Earth Sciences New Zealand

Christchurch City Council hydrometric network annual report

1 January to 31 December 2025

Prepared for Christchurch City Council

May 2026

Prepared by:
Pieter Havelaar, Kathy Walter, Gregor Macara

For any information regarding this report please contact:

Pieter Havelaar
Environmental Monitoring Technician
Environmental Information
+64 3 341 2845
pieter.havelaar@earthsciences.nz

New Zealand Institute for Earth Science Limited
PO Box 8602
Riccarton
Christchurch 8440

Phone +64 3 348 8987

Client Report No: 2026112EI
Report date: May 2026
Project No: NET26900/CCC

Revision	Description	Date
Version 1.0	Final version sent to client	26 May 20276

Quality Assurance Statement		
	Reviewed by:	Kirstine Malloch Marty Flanagan
	Formatting checked by:	Terry Smith
	Approved for release by:	Charles Pearson

© New Zealand Institute for Earth Science Limited ("Earth Sciences New Zealand") 2025. All rights reserved. This publication may not be reproduced or copied in any form without the permission of the copyright owner(s). Such permission is only to be given in accordance with the terms of the client's contract with Earth Sciences New Zealand. This copyright extends to all forms of copying and any storage of material in any kind of information retrieval system.

Whilst Earth Sciences New Zealand has used all reasonable endeavours to ensure that the information contained in this document is accurate, Earth Sciences New Zealand does not give any express or implied warranty as to the completeness of the information contained herein, or that it will be suitable for any purpose(s) other than those specifically contemplated during the project or agreed by Earth Sciences New Zealand and the client.

Contents

Executive summary **8**

1 Introduction **10**

1.1 Christchurch City climate summary 2025 11

1.2 Health and safety reporting 12

1.3 Quality assurance checks 13

2 Rainfall **19**

3 Water level and flow **37**

3.1 Stage plots 47

3.2 Flow plots 60

4 Groundwater **65**

5 Sea-level monitoring **79**

6 Miscellaneous data **83**

6.1 Soil moisture monitoring 83

6.2 Climate monitoring 87

6.3 St Albans Creek monitoring 96

7 Additional work activities in 2025 ..... **99**

8 Anticipated work activities in 2026 ..... **100**

Appendix A Field activities 1 January 2025 – 31 December 2025 ..... **101**

Appendix B CCC site logging frequency as at 31 December 2025 ..... **166**

Appendix C CCC alarm list **169**

Tables

Table 1-1: Monthly climate summary for Christchurch in 2025. 11

Table 1-2: Seasonal climate summary for Christchurch in 2025. 12

Table 1-3: Annual climate summary for Christchurch in 2025. 12

Table 1-4: CCC hydrometric network missing record summary for 1 January to 31 December 2025. 14

Table 1-5: Summary of missing record for telemetered water level sites for 2025. 16

Table 1-6: Summary of missing record for telemetered rainfall sites for 2025. 17

Table 1-7: Summary of missing record for telemetered groundwater sites for 2025. 18

Table 2-1: Rainfall site statistics summary: 2025 comparison with full record. 23
Table 2-2: Rainfall site statistics summary: 2025 comparison with full record using event-based analysis for 1 hour and 24-hour durations. 24
Table 2-3: Summary of rainfall sites as of 31 December 2025. 25
Table 3-1: Water level site statistics summary: 2025 comparison with full record. 42
Table 3-2: Flow sites statistics summary: 2025 comparison with full record. 43
Table 3-3: Summary of water level/flow sites, December 2025. 44
Table 4-1: Groundwater site statistics summary: 2025 comparison with full record. 69
Table 6-1: St Albans Creek water level statistics summary: 2025 comparison with full record. 97
Table 6-2: St Albans Creek flow statistics summary: 2025 comparison with full record. 97

Table B-1: Site logging frequency as at 31 December 2025. 166
Table C-1: CCC site alarm list. 169
Table C-2: CCC site alarm list (cont.). 170
Table C-3: CCC site alarm list (cont.). 171

Figures

Figure 1-1: Total number of gaps in the CCC hydrometric network. 15
Figure 1-2: Percentage of missing record relative to total recordable hours in the CCC hydrometric network. 15
Figure 2-1: Location of CCC rainfall sites for 2025. 20
Figure 2-2: Rainfall network continuity scan: 1 January to 31 December 2025. 21
Figure 2-3: Rainfall network continuity scan: 1 January to 31 December 2025 (cont.). 22
Figure 2-4: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025. 27
Figure 2-5: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 28
Figure 2-6: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 29
Figure 2-7: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 30
Figure 2-8: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 31
Figure 2-9: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 32
Figure 2-10: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 33
Figure 2-11: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 34
Figure 2-12: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 35
Figure 2-13: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.). 36

Figure 3-1: Location of CCC water level sites during 2025. 38
Figure 3-2: Expanded view of CCC water level site locations in Christchurch during 2025. 39
Figure 3-3: Water level continuity plot for 2025. 41
Figure 3-4: CCC hydrometric network water-level plots: 1 January to 31 December 2025. 47
Figure 3-5: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 48
Figure 3-6: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 49
Figure 3-7: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 50
Figure 3-8: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 51
Figure 3-9: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 52
Figure 3-10: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 53
Figure 3-11: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 54
Figure 3-12: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 55
Figure 3-13: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 56
Figure 3-14: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 57
Figure 3-15: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 58
Figure 3-16: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.). 59
Figure 3-17: CCC hydrometric network flow plots: 1 January to 31 December 2025. 60
Figure 3-18: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.). 61
Figure 3-19: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.). 62
Figure 3-20: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.). 63
Figure 3-21: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.). 64
Figure 4-1: Location of CCC groundwater level sites during 2025. Telemetered sites are labelled with blue pins and manual sites with yellow pins. 66
Figure 4-2: Groundwater continuity plot for 2025. 67
Figure 4-3: Groundwater continuity plot for 2025 (cont.). 68
Figure 4-4: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025. 70
Figure 4-5: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.). 71

Figure 4-6: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025.(cont.). 72
Figure 4-7: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.). 73
Figure 4-8: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.). 74
Figure 4-9: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.). 75
Figure 4-10: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.). 76
Figure 4-11: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.). 77
Figure 4-12: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.). 78
Figure 5-1: Location of sea level monitoring sites during 2025. 80
Figure 5-2: Sea-level and barometric pressure continuity plot for 2025. 80
Figure 5-3: Sumner Head sea-level plotted with barometric pressure for the 2025 period. 81
Figure 5-4: Sumner Head sea-level plotted with forecast level and alert threshold for the 2025 period. 81
Figure 5-5: Sumner Head sea-level plots: Recorded barometric pressure for the 2025 period. 82
Figure 5-6: Akaroa Harbour sea-level plot for the 2025 period. 82
Figure 5-7: Lyttelton Port sea-level plot for the 2025 period. 82
Figure 6-1: Location of CCC miscellaneous sites during 2025. 83
Figure 6-2: Soil moisture continuity plot for 2025. 84
Figure 6-3: CCC hydrometric network soil moisture plots: 1 January to 31 December 2025. 85
Figure 6-4: CCC hydrometric network soil moisture plots: 1 January to 31 December 2025 (cont.). 86
Figure 6-5: CCC hydrometric network soil moisture plots: 1 January to 31 December 2025 (cont.). 87
Figure 6-6: Climate station air temperature data continuity scan: 1 January to 31 December 2025. 88
Figure 6-7: Climate station air temperature plots: 1 January to 31 December 2025. 89
Figure 6-8: Climate station air temperature plots: 1 January to 31 December 2025 (cont.). 90
Figure 6-9: Climate station barometric pressure plots: 1 January to 31 December 2025. 91
Figure 6-10: Climate station barometric pressure plots: 1 January to 31 December 2025 (cont.). 92
Figure 6-11: Climate station wind speed plots: 1 January to 31 December 2025. 93
Figure 6-12: Climate station wind speed plots: 1 January to 31 December 2025 (cont.). 94
Figure 6-13: Climate station wind speed plots: 1 January to 31 December 2025 (cont.). 95

Figure 6-14: Climate station wind speed plots: 1 January to 31 December 2025 (cont.). 96
Figure 6-15: St Albans Creek data continuity scan: 1 January to 31 December 2025. 96
Figure 6-16: St Albans Creek water level: 1 January to 31 December 2025. 97
Figure 6-17: St Albans Creek flow: 1 January to 31 December 2025. 98

Executive summary

As of 1 July 2025, the first phase of a New Zealand Government directive to restructure the Crown Research institutes (CRIs) into Public Research Organisations (PROs) came into effect. The National Institute of Water and Atmospheric Research (NIWA) and GNS Science (GNS) joined to form the New Zealand Institute for Earth Science. We are now known as Earth Sciences New Zealand (Earth Sciences NZ).

Earth Sciences NZ aims to drive New Zealand's economic growth and wellbeing through increasing returns from the use of New Zealand's natural resources and environments, enhancing energy security, building resilience to natural hazards and increasing prosperity in a changing climate.

We will continue to operate from our usual facilities. Our relationships, contracts and ongoing commitments to CCC continue unchanged.

This annual report summarises the operational performance and data integrity from the stations of Christchurch City Council's (CCC) hydrometric network, as managed by Earth Sciences NZ for 2025. It is provided in addition to the quarterly summary reports produced through the calendar year.

As at the end of 2025, the CCC network comprised 97 data recording sites in the Christchurch area, 28 rainfall, 37 water-level, 27 groundwater and 5 miscellaneous sites.

These sites are either permanent or project (temporary), and most are telemetered via cellular modem or satellite link. The remainder of un-telemetered sites are measured on a routine manual data collection basis (groundwater sites). Some have data transferred from Environment Canterbury (ECan) or from the Earth Sciences NZ climate database.

Monitoring sites are typically categorised as either water level, rainfall or groundwater sites. Two sea level sites exist in the network, as well various miscellaneous sites and projects which are generally short-term monitoring sites requested by CCC for specific investigations.

For the 2025 period, data integrity was maintained at a high level across the sites. Total missing record was 0.49% of the total hours recorded for all datalogger sites.

The specific causes of missing record have been described in each quarterly report when they occurred. To summarise the main reasons, missing record in 2025 primarily occurred at the Dartford St groundwater bore (3246005) and the Styx River at Lower Styx Rd (66423) sites. The Dartford St bore developed a logger issue and the Styx River dropped below the sensor level due to the river dropping dramatically. Additional periods of missing data are noted for the Avon River at PS205 (66611) and the St Albans at Bishop St (1066635) sites.

Additional work outside the Hydrometric Network services is reported, detailing various projects and additional tasks that Earth Sciences NZ assisted CCC to complete during the year. These have ranged from additional labour (flow gauging, new site installations) to sharing of expertise and advice (liaising, data transfer and archiving, software support, hydrological site design). A significant telemetry upgrade project was completed in 2025, with 31 sites being upgraded to data loggers with 4G capability.

In terms of Health and Safety reporting, one incident was reported in association with Earth Sciences NZ's operation of CCC's hydrometric network during 2025.

1 Introduction

Earth Sciences NZ is contracted to manage and operate Christchurch City Council's (CCC) hydrometric network. This annual report summarises data collected, and activities associated with the operation of the CCC hydrometric network from 1 January to 31 December 2025.

Annual reports provide a summary of all activities over each calendar year.

Quarterly reports are produced every 3 months to complement audited data updates for the quarter periods ending 31 March, 30 June, 30 September and 31 December. Quarterly reports summarise site maintenance and operation, periods of missing data, and updates of progress with any planned site improvements.

