3, CO3, total alk, NO2, NO3, NOx, TKN, total phosphorous (PO4) & F [Cat 2]	TRH/BTEX / PAH (low)/ phenols / metals; Combo 4 DISSOLVED METALS [Cat 3]	Surface water; Total metals [Cat 3]	Trace level OCP/OPP/PCB [Cat 3]	Cyanide [Cat 3 - St1-2]	PFAS low level extended suite [Cat 3 St3]	If TRH detected, conduct silica gel clean up	TRH/BTEX (trip spike/blank)	
1	MW8A	-	-	17/03/26	W	G,P	X	X	X		X	X	X	hold		
2	SW3A	-	-	17/03/26	W	G,P	X	X	X	X	X		X	hold		
3	SW1	-	-	17/03/26	W	G,P	X	X	X	X	X	X	X	hold		
4	DSW2/17.3.26			17/03/26	W	G,P	X	X	X	X			X	hold		

Metals to analyse: Al, As, Cd, Cr, Cu, Fe, Pb Mn, Hg, Mo, Ni, Zn (Mg, Fe, K, Na, Ca in ionic suite)

Number of samples in container:	4	**Transported to laboratory by:**	TNT overnight 16/3/26
Send results to:	Douglas Partners Pty Ltd		
Address:	15 Callistemon Close, Warabrook NSW 2	**Phone:**	(02) 4960 9600
Relinquished by:	MJD/SBK	**Date:**	17/03/2026 **Signed:** SBK

LAB RECEIPT

Lab Ref. No:	404571
Received by:	
Date & Time:	18/03/2026 10:50
Signed:	

COC 17/03/2026 16:48

Douglas PARTNERS | GROUNDED EXPERTISE

CHAIN OF CUSTODY DESPATCH SHEET

Project No:	39920.20	**Suburb:**	Tomago	**To:**	Envirolab Services
Project Manager:	Dana Wilson	**Order Number:**	NC234573	**Sampler:** SBK	12 Ashley St, Chatswood NSW 2067
Email:	Dana.Wilson | Sarah.Krebs | Lachlan.Helbig | Mitchell.Date @douglaspartners.com.au			**Attn:**	Sample Receipt
Turnaround time:	☑ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				(02) 9910 6200 samplereceipt@envirolab
Prior Storage:	☐ Fridge ☐ Freezer ☑ Esky ☐ Shelf	**Do samples contain 'potential' HBM?**	☑ No ☐ Yes (If YES, then handle, transport and store in accordance with FPM HAZ		

Lab ID	Sample ID: Location / Other ID	Sample ID: Depth From	Sample ID: Depth To	Date Sampled	Sample Type (S - soil, W - water, M - Material)	Container Type (G - glass, P - plastic)	Analytes: TSS [Cat 1]	Analytes: Cations– Ca, K, Mg,Na and iron (Fe). Anions – Cl, SO4, NH3, HCO3, CO3, total alk, NO2, NO3, NOx, TKN, total phosphorous (PO4) & F [Cat 2]	Analytes: Fe, Mn, Al DISSOLVED METALS [Cat 3]	Analytes: Dissolvd organic carbon						
1	MW13	-	-	~~02/04/26~~ 1/4/26	W	G,P	X	X	X	X						

Metals to analyse: as above

Number of samples in container:	1	**Transported to laboratory by:**	TNT overnight
Send results to:	Douglas Partners Pty Ltd		
Address:	15 Callistemon Close, Warabrook NSW 2	**Phone:**	(02) 4960 9600
Relinquished by:	SBK	**Date:** 1/4/26	**Signed:**

LAB RECEIPT

Lab Ref. No:	405887
Received by:	AV
Date & Time:	2/4/26 1040
Signed:	

ENVIROLAB GROUP

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 405887

Date Received: 2/4/26
Time Received: 1040
Received By: AV
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.20, Tomago
Envirolab Reference	404471
Date Sample Received	17/03/2026
Date Instructions Received	17/03/2026
Date Results Expected to be Reported	24/03/2026

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	10 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	svTRH (C10-C40) in Water NEPM Silica gel	PAHs in Water	Speciated Phenols in water	OCPs in Water - Trace Level	OP in water LL ANZECCF/ADWG	PCBs in Water - Trace Level	HM in water - dissolved	HM in water - total	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	Metals in Waters - Acid extractable	Ammonia as N in water	Nitrite as N in water	Nitrate as N in water	TKN in water	Phosphate as P in water	Fluoride, F	Total Suspended Solids	PFAS in Water LOW LEVEL Extend
MW4	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW6	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW2	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW10	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW13	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW11	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW1A	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SW5	✓	✓		✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW12	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DGW/16.3.26	✓	✓		✓	✓				✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement (Envirolab Terms) via hyperlink or found on our websites.

If you do not object in writing within two (2) business days of the date of this acknowledgement, you will be deemed to have accepted the Envirolab Terms. In addition, your provision of further instructions, additional samples, payment of any invoice, or acceptance of services or results from Envirolab will constitute acceptance of the Envirolab Terms. For clarity, Envirolab's commencement or continuation of work following receipt of the PO is performed solely under the Envirolab Terms and does not constitute acceptance of any external terms. All rights are expressly reserved.

Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
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customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.20, Tomago
Envirolab Reference	404571
Date Sample Received	18/03/2026
Date Instructions Received	18/03/2026
Date Results Expected to be Reported	25/03/2026

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	4 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
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Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Speciated Phenols in water	OCPs in Water - Trace Level	OP in water LL ANZECCF/ADWG	PCBs in Water - Trace Level	HM in water - dissolved	HM in water - total	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	Metals in Waters - Acid extractable	Ammonia as N in water	Nitrite as N in water	Nitrate as N in water	NOx as N in water	TKN in water	Phosphate as P in water	Fluoride, F	Total Suspended Solids	PFAS in Water LOW LEVEL Extend
MW8A	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
SW3A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
SW1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
DSW2/17.3.26	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Envirolab Services Pty Ltd
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Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

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Envirolab Services Pty Ltd
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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.20 Tomago
Envirolab Reference	405887
Date Sample Received	02/04/2026
Date Instructions Received	02/04/2026
Date Results Expected to be Reported	09/04/2026

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	10
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

Sample ID	HM in water - dissolved	Total Suspended Solids	Fluoride, F	Ammonia as N in water	Nitrite as N in water	Nitrate as N in water	NOx as N in water	TKN in water	Phosphate as P in water	Dissolved Organic Carbon	Metals in Waters - Acid extractable	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance
MW13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

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mc² Environmental

Appendix C

Water Monitoring Reports: Stage 3

Douglas PARTNERS

GROUNDED EXPERTISE

Report on Post Baseline Groundwater and Surface Water Monitoring – March 2026 (During Construction)

Stage 3 Northbank Enterprise Hub

Lot 210 DP 1174939, WesTrac Drive, Tomago NSW

Prepared for Northbank Enterprise Hub Pty Ltd

Project 39920.09

2 June 2026

Douglas Partners Pty Ltd
ABN 75 053 980 117
douglaspartners.com.au
15 Callistemon Close, Warabrook, NSW 2304
(02) 4960 9600

GROUNDED EXPERTISE

Document History

Details

Project No.	39920.09
Document Title	Report on Post Baseline Groundwater and Surface Water Monitoring – March 2026
Site Address	Lot 210 DP 1174939, WesTrac Drive, Tomago NSW
Report Prepared For	Northbank Enterprise Hub Pty Ltd
Filename	39920.09.R.031.Rev0.2026-03-Stage3

Status and Review

Status	Prepared by	Reviewed by	Date issued
Draft A	Dana Wilson	Will Wright	26 May 2026
Revision 0	Dana Wilson	Will Wright	2 June 2026

Distribution of Copies

Status	Issued to
Draft A	Steve Robson, Northbank Enterprise Hub Pty Ltd Scott Day, Torque Projects Pty Ltd
Revision 0	Steve Robson, Northbank Enterprise Hub Pty Ltd Scott Day, Torque Projects Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature		Date
Author	Dana Wilson	2 June 2026
Reviewer	P W Wright	2 June 2026

bsi ISO 9001 Quality Management Systems CERTIFIED
FS604853

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

Executive Summary

This report presents the results of groundwater and surface water monitoring undertaken in March 2026 for Stage 3 of the Northbank Enterprise Hub at Lot 210 DP 1174939, WesTrac Drive, Tomago NSW (the site).

Groundwater and surface water monitoring is required under EPBC Approval 2007/3343 and Project Approval MP07_0086. Requirements are set out in the Groundwater Monitoring Plan (GMP) (Douglas, 2025a), Groundwater Management Plan (GWMngtP) (Douglas, 2024), and Stage 3 Soil and Water Management Plan (SMP) (WRM, 2025). These plans require monitoring of groundwater levels, groundwater and surface water quality, and potential development impacts.

The March 2026 event was the first post-baseline monitoring round following commencement of early vegetation clearing and slashing in November 2025. While clearing activities have begun, no major construction activities (e.g. earthworks, fill importation etc) had commenced. Inspections and monitoring of surface waters, separate to the requirements GMP/GWMngtP were also undertaken as reported in Douglas (2026b) and included in Appendix G.

Post-baseline water quality monitoring is required every six months during and after construction, with quarterly water level monitoring via dataloggers. Results are assessed against baseline data from 2023 to 2025 and the historical record.

Monitoring included groundwater level measurement, groundwater and surface water field testing, laboratory analysis of prescribed analytes, QA/QC checks, assessment against relevant criteria, and trend review.

Groundwater levels in March 2026 were lower than in April 2025 but remained within the historical range. Groundwater flow to the south-east was inferred, consistent with previous monitoring.

Monitoring showed no evidence of gross contamination in groundwater or surface water based on field observations and testing of analytes listed in the monitoring plans. Additional TPH speciation testing was also completed in accordance with the GMP/GWMngtP.

Groundwater quality differed between the Tomago Sandbeds and Clay Aquitard aquifers, consistent with historical patterns and the use of separate trigger levels in the GMP/GWMngtP. Some spatial variation was also evident within each aquifer.

Some wells and parameters exceeded assessment criteria; however, overall groundwater and surface water quality remained generally consistent with the historical dataset. Localised nutrient and metal outliers are considered to reflect natural influences such as redox conditions, pH variability, and groundwater level fluctuations. Together with the limited site activities, these results indicate conditions remain comparable to baseline.

Trace hydrocarbons at surface water location SW3a suggest possible influence from road runoff and vehicle activity on Tomago Road. This is considered representative of incoming baseline surface water quality rather than Stage 3 activities.

Future monitoring under the GMP/GWMngtP will support ongoing assessment of groundwater levels and water quality trends during post-baseline stages and help manage potential impacts.

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Appendix A: About This Report

Drawing 1 – Groundwater Monitoring Well and Surface Water Monitoring Location Plan

Appendix B: Field Work Methodology

Appendix C: Sampling Methods

Soil Descriptions

Symbols and Abbreviations

Borehole logs (Bores MW6 to MW11, MW8A, MW101 to MW106) –Douglas Partners

Borehole Logs (Bores MW1 to MW5) – Coffey

Table A1: Monitoring Well Summary

Appendix D: Figure D1: Groundwater Levels in Monitoring Wells (2024-2026)

Figure D2: Groundwater Levels in Monitoring Wells (2010-2026)

Groundwater Quality Monitoring Plots

Surface Water Quality Monitoring Plots

Appendix E: Table 1: Summary of water quality monitoring results – March 2026

Laboratory Report Sheets (404470, 404471, 404571, 404571-A, 404575)

Appendix F: Quality Assurance / Quality Control Report

Chain of Custody Sheets (Field and Despatch)

Sample Receipts

Appendix G: Interim Closure Report on Environmental Inspections and Monitoring (Douglas, 2026b)

Report on Post Baseline Groundwater and Surface Water Monitoring – March 2026 (During Construction) Stage 3 Northbank Enterprise Hub Lot 210 DP 1174939, WesTrac Drive, Tomago NSW

1. Introduction

This report, prepared by Douglas Partners Pty Ltd (Douglas), presents the results of groundwater and surface water monitoring undertaken in March 2026 for Stage 3 of the Northbank Enterprise Hub at Lot 210 DP 1174939, WesTrac Drive, Tomago NSW (the site). The investigation was commissioned by Northbank Enterprise Hub Pty Ltd and was undertaken in line with Douglas' proposal 39920.09.P.018B.Rev0 dated 12 March 2026.

Stage 3 of the Northbank Enterprise Hub comprises construction of an industrial subdivision with associated access roads and drainage reserves. The site is an undeveloped vacant lot and will connect to existing roads to the north and west, and adjacent to the Stage 1 WesTrac Caterpillar NSW head office to the east on Lot 211. The site and conceptual plans are shown in Appendix A.

Groundwater and surface water monitoring is required to meet consent conditions for the industrial development. Requirements are set out in the following approved documents:

1. Douglas (2025a) *Groundwater Monitoring Plan* (GMP) which documents a procedure for baseline and post-baseline monitoring (during and after construction) under existing conditional Project Approval MP07_0086;
2. Douglas (2024) *Groundwater Management Plan* (GWMngtP) prepared to meet Environmental Protection and Biodiversity Conservation Act (EPBC) Approval 2007/3343. The GWMngtP has been prepared to minimise potential groundwater impacts and risks arising from the Stage 3 development.
3. WRM (2025) *Stage 3 Soil and Water Management Plan* (SMP) which outlines how stormwater from the proposed development will be managed to meet regulatory requirements and protect receiving bodies.

The GMP and GWMngtP are overlapping plans to meet specific approval requirements, however, both include programs to monitor groundwater levels and quality and to mitigate potential impacts as a result of the Stage 3 development. The SMP outlines requirements for surface water monitoring which broadly follow on from Douglas (2025a; 2024).

The March 2026 monitoring event comprises the first "post-baseline" monitoring event following commencement of early vegetation clearing and slashing works in November 2025. Post-baseline water quality monitoring is required six-monthly (biannually) during and following construction, in addition to three-monthly (quarterly) water level monitoring. Post-baseline monitoring data is to be assessed against baseline monitoring undertaken from 2023 to 2024, as well as additional data collected prior to commencement of initial works in November 2025.

While clearing activities have begun, no major construction activities (e.g. earthworks, fill importation etc) had commenced at the time of monitoring or reporting. Inspections and monitoring of surface waters, separate to the requirements GMP/GWMngtP were also undertaken as reported in Douglas (2026b) and included in Appendix G.

The groundwater monitoring network comprises nine groundwater monitoring wells, some of which are long term locations which continue to be monitored for the Stage 1 development (east). Well locations were selected with consideration of upgradient, mid site and downgradient locations and staging of development works. Surface water monitoring was also undertaken at locations nominated by Douglas in the absence of specific pre-construction locations listed in the SMP. The well and surface water monitoring locations are shown on Drawing 7 in Appendix A.

This report must be read in conjunction with all appendices including the notes provided in Appendix A.

2. Scope of work

The monitoring comprised the following:

- Preparation of field work and safety plans;
- Field investigation on 16 and 17 March 2026 at the locations summarised in Table 2 undertaken by an environmental scientist and environmental field assistant from Douglas. The work was undertaken with reference to the methods and procedures outlined in the GMP and GWMngtP (Douglas, 2025a; 2025b) and comprised:
    - Measurement of water levels and assessment of possible floating product using an oil/water interface meter;
    - Groundwater purging and sampling using low flow peristaltic pump. Groundwater samples were collected in laboratory prepared containers for analysis. Samples for dissolved metals analyses were field filtered using a 45 µm disposable in line filter;
    - Surface water sampling using a long handled swing sampler and placement in laboratory prepared containers for analysis;
    - Measurement of pH, electrical conductivity (EC), turbidity, dissolved oxygen (DO), oxidation reduction potential (ORP) and temperature during sampling using a calibrated water quality meter ("Category 1 parameters");
    - Screening for the presence of volatile organic compounds (VOCs) at the top of each well and within groundwater headspace (where sampled) using a calibrated Photoionisation Detector (PID);
    - Download and re-installation of groundwater pressure transducers (dataloggers) where installed;
    - Collection of quality assurance and quality control (QA/QC) samples comprising:
        - One groundwater intra-laboratory replicate sample;
        - Two surface water intra-laboratory replicate samples;
    - Analysis of samples for Category 2 and 3 parameters as per each GMP (refer Section 6) at a National Association of Testing Authorities (NATA) accredited laboratory;
    - Preparation of this report which includes groundwater levels, water quality, water quality data against site assessment criteria and trends review as required under each plan.

Table 1: Summary of field monitoring tasks and locations

Item	Monitoring locations	Total No.
Groundwater level measurement	Stage 3 specific locations: MW04, MW8A*#, MW101 to MW107, SK3520 Other locations: MW1A, MW06, MW10, MW11, MW12, MW13	**17**
Groundwater field testing, sampling and laboratory testing	MW4, MW8A*#, MW101 to MW107	**9**
Surface water field testing, sampling and laboratory testing	SW2 (dry), SW3 (dry), SW3a, SW4 (dry), SW7 (dry), SW8	**5 (3 dry)**

Notes:
* Wells are also subject to monitoring under separate Stage 1 monitoring requirements
A full review and assessment of the groundwater monitoring well network is provided in the GMP/GWMngtP

Although not a requirement of the GMP/GWMngtP, other nearby monitoring wells were also measured for groundwater level to assist with groundwater level contouring and spatial extent.

The general sampling methods based on the monitoring plans are described in the field work methodology, included in Appendix B. Groundwater monitoring well logs and preceding notes are included in Appendix C.

3. Site identification

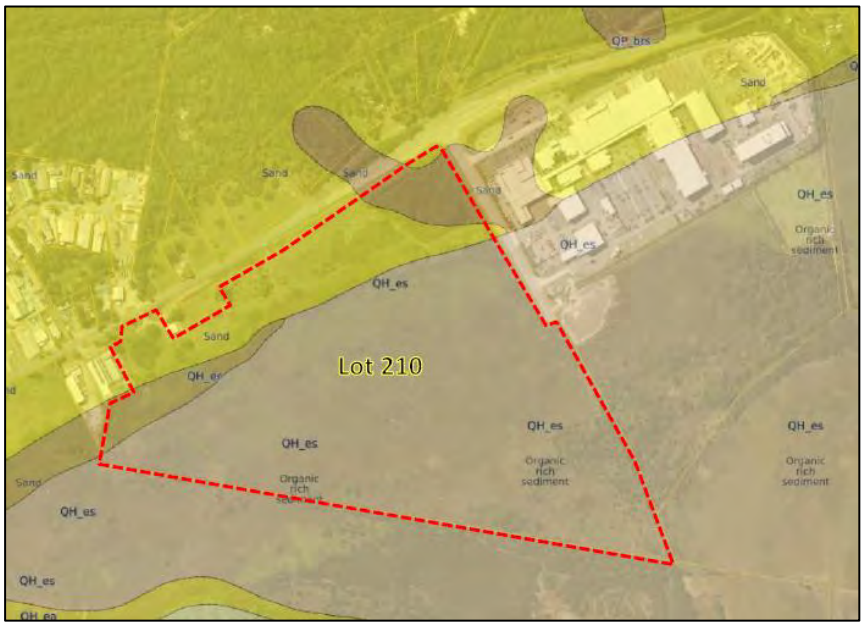
The Stage 3 site details are summarised below and on drawings in Appendix A.

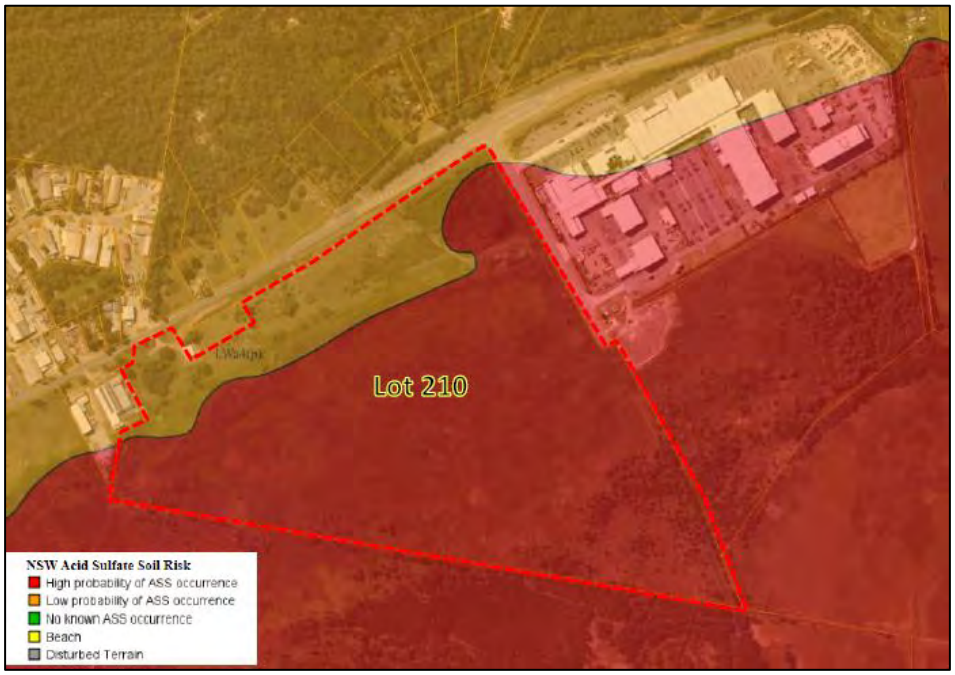
Site Address	2 Westrac Drive, Tomago
Legal Description	Lot 210 D.P.1174939
Area	Total lot area 50.13 hectares (red)
Zoning	Zone IN2 General Industrial
Local Council Area	Port Stephens Council
Current Use	Vacant Future industrial subdivision
Approved use	Industrial subdivision

Initial vegetation clearing and slashing works commenced in November 2025 for a 15 hectare area in the northern part of the Stage 3 site. The works included removal of trees/shrubs and grasses in the elevated areas fronting Tomago Road, and slashing and removal of slashed vegetation in the lower-lying areas. Douglas completed inspections and conducted surface water monitoring from November to March 2026 (i.e. prior to, during, and following clearing). Based on the inspections and monitoring, no remedial action or improvements to the clearing works or monitoring program were considered necessary. The interim closure report (Douglas, 2026b) is included in Appendix G.

4. Environmental setting

A detailed description of the environmental and hydrogeological setting is included in the GMP/GWMngtP (Douglas, 2025a; 2025b). Key environmental features are summarised below.

Site Topography	Undeveloped areas comprise generally flat water-logged terrain with typical elevations between RL 0.5 and 2.0 AHD. The northern part of Lot 210 adjacent to Tomago Road is elevated above this level, dominated by low sand dune formation with a maximum elevation of RL 4 AHD.
Site vegetation	Site vegetation in undeveloped areas includes dense reeds / scrubland, with reeds up to 3 m in height, mostly located in areas of water-logged terrain. Some mature trees are also located on the site. Vegetation clearing commenced in November 2025 comprising tree and shrub removal in the northern part of Lot 210. Slashing of reeds commenced for a 15 ha portion.
Geology (Figure 1)	Reference to the NSW Seamless Geology mapping indicates four mapped zones: • QP-bd: Coastal deposits of marine-deposited and aeolian-reworked coastal sand dunes; partially consolidated. • QP_brs: Coastal deposits comprising fine to medium-grained quartz-lithic-carbonate (marine-deposited) sand, organic-rich mud, peat. • QH-es: estuarine swamp comprising organic-rich mud, peat, clay, silt, very fine to fine-grained sand (marine-deposited), fine- to medium-grained sand (fluvially deposited). • QH_er: Estuarine shoreline ridge and dune deposits comprising fine- to medium-grained lithic-quartz sand (fluvially deposited), very fine- to fine-grained lithic-carbonate-quartz sand (marine deposited), polymictic gravel, silt, clay, shell material.  **Figure 1: NSW Seamless Geology Map (Base Image source: MetroMap 2023)**

Aquifers	Two groundwater systems are present within the project area: • The aquifer within the Tomago Sandbeds which daylight in the northern elevated parts of the site and include an extensive water-extraction bore field operated by the HWC. The aquifer is unconfined north of Stage 3 and semi-confined where clay soils overly the Tomago Sandbeds. As discussed below, groundwater flows in a south-easterly direction away from the bore field and towards the Stage 3 site. • The aquitard within the Quaternary clay soils overlying the Tomago Sandbeds in most of the project area. The aquitard acts as a semi-confining layer.
Acid Sulfate Soils (ASS)	Most of the site is mapped within an area of high risk of ASS conditions between 1 m to 3 m below the ground surface, corresponding to lower-lying areas. The northern portion of the site on higher ground lies within an area of low probability of ASS conditions, which if present is mostly likely at greater than 3 m below the ground surface, corresponding to the Aeolian sandplain, elevation >4 m).  **Figure 2: NSW Seamless Geology Map (Base Image source: MetroMap 2023)** Douglas has prepared an acid sulfate soil management plan (Douglas, 2025b) for Stage 3 works based on the previous testing for Stage 1. Additional targeted investigations for ASS in 2026 (Douglas, 2026a) identified the presence of minor ASS conditions for Aeolian sands / silty sands and low level Net Acidity. The presence of ASS will be managed under existing and supplementary ASS procedures.

Surface Water	The low-lying areas on the sites and adjacent sites regularly contain surface water ponded at the surface, derived from groundwater flows from elevated Sandbeds to the north as well as surface water runoff. Surface water flows generally follow the topography, however, are also directed by existing manmade open channels (former farm drains) to convey surface waters further downstream and alleviate surface ponding. Stage 3 surface water flows drain to the west. Ultimately, surface water flows towards the Hunter River (North Arm) which is located to the south-west and south of the site, varying in distance from about 2.7 km to 3.5 km. Groundwater flowing towards the site from the Tomago Sandbeds is low in salinity and is considered to be a fresh water environment. The downgradient receiving environment and groundwater dependent ecosystems are considered to be an estuarine environment, receiving saline/marine tidal surface water flows which inundate the low-lying land areas of the Ramsar wetlands.

5. Results

5.1 Groundwater levels

Groundwater levels in monitoring wells measured during field work are shown in Table 2, reduced to AHD. Continuous groundwater levels (pressure head) were collected via:

- Dataloggers installed in MW8A and MW102 to MW107 (corrected using a barometric pressure logger);
- Vented dataloggers installed in MW101 and HWC well SK3520 which were connected to live monitoring equipment in February 2026 for real-time review of groundwater levels.

Levels from manual measurement and dataloggers are plotted on Figures D1 and D2 in Appendix D against daily rainfall data for the nearby Williamtown Bureau of Meteorology (BOM) weather station.

It should be noted that groundwater levels are affected by factors such as climatic conditions, soil permeability, tidal influences and will therefore vary with time.

Table 2: Results of groundwater level measurement – March 2026

Bore ID	Easting	Northing	Well Details							Groundwater Gauging Event					
			Top of PVC Casing Level (TOC) (AHD)	Ground Level (AHD)	Stick up (m agl)	Well Depth (m bgl)	Screened interval (m bgl)	Screened interval (RL)	Target lithology	Date	Depth to Groundwater (m TOC)(3)	Groundwater (AHD)(3)	PID Well Headspace (ppm) (1)	Depth of Floating Product (mm) (2)	Comments
Nominated monitoring wells															
MW101	382657	6367619	4.09	3.22	0.87	7.0	0.3-7.0	2.9 to -3.8	Sand, fine to med	17/03/2026	2.46	1.63	<1	<1	Brown, slightly turbid, no odour
MW102	382678	6367506	2.52	1.76	0.76	4.0	0.3-4.0	1.5 to -2.2	Sand, fine to med	17/03/2026	1.26	1.27	<1	<1	Pale brown, slightly turbid, no odour
MW103	382853	6367614	3.31	2.34	0.97	7.0	0.3-7.0	2.0 to -4.7	Sand, fine to med	17/03/2026	1.98	1.33	<1	<1	Brown, slightly turbid, no odour
MW104	383148	6367292	1.16	0.68	0.48	1.5	0.5-1.5	0.2 to -0.8	Clay	16/03/2026	1.00	0.17	<1	<1	Pale grey brown, moderately turbid, no odour
MW105	382360	6367294	2.05	1.50	0.55	6.0	0.3-6.0	1.2 to -4.5	Sand, fine to med	17/03/2026	0.82	1.23	<1	<1	Pale grey / brown, moderately turbid, slight sulfur odour
MW106	382929	6367067	1.35	0.70	0.65	2.0	0.5-2.0	0.2 to -1.3	Clay	16/03/2026	1.49	-0.14	<1	<1	Clear, pale brown, no odour
MW107	382381	6367150	1.52	0.70	0.80	2.2	0.5-2.2	0.2 to -1.5	Clay	17/03/2026	0.93	0.59	<1	<1	Pale brown,slightly turbid, no odour
MW04	383360	6367013	1.28	0.52	0.76	3.70	0.7-3.8	-0.2 to -3.3	Clay	16/03/2026	1.84	-0.56	<1	<1	Pale brown, slightly turbid, no odour
MW8A	382304	6367396	3.86	3.10	0.76	7.0	0.5-7.0	2.6 to -3.9	Sand, fine to med	17/03/2026	2.24	1.62	<1	<1	Brown,moderately turbid, no odour
SK3520	383703.28	6368245	3.59	3.28	0.31	10.5	Unknown	Unknown	Assumed sand	16/03/2026	1.81	2.27	<1	<1	Not sampled
Other monitoring wells															
MW1A	383545	6368065	3.31	2.76	0.55	4.0	0.5-4.0	2.26 to -1.24	Sand, fine to med	16/03/2026	1.85	1.46	<1	<1	Pale brown, slightly turbid, slight sulfur odour
MW02	383721	6367483	1.25	~0.87	0.38	3.50	0.5-3.5	0.4 to -2.6	Clay	16/03/2026	0.89	0.37	<1	<1	Brown, slightly turbid, no odour
MW06	383516	6367333	1.26	0.57	0.69	9.0	6.0-9.0	-5.4 to -8.4	Sand, fine to med	16/03/2026	1.03	0.23	<1	<1	Brown, slightly turbid, no odour
MW10	383467	6367675	2.11	0.78	1.33	10.6	4.6-8.3	-3.8 to -7.5	Sand, fine to med	16/03/2026	1.44	0.67	<1	<1	Grey-brown, very turbid, no odour
MW11	383293	6367584	2.42	1.23	1.19	10.6	Unknown	Unknown	Sand, fine to med	16/03/2026	1.47	0.95	<1	<1	Pale brown, slightly turbid, no odour
MW12	383111	6367899	3.57	3.00	0.57	4.0	0.5-4.0	2.5 to -1.0	Sand, fine to med	16/03/2026	2.04	1.54	<1	<1	pale brown, clear, no odour
MW13	383187	6367418	3.63	3.10	0.51	14.5	9.5-12.5	-6.4 to -9.4	Sand, fine to med	16/03/2026	3.14	0.49	<1	<1	Pale brown, slightly turbid, no odour

Notes to Table 2:
AHD - metres Australian Height Datum
m agl = metres above ground level
m bgl = metres below ground level
TOC - top of PVC casing
(1) Minimum detection limit of 1 ppm
(2) Minimum detection limit of 1 mm
(3) - Water level gauged prior to purging and sampling

5.2 Groundwater and surface water field parameters

The field parameters and purging observations during sampling are shown in Table 3 below. The GMP / GWMngtP, these comprise "Category 1" test parameters for in situ assessment of water quality The results of field testing indicated differing water quality for wells screened in the Tomago Sandbeds to those screened in the clay aquitard which is commensurate with the historical data. Based on the field testing, surface water was most comparable to the quality of groundwater in the Tomago Sandbeds wells.

The results of field testing indicated the following:

- pH:
  - Surface water: slightly acidic (pH 5.4 and 5.7);
  - Tomago Sandbeds wells: moderately acidic (pH 4.1 to pH 5.9);
  - Clay aquitard wells: slightly acidic to neutral (pH 6.6 to 7.4);
- EC:
  - Surface water: fresh / low in EC ranging from 155 and 171 µS/cm;
  - Tomago Sandbeds wells: fresh / low in EC ranging from 61 to 301 µS/cm;
  - Clay aquitard wells: variable, with fresh conditions at MW107, brackish conditions in MW104 and MW106 (3170 and 3340 µS/cm), and saline conditions in MW04 (32,300 µS/cm);
- ORP:
  - Surface water: reducing for SW3a (−21 mV) representing stagnant surface water and oxidising for SW8 representing free-flowing water;
  - Tomago Sandbeds wells: reducing conditions (−16 to −38 mV) except MW101 and MW105 which were oxidising (ORP 60-87 mV);
  - Clay aquitard wells: reducing conditions (−17 to −77 mV) except MW107 which was oxidising (ORP 6 mV);
- DO:
  - Surface water: Low to high DO concentrations (2.2 to 5.3 mg/L);
  - Groundwater: Low to moderate DO concentrations (0.6 to 3.4 mg/L);
- Turbidity:
  - Surface water: low (56-58 NTU) for free-flowing surface water at SW8 and very high turbidity (>1,000 NTU) for stagnant water at SW8;
  - Tomago Sandbeds wells: low to moderate turbidity (61 to 301 NTU);
  - Clay Aquitard wells: variable, low to very high turbidity (59 to >1000 NTU).

Table 3: Results of groundwater and surface water field parameters during purging and sampling – March and April 2026

Well ID	Date	Depth to GW (m TOC) (3)	Depth to GW (m bgl) (3)	Reduced Water Level (AHD) (3)	PID Well Headspace (ppm) (1)	PID GW Headspace (ppm) (1)	Depth of Floating Product (mm) (2)	pH	EC (µS/cm)	ORP (mV)	Turbidity (NTU)	Temp (°C)	DO (mg/L)	Volume Purged (L)	Comments	Sampling Method
Surface Water																
SW3	16/03/2026	N/A	N/A	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	N/A
SW3a	17/03/2026	N/A	N/A	N/A	N/A	<1	N/A	5.7	171	-21	>1000	24.7	2.2	N/A	Brown, very turbid, no odour, not flowing	Swing sampler
SW4	17/03/2026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Dry	N/A
SW7	16/03/2026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Dry	N/A
SW8	17/03/2026	N/A	N/A	N/A	N/A	<1	N/A	5.4	157	180	56	22.3	5.3	N/A	Pale brown, slightly turbid, no odour, not flowing	Grab sample
Groundwater in Tomago Sandbed Wells																
MW8A	17/03/2026	2.24	1.50	1.62	<1	<1	<1	5.9	266	-16	198	21.5	1.9	12	Brown, moderately turbid, no odour	Peristaltic Pump low flow sampler
MW101	17/03/2026	2.46	1.65	1.63	<1	<1	<1	4.1	93	87	61	24.1	2.8	16	Brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW102	17/03/2026	1.26	0.34	1.27	<1	<1	<1	5.8	135	-38	75	22.7	1.9	8	Pale brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW103	17/03/2026	1.98	1.04	1.33	<1	<1	<1	5.7	109	-36	78	24.0	3.4	10	Brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW105	17/03/2026	0.82	0.14	1.23	<1	<1	<1	4.6	189	60	301	19.4	0.6	12	Pale grey / brown, moderately turbid, slight sulfur odour	Peristaltic Pump low flow sampler
Groundwater in Clay Aquitard Wells																
MW04	16/03/2026	1.84	1.26	-0.56	<1	<1	<1	6.8	32,300	-38	55	18.7	2.1	9	Pale brown, slightly turbid, no odour	Peristaltic Pump low flow sampler
MW104	16/03/2026	1.00	0.51	0.17	<1	<1	<1	7.4	3180	-77	528	19.0	1.7	1	Pale grey brown, moderately turbid, no odour	eristaltic Pump low flow sampl
MW106	16/03/2026	1.49	0.75	-0.14	<1	<1	<1	6.6	3,340	-17	59	19.9	1.8	8	Clear, pale brown, no odour	eristaltic Pump low flow sampl
MW107	17/03/2026	0.93	0.12	0.59	<1	<1	<1	6.6	328	6	>1000	19.7	3.0	6	Pale brown, slightly turbid, no odour	eristaltic Pump low flow sampl

Notes to Table 3:
(1) - minimum limit of detection for PID 1 ppm
(2) - minimum limit of detection for oil-water interface meter 1 mm
(3) - Water level gauged prior to purging and sampling
AHD - Australian Height Datum
EC – Electrical Conductivity
m bgl – metres below ground level
N/A – not applicable
NTU - Nephelometric Turbidity Units
ORP – Oxidation Reduction Potential (mV)
PID – Photoionisation detector
ppm – parts per million

5.3 Contaminant observations

No floating product was detected by the oil/water interface meter during groundwater level measurement of wells as noted in Table 4. It is noted that the interface meter can detect floating product greater than 1 mm thick.

There were no observations of hydrocarbon staining, odours or slicks to the groundwater purged from the wells or at the surface of the surface water bodies at sampling locations. The PID groundwater/surface water headspace was <1 ppm for all surface water and groundwater wells. A slight sulfur odour (i.e. hydrogen sulfide) was noted for MW105. The sulfur odours are typically associated with the presence of ASS and the organic rich and waterlogged clay soils which are present at the site. In addition to aromatic and chlorinated compounds, at times the PID is also capable of detecting some inorganic compounds including hydrogen sulfide and giving PID readings of < 1 ppm.

The field observations indicate the absence of gross contamination for the monitoring wells and surface water sample locations (i.e. absence of staining, hydrocarbon odours, and other observations of gross contamination).

6. Laboratory testing

6.1 Overview

Laboratory testing for the collected groundwater samples was undertaken by Envirolab Services Pty Ltd (Envirolab), a NATA registered laboratory. The analytical methods used are shown on the laboratory sheets in Appendix E.

The laboratory tested the Category 2 and 3 parameters listed in the GMP/GWMngtP as outlined in Table 4 below. Category 1 parameters relate to in situ field parameters presented in Table 3 in in Section 5.2.

Table 4: Laboratory Testing Program

Analytes	Stage 3 GMP/GWMngtP (Douglas, 2025a; 2024)	Stage 3 SMP (WRM, 2025)
	Category 2 and 3	Category 2 and 3
Total suspended solids (TSS)	✓	✓
Cations – calcium (Ca), potassium (K), magnesium (Mg), sodium (Na) and iron (Fe).	✓	✓
Anions – chloride (Cl), sulphate (SO_4), ammonia (NH_3), bicarbonate (HCO_3), carbonate (CO_3), total alkalinity, nitrite (NO_2), nitrate (NO_3), total Kjeldahl nitrogen (TKN), total phosphorous (PO_4) and fluoride (F).	✓	✓
Heavy metals (extended suite) – aluminium, arsenic, cadmium, chromium, copper, iron, lead manganese, mercury, molybdenum, nickel and zinc	✓	✓ (total and filtered)
Total recoverable hydrocarbons (TRH)	✓	✓
Polycyclic and aromatic hydrocarbons (PAH)	✓	✓
Benzene, toluene, ethyl benzene, xylene (BTEX)	✓	✓
Phenols	✓	✓
Organochlorine pesticides (OCP) and organophosphorus pesticides (OPP) – trace level	✓	✓
Polychlorinated biphenyls (PCB) - trace level	✓	✓
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) – trace level	Not listed	✓
Additional tests – where required to further assess initial test results (e.g. total petroleum hydrocarbon (TPH) for hydrocarbon speciation, or VOCs	Not specified	✓

TPH testing via the silica gel clean up method (SGC) was undertaken for SW3a, replicate DSW2/17.3.26, MW4 and MW104 to further assess trace level TRH.

6.2 Results

The results of analytical testing of groundwater and surface water are included in the laboratory report sheets in Appendix E. The results are summarised in Table 1 and 2 in Appendix E against the relevant criteria for each monitoring plan (refer Section 7).

6.3 Quality assurance / quality control (QA/QC)

Quality assurance and quality control (QA/QC) procedures were adopted throughout the field sampling programme and comprised the following:

- Collection and analysis of one groundwater replicate sample (DGW/16.03.26 from MW12);
- Collection and analysis of one surface water replicate samples (DSW2/17.03.26);
- Following standard operating procedures and procedures in the GMP/GWMngtP;

- Storage of samples under secure, temperature-controlled conditions;
- Use of chain of custody (COC) documentation for the handling, transport and delivery of samples to the selected laboratory.

An overall assessment is included in the QA/QC Report in Appendix F. In summary, the QA/QC testing indicated that the accuracy and precision of the field and laboratory testing procedures is considered to be of sufficient standard to allow the data report to be used to interpret contamination conditions.

7. Assessment criteria

The GMP/GWMngtP (Douglas, 2025a; 2025b) derived site-specific trigger using baseline data. This approach is recommended by the ANZG (2018) guideline particularly where background concentrations naturally exceed default guideline values DGVs. Site-specific trigger levels are "*used to provide a suitable baseline for comparison against values derived from similar aquatic ecosystems" (*ANZG, 2023).

Trigger levels do not guarantee a level of species protection (LOSP), rather, are defined as the concentration recorded by monitoring which would trigger further investigation to assess the potential for adverse impact on groundwater quality from a site.

Statistical analysis of baseline groundwater quality data was outlined in the GMP/GWMngtP (Douglas, 2025a; 2024). Different trigger levels were adopted to reflect differing water quality conditions for wells screened in separate aquifers as well as background concentrations. The two aquifer systems are the Tomago Sandbeds and clay aquitard. For the two aquifers, the following process was adopted:

- Tomago Sandbeds:
  - The most sensitive beneficial use is adopted of the:
    - The ANZG (2018) fresh water criteria at 95% LOSP DGV; and
    - NHMRC Drinking Water guidelines for human health due to the proximity to drinking water supply bores in the Tomago Sandbeds aquifer (although upgradient);
  - Unless, the 80th percentile of the baseline data set (2015-2025) is higher, then the 80th percentile value is appropriate for adoption. The 20th percentile is also be considered for pH as the lower bound;
  - HEPA (2025) *National Environmental Management Plan 3.0* at 95% LOSP was adopted as for PFAS.
- Clay aquitard:
  - The ANZG (2018) fresh water criteria at 95% LOSP is adopted as the DGV;
  - Unless, the 80th percentile of the baseline data set (2015-2025) is higher, then the 80th percentile value is appropriate for adoption. The 20th percentile is also be considered for pH as the lower bound;
  - HEPA (2025) *National Environmental Management Plan 3.0* at 95% LOSP was adopted as for PFAS.

Where no criteria or site based data exists, the trigger level has generally been adopted as the laboratory limit of reporting (LOR) for parameters which are not expected to be naturally occurring in the environment (e.g. hydrocarbons etc).

For some general water quality indicator parameters (e.g. dissolved oxygen, TSS), a trigger value has not been set.

The 95th upper confidence limit (UCL) mean ($UCL_{95\text{-}mean}$) values were also determined based on the statistical analysis of the historical monitoring results (2015-2025) to indicate when values are above the average / mean to allow comment and interpretation of trends.

Site specific trigger levels for surface water have not been determined, therefore the relevant criteria for surface water are the DGVs for marine water quality (ANZG, 2018). A 95% LOSP has been adopted.

Periodic exceedances of the groundwater quality Trigger Levels can be expected to occur, particularly where values are based on the 20th/80th percentile calculations from the baseline data. Exceedances of DGVs for surface water can also be expected periodically as they capture a range of surface water locations and ecosystems risk.

The GMP/GWMngtP (Douglas, 2025a; 2024) list actions that are prompted by the monitoring results where exceedances of the criteria occur. These include assessment of the results against the adopted statistical criteria, documentation of where three consecutive trigger levels are exceeded and assessment of the significance of elevated or atypical results.

The assessment criteria are shown on Table 1 and 2 in Appendix E against the water quality results. $UCL_{95\text{-}mean}$ values are also indicated for comparison purposes.

8. Discussion

8.1 Groundwater levels

Groundwater levels (heads) for the March 2026 monitoring event, reduced to AHD, ranged from -0.56 to 2.27 AHD as shown in Table 2 in Section 5.1. The full groundwater level record, including data collected from dataloggers installed in Stage 3 wells and HWC Bore SK3520, is shown plotted on Figures D1 and D2 in Appendix D. The reduced levels infer a groundwater flow direction to the south-east, as per previous monitoring.

Groundwater levels for March 2026, were lower than those measured in the previous annual monitoring event in April 2025, however, were within the historical range gathered to date. Overall, rainfall for the preceding 12 months prior to March 2026 was higher than average but included periods of both very low and very high rainfall as summarised in Table 5.

Table 5: BOM Williamtown rainfall summary

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Totals
	2025								2026				
Monthly total (mm)	502	65.6	152.4	255.2	58.4	30.8	20.6	31.4	93.6	23.4	107.4	24.2	1441.4
Mean monthly total for Station (mm)	115.8	121.4	76.4	73.8	60.1	75.1	81.8	75.5	100.2	117.6	127.2	111.6	1134.4
% mean rainfall (mm)	434%	54%	199%	346%	97%	41%	25%	42%	93%	20%	84%	22%	127%

Notes:
Green: higher than mean
Orange: lower than mean

It is noted that the historical groundwater levels collected by HWC for Bore SK3520 indicate higher variability, whereas the site based data suggests groundwater levels have remained within a fairly consistent range. This may be a result of the more regular frequency of monitoring (monthly) for SK3520 which can identify seasonal changes which are not reflected in annual monitoring. The datalogger installed in Bore SK3520 from October 2025 will assist with the interpretation of upgradient groundwater level trends and real live review of groundwater levels flowing towards the Stage 3 site.

It should be noted that groundwater levels are affected by factors such as climatic conditions, soil permeability, tidal influences and will therefore vary with time. HWC pumping activities could also influence groundwater level and quality conditions upgradient of the site.

8.2 Groundwater and surface water quality

8.2.1 Overview

All chemical results of testing are summarised in Table 1 and 2 in Appendix E. Groundwater and surface water quality plots are included in Appendix D.

The results of monitoring generally indicated the following:

- The absence of gross contamination in groundwater and surface water at the tested locations based on field observations and testing of contaminants listed in the monitoring plans;
- Differing water quality for wells screened in the Tomago Sandbeds to those screened in clay aquitard, commensurate with rationale for setting different groundwater trigger levels for in the GMP/GWMngtP. Surface water quality was comparable to groundwater in the Tomago Sandbeds.

The results are broadly summarised as follows:

- PAH, BTEX, phenol, OCP, OPP, PCB, and HCN were not detected above the laboratory limit of reporting (LOR);
- Low level PFAS was detected for most locations which is considered representative of background ambient conditions as per previous monitoring to date (i.e. urban conditions which contain PFAS in the environment at trace concentrations);

- TRH was detected above LOR at SW3a (and replicate DSW2/17.3.26), MW4 and MW10. SW3a identified trace Total petroleum hydrocarbons (TPH) above LOR via the silica gel clean up method, however, its replicate sample and MW4 and MW10 were less than LOR. suggesting the absence of petroleum hydrocarbon impacts. TRH has routinely been identified in previous monitoring, whilst TPH has only been identified on occasion. TRH may be attributable to a non-petroleum based source, such as natural organic matter (NOM) which can be detected by the TRH test method;
- Trace TRH, TPH and toluene were detected above LOR at SW3a. This location is in the north-eastern corner of the Stage 3 boundary and receives surface water run-off from the public road (Tomago Road) via the road culvert. Surface water at this location was stagnant and not flowing. The concentrations at SW3a were below the trigger level for toluene, but above the trigger level for TRH/TPH (i.e. LOR). The result is not considered an indication of impacts from Stage 3 activities, rather suggests possible impact from public road runoff which may have trace hydrocarbon residues from road and vehicle activities;
- Total metals (non-filtered) metals in surface water were generally higher than dissolved metals concentrations, attributable to suspended solids in surface water.

Further review of the results relevant to each plan is discussed below.

8.2.2 Comparison to assessment criteria

The results of groundwater and surface water quality testing are shown on Tables 1 and 2 in Appendix E against the relevant default and site-specific assessment criteria. The site-specific criteria is aimed at better reflecting the background range of water quality conditions that regularly fall outside the DGVs and is more specific to local conditions, however, may not always reflect spatial differences between monitoring locations. Table 6 summarises results which were elevated above the criteria for March 2026.

Table 6: Summary of results that were outside the site assessment criteria / trigger levels – March 2026

Analyte	Trigger level for groundwater - GMP/GWMngtP (Douglas, 2025)				Surface water – Default guideline values (DGVs)		Exceedances within historical range for well/surface water location?
	No. and location Tomago Sandbeds Well criteria		No. and location Clay Aquitard Well criteria		No. and location ANZG Fresh water 95% criteria DGVs		
pH	2	MW101, MW105	-	-	2	SW3A, SW8	SW3A – Yes **SW8 – No** (limited data). **No – MW101, MW104** (upgradient monitoring wells)
EC	-	-	1	MW4	-	-	Yes
Alkalinity /bicarbonate	2	MW8A, MW102	1	MW4	-	-	Yes
Chloride, sulphate	-	-	1	MW4	-	-	Yes
Ammonia	1	MW102 (+replicate)	0	-	-	-	Yes
TKN	1	MW102 (+replicate)	-	-	-	-	**MW102 – No**
Nitrite	-	-	1	MW104	-	-	**MW104 – No**
Nitrate	1	MW101	-	-	-	-	**MW101 – No**
Total P	1	MW103	1	MW104	1	SW3A (+replicate)	SW3a – Yes MW103 – Yes (close to LOR) **MW104 – No**
Sodium	-	-	1	MW104	-	-	Yes
Calcium	1	MW8A	1	MW104	-	-	Yes
Potassium	-	-	1	MW104	-	-	Yes
Dissolved Iron	1	MW103	1	MW4	1	SW3A (+replicate)	SW3a – Yes MW4 -Yes **MW103 – No**
Dissolved aluminium	5	MW8A, MW101, MW102, MW103, MW105 (all wells)	-	-	2	SW3A (+replicate), SW8 (all locations)	**MW103 – No** Other wells – Yes All results < March 2026 except for MW103. Criteria pH dependent therefore exceeding for sand beds < pH 6.5
Total aluminium	-	-	-	-	2	SW3A (+replicate), SW8 (all locations)	SW3a – No (limited data) pH dependent criteria
Dissolved Arsenic	1	MW8A	1	MW104	-	-	MW8A – Yes **MW104 – No**
Total arsenic	-	-	-	-	1	SW3A (+replicate)	Yes
Total cadmium	-	-	-	-	1	SW3A (+replicate)	Yes
Total chromium	-	-	-	-	1	SW3A (+replicate)	Yes
Total copper	-	-	-	-	1	SW3A (+replicate)	Yes
Dissolved manganese	-	-	1	MW104	-	-	**MW104 – No**
Dissolved nickel			2	MW104, MW106	-	-	Yes
Dissolved zinc	1	MW101	-	-	1	SW8	Yes
Total zinc	-	-	-	-	2	SW3A (+replicate), SW8 (all locations)	Yes
TRH	-	-	2	MW4, MW104, MW106	3	SW3A (+replicate)	Yes
TPH	-	-	-	-	1	SW3A (excl replicate)	**SW3A – No**
Toluene	-	-	-	-	1	SW3a	Yes

Notes to Table 6: Groundwater was tested for dissolved metals only. Surface water was tested for total (unfiltered) and dissolved metals (field filtered)

Where elevated results were identified above the assessment criteria, these mostly occurred for pH, nutrients and metals.

Total (non-filtered) metals in surface water were higher than dissolved metals attributable to suspended solids in surface water as well as also representing the dissolved phase metals. It is noted that the risk to aquatic ecosystems and DGVs in ANZG are generally based on dissolved metals concentrations which is considered the bioavailable fraction.

Where the trigger level or DGV was exceeded, most contaminant concentrations were found to be within the historical range for the monitoring location. It is noted that an extensive groundwater record has been established, however, baseline surface water data is limited. Surface water is at times dry, as occurred for the current monitoring event with only two of five locations sampled. The comparison of surface water data is therefore constrained.

Notable differences in water quality are discussed as follows:

- The pH at MW105, and in particular MW101, has declined since 2023. These wells represent upgradient wells, both screened in the Sandbeds and indicate changes in pH which may be associated with climatic influences in the broader Tomago Sandbeds aquifer. Most wells screened the in the Sandbeds have also shown a general decline in pH. For wells screened in the clay, they have remained steadier, but also show changes between events. pH changes between monitoring events are common.
- Concentrations of nitrogen (ammonia, nitrate, nitrite, TKN) varied between locations and some were outside the background range as noted in Table 6. Nitrogen speciation is strongly controlled by redox conditions, along with oxygen availability, carbon, pH and microbial activity. Higher nitrate is often indicative of higher oxygen conditions (e.g. as groundwater table lowers), and nitrate can indicate denitrification (fluctuating groundwater conditions). Nitrogen species can change rapidly in response to such influences.
- Metals concentrations are also influenced by denitrifying conditions, in particular aluminium, iron, manganese and arsenic and chromium, in addition to being sensitive to pH changes which dissolve, and mobilise metals. Whilst several metals were outlier to the dataset, it is likely they are influenced by redox, pH changes and climatic conditions (e.g. lower groundwater level) given the absence of significant site activities;
- Surface water at SW3a suggests some influence from off-site surface water conditions as noted in Section 8.2.1. The surface water quality leaving the site at SW8 contains lower concentrations of metals and nutrients and was mostly within the DGVs. The influence of surface waters coming on to the site should be considered for possible adverse impacts on the site surface water and downstream receptors.

Overall, the results of monitoring suggest water quality that is comparable to the typical long term data set and within the natural ranges of variability and fluctuation.

8.2.3 Comparison to UCL95-mean values

The GMP and GWMngtP outlined a process to review water quality data against the $UCL_{95\text{-}mean}$ values. The purpose is intended for post-baseline monitoring during and following construction to indicate when values are above average background levels, which may prompt review and closer scrutiny if levels are consistently above average/mean. The GMP and GWMngtP outline that monitoring reports should include review of whether the $UCL_{95\text{-}mean}$ is exceeded for a parameter on three or more consecutive occasions. This approach is relevant to groundwater only, as statistical review of surface water has not been undertaken. $UCL_{95\text{-}mean}$ values do not capture a range for assessment of pH.