The following quarterly reports were produced for 2025, and are available on Earth Sciences NZ SharePoint site:

1. NIWA Client Report No. 2025136EI (quarter ending 31 March 2025)
2. NIWA Client Report No. 2025275EI (quarter ending 30 June 2025)
3. NIWA Client Report No. 2025381EI (quarter ending 30 September 2025)
4. NIWA Client Report No. 2026059EI (quarter ending 31 December 2025)

Section 1.1 of this report provides an overview of Christchurch City climate during 2025. Section 1.2 reports on Health and Safety for the project in 2025. Section 1.3 outlines the quality assurance checks undertaken on the data and provides statistics on project data capture performance.

Activities associated with the operation of rainfall, water-level/flow, groundwater and sea-level monitoring sites are described in Sections 2, 3, 4 and 5 respectively.

Activities associated with miscellaneous sites and monitoring projects are described in Section 6.

Some additional works are often carried out by Earth Sciences NZ on request from CCC during the year, often to do with short-term water sampling projects or similar. A summary of these works is presented in Section 7.

Proposed work activities that are anticipated by Earth Sciences NZ to be completed in 2025 are described in Section 8.

A summary of field activities during the year is provided in Appendix A. Appendix B provides the logging frequencies for CCC sites. An updated asset list can be found under the individual site id and site name on sims.niwa.co.nz.

The telemetry operations of the CCC hydrometric network are closely monitored for any communication failures at telemetered sites through a process in which Earth Sciences NZ staff are alerted when no data are received from a site for more than a definable period, generally two polling intervals (2 hours). Should this occur, notifications are automatically sent to the cell phones and email addresses of the various Earth Sciences NZ operational staff. This ensures any data outages are quickly noted and addressed, within the service level agreement timeframes expressed in the hydrometric contract. Additionally, specific Site Threshold Alerts are configured for certain storm events to notify CCC and Earth Sciences NZ operational staff of potential issues when thresholds are exceeded, such as High Rain, High Water level, High tidal forecast. An updated list of these Alarm configurations, actions and their CCC recipients is provided in Appendix C.

1.1 Christchurch City climate summary 2025

The mean temperature in Christchurch was 12.1°C, 0.5°C above the long-term average. Rainfall (727 mm; 118% of the annual normal) was near the long term normal. The city received 2411 total sunshine hours, which is 113% of normal (above normal sunshine hours).
Mean temperatures were above average or well above average for seven months of the year in Christchurch. The mean temperature in November was 3.3°C above average, making it Christchurch's hottest November since records began in 1863. The absolute warmest month was February, with a mean temperature of 16.8°C. The absolute coldest month was June, with a mean temperature of 6.4°C.

Near normal rainfall was recorded in Christchurch for the year overall. February was the driest month, with just 18 mm recorded (45% of the February normal). April was a particularly wet month, with 157 mm (274% of the April normal).

Christchurch received above or well above normal sunshine hours for nine of the 12 months of 2025. September was a particularly sunny month, with the city recording 247 hours of sunshine (146% of the September normal). Christchurch's least sunny month was June, with 119 hours of sunshine (103% of normal June sunshine hours).

It should be noted that the total rainfall and sunshine hours in Table 1-1 differ slightly from those in Table 1-2. This is due to Table 1-2 being a seasonal summary which includes data from December 2024 and excludes December 2025 data.

Table 1-1: Monthly climate summary for Christchurch in 2025.

Month	Mean temp. (°C)	Departure from normal (°C)	Rainfall (mm)	% of normal	Sunshine (hours)	% of normal
January	15.3	-1.8	80	189	214	94
February	16.8	-0.1	18	45	218	112
March	15.3	15.3	87	87	224	118
April	12.7	0.8	157	274	145	92
May	9.5	0.2	46	79	181	128
June	6.4	0.0	67	98	119	103
July	6.6	0.6	30	47	137	118
August	6.9	-0.4	52	89	182	116
September	10.2	0.9	32	76	247	146
October	12.6	1.3	49	99	243	118
November	16.5	3.3	39	86	260	115
December	16.3	0.6	147	147	241	112

Table 1-2: Seasonal climate summary for Christchurch in 2025.

Season	Mean temp. (°C)	Departure from normal (°C)	Rainfall (mm)	% of normal	Sunshine (hours)	% of normal
Summer 2024-2025	16.4	-0.2	203	156	651	102
Autumn 2025	12.5	0.5	290	181	550	112
Winter 2025	6.6	0.1	149	78	438	110
Spring 2025	13.1	1.8	119	88	750	125

Table 1-3: Annual climate summary for Christchurch in 2025.

	2025 Mean temp. (°C)	Departure from normal (°C)	2025 Rainfall (mm)	% of normal	2025 Sunshine (hours)	% of normal
Christchurch	12.1	0.5	727	118	2411	113

1.1.1 Extreme events for Christchurch in 2025

On 30 April, persistent rain fell over many parts of the country. This contributed to areas of surface flooding in Christchurch, and two local roads were closed. SH1 at Greta Valley (northern Canterbury) was reduced to one lane due to a slip. Strong southeasterly winds brought down a tree on Riverlaw Terrace in St Martins.

On 1 May, heavy and persistent rain that began the previous day continued for much of Canterbury, with widespread areas of surface flooding reported. A state of emergency was declared in Selwyn District, Christchurch, and Banks Peninsula. At least fourteen Christchurch roads were closed due to flooding, with at least twelve roads closed across Banks Peninsula.

On 15 July, fog disrupted flights at Christchurch Airport.

High mean sea level pressure prevailed over much of the South Island during July, with prolonged dry spells recorded in numerous locations including Bromley (8 days, 12-29 July) and the Christchurch Botanic Gardens (17 days, 12-28 July).

Maximum temperatures were elevated everywhere in the country, but the most notable extremes occurred between 26-30 November when foehn winds produced consecutive days of temperatures exceeding 30°C in some eastern locations, including Christchurch.

1.2 Health and safety reporting

Health and Safety is an important consideration for any fieldwork completed by Earth Sciences NZ staff. One incident was reported in association with Earth Sciences NZ's operation of CCC's hydrometric network during 2025. The incident occurred in June and was caused by a pump station roof access hatch being blown closed. The incident led to an Earth Sciences NZ staff member sustaining minor injuries. An investigation was undertaken and steps were taken by CCC to remediate the pumpstation trapdoor.

1.3 Quality assurance checks

1.3.1 Routine site checks

All water-level sites are visited at least once per quarter for routine maintenance inspections in accordance with the requirements prescribed in the Site Schedules. Manual water-level readings from the reference staff gauge are also made during these visits and are used to make any necessary calibration corrections to the raw data, and consequential adjustments of the archived data. Unless otherwise stated, all water level sites are maintained to record within +/- 10 mm from the reference staff gauge. Sites with known instability or prone to more sensor fouling (e.g., water quality sites) are visited more frequently to implement cleaning or sensor corrections.

All rain gauges in the network are verified once a year in the field. Any gauges that fall outside the verification specifications are replaced.

Groundwater manual measurements are made on a weekly and fortnightly basis along with any maintenance of site infrastructure or identifications. Telemetered groundwater sites are visited at least once per quarter for routine maintenance inspections.

1.3.2 Missing data record

Figure 1-1 shows the trend in the total number of gaps for all the water-level, rainfall, and telemetered groundwater data since 2005. Figure 1-2 shows the percentage of missing record for the year by site. Manual groundwater sites are not included in these statistics due to the data frequency of weekly/fortnightly manual readings.

Gaps or missing record of hydrological sites (refer to Table 1-5, Table 1-6 and Table 1-7) have occurred in the past for several reasons. The primary factors being equipment failure generally resulting from various causes including water-level instrument faults, rain gauge blockages, power supply failure, and vandalism. When such incidents occur, every endeavour is made to restore services as quickly as possible to minimise data loss and maintain continuous data records. Consequently, the total amount of missing record is kept to a minimum by responding quickly when faults occur, thus ensuring that the average time of missing data is kept to a minimum and represents a very small percentage of the total year's record.

The total number of gaps for telemetered water-level sites for 2025 was higher compared with 2024 however the gaps were on average shorter. The total hours of missing record decreased from 869 hours in 2024 to 437 hours for 2025.

This missing record recorded for 2025 was attributed largely to the river level dropping below the level of the sensor for the Styx River at Lower Styx Rd (66423) site.

An additional notable gap occurred at the Avon at PS205 site (66611). This was due to vandalism, resulting in the theft of the solar panel and sensor.

The total number of gap hours for telemetered rainfall sites was up in 2025 to 172 hours compared to 14 missing hours recorded in 2024. The reason for the increase was due to inundation of the Wigram Basin at overflow (66642) rain gauge during a flood event.

The telemetered groundwater sites recorded 25.5 gaps for the year, up from 0 hours in 2025. The reason for the increase was due to a faulty sensor at Dartford St.

Overall, the number of gaps and missing record for 2025 is considered low by comparison with similar data networks with the total missing record equivalent to 0.07% of total recordable hours of all sites for the 2025 period.

For more detail of specific faults or data gaps and causes and remedies please refer to the respective quarterly reports in which the gap occurs.

Table 1-4 provides a summary of the missing record for 2025, broken down into the three site categories of water level, rainfall and telemetered groundwater. Table 1-5, Table 1-6 and Table 1-7 provide a breakdown by site for each site category respectively.

Figure 1-1 and Figure 1-2 show the number of gaps and the percentage of missing record respectively for the last 20 years for each site category.

Table 1-4: CCC hydrometric network missing record summary for 1 January to 31 December 2025.

	Number of Gaps	Gap hours	Percentage Missing Record, %
Water level sites	46	437.3	0.132
Rainfall sites	7	171.6	0.068
Groundwater sites (telemetered)	4	25.5	0.29
Combined	57	634.4	0.49

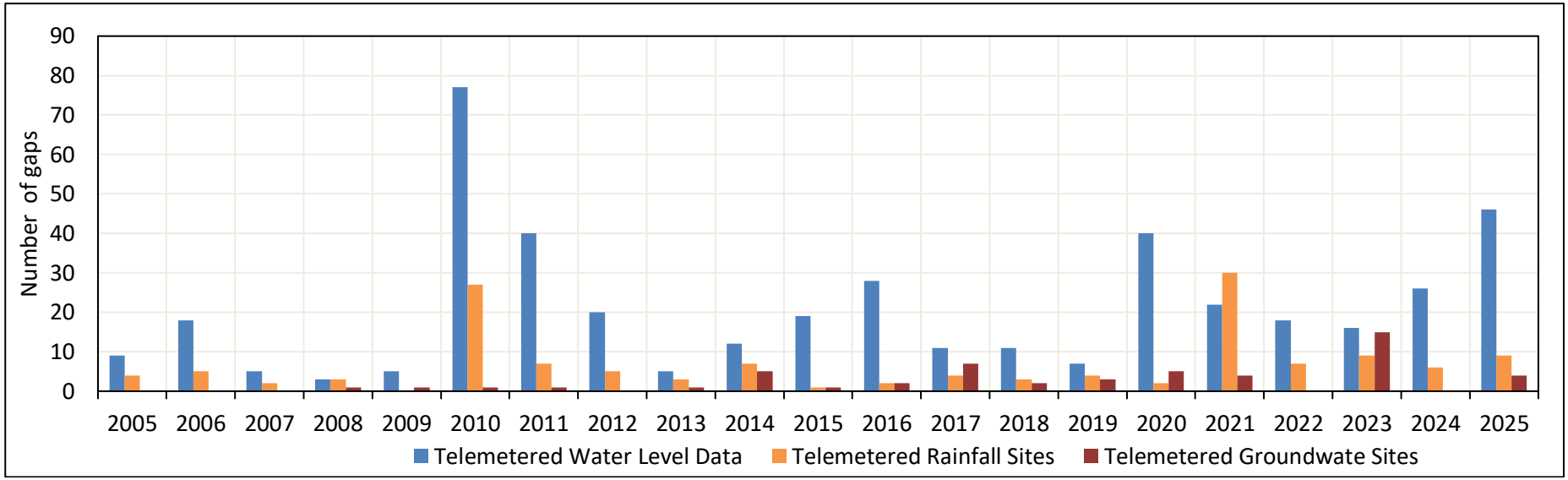


Figure 1-1: Total number of gaps in the CCC hydrometric network.

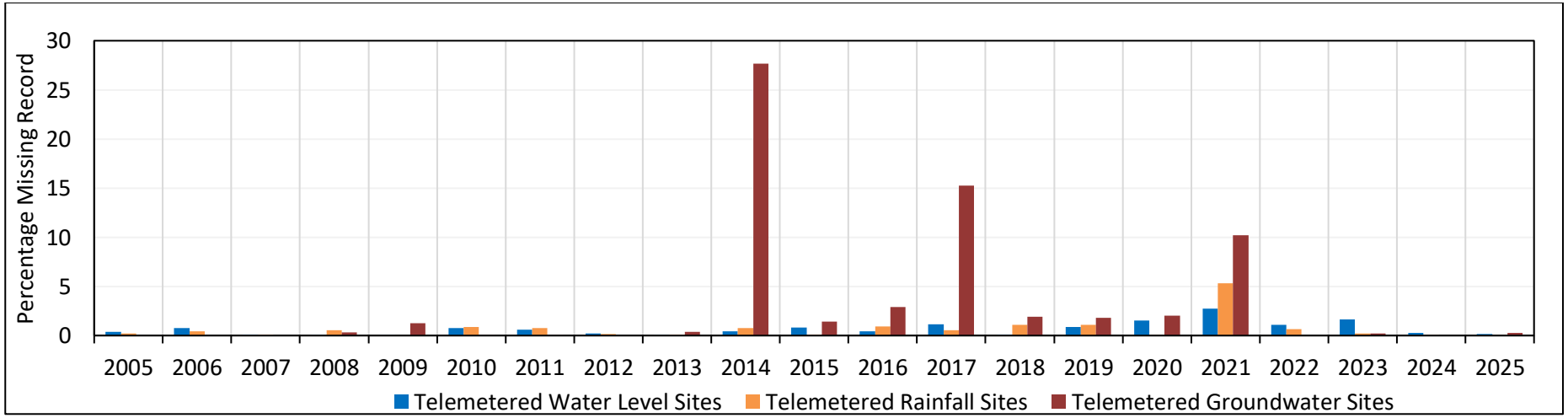


Figure 1-2: Percentage of missing record relative to total recordable hours in the CCC hydrometric network.

Table 1-5: Summary of missing record for telemetered water level sites for 2025.

Station details		1-January-2025 to 31-December-2025		
Number	Name	No. gaps	Total Gap (hours)	Percentage Gap
66422	Styx River at Harbour Rd	0	0.0	0.0
66423	Styx River at Lower Styx Rd	25	75	0.86
66425	Styx at Radcliffe Rd - ECan	0	0.0	0.0
66440	Styx River at Tidegates	2	11	0.13
66443	Kaputone Creek at Guthries Rd	2	12	0.14
66446	Prestons Subdivision at Lower Styx Rd	1	11.5	0.13
66447	Otukaikino at Dickeys Road	0	0.0	0.0
66471	Horners Drain at Prestons Rd	0	0.0	0.0
66604	Hoon Hay Stm at Hoon Hay Weir - ECan	2	66.1	0.75
66605	Heathcote River at Ferrymead Bridge	0	0.0	0.0
66609	Heathcote River at Ferniehurst	0	0.0	0.0
66610	Bullers Drain	1	3.0	0.03
66611	Avon River at PS205	1	70.6	0.81
66612	Heathcote at Buxton Tce - ECan	0	0.0	0.0
66621	Riccarton Drain at Deans Ave		0.0	0.0
66625	Wigram Retention Basin at Outflow	2	54.2	0.62
66626	Heathcote at Wigram Retention Basin	2	4.0	0.05
66634	Avon River at Bridge St	0	0.0	0.0
66635	Horseshoe Lake at PS205	0	0.0	0.0
66636	Dudley Creek at Aylesford Street	0	0.0	0.0
66638	Heathcote River at Opawa Rd	0	0.0	0.0
66639	Bowenvale Flume at Bowenvale Ave	0	0.0	0.0
66641	Halswell Ret.Basin, Halswell Jnt	0	0.0	0.0
66642	Wigram Retention Basin at Overflow	2	53.5	0.61
66651	Croziers Dr u/s of PS219 Philpotts Rd	0	0.0	0.0
66654	Wairarapa Stream at Rossall St	0	0.0	0.0
66670	Avon River at Fitzgerald Ave	1	0.8	0.01
66682	Cashmere Stream at Worsleys Reserve	0	0.0	0.0
66692	Hoon Hay Valley Drain at Cashmere Rd	1	2.6	0.03
66694	Cashmere Valley Drain at Adventure Park	0	0.0	0.0
66695	Heathcote River at Bells Pumpstation	0	0.0	0.0
67101	Le Bons Bay at Hughes Culvert	0	0.0	0.0
67603	Lake Forsyth at SH75 - ECan	0	0.0	0.0
67806	Knights Stream at Sabys Road	0	0.0	0.0
966602	Avon at Gloucester St - Ecan	0	0.0	0.0
1066632	Cashmere Stream at Eastman Wetland	0	0.0	0.0

Station details		1-January-2025 to 31-December-2025		
Number	Name	No. gaps	Total Gap (hours)	Percentage Gap
1066635	St Albans Ck at Bishop St	4	73.0	0.83
Average		**1.2**	**11.5**	**0.131**
Total		**46**	**437.3**	**0.132**

Table 1-6: Summary of missing record for telemetered rainfall sites for 2025.

Station details		1-January-2025 to 31-December-2025		
Number	Name	No. gaps	Total Gap (hours)	Percentage Gap
66642	Wigram at Retention Basin	2	145	1.65
67002	Opara Stream at Okains Bay	0	0.0	0.00
323605	42A Peraki Street, Kaiapoi	0	0.0	0.00
324501	Aero club	2	8.0	0.09
324606	Styx River at Harbour Rd	0	0.0	0.00
324607	Styx River at Lower Styx Rd	0	0.0	0.00
324608	PS62, Tyrone Street	3	18.7	0.21
324610	Firestone Factory, Papanui	0	0.0	0.00
325403	PS80, Templeton	0	0.0	0.00
325507	College of Education, Ilam	0	0.0	0.00
325510	Halswell Ret.Basin, Halswell Jnt	0	0.0	0.00
325512	Aidanfield, Dunbars Reservoir	0	0.0	0.00
325615	Kyle St EWS (Earth Sciences NZ)	0	0.0	0.00
325626	Christchurch Botanical Gardens EWS (Earth Sciences NZ)	0	0.0	0.00
325617	Avon River at PS205	0	0.0	0.00
325618	PS42, Sparks Road	0	0.0	0.00
325619	Tunnel Road, Heathcote	0	0.0	0.00
325621	Bowenvale Flume at Bowenvale Ave	0	0.0	0.00
325711	Van Asch St, Sumner	0	0.0	0.00
325712	Reservoir No.4, Clifton Tce	0	0.0	0.00
325719	Bromley EWS (Earth Sciences NZ)	0	0.0	0.00
326616	Upper Bowenvale Valley	0	0.0	0.00
326617	Upper Cashmere Catchment at Worsleys Rd	0	0.0	0.00
326704	Diamond Harbour EWS (Earth Sciences NZ)	0	0.0	0.00
327804	4960 Chch Akaroa Hwy	0	0.0	0.00
327902	Duvauchelles CWS at Akaroa Golf Course	0	0.0	0.00
328711	Kaituna at Kaituna Valley Rd – Ecan	0	0.0	0.00
328905	Akaroa EWS (Earth Sciences NZ)	0	0.0	0.00
Average		**0.3**	**6.1**	**0.07**
Total		**7**	**172**	**0.1**

Table 1-7: Summary of missing record for telemetered groundwater sites for 2025.

Station details		1-January-2025 to 31-December-2025		
Number	Name	Number of gaps	Total gap (hrs)	Percentage gap
66471	Dartford St, Brooklands	3	24.7	0.28
66649	Halswell Retention Basin	0	0.0	0.00
3257031	Sumner, Wakefield Ave	1	0.8	0.01
Average		**1.3**	**8.5**	**0.09**
Total		**4**	**25.5**	**0.29**

2 Rainfall

At the end of 2025 the CCC hydrometric rainfall network comprised of 28 sites.

Additional rainfall data are included in the CCC hydrometric database for Christchurch Aero Club (324501), Kaituna Valley (328711 - ECan site), Kaiapoi (323605 - Waimakariri District Council site), Duvauchelle CWS (327903) as well as from the Earth Sciences NZ electronic weather station (EWS) sites at Kyle Street EWS (325615), Akaroa EWS (328905), Diamond Harbour EWS (326704), Christchurch Botanic Gardens EWS (325626) and Bromley EWS (325719).

Figure 2-1 shows the site locations. Figure 2-2 and Figure 2-3 provide a data continuity scan showing the extent of any gaps in the rainfall records. The cause and remedy of the periods of missing records have been described previously in the respective quarterly reports in which the gap occurs.

Table 2-1 provides a statistical summary of the rainfall intensity at these sites during 2025 as compared with the intensities recorded during the full period of record.

Table 2-2 provides an event based statistical summary (1 hour and 24 hour maximums) of the rainfall intensity at these sites during 2025 as compared with the intensities recorded during the full period of record.

Table 2-3 provides comments that identify issues that are suspected to be affecting gauge accuracy or exposure with the rain gauge network, as assessed using a meteorological instrumentation standard.

Daily rainfall plots for each rainfall site, for the 2025 calendar year, are shown in Figure 2-4 to Figure 2-13.

Attention is drawn to the y-axes of the plots as they are grouped by maximum daily event sizes for ease of event comparison, with groupings of 50 mm, 70 mm, 90 mm and 160 mm maxima.

Figure 2-1: Location of CCC rainfall sites for 2025.