The current monitoring event is the first post-baseline monitoring event. Concentrations above the $UCL_{95\text{-}mean}$ are shown on Table 1 in Appendix E. Exceedances are summarised in Table 7 below including the results of prior baseline monitoring events for completeness and comparison.

Table 7: Summary of groundwater monitoring wells with concentrations above the UCL95-mean values – 2024, 2025 and 2026

Parameter	GMP/GWMngtP UCL95-mean		Tomago Sandbeds Well criteria			Three consecutive results above the UCL95-mean value?**	GMP/GWMngtP UCL95-mean		Clay aquitard Well criteria			Three consecutive results above the UCL95-mean value**	Comments
			Baseline		Post-baseline				Baseline		Post-baseline		
			April 2024	April / May 2025	March 2026				April 2024	April / May 2025	March 2026		
EC	357	µS/cm	-	-	-	No	17,100	µS/cm	-	MW4 (including re-sample)	MW4	No	
Chloride	47	mg/L	-	-	-	No	6,200	mg/L	MW4	MW4 (including re-sample)	MW4	**Yes (MW4)**	MW4 has consistently shown higher chloride and sulfate reflecting more saline conditions at this well
Sulphate	15	mg/L	MW8A, MW105	MW8A	MW8A, MW105	**Yes (MW8A)**	2,540	mg/L	MW4	MW4 (including re-sample)	MW4	**Yes (MW4)**	
Fluoride	0.1	mg/L	MW103	MW103	MW103	**Yes (MW103)**	0.6	mg/L	-	MW106	MW104	No	UCL95-mean value in Tomago Sandbeds close to LOR
Ammonia	0.4	mg/L	MW102	MW102	MW102	**Yes (MW102)**	8.7	mg/L	-	-	-	No	The groundwater quality plot for MW102 shows ammonia and TKN has had historically had higher concentrations than other wells in the Sandbeds.
TKN	0.85	mg/L	MW102	MW8A, MW102	MW102	**Yes (MW102)**	6.6	mg/L	-	-	-	No	
Nitrate	0.014	mg/L	**MW101**, MW103	**MW101**	**MW101**, MW102, MW103, MW105	**Yes (MW101)**	0.02	mg/L	MW104, **MW107**	**MW107**	MW104, **MW107**	**Yes (MW107)**	MW101 and MW107 had an established a trend of higher nitrate during baseline monitoring
Nitrite	0.2	Mg/L	MW103	-	-	No	0.08	mg/L	-	-	MW104	No	
Total P	0.14	mg/L	MW103	-	-	No	1.4	mg/L	-	-	MW4, MW104	No	
Iron	0.6	mg/L	-	MW103	MW103	No	60.8	mg/L	**MW4**	**MW4 (including re-sample)**	**MW4**	**Yes (MW4)**	MW4 has an established a trend of higher iron during baseline monitoring
Dissolved Arsenic	0.002	mg/L	-	-	MW8A	No	0.017	mg/L	-	-	MW104	No	UCL95-mean value close to LOR
Dissolved Aluminium	0.28	mg/L	MW8A, **MW105**	MW8A, MW101, **MW105**	MW101, MW103, **MW105**	**Yes (MW105)**	0.015	mg/L		MW104, MW107	MW104	No	MW105 had an established a trend of higher aluminium during baseline monitoring
Dissolved Chromium	0.002	mg/L	**MW8A, MW102, MW105**	**MW8A, MW102, MW105**	**MW8A**, **MW102**, **MW105**	**Yes (MW8A, MW102, MW105)**	0.001	mg/L	-	MW104	MW104	No	MW8A and MW102 generally represent baseline/background conditions receiving groundwater flows from upgradient Sandbeds. The results show an established a trend of higher chromium during baseline monitoring for Sandbeds, however, results and UCL95-mean are both close to LOR.
Dissolved Copper	0.001	mg/L	MW8A, MW101, MW102, MW103, MW105	MW103	-	No	0.007	mg/L	-	-	-	No	UCL95-mean value close to LOR
Dissolved lead	0.001	mg/L	MW8A	MW8A, MW105	-	No	0.002	mg/L	-	-	-	No	
Dissolved Manganese	0.07	mg/L	**MW8A, MW102**	**MW8A, MW102**, MW102	**MW8A**, **MW102**, MW103	**Yes (MW8A, MW102)**	7.25	mg/L	MW4	**MW4 (including re-sample)**	**MW4**	**Yes (MW4)**	
Dissolved nickel	0.001	mg/L	MW103	MW8A	-	No	0.021	mg/L	MW4	**MW4 (including re-sample)**	**MW4**	**Yes (MW4)**	UCL95-mean value for Sandbeds close to LOR. MW4 has an established a trend of higher nickel during baseline monitoring
Dissolved molybdenum	0.001	mg/L	-	-	-	No	0.003	mg/L	-	-	-	No	UCL95-mean value close to LOR
Dissolved Zinc	0.008	mg/L	**MW101**, MW103	**MW101**	**MW101**	**Yes (MW101)**	1.14	mg/L	-		-	No	MW101 has an established a trend of higher nitrate during baseline monitoring. May be associated with lower pHs from 2023 to 2026.

It is noted that the $UCL_{95\text{-}Mean}$ value for some parameters is close to the laboratory LOR and in these instances, the value may not be a statistically significant tool in assessing changes in water quality.

Concentrations above the $UCL_{95\text{-}mean}$ values occurred for a range of wells across the site for March 2026, as well as prior baseline for some wells indicating that some wells and parameters may be outliers from their grouped aquifer in terms of major ions, some metals and nutrients. The March 2026 results are not dissimilar and therefore not indicative of long-term changes in groundwater quality.

It is noted that anions such as chloride, sulfate, fluoride form part of the group of major ions present in groundwater and are general indicator parameters to indicate water ionic balance, rather than being contaminants of concern from possible site activities.

As noted in Section 8.2.2, the results of monitoring suggest water quality that is comparable to the typical long term data set and within the natural ranges of variability and fluctuation. The concentrations above the UCL95-mean are not considered significant.

Future monitoring will allow identification of results that are persistently higher than the mean.

9. Conclusions

Douglas has completed the first "post-baseline" monitoring groundwater and surface water quality monitoring event with reference the GMP (Douglas, 20252) and GWMngtP (Douglas, 2024), and SWP (WRM, 2025).

Groundwater levels for March 2026, were lower than those measured in the previous annual monitoring event in April 2025, however, were within the historical range gathered to date. The reduced levels infer a groundwater flow direction to the south-east, consistent with previous monitoring.

The monitoring indicated the absence of gross contamination in groundwater and surface water at the monitoring locations based on field observations and testing of contaminants listed in the monitoring plans. Additional speciation testing for TPH was also conducted as per the procedures in the GMP/GWMngtP.

Concentrations above the assessment criteria were identified in some wells and parameters; however, overall groundwater and surface water quality remained generally consistent with the historical dataset. Localised outliers in nutrients and metals are considered to reflect natural influences such as redox conditions, pH variability, and groundwater level fluctuations. These findings, together with the absence of significant site activities, indicate conditions remain comparable to baseline.

Trace hydrocarbon residues at surface water monitoring location SW3a suggest possible impacts from surface water directed towards the site from public road and vehicle activities on Tomago Road. This should be considered baseline surface water quality and representative of surface waters coming on to the site (i.e. not related to Stage 3 activities).

Overall, the results of March 2026 monitoring suggest water quality that is comparable to the typical long term data set and within the natural ranges of variability and fluctuation.

Future monitoring as per the GMP/GWMngtP will support ongoing assessment of groundwater levels and water quality trends during post-baseline stages to mitigate potential impacts.

10. References

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11. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Lot 210 DP 1174939, WesTrac Drive, Tomago NSW in line with Douglas' proposal 39920.09.P.018B.Rev0 dated 12 March 2026 and acceptance received from Northbank Enterprise Hub Pty Ltd. The work was carried out under agreed terms between Douglas and Northbank Enterprise Hub Pty Ltd (Contract 20230206 ACE-LEG-005A executed 23 February 2023). This report is provided for the exclusive use of Northbank Enterprise Hub Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the (geotechnical / environmental / groundwater) components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

About This Report

Drawing 1 – Groundwater Monitoring Well and Surface Water Monitoring Location Plan

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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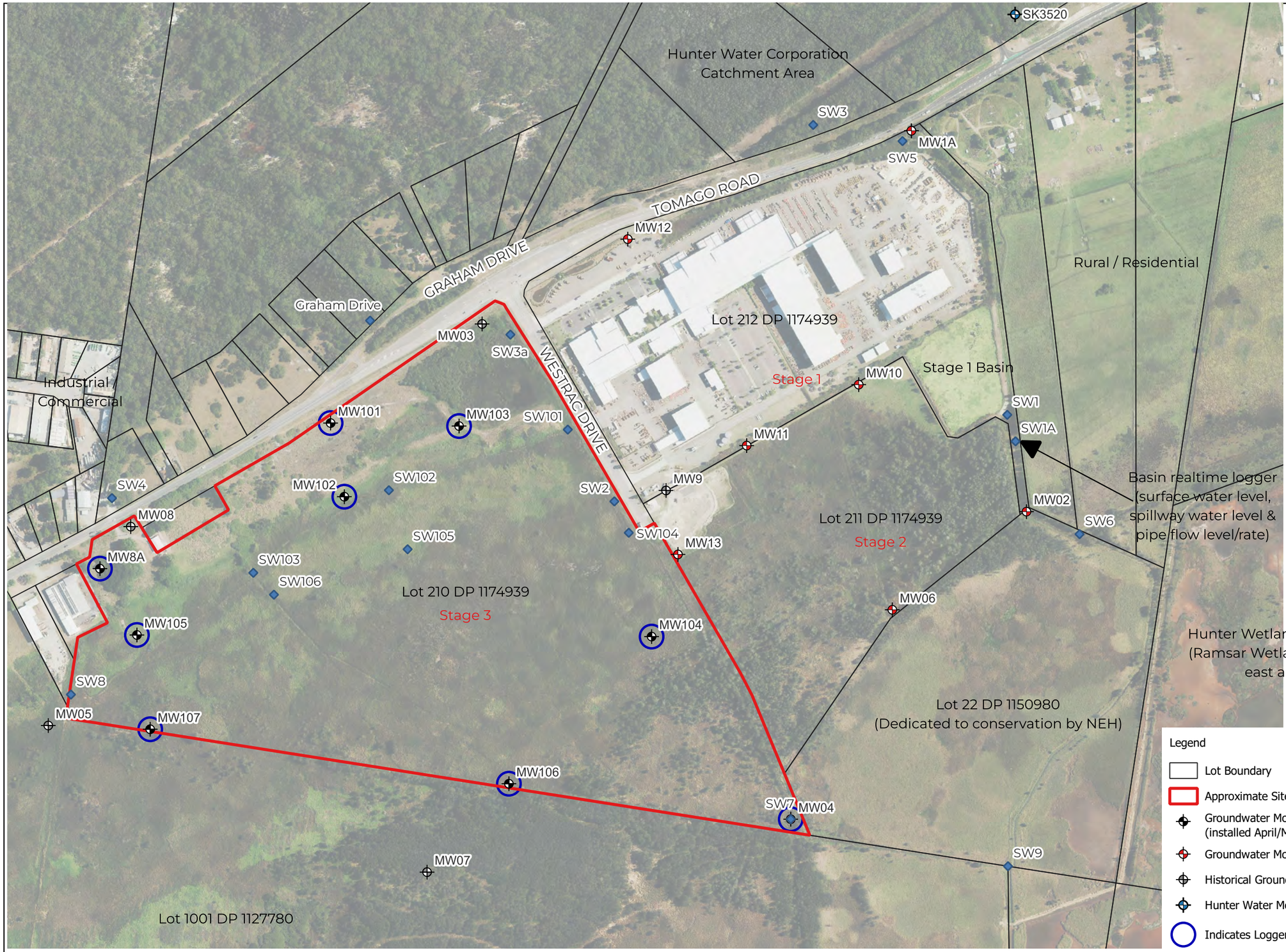

Site Location

Legend

- Lot Boundary
- Approximate Site Boundary
- Groundwater Monitoring Well (installed April/May 2023 and April 2024)
- Groundwater Monitoring Wells (2010 - existing)
- Historical Groundwater MonitoringWell (unserviceable)
- Hunter Water Monitoring Bore
- Indicates Logger Installed (Stage 3 Plan)
- Surface Water Monitoring Location (Stage 1-2 Plan)

0 100 200 m

Drawing adapted from Metromap Image dated 12.02.2023.
Test locations are approximate only. MW8A and MW100 series wells located using differential GPS.
MW1A & MW12 - Groundwater monitoring well (installed August 2024).

Douglas PARTNERS

CLIENT: Northbank Enterprise Hub Pty Ltd		TITLE: Well and Surface Water Monitoring Location Plan Stage 3, Northbank Enterprise Hub Westrac Drive, Tomago	PROJECT No:39920.09
OFFICE: Newcastle	DRAWN BY: PLH		DRAWING No: 1
SCALE: 1:6000 @ A3	DATE: 27.05.2026		REVISION: 5

Appendix B

Field Work Methodology

1. Guidelines

The following key guidelines were consulted for the field work methodology:

- NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013).
- HEPA *PFAS National Environmental Management Plan (NEMP)* (HEPA, 2025).
- Australian/New Zealand Standard (AS/NZS) 5667.1:1998 Water quality: sampling part 1 – guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples;
- AS/NZS 5667.4 Water quality: sampling guidance on sampling from lakes, natural and manmade;
- AS/NZS 5667.6 Water quality: sampling guidance on sampling of rivers and streams;
- AS/NZS 5667.11 Water quality: sampling guidance on sampling of groundwaters.

2. Groundwater Sampling

Peristaltic Pump

Groundwater sampling is carried out in accordance with Douglas' standard operating procedures. Groundwater samples are collected using a low flow peristaltic pump via the micro-purge (minimal drawdown) method. The sampling method is described as follows:

- Measure the static water level using an electronic interface probe and record the thickness of any LNAPL (if encountered);
- Decontaminate the interface probe and cable between monitoring wells by rinsing in a diluted Liquinox solution and then rinsing in tap water;
- Lower the well-dedicated tubing into the well then clamped at a level estimated to be 1 m below the top of the water column (provided the depth of the pump is within the screened section) or to the approximate mid-point of the well screen;
- Set the pump at the lowest rate possible to minimise drawdown of the water column;
- Measure physical parameters by continuously passing the purged water through a flow cell;
- Following stabilisation of the field parameters, collect samples in laboratory-prepared bottles minimising headspace within the sample bottle and cap immediately.

Sample Handling

The general groundwater sample handling and management procedures comprise:

- Collect 10% replicate samples for QC purposes;
- Label sample containers with individual and unique identification details, including project number and sample location;
- Place the sample jars into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

Reference was made to HEPA (2025) for requirements specific to PFAS.

3. Surface Water Sampling

Surface water sampling is carried out in accordance with Douglas' standard operating procedures. Sample collection is completed using a telescopic pole and decontaminated sample container. A new pair of disposable nitrile gloves are worn at each sample site to minimise potential for cross-contamination. The sampling method is described as follows:

- Where possible, select a sampling point that is a reasonable distance from the edge;
- Immerse the sample container to at least 1 m below the surface, with the opening pointing directly down to maintain a volume of air in the container, thereby avoiding the collection of any surface films;
- Once under the surface of the water, point the mouth of the sample container up stream so that gloved hands, sample container and/or sample collection device are downstream of the sample being collected;
- If the water is still, move the sample container forward away from the sampler and any equipment to collect a continuous uncontaminated sample;
- Use a sample location specific laboratory-prepared glass bottle without preservatives;
- Decant the water sample into laboratory-prepared bottles, minimising headspace within the sample bottle and cap immediately. The sample location specific laboratory-prepared glass bottle can be used as the sample container for the last sample from that location;
- Dispose of any excess water downstream of the sampling point or at a reasonable distance from sample site;
- Label sample containers with individual and unique identification details, including project number and sample location;
- Place the sample jars into a cooled, insulated and sealed container for transport to the laboratory; and
- Use chain of custody documentation.

4. References

HEPA. (2025). *PFAS National Environmental Management Plan (NEMP).* Version 3.0: Heads of EPAs Australia and New Zealand and Australian Government Department of the Environment.

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Appendix C

Sampling Methods

Soil Descriptions

Symbols and Abbreviations

Borehole logs (Bores MW6 to MW11, MW8A, MW101 to MW106) –Douglas Partners

Borehole logs (Bores MW1 to MW5) – Coffey

Table A1: Monitoring Well Summary

Terminology, Symbols and Abbreviations

November 2023

Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style XW. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example `PL` is used for plastic limit in the context of soil moisture condition, as well as in `PL(A)` for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when auguring in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example if drilling is commenced from the base of a hole predrilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example providing a description of the strength of a concrete pavement	NA

Graphic Symbols

Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Soil Descriptions

Introduction

All materials which are not considered to be "in-situ rock" are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:

The "classification" comprises a two character "group symbol" providing a general summary of dominant soil characteristics. The "name" summarises the particle sizes within the soil which most influence its behaviour. The detailed description presents more information about composition, condition, structure, and origin of the soil.

Classification, naming and description of soils require the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either "fine grained" (also known as "cohesive" behaviour) or "coarse grained" ("non cohesive" behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Designation	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as "oversize"	
Cobble	63 - 200		
Gravel[1]	2.36 - 63	Coarse	>65%
Sand[1]	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

[1] – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer "component proportions" below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a "Sandy CLAY", this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a "primary", "secondary", or "minor" component of the soil mixture, depending on its influence over the soil behaviour.

Component Proportion Designation	Definition[1]	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor[2]	Present in the soil, but not significant to its engineering properties	All other components	All other components

[1] As defined in AS1726-2017 6.1.4.4
[2] In the detailed material description, minor components are split into two further sub-categories. Refer "identification of minor components" below.

Composite Materials

In certain situations, a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example, "INTERBEDDED Silty CLAY AND SAND".

Soil Descriptions

Classification

The soil classification comprises a two character group symbol. The first character identifies the primary component. The second character identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils, the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way, the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component [1]	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

[1] – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	Clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	Clay/silt: 0-5% sand/gravel: 0-15%

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

Type		Particle size (mm)
Gravel	Coarse	19 - 63
	Medium	6.7 - 19
	Fine	2.36 – 6.7
Sand	Coarse	0.6 - 2.36
	Medium	0.21 - 0.6
	Fine	0.075 - 0.21

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular size or size range within the total range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	w<PL
	Near plastic limit	Can be moulded	w=PL
	Wet of plastic limit	Water residue remains on hands when handling	w>PL
	Near liquid limit	"oozes" when agitated	w=LL
	Wet of liquid limit	"oozes"	w>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code NDF, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials, the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered material origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description.

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example (VS).

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	St
Very stiff	Indented by thumbnail	>100 - ≤200	VSt
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	Fr

Relative Density (coarse grained soils)

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15 - ≤35	L
Medium dense	>35 - ≤65	MD
Dense	>65 - ≤85	D
Very dense	>85	VD

Note, tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided.

Soil Descriptions

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

AS1726-2017 considers weathered material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. less than very low strength rock). These materials may be identified as "extremely weathered material" in reports and by the abbreviation code XWM on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than 'very low' as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Fluvial	Deposited by channel fill and overbank (natural levee, crevasse splay or flood basin)	FLV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be "oversize" may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with "MIXTURE OF".

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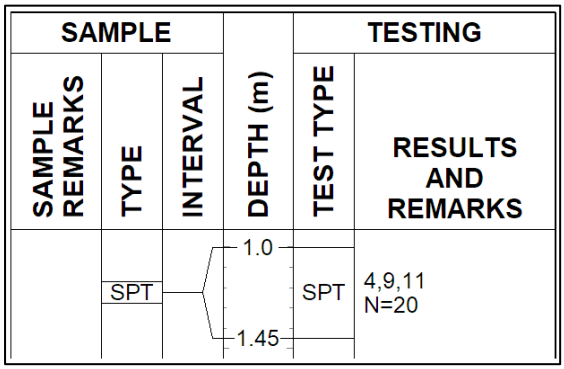
Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:



Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Driven Tube sample	DT
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U[1]
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

[1] – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y =x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(_)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP9/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

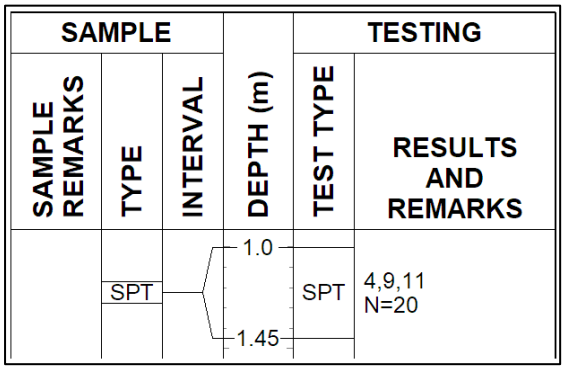
The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD[1]
Air Track	AT
Diatube	DT[1]
Hand auger	HA[1]
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA[1]
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT[1]
Ripping tyne/ripper	R
Rock roller	RR[1]
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON[1]
Mud/blade bucket	MB[1]
Toothed bucket	TB[1]
Vibrocore	VC[1]
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB[1]

[1] – numeric suffixes indicate tool diameter/width in mm

Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:



Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Driven Tube sample	DT
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U[1]
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

[1] – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y =*x* blows for *y* mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(_)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP9/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD[1]
Air Track	AT
Diatube	DT[1]
Hand auger	HA[1]
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA[1]
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT[1]
Ripping tyne/ripper	R
Rock roller	RR[1]
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON[1]
Mud/blade bucket	MB[1]
Toothed bucket	TB[1]
Vibrocore	VC[1]
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB[1]

[1] – numeric suffixes indicate tool diameter/width in mm

BOREHOLE LOG

CLIENT: WesTrac Pty Ltd
PROJECT: Westrac Industrial Site
LOCATION: 1 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 2.8 AHD
COORDINATE: E:383545.0, N:6368065.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW1A
PROJECT No: 39920.14
DATE: 22/08/24
SHEET: 1 of 1

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m) / DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN[#]	CONSIS.[*] / DENSITY.[*]	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	0.15	FILL / Silty SAND: brown; fine to medium; with organics, rootlets.		FILL	NA	M		D		0.10				
		FILL / SAND, with gravel, trace silt: brown; fine to medium.		possibly FILL	NA	M		D		0.50	PID	<1ppm	Bentonite ncrete	50mm Class 18 PVC Casing
	0.70	SAND: grey; fine to medium.		AEO	D	M		D		0.90	PID	<1ppm		
Free ground water observed at 1.0m 22/08/24	1.00	Silty SAND: brown; fine to medium.		AEO	D	W		D		1.50	PID	<1ppm	Sand - 2mm	50mm Class 18 Machine Slotted PVC Screen
	4	Borehole discontinued at 4.00m depth. Limit of investigation.												

NOTES: [#] Soil origin is "probable" unless otherwise stated. [*] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Track Mounted
METHOD: Hollow Flight Auger
REMARKS: Top of casing level 3.31 AHD. Replacement for damaged MW1.

OPERATOR: Tuck Environmental
CASING: Uncased

LOGGED: Krebs

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

BOREHOLE LOG

CLIENT: WEPL Investments Pty Ltd
PROJECT: Tomago Industrial Estate
LOCATION: Tomago Road, Tomago

SURFACE LEVEL: --
EASTING: 383518
NORTHING: 6367336
DIP/AZIMUTH: 90°/--

BORE No: MW6
PROJECT No: 39920.03
DATE: 7/10/2010
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
		SILTY CLAY - Dark grey silty clay, M>Wp							Stickup = 0.7m
	0.23	SILTY CLAY - Grey silty clay, M>>Wp							From 0m to 0.5m, Concrete
	1								From 0.5m to 2m, Backfill
	2								
	3								From 2m to 4.5m, Bentonite plug
	4								
	5								From 4.5m to 6m, 2.5mm washed gravel screen
	6	6.0 SAND - Grey/brown fine to medium grained sand with some silt and clay, trace shell fragments, saturated							
	7								
	8								From 6m to 9m, Collapsed strata From 6m to 9m, 50mm diameter Class 18 machine slotted PVC screen
	9	9.0 Bore discontinued at 9.0m, limit of investigation							End cap

RIG: 4WD Truck Mounted Drill Rig **DRILLER:** **LOGGED:** Prowse **CASING:** Nil

TYPE OF BORING: 130mm hollow flight auger

WATER OBSERVATIONS: Free groundwater encourtered at 0.3m whilst augering

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U_x	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Stage 3 Northbank Enterprise Hub
LOCATION: Lot 210 Westrac Drive, Tomago

SURFACE LEVEL: 3.1 AHD
EASTING: 382303.7
NORTHING: 6367395.9
DIP/AZIMUTH: 90°/--

BORE No: MW8A
PROJECT No: 39920.09
DATE: 12/4/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.25	SILTY SAND - fine to medium grained, dark grey, trace rootlets, moist		D	0.01				Stickup = 0.76 From 0m to 0.1m, concrete From 0.1m to 0.3m, bentonite From 0m to 0.5m, 50mm diameter Class 18 PVC Casing
	1.2	SAND - fine to medium grained, dark grey, trace rootlets, moist at 0.7m - colour change to brown		D	0.5				
		SAND - fine to medium grained, pale brown, trace sub-angular to sub-rounded gravel, moist at approximately 1.8m, wet		D	1.5				
				D	2.5				
				D	3.5				From 0.3m to 7.0m, 2mm sand From 0.5m to 7.0m, 50mm diameter Class 18 Machine Slotted PVC Screen
				D	4.5				
				D	5.5				
				D	6.5				
	7.0	Bore discontinued at 7.0m Limit of investigation							End cap

RIG: Geoprobe Dual Tube **DRILLER:** Tucker **LOGGED:** Krebs **CASING:** None

TYPE OF BORING: Push tube with disposable liners

WATER OBSERVATIONS: Free groundwater observed at 1.9m during drilling

REMARKS: Top of PVC casing level 3.86 AHD

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367418.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 1 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	3		FILL / Silty CLAY (CI), with gravel: brown; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		0.50	PID	<1ppm	Concrete	
		0.70	FILL / Silty CLAY (CI), trace gravel: grey; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		1.00	PID	<1ppm		
	1	2									2				
	2	2.10	FILL / Silty CLAY (CH): grey; high plasticity.		FILL	NA	w>PL		D/ES		2.50	PID	<1ppm		
		2.90	FILL / Silty SAND (SM): dark brown; fine to medium; possible old topsoil layer, trace organics, rootlets.		FILL	S to F	M		D/ES		3.00	PID	<1ppm		
Free groundwater observed at 3.4m 18/11/24	0	3.20	Silty Sandy CLAY (CH): brown; high plasticity; fine to medium sand.		ALV	S to F	w=PL w>PL		D/ES		5.00	PID	<1ppm	Bentonite	50mm Class 18 PVC Casing
	-1	4									4				
	-2	5													
	-3	6									6				
	-4	7									7				
	-5	8									8				
		8.60	SAND: grey; fine to medium.		ALV	L	M							Gravel - 2mm graded gravel/sand	
	-6	9									9				

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe
OPERATOR: Tuck Environmental (Tucker)
LOGGED: Krebs
METHOD: Hollow Flight Auger
CASING: Uncased
REMARKS: Top of PVC casing level 3.63 AHD. Stickup = 0.53

Generated with CORE-GS by Geroc - Soil Log

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367418.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*)	DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL / WELL PIPE
	-7		[CONT] SAND: grey; fine to medium.							D/ES		10.00	PID	<1ppm	
	-8	11										11			
	-9	12			ALV		L	M				12			
	-10	13										13			
	-11	14										14			
	-12	15	Borehole discontinued at 14.50m depth.												
	-13	16													
	-14	17													
	-15	18													
	-16	19													

Bentonite
Blank Class 18 PVC
Gravel - 2mm graded gravel/sand
50mm Class 18 Machine Slotted PVC Screen

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe
METHOD: Hollow Flight Auger
REMARKS: Top of PVC casing level 3.63 AHD. Stickup = 0.53

OPERATOR: Tuck Environmental (Tucker)

LOGGED: Krebs
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 1
Sheet	1 of 1
Project No:	GEOTSGTE20301AA
Client:	ASQUITH & de WITT PTY LTD
Date started:	16.8.2007
Principal:	
Date completed:	16.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO
Logged by:	CW
Borehole Location:	REFER TO FIGURE 1
Checked by:	

drill model & mounting: Truck Mounted | Easting: 383658 | slope: -90° | R.L. Surface: 2.31

hole diameter: 200mm | Northing: 6367969 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C							SM	Silty SAND: fine to coarse grained, black.	D		ALLUVIAL
									SC	Clayey SAND: grey	M		
						2.0	0.5						
			▼			1.5	1.0				W		
						1.0	1.5						
						0.5	2.0						
						0.0	2.5						
						-0.5	3.0						
						-1.0	3.5						
						-1.5							
							4.0			Borehole terminated at 3.85m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g ADT

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 2		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted		Easting:	383725	slope:	-90°	R.L. Surface:	0.74
hole diameter:	200mm	Northing:	6367488	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material: soil type; plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency/ density index	structure and additional observations
HF		C	10:30am			0.5	0.5		CI	Silty CLAY: medium plasticity, dark brown-black, with rootlets.	M>Wp		TOPSOIL Root affected.
						0.0	1.0		CI	CLAY: medium plasticity, grey.			ALLUVIAL / ESTUARINE
						-0.5	1.5						
						-1.0	2.0						
						-1.5	2.5						
						-2.0	3.0						
						-2.5	3.5						
						-3.0	4.0			Borehole terminated at 3.5m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 3		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382895 | slope: -90° | R.L. Surface: 2.91

hole diameter: 200mm | Northing: 6367789 | bearing | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C					0.5		SM	Silty SAND: fine to coarse grained, black mottled white, with rootlets	M		TOPSOIL
			11:55am			2.5			SM	Silty SAND: fine to coarse grained, dark grey			AEOLIAN
						2.0	1.0			Becoming dark brown	W		
						1.5	1.5						
						1.0	2.0			Trace of fine grained rounded gravel.			Alluvial?
						0.5	2.5						
						0.0	3.0						
						-0.5	3.5						
						-1.0	4.0			Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
OT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g. ADT

support: C casing; N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 4		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting:	Truck Mounted	Easting:	383345	slope:	-90°	R.L. Surface:	0 35
hole diameter:	200mm	Northing:	6366996	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	structure and additional observations
HF		C	1:51pm			0 0	0.5		CH	CLAY: high plasticity, grey-brown some orange mottled, with rootlets.	M>Wp		ALLUVIAL
						-0 5	1.0			Becoming grey.			
						-1 0	1.5						
						-1 5	2.0						
						-2 0	2.5						
						-2 5	3.0						
						-3 0	3.5						
						-3 5	4.0			Borehole terminated at 3.9m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Table D1: Monitoring Well Summary

Bore ID	Easting	Northing	Elevation Ground Level (AHD)	Elevation top of PVC Casing Level (AHD)	Depth (m bgl)	Screened interval (m bgl)	Screened lithology	Proposed for monitoring in revised GMP for Stage 1-2	Comment
MW1	383552	6368062	2.0	2.84	3.8	0.8-3.8	Sand, clayey	No	Damaged/lost
MW1A	383545	6368065	2.8	3.31	4.0	0.5 - 4.0	Sand, fine to med	Yes	Installed Aug 2024 as replacement for MW1 and upgradient well
MW2	383721	6367483	0.7	1.25	3.5	0.5-3.5	Clay, silty	Yes	Damaged/lost
MW3	382900	6367780	2.9	3.56	3.0	0.5-3.0	Sand, fine to coarse, silt	No	Damaged/lost
MW4	383360	6367013	0.5	1.28	3.7	0.7-3.8	Clay	Yes	High EC readings assumed to be associated with elevated suspended solids (clay particles)
MW5	382225	6367156			3.8	0.8-3.8	Clay and sand	No	Damaged/lost
MW6	383516	6367333	0.6	1.26	9.0	6.0-9.0	Sand, fine to med	Yes	
MW7	382804	6366932	0.4	1.41	2.6	0.6-2.6	Clay, silty	No	Collapsed strata 6-9m - no gravel pack High EC readings assumed to be associated with elevated suspended solids (fine sand due to absence of gravel pack).
MW8	382351	6367460	3.4	4.72	5.5	2.5-5.5	Sand, fine to med	No	Damaged/lost
MW8A	382304	6367396	3.1	3.86	7.0	0.5-7.0	Sand, fine to med	No	Replacement for MW8
MW9	383165	6367492	0.6	1.54	10.6	4.6-8.3	Sand, fine to med	No	Damaged/lost
MW10	383467	6367675	0.8	2.11	10.6	4.6-8.3	Sand, fine to med	Yes	
MW11	383293	6367584	1.2	2.27	10.6		Sand, fine to med	Yes	
MW12	383111	6367900	3.0	3.57	4.0	0.5 - 4.0	Sand, fine to med	Yes	Installed Aug 2024 as new upgradient well
MW13	383188	6367418	3.1	3.63	14.5	9.5 - 12.6	Sand, fine to med	Yes	Installed Nov 2024
MW101	382657	6367619	3.2	4.09	7.0	0.3-7.0	Sand, fine to med	No	Stage 3 monitoring location
MW102	382678	6367506	1.8	2.52	4.0	0.3-4.0	Sand, fine to med	No	Stage 3 monitoring location
MW103	382853	6367614	2.3	3.31	7.0	0.3-7.0	Sand, fine to med	No	Stage 3 monitoring location
MW104	383148	6367292	0.7	1.16	1.5	0.5-1.5	Clay	No	High EC readings assumed to be associated with elevated suspended solids (clay particles). Stage 3 monitoring location
MW105	382360	6367294	1.5	2.05	6.0	0.3-6.0	Sand, fine to med	No	Stage 3 monitoring location
MW106	382929	6367067	0.7	1.35	2.0	0.5-2.0	Clay	No	High EC readings assumed to be associated with elevated suspended solids (clay particles). Stage 3 monitoring location
MW107	382381	6367150	0.72	1.52	2.2	0.5-2.2	Clay	No	Stage 3 monitoring location

Notes:

AHD = metres Australian Height Datum EC = electrical conductivity m bgl = metres below ground level

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 5		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	18.8.2007
Principal:		Date completed:	18.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382251 | slope: -90° | R.L. Surface: 0.71

hole diameter: 200mm | Northing: 6367165 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C	8:15am			0.5 / 0.0 / -0.5 / -1.0 / -1.5 / -2.0 / -2.5 / -3.0	0.5 / 1.0 / 1.5 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0		CI	Silty CLAY: medium plasticity, dark brown	M>Wp		ALLUVIAL
										Becoming dark grey-grey			
									SC	Clayey SAND / Sandy CLAY: fine to medium grained.			
										Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e g ADT

support
C casing N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Stage 3 Northbank Enterprise Hub
LOCATION: Lot 210 Westrac Drive, Tomago

SURFACE LEVEL: 3.1 AHD
EASTING: 382303.7
NORTHING: 6367395.9
DIP/AZIMUTH: 90°/--

BORE No: MW8A
PROJECT No: 39920.09
DATE: 12/4/2023
SHEET 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing: Type	Depth	Sample	Results & Comments	Water	Well Construction Details
	0.25	SILTY SAND - fine to medium grained, dark grey, trace rootlets, moist		D	0.01				Stickup = 0.76 From 0m to 0.1m, concrete From 0.1m to 0.3m, bentonite From 0m to 0.5m, 50mm diameter Class 18 PVC Casing
	1.2	SAND - fine to medium grained, dark grey, trace rootlets, moist at 0.7m - colour change to brown		D	0.5				
		SAND - fine to medium grained, pale brown, trace sub-angular to sub-rounded gravel, moist at approximately 1.8m, wet		D	1.5				
				D	2.5				
				D	3.5				From 0.3m to 7.0m, 2mm sand From 0.5m to 7.0m, 50mm diameter Class 18 Machine Slotted PVC Screen
				D	4.5				
				D	5.5				
				D	6.5				
	7.0	Bore discontinued at 7.0m Limit of investigation							End cap

RIG: Geoprobe Dual Tube **DRILLER:** Tucker **LOGGED:** Krebs **CASING:** None

TYPE OF BORING: Push tube with disposable liners

WATER OBSERVATIONS: Free groundwater observed at 1.9m during drilling

REMARKS: Top of PVC casing level 3.86 AHD

SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U$_x$	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	▼	Water level	V	Shear vane (kPa)

Douglas Partners
Geotechnics / Environment / Groundwater

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367417.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 1 of 2

GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*) / DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	3		FILL / Silty CLAY (CI), with gravel: brown; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		0.50	PID	<1ppm	Concrete - Stickup = 0.5 m	
		0.70	FILL / Silty CLAY (CI), trace gravel: grey; medium plasticity; fine to medium, sub-angular to sub-rounded gravel.		FILL	NA	w<PL		D/ES		1.00	PID	<1ppm		
	2	1									2				
	1	2.10	FILL / Silty CLAY (CH): grey; high plasticity.		FILL	NA	w>PL		D/ES		2.50	PID	<1ppm		
		2.90	FILL / Silty SAND (SM): dark brown; fine to medium; possible former topsoil layer, trace organics, rootlets.		FILL	S to F	M		D/ES		3.00	PID	<1ppm		
Free groundwater observed at 3.4m 18/11/24	0	3.20	Silty Sandy CLAY (CH): brown; high plasticity; fine to medium sand.		ALV	S to F	w=PL w>PL		D/ES		5.00	PID	<1ppm	Bentonite	50mm Class 18 PVC Casing
	-1	4									4				
	-2	5													
	-3	6									6				
	-4	7									7				
	-5	8									8				
		8.60	SAND: grey; fine to medium.		ALV	L	M							Gravel - 2mm graded gravel/sand	
	-6	9									9				

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe
OPERATOR: Tuck Environmental (Tucker)
LOGGED: Krebs
METHOD: Hollow Flight Auger
CASING: Uncased
REMARKS: Top of PVC casing level 3.63 AHD
Coordinates and levels by dGPS and are therefore approximate only

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

BOREHOLE LOG

CLIENT: Northbank Enterprise Hub Pty Ltd
PROJECT: Northbank Enterprise Hub
LOCATION: Lot 211 DP 1174939 Westrac Drive, Tomago, NSW

SURFACE LEVEL: 3.1 AHD
COORDINATE: E:383187.9, N:6367417.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW13
PROJECT No: 39920.09
DATE: 18/11/24
SHEET: 2 of 2

CONDITIONS ENCOUNTERED								SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS.(*)	DENSITY.(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL / WELL PIPE
	-7		[CONT] SAND: grey; fine to medium.							D/ES		10.00	PID	<1ppm	
	-8	11										11			
	-9	12			ALV		L	M				12			
	-10	13										13			
	-11	14										14			
	-12	15	Borehole discontinued at 14.50m depth.												
	-13	16													
	-14	17													
	-15	18													
	-16	19													

Gravel - 2mm graded gravel/sand
50mm Class 18 Machine Slotted PVC Screen
Bentonite
Blank Class 18 PVC

NOTES: (#)Soil origin is "probable" unless otherwise stated. (*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Geoprobe
OPERATOR: Tuck Environmental (Tucker)
LOGGED: Krebs
METHOD: Hollow Flight Auger
CASING: Uncased
REMARKS: Top of PVC casing level 3.63 AHD
Coordinates and levels by dGPS and are therefore approximate only

Refer to explanatory notes for symbol and abbreviation definitions

Douglas PARTNERS

Generated with CORE-GS by Geroc - Soil Log

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 1
Sheet	1 of 1
Project No:	GEOTSGTE20301AA
Client:	ASQUITH & de WITT PTY LTD
Date started:	16.8.2007
Principal:	
Date completed:	16.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO
Logged by:	CW
Borehole Location:	REFER TO FIGURE 1
Checked by:	

drill model & mounting: Truck Mounted | Easting: 383658 | slope: -90° | R.L. Surface: 2.31

hole diameter: 200mm | Northing: 6367969 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C							SM	Silty SAND: fine to coarse grained, black.	D		ALLUVIAL
									SC	Clayey SAND: grey	M		
						2.0	0.5						
			▼			1.5	1.0				W		
						1.0	1.5						
						0.5	2.0						
						0.0	2.5						
						-0.5	3.0						
						-1.0	3.5						
						-1.5							
							4.0			Borehole terminated at 3.85m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g ADT

support

C casing N nil

penetration

1 2 3 4 no resistance ranging to refusal

water

▼ 10/1/98 water level on date shown

► water inflow

◄ water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description

based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 2		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted		Easting:	383725	slope:	-90°	R.L. Surface:	0.74
hole diameter:	200mm	Northing:	6367488	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material: soil type; plasticity or particle characteristics, colour, secondary and minor components	moisture condition	consistency/ density index	structure and additional observations
HF		C	10:30am			0.5	0.5		CI	Silty CLAY: medium plasticity, dark brown-black, with rootlets.	M>Wp		TOPSOIL Root affected.
						0.0	1.0		CI	CLAY: medium plasticity, grey.			ALLUVIAL / ESTUARINE
						-0.5	1.5						
						-1.0	2.0						
						-1.5	2.5						
						-2.0	3.0						
						-2.5	3.5						
						-3.0	4.0			Borehole terminated at 3.5m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 3		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382895 | slope: -90° | R.L. Surface: 2.91

hole diameter: 200mm | Northing: 6367789 | bearing | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C					0.5		SM	Silty SAND: fine to coarse grained, black mottled white, with rootlets	M		TOPSOIL
			11:55am			2.5			SM	Silty SAND: fine to coarse grained, dark grey			AEOLIAN
						2.0	1.0			Becoming dark brown	W		
						1.5	1.5						
						1.0	2.0			Trace of fine grained rounded gravel.			Alluvial?
						0.5	2.5						
						0.0	3.0						
						-0.5	3.5						
						-1.0	4.0			Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
OT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix e.g. ADT

support: C casing; N nil

penetration: 1 2 3 4 — no resistance ranging to refusal

water: 10/1/98 water level on date shown; water inflow; water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
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consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 4		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	17.8.2007
Principal:		Date completed:	17.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting:	Truck Mounted	Easting:	383345	slope:	-90°	R.L. Surface:	0 35
hole diameter:	200mm	Northing:	6366996	bearing:		datum:	AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components.)	moisture condition	consistency/ density index	structure and additional observations
HF		C	1:51pm			0 0	0.5		CH	CLAY: high plasticity, grey-brown some orange mottled, with rootlets.	M>Wp		ALLUVIAL
						-0 5	1.0			Becoming grey.			
						-1 0	1.5						
						-1 5	2.0						
						-2 0	2.5						
						-2 5	3.0						
						-3 0	3.5						
						-3 5	4.0			Borehole terminated at 3.9m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e.g. ADT

support
C casing N nil

penetration
1 2 3 4
no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

coffey geotechnics

Engineering Log - Piezometer

Borehole No.	MW 5		
Sheet	1 of 1		
Project No:	GEOTSGTE20301AA		
Client:	ASQUITH & de WITT PTY LTD	Date started:	18.8.2007
Principal:		Date completed:	18.8.2007
Project:	PROPOSED INDUSTRIAL DEVELOPMENT, TOMAGO	Logged by:	CW
Borehole Location:	REFER TO FIGURE 1	Checked by:	

drill model & mounting: Truck Mounted | Easting: 382251 | slope: -90° | R.L. Surface: 0.71

hole diameter: 200mm | Northing: 6367165 | bearing: | datum: AHD

drilling information / **material substance**

method	penetration 1 2 3	support	water	notes samples, tests, etc	well details	RL	depth metres	graphic log	classification symbol	material (soil type: plasticity or particle characteristics, colour, secondary and minor components)	moisture condition	consistency/ density index	structure and additional observations
HF		C	8:15am			0.5 / 0.0 / -0.5 / -1.0 / -1.5 / -2.0 / -2.5 / -3.0	0.5 / 1.0 / 1.5 / 2.0 / 2.5 / 3.0 / 3.5 / 4.0		CI	Silty CLAY: medium plasticity, dark brown	M>Wp		ALLUVIAL
										Becoming dark grey-grey			
									SC	Clayey SAND / Sandy CLAY: fine to medium grained.			
										Borehole terminated at 3.8m			

method

AS	auger screwing*
AD	auger drilling*
RR	roller/tricone
W	washbore
CT	cable tool
DT	diatube
B	blank bit
V	V bit
T	TC bit
TBX	Tubex

*bit shown by suffix
e g ADT

support
C casing N nil

penetration
1 2 3 4 — no resistance ranging to refusal

water
10/1/98 water level on date shown
water inflow
water outflow

notes, samples, tests

U_{50}	undisturbed sample 50mm diameter
D	disturbed sample
N	standard penetration test (SPT)
N*	SPT - sample recovered
Nc	SPT with solid cone
P	pressure meter
Bs	bulk sample
R	refusal
E	environmental sample
PID	PID measurement
WS	water sample
PZ	piezometer
ALT	air lift test

classification symbols and soil description
based on unified classification system

moisture

D	dry
M	moist
W	wet
Wp	plastic limit
W_L	liquid limit

consistency/density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fb	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	very dense

Appendix D

Figure D1: Groundwater Levels in Monitoring Wells (2024-2026)

Figure D2: Groundwater Levels in Monitoring Wells (2010-2026)

Groundwater Quality Monitoring Plots

Surface Water Quality Monitoring Plots

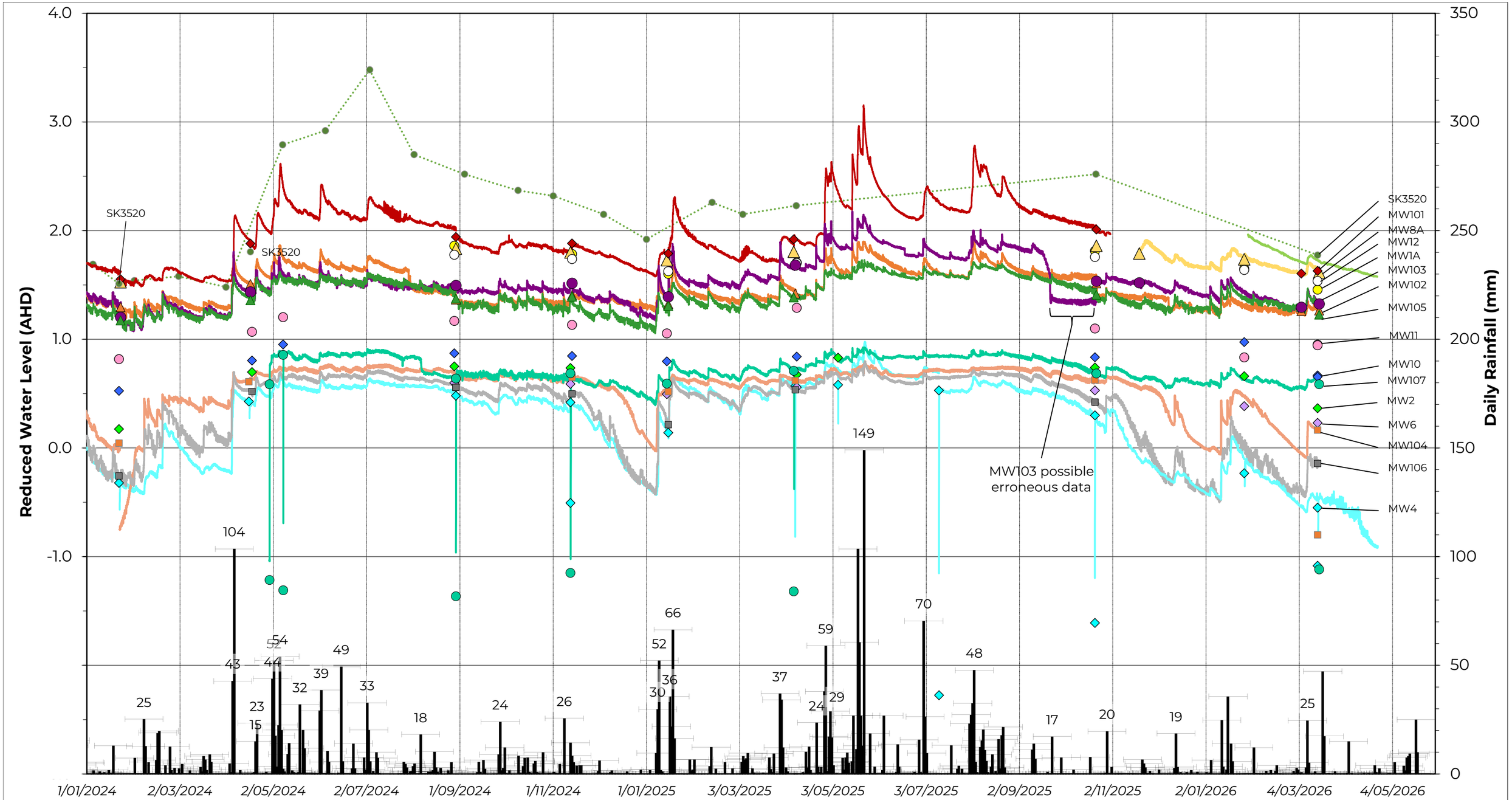


Figure D1: Groundwater Levels in Monitoring Wells (2024-2026)

Revison: Rev0

Douglas PARTNERS

MW1A
MW1
MW02
MW3
MW4
MW6
MW7
MW8
MW9
MW10
MW11
MW8A
MW12
MW101
MW102
MW103
MW104
MW105
MW106
SK3520
MW107
MW3 Datalogger
MW04 Logger
MW4 Datalogger
MW8A Logger
MW10 Datalogger
MW101 Logger
MW102 Logger
MW103 Logger
MW104 Logger
MW105 Logger
MW106 Logger
MW107 Logger
SK3520 Logger
MW4 logger
MW101 logger
Daily Rainfall (mm) - Williamtown RAAF

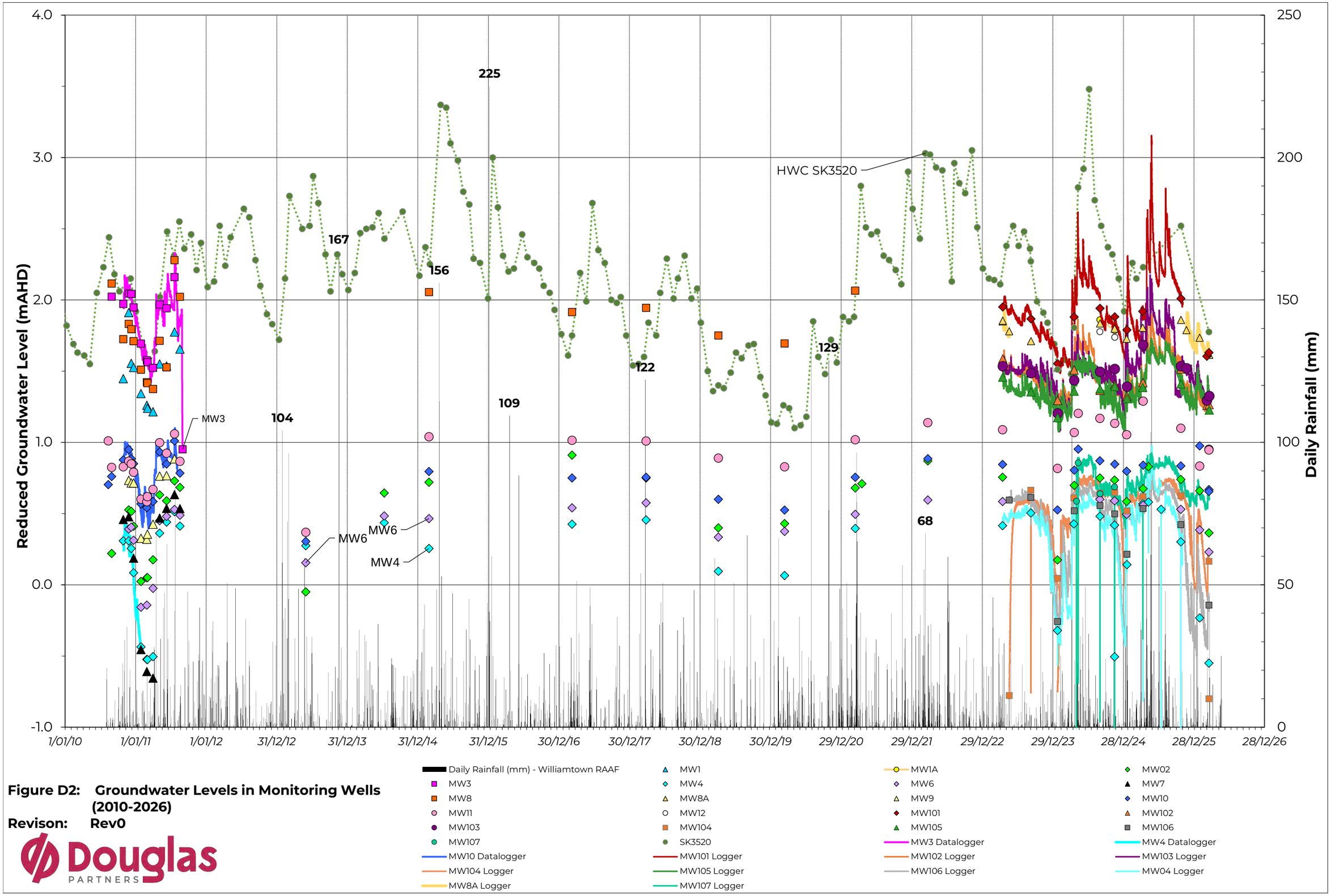


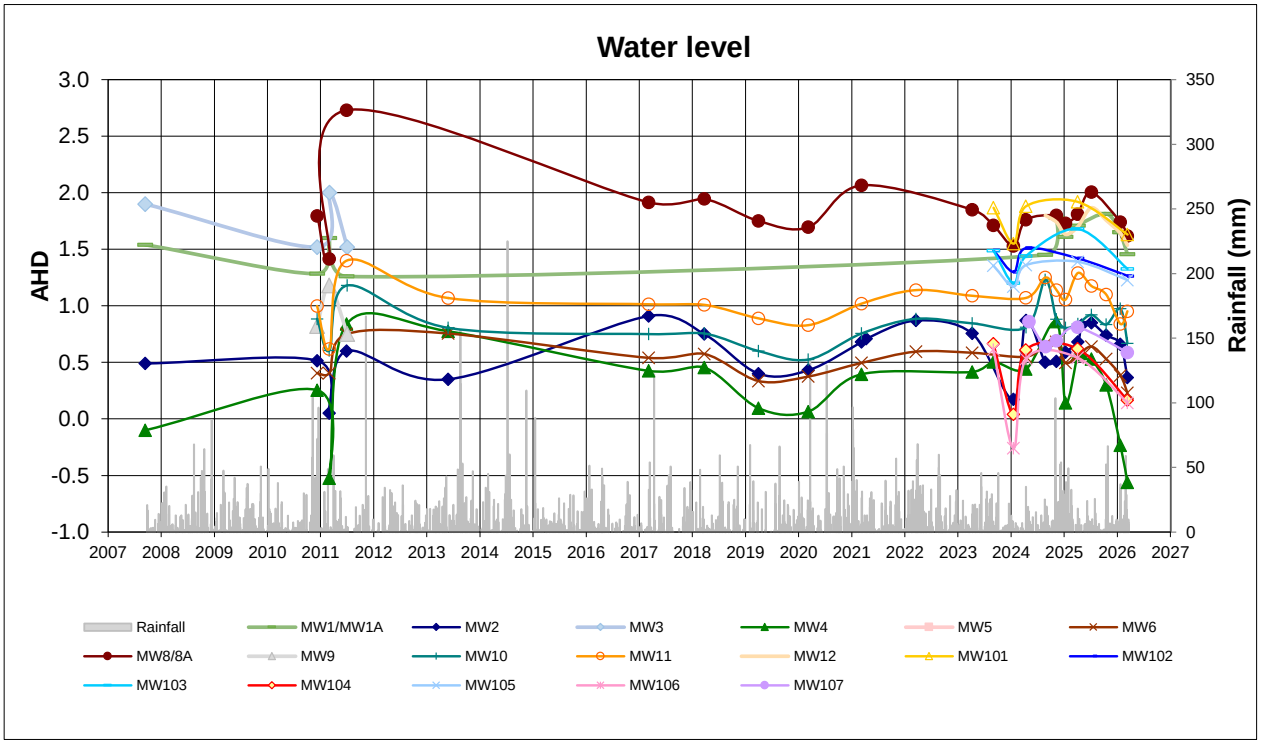
Figure D2: Groundwater Levels in Monitoring Wells (2010-2026)