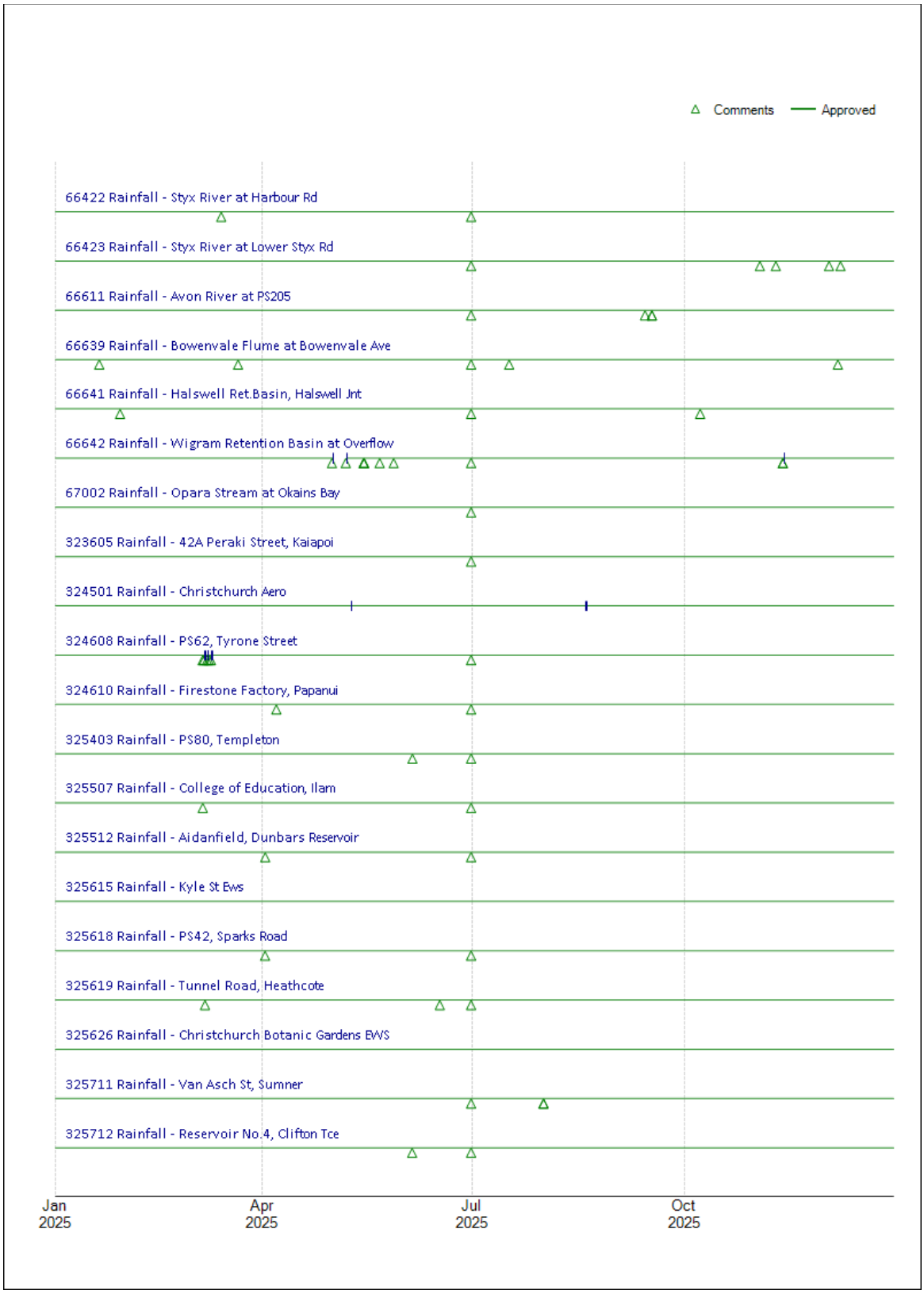


Figure 2-2: Rainfall network continuity scan: 1 January to 31 December 2025.

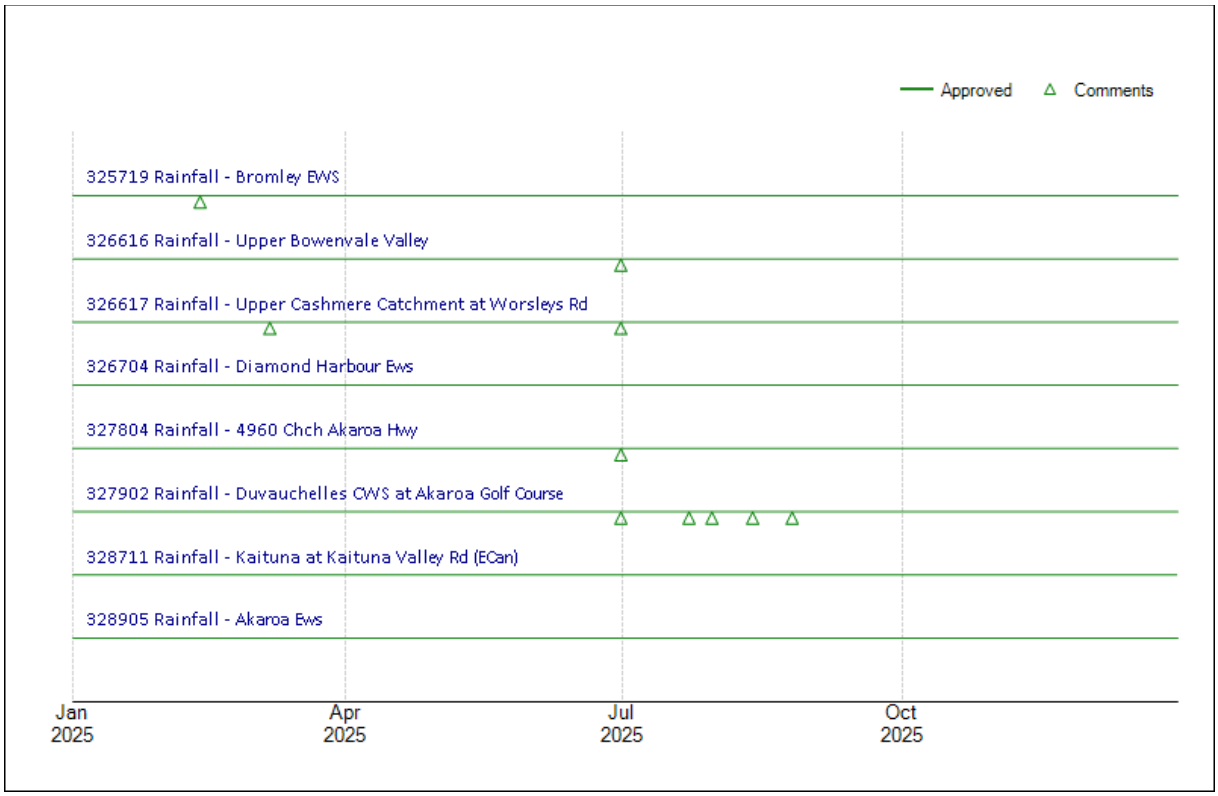


Figure 2-3: Rainfall network continuity scan: 1 January to 31 December 2025 (cont.).

Table 2-1: Rainfall site statistics summary: 2025 comparison with full record.

Station details			Full record				1-January-2025 - 31-December-2025			
Number	Name	Start of record	Maximum (mm/hr)	Maximum (mm/day)	Mean (mm/day)	Average (mm/yr)	Maximum (mm/hr)	Maximum (mm/day)	Mean (mm/day)	Period Total (mm/yr)
66422	Styx River at Harbour Rd	01-Jan-87	21.2	98.4	1.5	547.4	7.8	49.0	1.6	600.2
66423	Styx River at Lower Styx Rd	01-Jan-87	24.8	93.4	1.6	568.6	7.6	50.4	1.6	579.4
66611	Avon River at PS205	01-Jan-87	19.6	100.6	1.6	*578.9	8.2	41.2	1.5	532.4
66639	Bowenvale Flume at Bowenvale Ave	01-Dec-88	22.6	122.6	2.1	749.8	11.2	39.4	2.1	763.6
66641	Halswell Ret.Basin, Halswell Jnt	01-May-99	19.8	84.8	1.9	675.8	15.0	77.4	2.4	877.2
66642	Wigram Retention Basin at Overflow	01-Feb-95	27.8	67.4	1.7	*624.1	10.8	55.6	2.0	716.0
67002	Opara Stream at Okains Bay	26-Sep-19	13.6	109.4	2.4	*874.0	8.4	83.2	2.7	1002.2
323605	42A Peraki Street, Kaiapoi (WDC)	01-Apr-87	41.0	111.4	1.7	612.2	8.4	52.0	1.7	632.0
324501	Christchurch Aero	01-Jan-60	26.1	87.4	1.6	600.1	10.4	62.4	2.0	718.7
324608	PS62, Tyrone Street	01-Dec-81	28.0	86.8	1.5	559.3	9.0	53.2	1.6	570.8
324610	Firestone Factory, Papanui	01-Jan-81	33.2	72.8	1.6	*590.2	9.2	36.0	1.5	548.8
325403	PS80, Templeton	01-Mar-90	25.4	87.8	1.8	648.2	18.0	63.2	2.3	838.8
325507	College of Education, Ilam	01-Jun-64	32.0	108.0	1.7	635.7	9.4	59.4	1.9	685.6
325512	Aidanfield, Dunbars Reservoir	26-Jul-05	12.8	82.0	1.8	643.9	14.2	82.0	2.3	825.6
325615	Kyle St EWS (ESNZ)	31-Oct-02	25.9	79.9	1.7	619.0	7.8	68.3	1.9	705.8
325618	PS42, Sparks Road	01-Dec-67	34.6	129.1	1.9	703.8	15.8	75.2	2.2	792.4
325619	Tunnel Road, Heathcote	01-Jan-62	31.6	136.6	1.7	633.1	9.2	46.6	1.8	638.8
325626	Christchurch Botanic Gardens EWS (ESNZ)	08-Oct-21	10.4	84.4	1.9	675.4	8.0	62.6	1.9	677.2
325711	Van Asch St, Sumner	01-Dec-67	26.8	123.4	1.7	603.5	11.2	40.0	1.8	658.1
325712	Reservoir No.4, Clifton Tce	26-Mar-03	19.8	121.6	1.6	592.9	12.6	46.6	1.9	676.2
325719	Bromley EWS (ESNZ)	28-Jun-19	12.6	85.4	1.3	464.4	9.0	39.6	1.2	450.2
326616	Upper Bowenvale Valley	01-May-88	20.7	170.6	2.5	900.0	16.0	111.8	3.0	1109.4
326617	Upper Cashmere Catchment at Worsleys Rd	14-Jun-16	15.4	93.8	2.2	811.0	13.0	93.8	2.5	911.8
326704	Diamond Harbour EWS (ESNZ)	01-Jan-19	13.0	85.0	1.9	693.8	10.8	66.4	2.5	912.0
327804	4960 Chch Akaroa Hwy	13-Nov-12	24.0	164.0	3.4	1248.5	15.0	130.4	4.4	1599.8
327902	Duvauchelles CWS at Akaroa Golf Course	17-Sep-20	20.0	146.6	2.3	856.2	13.4	35.6	2.1	752.4
328711	Kaituna at Kaituna Valley Rd (ECan)	01-Jun-90	19.8	92.3	2.1	*772.6	16.5	82.0	2.9	1054.5
328905	Akaroa EWS (ESNZ)	19-Dec-08	22.0	183.8	2.8	1022.7	16.2	158.2	3.6	1307.2

* indicates gap percentage of 2.5% exceeded

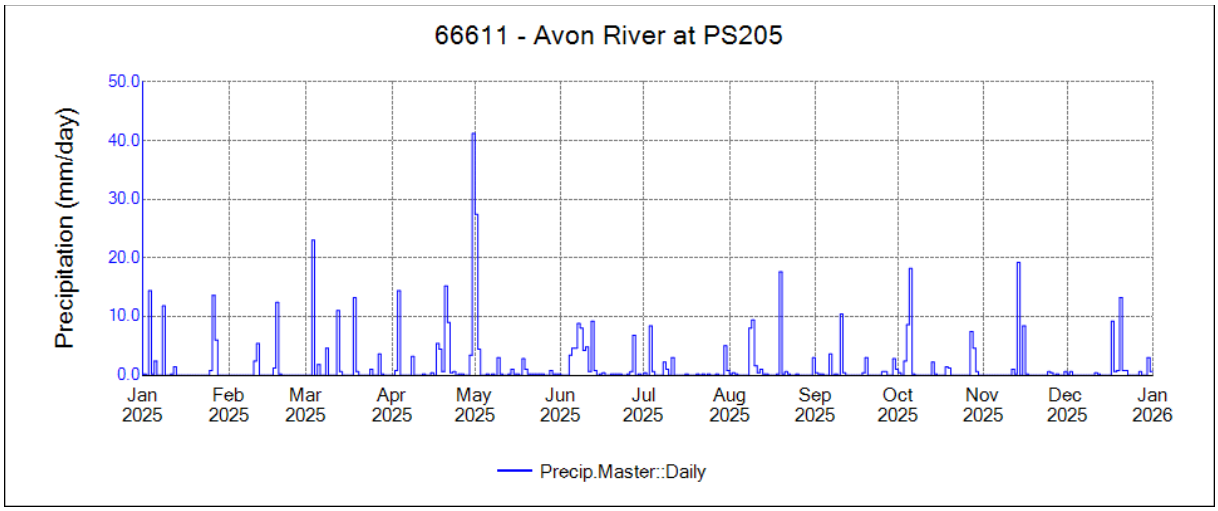
Table 2-2: Rainfall site statistics summary: 2025 comparison with full record using event-based analysis for 1 hour and 24-hour durations.

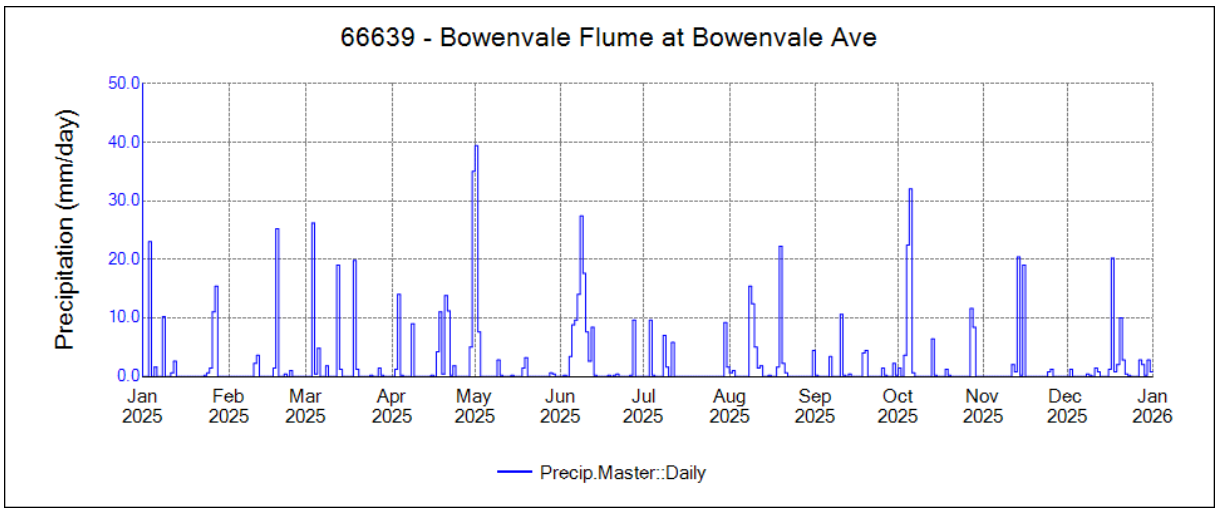
Station details		Full record		1-January-2025 - 31-December-2025	
Number	Name	Maximum (mm/60 min)	Maximum (mm/24 hr)	Maximum (mm/60 min)	Maximum (mm/24hr)
66422	Styx River at Harbour Rd	22.8	98.6	9.0	79.6
66423	Styx River at Lower Styx Rd	33.0	95.0	9.6	67.0
66611	Avon River at PS205	22.4	121.0	9.0	50.0
66639	Bowenvale Flume at Bowenvale Ave	22.6	160.4	15.2	46.8
66641	Halswell Ret.Basin, Halswell Jnt	21.4	95.4	16.4	95.4
66642	Wigram Retention Basin at Overflow	30.2	110.0	12.4	81.6
67002	Opara Stream at Okains Bay	16.6	126.4	11.4	116.8
323605	42A Peraki Street, Kaiapoi (WDC)	41.0	112.2	9.6	77.2
324501	Christchurch Aero	26.1	118.5	10.4	86.4
324608	PS62, Tyrone Street	28.8	109.0	11.0	68.8
324610	Firestone Factory, Papanui	33.2	127.0	14.8	46.4
325403	PS80, Templeton	28.6	87.8	23.4	84.4
325507	College of Education, Ilam	32.0	135.9	11.0	70.2
325512	Aidanfield, Dunbars Reservoir	14.4	104.2	14.4	104.2
325615	Kyle St EWS (Earth Sciences NZ)	25.9	135.9	7.8	88.7
325618	PS42, Sparks Road	43.0	138.4	16.8	92.4
325619	Tunnel Road, Heathcote	31.6	145.3	9.2	54.6
325626	Christchurch Botanic Gardens EWS (Earth Sciences NZ)	10.4	87.0	8.6	81.8
325711	Van Asch St, Sumner	27.2	161.0	11.2	46.0
325712	Reservoir No.4, Clifton Tce	28.0	161.2	12.6	53.6
325719	Bromley EWS (Earth Sciences NZ)	24.0	86.6	9.8	46.4
326616	Upper Bowenvale Valley	22.8	266.0	17.4	115.0
326617	Upper Cashmere Catchment at Worsleys Rd	15.4	109.8	13.4	109.8
326704	Diamond Harbour EWS (Earth Sciences NZ)	13.0	87.4	10.8	74.6
327804	4960 Chch Akaroa Hwy	24.2	290.4	17.2	153.6
327902	Duvauchelles CWS at Akaroa Golf Course	20.8	161.6	20.8	40.4
328711	Kaituna at Kaituna Valley Rd (ECan)	27.5	115.3	22.2	115.3
328905	Akaroa EWS (Earth Sciences NZ)	23.0	261.6	19.4	261.6

Table 2-3: Summary of rainfall sites as of 31 December 2025.

Site	Name	Comments
66422	Styx River at Harbour Rd	Instrument above standard installation height (on tower). 4G logger installed.
66423	Styx River at Lower Styx Rd	4G logger installed.
66611	Avon River at PS205	Instrument above standard installation height (on roof). 4G logger installed.
66639	Bowenvale Flume at Bowenvale Ave	Instrument above standard installation height (on tower). Upgraded to 4G in October 2024.
66641	Halswell Ret.Basin, Halswell Jnt	Fair exposure due to vegetation. Upgraded to 4G in October 2024.
66642	Wigram Retention Basin at Overflow	Instrument above standard installation height (on pole). 4G logger installed. 4G logger installed.
67002	Opara Stream at Okains Bay	Site exposure worsening due to established trees.
323605	42A Peraki Street, Kaiapoi (WDC)	Instrument above standard installation height (on roof). Not telemetered.
324501	Christchurch Aero	
324608	PS62, Tyrone Street	Instrument above standard installation height (on roof). Upgraded to 4G in March 2025.
324610	Firestone Factory, Papanui	Instrument above standard installation height (on post). Upgraded to 4G in April 2025.
325403	PS80, Templeton	Instrument above standard installation height (on roof). Upgraded to 4G in June 2025
325507	College of Education, Ilam	Instrument above standard installation height (on roof). Upgraded to 4G in March 2025.
325512	Aidanfield, Dunbars Reservoir	Instrument above standard installation height (on roof). Upgraded to 4G in April 2025.
325615	Kyle St EWS (Earth Sciences NZ)	Poor exposure due to buildings and vegetation.
325618	PS42, Sparks Road	Instrument above standard installation height (on tower). Upgraded to 4G in April 2025
325619	Tunnel Road, Heathcote	Instrument above standard installation height (on tower). Poor exposure due to surrounding trees. Upgraded to 4G in March 2025.
325626	Christchurch Botanic Gardens EWS (Earth Sciences NZ)	Poor exposure due to established trees.
325711	Van Asch St, Sumner	Poor exposure due to vegetation. Upgraded to 4G in August 2025.
325712	Reservoir No.4, Clifton Tce	Instrument above standard installation height (on roof). Upgraded to 4G in June 2025.
325719	Bromley EWS (Earth Sciences NZ)	
326616	Upper Bowenvale Valley	Poor exposure due to steep terrain.
326617	Upper Cashmere Catchment at Worsleys Rd	Instrument above standard installation height (on roof). Upgraded to 4G in March 2025.
326704	Diamond Harbour EWS (Earth Sciences NZ)	

Site	Name	Comments
327804	4960 Chch Akaroa Hwy	Fair exposure due to steep terrain.
327902	Duvauchelles CWS at Akaroa Golf Course	Upgraded to 4G in August 2024.
328711	Kaituna at Kaituna Valley Rd (ECan)	
328905	Akaroa EWS (Earth Sciences NZ)	