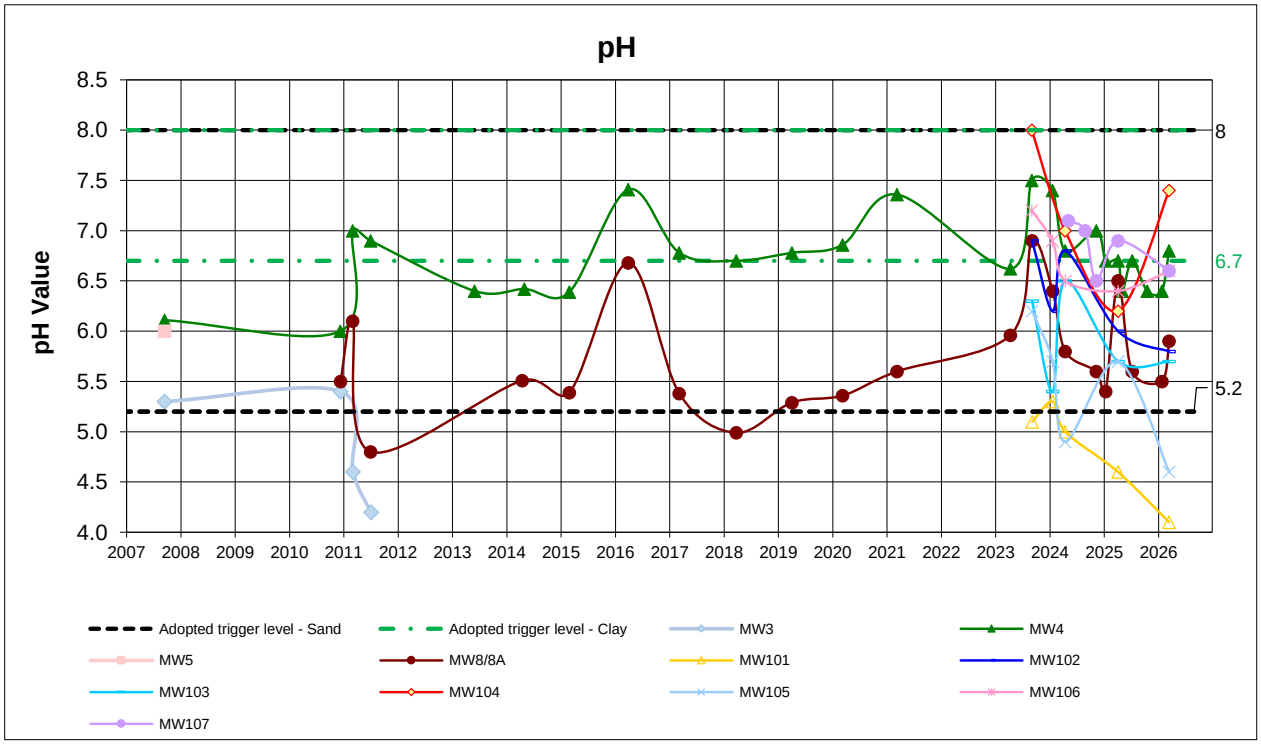
Revison: Rev0

Douglas PARTNERS

GROUNDWATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to May 2026

Data set: All data **Project: 39920.09**





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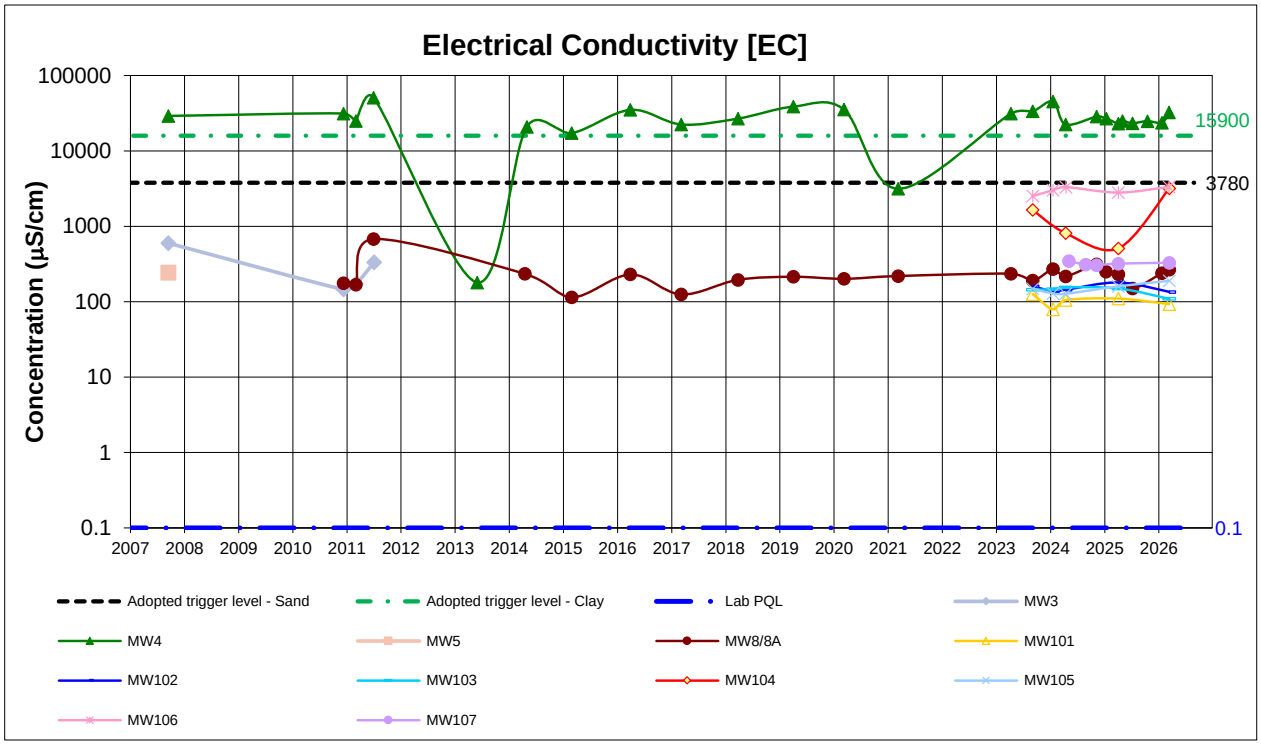

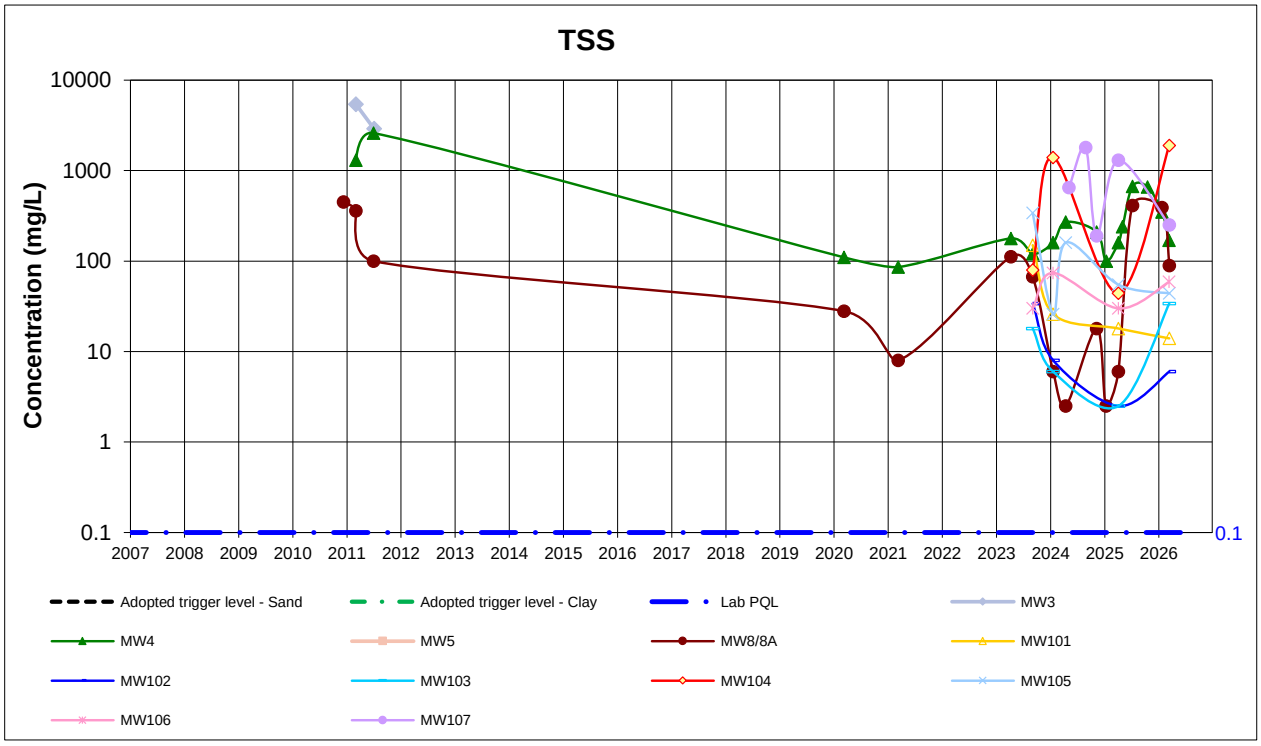

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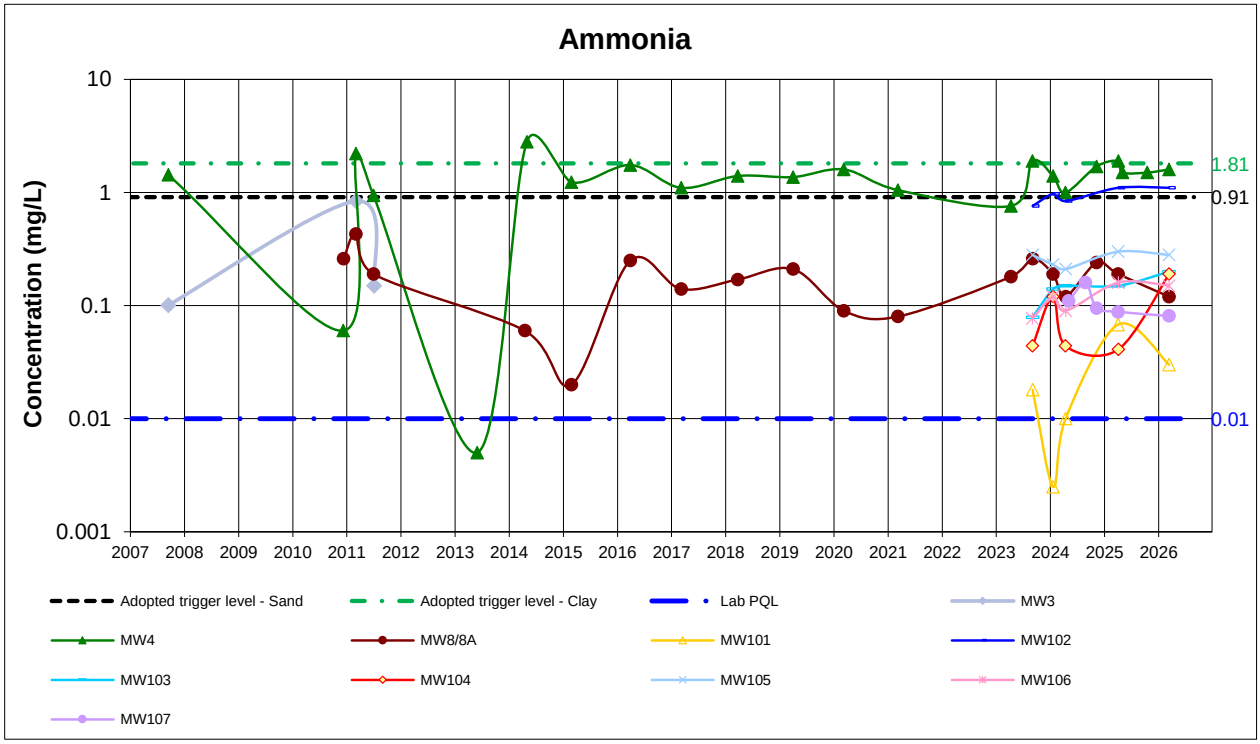

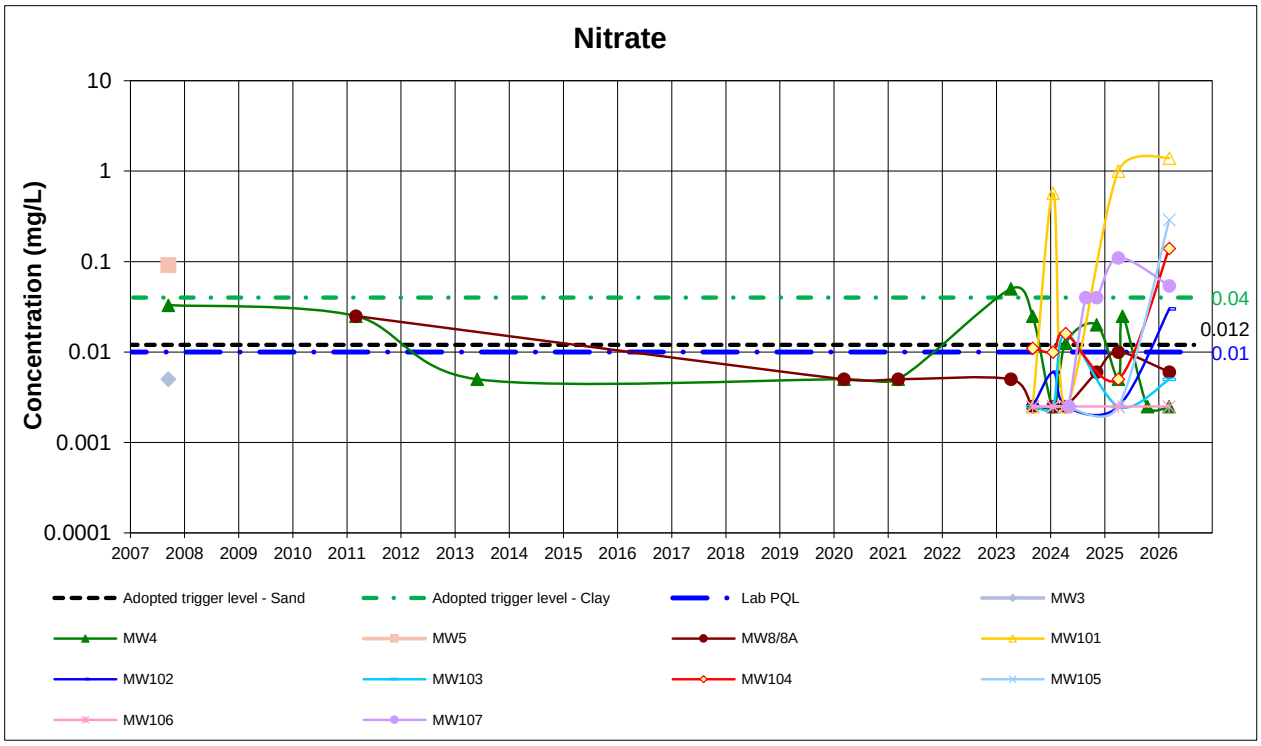

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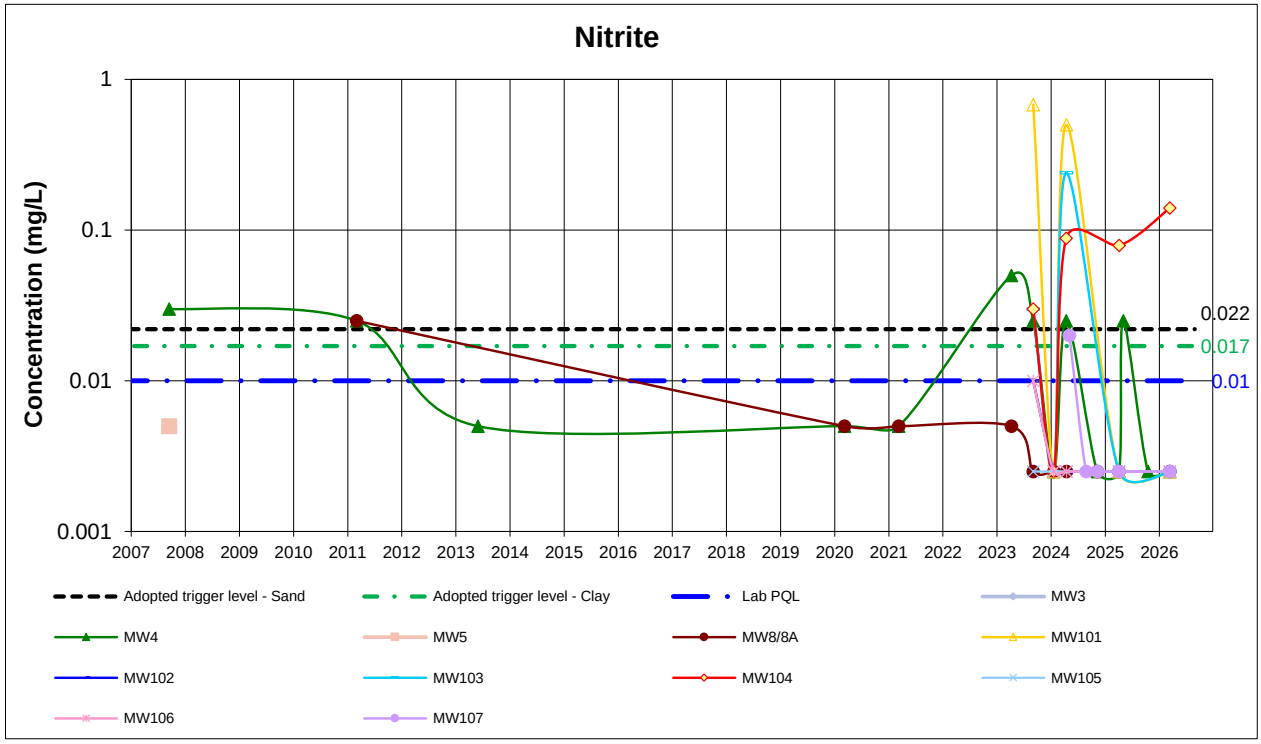

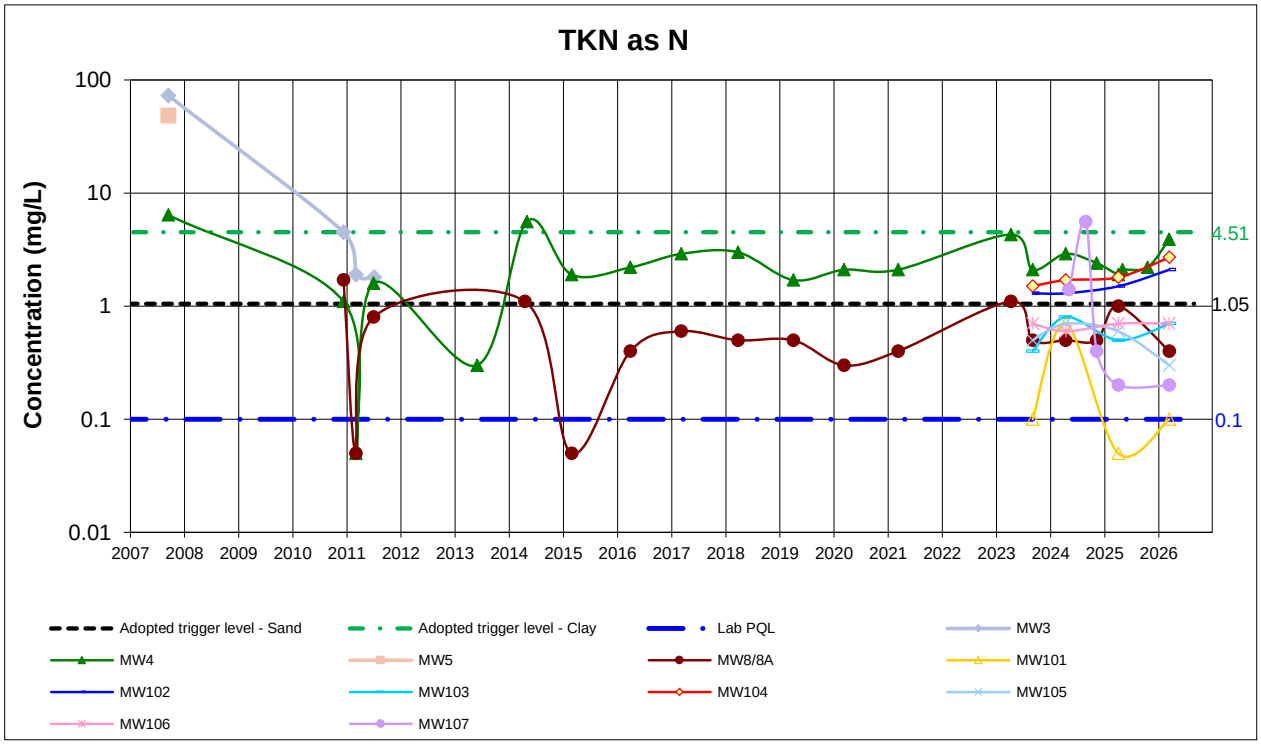

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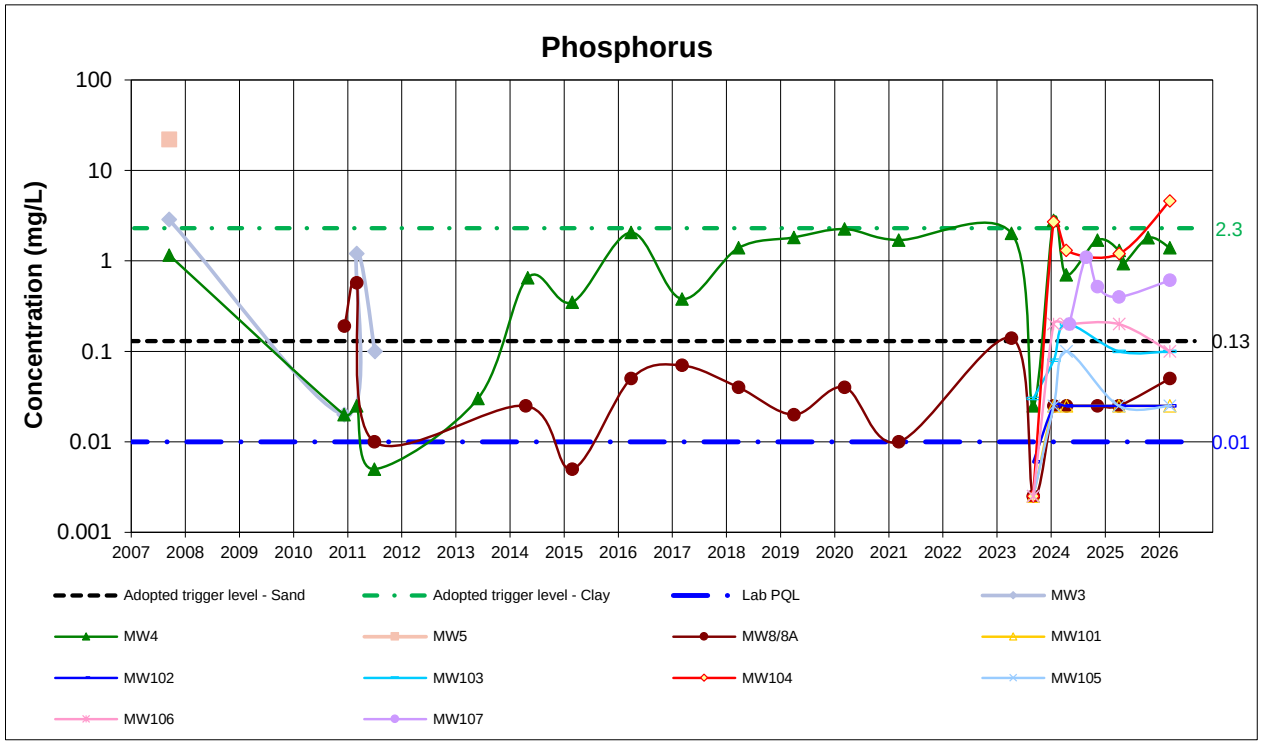

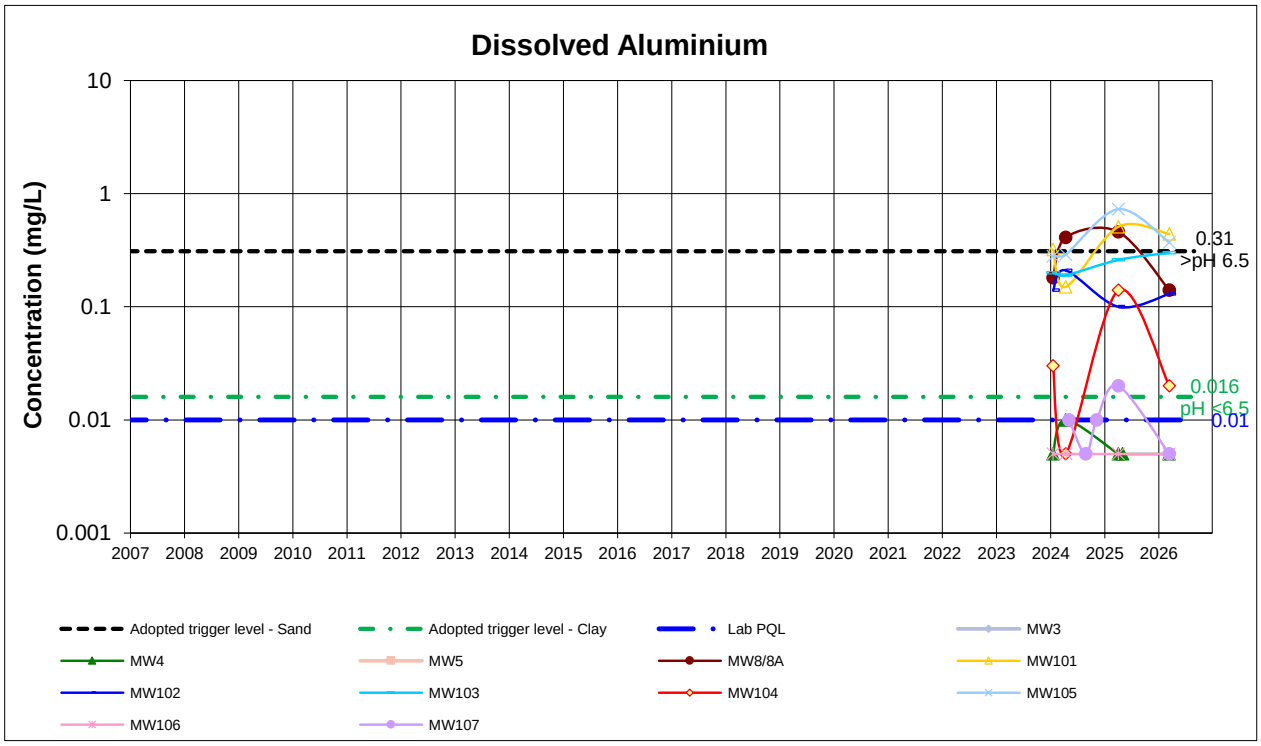

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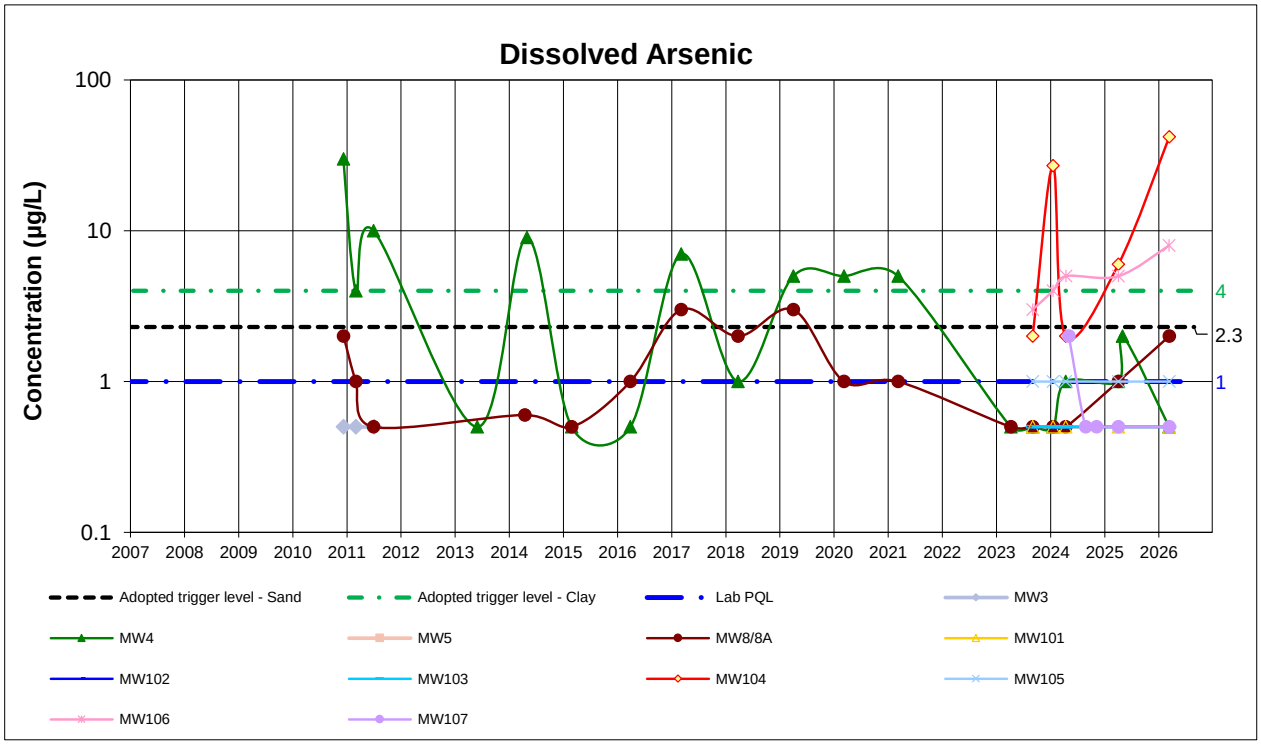

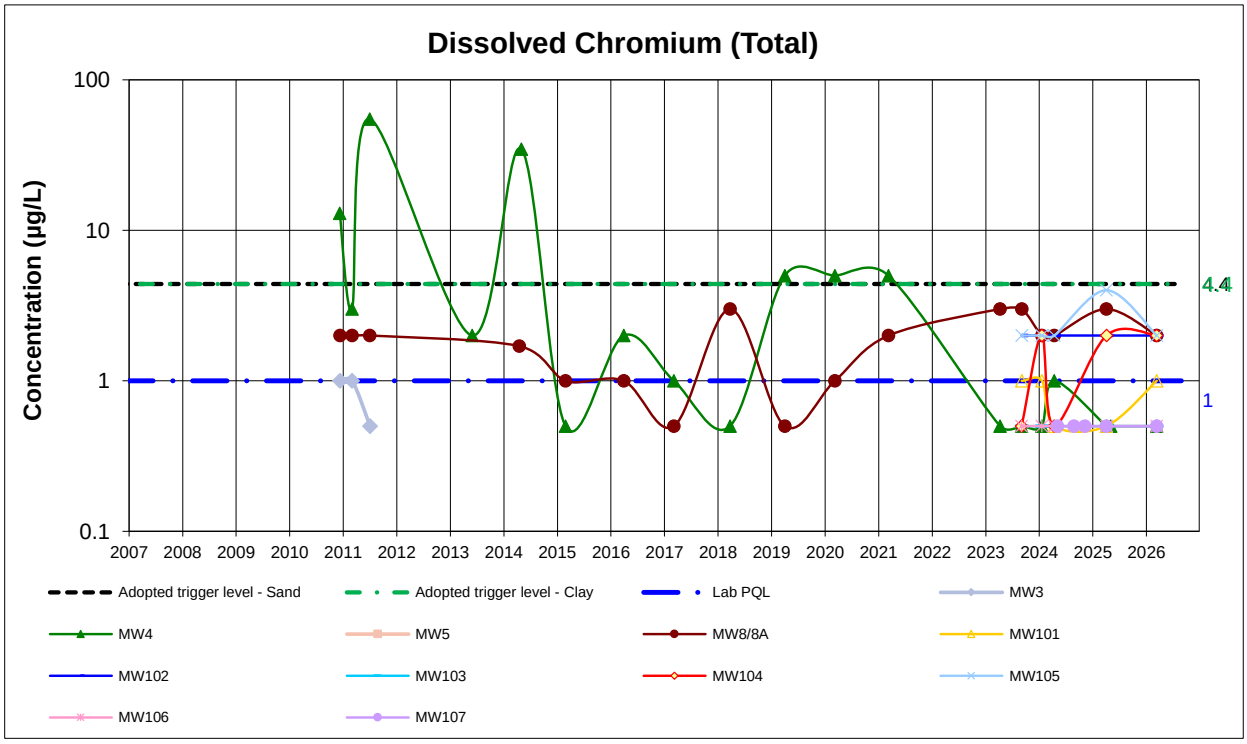

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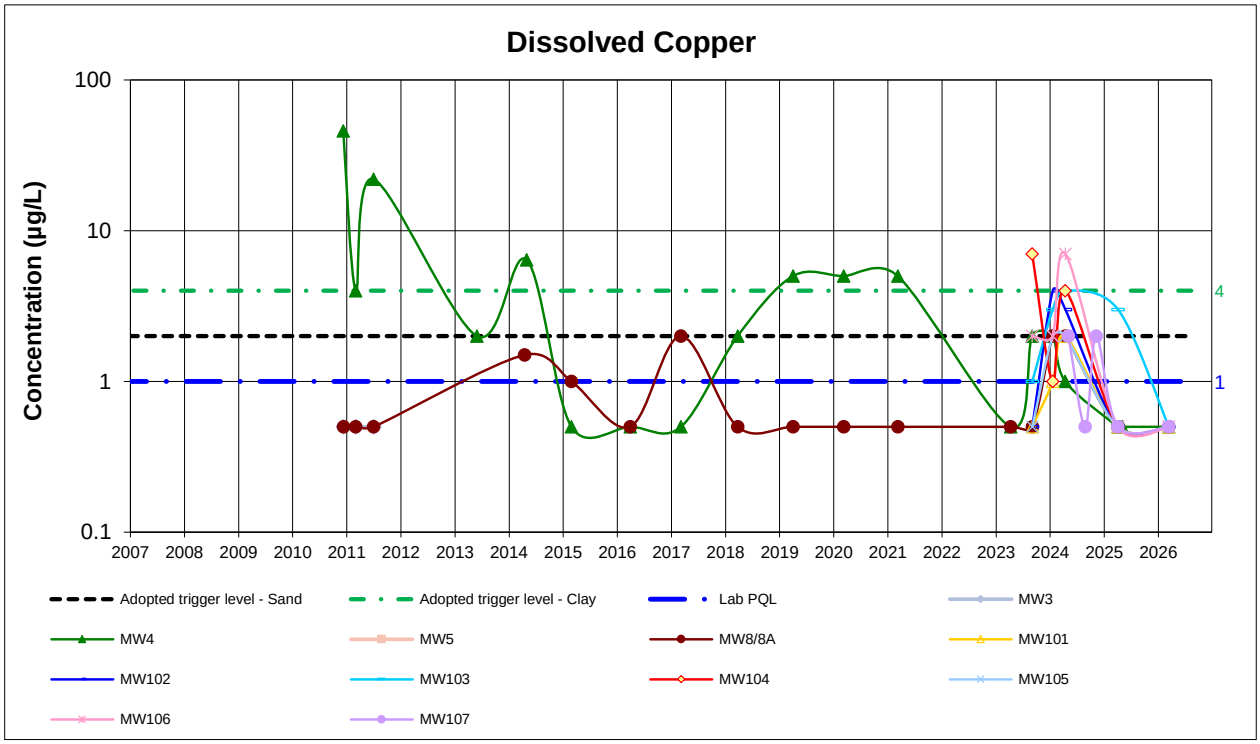

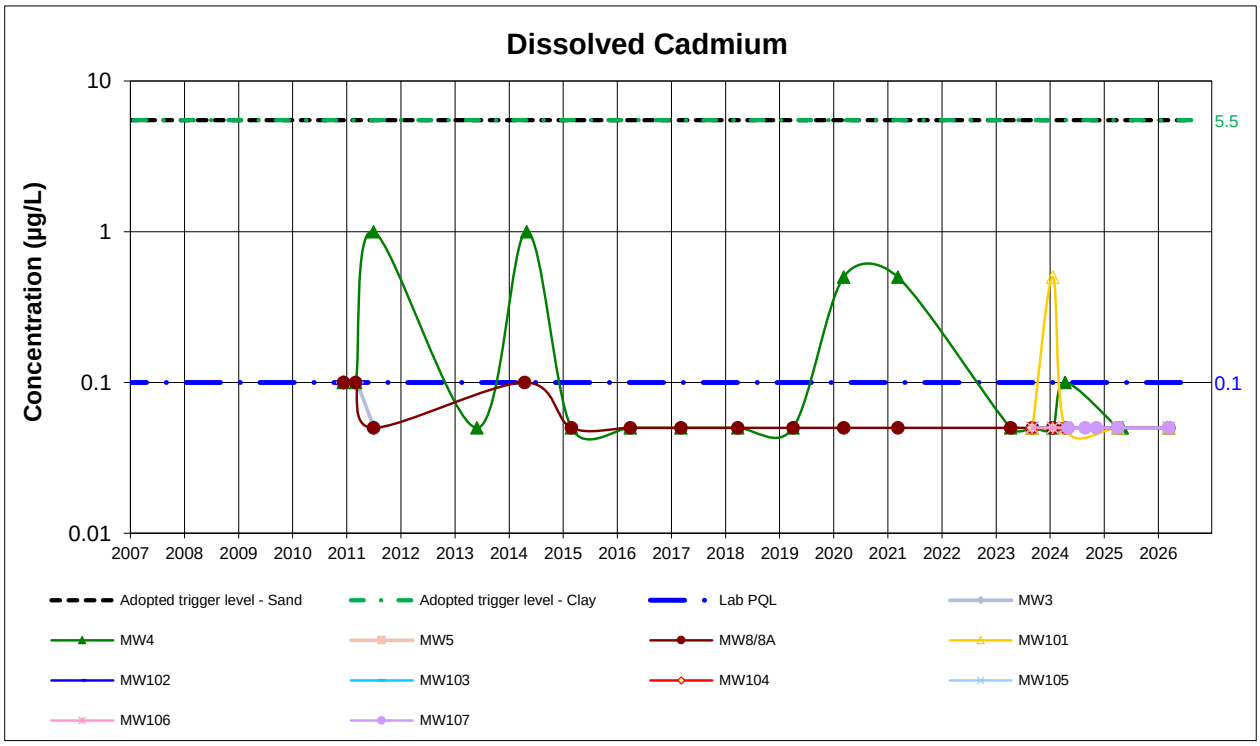

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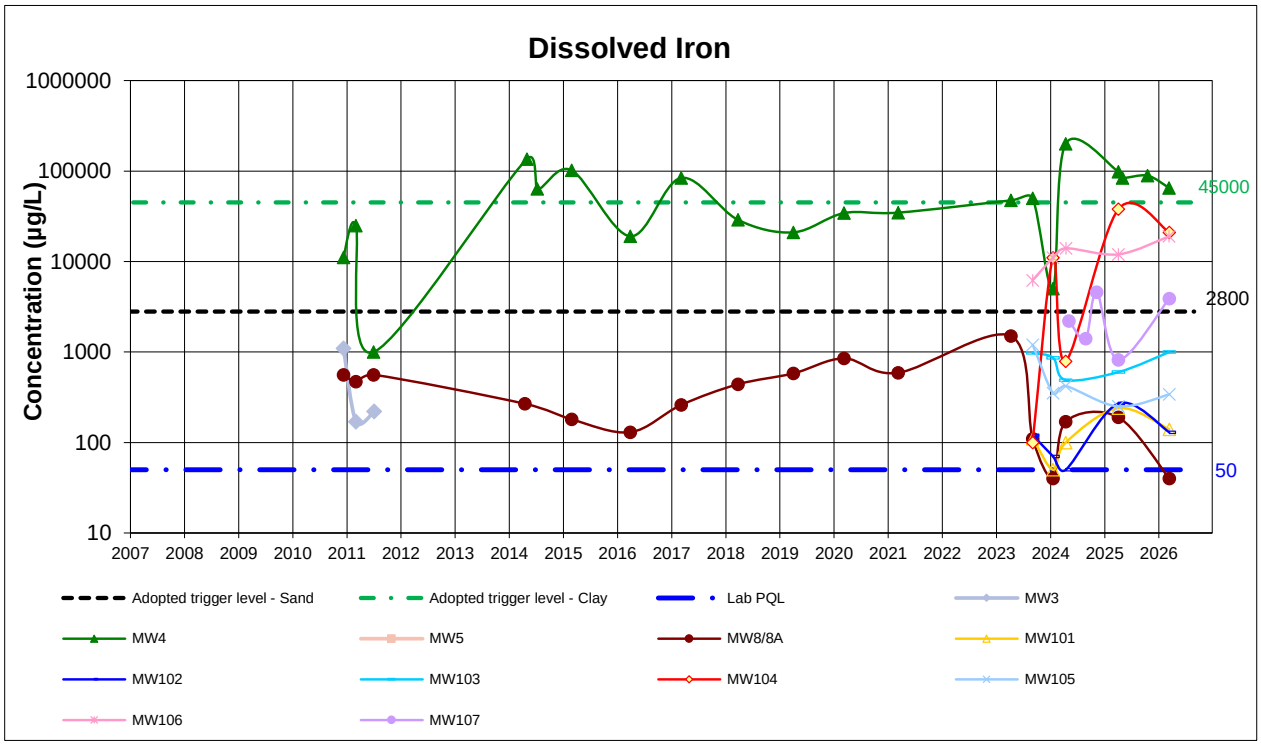

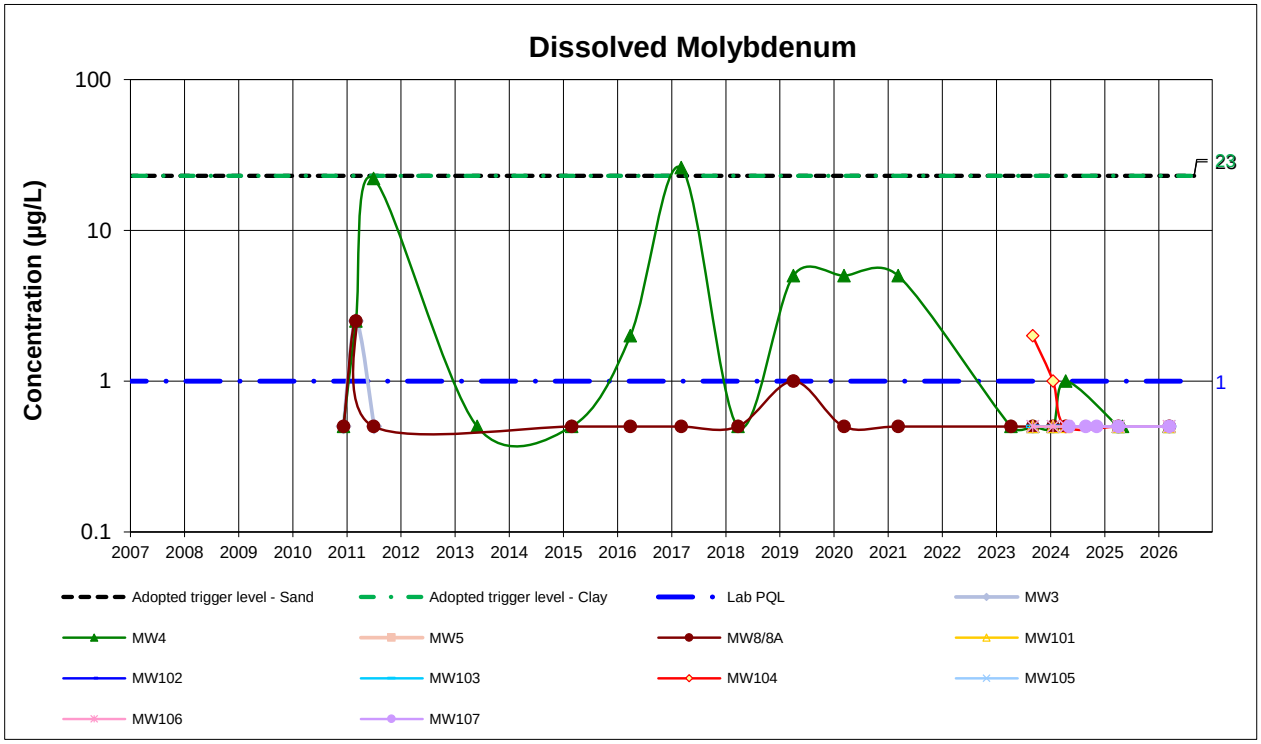

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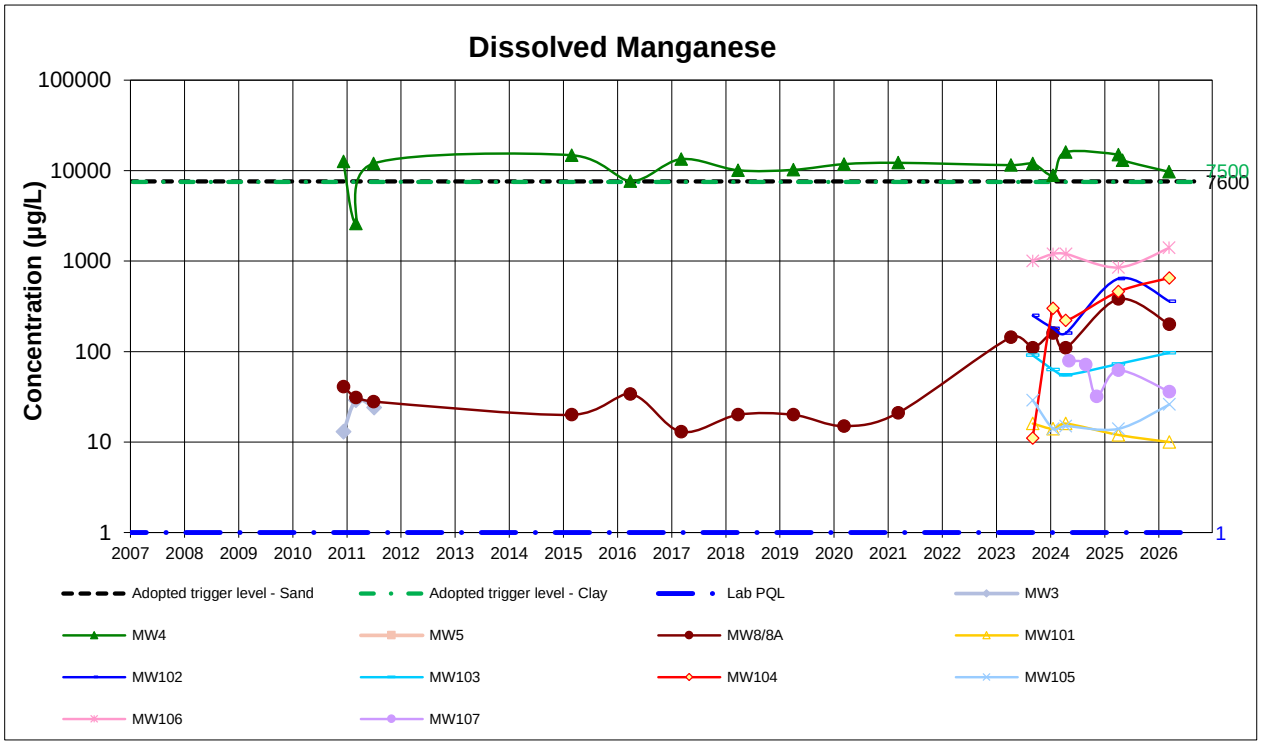