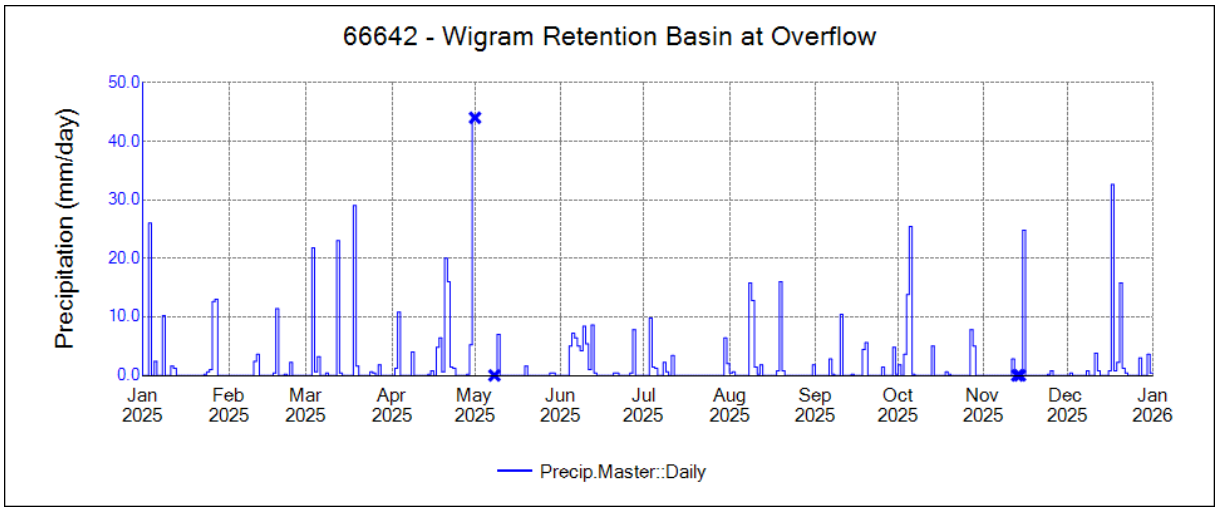
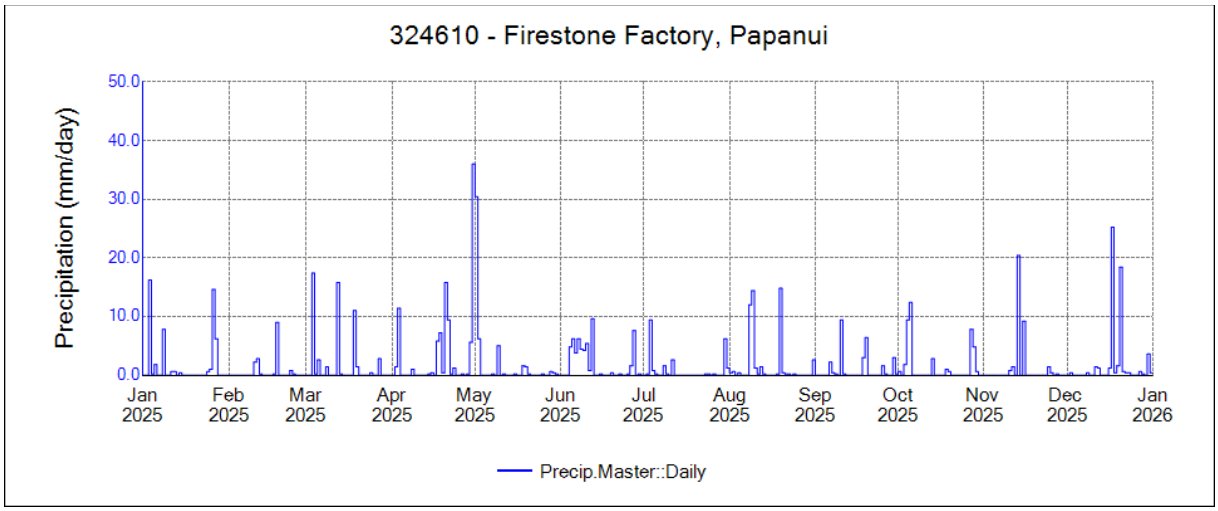
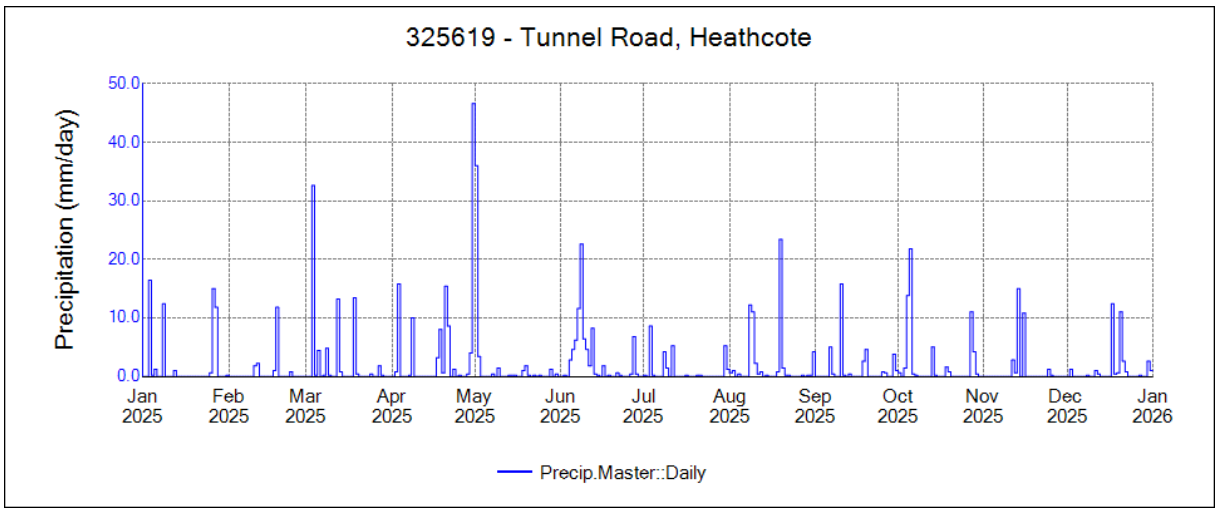


Figure 2-4: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025.





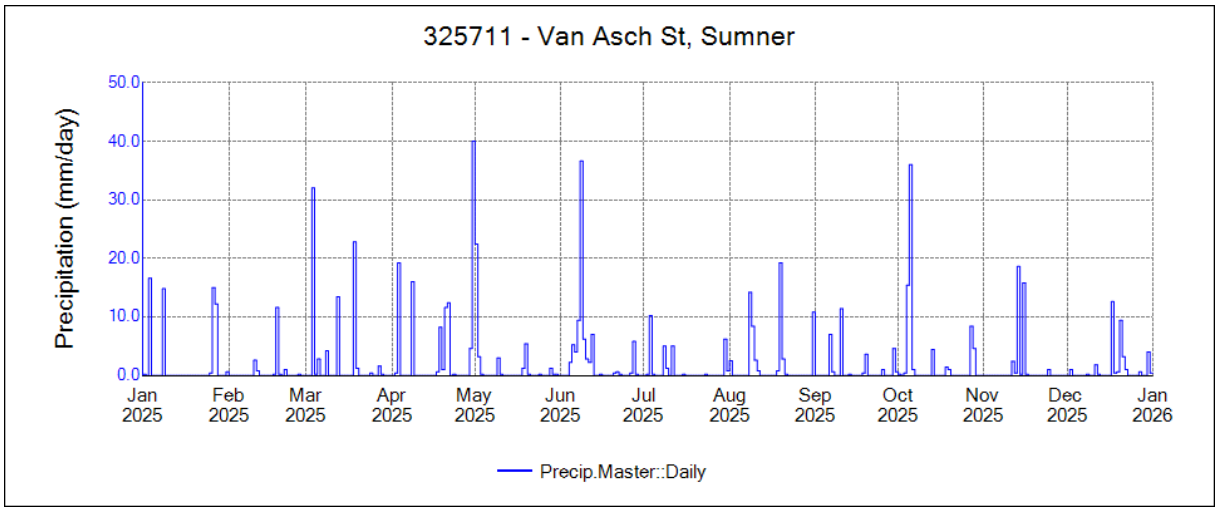
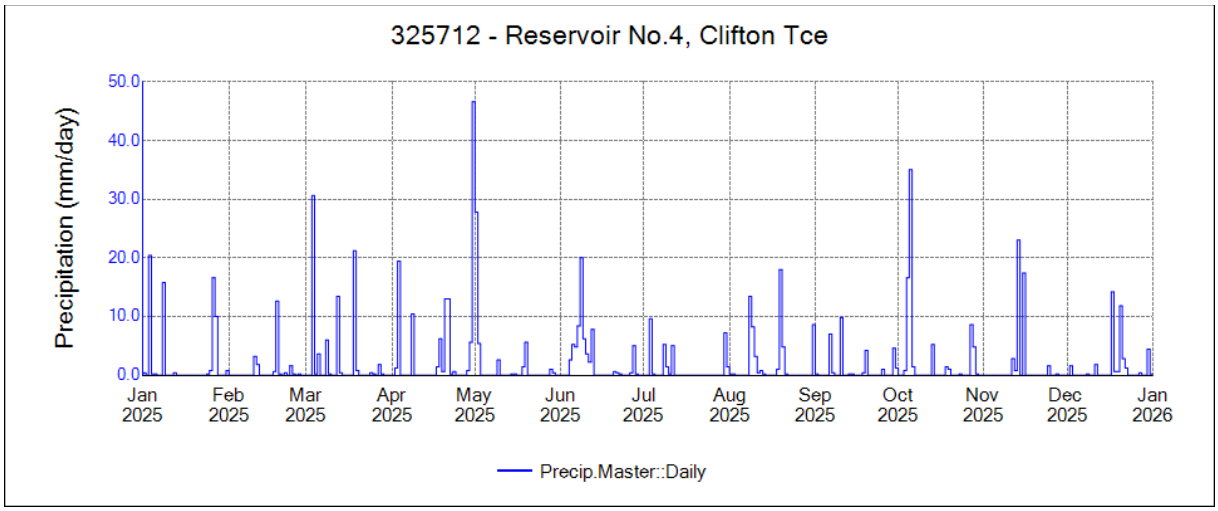
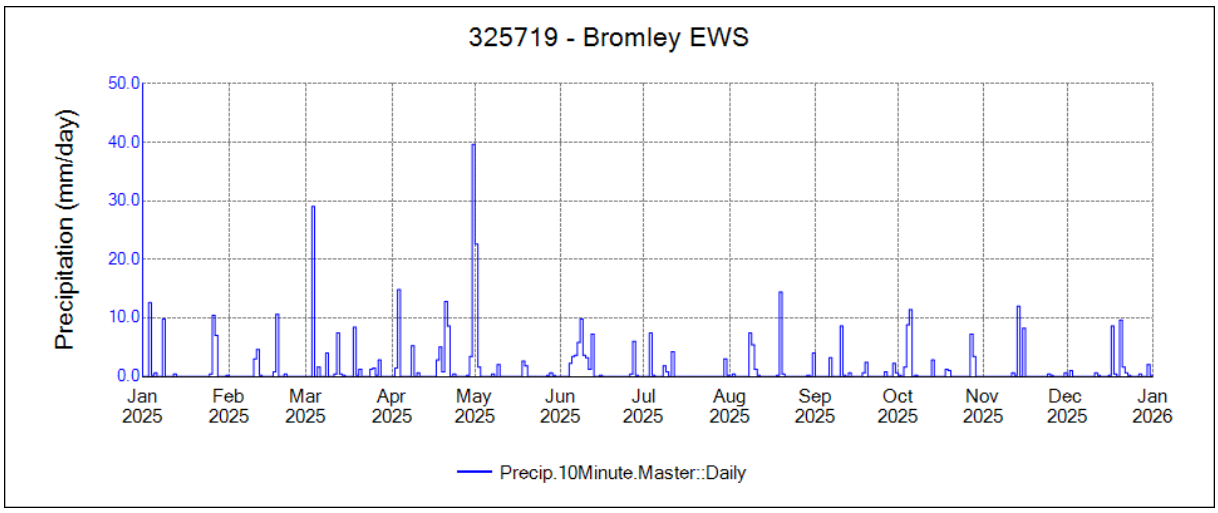


Figure 2-5: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).





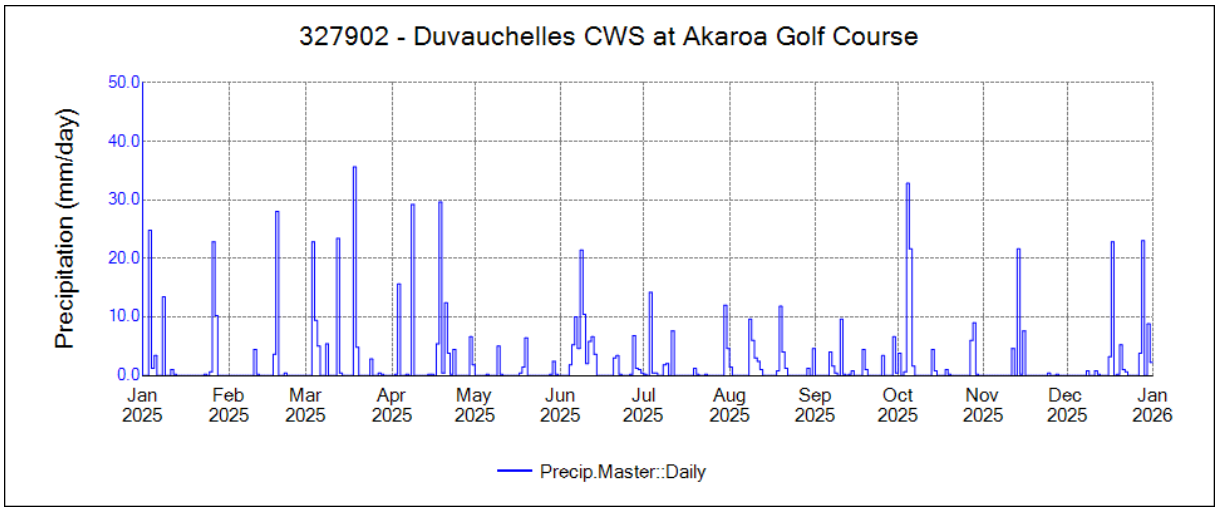
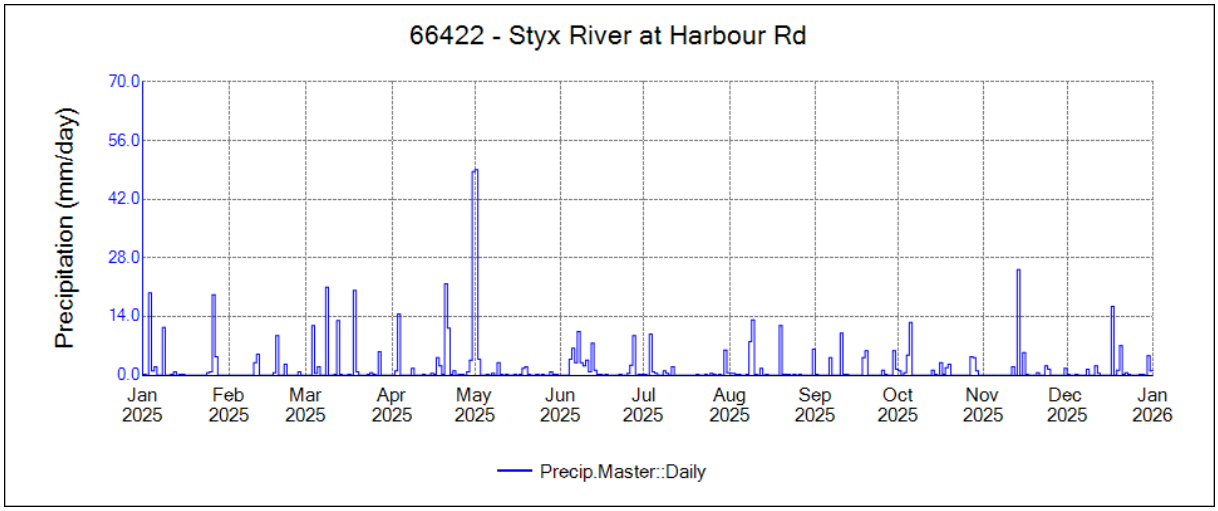
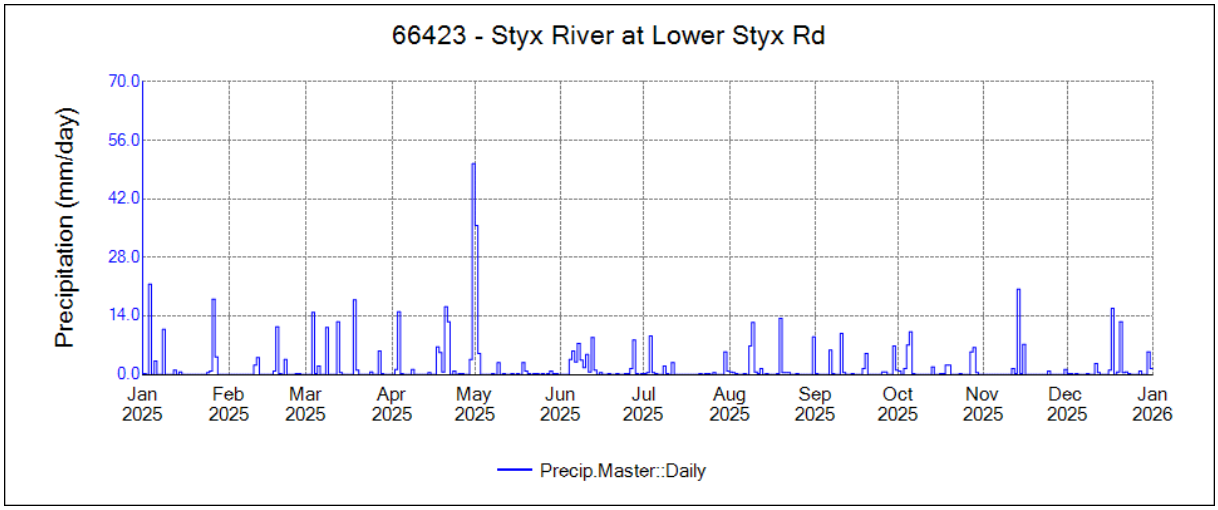


Figure 2-6: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).





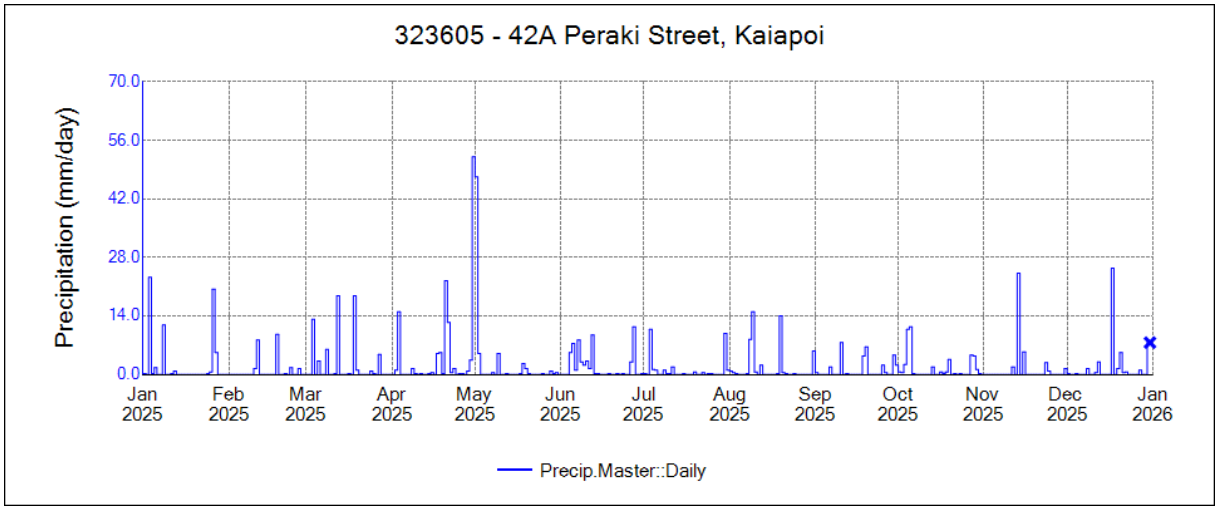
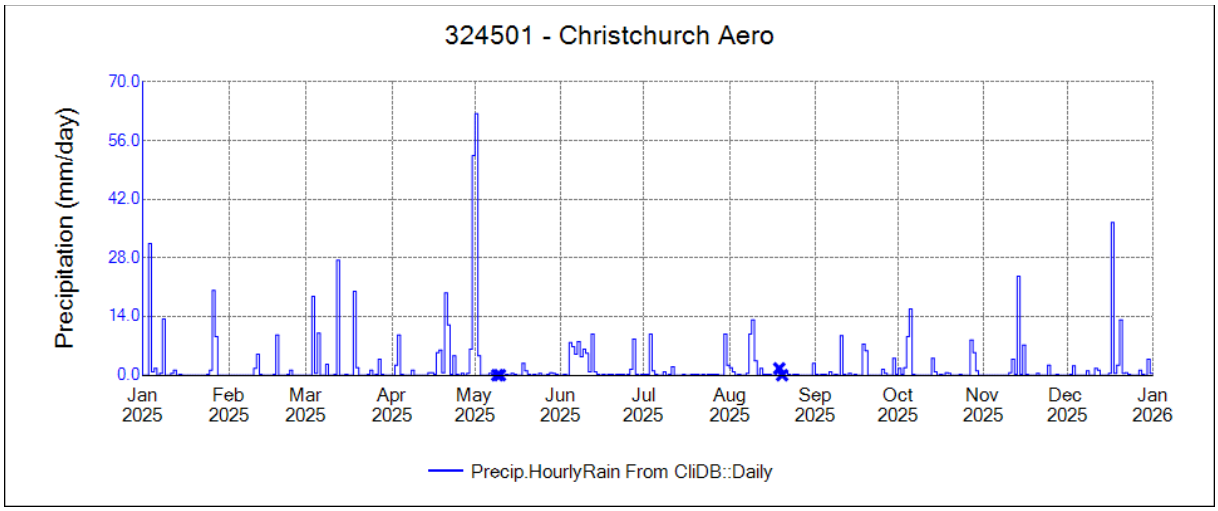
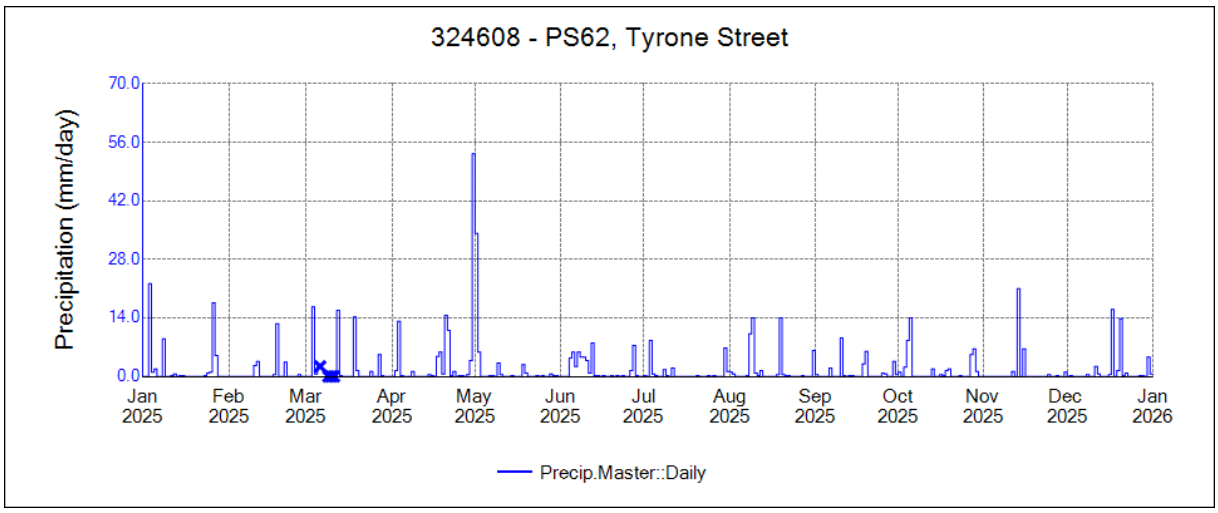


Figure 2-7: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).