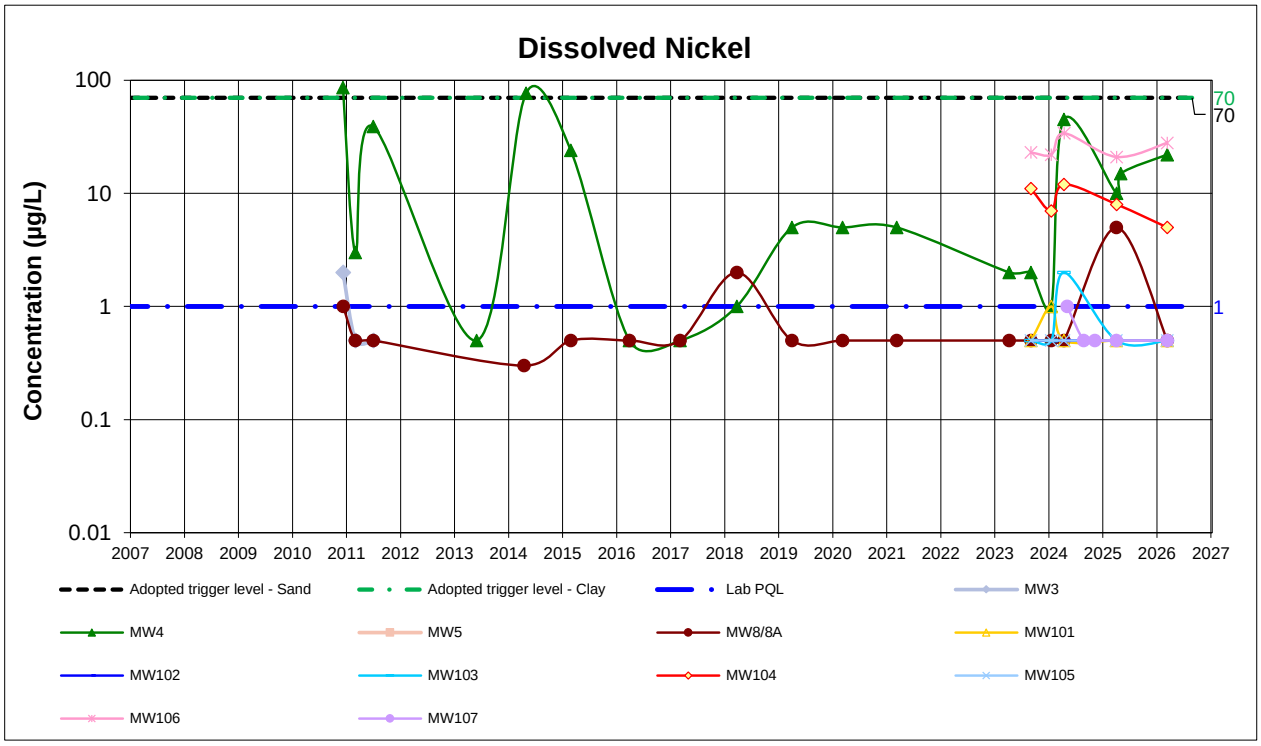

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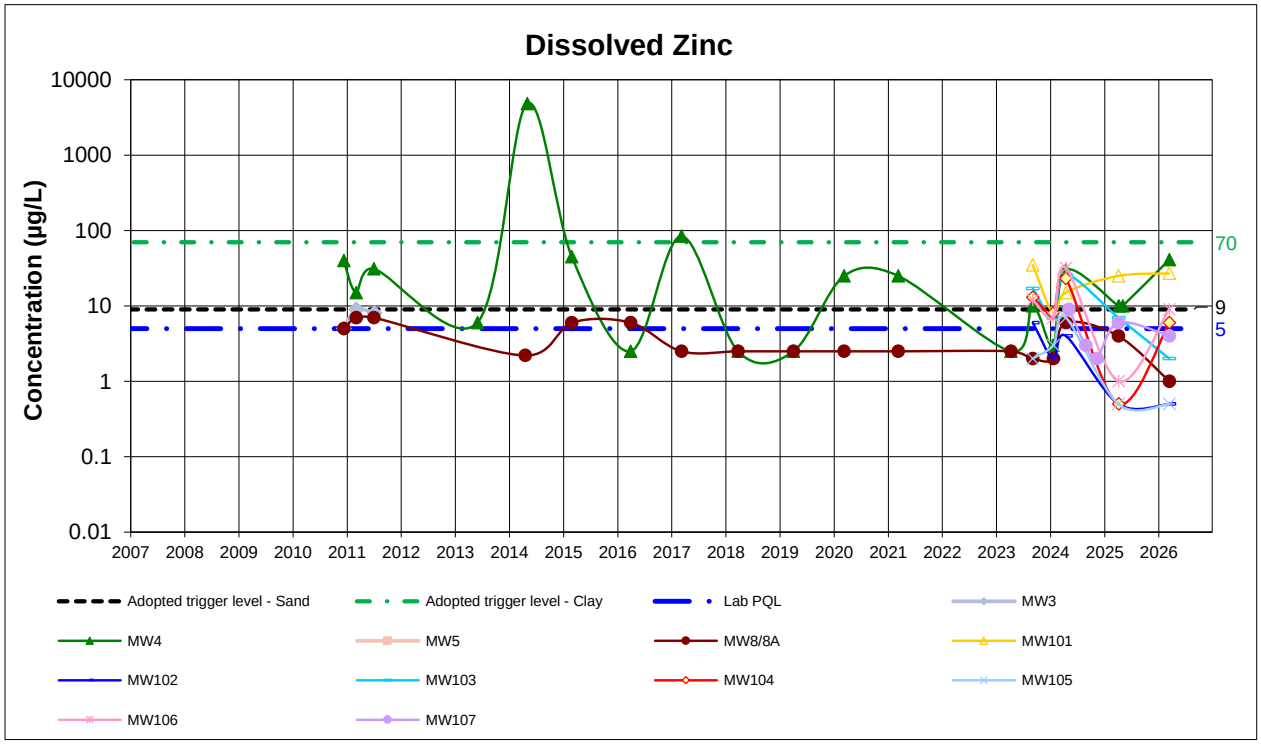

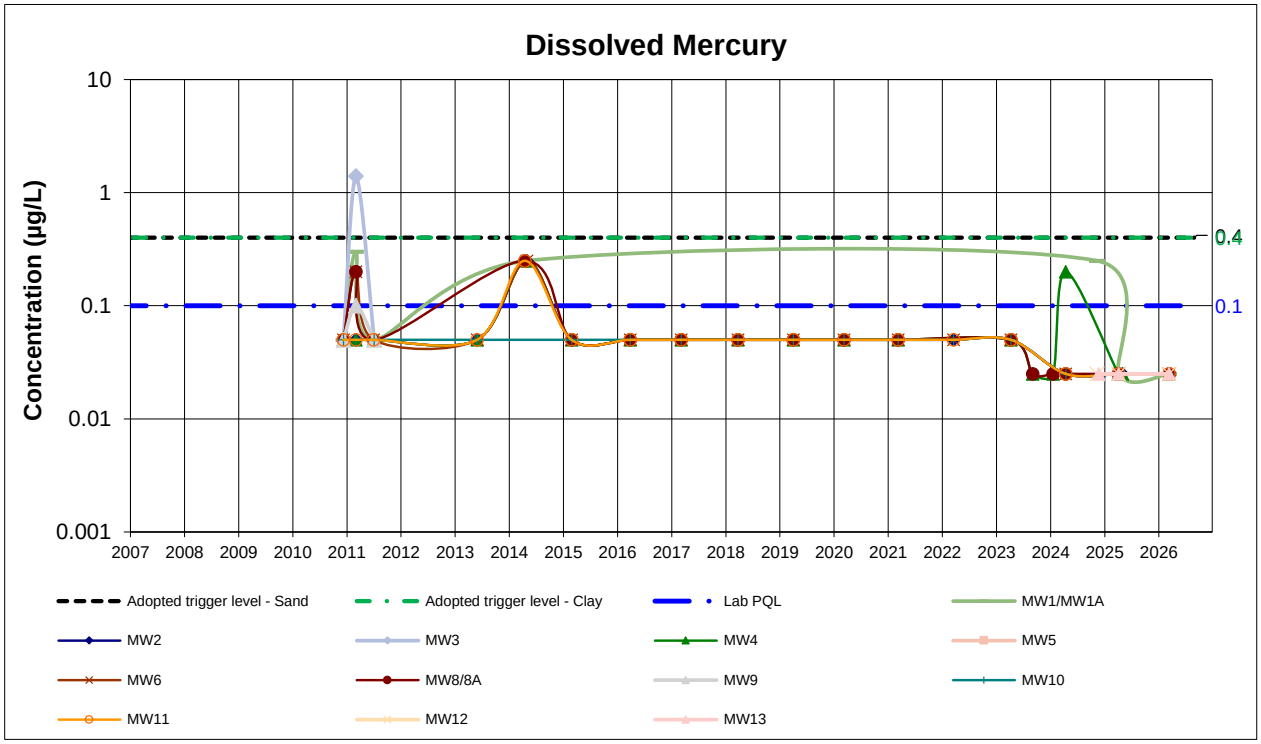

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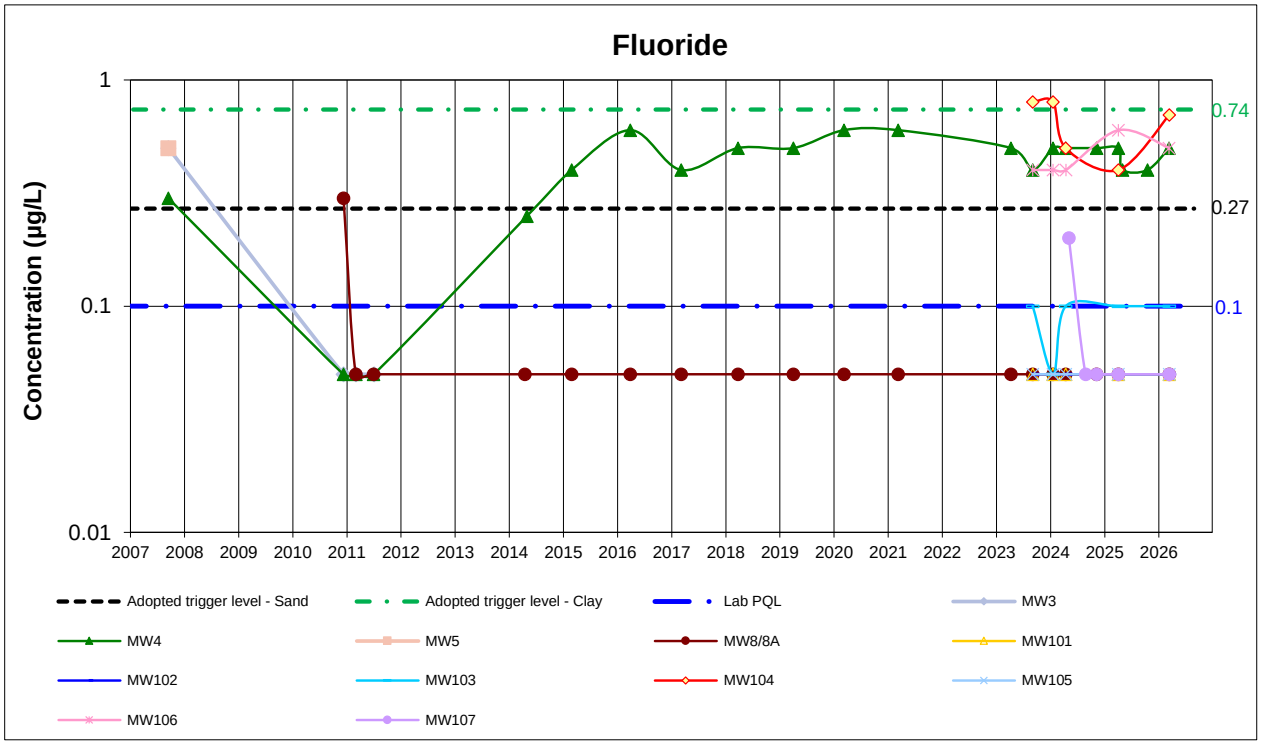

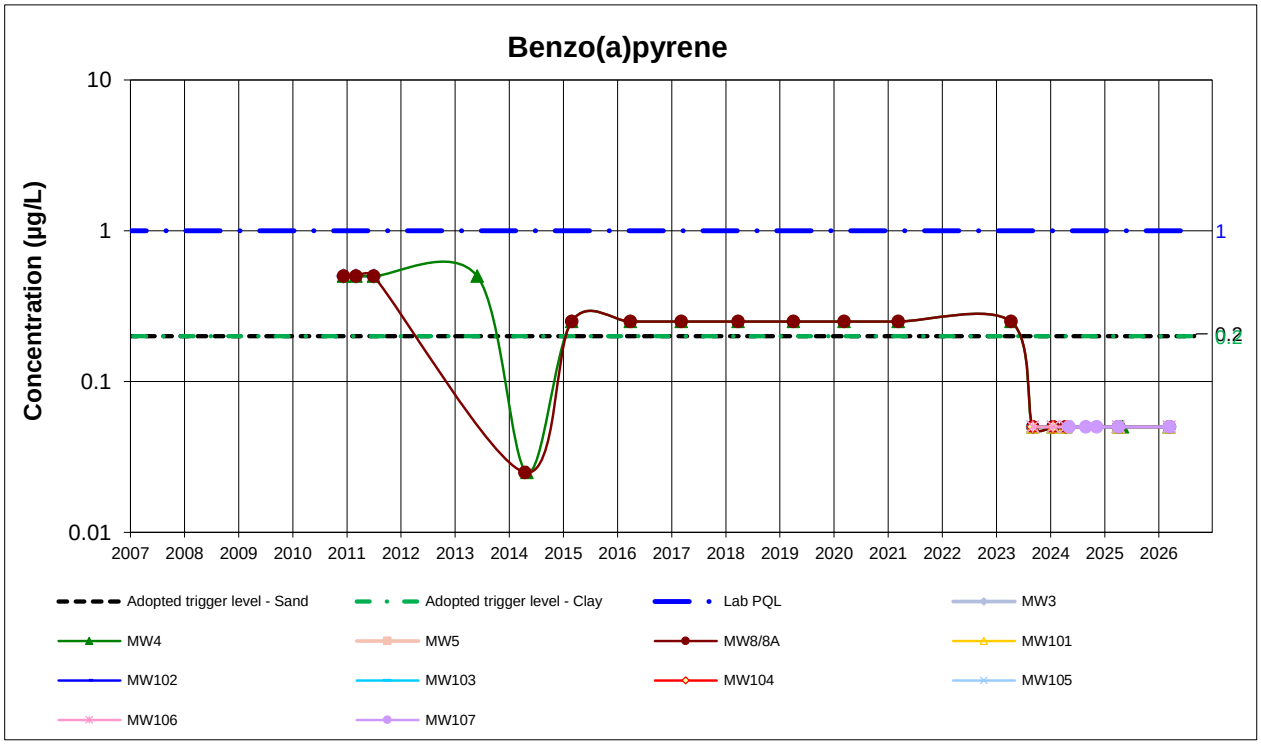

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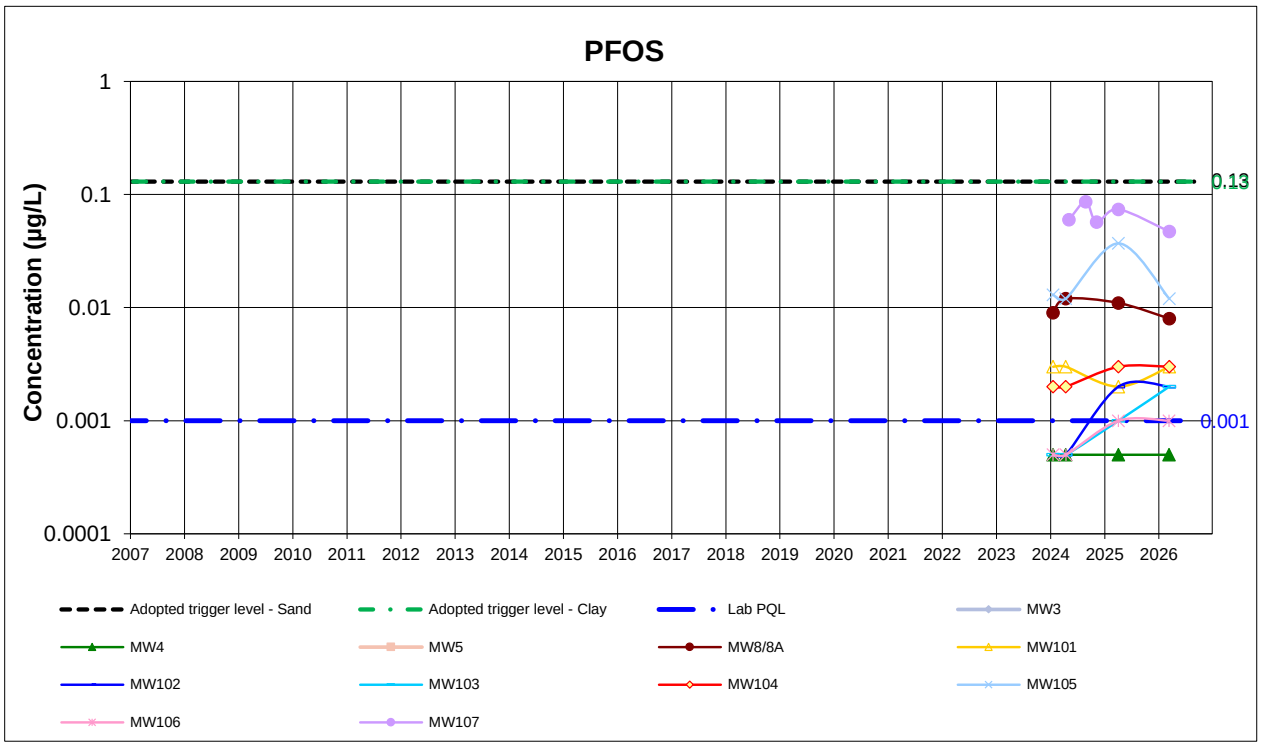

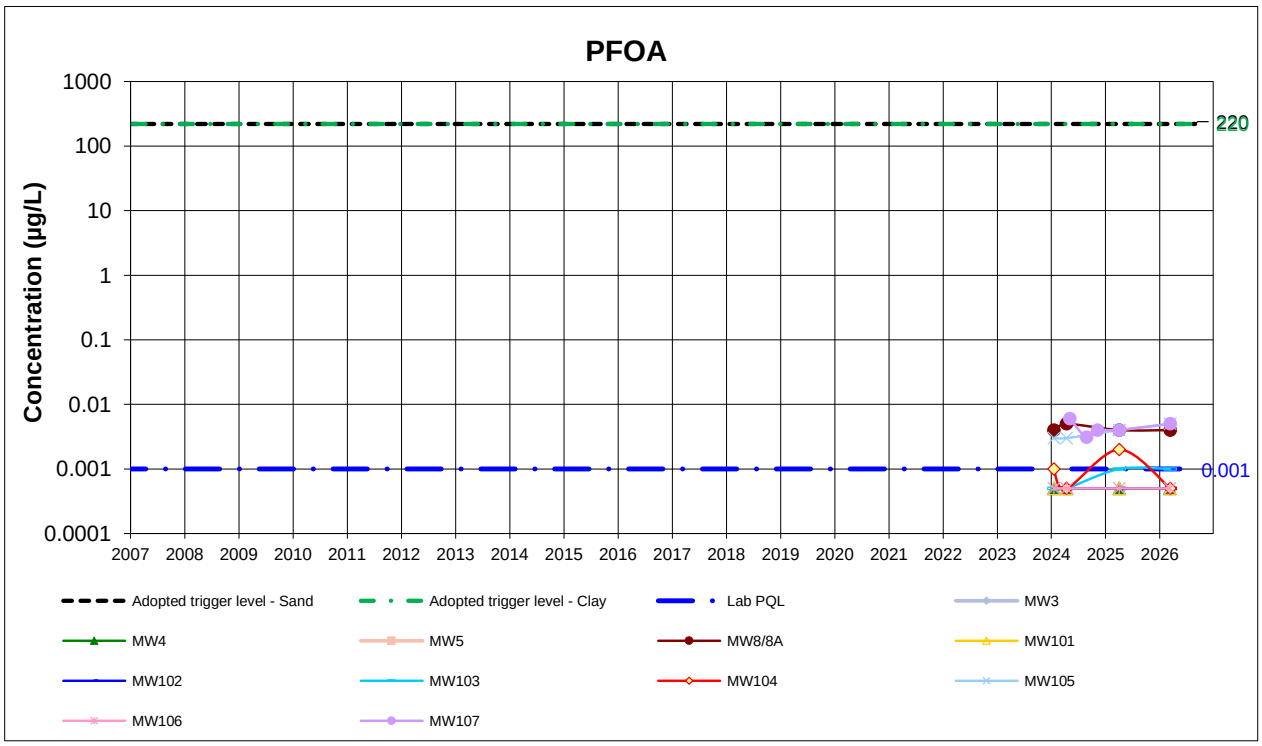

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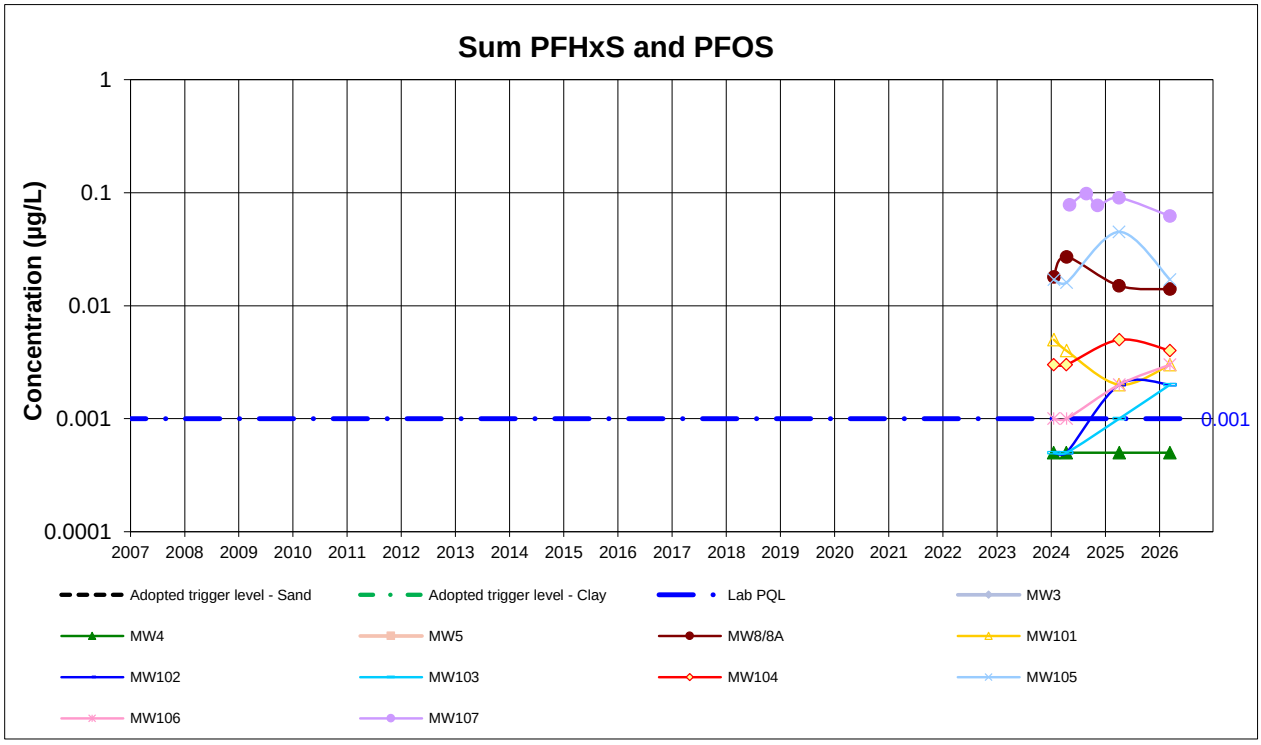

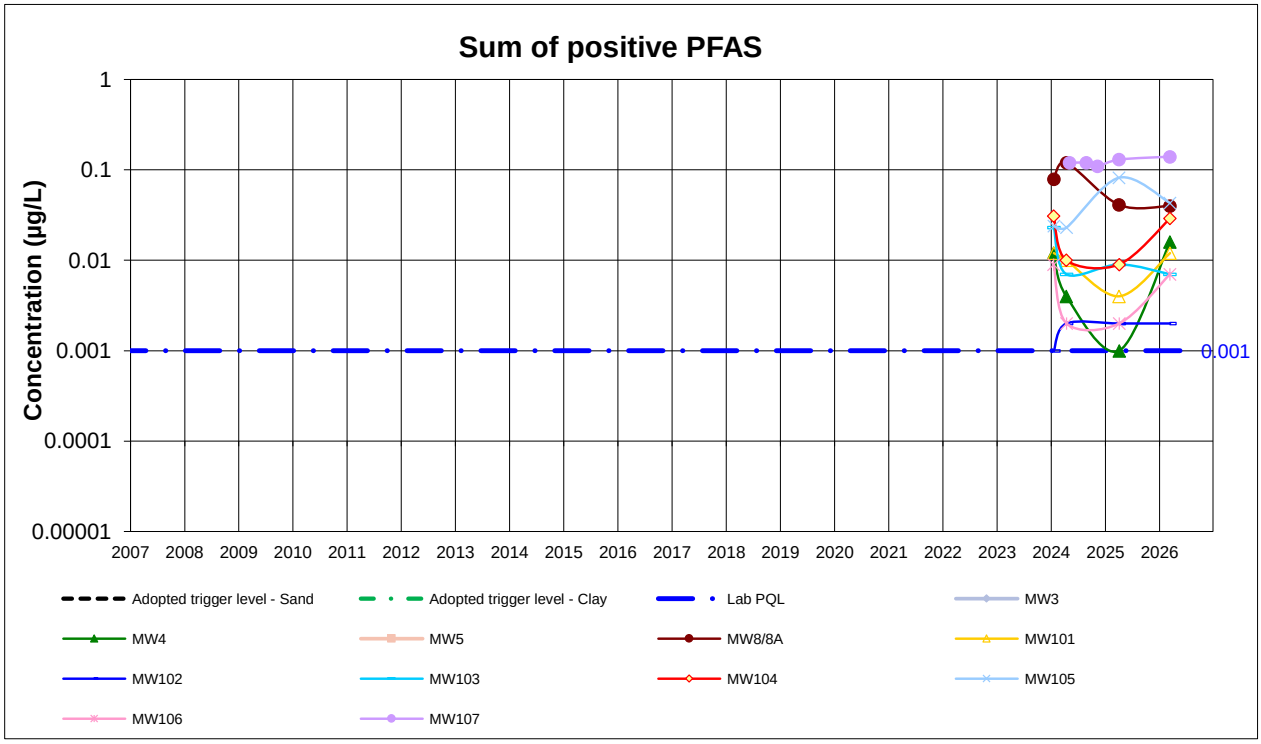

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Tomago Northbank Enterprise Hub
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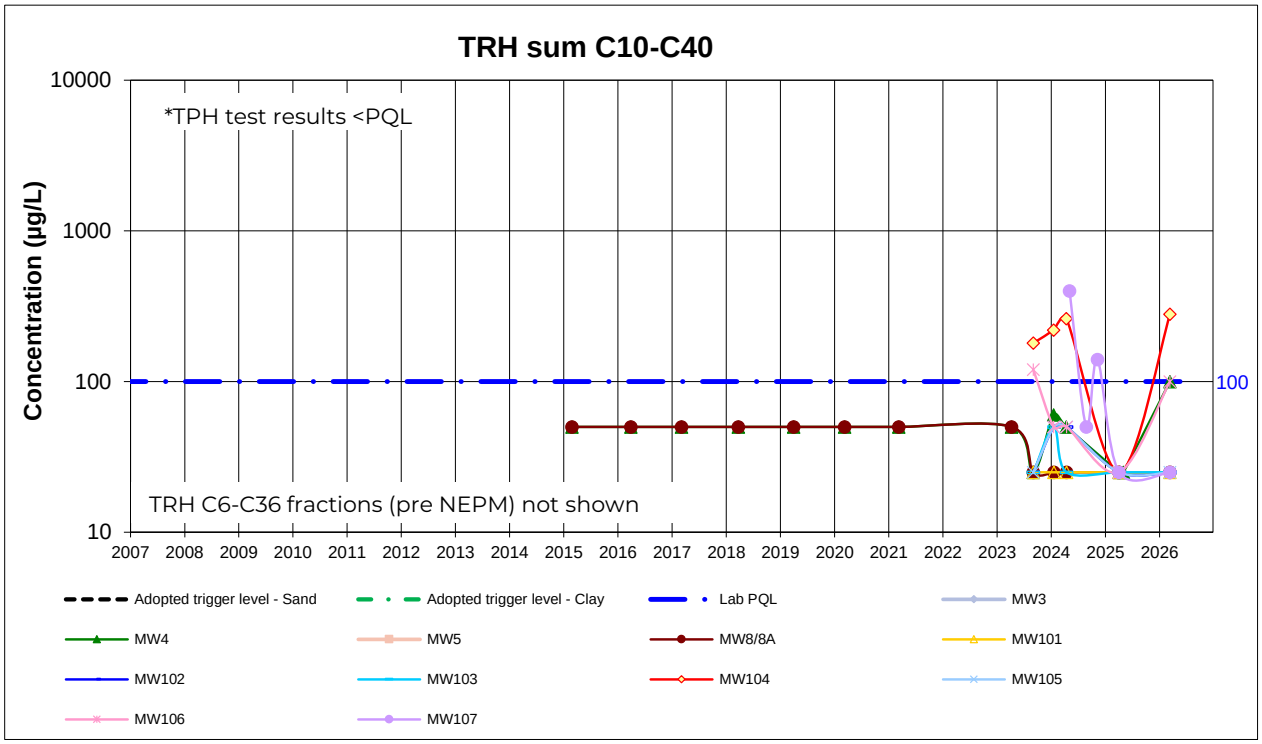

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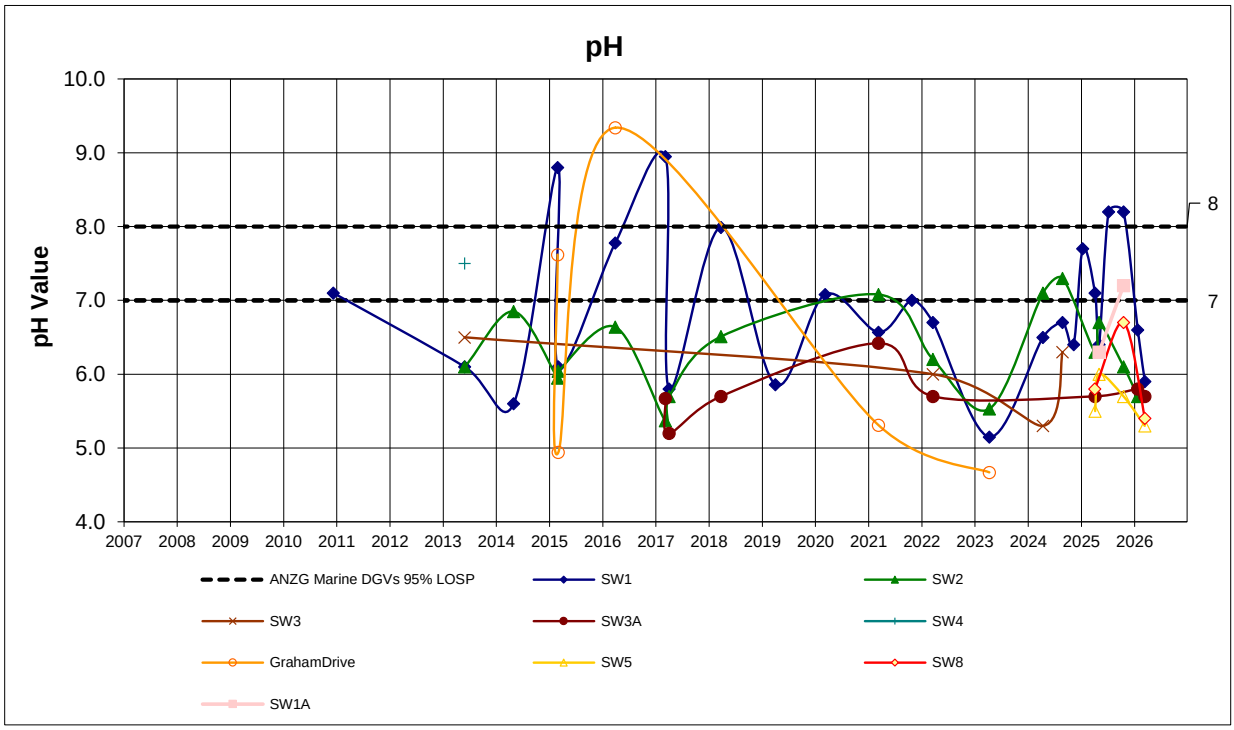
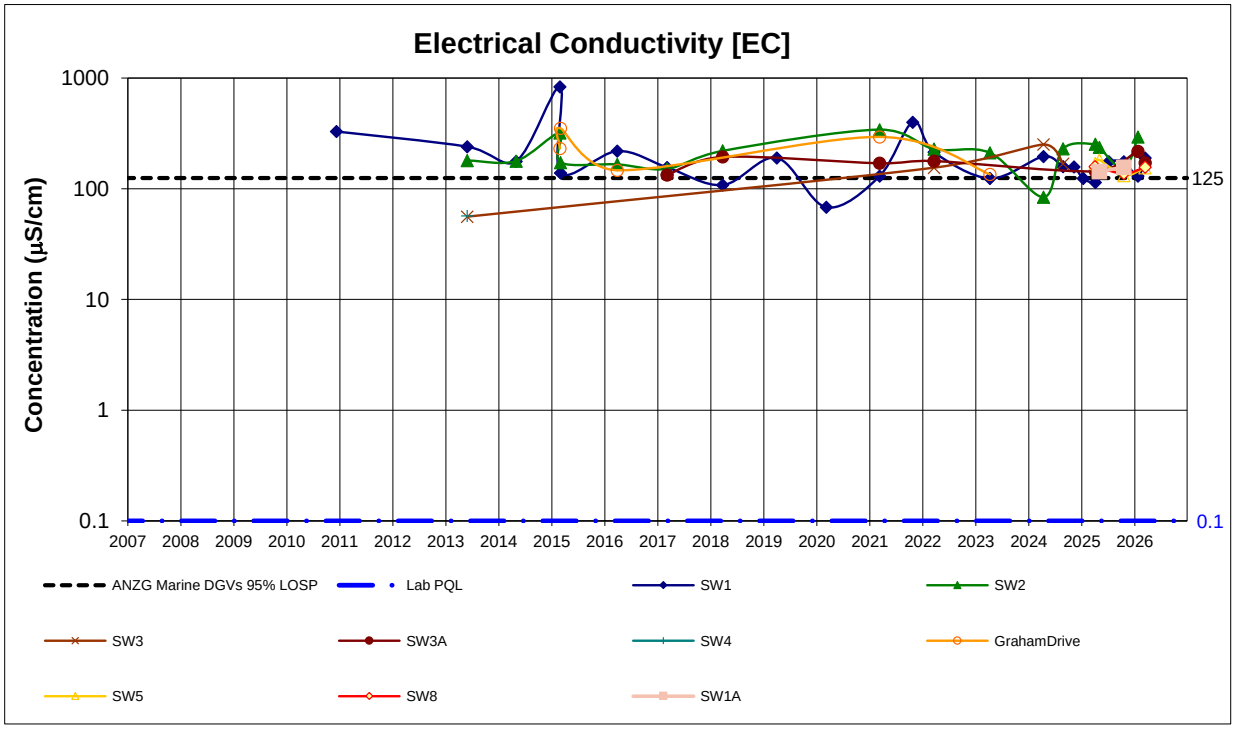
SURFACE WATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to March 2026

Data set: All data **Project: 39920.09**





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3. ANZG - Marine water guideline values

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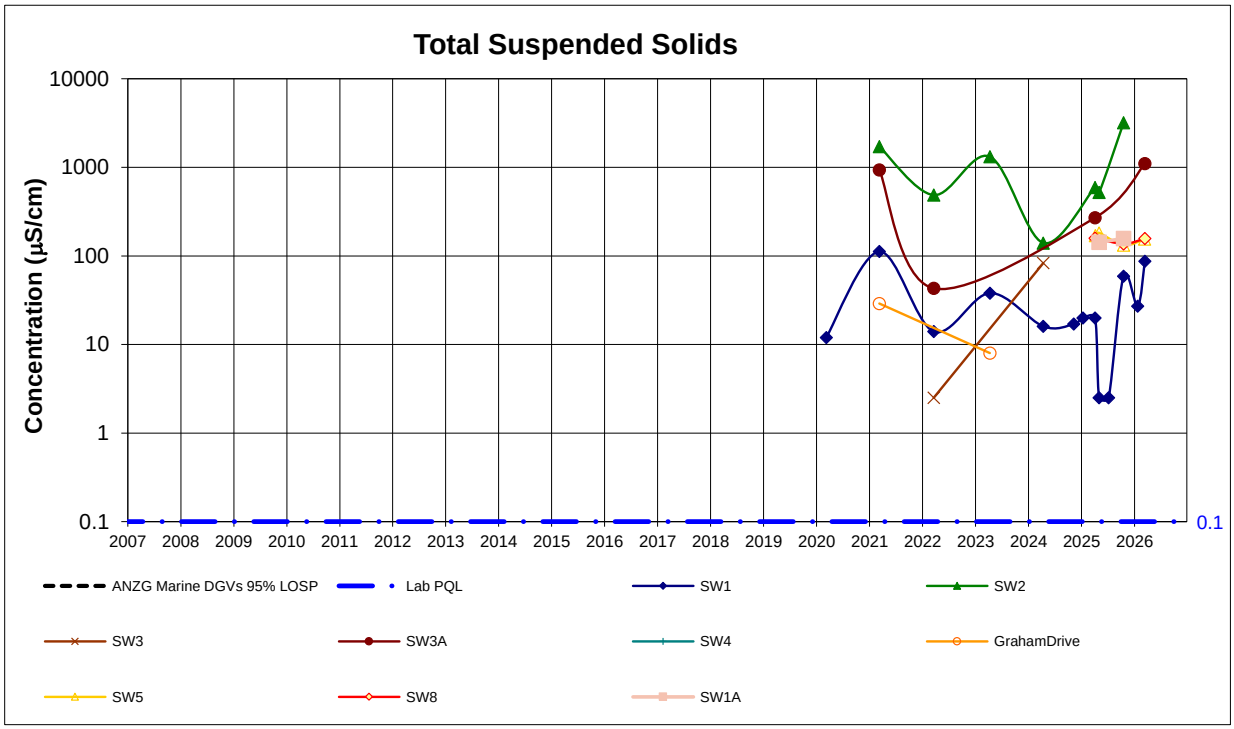

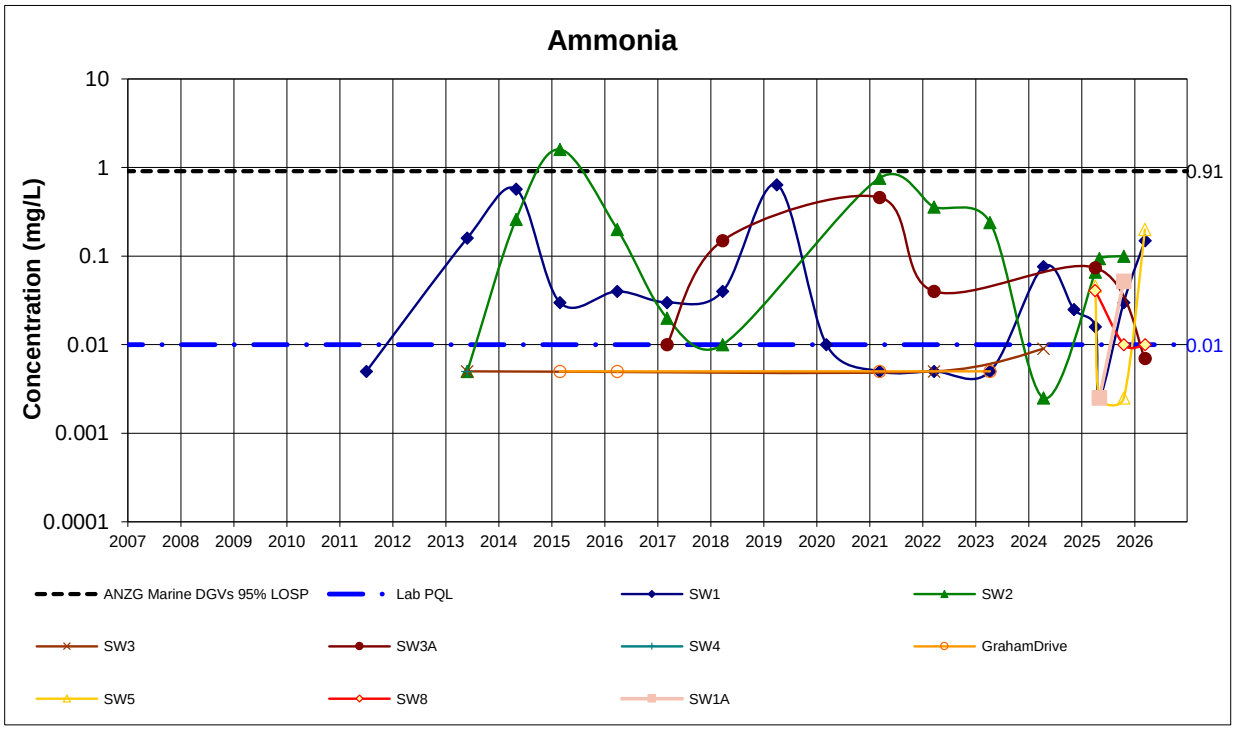

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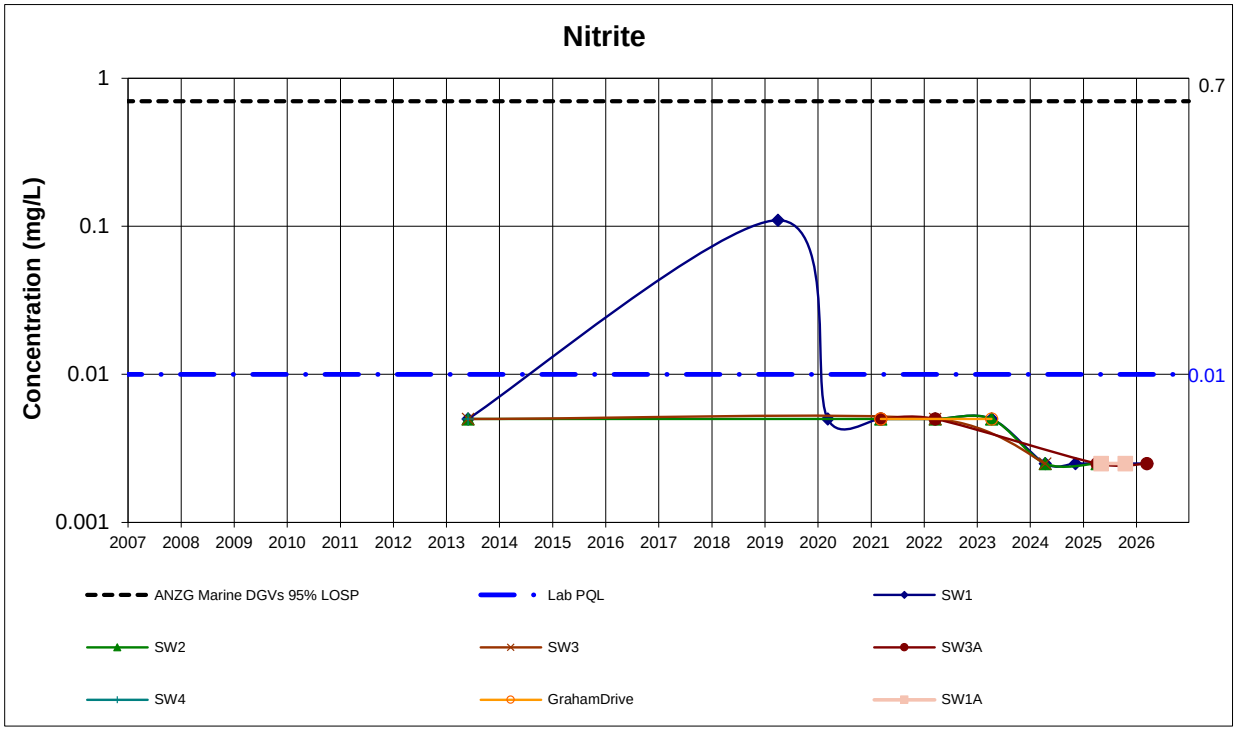

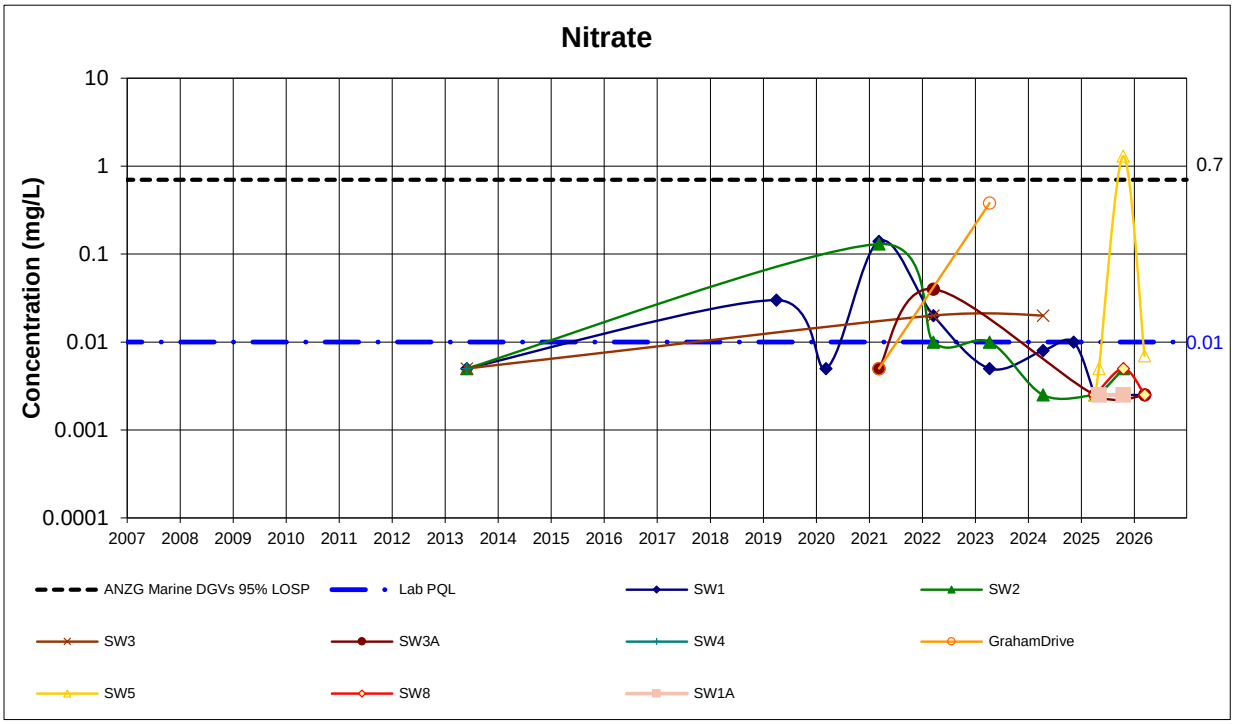

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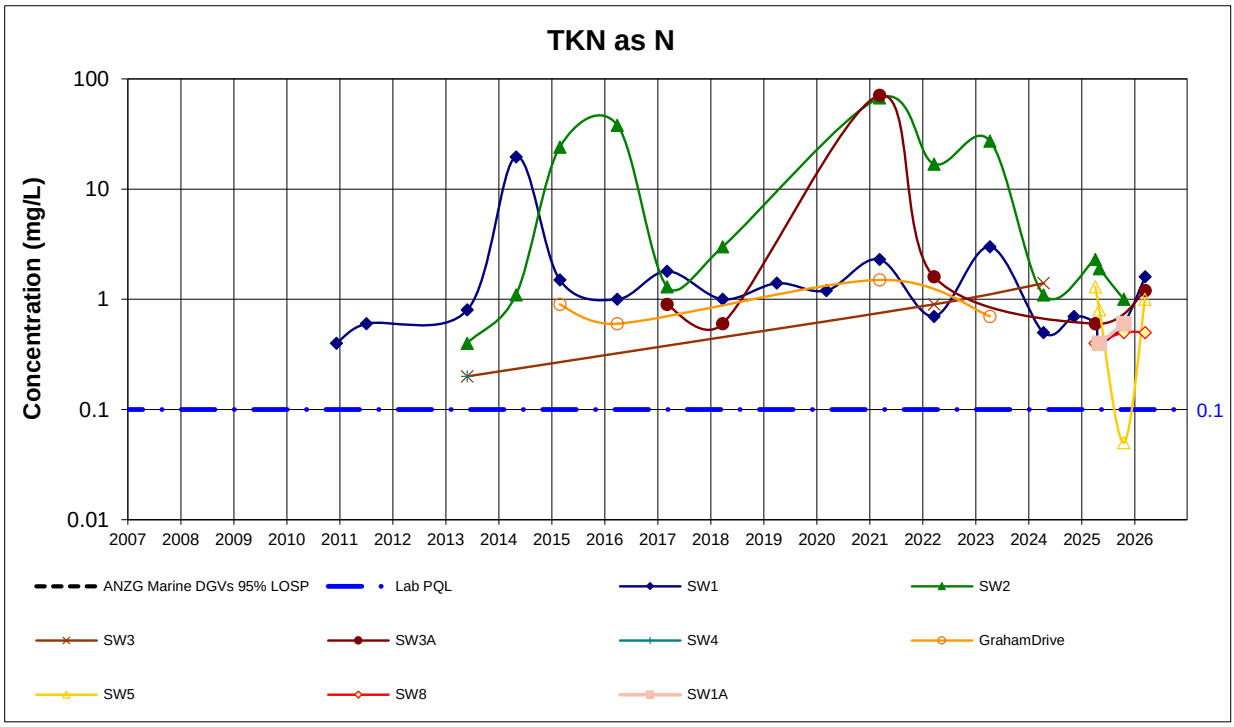

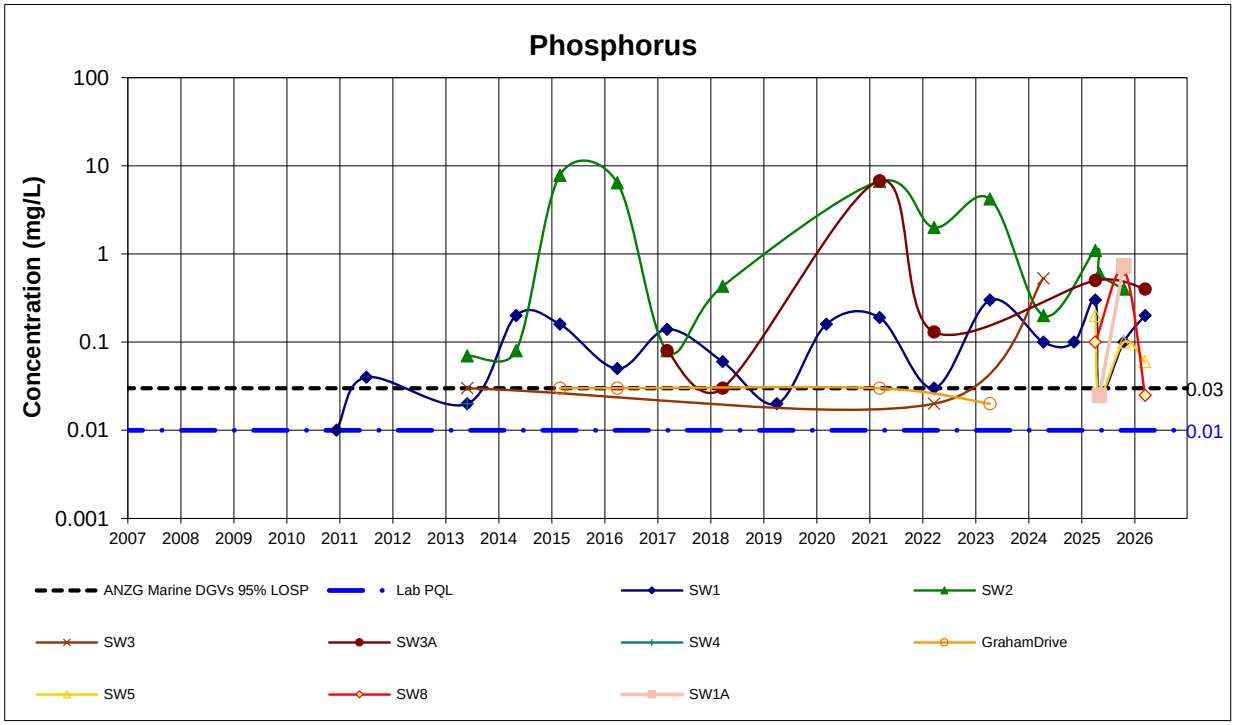

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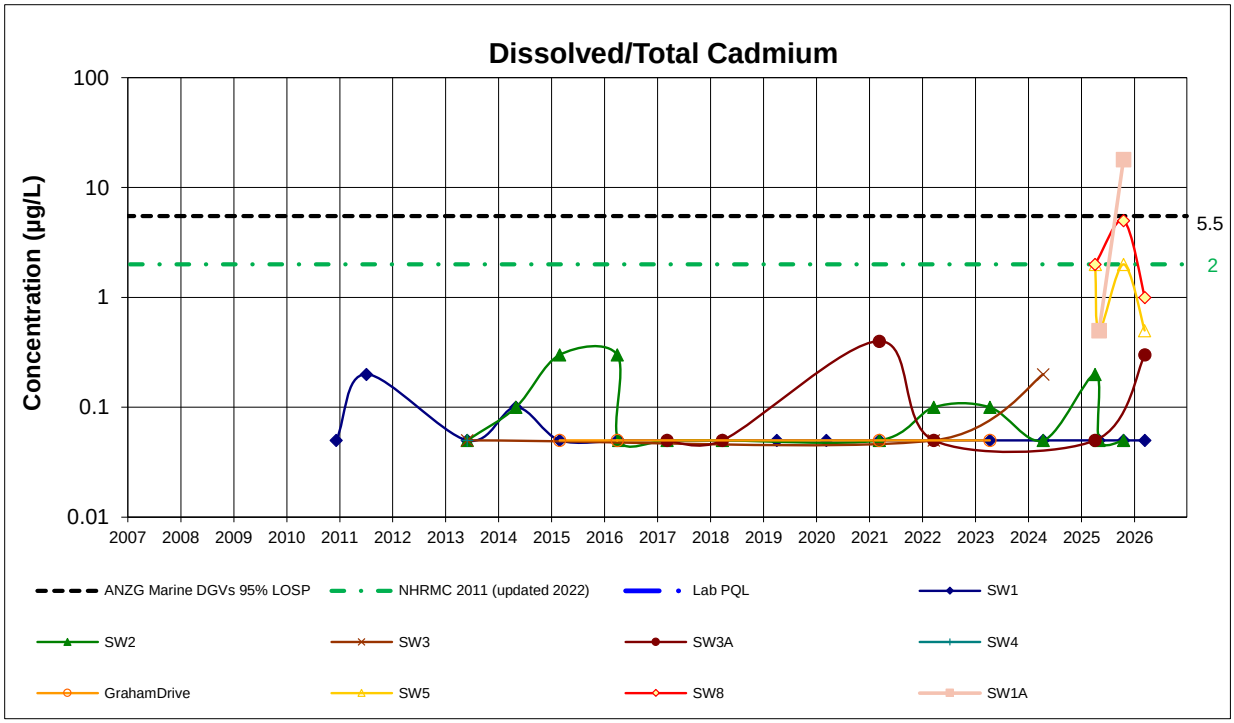

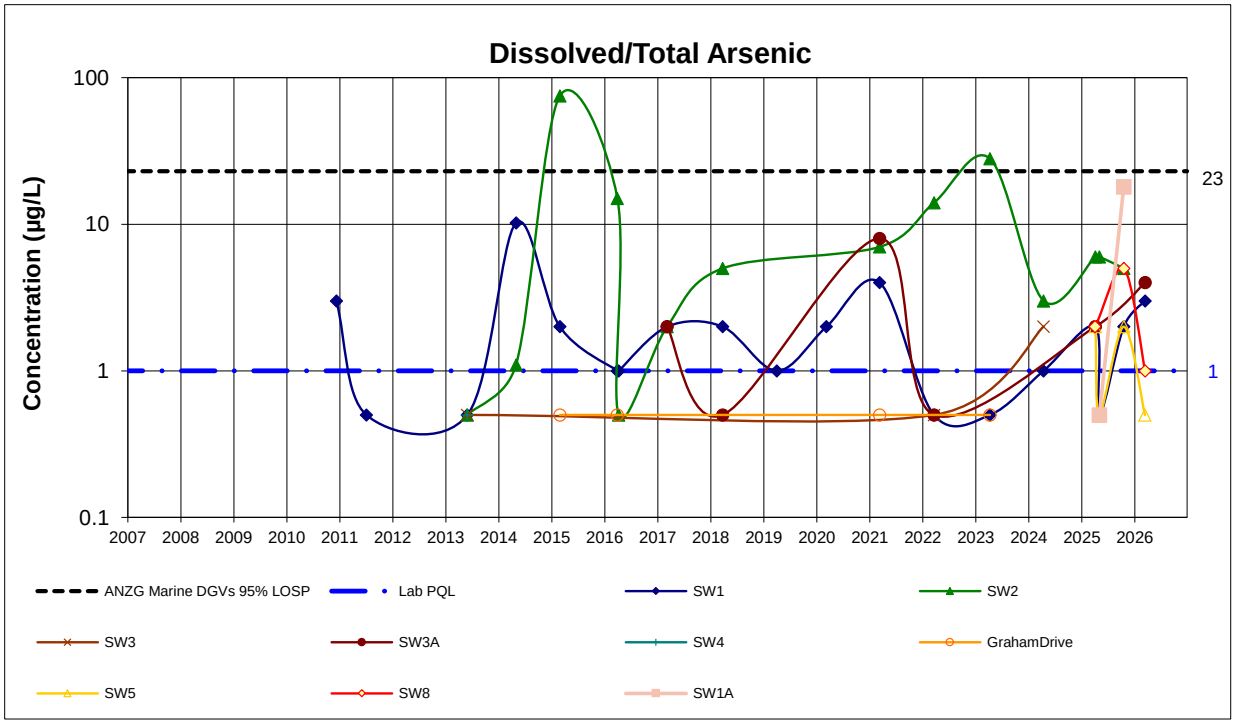

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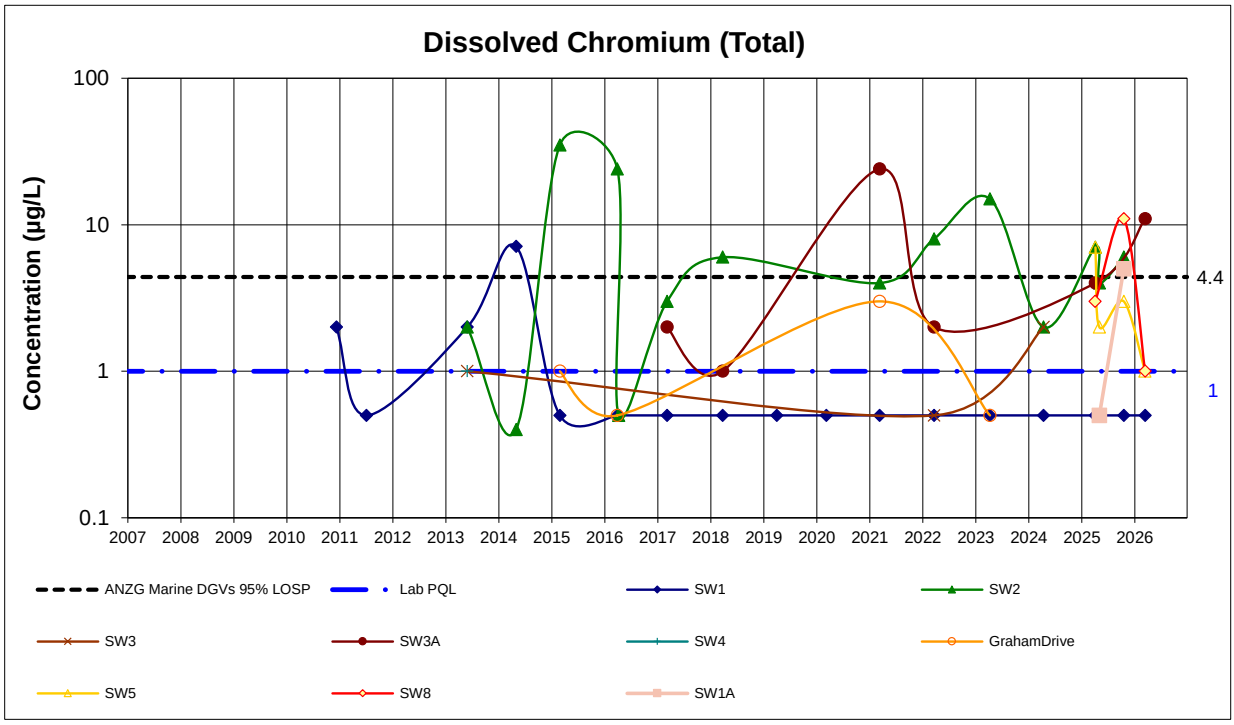

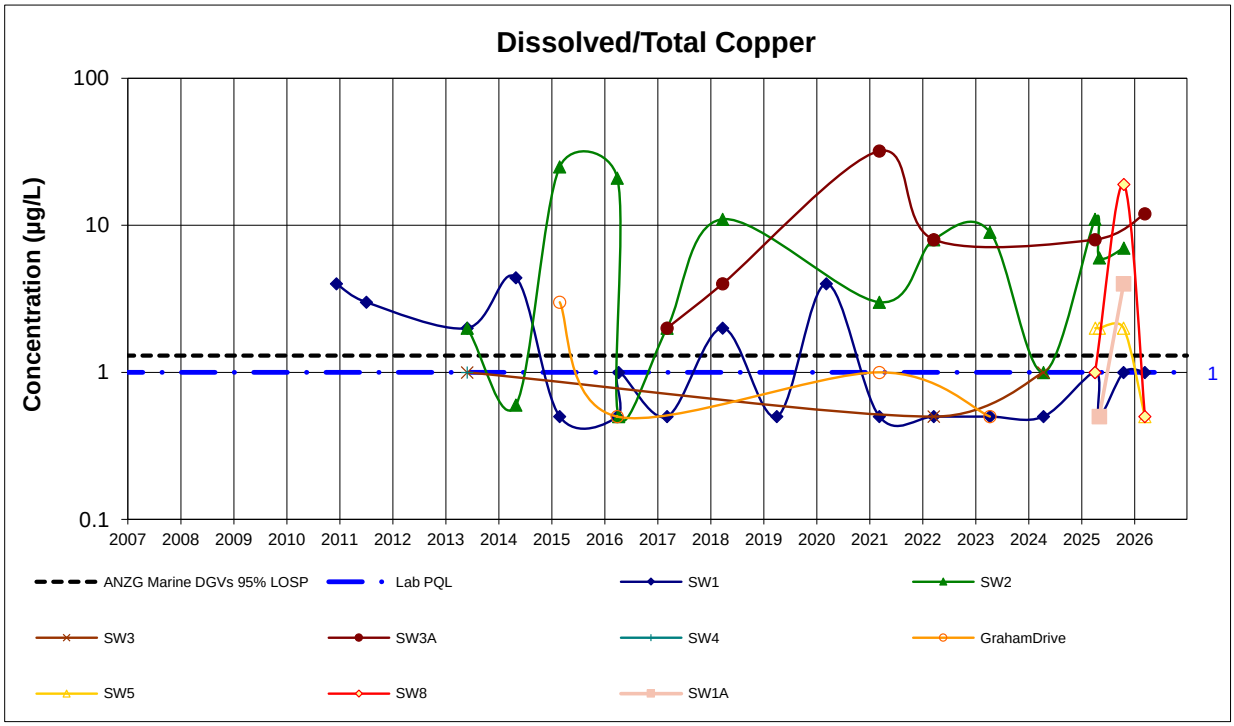

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Tomago Northbank Enterprise Hub
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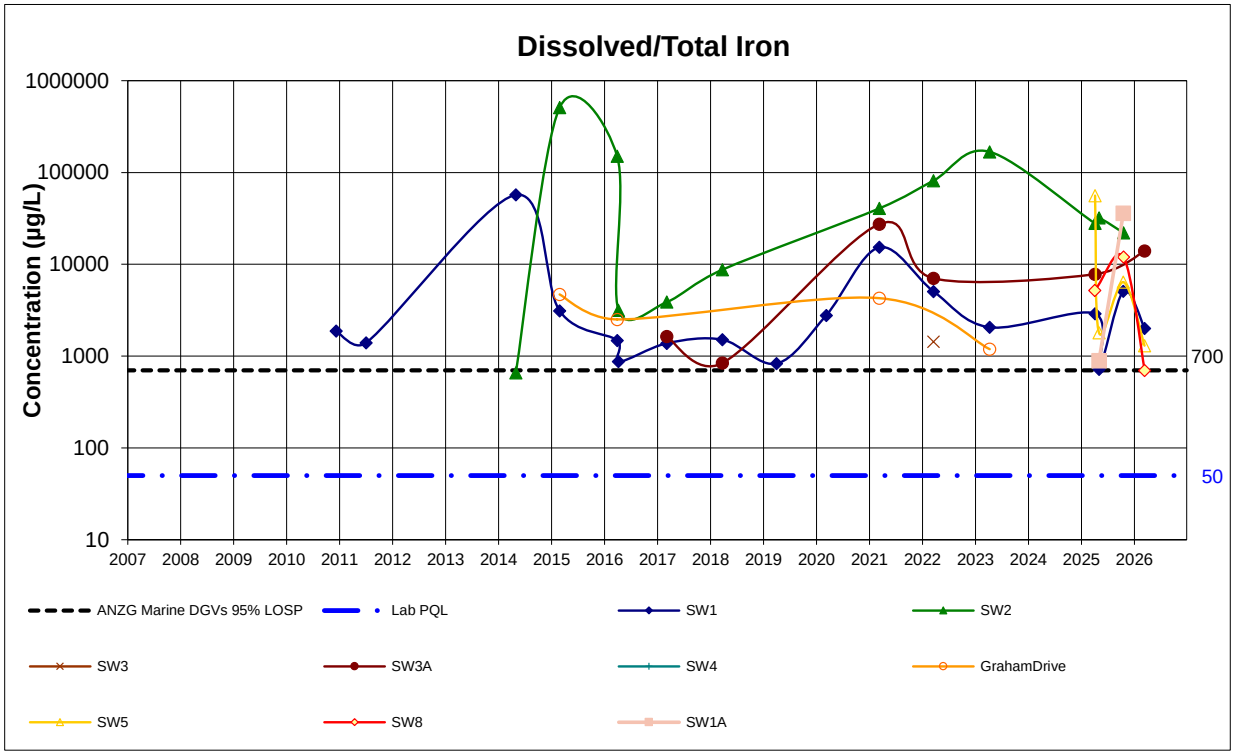

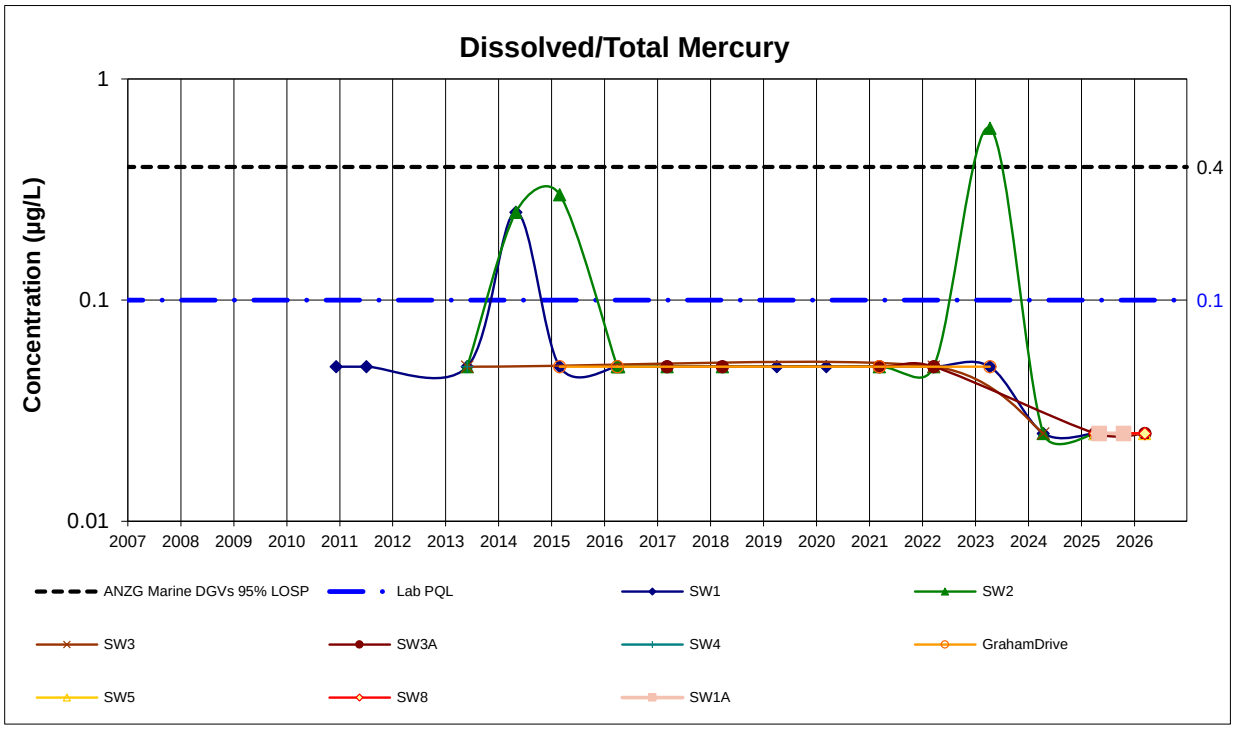

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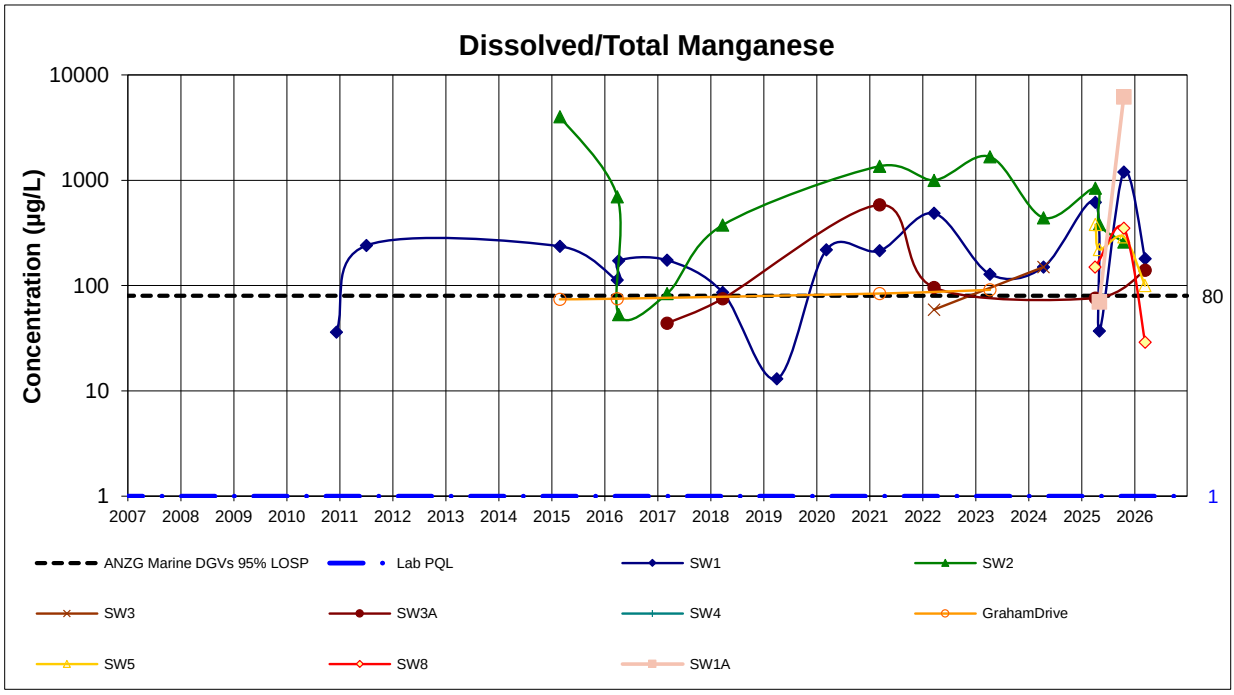
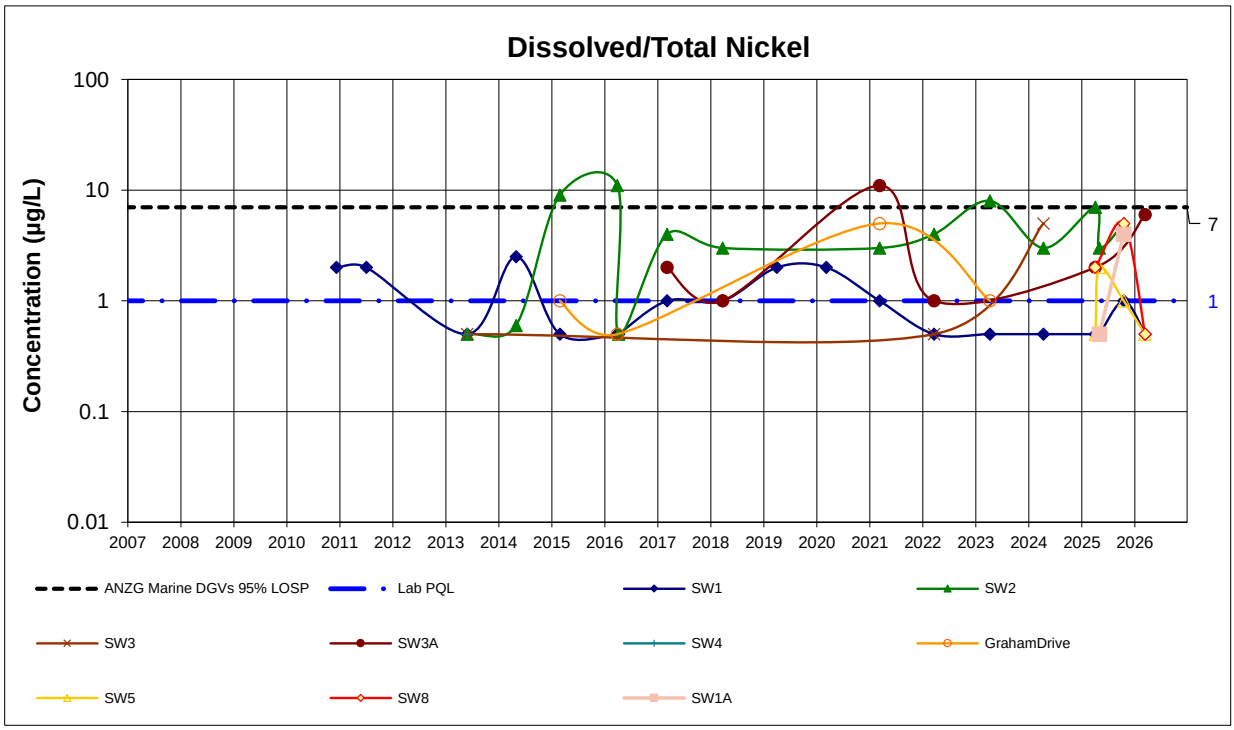
Data Period: 2007 to March 2026

Data set: All data **Project: 39920.09**





1. Values reported below PQL are plotted as half PQL
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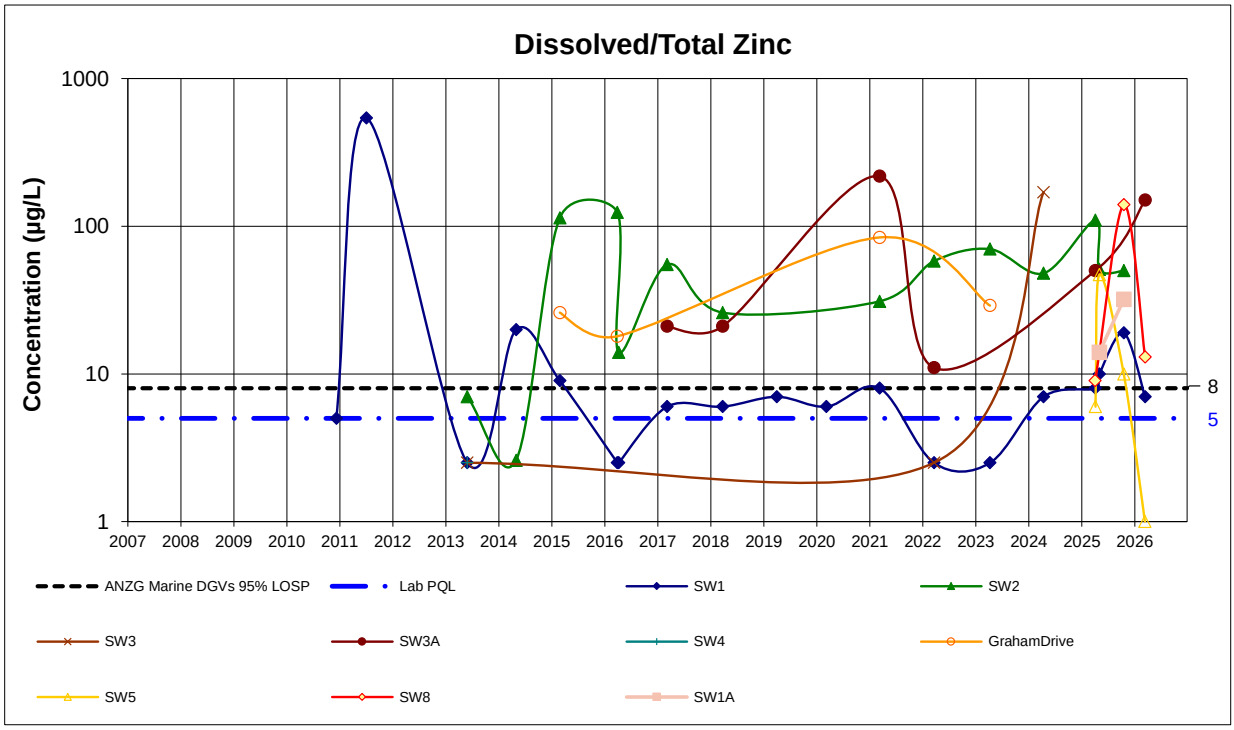
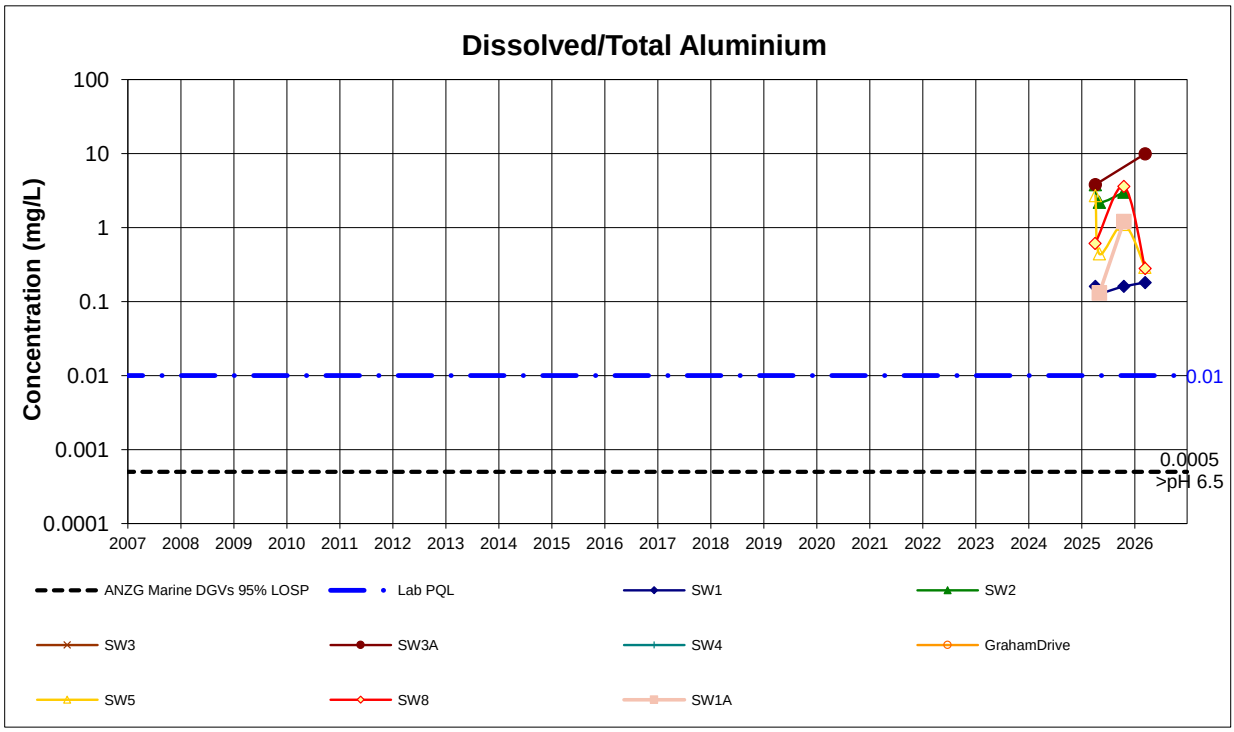
3. ANZG - Marine water guideline values

SURFACE WATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to March 2026

Data set: All data **Project: 39920.09**





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Tomago Northbank Enterprise Hub
Data Period: 2007 to March 2026

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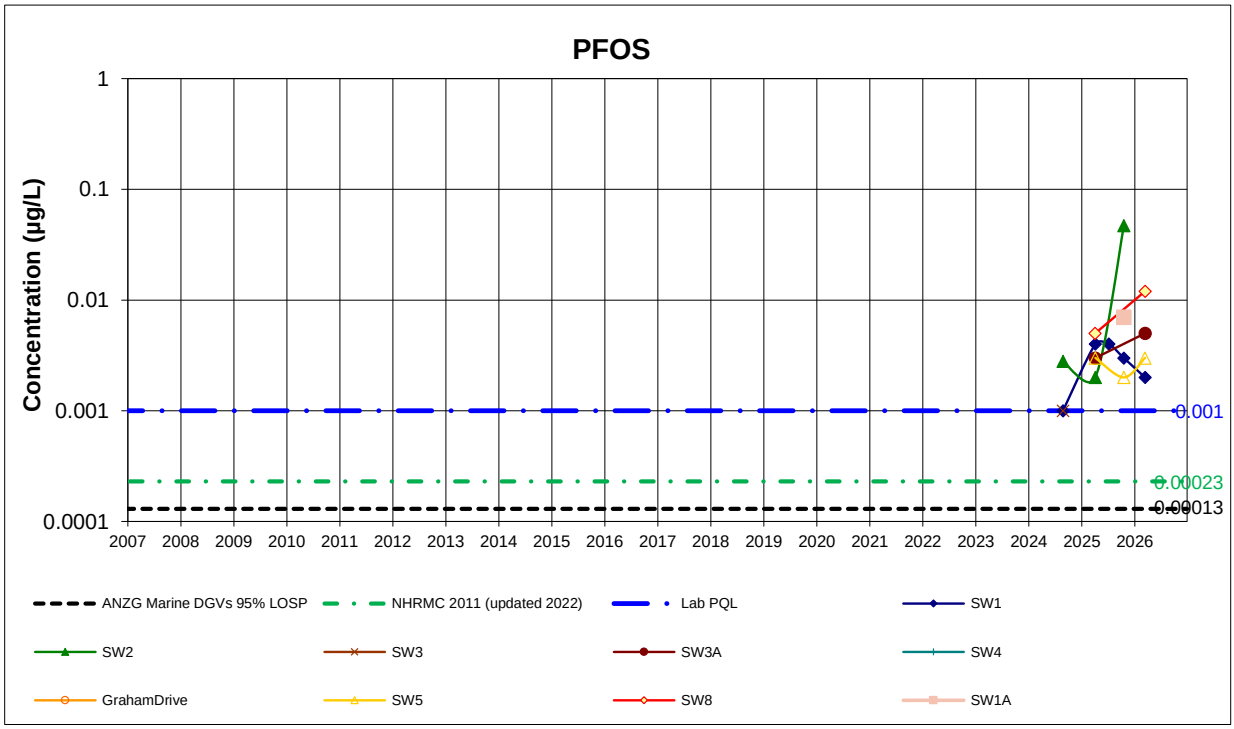

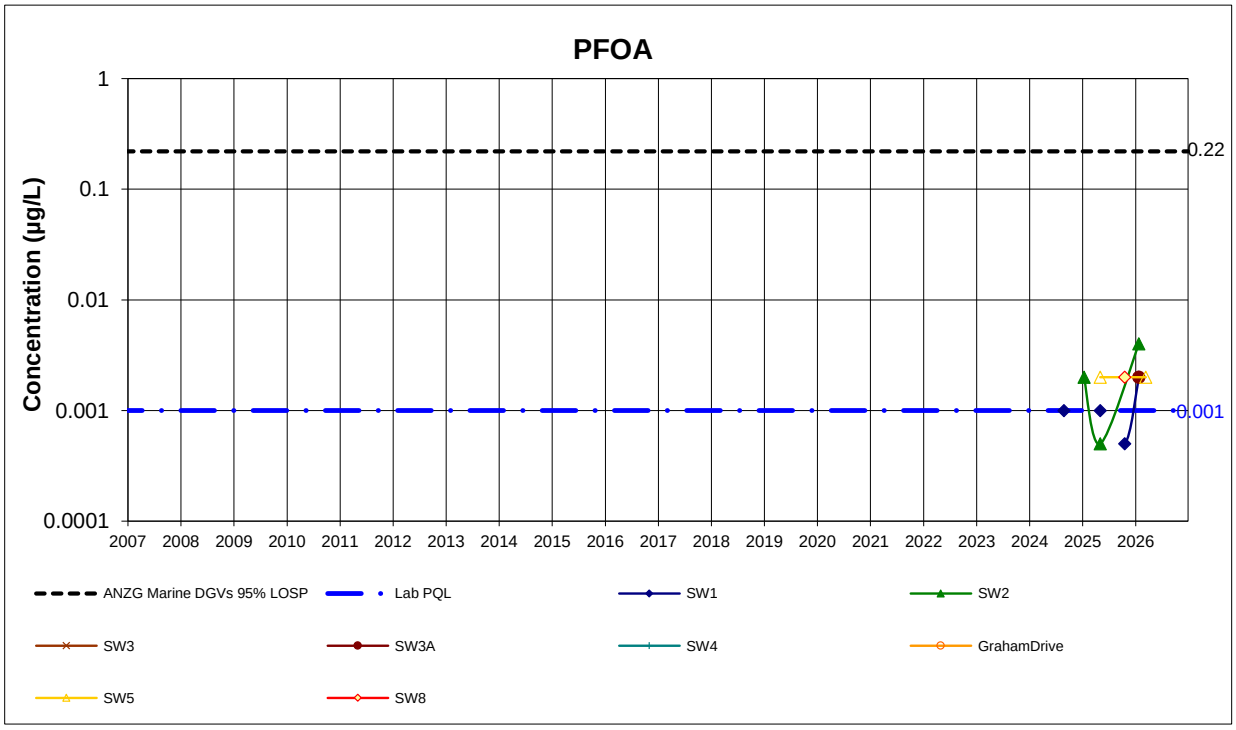

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SURFACE WATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to March 2026

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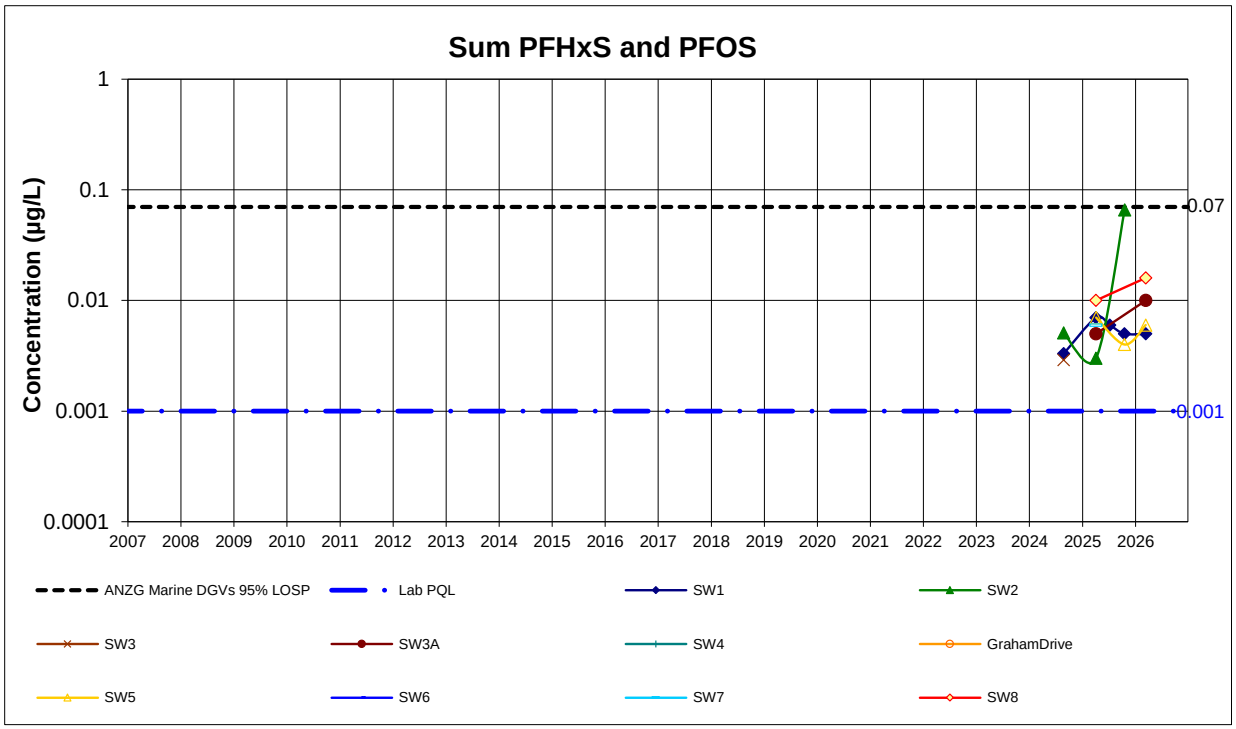

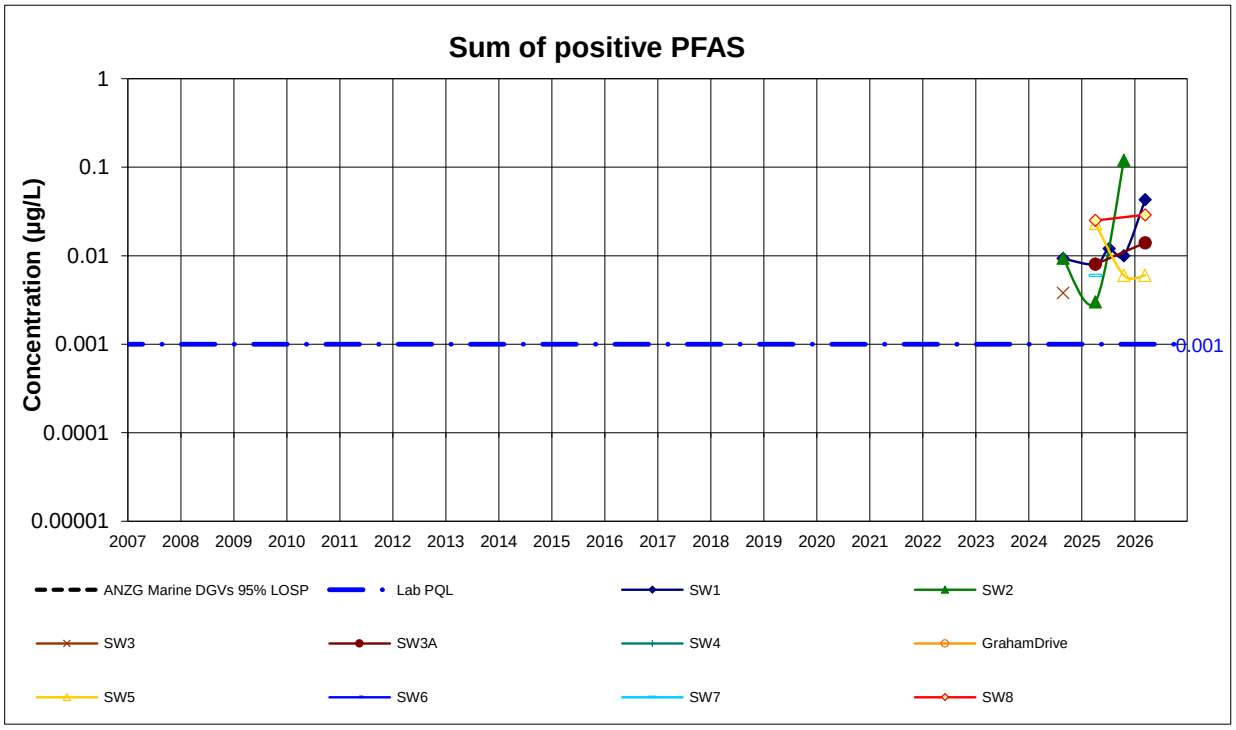

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SURFACE WATER QUALITY MONITORING
Tomago Northbank Enterprise Hub
Data Period: 2007 to March 2026

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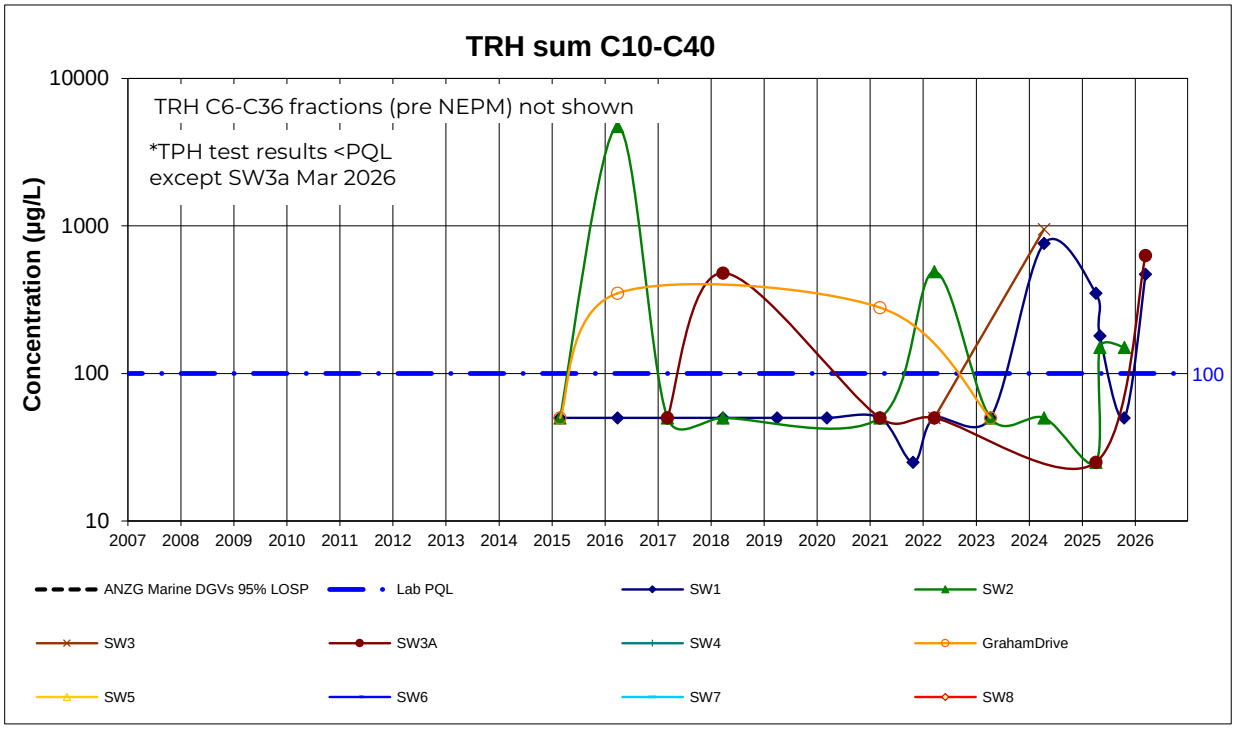

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Appendix E

Table 1: Summary of water quality monitoring results – March 2026

Laboratory Report Sheets (404470, 404471, 404571, 404571-A, 404575)

Douglas PARTNERS

Table 1: Summary of water quality monitoring results - March 2026

			Trigger Levels based on GMP/GWMngP (Douglas, 2025a; 2025b)		Groundwater - Tomago Sandbeds Wells						Trigger Levels based on GMP/GWMngP (Douglas, 2025a; 2025b)		Groundwater - Clay Wells				Groundwater Default Guideline Values GMP/GWMngP (Douglas, 2025a; 2025b)		Surface Water		
			Assessment Criteria for Tomago Sandbeds Wells	UCL95-mean for Tomago Sandbeds Wells	MW8A	MW101	MW102	DGW/17.3.26	MW103	MW105	Assessment Criteria for Clay Aquitard	UCL95-mean for Clay Aquitard	MW4	MW104	MW106	MW107	ANZG (2018) Fresh Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Fresh 95%	SW3a	DSW2/17.3.26	SW8
	Unit	PQL			17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026			16 Mar 2026	16 Mar 2026	16 Mar 2026	17 Mar 2026			17 Mar 2026	17 Mar 2026	17 Mar 2026
Field																					
pH	-		5.2-8.5		5.9	4.1	5.8	5.8	5.7	4.6	6.5-7.4	7.12	6.8	7.4	6.6	6.6	6.5-8.5		5.7	5.7	5.4
Electrical Conductivity	µS/cm	1	529	357	266	93	135	135	109	189	24500	17100	32300	3180	3340	328	125-2200		171	171	157
Total Suspended Solids (Lab)	mg/L	5			89	14	6	10	34	44			170	1,900	59	250			1,100	800	16
Inorganics																					
Chloride			250	47	21	15	9	9	22	27	8560	6200	9,500	86	850	22			33	31	31
Sulphate	mg/L	1	500	15	58	6	6	7	1	35	3690	2540	5,100	100	160	16			10	9	19
Fluoride	mg/L	1	1.5	0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.7	0.6	0.5	0.7	0.5	<0.1			<0.1	<0.1	<0.1
Alkalinity (Hydroxide) as CaCO3	mg/L	0.1	1	1	<5	<5	<5	<5	<5	<5	1	1	<5	<5	<5	<5			<5	<5	<5
Alkalinity (Carbonate as CaCO3)	mg/L	5	5	6	<5	<5	<5	<5	<5	<5	18	290	<5	<5	<5	<5			<5	<5	<5
Alkalinity (Bicarbonate as CaCO3)	mg/L	5	37	56	60	<5	47	46	14	13	808	609	870	650	330	130			11	9	10
Alkalinity (total) as CaCO3	mg/L	1	32	25	60	<5	47	46	14	13	949	798	870	650	330	130			11	9	10
Ammonia as N (filtered)	mg/L	3	0.5	0.4	0.12	0.03	1.1	1.2	0.20	0.28	2	8.7	1.6	0.19	0.15	0.081	0.9		0.007	0.02	0.01
Nitrite (as N) (filtered)	mg/L	0.005	3	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.03	0.02	<0.005	0.14	<0.005	<0.005			<0.005	<0.005	<0.005
Nitrate (as N) (filtered)	mg/L	0.005	0.7	0.014	0.006	1.4	0.03	0.03	0.005	0.29	0.7	0.08	<0.005	0.14	<0.005	0.054			<0.005	<0.005	<0.005
Kjeldahl Nitrogen Total	mg/L	0.005	1.1	0.85	0.4	0.1	2.1	2.1	0.7	0.3	4.6	6.6	3.9	2.7	0.7	0.2			1.2	3.5	0.5
Nitrogen (Total Oxidised)	mg/L	0.1			0.007	1.4	0.03	0.03	0.005	0.29			<0.005	0.28	<0.005	0.056			<0.005	<0.005	<0.005
Total Phosphorus (Organic Phosphate)		0.05	0.086	0.14	0.05	<0.05	<0.05	<0.05	0.1	<0.05	2.1	1.4	1.4	4.6	0.1	0.61	0.025		0.4	0.50	<0.05
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005			<0.005	<0.005	0.006	0.005	0.084	0.006			<0.005	0.058	<0.005	<0.005			<0.005	<0.005	<0.005
Sodium (filtered)	mg/L	0.5	180	45	17	8.6	6.4	6.4	11	20	5310	3760	6,500	560	470	17			17	17	16
Calcium (filtered)	mg/L	0.5	13	12	28	3	13	13	3	6.2	478	349	370	49	120	41			5	5	5
Magnesium (filtered)	mg/L	0.5	6	5	4	1	4	4	2	2	977	684	930	51	45	4			1	1	3
Potassium (filtered)	mg/L	0.5	4	3	2	0.8	2	2	2	2	208	147	240	15	10	3			1	1	2
Metals																					
Aluminium (total/non-filtered)	mg/L	0.01	0.055 (pH>6.5) 0.0008 (pH <6.5)								0.055 (pH>6.5) 0.0008 (pH <6.5)						0.055 (pH>6.5) 0.0008 (pH <6.5)		9.9	9.3	0.28
Aluminium (filtered)	mg/L	0.01	0.055 (pH>6.5) 0.0008 (pH <6.5)		0.14	0.44	0.13	0.13	0.3	0.37	0.055 (pH>6.5) 0.0008 (pH <6.5)	0.015	<0.01	0.02	<0.01	<0.01	0.055 (pH>6.5) 0.0008 (pH <6.5)		0.18	0.18	0.04
Arsenic (total/non-filtered)	mg/L	0.001	0.01								0.013						0.0013		0.004	0.004	0.001
Arsenic (filtered)	mg/L	0.001	0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	0.001	0.013	0.017	<0.001	0.042	0.008	<0.001	0.0013		<0.001	<0.001	<0.001
Cadmium (total/non-filtered)	mg/L	0.0001	0.0002								0.0002						0.0002		0.0003	0.0003	<0.0001
Cadmium (filtered)	mg/L	0.0001	0.0002	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002		<0.0001	<0.0001	<0.0001
Chromium (III+VI) (total/non-filtered)	mg/L	0.001	0.002								0.004						0.001		0.011	0.008	0.001
Chromium (III+VI) (filtered)	mg/L	0.001	0.002	0.002	0.002	0.001	0.002	0.002	<0.001	0.002	0.004	0.001	<0.001	0.002	<0.001	<0.001	0.001		0.001	0.001	<0.001
Copper (total/non-filtered)	mg/L	0.001	0.001								0.005						0.0014		0.012	0.019	<0.001
Copper (filtered)	mg/L	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.007	<0.001	<0.001	<0.001	<0.001	0.0014		<0.001	<0.001	<0.001
Iron (filtered)	mg/L	0.01	0.8	0.6	0.04	0.14	0.13	0.13	1	0.34	55.2	60.8	65	21	19	3.9	0.7		2.1	1.9	0.09
Lead (total/non-filtered)	mg/L	0.001	0.0034								0.0034						0.0034		0.018	0.022	<0.001
Lead (filtered)	mg/L	0.001	0.0034	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0034	0.002	<0.001	<0.001	<0.001	<0.001	0.0034		<0.001	<0.001	<0.001
Manganese (total/non-filtered)	mg/L	0.005	0.5								10.1						1.9		0.14	0.13	0.029
Manganese (filtered)	mg/L	0.005	0.5	0.07	0.2	0.01	0.36	0.37	0.097	0.026	10.1	7.25	9.7	0.65	1.4	0.036	1.9		0.049	0.048	0.023
Mercury (total/non-filtered)	mg/L	0.00005	0.0001								0.00006						0.00006		<0.00005	<0.00005	<0.00005
Mercury (filtered)	mg/L	0.00005	0.0001	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00006		<0.00005	<0.00005	<0.00005
Molybdenum (total/non-filtered)	mg/L	0.001	0.05								0.003								<0.001	<0.001	<0.001
Molybdenum (filtered)	mg/L	0.001	0.05	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.004	<0.001	<0.001	<0.001	<0.001			<0.001	<0.001	<0.001
Nickel (total/non-filtered)	mg/L	0.001	0.011								0.011						0.011		0.006	0.005	<0.001
Nickel (filtered)	mg/L	0.001	0.011	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	0.021	0.022	0.005	0.028	<0.001	0.011		<0.001	<0.001	<0.001
Zinc (total/non-filtered)	mg/L	0.001	0.01								0.14						0.008		0.15	0.16	0.013
Zinc (filtered)	mg/L	0.001	0.01	0.008	0.001	0.027	<0.001	<0.001	0.002	<0.001	0.14	1.14	0.041	0.006	0.009	0.004	0.008		0.003	0.003	0.011
TRH																					
C6-C10 Fraction (F1)	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
C6-C10 (F1 minus BTEX)	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
>C10-C16 Fraction (F2)	mg/L	0.05	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05		0.1	0.077	<0.05	<0.05			0.051	<0.05	<0.05
>C16-C34 Fraction (F3)	mg/L	0.05	0.05		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.05		<0.1	0.2	0.1	<0.1			0.46	0.11	<0.1
>C34-C40 Fraction (F4)	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			0.12	<0.1	<0.1
>C10-C40 Fraction (Sum)	mg/L	0.1	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1		0.1	0.28	0.1	<0.05			0.63	0.11	<0.05
>C10-C16 Fraction (F2 minus Naphthalene)	mg/L	0.05	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05		0.1	0.077	<0.05	<0.05			0.051	<0.05	<0.05
C6-C9 Fraction	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
C10-C14 Fraction	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	<0.05
C15-C28 Fraction	mg/L	0.1	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1		0.14	0.18	<0.1	<0.1			0.34	<0.1	<0.1
C29-C36 Fraction	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			0.19	<0.1	<0.1
C10-C36 Fraction (Sum)	mg/L	0.05	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05		0.14	0.18	<0.05	<0.05			0.53	<0.05	<0.05
TPH																					
C10-C14 Fraction (SG)	mg/L	0.05	0.05		-	-	-	-	-	-	0.05		<0.05	<0.05	-	-			<0.05	<0.05	-
C15-C28 Fraction (SG)	mg/L	0.1	0.1		-	-	-	-	-	-	0.1		<0.1	<0.1	-	-			<0.1	<0.1	-
C29-C36 Fraction (SG)	mg/L	0.1	0.1		-	-	-	-	-	-	0.1		<0.1	<0.1	-	-			0.270	<0.1	-
>C10-C16 Fraction (SG)	mg/L	0.05	0.05		-	-	-	-	-	-	0.05		<0.05	<0.05	-	-			<0.05	<0.05	-
>C16-C34 Fraction (SG)	mg/L	0.1	0.1		-	-	-	-	-	-	0.1		<0.1	<0.1	-	-			0.260	<0.1	-
>C34-C40 Fraction (SG)	mg/L	0.1	0.1		-	-	-	-	-	-	0.1		<0.1	<0.1	-	-			<0.1	<0.1	-
Cyanide Total	mg/L	0.004	0.007		<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.007		<0.004	<0.004	-	-	0.007		<0.004	<0.004	<0.004

Douglas PARTNERS

Table 1: Summary of water quality monitoring results - March 2026

			Trigger Levels based on GMP/GWMngP (Douglas, 2025a; 2025b)		Groundwater - Tomago Sandbeds Wells						Trigger Levels based on GMP/GWMngP (Douglas, 2025a; 2025b)		Groundwater - Clay Wells				Groundwater Default Guideline Values GMP/GWMngP (Douglas, 2025a; 2025b)		Surface Water		
			Assessment Criteria for Tomago Sandbeds Wells	UCL95-mean for Tomago Sandbeds Wells	MW8A	MW101	MW102	DGW/17.3.26	MW103	MW105	Assessment Criteria for Clay Aquitard	UCL95-mean for Clay Aquitard	MW4	MW104	MW106	MW107	ANZG (2018) Fresh Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Fresh 95%	SW3a	DSW2/17.3.26	SW8
					17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026			16 Mar 2026	16 Mar 2026	16 Mar 2026	17 Mar 2026			17 Mar 2026	17 Mar 2026	17 Mar 2026
	Unit	PQL																			
BTEX																					
Benzene	mg/L	0.001	**0.001**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.7**		<0.001	<0.001	<0.001	<0.001	**0.7**		<0.001	<0.001	<0.001
Toluene	mg/L	0.001	**0.18**	0.0009	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.18**		<0.001	<0.001	<0.001	<0.001	**0.18**		**0.002**	**0.003**	<0.001
Ethylbenzene	mg/L	0.001	**0.08**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.08**		<0.001	<0.001	<0.001	<0.001	**0.08**		<0.001	<0.001	<0.001
Xylene (m & p)	mg/L	0.002	**0.078**		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	**0.078**		<0.002	<0.002	<0.002	<0.002	**0.075**[#2]		<0.002	<0.002	<0.002
Xylene (o)	mg/L	0.001	**0.35**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.35**		<0.001	<0.001	<0.001	<0.001	**0.35**		<0.001	<0.001	<0.001
Naphthalene (VOC)	mg/L	0.001	**0.0016**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.07**		<0.001	<0.001	<0.001	<0.001	**0.07**		<0.001	<0.001	<0.001
Phenols																					
2,4,5-Trichlorophenol	mg/L	0.001	0.000		<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
2,4,6-Trichlorophenol	mg/L	0.001	0.003		<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
2,4-Dichlorophenol	mg/L	0.001	0.120		<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
2,4-Dimethylphenol	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	<0.001
2,6-Dichlorophenol	mg/L	0.001	0.034		<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
2-Chlorophenol	mg/L	0.001	**0.3**		<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
2-Methylphenol	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
2-Nitrophenol	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	<0.001
3&4-Methylphenol (m&p-cresol)	mg/L	0.002	0.001		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	<0.002	<0.002	<0.002			<0.002	<0.002	<0.002
4-chloro-3-methylphenol	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
4-Nitrophenol																					
Pentachlorophenol	mg/L	0.005	**0.0036**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**0.22**		<0.005	<0.005	<0.005	<0.005	**0.022**		<0.005	<0.005	<0.005
Phenol	mg/L	0.001	**0.32**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.4**		<0.001	<0.001	<0.001	<0.001	**0.4**		<0.001	<0.001	<0.001
Naphthalene (VOC)	mg/L	0.0001	**0.0016**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.07**		<0.001	<0.001	<0.001	<0.001	**0.07**		<0.001	<0.001	<0.001
Phenanthrene	mg/L	0.0001	**0.0006**		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.002**		<0.0001	<0.0001	<0.0001	<0.0001	**0.002**		<0.0001	<0.0001	<0.0001
Anthracene	mg/L	0.0001	**0.00001**		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.00001**		<0.0001	<0.0001	<0.0001	<0.0001	**0.00001**		<0.0001	<0.0001	<0.0001
Fluoranthene	mg/L	0.0001	**0.001**		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.001**		<0.0001	<0.0001	<0.0001	<0.0001	**0.001**		<0.0001	<0.0001	<0.0001
Benzo(a) pyrene	mg/L	0.0001	**0.00001**		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	**0.00001**		<0.0001	<0.0001	<0.0001	<0.0001	**0.0001**		<0.0001	<0.0001	<0.0001
Acenaphthene	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
Acenaphthylene	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
Benzo(a)anthracene	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
Benzo(a)pyrene TEQ	mg/L	0.0005	**0.0005**		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	**0.0005**		<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005
Benzo(b+j+k)fluoranthene	mg/L	0.0002	**0.0002**		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	**0.0002**		<0.0002	<0.0002	<0.0002	<0.0002			<0.0002	<0.0002	<0.0002
Benzo(g,h,i)perylene	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
Chrysene	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
Dibenz(a,h)anthracene	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
Fluorene	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
Indeno(1,2,3-c,d)pyrene	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
Pyrene	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
PAHs (Sum of positives)	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
Organophosphorous Pesticides																					
Dichlorvos	µg/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
Dimethoate	µg/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
Diazinon	µg/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
Chlorpyrifos-methyl	mg/L	0.00005	**0.00005**		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005		<0.00005	<0.00005	<0.00005	<0.00005			<0.00005	-	<0.00005
Methyl parathion	µg/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
Malathion	µg/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
Fenthion	µg/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
Chlorpyrifos	µg/L	0.009	**0.009**		<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	**0.009**		<0.009	<0.009	<0.009	<0.009	**0.009**		<0.009	-	<0.009
Parathion	µg/L	0.004	**0.004**		<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.004		<0.004	<0.004	<0.004	<0.004			<0.004	-	<0.004
Bromophos-ethyl	µg/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
Fenamiphos	µg/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
Ethion	µg/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
Azinophos methyl	µg/L	0.02	**0.02**		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02		<0.02	<0.02	<0.02	<0.02			<0.02	-	<0.02
Disulfoton	µg/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
Fenitrothion	µg/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
Methidathion	µg/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
Mevinphos (Phosdrin)	µg/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
Phorate	µg/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
Phosalone	mg/L	0.00005	**0.00005**		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005		<0.00005	<0.00005	<0.00005	<0.00005			<0.00005	-	<0.00005
Ronnel	µg/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
Organochlorine Pesticides																					
a-BHC	µg/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
Hexachlorobenzene	µg/L	0.001	**0.05**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.05**		<0.001	<0.001	<0.001	<0.001	**0.0001**		<0.001	-	<0.001
b-BHC	µg/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
g-BHC (Lindane)	µg/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
d-BHC	µg/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
Heptachlor	µg/L	0.001	**0.01**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.01**		<0.001	<0.001	<0.001	<0.001			<0.001	-	<0.001
Aldrin	µg/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
Heptachlor epoxide	µg/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
Chlordane (trans)	µg/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
Endosulfan I	µg/L	0.002	**0.001**		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	**0.001**		<0.002	<0.002	<0.002	<0.002			<0.002	-	<0.002
Chlordane (cis)	µg/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
Dieldrin	µg/L	0.001	**0.01**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.01**		<0.001	<0.001	<0.001	<0.001			<0.001	-	<0.001
4,4-DDE	µg/L	0.001	**0.030**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.030**		<0.001	<0.001	<0.001	<0.001			<0.001	-	<0.001
Endrin	µg/L	0.001	**0.01**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.01**		<0.001	<0.001	<0.001	<0.001	**0.008**		<0.001	-	<0.001
Endosulfan II	µg/L	0.002	**0.002**		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	**0.002**		<0.002	<0.002	<0.002	<0.002			<0.002	-	<0.002
DDD	µg/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
Endrin aldehyde	µg/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
Endosulfan sulphate	µg/L	0.001	**0.007**		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	**0.007**		<0.001	<0.001	<0.001	<0.001			<0.001	-	<0.001
DDT	µg/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
Methoxychlor	µg/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

Douglas PARTNERS

Table 1: Summary of water quality monitoring results - March 2026

			Trigger Levels based on GMP/GWMngP (Douglas, 2025a; 2025b)		Groundwater - Tomago Sandbeds Wells						Trigger Levels based on GMP/GWMngP (Douglas, 2025a; 2025b)		Groundwater - Clay Wells				Groundwater Default Guideline Values GMP/GWMngP (Douglas, 2025a; 2025b)		Surface Water		
			Assessment Criteria for Tomago Sandbeds Wells	UCL95-mean for Tomago Sandbeds Wells	MW8A	MW101	MW102	DGW/17.3.26	MW103	MW105	Assessment Criteria for Clay Aquitard	UCL95-mean for Clay Aquitard	MW4	MW104	MW106	MW107	ANZG (2018) Fresh Water Slightly to Moderately Disturbed Systems DGVs	PFAS NEMP 2025 Fresh 95%	SW3a	DSW2/17.3.26	SW8
					17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026	17 Mar 2026			16 Mar 2026	16 Mar 2026	16 Mar 2026	17 Mar 2026			17 Mar 2026	17 Mar 2026	17 Mar 2026
	Unit	PQL																			
PCBs																					
Arochlor 1016	µg/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
Arochlor 1221	µg/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
Arochlor 1232	µg/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
Arochlor 1242	µg/L	0.01000	**0.3**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**0.3**		<0.01	<0.01	<0.01	<0.01	**0.3**		<0.01	-	<0.01
Arochlor 1248	µg/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
Arochlor 1254	µg/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
Arochlor 1260	µg/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
PFAS																					
Perfluorooctane sulfonic acid (PFOS)	µg/L	0.001	**0.13**		**0.008**	**0.003**	**0.002**	**0.002**	**0.002**	**0.012**	**0.13**		<0.001	**0.003**	**0.001**	**0.047**	**0.0009**	**0.13**	**0.005**	**0.005**	**0.012**
Perfluorooctanoic acid (PFOA)	µg/L	0.001	**220**		**0.004**	<0.001	<0.001	<0.001	**0.001**	**0.005**	**220**		<0.001	<0.001	<0.001	**0.005**		**220**	**0.003**	**0.003**	**0.002**
Sum of PFHxS and PFOS	µg/L	0.001			**0.014**	**0.003**	**0.002**	**0.002**	**0.002**	**0.017**			<0.001	**0.004**	**0.003**	**0.062**			**0.010**	**0.0099**	**0.016**

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 404470

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.09, Tomago**
Number of Samples	2 Water
Date samples received	17/03/2026
Date completed instructions received	17/03/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	24/03/2026
Date of Issue	24/03/2026

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Results Approved By
Dragana Tomas, Senior Chemist
Larry Ye, Senior Chemist
Nancy Zhang, Laboratory Manager, Sydney
Sean McAlary, Senior Chemist
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	20/03/2026	20/03/2026
Date analysed	-	20/03/2026	20/03/2026
TRH C_6 - C_9	µg/L	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	108	111
Surrogate Toluene-d8	%	97	99
Surrogate 4-Bromofluorobenzene	%	92	91

svTRH (C10-C40) in Water			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026
TRH C_{10} - C_{14}	µg/L	<50	<50
TRH C_{15} - C_{28}	µg/L	180	<100
TRH C_{29} - C_{36}	µg/L	<100	<100
Total +ve TRH (C10-C36)	µg/L	180	<50
TRH >C_{10} - C_{16}	µg/L	77	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	77	<50
TRH >C_{16} - C_{34}	µg/L	200	100
TRH >C_{34} - C_{40}	µg/L	<100	<100
Total +ve TRH (>C10-C40)	µg/L	280	100
Surrogate o-Terphenyl	%	89	89

PAHs in Water			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026
Naphthalene	µg/L	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	88	91

OCPs in Water - Trace Level			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026
alpha-BHC	µg/L	<0.001	<0.001
HCB	µg/L	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	86	87

OP in water LL ANZECCF/ADWG			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026
Dichlorvos	µg/L	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05
Chlorpyriphos-methyl	µg/L	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05
Chlorpyriphos	µg/L	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	86	87

PCBs in Water - Trace Level			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026
Aroclor 1016	µg/L	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	75	75

Speciated Phenols in water			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026
Phenol	µg/L	<1	<1
2-Chlorophenol	µg/L	<1	<1
4-Chloro-3-Methylphenol	µg/L	<5	<5
2-Methylphenol (0-Cresol)	µg/L	<1	<1
3/4-Methylphenol (m/p-Cresol)	µg/L	<2	<2
2-Nitrophenol	µg/L	<1	<1
2,4-Dimethylphenol	µg/L	<1	<1
2,4-Dichlorophenol	µg/L	<1	<1
2,6-Dichlorophenol	µg/L	<1	<1
2,4,5-Trichlorophenol	µg/L	<1	<1
2,4,6-Trichlorophenol	µg/L	<1	<1
2,4-Dinitrophenol	µg/L	<20	<20
4-Nitrophenol	µg/L	<20	<20
2346-Tetrachlorophenol	µg/L	<1	<1
2-methyl-4,6-Dinitrophenol	µg/L	<10	<10
Pentachlorophenol	µg/L	<5	<5
Surrogate 2-fluorophenol	%	41	44
Surrogate Phenol-d_6	%	23	25
Surrogate 2,4,6-Tribromophenol	%	96	96
Surrogate p-Terphenyl-d_{14}	%	88	91

HM in water - dissolved			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date prepared	-	22/03/2026	22/03/2026
Date analysed	-	22/03/2026	22/03/2026
Aluminium-Dissolved	µg/L	20	<10
Arsenic-Dissolved	µg/L	42	8
Cadmium-Dissolved	µg/L	<0.1	<0.1
Chromium-Dissolved	µg/L	2	<1
Copper-Dissolved	µg/L	<1	<1
Iron-Dissolved	µg/L	21,000	19,000
Lead-Dissolved	µg/L	<1	<1
Manganese-Dissolved	µg/L	650	1,400
Mercury-Dissolved	µg/L	<0.05	<0.05
Molybdenum-Dissolved	µg/L	<1	<1
Nickel-Dissolved	µg/L	5	28
Zinc-Dissolved	µg/L	6	9

Metals in Waters - Acid extractable			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date prepared	-	20/03/2026	20/03/2026
Date analysed	-	20/03/2026	20/03/2026
Phosphorus - Total	mg/L	4.6	0.1

Miscellaneous Inorganics			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date prepared	-	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026
Total Suspended Solids	mg/L	1,900	59
Ammonia as N in water	mg/L	0.19	0.15
Nitrite as N in water	mg/L	0.14	<0.005
Nitrate as N in water	mg/L	0.14	<0.005
NOx as N in water	mg/L	0.28	<0.005
TKN in water	mg/L	2.7	0.7
Phosphate as P in water	mg/L	0.058	<0.005
Fluoride, F	mg/L	0.7	0.5

Ion Balance			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date prepared	-	19/03/2026	19/03/2026
Date analysed	-	17/03/2026	17/03/2026
Calcium - Dissolved	mg/L	49	120
Potassium - Dissolved	mg/L	15	10
Sodium - Dissolved	mg/L	560	470
Magnesium - Dissolved	mg/L	51	45
Hardness (calc) equivalent $CaCO_3$	mg/L	330	500
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	650	330
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	650	330
Sulphate, SO4	mg/L	100	160
Chloride, Cl	mg/L	86	850
Ionic Balance	%	28	-5.0

PFAS in Water LOW LEVEL Extend			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date prepared	-	19/03/2026	19/03/2026
Date analysed	-	20/03/2026	20/03/2026
Perfluorobutanesulfonic acid	µg/L	<0.001	<0.001
Perfluoropentanesulfonic acid	µg/L	<0.001	<0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.002	0.002
Perfluoroheptanesulfonic acid	µg/L	<0.001	<0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.003	0.001
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002
Perfluorobutanoic acid	µg/L	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.01	<0.01
Perfluorohexanoic acid	µg/L	<0.001	<0.001
Perfluoroheptanoic acid	µg/L	<0.001	<0.001
Perfluorooctanoic acid PFOA	µg/L	<0.001	<0.001
Perfluorononanoic acid	µg/L	<0.001	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001
6:2 FTS	µg/L	0.024	0.004
8:2 FTS	µg/L	<0.002	<0.002
10:2 FTS	µg/L	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	µg/L	<0.004	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002
Surrogate $^{13}C_8$ *PFOS*	%	100	97
Surrogate $^{13}C_2$ *PFOA*	%	103	110
Extracted ISTD $^{13}C_3$ *PFBS*	%	51	64
Extracted ISTD $^{18}O_2$ *PFHxS*	%	72	82
Extracted ISTD $^{13}C_4$ *PFOS*	%	90	102
Extracted ISTD $^{13}C_4$ *PFBA*	%	#	#

PFAS in Water LOW LEVEL Extend			
Our Reference		404470-1	404470-2
Your Reference	UNITS	MW104	MW106
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	20	28
Extracted ISTD $^{13}C_2$ *PFHxA*	%	49	67
Extracted ISTD $^{13}C_4$ *PFHpA*	%	65	83
Extracted ISTD $^{13}C_4$ *PFOA*	%	76	78
Extracted ISTD $^{13}C_5$ *PFNA*	%	85	93
Extracted ISTD $^{13}C_2$ *PFDA*	%	92	107
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	90	100
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	80	116
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	72	94
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	47	69
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	60	76
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	93	109
Extracted ISTD $^{13}C_8$ *FOSA*	%	60	110
Extracted ISTD d_3 *N MeFOSA*	%	90	96
Extracted ISTD d_5 *N EtFOSA*	%	94	101
Extracted ISTD d_7 *N MeFOSE*	%	87	97
Extracted ISTD d_9 *N EtFOSE*	%	89	96
Extracted ISTD d_3 *N MeFOSAA*	%	38	115
Extracted ISTD d_5 *N EtFOSAA*	%	58	101
Total Positive PFHxS & PFOS	µg/L	0.004	0.003
Total Positive PFOA & PFOS	µg/L	0.003	0.001
Total Positive PFAS	µg/L	0.029	0.007

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals/elements by ICP-AES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Where molecular anion forms are calculated from an element (e.g. SO4 from S or PO4 from P stoichiometrically), the assumption is that the element is only present in that molecular anion form. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Note, the Total +ve PFAS PQL is reflective of the lowest individual PQL and is therefore "Total +ve PFAS" is simply a sum of the positive individual PFASs (or a described sub-set). Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			20/03/2026	1	20/03/2026	23/03/2026		20/03/2026	[NT]
Date analysed	-			20/03/2026	1	20/03/2026	23/03/2026		20/03/2026	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	94	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	94	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	94	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	94	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	92	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	95	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	106	1	108	110	2	106	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	97	99	2	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	94	1	92	95	3	105	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	82	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	77	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	89	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: OCPs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
alpha-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	126	[NT]
HCB	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	134	[NT]
gamma-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	104	[NT]
delta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	115	[NT]
Heptachlor Epoxide	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	128	[NT]
gamma-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	111	[NT]
Dieldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	115	[NT]
Endrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	98	[NT]
Endosulfan II	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	111	[NT]
Endrin Aldehyde	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	90	[NT]
Methoxychlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: OP in water LL ANZECCF/ADWG						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Dichlorvos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	93	[NT]
Mevinphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	116	[NT]
Fenitrothion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	125	[NT]
Malathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	129	[NT]
Chlorpyriphos	µg/L	0.009	Org-022/025	<0.009	[NT]	[NT]	[NT]	[NT]	131	[NT]
Fenthion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.004	Org-022/025	<0.004	[NT]	[NT]	[NT]	[NT]	124	[NT]
Bromophos ethyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	132	[NT]
Phosalone	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.02	Org-022/025	<0.02	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: PCBs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Aroclor 1016	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	70	[NT]
Aroclor 1260	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	73	[NT]	[NT]	[NT]	[NT]	70	[NT]

QUALITY CONTROL: Speciated Phenols in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Phenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	33	[NT]
2-Chlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
4-Chloro-3-Methylphenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Methylphenol (0-Cresol)	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	55	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	129	[NT]
2,4,5-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dinitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	31	[NT]
2346-Tetrachlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	µg/L	10	Org-022/025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	68	[NT]
Surrogate 2-fluorophenol	%		Org-022/025	45	[NT]	[NT]	[NT]	[NT]	42	[NT]
Surrogate Phenol-d_6	%		Org-022/025	27	[NT]	[NT]	[NT]	[NT]	23	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-022/025	71	[NT]	[NT]	[NT]	[NT]	73	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-022/025	89	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			22/03/2026	[NT]	[NT]	[NT]	[NT]	22/03/2026	[NT]
Date analysed	-			22/03/2026	[NT]	[NT]	[NT]	[NT]	22/03/2026	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	101	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	105	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	94	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	116	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			18/03/2026	1	18/03/2026	18/03/2026		18/03/2026	[NT]
Date analysed	-			18/03/2026	1	18/03/2026	18/03/2026		18/03/2026	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	1900	1700	11	108	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.19	[NT]		97	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.14	[NT]		102	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.14	[NT]		96	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.28	[NT]		96	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	2.7	[NT]		108	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.058	[NT]		112	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	1	0.7	[NT]		98	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			17/03/2026	[NT]	[NT]	[NT]	[NT]	17/03/2026	[NT]
Date analysed	-			17/03/2026	[NT]	[NT]	[NT]	[NT]	17/03/2026	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	92	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	93	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Perfluorobutanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorobutanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluoropentanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	97	[NT]
Perfluorohexanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Perfluoroheptanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorononanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorodecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluoroundecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	91	[NT]
Perfluorododecanoic acid	µg/L	0.005	Org-029	<0.005	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorotridecanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	78	[NT]
4:2 FTS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	103	[NT]
6:2 FTS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	107	[NT]
8:2 FTS	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	97	[NT]
10:2 FTS	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	97	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	96	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	102	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
MePerfluorooctanesulf-amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	99	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	96	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	91	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	88	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	89	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	83	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	90	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	88	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	84	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	120	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	112	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	113	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	93	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	93	[NT]	[NT]	[NT]	[NT]	91	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	92	[NT]	[NT]	[NT]	[NT]	91	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	109	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

PFAS in Water LOW LEVEL Extend - For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

The mass inbalance may be caused by other ions that have not been measured.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 404471

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.20, Tomago**
Number of Samples	10 Water
Date samples received	17/03/2026
Date completed instructions received	17/03/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	24/03/2026
Date of Issue	24/03/2026

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

Results Approved By
Dragana Tomas, Senior Chemist
Larry Ye, Senior Chemist
Liam Timmins, Organics Supervisor
Nancy Zhang, Laboratory Manager, Sydney
Priya Samarawickrama, Senior Chemist
Sean McAlary, Senior Chemist
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	108	107	109	108	109
Surrogate Toluene-d8	%	99	99	99	100	99
Surrogate 4-Bromofluorobenzene	%	96	95	95	94	93

vTRH(C6-C10)/BTEXN in Water						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	107	108	109	106	106
Surrogate Toluene-d8	%	99	100	99	98	98
Surrogate 4-Bromofluorobenzene	%	95	94	95	94	94

svTRH (C10-C40) in Water						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	140	<100	260	180	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	140	120	<100
Total +ve TRH (C10-C36)	µg/L	140	<50	400	300	<50
TRH >C_{10} - C_{16}	µg/L	100	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	100	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	360	260	100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	100	<50	360	260	100
Surrogate o-Terphenyl	%	77	72	96	92	89

svTRH (C10-C40) in Water						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	140	160	140	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	110	<100	<100
Total +ve TRH (C10-C36)	µg/L	140	160	260	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	200	220	220	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	200	220	220	<50	<50
Surrogate o-Terphenyl	%	78	93	92	86	95

svTRH (C10-C40) in Water NEPM Silica gel						
Our Reference		404471-1	404471-3	404471-4	404471-5	404471-6
Your Reference	UNITS	MW4	MW2	MW10	MW13	MW11
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	24/03/2026	24/03/2026	24/03/2026	24/03/2026	24/03/2026
TRH (Silica) C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH (Silica) C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRH (Silica) C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
TRH (Silica) >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH (Silica) >C_{16} - C_{34}	µg/L	<100	<100	<100	<100	<100
TRH (Silica) >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Surrogate 1-Chlorooctadecane	%	93	97	91	89	94

svTRH (C10-C40) in Water NEPM Silica gel			
Our Reference		404471-7	404471-8
Your Reference	UNITS	MW1A	SW5
Date Sampled		16/03/2026	16/03/2026
Type of sample		Water	Water
Date extracted	-	18/03/2026	18/03/2026
Date analysed	-	24/03/2026	24/03/2026
TRH (Silica) C_{10} - C_{14}	µg/L	<50	<50
TRH (Silica) C_{15} - C_{28}	µg/L	<100	<100
TRH (Silica) C_{29} - C_{36}	µg/L	<100	<100
TRH (Silica) >C_{10} - C_{16}	µg/L	<50	<50
TRH (Silica) >C_{16} - C_{34}	µg/L	<100	<100
TRH (Silica) >C_{34} - C_{40}	µg/L	<100	<100
Surrogate 1-Chlorooctadecane	%	99	81

PAHs in Water						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	81	78	92	86	88

PAHs in Water						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	86	88	86	97	87

Speciated Phenols in water						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Phenol	µg/L	<1	<1	<1	<1	<1
2-Chlorophenol	µg/L	<1	<1	<1	<1	<1
4-Chloro-3-Methylphenol	µg/L	<5	<5	<5	<5	<5
2-Methylphenol (0-Cresol)	µg/L	<1	<1	<1	<1	<1
3/4-Methylphenol (m/p-Cresol)	µg/L	<2	<2	<2	<2	<2
2-Nitrophenol	µg/L	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/L	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/L	<1	<1	<1	<1	<1
2,6-Dichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4,5-Trichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4-Dinitrophenol	µg/L	<20	<20	<20	<20	<20
4-Nitrophenol	µg/L	<20	<20	<20	<20	<20
2346-Tetrachlorophenol	µg/L	<1	<1	<1	<1	<1
2-methyl-4,6-Dinitrophenol	µg/L	<10	<10	<10	<10	<10
Pentachlorophenol	µg/L	<5	<5	<5	<5	<5
Surrogate 2-fluorophenol	%	45	35	44	41	41
Surrogate Phenol-d_6	%	26	20	25	23	22
Surrogate 2,4,6-Tribromophenol	%	88	83	97	97	96
Surrogate p-Terphenyl-d_{14}	%	81	78	92	86	88

Speciated Phenols in water						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Phenol	µg/L	<1	<1	<1	<1	<1
2-Chlorophenol	µg/L	<1	<1	<1	<1	<1
4-Chloro-3-Methylphenol	µg/L	<5	<5	<5	<5	<5
2-Methylphenol (0-Cresol)	µg/L	<1	<1	<1	<1	<1
3/4-Methylphenol (m/p-Cresol)	µg/L	<2	<2	<2	<2	<2
2-Nitrophenol	µg/L	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/L	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/L	<1	<1	<1	<1	<1
2,6-Dichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4,5-Trichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4-Dinitrophenol	µg/L	<20	<20	<20	<20	<20
4-Nitrophenol	µg/L	<20	<20	<20	<20	<20
2346-Tetrachlorophenol	µg/L	<1	<1	<1	<1	<1
2-methyl-4,6-Dinitrophenol	µg/L	<10	<10	<10	<10	<10
Pentachlorophenol	µg/L	<5	<5	<5	<5	<5
Surrogate 2-fluorophenol	%	42	42	51	47	55
Surrogate Phenol-d_6	%	21	23	26	28	33
Surrogate 2,4,6-Tribromophenol	%	94	95	78	101	80
Surrogate p-Terphenyl-d_{14}	%	86	88	86	97	87

OCPs in Water - Trace Level						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
alpha-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
HCB	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	70	67	86	86	86

OCPs in Water - Trace Level				
Our Reference		404471-6	404471-7	404471-9
Your Reference	UNITS	MW11	MW1A	MW12
Date Sampled		16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026
alpha-BHC	µg/L	<0.001	<0.001	<0.001
HCB	µg/L	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	84	81	95

OP in water LL ANZECCF/ADWG						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Dichlorvos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos	µg/L	<0.009	<0.009	<0.009	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	70	67	86	86	86

OP in water LL ANZECCF/ADWG				
Our Reference		404471-6	404471-7	404471-9
Your Reference	UNITS	MW11	MW1A	MW12
Date Sampled		16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026
Dichlorvos	µg/L	<0.05	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	µg/L	<0.05	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos	µg/L	<0.009	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	84	81	95

PCBs in Water - Trace Level						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Aroclor 1016	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	94	91	77	76	75

PCBs in Water - Trace Level				
Our Reference		404471-6	404471-7	404471-9
Your Reference	UNITS	MW11	MW1A	MW12
Date Sampled		16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026
Aroclor 1016	µg/L	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	73	69	85

HM in water - dissolved						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/03/2026	22/03/2026	22/03/2026	22/03/2026	22/03/2026
Date analysed	-	22/03/2026	22/03/2026	22/03/2026	22/03/2026	22/03/2026
Aluminium-Dissolved	µg/L	<10	<10	<10	270	2,200
Arsenic-Dissolved	µg/L	<1	<1	4	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	2	3
Copper-Dissolved	µg/L	<1	<1	<1	<1	<1
Iron-Dissolved	µg/L	65,000	360	9,500	630	3,600
Lead-Dissolved	µg/L	<1	<1	<1	1	1
Manganese-Dissolved	µg/L	9,700	740	690	15	330
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum-Dissolved	µg/L	<1	1	2	<1	<1
Nickel-Dissolved	µg/L	22	<1	7	<1	<1
Zinc-Dissolved	µg/L	41	2	280	20	5

HM in water - dissolved						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/03/2026	22/03/2026	22/03/2026	22/03/2026	22/03/2026
Date analysed	-	22/03/2026	22/03/2026	22/03/2026	22/03/2026	22/03/2026
Aluminium-Dissolved	µg/L	240	340	200	240	250
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	2	1	1	<1	<1
Copper-Dissolved	µg/L	<1	<1	<1	<1	<1
Iron-Dissolved	µg/L	390	1,700	320	1,500	1,500
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Manganese-Dissolved	µg/L	8	130	110	13	13
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum-Dissolved	µg/L	<1	<1	<1	<1	<1
Nickel-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	<1	3	1	<1	<1

HM in water - total		
Our Reference		404471-8
Your Reference	UNITS	SW5
Date Sampled		16/03/2026
Type of sample		Water
Date prepared	-	22/03/2026
Date analysed	-	22/03/2026
Aluminium-Total	µg/L	290
Arsenic-Total	µg/L	<1
Cadmium-Total	µg/L	<0.1
Chromium-Total	µg/L	1
Copper-Total	µg/L	<1
Iron-Total	µg/L	1,300
Lead-Total	µg/L	<1
Manganese-Total	µg/L	100
Mercury-Total	µg/L	<0.05
Molybdenum-Total	µg/L	<1
Nickel-Total	µg/L	<1
Zinc-Total	µg/L	1

Ion Balance						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Date analysed	-	17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Calcium - Dissolved	mg/L	370	63	54	2	47
Potassium - Dissolved	mg/L	240	40	19	3	3
Sodium - Dissolved	mg/L	6,500	1,100	250	24	14
Magnesium - Dissolved	mg/L	930	110	36	2	16
Hardness (calc) equivalent $CaCO_3$	mg/L	4,700	600	280	14	180
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	870	280	680	20	210
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	870	280	680	20	210
Sulphate, SO4	mg/L	5,100	250	16	1	5
Chloride, Cl	mg/L	9,500	2,300	37	32	15
Ionic Balance	%	-1.0	-12	6.0	3.0	-3.0

Ion Balance						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Date analysed	-	17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Calcium - Dissolved	mg/L	1	5	2	2	2
Potassium - Dissolved	mg/L	2	1	1	0.6	0.6
Sodium - Dissolved	mg/L	34	19	19	19	19
Magnesium - Dissolved	mg/L	3	4	3	2	2
Hardness (calc) equivalent $CaCO_3$	mg/L	15	27	17	12	12
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	21	23	12	<5	<5
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	21	23	12	<5	<5
Sulphate, SO4	mg/L	2	<1	3	10	11
Chloride, Cl	mg/L	55	36	35	37	38
Ionic Balance	%	-4.0	-3.0	-4.0	-8.0	-8.0

Metals in Waters - Acid extractable						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Phosphorus - Total	mg/L	1.4	0.08	<0.05	0.79	<0.05

Metals in Waters - Acid extractable						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Phosphorus - Total	mg/L	<0.05	0.06	0.06	<0.05	<0.05

Miscellaneous Inorganics						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Ammonia as N in water	mg/L	1.6	0.28	0.32	0.32	1.4
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
NOx as N in water	mg/L	<0.005	0.005	<0.005	<0.005	<0.005
TKN in water	mg/L	3.9	0.5	3.7	1	2.2
Phosphate as P in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride, F	mg/L	0.5	0.5	0.8	<0.1	0.3
Total Suspended Solids	mg/L	170	40	42	1,700	70

Miscellaneous Inorganics						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Ammonia as N in water	mg/L	0.49	0.18	0.20	0.098	0.11
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate as N in water	mg/L	<0.005	<0.005	0.007	<0.005	<0.005
NOx as N in water	mg/L	<0.005	<0.005	0.007	<0.005	<0.005
TKN in water	mg/L	1	0.7	1.0	0.2	0.2
Phosphate as P in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoride, F	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Total Suspended Solids	mg/L	52	32	<5	<5	<5

PFAS in Water LOW LEVEL Extend						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Perfluorobutanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.001	<0.001	0.003	0.004	0.002
Perfluoroheptanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonic acid PFOS	µg/L	<0.001	<0.001	0.002	0.003	0.002
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	<0.01	<0.01	<0.02	<0.01	<0.01
Perfluoropentanoic acid	µg/L	<0.01	<0.004	<0.02	<0.01	0.02
Perfluorohexanoic acid	µg/L	<0.001	<0.001	0.014	0.002	0.015
Perfluoroheptanoic acid	µg/L	<0.001	<0.001	0.007	0.001	0.004
Perfluorooctanoic acid PFOA	µg/L	<0.001	<0.001	0.002	0.002	0.001
Perfluorononanoic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	0.016	0.003	0.005	<0.001	0.072
8:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
10:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ *PFOS*	%	95	100	92	101	99
Surrogate $^{13}C_2$ *PFOA*	%	100	105	104	109	107
Extracted ISTD $^{13}C_3$ *PFBS*	%	58	61	52	52	68
Extracted ISTD $^{18}O_2$ *PFHxS*	%	76	76	70	65	83
Extracted ISTD $^{13}C_4$ *PFOS*	%	94	92	89	77	98
Extracted ISTD $^{13}C_4$ *PFBA*	%	#	22	#	#	33

PFAS in Water LOW LEVEL Extend						
Our Reference		404471-1	404471-2	404471-3	404471-4	404471-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	31	39	#	24	49
Extracted ISTD $^{13}C_2$ *PFHxA*	%	63	66	41	49	72
Extracted ISTD $^{13}C_4$ *PFHpA*	%	81	86	59	65	91
Extracted ISTD $^{13}C_4$ *PFOA*	%	87	87	58	61	81
Extracted ISTD $^{13}C_5$ *PFNA*	%	100	99	85	76	103
Extracted ISTD $^{13}C_2$ *PFDA*	%	98	106	92	90	114
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	100	101	100	93	102
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	106	111	97	79	110
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	80	104	101	90	136
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	60	78	49	58	80
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	69	79	58	62	84
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	92	101	92	88	106
Extracted ISTD $^{13}C_8$ *FOSA*	%	99	103	99	71	108
Extracted ISTD d_3 *N MeFOSA*	%	102	96	96	97	100
Extracted ISTD d_5 *N EtFOSA*	%	106	98	102	98	104
Extracted ISTD d_7 *N MeFOSE*	%	98	95	94	93	98
Extracted ISTD d_9 *N EtFOSE*	%	96	93	93	92	96
Extracted ISTD d_3 *N MeFOSAA*	%	87	110	108	80	104
Extracted ISTD d_5 *N EtFOSAA*	%	85	98	89	76	108
Total Positive PFHxS & PFOS	µg/L	<0.001	<0.001	0.005	0.007	0.004
Total Positive PFOA & PFOS	µg/L	<0.001	<0.001	0.004	0.005	0.003
Total Positive PFAS	µg/L	0.016	0.003	0.032	0.011	0.11

PFAS in Water LOW LEVEL Extend						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Perfluorobutanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.002	0.002	0.002	<0.001	<0.001
Perfluoroheptanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonic acid PFOS	µg/L	<0.001	0.003	0.003	<0.001	<0.001
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid	µg/L	<0.004	<0.004	<0.01	<0.004	<0.004
Perfluorohexanoic acid	µg/L	0.002	<0.001	<0.001	<0.001	<0.001
Perfluoroheptanoic acid	µg/L	<0.001	<0.001	0.001	<0.001	<0.001
Perfluorooctanoic acid PFOA	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorononanoic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	0.004	0.003	<0.001	0.001	0.001
8:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
10:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ *PFOS*	%	99	91	104	101	100
Surrogate $^{13}C_2$ *PFOA*	%	114	100	110	107	103
Extracted ISTD $^{13}C_3$ *PFBS*	%	61	54	60	62	66
Extracted ISTD $^{18}O_2$ *PFHxS*	%	82	78	74	77	77
Extracted ISTD $^{13}C_4$ *PFOS*	%	95	97	87	90	94
Extracted ISTD $^{13}C_4$ *PFBA*	%	#	#	#	22	22

PFAS in Water LOW LEVEL Extend						
Our Reference		404471-6	404471-7	404471-8	404471-9	404471-10
Your Reference	UNITS	MW11	MW1A	SW5	MW12	DGW/16.3.26
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	33	31	29	38	36
Extracted ISTD $^{13}C_2$ *PFHxA*	%	69	62	60	69	70
Extracted ISTD $^{13}C_4$ *PFHpA*	%	87	74	76	84	87
Extracted ISTD $^{13}C_4$ *PFOA*	%	81	73	75	81	93
Extracted ISTD $^{13}C_5$ *PFNA*	%	102	98	90	86	97
Extracted ISTD $^{13}C_2$ *PFDA*	%	100	92	95	89	101
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	111	94	108	94	107
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	106	104	115	111	116
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	135	131	137	135	137
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	77	73	73	71	80
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	77	71	77	76	82
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	117	102	96	105	108
Extracted ISTD $^{13}C_8$ *FOSA*	%	114	111	106	106	119
Extracted ISTD d_3 *N MeFOSA*	%	99	97	99	98	97
Extracted ISTD d_5 *N EtFOSA*	%	101	104	106	100	99
Extracted ISTD d_7 *N MeFOSE*	%	94	94	98	98	93
Extracted ISTD d_9 *N EtFOSE*	%	90	95	98	91	92
Extracted ISTD d_3 *N MeFOSAA*	%	119	119	118	108	124
Extracted ISTD d_5 *N EtFOSAA*	%	106	104	102	99	110
Total Positive PFHxS & PFOS	µg/L	0.002	0.006	0.006	<0.001	<0.001
Total Positive PFOA & PFOS	µg/L	<0.001	0.003	0.003	<0.001	<0.001
Total Positive PFAS	µg/L	0.009	0.008	0.006	0.001	0.001

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals/elements by ICP-AES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Where molecular anion forms are calculated from an element (e.g. SO4 from S or PO4 from P stoichiometrically), the assumption is that the element is only present in that molecular anion form. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Note, the Total +ve PFAS PQL is reflective of the lowest individual PQL and is therefore "Total +ve PFAS" is simply a sum of the positive individual PFASs (or a described sub-set). Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			18/03/2026	1	18/03/2026	19/03/2026		18/03/2026	[NT]
Date analysed	-			19/03/2026	1	19/03/2026	19/03/2026		19/03/2026	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	88	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	88	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	91	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	87	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	85	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	89	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	91	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	104	1	108	110	2	105	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	99	99	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	1	96	93	3	106	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	82	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water NEPM Silica gel						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			24/03/2026	[NT]	[NT]	[NT]	[NT]	24/03/2026	[NT]
TRH (Silica) C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH (Silica) C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH (Silica) C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH (Silica) >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH (Silica) >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	91	[NT]
TRH (Silica) >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate 1-Chlorooctadecane	%		Org-020	88	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	77	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	89	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: Speciated Phenols in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Phenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	33	[NT]
2-Chlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
4-Chloro-3-Methylphenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Methylphenol (0-Cresol)	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	55	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	129	[NT]
2,4,5-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dinitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	31	[NT]
2346-Tetrachlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	µg/L	10	Org-022/025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	68	[NT]
Surrogate 2-fluorophenol	%		Org-022/025	45	[NT]	[NT]	[NT]	[NT]	42	[NT]
Surrogate Phenol-d_6	%		Org-022/025	27	[NT]	[NT]	[NT]	[NT]	23	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-022/025	71	[NT]	[NT]	[NT]	[NT]	73	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-022/025	89	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: OCPs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
alpha-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	126	[NT]
HCB	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	134	[NT]
gamma-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	104	[NT]
delta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	115	[NT]
Heptachlor Epoxide	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	128	[NT]
gamma-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	111	[NT]
Dieldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	115	[NT]
Endrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	98	[NT]
Endosulfan II	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	111	[NT]
Endrin Aldehyde	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	90	[NT]
Methoxychlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: OP in water LL ANZECCF/ADWG						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Dichlorvos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	93	[NT]
Mevinphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	116	[NT]
Fenitrothion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	125	[NT]
Malathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	129	[NT]
Chlorpyriphos	µg/L	0.009	Org-022/025	<0.009	[NT]	[NT]	[NT]	[NT]	131	[NT]
Fenthion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.004	Org-022/025	<0.004	[NT]	[NT]	[NT]	[NT]	124	[NT]
Bromophos ethyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	132	[NT]
Phosalone	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.02	Org-022/025	<0.02	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	88	[NT]	[NT]	[NT]	[NT]	82	[NT]

QUALITY CONTROL: PCBs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/03/2026	[NT]	[NT]	[NT]	[NT]	18/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Aroclor 1016	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	70	[NT]
Aroclor 1260	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	73	[NT]	[NT]	[NT]	[NT]	70	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	404471-2
Date prepared	-			24/03/2026	1	22/03/2026	22/03/2026		24/03/2026	22/03/2026
Date analysed	-			24/03/2026	1	22/03/2026	22/03/2026		24/03/2026	22/03/2026
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	101	95
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	104
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	102	100
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	94	113
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	99
Iron-Dissolved	µg/L	10	Metals-022	<10	1	65000	64000	2	105	72
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	86
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	9700	9500	2	94	#
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	105	102
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	91	90
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	22	21	5	95	103
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	41	41	0	96	103

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			22/03/2026	8	22/03/2026	22/03/2026		22/03/2026	[NT]
Date analysed	-			22/03/2026	8	22/03/2026	22/03/2026		22/03/2026	[NT]
Aluminium-Total	µg/L	10	Metals-022	<10	8	290	300	3	106	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	8	<1	<1	0	106	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	8	<0.1	<0.1	0	104	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	8	1	1	0	92	[NT]
Copper-Total	µg/L	1	Metals-022	<1	8	<1	<1	0	96	[NT]
Iron-Total	µg/L	10	Metals-022	<10	8	1300	1200	8	107	[NT]
Lead-Total	µg/L	1	Metals-022	<1	8	<1	<1	0	102	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	8	100	100	0	92	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	8	<0.05	[NT]		95	[NT]
Molybdenum-Total	µg/L	1	Metals-022	<1	8	<1	<1	0	93	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	8	<1	<1	0	93	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	8	1	2	67	95	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404471-3
Date prepared	-			17/03/2026	1	17/03/2026	17/03/2026		17/03/2026	17/03/2026
Date analysed	-			17/03/2026	1	17/03/2026	17/03/2026		17/03/2026	17/03/2026
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	370	370	0	96	#
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	240	240	0	95	85
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	6500	6500	0	92	#
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	930	910	2	96	#
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	4700	4700	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	870	880	1	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	870	880	1	93	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	5100	5700	11	117	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	1	9500	11000	15	107	[NT]
Ionic Balance	%		Inorg-040	[NT]	1	-1.0	-6.0	-143	[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			22/03/2026	8	20/03/2026	20/03/2026		20/03/2026	[NT]
Date analysed	-			22/03/2026	8	23/03/2026	23/03/2026		23/03/2026	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	8	0.06	<0.05	18	102	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404471-2
Date prepared	-			18/03/2026	1	18/03/2026	18/03/2026		18/03/2026	18/03/2026
Date analysed	-			18/03/2026	1	18/03/2026	18/03/2026		18/03/2026	18/03/2026
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	1.6	1.6	0	97	100
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	102	103
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	96	96
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	96	96
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	3.9	3.9	0	106	111
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	<0.005	0	112	110
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	1	0.5	0.5	0	98	86
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	170	[NT]		108	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	4	18/03/2026	18/03/2026		[NT]	[NT]
Date analysed	-			[NT]	4	18/03/2026	18/03/2026		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	4	0.32	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	4	<0.005	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	4	<0.005	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	4	<0.005	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	4	1	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	4	<0.005	[NT]		[NT]	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	[NT]	4	<0.1	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	4	1700	1700	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404471-2
Date prepared	-			19/03/2026	1	19/03/2026	19/03/2026		19/03/2026	19/03/2026
Date analysed	-			20/03/2026	1	20/03/2026	20/03/2026		20/03/2026	20/03/2026
Perfluorobutanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	101	111
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	97	113
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	99	117
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	100	113
Perfluorooctanesulfonic acid PFOS	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	98	105
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	96	101
Perfluorobutanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.01	<0.01	0	95	122
Perfluoropentanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.01	<0.01	0	97	109
Perfluorohexanoic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	92	91
Perfluoroheptanoic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	96	106
Perfluorooctanoic acid PFOA	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	101	104
Perfluorononanoic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	96	95
Perfluorodecanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	98	95
Perfluoroundecanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	91	87
Perfluorododecanoic acid	µg/L	0.005	Org-029	<0.005	1	<0.005	<0.005	0	103	99
Perfluorotridecanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	91
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	78	87
4:2 FTS	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	103	105
6:2 FTS	µg/L	0.001	Org-029	<0.001	1	0.016	0.017	6	107	124
8:2 FTS	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	97	117
10:2 FTS	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	101	100
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	97	109
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	96	99
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	101	94
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	102	98
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	95	117
MePerfluorooctanesulf-amid oacetic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	99	88
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	96	114
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	96	1	95	99	4	102	98
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	102	1	100	106	6	103	107

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404471-2
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	91	1	58	58	0	91	62
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	88	1	76	73	4	92	73
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	89	1	94	85	10	92	91
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	98	1	#	#		102	20
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	91	1	31	27	14	97	36
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	83	1	63	59	7	95	71
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	94	1	81	78	4	96	82
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	87	1	87	81	7	90	82
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	88	1	100	88	13	92	101
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	85	1	98	89	10	84	98
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	94	1	100	85	16	102	93
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	85	1	106	89	17	99	110
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	120	1	80	78	3	108	103
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	96	1	60	62	3	101	77
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	95	1	69	69	0	95	78
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	109	1	92	85	8	112	101
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	99	1	99	91	8	113	102
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	97	1	102	99	3	95	99
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	94	1	106	102	4	93	99
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	93	1	98	101	3	91	97

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404471-2
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	92	1	96	96	0	91	90
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	97	1	87	81	7	101	108
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	106	1	85	76	11	109	93

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

PFAS in Water LOW LEVEL Extend - For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

8 HM in water - dissolved - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Ion Balance - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 404471-A

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.20, Tomago**
Number of Samples	Additional analysis
Date samples received	17/03/2026
Date completed instructions received	27/03/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	07/04/2026
Date of Issue	31/03/2026

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Results Approved By
Nancy Zhang, Laboratory Manager, Sydney

Authorised By
Nancy Zhang, Laboratory Manager

Miscellaneous Inorganics						
Our Reference		404471-A-1	404471-A-2	404471-A-3	404471-A-4	404471-A-5
Your Reference	UNITS	MW4	MW6	MW2	MW10	MW13
Date Sampled		16/03/2026	16/03/2026	16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	30/03/2026	30/03/2026	30/03/2026	30/03/2026	30/03/2026
Date analysed	-	30/03/2026	30/03/2026	30/03/2026	30/03/2026	30/03/2026
Total Cyanide	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004

Miscellaneous Inorganics				
Our Reference		404471-A-6	404471-A-7	404471-A-9
Your Reference	UNITS	MW11	MW1A	MW12
Date Sampled		16/03/2026	16/03/2026	16/03/2026
Type of sample		Water	Water	Water
Date prepared	-	30/03/2026	30/03/2026	30/03/2026
Date analysed	-	30/03/2026	30/03/2026	30/03/2026
Total Cyanide	mg/L	<0.004	<0.004	<0.004

Method ID	Methodology Summary
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404471-A-2
Date prepared	-			30/03/2026	1	30/03/2026	30/03/2026		30/03/2026	30/03/2026
Date analysed	-			30/03/2026	1	30/03/2026	30/03/2026		30/03/2026	30/03/2026
Total Cyanide	mg/L	0.004	Inorg-014	<0.004	1	<0.004	<0.004	0	100	73

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
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Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

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Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 404571

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.20, Tomago**
Number of Samples	4 Water
Date samples received	18/03/2026
Date completed instructions received	18/03/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	25/03/2026
Date of Issue	25/03/2026

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Results Approved By
Dragana Tomas, Senior Chemist
Jenny He, Inorganic Team Leader
Larry Ye, Senior Chemist
Nick Sarlamis, Assistant Operation Manager
Sean McAlary, Senior Chemist
Tabitha Roberts, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date extracted	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Date analysed	-	21/03/2026	21/03/2026	21/03/2026	21/03/2026
TRH C_6 - C_9	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	2	<1	3
Ethylbenzene	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	109	111	110	112
Surrogate Toluene-d8	%	99	98	99	99
Surrogate 4-Bromofluorobenzene	%	92	92	91	91

svTRH (C10-C40) in Water					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	340	230	<100
TRH C_{29} - C_{36}	µg/L	<100	190	180	<100
Total +ve TRH (C10-C36)	µg/L	<50	530	410	<50
TRH >C_{10} - C_{16}	µg/L	<50	51	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	51	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	460	340	110
TRH >C_{34} - C_{40}	µg/L	<100	120	120	<100
Total +ve TRH (>C10-C40)	µg/L	<50	630	470	110
Surrogate o-Terphenyl	%	96	80	93	84

PAHs in Water					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	20/03/2026
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	88	74	102	86

Speciated Phenols in water					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	20/03/2026
Phenol	µg/L	<1	<1	<1	<1
2-Chlorophenol	µg/L	<1	<1	<1	<1
4-Chloro-3-Methylphenol	µg/L	<5	<5	<5	<5
2-Methylphenol (0-Cresol)	µg/L	<1	<1	<1	<1
3/4-Methylphenol (m/p-Cresol)	µg/L	<2	<2	<2	<2
2-Nitrophenol	µg/L	<1	<1	<1	<1
2,4-Dimethylphenol	µg/L	<1	<1	<1	<1
2,4-Dichlorophenol	µg/L	<1	<1	<1	<1
2,6-Dichlorophenol	µg/L	<1	<1	<1	<1
2,4,5-Trichlorophenol	µg/L	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/L	<1	<1	<1	<1
2,4-Dinitrophenol	µg/L	<20	<20	<20	<20
4-Nitrophenol	µg/L	<20	<20	<20	<20
2346-Tetrachlorophenol	µg/L	<1	<1	<1	<1
2-methyl-4,6-Dinitrophenol	µg/L	<10	<10	<10	<10
Pentachlorophenol	µg/L	<5	<5	<5	<5
Surrogate 2-fluorophenol	%	40	38	41	52
Surrogate Phenol-d_6	%	22	24	27	33
Surrogate 2,4,6-Tribromophenol	%	97	90	108	76
Surrogate p-Terphenyl-d_{14}	%	88	74	102	86

OCPs in Water - Trace Level				
Our Reference		404571-1	404571-2	404571-3
Your Reference	UNITS	MW8A	SW3A	SW1
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
alpha-BHC	µg/L	<0.001	<0.001	<0.001
HCB	µg/L	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	90	75	106

OP in water LL ANZECCF/ADWG				
Our Reference		404571-1	404571-2	404571-3
Your Reference	UNITS	MW8A	SW3A	SW1
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
Dichlorvos	µg/L	<0.05	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	µg/L	<0.05	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos	µg/L	<0.009	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	90	75	106

PCBs in Water - Trace Level				
Our Reference		404571-1	404571-2	404571-3
Your Reference	UNITS	MW8A	SW3A	SW1
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
Aroclor 1016	µg/L	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	81	68	95

HM in water - dissolved					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date prepared	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Aluminium-Dissolved	µg/L	140	180	20	180
Arsenic-Dissolved	µg/L	2	<1	2	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	2	1	<1	1
Copper-Dissolved	µg/L	<1	<1	<1	<1
Iron-Dissolved	µg/L	40	2,100	190	1,900
Lead-Dissolved	µg/L	<1	<1	<1	<1
Manganese-Dissolved	µg/L	200	49	160	48
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Molybdenum-Dissolved	µg/L	<1	<1	<1	<1
Nickel-Dissolved	µg/L	<1	<1	<1	<1
Zinc-Dissolved	µg/L	1	3	1	3

HM in water - total				
Our Reference		404571-2	404571-3	404571-4
Your Reference	UNITS	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date prepared	-	22/03/2026	22/03/2026	22/03/2026
Date analysed	-	22/03/2026	22/03/2026	22/03/2026
Aluminium-Total	µg/L	9,900	180	9,300
Arsenic-Total	µg/L	4	3	4
Cadmium-Total	µg/L	0.3	<0.1	0.3
Chromium-Total	µg/L	11	<1	8
Copper-Total	µg/L	12	1	19
Iron-Total	µg/L	14,000	2,000	12,000
Lead-Total	µg/L	18	<1	22
Manganese-Total	µg/L	140	180	130
Mercury-Total	µg/L	<0.05	<0.05	<0.05
Molybdenum-Total	µg/L	<1	<1	<1
Nickel-Total	µg/L	6	<1	5
Zinc-Total	µg/L	150	7	160

Ion Balance					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date prepared	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Calcium - Dissolved	mg/L	28	5	3	5
Potassium - Dissolved	mg/L	2	1	1	1
Sodium - Dissolved	mg/L	17	17	20	17
Magnesium - Dissolved	mg/L	4	1	2	1
Hardness (calc) equivalent $CaCO_3$	mg/L	86	18	14	18
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	60	11	21	9
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	60	11	21	9
Sulphate, SO4	mg/L	58	10	<1	9
Chloride, Cl	mg/L	21	33	37	31
Ionic Balance	%	-9.0	-9.0	-10	-5.0

Metals in Waters - Acid extractable					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date prepared	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Phosphorus - Total	mg/L	0.05	0.4	0.2	0.50

Miscellaneous Inorganics					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date prepared	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Ammonia as N in water	mg/L	0.12	0.007	0.15	0.02
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005
Nitrate as N in water	mg/L	0.006	<0.005	<0.005	<0.005
NOx as N in water	mg/L	0.007	<0.005	<0.005	<0.005
TKN in water	mg/L	0.4	1.2	1.6	3.5
Phosphate as P in water	mg/L	<0.005	<0.005	0.01	<0.005
Fluoride, F	mg/L	<0.1	<0.1	0.1	<0.1
Total Suspended Solids	mg/L	89	1,100	87	800

PFAS in Water LOW LEVEL Extend					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Date prepared	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Perfluorobutanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001
Perfluoropentanesulfonic acid	µg/L	<0.001	<0.001	0.001	<0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.006	0.006	0.003	0.005
Perfluoroheptanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.008	0.005	0.002	0.005
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluoropentanoic acid	µg/L	0.006	<0.004	0.02	<0.004
Perfluorohexanoic acid	µg/L	0.004	0.001	0.011	0.001
Perfluoroheptanoic acid	µg/L	0.003	<0.001	0.008	<0.001
Perfluorooctanoic acid PFOA	µg/L	0.004	0.003	0.002	0.003
Perfluorononanoic acid	µg/L	0.004	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	0.004	<0.001	<0.001	<0.001
8:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002
10:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ *PFOS*	%	88	90	94	94
Surrogate $^{13}C_2$ *PFOA*	%	105	109	109	114
Extracted ISTD $^{13}C_3$ *PFBS*	%	87	90	86	95
Extracted ISTD $^{18}O_2$ *PFHxS*	%	91	81	89	92
Extracted ISTD $^{13}C_4$ *PFOS*	%	95	78	85	95
Extracted ISTD $^{13}C_4$ *PFBA*	%	29	#	#	#

PFAS in Water LOW LEVEL Extend					
Our Reference		404571-1	404571-2	404571-3	404571-4
Your Reference	UNITS	MW8A	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	49	37	27	37
Extracted ISTD $^{13}C_2$ *PFHxA*	%	71	60	50	65
Extracted ISTD $^{13}C_4$ *PFHpA*	%	74	64	55	69
Extracted ISTD $^{13}C_4$ *PFOA*	%	85	72	69	82
Extracted ISTD $^{13}C_5$ *PFNA*	%	92	76	81	95
Extracted ISTD $^{13}C_2$ *PFDA*	%	91	74	79	92
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	89	69	78	83
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	91	75	77	90
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	80	74	79	79
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	91	75	81	82
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	103	94	95	102
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	115	95	111	123
Extracted ISTD $^{13}C_8$ *FOSA*	%	103	82	102	105
Extracted ISTD d_3 *N MeFOSA*	%	99	97	98	97
Extracted ISTD d_5 *N EtFOSA*	%	99	102	102	101
Extracted ISTD d_7 *N MeFOSE*	%	99	97	101	99
Extracted ISTD d_9 *N EtFOSE*	%	97	100	100	95
Extracted ISTD d_3 *N MeFOSAA*	%	86	89	110	97
Extracted ISTD d_5 *N EtFOSAA*	%	110	48	116	97
Total Positive PFHxS & PFOS	µg/L	0.014	0.010	0.005	0.0099
Total Positive PFOA & PFOS	µg/L	0.012	0.007	0.005	0.007
Total Positive PFAS	µg/L	0.040	0.014	0.043	0.014

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals/elements by ICP-AES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Where molecular anion forms are calculated from an element (e.g. SO4 from S or PO4 from P stoichiometrically), the assumption is that the element is only present in that molecular anion form. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Note, the Total +ve PFAS PQL is reflective of the lowest individual PQL and is therefore "Total +ve PFAS" is simply a sum of the positive individual PFASs (or a described sub-set). Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			20/03/2026	2	20/03/2026	23/03/2026		20/03/2026	[NT]
Date analysed	-			21/03/2026	2	21/03/2026	23/03/2026		21/03/2026	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	2	<10	<10	0	120	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	2	<10	12	18	120	[NT]
Benzene	µg/L	1	Org-023	<1	2	<1	<1	0	119	[NT]
Toluene	µg/L	1	Org-023	<1	2	2	2	0	122	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	121	[NT]
m+p-xylene	µg/L	2	Org-023	<2	2	<2	<2	0	120	[NT]
o-xylene	µg/L	1	Org-023	<1	2	<1	<1	0	123	[NT]
Naphthalene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	109	2	111	112	1	109	[NT]
Surrogate Toluene-d8	%		Org-023	99	2	98	98	0	102	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	93	2	92	93	1	108	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	98	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	98	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Naphthalene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	88	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Fluorene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	107	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	99	[NT]
Pyrene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	88	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: Speciated Phenols in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Phenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	31	[NT]
2-Chlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
4-Chloro-3-Methylphenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Methylphenol (0-Cresol)	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	54	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	128	[NT]
2,4,5-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dinitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	26	[NT]
2346-Tetrachlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	µg/L	10	Org-022/025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	76	[NT]
Surrogate 2-fluorophenol	%		Org-022/025	49	[NT]	[NT]	[NT]	[NT]	41	[NT]
Surrogate Phenol-d_6	%		Org-022/025	30	[NT]	[NT]	[NT]	[NT]	23	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-022/025	105	[NT]	[NT]	[NT]	[NT]	73	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-022/025	89	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: Speciated Phenols in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
Phenol	µg/L	1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	30	[NT]
2-Chlorophenol	µg/L	1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	92	[NT]
2-Methylphenol (0-Cresol)	µg/L	1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	68	[NT]
2,6-Dichlorophenol	µg/L	1	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	89	[NT]
4-Nitrophenol	µg/L	20	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	32	[NT]
Pentachlorophenol	µg/L	5	Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	65	[NT]
Surrogate 2-fluorophenol	%		Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	51	[NT]
Surrogate Phenol-d_6	%		Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	30	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	85	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-022/025	[NT]	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: OCPs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
alpha-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	134	[NT]
HCB	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	117	[NT]
gamma-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	96	[NT]
delta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	120	[NT]
Heptachlor Epoxide	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	112	[NT]
gamma-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	116	[NT]
Dieldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	102	[NT]
Endrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	93	[NT]
Endosulfan II	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Endrin Aldehyde	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Methoxychlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	93	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: OP in water LL ANZECCF/ADWG						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Dichlorvos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	68	[NT]
Mevinphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	122	[NT]
Fenitrothion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	119	[NT]
Malathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	83	[NT]
Chlorpyriphos	µg/L	0.009	Org-022/025	<0.009	[NT]	[NT]	[NT]	[NT]	128	[NT]
Fenthion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.004	Org-022/025	<0.004	[NT]	[NT]	[NT]	[NT]	98	[NT]
Bromophos ethyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	108	[NT]
Phosalone	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.02	Org-022/025	<0.02	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	93	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: PCBs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Aroclor 1016	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	136	[NT]
Aroclor 1260	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	83	[NT]	[NT]	[NT]	[NT]	84	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			23/03/2026	2	23/03/2026	23/03/2026		23/03/2026	[NT]
Date analysed	-			23/03/2026	2	23/03/2026	23/03/2026		23/03/2026	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	2	180	180	0	102	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	101	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	2	<0.1	<0.1	0	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	2	1	1	0	90	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	94	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	2	2100	2000	5	102	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	101	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	2	49	49	0	89	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	2	<0.05	[NT]		114	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	92	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	92	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	2	3	3	0	93	[NT]

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	404571-3
Date prepared	-			22/03/2026	2	22/03/2026	22/03/2026		22/03/2026	22/03/2026
Date analysed	-			22/03/2026	2	22/03/2026	22/03/2026		22/03/2026	22/03/2026
Aluminium-Total	µg/L	10	Metals-022	<10	2	9900	9600	3	102	#
Arsenic-Total	µg/L	1	Metals-022	<1	2	4	4	0	104	105
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	2	0.3	0.3	0	102	106
Chromium-Total	µg/L	1	Metals-022	<1	2	11	11	0	85	95
Copper-Total	µg/L	1	Metals-022	<1	2	12	12	0	88	93
Iron-Total	µg/L	10	Metals-022	<10	2	14000	13000	7	101	#
Lead-Total	µg/L	1	Metals-022	<1	2	18	18	0	101	93
Manganese-Total	µg/L	5	Metals-022	<5	2	140	140	0	83	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	2	<0.05	[NT]		89	[NT]
Molybdenum-Total	µg/L	1	Metals-022	<1	2	<1	<1	0	92	97
Nickel-Total	µg/L	1	Metals-022	<1	2	6	6	0	87	94
Zinc-Total	µg/L	1	Metals-022	<1	2	150	150	0	89	97

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	4	22/03/2026	22/03/2026		[NT]	[NT]
Date analysed	-			[NT]	4	22/03/2026	22/03/2026		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	4	9300	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	4	4	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	4	0.3	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	4	8	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	4	19	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	4	12000	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	4	22	[NT]		[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	4	130	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	4	<0.05	<0.05	0	[NT]	[NT]
Molybdenum-Total	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	4	5	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	4	160	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			18/03/2026	1	19/03/2026	19/03/2026		18/03/2026	[NT]
Date analysed	-			18/03/2026	1	18/03/2026	18/03/2026		18/03/2026	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	28	[NT]		104	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	2	[NT]		93	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	17	[NT]		88	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	4	[NT]		99	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	86	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	60	59	2	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	60	59	2	98	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	58	[NT]		99	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	1	21	[NT]		115	[NT]
Ionic Balance	%		Inorg-040	[NT]	1	-9.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	2	19/03/2026	19/03/2026		[NT]	[NT]
Date analysed	-			[NT]	2	18/03/2026	18/03/2026		[NT]	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	5	5	0	[NT]	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	1	1	0	[NT]	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	17	16	6	[NT]	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	1	1	0	[NT]	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	2	18	18	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	11	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	11	[NT]		[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	2	10	[NT]		[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	2	33	[NT]		[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	2	-9.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			23/03/2026	2	20/03/2026	20/03/2026		23/03/2026	[NT]
Date analysed	-			23/03/2026	2	20/03/2026	20/03/2026		23/03/2026	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	2	0.4	0.4	0	102	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404571-2
Date prepared	-			19/03/2026	1	19/03/2026	19/03/2026		19/03/2026	19/03/2026
Date analysed	-			19/03/2026	1	19/03/2026	19/03/2026		19/03/2026	19/03/2026
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.12	0.11	9	93	95
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	94	112
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.006	<0.005	18	96	92
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.007	<0.005	33	96	92
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.4	[NT]		112	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	<0.005	0	85	108
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	1	<0.1	<0.1	0	92	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	89	[NT]		107	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Perfluorobutanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	105	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	106	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	105	[NT]
Perfluorobutanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluoropentanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluorohexanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluoroheptanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorononanoic acid	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluorodecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluoroundecanoic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	110	[NT]
Perfluorododecanoic acid	µg/L	0.005	Org-029	<0.005	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorotridecanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	82	[NT]
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	108	[NT]
4:2 FTS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	109	[NT]
6:2 FTS	µg/L	0.001	Org-029	<0.001	[NT]	[NT]	[NT]	[NT]	108	[NT]
8:2 FTS	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	103	[NT]
10:2 FTS	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	124	[NT]
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	101	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	95	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	95	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	99	[NT]
MePerfluorooctanesulf-amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	103	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	93	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	93	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	93	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	86	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	58	[NT]	[NT]	[NT]	[NT]	62	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	111	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	119	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	114	[NT]	[NT]	[NT]	[NT]	113	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	108	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

PFAS in Water LOW LEVEL Extend - For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

8 HM in water - total - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 404571-A

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.20, Tomago**
Number of Samples	Additional analysis
Date samples received	18/03/2026
Date completed instructions received	27/03/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	07/04/2026
Date of Issue	07/04/2026

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Results Approved By
Dragana Tomas, Senior Chemist
Nancy Zhang, Laboratory Manager, Sydney

Authorised By
Nancy Zhang, Laboratory Manager

svTRH (C10-C40) in Water NEPM Silica gel				
Our Reference		404571-A-2	404571-A-3	404571-A-4
Your Reference	UNITS	SW3A	SW1	DSW2/17.3.26
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	31/03/2026	31/03/2026	31/03/2026
Date analysed	-	01/04/2026	01/04/2026	01/04/2026
TRH (Silica) C_{10} - C_{14}	µg/L	<50	<50	<50
TRH (Silica) C_{15} - C_{28}	µg/L	<100	<100	<100
TRH (Silica) C_{29} - C_{36}	µg/L	270	<100	<100
TRH (Silica) >C_{10} - C_{16}	µg/L	<50	<50	<50
TRH (Silica) >C_{16} - C_{34}	µg/L	260	100	<100
TRH (Silica) >C_{34} - C_{40}	µg/L	<100	<100	<100
Surrogate 1-Chlorooctadecane	%	71	71	71

Miscellaneous Inorganics			
Our Reference		404571-A-1	404571-A-3
Your Reference	UNITS	MW8A	SW1
Date Sampled		17/03/2026	17/03/2026
Type of sample		Water	Water
Date prepared	-	30/03/2026	30/03/2026
Date analysed	-	30/03/2026	30/03/2026
Total Cyanide	mg/L	<0.004	<0.004

Method ID	Methodology Summary
Inorg-014	Cyanide - free, total, weak acid dissociable by segmented flow analyser (in line dialysis with colourimetric finish). Solids/Filters and sorbents are extracted in a caustic media prior to analysis. Impingers are pH adjusted as required prior to analysis. Cyanides amenable to Chlorination - samples are analysed untreated and treated with hypochlorite to assess the potential for chlorination of cyanide forms. Based on APHA latest edition, 4500-CN_G,H.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

QUALITY CONTROL: svTRH (C10-C40) in Water NEPM Silica gel						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			31/03/2026	[NT]	[NT]	[NT]	[NT]	31/03/2026	[NT]
Date analysed	-			01/04/2026	[NT]	[NT]	[NT]	[NT]	01/04/2026	[NT]
TRH (Silica) C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH (Silica) C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH (Silica) C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH (Silica) >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	96	[NT]
TRH (Silica) >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	98	[NT]
TRH (Silica) >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate 1-Chlorooctadecane	%		Org-020	102	[NT]	[NT]	[NT]	[NT]	120	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			30/03/2026	[NT]	[NT]	[NT]	[NT]	30/03/2026	[NT]
Date analysed	-			30/03/2026	[NT]	[NT]	[NT]	[NT]	30/03/2026	[NT]
Total Cyanide	mg/L	0.004	Inorg-014	<0.004	[NT]	[NT]	[NT]	[NT]	113	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 404575

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson
Address	Box 324 Hunter Region Mail Centre, Newcastle, NSW, 2310

Sample Details

Your Reference	**39920.09, Tomago**
Number of Samples	8 Water
Date samples received	18/03/2026
Date completed instructions received	18/03/2026

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client unless as indicated below in the method summaries. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	25/03/2026
Date of Issue	25/03/2026

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Results Approved By
Dragana Tomas, Senior Chemist
Jack Wallis, Senior Chemist
Jenny He, Inorganic Team Leader
Larry Ye, Senior Chemist
Liam Timmins, Organics Supervisor
Nancy Zhang, Laboratory Manager, Sydney
Sean McAlary, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	20/03/2026	18/03/2026	19/03/2026
Date analysed	-	19/03/2026	19/03/2026	20/03/2026	19/03/2026	19/03/2026
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	109	108	110	109	109
Surrogate Toluene-d8	%	99	99	100	99	98
Surrogate 4-Bromofluorobenzene	%	94	94	92	94	93

vTRH(C6-C10)/BTEXN in Water				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	19/03/2026	19/03/2026	19/03/2026
TRH C_6 - C_9	µg/L	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10
Benzene	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
o-xylene	µg/L	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	110	108	108
Surrogate Toluene-d8	%	98	98	98
Surrogate 4-Bromofluorobenzene	%	93	92	92

svTRH (C10-C40) in Water						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	91	86	83	91	89

svTRH (C10-C40) in Water				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026
TRH C_{10} - C_{14}	µg/L	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50
Surrogate o-Terphenyl	%	70	87	80

PAHs in Water						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	96	95	88	95	94

PAHs in Water				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
Naphthalene	µg/L	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	85	91	94

OCPs in Water - Trace Level						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
alpha-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
HCB	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	91	90	83	92	88

OCPs in Water - Trace Level				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
alpha-BHC	µg/L	<0.001	<0.001	<0.001
HCB	µg/L	<0.001	<0.001	<0.001
beta-BHC	µg/L	<0.001	<0.001	<0.001
gamma-BHC	µg/L	<0.001	<0.001	<0.001
Heptachlor	µg/L	<0.001	<0.001	<0.001
delta-BHC	µg/L	<0.001	<0.001	<0.001
Aldrin	µg/L	<0.001	<0.001	<0.001
Heptachlor Epoxide	µg/L	<0.001	<0.001	<0.001
gamma-Chlordane	µg/L	<0.001	<0.001	<0.001
alpha-Chlordane	µg/L	<0.001	<0.001	<0.001
Endosulfan I	µg/L	<0.002	<0.002	<0.002
pp-DDE	µg/L	<0.001	<0.001	<0.001
Dieldrin	µg/L	<0.001	<0.001	<0.001
Endrin	µg/L	<0.001	<0.001	<0.001
Endosulfan II	µg/L	<0.002	<0.002	<0.002
pp-DDD	µg/L	<0.001	<0.001	<0.001
Endrin Aldehyde	µg/L	<0.001	<0.001	<0.001
pp-DDT	µg/L	<0.001	<0.001	<0.001
Endosulfan Sulphate	µg/L	<0.001	<0.001	<0.001
Methoxychlor	µg/L	<0.001	<0.001	<0.001
Surrogate 4-Chloro-3-NBTF	%	86	87	90

OP in water LL ANZECCF/ADWG						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Dichlorvos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyriphos	µg/L	<0.009	<0.009	<0.009	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	91	90	83	92	88

OP in water LL ANZECCF/ADWG				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
Dichlorvos	µg/L	<0.05	<0.05	<0.05
Mevinphos	µg/L	<0.05	<0.05	<0.05
Phorate	µg/L	<0.05	<0.05	<0.05
Dimethoate	µg/L	<0.1	<0.1	<0.1
Diazinon	µg/L	<0.01	<0.01	<0.01
Disulfoton	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos-methyl	µg/L	<0.05	<0.05	<0.05
Parathion-Methyl	µg/L	<0.05	<0.05	<0.05
Ronnel	µg/L	<0.05	<0.05	<0.05
Fenitrothion	µg/L	<0.05	<0.05	<0.05
Malathion	µg/L	<0.05	<0.05	<0.05
Chlorpyriphos	µg/L	<0.009	<0.009	<0.009
Fenthion	µg/L	<0.05	<0.05	<0.05
Parathion	µg/L	<0.004	<0.004	<0.004
Bromophos ethyl	µg/L	<0.05	<0.05	<0.05
Methidathion	µg/L	<0.05	<0.05	<0.05
Fenamiphos	µg/L	<0.05	<0.05	<0.05
Ethion	µg/L	<0.05	<0.05	<0.05
Phosalone	µg/L	<0.05	<0.05	<0.05
Azinphos-methyl (Guthion)	µg/L	<0.02	<0.02	<0.02
Coumaphos	µg/L	<0.05	<0.05	<0.05
Surrogate 4-Chloro-3-NBTF	%	86	87	90

PCBs in Water - Trace Level						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Aroclor 1016	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	85	81	77	85	80

PCBs in Water - Trace Level				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
Aroclor 1016	µg/L	<0.01	<0.01	<0.01
Aroclor 1221	µg/L	<0.01	<0.01	<0.01
Aroclor 1232	µg/L	<0.01	<0.01	<0.01
Aroclor 1242	µg/L	<0.01	<0.01	<0.01
Aroclor 1248	µg/L	<0.01	<0.01	<0.01
Aroclor 1254	µg/L	<0.01	<0.01	<0.01
Aroclor 1260	µg/L	<0.01	<0.01	<0.01
Surrogate 2-Fluorobiphenyl	%	81	78	81

Speciated Phenols in water						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Phenol	µg/L	<1	<1	<1	<1	<1
2-Chlorophenol	µg/L	<1	<1	<1	<1	<1
4-Chloro-3-Methylphenol	µg/L	<5	<5	<5	<5	<5
2-Methylphenol (0-Cresol)	µg/L	<1	<1	<1	<1	<1
3/4-Methylphenol (m/p-Cresol)	µg/L	<2	<2	<2	<2	<2
2-Nitrophenol	µg/L	<1	<1	<1	<1	<1
2,4-Dimethylphenol	µg/L	<1	<1	<1	<1	<1
2,4-Dichlorophenol	µg/L	<1	<1	<1	<1	<1
2,6-Dichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4,5-Trichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4,6-Trichlorophenol	µg/L	<1	<1	<1	<1	<1
2,4-Dinitrophenol	µg/L	<20	<20	<20	<20	<20
4-Nitrophenol	µg/L	<20	<20	<20	<20	<20
2346-Tetrachlorophenol	µg/L	<1	<1	<1	<1	<1
2-methyl-4,6-Dinitrophenol	µg/L	<10	<10	<10	<10	<10
Pentachlorophenol	µg/L	<5	<5	<5	<5	<5
Surrogate 2-fluorophenol	%	39	40	39	37	36
Surrogate Phenol-d_6	%	21	22	21	21	22
Surrogate 2,4,6-Tribromophenol	%	82	81	75	76	98
Surrogate p-Terphenyl-d_{14}	%	96	95	88	95	94

Speciated Phenols in water				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date extracted	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
Phenol	µg/L	<1	<1	<1
2-Chlorophenol	µg/L	<1	<1	<1
4-Chloro-3-Methylphenol	µg/L	<5	<5	<5
2-Methylphenol (0-Cresol)	µg/L	<1	<1	<1
3/4-Methylphenol (m/p-Cresol)	µg/L	<2	<2	<2
2-Nitrophenol	µg/L	<1	<1	<1
2,4-Dimethylphenol	µg/L	<1	<1	<1
2,4-Dichlorophenol	µg/L	<1	<1	<1
2,6-Dichlorophenol	µg/L	<1	<1	<1
2,4,5-Trichlorophenol	µg/L	<1	<1	<1
2,4,6-Trichlorophenol	µg/L	<1	<1	<1
2,4-Dinitrophenol	µg/L	<20	<20	<20
4-Nitrophenol	µg/L	<20	<20	<20
2346-Tetrachlorophenol	µg/L	<1	<1	<1
2-methyl-4,6-Dinitrophenol	µg/L	<10	<10	<10
Pentachlorophenol	µg/L	<5	<5	<5
Surrogate 2-fluorophenol	%	38	38	39
Surrogate Phenol-d_6	%	21	21	22
Surrogate 2,4,6-Tribromophenol	%	95	109	89
Surrogate p-Terphenyl-d_{14}	%	85	91	94

HM in water - dissolved						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/03/2026	22/03/2026	22/03/2026	22/03/2026	22/03/2026
Date analysed	-	22/03/2026	22/03/2026	22/03/2026	22/03/2026	22/03/2026
Aluminium-Dissolved	µg/L	40	130	440	130	300
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	2	1	2	<1
Copper-Dissolved	µg/L	<1	<1	<1	<1	<1
Iron-Dissolved	µg/L	80	130	140	130	1,000
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Manganese-Dissolved	µg/L	23	370	10	360	97
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum-Dissolved	µg/L	<1	<1	<1	<1	<1
Nickel-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	11	<1	27	<1	2

HM in water - dissolved				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date prepared	-	22/03/2026	22/03/2026	22/03/2026
Date analysed	-	22/03/2026	22/03/2026	22/03/2026
Aluminium-Dissolved	µg/L	370	<10	40
Arsenic-Dissolved	µg/L	1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	2	<1	<1
Copper-Dissolved	µg/L	<1	<1	<1
Iron-Dissolved	µg/L	340	3,900	90
Lead-Dissolved	µg/L	<1	<1	<1
Manganese-Dissolved	µg/L	26	36	23
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Molybdenum-Dissolved	µg/L	<1	<1	<1
Nickel-Dissolved	µg/L	<1	<1	<1
Zinc-Dissolved	µg/L	<1	4	11

HM in water - total			
Our Reference		404575-1	404575-8
Your Reference	UNITS	DSW/17.3.26	SW8
Date Sampled		17/03/2026	17/03/2026
Type of sample		Water	Water
Date prepared	-	23/03/2026	23/03/2026
Date analysed	-	23/03/2026	23/03/2026
Aluminium-Total	µg/L	250	280
Arsenic-Total	µg/L	1	1
Cadmium-Total	µg/L	<0.1	<0.1
Chromium-Total	µg/L	1	1
Copper-Total	µg/L	<1	<1
Iron-Total	µg/L	720	700
Lead-Total	µg/L	<1	<1
Manganese-Total	µg/L	30	29
Mercury-Total	µg/L	<0.05	<0.05
Molybdenum-Total	µg/L	<1	<1
Nickel-Total	µg/L	<1	<1
Zinc-Total	µg/L	13	13

Metals in Waters - Acid extractable						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026	20/03/2026	20/03/2026
Phosphorus - Total	mg/L	<0.05	<0.05	<0.05	<0.05	0.1

Metals in Waters - Acid extractable				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date prepared	-	20/03/2026	20/03/2026	20/03/2026
Date analysed	-	20/03/2026	20/03/2026	20/03/2026
Phosphorus - Total	mg/L	<0.05	0.61	<0.05

Miscellaneous Inorganics						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	19/03/2026	19/03/2026	19/03/2026	19/03/2026	19/03/2026
Total Suspended Solids	mg/L	14	10	14	6	34
Ammonia as N in water	mg/L	0.02	1.2	0.03	1.1	0.20
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate as N in water	mg/L	<0.005	0.03	1.4	0.03	0.005
NOx as N in water	mg/L	<0.005	0.03	1.4	0.03	0.005
TKN in water	mg/L	0.5	2.1	0.1	2.1	0.7
Phosphate as P in water	mg/L	<0.005	0.005	<0.005	0.006	0.084
Fluoride, F	mg/L	<0.1	<0.1	<0.1	<0.1	0.1

Miscellaneous Inorganics				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date prepared	-	19/03/2026	19/03/2026	19/03/2026
Date analysed	-	19/03/2026	19/03/2026	19/03/2026
Total Suspended Solids	mg/L	44	250	16
Ammonia as N in water	mg/L	0.28	0.081	0.01
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005
Nitrate as N in water	mg/L	0.29	0.054	<0.005
NOx as N in water	mg/L	0.29	0.056	<0.005
TKN in water	mg/L	0.3	0.2	0.5
Phosphate as P in water	mg/L	0.006	<0.005	<0.005
Fluoride, F	mg/L	<0.1	<0.1	<0.1

Ion Balance						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026	18/03/2026	18/03/2026	18/03/2026
Calcium - Dissolved	mg/L	5	13	3	13	3
Potassium - Dissolved	mg/L	2	2	0.8	2	2
Sodium - Dissolved	mg/L	16	6.4	8.6	6.4	11
Magnesium - Dissolved	mg/L	3	4	1	4	2
Hardness (calc) equivalent $CaCO_3$	mg/L	24	46	14	46	14
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	11	46	<5	47	14
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	11	46	<5	47	14
Sulphate, SO4	mg/L	18	7	6	6	1
Chloride, Cl	mg/L	29	9	15	9	22
Ionic Balance	%	-7.0	-2.0	9.0	-3.0	-6.0

Ion Balance				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date prepared	-	18/03/2026	18/03/2026	18/03/2026
Date analysed	-	18/03/2026	18/03/2026	18/03/2026
Calcium - Dissolved	mg/L	6.2	41	5
Potassium - Dissolved	mg/L	2	3	2
Sodium - Dissolved	mg/L	20	17	16
Magnesium - Dissolved	mg/L	2	4	3
Hardness (calc) equivalent $CaCO_3$	mg/L	26	120	23
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	13	130	10
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	13	130	10
Sulphate, SO4	mg/L	35	16	19
Chloride, Cl	mg/L	27	22	31
Ionic Balance	%	-11	-7.0	-9.0

PFAS in Water LOW LEVEL Extend						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026	23/03/2026	23/03/2026
Perfluorobutanesulfonic acid	µg/L	0.001	<0.001	<0.001	<0.001	<0.001
Perfluoropentanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.004	<0.001	<0.001	<0.001	<0.001
Perfluoroheptanesulfonic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.012	0.002	0.003	0.002	0.002
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	<0.01	<0.002	<0.002	<0.002	<0.01
Perfluoropentanoic acid	µg/L	0.006	<0.002	<0.002	<0.002	<0.002
Perfluorohexanoic acid	µg/L	0.003	<0.001	<0.001	<0.001	<0.001
Perfluoroheptanoic acid	µg/L	0.002	<0.001	<0.001	<0.001	<0.001
Perfluorooctanoic acid PFOA	µg/L	0.002	<0.001	<0.001	<0.001	0.001
Perfluorononanoic acid	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001	<0.001	<0.001	<0.001
6:2 FTS	µg/L	<0.001	<0.001	0.009	<0.001	0.004
8:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
10:2 FTS	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ *PFOS*	%	96	95	91	96	100
Surrogate $^{13}C_2$ *PFOA*	%	107	105	107	105	107
Extracted ISTD $^{13}C_3$ *PFBS*	%	101	104	94	89	91
Extracted ISTD $^{18}O_2$ *PFHxS*	%	104	96	91	90	92
Extracted ISTD $^{13}C_4$ *PFOS*	%	101	101	95	89	87
Extracted ISTD $^{13}C_4$ *PFBA*	%	24	47	40	44	24

PFAS in Water LOW LEVEL Extend						
Our Reference		404575-1	404575-2	404575-3	404575-4	404575-5
Your Reference	UNITS	DSW/17.3.26	DGW/17.3.26	MW101	MW102	MW103
Date Sampled		17/03/2026	17/03/2026	17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	51	65	57	61	45
Extracted ISTD $^{13}C_2$ *PFHxA*	%	78	85	77	76	67
Extracted ISTD $^{13}C_4$ *PFHpA*	%	82	87	82	79	73
Extracted ISTD $^{13}C_4$ *PFOA*	%	96	97	88	86	84
Extracted ISTD $^{13}C_5$ *PFNA*	%	109	102	98	90	96
Extracted ISTD $^{13}C_2$ *PFDA*	%	105	98	93	89	89
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	90	87	81	81	79
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	93	92	84	82	82
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	83	69	77	74	82
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	84	89	82	82	72
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	98	98	86	87	84
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	114	109	96	99	100
Extracted ISTD $^{13}C_8$ *FOSA*	%	116	108	98	97	99
Extracted ISTD d_3 *N MeFOSA*	%	101	101	99	95	103
Extracted ISTD d_5 *N EtFOSA*	%	101	99	98	94	100
Extracted ISTD d_7 *N MeFOSE*	%	103	97	96	99	101
Extracted ISTD d_9 *N EtFOSE*	%	99	98	98	91	98
Extracted ISTD d_3 *N MeFOSAA*	%	99	94	81	88	87
Extracted ISTD d_5 *N EtFOSAA*	%	121	112	100	103	99
Total Positive PFHxS & PFOS	µg/L	0.015	0.002	0.003	0.002	0.002
Total Positive PFOA & PFOS	µg/L	0.014	0.002	0.003	0.002	0.003
Total Positive PFAS	µg/L	0.029	0.002	0.012	0.002	0.007

PFAS in Water LOW LEVEL Extend				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Date prepared	-	23/03/2026	23/03/2026	23/03/2026
Date analysed	-	23/03/2026	23/03/2026	23/03/2026
Perfluorobutanesulfonic acid	µg/L	0.002	0.004	<0.001
Perfluoropentanesulfonic acid	µg/L	<0.001	0.004	<0.001
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.006	0.015	0.004
Perfluoroheptanesulfonic acid	µg/L	<0.001	0.001	<0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.012	0.047	0.012
Perfluorodecanesulfonic acid	µg/L	<0.002	<0.002	<0.002
Perfluorobutanoic acid	µg/L	<0.01	0.007	<0.01
Perfluoropentanoic acid	µg/L	0.01	0.01	0.006
Perfluorohexanoic acid	µg/L	0.005	0.011	0.004
Perfluoroheptanoic acid	µg/L	0.003	0.005	0.002
Perfluorooctanoic acid PFOA	µg/L	0.005	0.005	0.002
Perfluorononanoic acid	µg/L	<0.001	<0.001	<0.001
Perfluorodecanoic acid	µg/L	<0.002	<0.002	<0.002
Perfluoroundecanoic acid	µg/L	<0.002	<0.002	<0.002
Perfluorododecanoic acid	µg/L	<0.005	<0.005	<0.005
Perfluorotridecanoic acid	µg/L	<0.01	<0.01	<0.01
Perfluorotetradecanoic acid	µg/L	<0.05	<0.05	<0.05
4:2 FTS	µg/L	<0.001	<0.001	<0.001
6:2 FTS	µg/L	<0.001	0.033	<0.001
8:2 FTS	µg/L	<0.002	<0.002	<0.002
10:2 FTS	µg/L	<0.002	<0.002	<0.002
Perfluorooctane sulfonamide	µg/L	<0.01	<0.01	<0.01
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	µg/L	<0.01	<0.002	<0.002
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.002	<0.002	<0.002
Surrogate $^{13}C_8$ *PFOS*	%	90	98	95
Surrogate $^{13}C_2$ *PFOA*	%	110	105	104
Extracted ISTD $^{13}C_3$ *PFBS*	%	90	86	86
Extracted ISTD $^{18}O_2$ *PFHxS*	%	89	88	87
Extracted ISTD $^{13}C_4$ *PFOS*	%	89	88	85
Extracted ISTD $^{13}C_4$ *PFBA*	%	#	51	22

PFAS in Water LOW LEVEL Extend				
Our Reference		404575-6	404575-7	404575-8
Your Reference	UNITS	MW105	MW107	SW8
Date Sampled		17/03/2026	17/03/2026	17/03/2026
Type of sample		Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	42	52	44
Extracted ISTD $^{13}C_2$ *PFHxA*	%	56	72	63
Extracted ISTD $^{13}C_4$ *PFHpA*	%	66	78	72
Extracted ISTD $^{13}C_4$ *PFOA*	%	79	86	83
Extracted ISTD $^{13}C_5$ *PFNA*	%	90	93	91
Extracted ISTD $^{13}C_2$ *PFDA*	%	86	89	83
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	70	81	75
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	80	74	80
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	73	70	75
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	69	78	73
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	82	89	80
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	95	101	93
Extracted ISTD $^{13}C_8$ *FOSA*	%	71	91	93
Extracted ISTD d_3 *N MeFOSA*	%	100	96	98
Extracted ISTD d_5 *N EtFOSA*	%	100	96	100
Extracted ISTD d_7 *N MeFOSE*	%	104	98	98
Extracted ISTD d_9 *N EtFOSE*	%	99	92	95
Extracted ISTD d_3 *N MeFOSAA*	%	21	73	83
Extracted ISTD d_5 *N EtFOSAA*	%	45	96	99
Total Positive PFHxS & PFOS	µg/L	0.017	0.062	0.016
Total Positive PFOA & PFOS	µg/L	0.017	0.052	0.014
Total Positive PFAS	µg/L	0.043	0.14	0.029

Method ID	Methodology Summary
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-026	Fluoride determined by ion selective electrode (ISE) in accordance with APHA latest edition, 4500-F-C.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Metals-020	Determination of various metals/elements by ICP-AES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation. Where molecular anion forms are calculated from an element (e.g. SO4 from S or PO4 from P stoichiometrically), the assumption is that the element is only present in that molecular anion form. Submission of low masses of sample e.g. for dust samples, may result in raised PQLs.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.

Method ID	Methodology Summary
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS.
Org-021/022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD and/or GC-MS/GC-MSMS. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore" Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS.
Org-022/025	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-MS/GC-MSMS. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Note, the Total +ve PFAS PQL is reflective of the lowest individual PQL and is therefore "Total +ve PFAS" is simply a sum of the positive individual PFASs (or a described sub-set). Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			19/03/2026	1	18/03/2026	19/03/2026		18/03/2026	[NT]
Date analysed	-			19/03/2026	1	19/03/2026	19/03/2026		19/03/2026	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	86	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	86	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	88	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	86	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	88	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	85	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	88	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	1	109	108	1	106	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	99	99	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	94	1	94	93	1	105	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			20/03/2026	[NT]	[NT]	[NT]	[NT]	20/03/2026	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	90	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	98	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	73	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	98	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: OCPs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
alpha-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	134	[NT]
HCB	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	117	[NT]
gamma-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Heptachlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	96	[NT]
delta-BHC	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	120	[NT]
Heptachlor Epoxide	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	112	[NT]
gamma-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-Chlordane	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	116	[NT]
Dieldrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	102	[NT]
Endrin	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	93	[NT]
Endosulfan II	µg/L	0.002	Org-022/025	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDD	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Endrin Aldehyde	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	92	[NT]
Methoxychlor	µg/L	0.001	Org-022/025	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	93	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: OP in water LL ANZECCF/ADWG						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Dichlorvos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	68	[NT]
Mevinphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Phorate	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dimethoate	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	µg/L	0.01	Org-022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Disulfoton	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion-Methyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ronnel	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	122	[NT]
Fenitrothion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	119	[NT]
Malathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	83	[NT]
Chlorpyriphos	µg/L	0.009	Org-022/025	<0.009	[NT]	[NT]	[NT]	[NT]	128	[NT]
Fenthion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Parathion	µg/L	0.004	Org-022/025	<0.004	[NT]	[NT]	[NT]	[NT]	98	[NT]
Bromophos ethyl	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Methidathion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fenamiphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	98	[NT]
Phosalone	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.02	Org-022/025	<0.02	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Coumaphos	µg/L	0.05	Org-022/025	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 4-Chloro-3-NBTF	%		Org-022/025	93	[NT]	[NT]	[NT]	[NT]	83	[NT]

QUALITY CONTROL: PCBs in Water - Trace Level						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Aroclor 1016	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	136	[NT]
Aroclor 1260	µg/L	0.01	Org-021/022/025	<0.01	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate 2-Fluorobiphenyl	%		Org-021/022/025	83	[NT]	[NT]	[NT]	[NT]	84	[NT]

QUALITY CONTROL: Speciated Phenols in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/03/2026	[NT]	[NT]	[NT]	[NT]	19/03/2026	[NT]
Date analysed	-			23/03/2026	[NT]	[NT]	[NT]	[NT]	23/03/2026	[NT]
Phenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	31	[NT]
2-Chlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
4-Chloro-3-Methylphenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Methylphenol (0-Cresol)	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	54	[NT]
3/4-Methylphenol (m/p-Cresol)	µg/L	2	Org-022/025	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-Nitrophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dimethylphenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,6-Dichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	128	[NT]
2,4,5-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4,6-Trichlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2,4-Dinitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-Nitrophenol	µg/L	20	Org-022/025	<20	[NT]	[NT]	[NT]	[NT]	26	[NT]
2346-Tetrachlorophenol	µg/L	1	Org-022/025	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-methyl-4,6-Dinitrophenol	µg/L	10	Org-022/025	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Pentachlorophenol	µg/L	5	Org-022/025	<5	[NT]	[NT]	[NT]	[NT]	76	[NT]
Surrogate 2-fluorophenol	%		Org-022/025	44	[NT]	[NT]	[NT]	[NT]	41	[NT]
Surrogate Phenol-d_6	%		Org-022/025	24	[NT]	[NT]	[NT]	[NT]	23	[NT]
Surrogate 2,4,6-Tribromophenol	%		Org-022/025	105	[NT]	[NT]	[NT]	[NT]	73	[NT]
Surrogate p-Terphenyl-d_{14}	%		Org-022/025	98	[NT]	[NT]	[NT]	[NT]	86	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	404575-2
Date prepared	-			22/03/2026	1	22/03/2026	22/03/2026		23/03/2026	23/03/2026
Date analysed	-			22/03/2026	1	22/03/2026	22/03/2026		23/03/2026	23/03/2026
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	40	[NT]		102	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		101	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		90	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		94	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	1	80	[NT]		102	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		101	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	23	[NT]		89	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	81	79
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		92	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		92	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	11	[NT]		93	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	404575-4
Date prepared	-			[NT]	3	22/03/2026	22/03/2026		[NT]	23/03/2026
Date analysed	-			[NT]	3	22/03/2026	22/03/2026		[NT]	23/03/2026
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	3	440	430	2	[NT]	89
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	98
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	3	<0.1	<0.1	0	[NT]	101
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	3	1	1	0	[NT]	90
Copper-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	79
Iron-Dissolved	µg/L	10	Metals-022	[NT]	3	140	140	0	[NT]	94
Lead-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	91
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	3	10	10	0	[NT]	#
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	3	<0.05	[NT]		[NT]	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	70
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	<1	0	[NT]	91
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	3	27	26	4	[NT]	95

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	[NT]
Date prepared	-			23/03/2026	1	23/03/2026	22/03/2026		22/03/2026	[NT]
Date analysed	-			23/03/2026	1	23/03/2026	22/03/2026		22/03/2026	[NT]
Aluminium-Total	µg/L	10	Metals-022	<10	1	250	270	8	102	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	1	1	1	0	104	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	102	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	1	1	1	0	85	[NT]
Copper-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	88	[NT]
Iron-Total	µg/L	10	Metals-022	<10	1	720	720	0	101	[NT]
Lead-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	101	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	1	30	30	0	83	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		101	[NT]
Molybdenum-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	92	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	87	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	1	13	13	0	89	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404575-2
Date prepared	-			20/03/2026	1	20/03/2026	20/03/2026		20/03/2026	20/03/2026
Date analysed	-			20/03/2026	1	20/03/2026	20/03/2026		20/03/2026	20/03/2026
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	<0.05	<0.05	0	102	95

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404575-2
Date prepared	-			19/03/2026	1	19/03/2026	19/03/2026		19/03/2026	19/03/2026
Date analysed	-			19/03/2026	1	19/03/2026	19/03/2026		19/03/2026	19/03/2026
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	14	[NT]		107	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.02	0.02	0	93	97
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	94	106
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	0.008	46	96	92
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	0.008	46	96	92
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.5	0.5	0	107	85
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	<0.005	0	85	107
Fluoride, F	mg/L	0.1	Inorg-026	<0.1	1	<0.1	<0.1	0	92	97

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	8	19/03/2026	19/03/2026		[NT]	[NT]
Date analysed	-			[NT]	8	19/03/2026	19/03/2026		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	8	16	14	13	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	8	0.01	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	8	<0.005	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	8	<0.005	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	8	<0.005	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	8	0.5	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	8	<0.005	[NT]		[NT]	[NT]
Fluoride, F	mg/L	0.1	Inorg-026	[NT]	8	<0.1	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	404575-2
Date prepared	-			18/03/2026	1	18/03/2026	18/03/2026		18/03/2026	18/03/2026
Date analysed	-			18/03/2026	1	18/03/2026	18/03/2026		18/03/2026	18/03/2026
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	5	[NT]		104	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	2	[NT]		93	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	16	[NT]		88	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	3	[NT]		99	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	<3	1	24	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	11	10	10	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	11	10	10	98	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	18	19	5	106	102
Chloride, Cl	mg/L	1	Inorg-081	<1	1	29	30	3	103	103
Ionic Balance	%		Inorg-040	[NT]	1	-7.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	404575-5
Date prepared	-			[NT]	3	18/03/2026	18/03/2026		[NT]	18/03/2026
Date analysed	-			[NT]	3	18/03/2026	18/03/2026		[NT]	18/03/2026
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	3	3	0	[NT]	103
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	0.8	0.8	0	[NT]	91
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	8.6	8.5	1	[NT]	78
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	3	1	1	0	[NT]	98
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	3	14	14	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	<5	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	3	<5	[NT]		[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	3	6	[NT]		[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	3	15	[NT]		[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	3	9.0	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			23/03/2026	1	23/03/2026	23/03/2026		23/03/2026	[NT]
Date analysed	-			23/03/2026	1	23/03/2026	23/03/2026		23/03/2026	[NT]
Perfluorobutanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	0.001	<0.001	0	103	[NT]
Perfluoropentanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	98	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.001	Org-029	<0.001	1	0.004	0.004	0	97	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	98	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.001	Org-029	<0.001	1	0.012	0.011	9	99	[NT]
Perfluorodecanesulfonic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	96	[NT]
Perfluorobutanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.01	<0.01	0	102	[NT]
Perfluoropentanoic acid	µg/L	0.002	Org-029	<0.002	1	0.006	0.006	0	102	[NT]
Perfluorohexanoic acid	µg/L	0.001	Org-029	<0.001	1	0.003	0.003	0	104	[NT]
Perfluoroheptanoic acid	µg/L	0.001	Org-029	<0.001	1	0.002	0.001	67	105	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.001	Org-029	<0.001	1	0.002	0.002	0	103	[NT]
Perfluorononanoic acid	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	99	[NT]
Perfluorodecanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	98	[NT]
Perfluoroundecanoic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	106	[NT]
Perfluorododecanoic acid	µg/L	0.005	Org-029	<0.005	1	<0.005	<0.005	0	114	[NT]
Perfluorotridecanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	96	[NT]
Perfluorotetradecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	107	[NT]
4:2 FTS	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	104	[NT]
6:2 FTS	µg/L	0.001	Org-029	<0.001	1	<0.001	<0.001	0	107	[NT]
8:2 FTS	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	102	[NT]
10:2 FTS	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	130	[NT]
Perfluorooctane sulfonamide	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	96	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	87	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	100	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	105	[NT]
MePerfluorooctanesulf-amid oacetic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	103	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.002	Org-029	<0.002	1	<0.002	<0.002	0	94	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	97	1	96	98	2	96	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	96	1	107	109	2	101	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	96	1	101	110	9	95	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	96	1	104	107	3	101	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	92	1	101	105	4	98	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	98	1	24	24	0	97	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	98	1	51	53	4	96	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	92	1	78	80	3	96	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	97	1	82	84	2	100	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	100	1	96	99	3	100	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	96	1	109	113	4	102	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	91	1	105	103	2	98	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	86	1	90	89	1	94	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	87	1	93	92	1	92	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	62	1	83	77	8	64	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	96	1	84	85	1	100	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	99	1	98	97	1	102	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	104	1	114	117	3	109	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	100	1	116	115	1	99	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	97	1	101	97	4	101	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	96	1	101	97	4	99	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	98	1	103	94	9	102	[NT]

QUALITY CONTROL: PFAS in Water LOW LEVEL Extend						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	96	1	99	95	4	98	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	87	1	99	98	1	94	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	98	1	121	119	2	104	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volumes) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates can be downloaded from the Envirolab Resources website or obtained directly by contacting the laboratory.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

For Dust Deposit Gauge (DDG) analysis the sampling, sampling period and funnel exposure area do not fall under Envirolab's NATA accreditation (unless the Newcastle laboratory where responsible for the sampling), hence the annotation on the DDG units of reporting.

Urine Analysis - The BEI values listed are taken from the 2022 edition of "TLVs and BEIs Threshold Limits" by ACGIH.

Report Comments

8 HM in water - dissolved - # Percent recovery is not applicable due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

PFAS in Water LOW LEVEL Extend - For PFAS Extracted Internal Standards denoted with # or outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).

Appendix F

Quality Assurance / Quality Control Report

Chain of Custody Sheets (Field and Despatch)

Sample Receipts

1. Field and Laboratory Data Quality Assurance and Quality Control

The field and laboratory data quality assurance and quality control (QA/QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other field QC samples are included at the end of this appendix.

Table 1: Field and Laboratory Quality Control

Item	Evaluation / acceptance criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	C
Intra-laboratory replicates	10% of primary samples; <30% RPD	PC
Laboratory / Reagent Blanks	1 per batch; <PQL	C
Laboratory Duplicate	1 per lab batch; As laboratory certificate	C
Matrix Spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Surrogate Spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control Samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Standard Operating Procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:
C = compliance; PC = partial compliance; NC = non-compliance

1.1 Field Replicates

RPDs for groundwater were low and reflect small differences in concentrations which were close to the PQL.

RPDs surface water were notably higher and up to 166%. The results suggest some heterogeneity between the primary and replicate sample which may be attributable to suspended sediments, limited, organics and stagnant surface water available for sampling at SW3a. Testing of TSS is also indicative of some difference between the samples.

Elevated RPDs are indicated in Table QA1 (results in bold). The exceedances are not, however, considered to be of concern given that:

- The actual differences in the concentrations of the replicate pairs where RPD exceedances occurred were typically low;
- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater analytical variability between replicate pairs can be expected;
- Most of the recorded concentrations were relatively close to the PQL;
- The majority of RPD results from a replicate pair were within the acceptable limits; and
- All other QA/QC parameters met the data quality indicators.

2. Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQI) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]* (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

Table 2: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole logs, sample location plan and chain of custody records.
	Preparation of field groundwater sampling sheets.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (COPC) identified in the groundwater monitoring plans (Douglas, 2010; 2023a).
	Completion of chain of custody (COC) documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.

Data Quality Indicator	Method(s) of Achievement
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced samplers used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with Data Quality Objectives
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the COC.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQI have been complied with.

3. Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQI it is concluded that the field and laboratory test data obtained are generally reliable and useable for this assessment.

4. Reference

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM].* Australian Government Publishing Services Canberra: National Environment Protection Council.

Douglas PARTNERS

Table QA1: Results of Field Replicate Testing - March 2026

		Lab Report Number	404575	404575		404571	404571		404575	404575	
		Field ID	MW102	DGW/17.3.26		SW3A	DSW2/17.3.26		SW8	DSW/17.3.26	
		Date	17 Mar 2026	17 Mar 2026		17 Mar 2026	17 Mar 2026		17 Mar 2026	17 Mar 2026	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	PQL									
Inorganics											
Hardness (filtered)	mg/L	3	**46**	**46**	0	**18**	**18**	0	**23**	**24**	4
Chloride	mg/L	1	**9**	**9**	0	**33**	**31**	6	**31**	**29**	7
Sulphate	mg/L	1	**6**	**7**	15	**10**	**9**	11	**19**	**18**	5
Fluoride	mg/L	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Alkalinity (Hydroxide) as CaCO3	mg/L	5	<5	<5	0	<5	<5	0	<5	<5	0
Alkalinity (Carbonate as CaCO3)	mg/L	5	<5	<5	0	<5	<5	0	<5	<5	0
Alkalinity (total) as CaCO3	mg/L	5	**47**	**46**	2	**11**	**9**	20	**10**	**11**	10
Ammonia as N (filtered)	mg/L	0.005	**1.1**	**1.2**	9	**0.007**	**0.02**	**96**	**0.01**	**0.02**	67
Alkalinity (Bicarbonate as CaCO3)	mg/L	5	**47**	**46**	2	**11**	**9**	20	**10**	**11**	10
Ionic Balance	%		**-3.0**	**-2.0**	40	**-9.0**	**-5.0**	57	**-9.0**	**-7.0**	25
Kjeldahl Nitrogen Total	mg/L	0.1	**2.1**	**2.1**	0	**1.2**	**3.5**	**98**	**0.5**	**0.5**	0
Nitrate (as N) (filtered)	mg/L	0.005	**0.03**	**0.03**	0	<0.005	<0.005	0	<0.005	<0.005	0
Nitrite (as N) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
Nitrogen (Total Oxidised)	mg/L	0.005	**0.03**	**0.03**	0	<0.005	<0.005	0	<0.005	<0.005	0
Total Phosphorus (Organic Phosphate)	mg/L	0.05	<0.05	<0.05	0	**0.4**	**0.50**	22	<0.05	<0.05	0
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005	**0.006**	**0.005**	18	<0.005	<0.005	0	<0.005	<0.005	0
Sodium (filtered)	mg/L	0.5	**6.4**	**6.4**	0	**17**	**17**	0	**16**	**16**	0
Total Suspended Solids (Lab)	mg/L	5	**6**	**10**	50	**1,100**	**800**	**32**	**16**	**14**	13
Metals											
Aluminium	mg/L	0.01				**9.9**	**9.3**	6	**0.28**	**0.25**	11
Aluminium (filtered)	mg/L	0.01	**0.13**	**0.13**	0	**0.18**	**0.18**	0	**0.04**	**0.04**	0
Arsenic	mg/L	0.001				**0.004**	**0.004**	0	**0.001**	**0.001**	0
Arsenic (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Cadmium	mg/L	0.0001				**0.0003**	**0.0003**	0	<0.0001	<0.0001	0
Cadmium (filtered)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Calcium (filtered)	mg/L	0.5	**13**	**13**	0	**5**	**5**	0	**5**	**5**	0
Chromium (III+VI)	mg/L	0.001				**0.011**	**0.008**	32	**0.001**	**0.001**	0
Chromium (III+VI) (filtered)	mg/L	0.001	**0.002**	**0.002**	0	**0.001**	**0.001**	0	<0.001	<0.001	0
Copper	mg/L	0.001				**0.012**	**0.019**	45	<0.001	<0.001	0
Copper (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Iron	mg/L	0.01				**14**	**12**	15	**0.7**	**0.72**	3
Iron (filtered)	mg/L	0.01	**0.13**	**0.13**	0	**2.1**	**1.9**	10	**0.09**	**0.08**	12
Lead	mg/L	0.001				**0.018**	**0.022**	20	<0.001	<0.001	0
Lead (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Magnesium (filtered)	mg/L	0.5	**4**	**4**	0	**1**	**1**	0	**3**	**3**	0
Manganese	mg/L	0.005				**0.14**	**0.13**	7	**0.029**	**0.03**	3
Manganese (filtered)	mg/L	0.005	**0.36**	**0.37**	3	**0.049**	**0.048**	2	**0.023**	**0.023**	0
Mercury	mg/L	0.00005				<0.00005	<0.00005	0	<0.00005	<0.00005	0
Mercury (filtered)	mg/L	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0	<0.00005	<0.00005	0
Molybdenum	mg/L	0.001				<0.001	<0.001	0	<0.001	<0.001	0
Molybdenum (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Nickel	mg/L	0.001				**0.006**	**0.005**	18	<0.001	<0.001	0
Nickel (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Potassium (filtered)	mg/L	0.5	**2**	**2**	0	**1**	**1**	0	**2**	**2**	0
Zinc	mg/L	0.001				**0.15**	**0.16**	6	**0.013**	**0.013**	0
Zinc (filtered)	mg/L	0.001	<0.001	<0.001	0	**0.003**	**0.003**	0	**0.011**	**0.011**	0
TRH											
C6-C10 Fraction (F1)	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
C6-C10 (F1 minus BTEX)	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
>C10-C16 Fraction (F2)	mg/L	0.05	<0.05	<0.05	0	**0.051**	<0.05	2	<0.05	<0.05	0
>C10-C16 Fraction (F2 minus Naphthalene)	mg/L	0.05	<0.05	<0.05	0	**0.051**	<0.05	2	<0.05	<0.05	0
>C16-C34 Fraction (F3)	mg/L	0.1	<0.1	<0.1	0	**0.46**	**0.11**	**123**	<0.1	<0.1	0
>C34-C40 Fraction (F4)	mg/L	0.1	<0.1	<0.1	0	**0.12**	<0.1	18	<0.1	<0.1	0
>C10-C40 Fraction (Sum)	mg/L	0.05	<0.05	<0.05	0	**0.63**	**0.11**	**141**	<0.05	<0.05	0
C6-C9 Fraction	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
C10-C14 Fraction	mg/L	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
C15-C28 Fraction	mg/L	0.1	<0.1	<0.1	0	**0.34**	<0.1	**109**	<0.1	<0.1	0
C29-C36 Fraction	mg/L	0.1	<0.1	<0.1	0	**0.19**	<0.1	62	<0.1	<0.1	0
C10-C36 Fraction (Sum)	mg/L	0.05	<0.05	<0.05	0	**0.53**	<0.05	**166**	<0.05	<0.05	0
BTEX											
Benzene	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Toluene	mg/L	0.001	<0.001	<0.001	0	**0.002**	**0.003**	40	<0.001	<0.001	0
Ethylbenzene	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Xylene (m & p)	mg/L	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Xylene (o)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Naphthalene (VOC)	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
Phenols											
3&4-Methylphenol (m&p-cresol)	mg/L	0.002	<0.002	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
2,3,4,6-Tetrachlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2,4,5-Trichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2,4,6-Trichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2,4-Dichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2,4-Dimethylphenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2,4-Dinitrophenol	mg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
2,6-Dichlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2-Chlorophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2-Methylphenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
2-Nitrophenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
4,6-Dinitro-2-methylphenol	mg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
4-chloro-3-methylphenol	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
4-Nitrophenol	mg/L	0.02	<0.02	<0.02	0	<0.02	<0.02	0	<0.02	<0.02	0
Pentachlorophenol	mg/L	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
Phenol	mg/L	0.001	<0.001	<0.001	0	<0.001	<0.001	0	<0.001	<0.001	0
PAHs											
Acenaphthene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Acenaphthylene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Anthracene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Benzo(a)anthracene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Benzo(b+j+k)fluoranthene	mg/L	0.0002	<0.0002	<0.0002	0	<0.0002	<0.0002	0	<0.0002	<0.0002	0
Benzo(a) pyrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Benzo(g,h,i)perylene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Chrysene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Dibenz(a,h)anthracene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Fluoranthene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Fluorene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Indeno(1,2,3-c,d)pyrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Naphthalene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Phenanthrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
Pyrene	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
PAHs (Sum of positives)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0

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Table QA1: Results of Field Replicate Testing - March 2026

		Lab Report Number	**404575**	**404575**		**404571**	**404571**		**404575**	**404575**	
		Field ID	**MW102**	**DGW/17.3.26**		**SW3A**	**DSW2/17.3.26**		**SW8**	**DSW/17.3.26**	
		Date	**17 Mar 2026**	**17 Mar 2026**		**17 Mar 2026**	**17 Mar 2026**		**17 Mar 2026**	**17 Mar 2026**	
		Matrix Type	**Water**	**Water**	**RPD**	**Water**	**Water**	**RPD**	**Water**	**Water**	**RPD**
	Unit	PQL									
PFAS											
Perfluorobutane sulfonic acid (PFBS)	**mg/L**	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0	<0.000001	**0.000001**	0
Perfluoropentane sulfonic acid (PFPeS)	**mg/L**	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluorohexane sulfonic acid (PFHxS)	**mg/L**	0.000001	<0.000001	<0.000001	0	**0.000006**	**0.000005**	18	**0.000004**	**0.000004**	0
Perfluoroheptane sulfonic acid (PFHpS)	**mg/L**	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluorooctane sulfonic acid (PFOS)	**mg/L**	0.000001	**0.000002**	**0.000002**	0	**0.000005**	**0.000005**	0	**0.000012**	**0.000012**	0
Perfluorodecane sulfonic acid (PFDS)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0	<0.000002	<0.000002	0
Perfluorobutanoic acid (PFBA)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.00001	<0.00001	0	<0.00001	<0.00001	0
Perfluorohexanoic acid (PFHxA)	**mg/L**	0.000001	<0.000001	<0.000001	0	**0.000001**	**0.000001**	0	**0.000004**	**0.000003**	29
Perfluoropentanoic acid (PFPeA)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000004	<0.000004	0	**0.000006**	**0.000006**	0
Perfluoroheptanoic acid (PFHpA)	**mg/L**	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0	**0.000002**	**0.000002**	0
Perfluorooctanoic acid (PFOA)	**mg/L**	0.000001	<0.000001	<0.000001	0	**0.000003**	**0.000003**	0	**0.000002**	**0.000002**	0
Perfluorodecanoic acid (PFDA)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0	<0.000002	<0.000002	0
Perfluorododecanoic acid (PFDoDA)	**mg/L**	0.000005	<0.000005	<0.000005	0	<0.000005	<0.000005	0	<0.000005	<0.000005	0
Perfluorononanoic acid (PFNA)	**mg/L**	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0	<0.000001	<0.000001	0
Perfluorotetradecanoic acid (PFTeDA)	**mg/L**	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0	<0.00005	<0.00005	0
Perfluorotridecanoic acid (PFTrDA)	**mg/L**	0.00001	<0.00001	<0.00001	0	<0.00001	<0.00001	0	<0.00001	<0.00001	0
Perfluoroundecanoic acid (PFUnDA)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0	<0.000002	<0.000002	0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	**mg/L**	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0	<0.000001	<0.000001	0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	**mg/L**	0.000001	<0.000001	<0.000001	0	<0.000001	<0.000001	0	<0.000001	<0.000001	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0	<0.000002	<0.000002	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0	<0.000002	<0.000002	0
Perfluorooctane sulfonamide (FOSA)	**mg/L**	0.00001	<0.00001	<0.00001	0	<0.00001	<0.00001	0	<0.00001	<0.00001	0
N-Methyl perfluorooctane sulfonamide (MeFOSA)	**mg/L**	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0	<0.00005	<0.00005	0
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0	<0.000002	<0.000002	0
N-methyl perfluorooctane sulfonamidoethanol (MeFOSE)	**mg/L**	0.00005	<0.00005	<0.00005	0	<0.00005	<0.00005	0	<0.00005	<0.00005	0
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	**mg/L**	0.0001	<0.0001	<0.0001	0	<0.0001	<0.0001	0	<0.0001	<0.0001	0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	**mg/L**	0.000002	<0.000002	<0.000002	0	<0.000002	<0.000002	0	<0.000002	<0.000002	0
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	**mg/L**	0.0005	<0.0005	<0.0005	0	<0.0005	<0.0005	0	<0.0005	<0.0005	0
Sum of PFHxS and PFOS	**mg/L**	0.000001	**0.000002**	**0.000002**	0	**0.000010**	**0.0000099**	1	**0.000016**	**0.000015**	6
Sum of PFAS	**mg/L**	0.000001	**0.000002**	**0.000002**	0	**0.000014**	**0.000014**	0	**0.000029**	**0.000029**	0
Sum of PFAS (PFOS + PFOA)	**mg/L**	0.000001	**0.000002**	**0.000002**	0	**0.000007**	**0.000007**	0	**0.000014**	**0.000014**	0

*RPDs have only been considered where a concentration is greater than 1 times the PQL.

**Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each PQL multiplier range are: 81 (1 - 10 x PQL); 50 (10 - 30 x PQL); 30 (> 30 x PQL))

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY FIELD SHEET

Project No:	39920.09	**Client Project Name:**	Stage 3 Northbank Enterprise Hub
Client:	Northbank Enterprise Hub Pty Ltd	**Location:**	Lot 210 Westrac Drive, Tomago
Project Manager:	Dana Wilson	**DP Lab Received**	By: Date:

Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)

Field									DP Lab	For Despatch to			Notes
Sample ID	Depth (m)	Duplicate Sample	Sample Type S - soil W - water	Container Type G - glass P - plastic	ASS Samples	Sampling By	Sampling Date	Sampling Time	Storage Locn *	Lab 1 A Date	Lab 2 B Date	Lab 3 C Date	
MW104			W	G,P		SBK/MJD	16/3/26	07:00	Esky	16/3/26	17/3/26		limited sample
MW106			↓	↓		↓	↓	16:00	↓	↓			
SW 8		DSW/17/3/26	W	G,P		SBK/MJD	17/3/26	07:00		↓	17/3/26		
MW107			↓	G,P		↓	↓	↓			↓		
MW105			↓	↓		↓	↓	↓					
MW103			↓	↓		↓	↓	↓					
MW101			↓	↓		↓	↓	↓					
MW102		DGW/17.3.26	↓	↓		↓	↓	15:00			↓		

980243061456-6

980243061052-7

* **Default storage: glass containers in fridge, plastic containers shelved, ASS in freezer, water samples in fridge**

A Provide name of Lab 1 Envirolab Services B Provide name of Lab 2 C Provide name of Lab 3

Douglas Partners
Geotechnics / Environment / Groundwater

CHAIN OF CUSTODY FIELD SHEET

Project No:	39920.20	**Client Project Name:**	Stage 3 Northbank Enterprise Hub
Client:	Northbank Enterprise Hub Pty Ltd	**Location:**	Lot 210 Westrac Drive, Tomago
Project Manager:	Dana Wilson	**DP Lab Received**	By: Date:

Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)

Field									DP Lab	For Despatch to			Notes
Sample ID	Depth (m)	Duplicate Sample	Sample Type S - soil W - water	Container Type G - glass P - plastic	ASS Samples	Sampling By	Sampling Date	Sampling Time	Storage Locn *	Lab 1 A Envirolab Date 16/3/26	Lab 2 B Envirolab Date 17/3/26	Lab 3 C Date	
MW4			W	G, P		SBK/MSD	16/3/26	07:00	Esky				
MW6													
MW2													
MW10													
MW13													
MW11													
MW1A													
SW5													
MW12		DSW1/16/3/26						16:00					
~~[illegible]~~											17/3/26		
MW8A			W	G, P		SBK/MSD	17/3/26	07:00	Esky				
SW3A		DSW2/17/3/26											
SW1													

980243061456-5 TNT

980243061052-8 TNT

* **Default storage: glass containers in fridge, plastic containers shelved, ASS in freezer, water samples in fridge**

A Provide name of Lab 1 Envirolab Services B Provide name of Lab 2 C Provide name of Lab 3

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.09, Tomago
Envirolab Reference	404470
Date Sample Received	17/03/2026
Date Instructions Received	17/03/2026
Date Results Expected to be Reported	24/03/2026

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	2 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	OCPs in Water - Trace Level	OP in water LL ANZECCF/ADWG	PCBs in Water - Trace Level	Speciated Phenols in water	HM in water - dissolved	Metals in Waters - Acid extractable	Total Suspended Solids	Ammonia as N in water	Nitrite as N in water	Nitrate as N in water	NOx as N in water	TKN in water	Phosphate as P in water	Fluoride, F	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	PFAS in Water LOW LEVEL Extend
MW104	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW106	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

We acknowledge receipt of your samples and Purchase Order (PO) (if provided). If a PO includes your terms & conditions, Envirolab hereby expressly rejects and will not be bound by any external or third-party terms and conditions, including those referenced or attached to a PO.

All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement (Envirolab Terms) via hyperlink or found on our websites.

If you do not object in writing within two (2) business days of the date of this acknowledgement, you will be deemed to have accepted the Envirolab Terms. In addition, your provision of further instructions, additional samples, payment of any invoice, or acceptance of services or results from Envirolab will constitute acceptance of the Envirolab Terms. For clarity, Envirolab's commencement or continuation of work following receipt of the PO is performed solely under the Envirolab Terms and does not constitute acceptance of any external terms. All rights are expressly reserved.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.09, Tomago
Envirolab Reference	404470-A
Date Sample Received	17/03/2026
Date Instructions Received	27/03/2026
Date Results Expected to be Reported	07/04/2026

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	Additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

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Sample ID	svTRH (C10-C40) in Water NEPM Silica gel	svTRH (C10-C40) in Water Pre Clean Up
MW104	✓	✓
MW106	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.

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All services to be performed by Envirolab will be governed exclusively by Envirolab's General Terms and Conditions attached to this acknowledgement (Envirolab Terms) via hyperlink or found on our websites.

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.20, Tomago
Envirolab Reference	404471
Date Sample Received	17/03/2026
Date Instructions Received	17/03/2026
Date Results Expected to be Reported	24/03/2026

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	10 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

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Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	svTRH (C10-C40) in Water NEPM Silica gel	PAHs in Water	Speciated Phenols in water	OCPs in Water - Trace Level	OP in water LL ANZECCF/ADWG	PCBs in Water - Trace Level	HM in water - dissolved	HM in water - total	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	Metals in Waters - Acid extractable	Ammonia as N in water	Nitrite as N in water	Nitrate as N in water	TKN in water	Phosphate as P in water	Fluoride, F	Total Suspended Solids	PFAS in Water LOW LEVEL Extend
MW4	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW6	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW2	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW10	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW13	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW11	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW1A	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SW5	✓	✓		✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MW12	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DGW/16.3.26	✓	✓		✓	✓				✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

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12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
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www.envirolab.com.au

Additional Info

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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.20, Tomago
Envirolab Reference	404471-A
Date Sample Received	17/03/2026
Date Instructions Received	27/03/2026
Date Results Expected to be Reported	07/04/2026

Sample Condition

Samples received in appropriate condition for analysis	Incorrect Container
No. of Samples Provided	Additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

Analysis Underway, details on the following page:

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ph 02 9910 6200 fax 02 9910 6201
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Sample ID	Total Cyanide	On Hold
MW4	✓	
MW6	✓	
MW2	✓	
MW10	✓	
MW13	✓	
MW11	✓	
MW1A	✓	
SW5		✓
MW12	✓	
DGW/16.3.26		✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

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ph 02 9910 6200 fax 02 9910 6201
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SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Newcastle
Attention	Dana Wilson

Sample Login Details

Your reference	39920.20, Tomago
Envirolab Reference	404571
Date Sample Received	18/03/2026
Date Instructions Received	18/03/2026
Date Results Expected to be Reported	25/03/2026

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	4 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
Email: ahie@envirolab.com.au	**Email: jhurst@envirolab.com.au**

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Sample ID	vTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water	Speciated Phenols in water	OCPs in Water - Trace Level	OP in water LL ANZECCF/ADWG	PCBs in Water - Trace Level	HM in water - dissolved	HM in water - total	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness (calc) equivalent CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	Metals in Waters - Acid extractable	Ammonia as N in water	Nitrite as N in water	Nitrate as N in water	NOx as N in water	TKN in water	Phosphate as P in water	Fluoride, F	Total Suspended Solids	PFAS in Water LOW LEVEL Extend
MW8A	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
SW3A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
SW1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
DSW2/17.3.26	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓

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Date Results Expected to be Reported	07/04/2026

Sample Condition

Samples received in appropriate condition for analysis	Incorrect Container
No. of Samples Provided	Additional analysis
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	6
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Please contact the laboratory within 24 hours if you wish to cancel the aformentioned testing. Otherwise testing will proceed as per the COC and hence invoiced accordingly.

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	**Phone: 02 9910 6200**
Fax: 02 9910 6201	**Fax: 02 9910 6201**
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Sample ID	svTRH (C10-C40) in Water NEPM Silica gel	svTRH (C10-C40) in Water Pre Clean Up	Total Cyanide
MW8A			✓
SW3A	✓	✓	
SW1	✓	✓	✓
DSW2/17.3.26	✓	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

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Appendix G

Interim Closure Report on Environmental Inspections and Monitoring (Douglas, 2026b)

Douglas PARTNERS

GROUNDED EXPERTISE

Interim Closure Report on Environmental Inspections and Monitoring

Stage 3 Initial Vegetation Clearing Works (November 2025 to March 2026)

Lot 210 DP 1174939, Westrac Drive, Tomago NSW

Prepared for Northbank Enterprise Hub Pty Ltd

Project 39920.18

28 April 2026

Douglas Partners Pty Ltd
ABN 75 053 980 117
douglaspartners.com.au
15 Callistemon Close, Warabrook, NSW 2304
(02) 4960 9600

GROUNDED EXPERTISE

Document History

Details

Project No.	39920.18
Document Title	Interim Closure Report on Environmental Inspections and Monitoring Stage 3 Initial Vegetation Clearing Works (November 2025 to March 2026)
Site Address	Lot 210 DP 1174939, Westrac Drive, Tomago NSW
Report Prepared For	Northbank Enterprise Hub Pty Ltd
Filename	39920.18.R.004.Rev0.VegClearingClosure

Status and Review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Dana Wilson Mitchell Date	Patrick Heads	28 April 2026

Distribution of Copies

Status	Issued to
Revision 0	David Rutter, Princeton Co on behalf of Northbank Enterprise Hub Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature		Date
Author	Dana Wilson	28 April 2026
Reviewer	Patrick Heads	28 April 2026

bsi ISO 9001 Quality Management Systems CERTIFIED
FS604853

Douglas Partners acknowledges Australia's First Peoples as the Traditional Owners of the Land and Sea on which we operate. We pay our respects to Elders past and present and to all Aboriginal and Torres Strait Islander peoples across the many communities in which we live, visit and work. We recognise and respect their ongoing cultural and spiritual connection to Country.

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Appendix A: Drawing 1: Groundwater and Surface water monitoring locations

Appendix B: About This Report

Appendix C: Table 1: Results of field monitoring during vegetation clearing
Figure 1: pH in surface water vs time and rainfall
Figure 2: Electrical conductivity in surface water vs time and rainfall
Site photos (Plates 1 to 12)

Report on Environmental Inspections and Monitoring Stage 3 Initial Vegetation Clearing Works (November 2025 to March 2026) Lot 210 DP 1174939, Westrac Drive, Tomago NSW

1. Introduction

This report, prepared by Douglas Partners Pty Ltd (Douglas), presents the results of environmental inspections and monitoring undertaken for Stage 3 vegetation clearing works at Lot 210 DP 1174939, Westrac Drive, Tomago NSW (the site). The investigation was commissioned by Northbank Enterprise Hub Pty Ltd and was undertaken in accordance with Douglas' proposal 39920.18.R.001.Rev0 dated 19 September 2025.

Removal of existing vegetation is required as part of the proposed bulk filling and earthworks program for the approved development. The initial proposed clearing works cover an area of about 15 hectares along the northern part of the Stage 3 site fronting Tomago Road as shown on Drawing in Appendix A.

Based on results of previous subsurface investigations the northern portion of the proposed clearing area contains mostly free-draining sand materials, with the southern part comprising lower-lying water logged and reed vegetation, consistent with the central and southern parts of Stage 3.

A '*Methodology for vegetation clearing for acid sulfate soil management*' was prepared by Douglas (Douglas, 2025a) and included a summary of the proposed vegetation clearing methods with a focus on the potential for disturbance of acid sulfate soils (ASS). The report was prepared as an addendum to the Stage 3 Acid *Sulfate Soil Management Plan* (ASSMP) (Douglas, 2025b).

As the proposed vegetation clearing works were limited to removal of trees and shrubs and slashing of grasses/reeds with minimal disturbance of near surface soils, ASS management measures, such as lime neutralisation, were not considered to be required for the works. In addition to implementation of general soil and surface water management strategies, the clearing methodology recommended periodic environmental inspections and surface water field monitoring to assess surface water pH and other water quality indicators at the surface water locations shown in Drawing 1 in Appendix A.

This interim closure report presents results of environmental inspection and monitoring during and following completion of the clearing works in March 2026.

Five inspections and monitoring events were undertaken as follows:

- Event 1 – 27 November 2025 (prior to clearing works commencing);
- Events 2 to 4 – 3 December 2025, 18 December 2025 and 15 January 2026 (during clearing works);
- Event 5 – 5 March 2026 (following completion of works).

It is noted that additional vegetation clearing and monitoring may also be undertaken as the site development proceeds.

This report must be read in conjunction with all appendices including the notes provided in Appendix B.

2. Scope of work

The following works were undertaken:

- Inspections to observe soil disturbance from clearing and assess whether additional measures were required (e.g. possible lime application to exposed surface soils);
- Noting visual observations of surface water quality;
- Measurement of in-situ parameters in nominated surface water locations using a calibrated meter to review any obvious changes or indicators of adverse impacts to water quality. The extent and number of monitoring locations increased as the clearing works expanded south into the lower-lying areas;
- Review of the water quality data in the context of the field observations and historical water quality data set;
- Preparation of one initial interim memorandum report for initial monitoring events (Douglas, 2025c);
- Preparation of this report.

3. Site description and clearing works

The Stage 3 site details are summarised below and shown on Figure 1.

Site Address	2 Westrac Drive, Tomago
Legal Description	Lot 210 D.P.1174939
Area	Total lot area 50.13 hectares (red) Vegetation clearing area 15 hectares (green shading)
Zoning	Zone IN2 General Industrial
Local Council Area	Port Stephens Council
Current Use	Vacant Future industrial subdivision

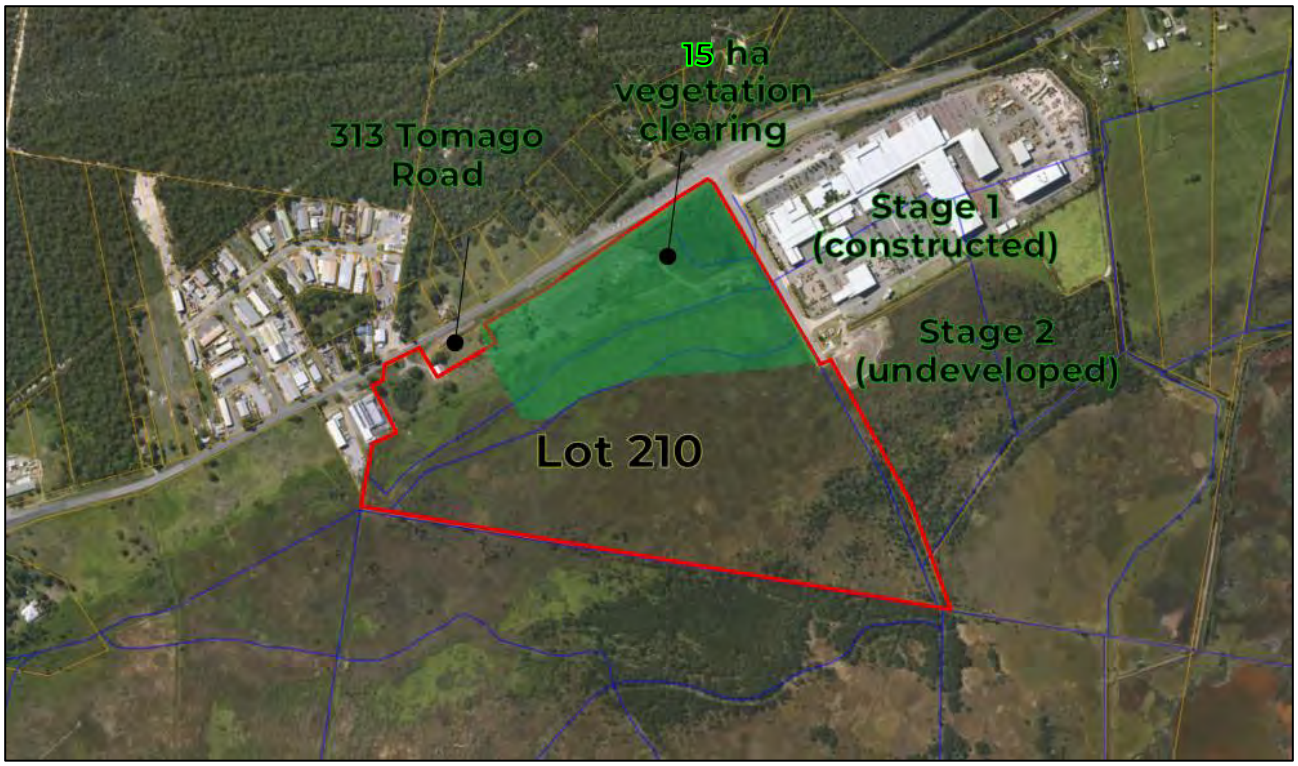


Figure 1: Site and Stage 3 boundary shown in red (Base Image source: MetroMap 2024). Vegetation clearing shaded in green.

The initial proposed vegetation clearing works subject of this report, comprised the following:

- Removal of trees and shrubs. Trees were to be pushed over to expose the root ball, noting that larger trees may have soils attached to the root bulb;
- Slashing of grasses in the northern elevated non-water logged areas of the site;
- Slashing and removal of slashed reed vegetation for the central and southern parts of the site in water-logged soils.

4. Results

4.1 Vegetation clearing process

Based on inspections completed by Douglas, the clearing works appeared to be commensurate with the procedures and potential impacts outlined in *Methodology for vegetation clearing for acid sulfate soil management* (Douglas, 2025a), that is:

- For areas that had been slashed, disturbance of surface soils was minimal (Figures 1 to 5, Figures 20 to 21, Appendix C);
- For trees that had been pushed over, minimal soil was present on the root bulbs;
- The works were being undertaken with regard to general construction environmental management controls including sediment and erosion control. There were no direct discharges of surface water observed by Douglas as a result of the works.

Photo plates for observations during site visits are shown in Appendix C.

4.2 Surface water monitoring

Surface water monitoring was undertaken at locations close to the initial clearing works generally as nominated in the plan (Douglas, 2025a) or as safe access permitted.

The results of surface water monitoring and recorded observations are summarised in Table 1 in Appendix C. The monitoring locations are shown on Drawing 1 in Appendix A.

The results of pH and electrical conductivity (EC) testing over time are plotted on Figures 1 and 2 in Appendix C and also showing recorded daily rainfall.

It is noted that only six (6) of the ten (10) surface water monitoring locations contained water at the final inspection event on 5 March 2026. Below average rainfall occurred over the period of vegetation clearing works. The total recorded rainfall at Williamtown BOM station for November 2025 to March 2026 (inclusive) was 276.4 mm and equivale to 55% of the mean (501.4 mm) for that period. Surface water at the site is formed by rainfall and runoff, and more significantly, from groundwater that emerges at the toe of the Tomago Sand Bed dunes in the northern part of the site. It is therefore common for surface water at the site to dry out in times of below average rainfall and lower groundwater levels. The vegetation and drain clearing works may also assist to lower surface water levels from within the site and drain stagnant waters, due to the cleared drainage paths as has been observed in previous monitoring for drain clearing.

The inspection and monitoring results are summarised as follows:

- Initial field screening of surface waters on 27 November 2025 indicated slightly acidic conditions with most pHs ranging from 5.2 to 6.1 pH. Location SW2 pH was notably low/acidic with pH of 3.9. The location was characterised by stagnant / ponded water;
- The second monitoring event on 3 December 2025 indicated most surface water readings reduced by about 0.5 pH units, with a range of 5.1 to 5.9 pH. SW2 pH increased to pH 5.4 (i.e. up from 3.9 on 27 November 2025). Interim advice and reporting in Douglas (2025) noted that the pH ranges recorded were generally within the range of the long-term historical data set as well as monitoring of pH undertaken in 2024 for separate drain clearing;
- The third monitoring event on 18 December 2025 indicated most surface water readings were generally similar to the initial field screening, with a range of 5.0 to 6.0 pH. SW3a pH increased to 5.9 (i.e. up from 5.5 on 3 December 2025);
- The fourth monitoring event on 15 January 2026 included additional surface water monitoring locations SW104, SW105 and SW106 as vegetation clearing works extended further south. Field screening of SW104, SW105 and SW106 indicated slightly acidic conditions with pHs ranging from 5.5 to 6.3 pH, commensurate with surface water monitoring locations to the north. Most locations showed pH values similar to the previous monitoring except for SW3a which decreased to pH 4.9 (i.e. down from 5.9 on 18 December 2025). This location receives surface water runoff and flows from the culvert under Tomago Road;

- The fifth and final monitoring event on 5 March 2026 following completion of vegetation works indicated most surface water readings increased by about 0.5 pH, with a range of 5.3 to 6.4 pH. Most pH results were higher or within 0.5 pH units of initial monitoring indicating more neutral surface water conditions suggesting the absence of gross impacts and ASS disturbance;
- EC monitoring indicated surface water remained relatively fresh and low in EC (i.e. <1400 uS/cm).

During the course of works, Douglas compared the monitoring results to surface water monitoring data from 2013 to 2025. The data indicated pH at SW2, SW3/SW3a has typically ranged from pH 5.5 to <7.0 and occasionally up to pH 7.3. Most of the previous monitoring was undertaken in April/May, with limited data undertaken throughout the year to capture seasonal trends and drier conditions. Monitoring during drain clearing in July and August 2024 indicated surface water pH ranged from 5.8 to 6.8 which is similar to the current field testing results.

Overall, the pH fluctuations recorded are considered to be within the general range of the long term historical data set and 2024 drain clearing monitoring. It is noted that most of the monitoring points were located in stagnant ponded surface water and contained significant organics, which may impact field parameters. Field monitoring parameters in ponded stagnant waters may differ to free-flowing surface water locations which have been targeted in previous monitoring.

It should be noted that groundwater levels and the presence of surface water at this site are affected by factors such as climatic conditions, soil permeability, tidal influences and will therefore vary with time.

5. Conclusions

The environmental inspections indicated limited disturbance of soils as a result of tree and shrub removal and general vegetation clearing. The works were undertaken under appropriate construction environmental management controls, including sediment and erosion control measures, with no direct surface water discharge observed as a result of the works.

Surface water field testing pH results generally remained commensurate with the initial screening results undertaken prior to commencement of vegetation clearing. Overall, the surface water results were within the historical range recorded between 2010 to 2025.

Based on the inspections and monitoring, no remedial action or improvements to the clearing works or monitoring program were considered necessary.

Douglas considers that the vegetation clearing works have been completed as per the *Methodology for vegetation clearing for acid sulfate soil management* (Douglas, 2025a), and with no obvious impacts to surface water at the site.

6. References

Douglas. (2025a). *Methodology for vegetation clearing for acid sulfate soil management Stage 3 Northbank Enterprise Hub, Lot 210 DP 1174939 Westrac Drive, Tomago NSW*. Ref: 39920.18.R.001.Rev1: Douglas Partners Pty.

Douglas. (2025b). *Acid Sulfate Soil Management Plan, Proposed Industrial Subdivision, Stage 3, Lot 210 D.P.1174939, 2 Westrac Drive, Tomago*. 39920.09.R.002.Rev2.ASSMP: Douglas Partners Pty Ltd.

Douglas. (2025c). *Memorandum - Results of inspection and monitoring - 27 November and 3 December 2025, Stage 3 vegetation clearing, Lot 210, Tomago Road, Tomago NSW*. Ref: 39920.20.19.R.003.Rev0.InspectionReport: Douglas Partners Pty Ltd.

7. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Lot 210 DP 1174939 Westrac Drive, Tomago NSW in line with Douglas' proposal dated 25 September 2025 and acceptance received from Northbank Enterprise Hub Pty Ltd dated 1 October 2025. Work was carried out under agreed terms between Douglas Partners Pty Ltd and Northbank Enterprise Hub Pty Ltd (Contract 20230206 ACE-LEG-005A executed 23 February 2023). This report is provided for the exclusive use of Northbank Enterprise Hub Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the surface and surface water conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation and previous investigations by Douglas and others. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground and surface water conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

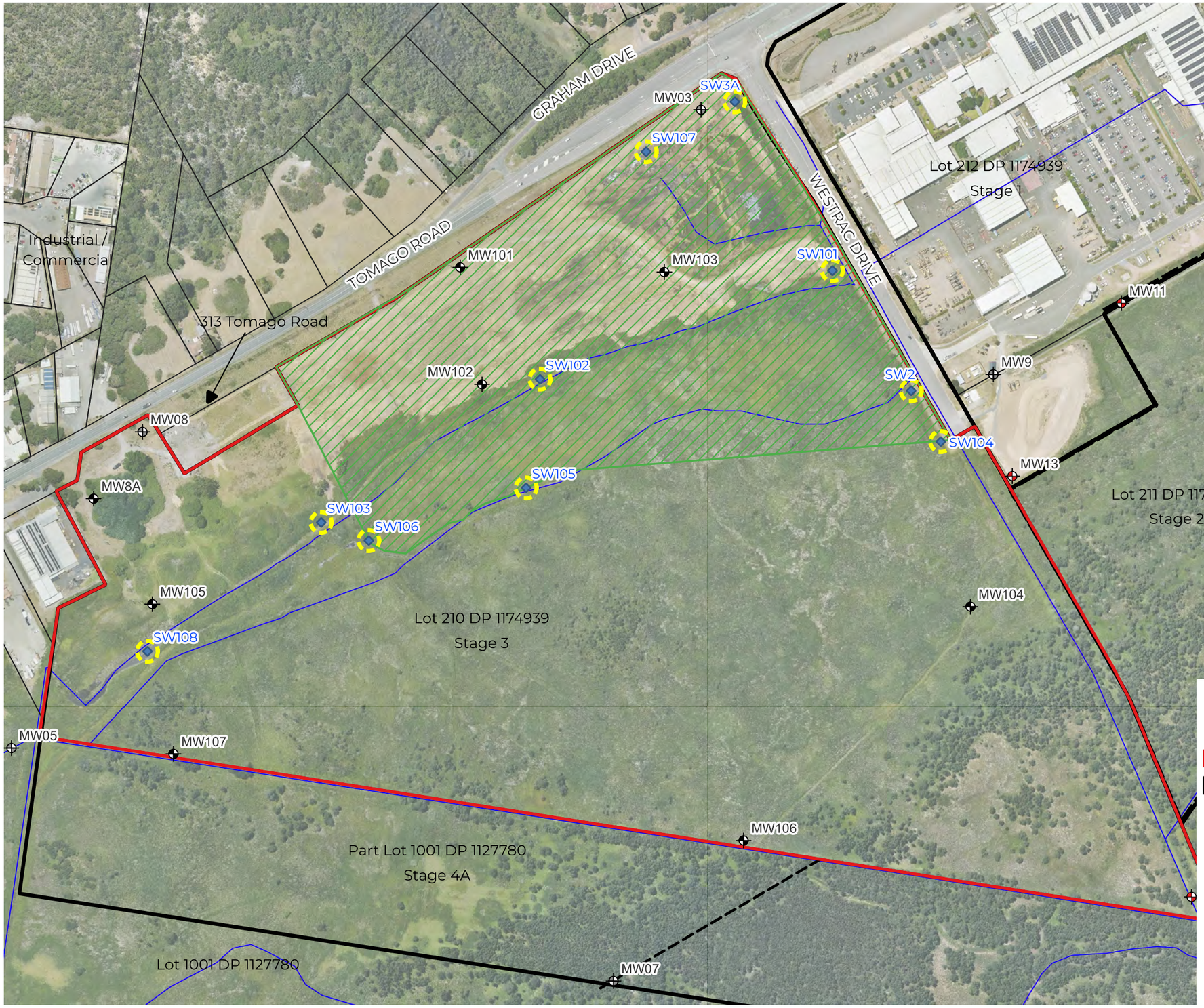
The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

Drawing 1: Groundwater and Surface water monitoring locations



Site Location

Legend

- Lot Boundary
- Approximate Stage 3 Site Boundary
- Approximate Stage 1, 2, 4A and 4B Site Boundaries
- Groundwater Monitoring Well listed for monitoring under revised Stage 1 GMP
- Other Groundwater Monitoring Well
- Historical Groundwater Monitoring Well (unserviceable)
- Surface Water Monitoring Locations - Vegetation Clearing
- Approximate Extent of Cleared / Slashed Vegetation
- Hunter Waterlines

0 100 200 m

Drawing adapted from Metromap Image dated 05.12.2025.
Test locations are approximate only. MW8A and MW100 series wells located using differential GPS.
MW1A, MW12 & MW13 - Groundwater monitoring well (installed August 2024).

Douglas PARTNERS

CLIENT: Northbank Enterprise Hub Pty Ltd		TITLE: Groundwater and Surface Water Monitoring Locations Stage 3, Northbank Enterprise Hub Westrac Drive, Tomago	PROJECT No: 39920.18
OFFICE: Newcastle	DRAWN BY: MJD		DRAWING No: 1
SCALE: 1:4000 @ A3	DATE: 20.04.2026		REVISION: 2

Appendix B

About this Report

About this Report

October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Appendix C

Table 1: Results of field monitoring during vegetation clearing

Figure 1: pH in surface water vs time and rainfall

Figure 2: Electrical conductivity in surface water vs time and rainfall

Site photos (Plates 1 to 11)

Table 1: Results of field monitoring during vegetation clearing

Monitoring location ID	Easting	Northing	Date	Time	pH (pH units)	EC (µS/cm)	DO(mg/L)	Turbidity (NTU)	Temp (°C)	ORP (mV)	Description
SW2	383091	6367499	27/11/2025	12:20	3.9	163	1.5	>1000	22.4	14	Very turbid, brown, not flowing, reeds, slight sulfur odour
			3/12/2025	12:50	5.4	100	1.7	>1000	19.9	83	Very turbid, brown, slight sulfur odour
			18/12/2025	10:55	6.0	144	2.5	>1000	20.8	20	Very turbid,pale brown to brown, slight sulfur odour
			15/01/2026	9:47	5.8	115	1.2	407	21.0	3	Very turbid, brown, reeds
			5/03/2026	9:10	No surface water						Location dry. Has been cleared
SW3A	382921	6367778	27/11/2025	10:40	6.1	157	1.0	>1000	22.0	-41	Very turbid, pale brown, not flowing, reeds
			3/12/2025	11:30	5.5	163	0.9	>1000	20.9	89	Very turbid, pale brown, abundant vegetation
			18/12/2025	11:08	5.9	78	7.7	>1000	23.3	44	Very turbid, pale brown to brown, abundant vegetation
			15/01/2026	8:30	4.9	180	3.3	>1000	22.4	142	Clear, brown, vegetation cleared
			5/03/2026	8:52	5.5	177	2.3	168	22.5	-16	Very turbid, brown, not flowing, vegetation cleared
SW101	383015	6367617	27/11/2025	11:00	6.0	285	3.5	>1000	22.1	19	Very turbid, pale brown, not flowing, reeds
			3/12/2025	11:50	5.9	119	5.5	>1000	19.4	80	Very turbid, brown, not flowing, reeds
			18/12/2025	11:27	5.4	99	6.4	>1000	21.8	72	Very turbid, pale brown to brown, not flowing, reeds
			15/01/2026	8:39	5.3	94	3.3	720	21.7	87	Very turbid, brown, not flowing, reeds
			5/03/2026	9:05	No surface water						Location dry. Has been cleared
SW102	382724	6367511	27/11/2025	11:10	5.6	133	5.4	170	21.7	48	Moderately turbid, brown, not flowing, reeds / aquatic vegetation in drain
			3/12/2025	12:10	5.3	74	3.6	284	20.3	135	Moderately turbid, pale brown, not flowing, reeds / aquatic vegetation in drain
			18/12/2025	11:37	5.0	69	6.5	250	26.3	99	Moderately turbid, pale brown, not flowing, reeds/ aquatic vegetation in drain
			15/01/2026	8:47	5.0	95	2.6	128	21.1	118	Moderately turbid, brown, flowing, reeds cleared within drain
			5/03/2026	9:20	5.3	165	4.8	>1000	22.3	61	Very turbid, grey-brown, not flowing,reeds present around banks
SW103	382523	6367373	27/11/2025	11:25	5.9	119	3.0	>1000	24.3	53	Very turbid, brown, not flowing, reeds / aquatic vegetation in drain
			3/12/2025	12:30	5.3	78	6.5	95	20.7	148	Moderately turbid, pale brown, not flowing, reeds / aquatic vegetation in drain, decaying organics
			18/12/2025	11:46	5.2	62	9.1	40	27.7	108	Moderately turbid, pale brown, not flowing, reeds / aquatic vegetation in drain, decaying organics
			15/01/2026	9:16	5.4	86	2.6	44	21.4	77	Clear, brown, flowing, reeds cleared within drain
			5/03/2026	9:33	6.1	139	4.0	516	22.7	-20	Very turbuid, grey-brown, slightly flowing east (tidal). Reeds / aquatic vegetation
SW104	383119	6367450	15/01/2026	9:43	6.3	192	4.4	366	21.2	39	Very turbid, brown, not flowing, reeds / aquatic vegetation, minimal water
			5/03/2026	9:12	No surface water						Surface water location was dry. Has been cleared
SW105	382720	6367406	15/01/2026	9:00	5.5	103	3.4	194	22.1	95	Very turbid, brown, not flowing, reeds / aquatic vegetation in drain
			5/03/2026	9:25	6.2	404	1.7	644	22.6	14	Very turbid, grey-brown, not flowing/minimal water present, reeds / aquatic vegetation
SW106	382580	6367354	15/01/2026	9:12	5.5	115	2.4	119	21.7	73	Very turbid, brown, not flowing, reeds / aquatic vegetation in drain
			5/03/2026	9:31	6.4	207	1.4	>1000	22.5	-30	Very turbid, grey-brown, not flowing/minimal water present, reeds / aquatic vegetation
SW107	382836	6367730	27/11/2025	10:55	5.2	355	1.6	>1000	28.5	44	Very turbid, pale brown - grey, ponded surface water, slight decayed organics odour
			3/12/2025	12:40	5.1	177	1.5	>1000	31.4	85	Very turbid, pale brown
			18/12/2025	11:18	5.0	135	2.0	51	25.0	42	Moderately turbid, pale brown to brown, ponded water, slight decayed organics odour
			15/01/2026	8:32	5.5	706	4.0	640	21.9	143	Moderately turbid, brown, ponded water
			5/03/2026	8:57	No surface water						Location dry. Has been cleared
SW108 (alternate for SW8)	382356	6367250	27/11/2025	12:00	5.8	137	5.9	189	23.9	53	SW8 inaccessible, alternate location ~50m east Very turbid, brown, not flowing, reeds / aquatic vegetation in drain
			3/12/2025	1:00	5.2	81	6.6	74	20.1	161	Very turbid, pale brown, not flowing reeds present
			18/12/2025	12:00	5.5	87	10.9	984	25.9	114	Very turbid, pale brown
			15/01/2026	9:30	5.6	106	3.3	98	22.9	94	Slightly turbid, brown, flowing
			5/03/2026	10:00	5.7	138	3.8	123	24.6	57	Slightly turbid, grey-brown, slighlty flowing

Notes:

DO - dissolved oxygen

EC – Electrical Conductivity

NT - not tested

NTU - Nephelometric Turbidity Units

ORP – Oxidation Reduction Potential (mV)

PID – Photoionisation detector

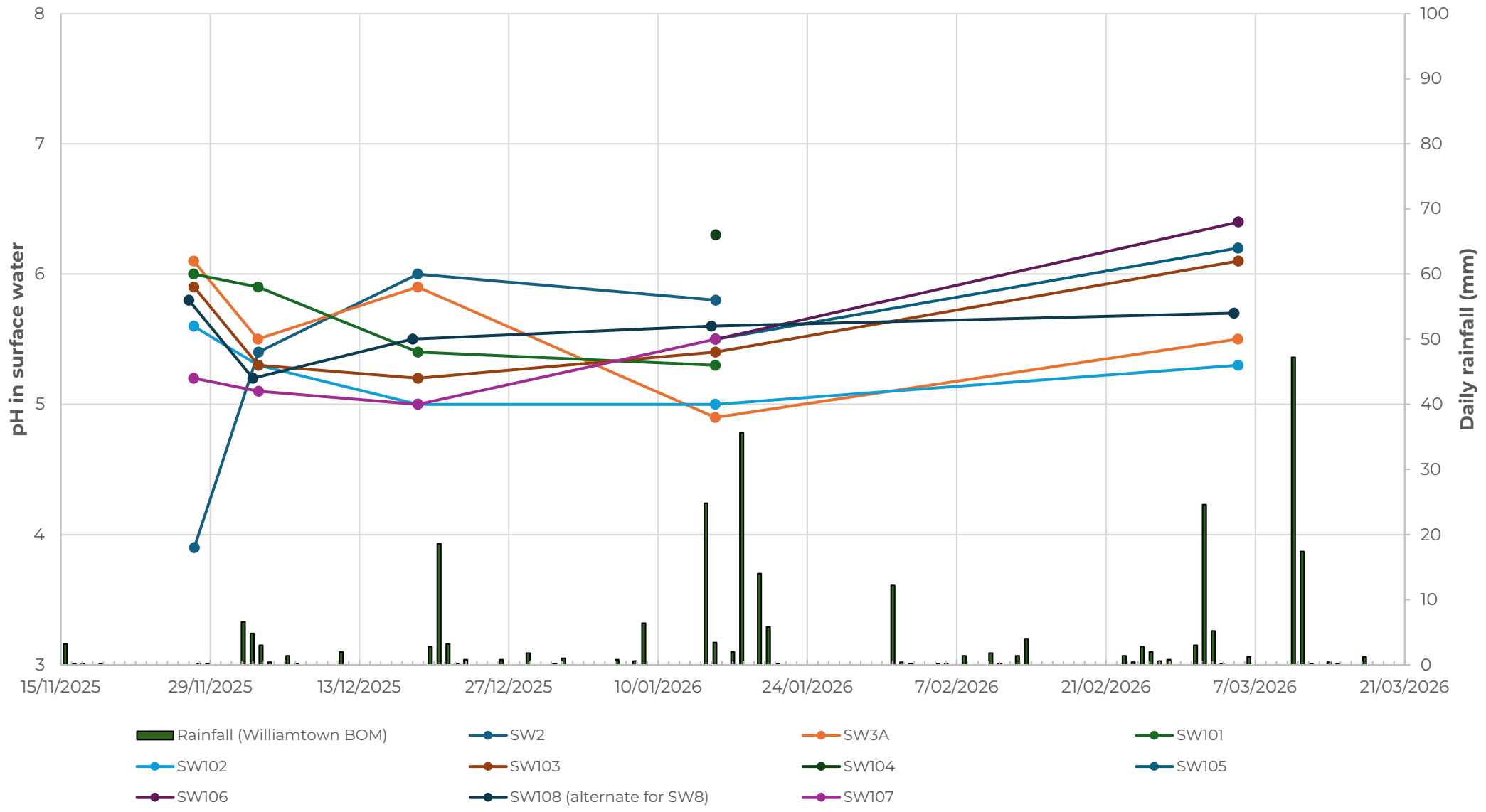

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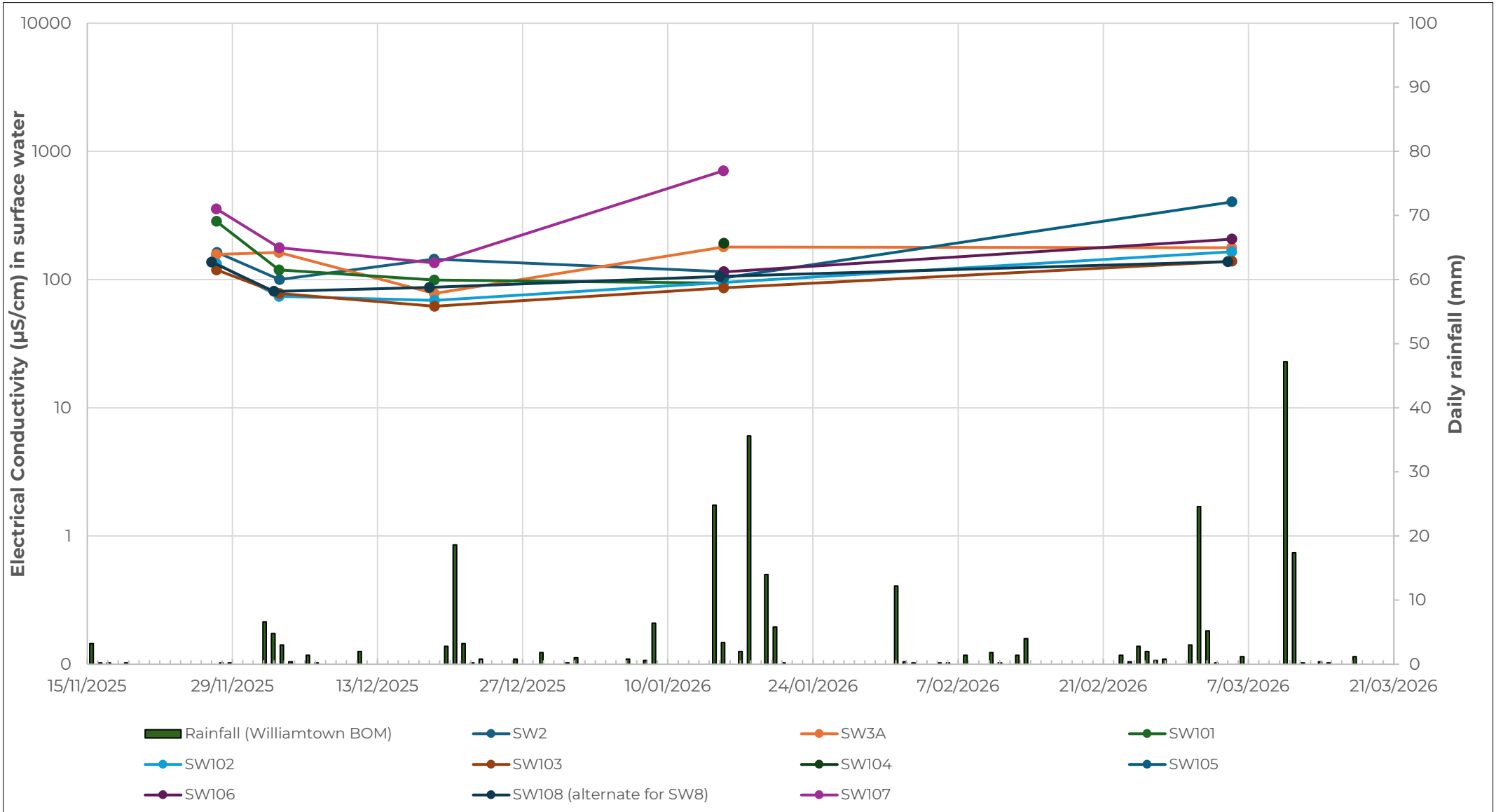
Figure 1: pH in surface water vs time and rainfall



Douglas PARTNERS

Figure 2: Electrical conductivity in surface water vs time and rainfall

Figure 1: Cleared vegetation looking south-east (27/11/25). WesTrac site and Lot 210 fill stockpile in background

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.09
		PLATE No:	1
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 2: Cleared vegetation looking south-west (3/12/25). Low-lying central and southern part of Lot 210 in background

Figure 3: Cleared vegetation looking east (3/12/25). WesTrac site and Lot 210 fill stockpile in background. Low-lying parts of Lot 210 on right

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.09
		PLATE No:	2
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 4: Cleared vegetation looking west from location SW3A (3/12/25). Tomago Road on right

Figure 5: Cleared vegetation looking the north-eastern part of site from location SW101. WesTrac Drive on right

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.09
		PLATE No:	3
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 6: Surface water monitoring location SW2 (27/11/25)

Figure 7: Surface water monitoring location SW2 (3/12/25)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.09
		PLATE No:	4
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 8: Surface water monitoring location SW101 (27/11/25)

Figure 9: Surface water monitoring location SW101 (3/12/25)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	5
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 10: Surface water monitoring location SW102 (27/11/25)

Figure 11: Surface water monitoring location SW102 (3/12/25)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	6
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 12: Surface water monitoring location SW103 (27/11/25)

Figure 13: Surface water monitoring location SW103 (3/12/25)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	7
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 14: Surface water monitoring location SW107 (27/11/25)

Figure 15: Surface water monitoring location SW107, looking west (3/12/25)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	8
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 16: Surface water monitoring location SW108 (27/11/25)

Figure17: Surface water monitoring location SW108 (3/12/25)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	9
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

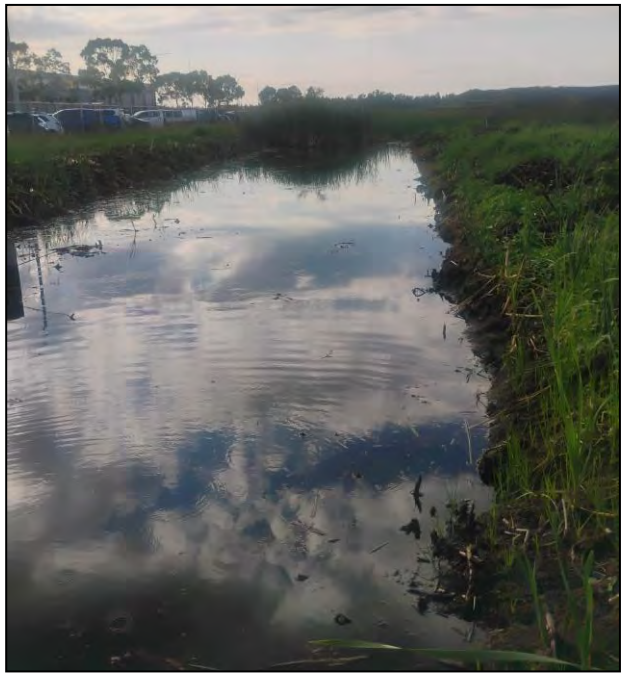


Figure 18: Surface water monitoring location SW3a (15/01/2026)

Figure 19: Surface water monitoring location SW105 (15/01/26)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	10
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 20: Cleared Vegetation looking south near MW103 (05/03/2026)

Figure 21: Cleared vegetation looking west near SW101 (05/03/26)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	11
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26

Figure 22: Surface water monitoring location SW3a (05/03/2026)

Douglas PARTNERS	**Site Photographs** **Stage 3 Vegetation Clearing** **Lot 210 Westrac Drive, Tomago**	PROJECT:	39920.18
		PLATE No:	12
		REV:	0
	CLIENT: Northbank Enterprise Hub Pty Ltd	DATE:	28-Apr-26