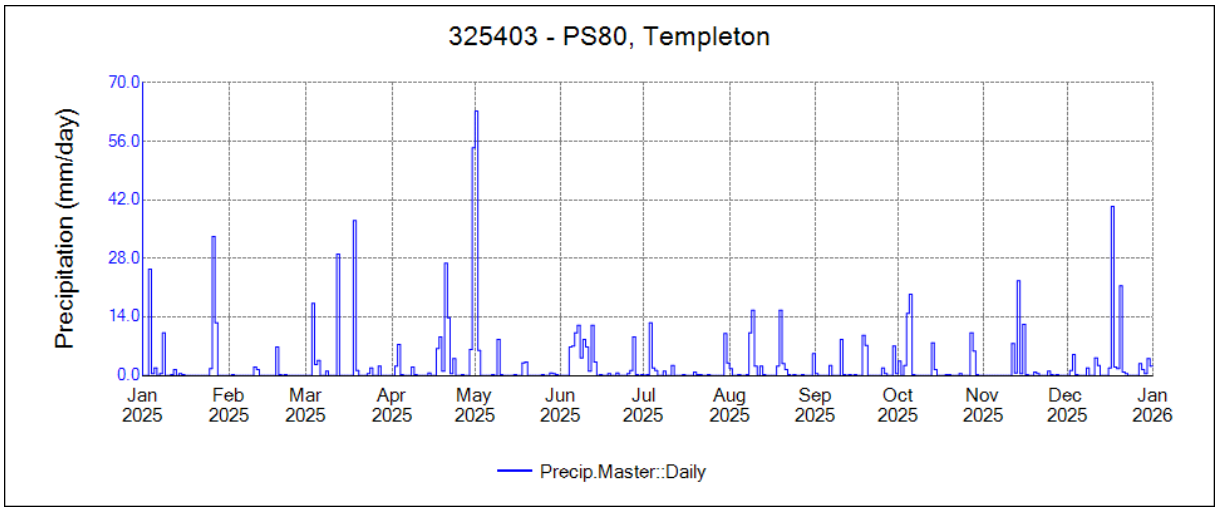
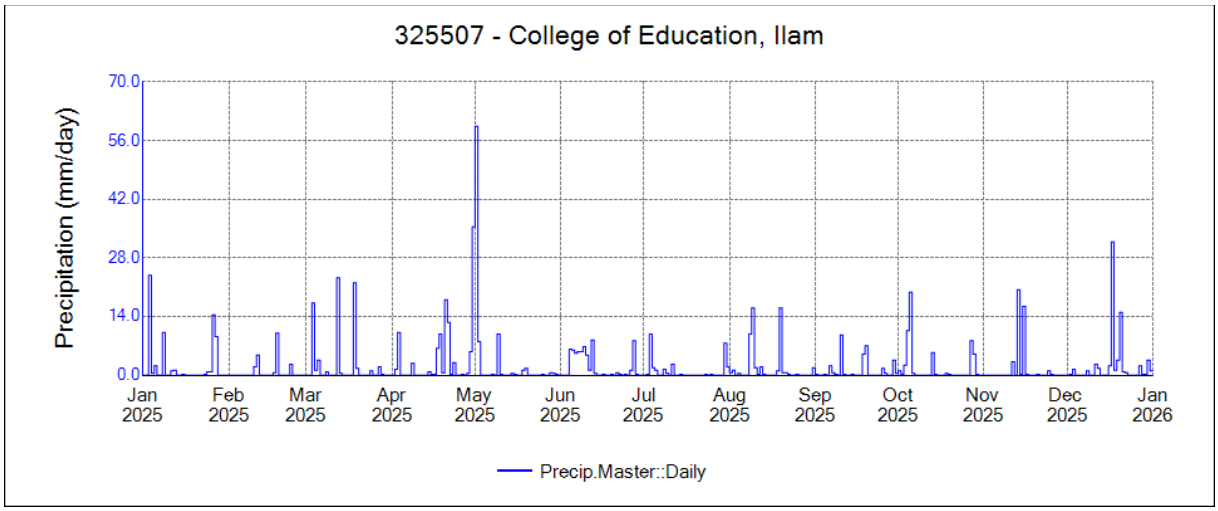
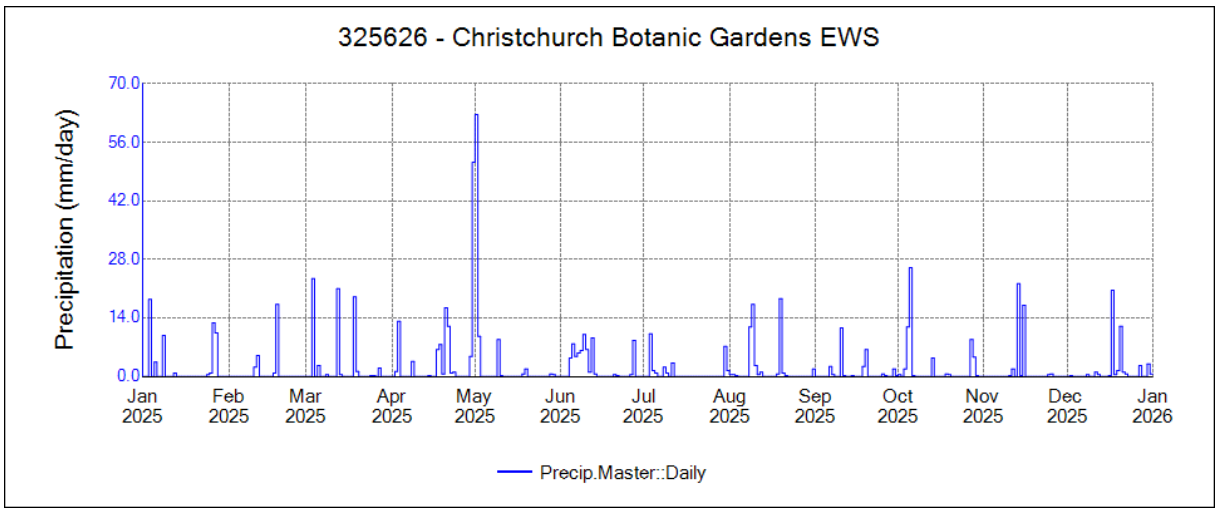


Figure 2-8: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).





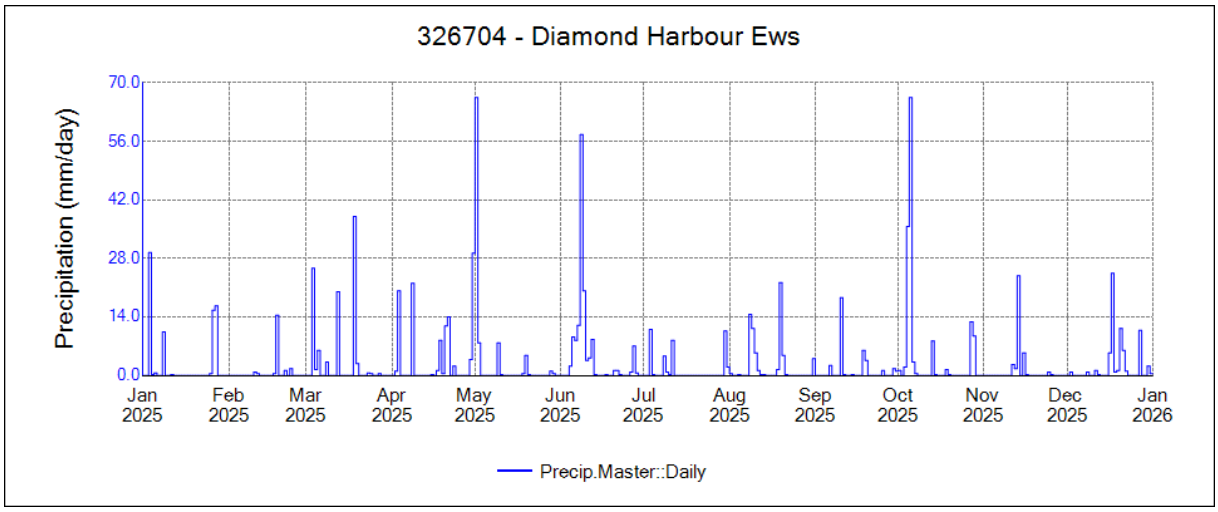
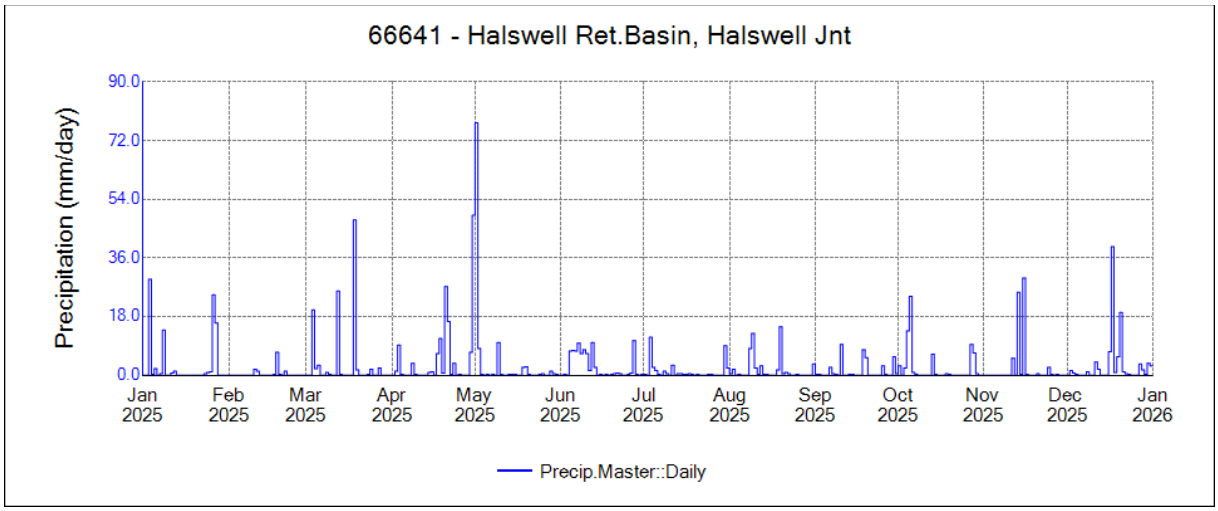
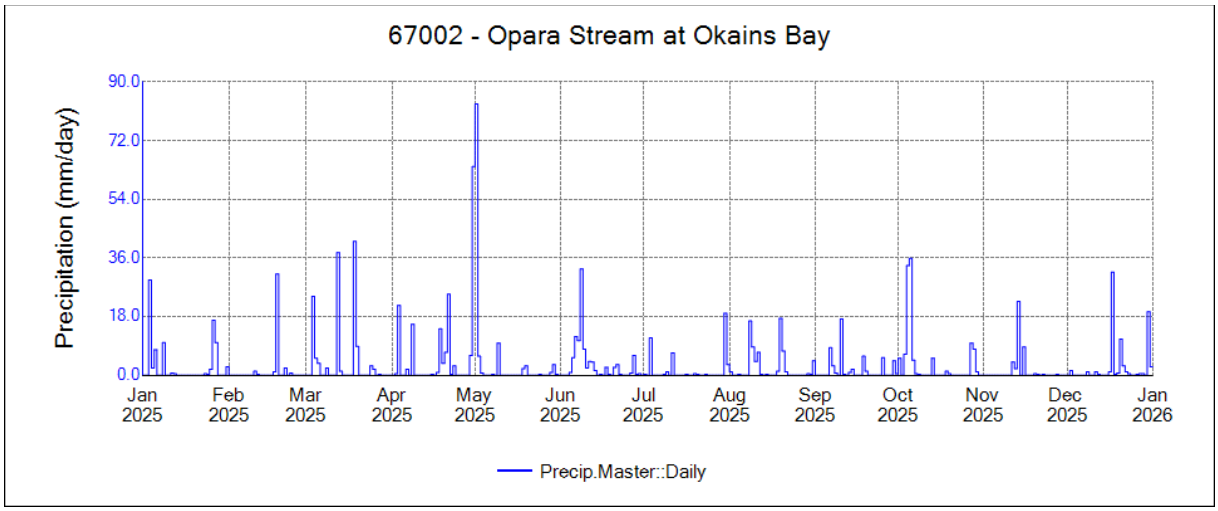


Figure 2-9: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).





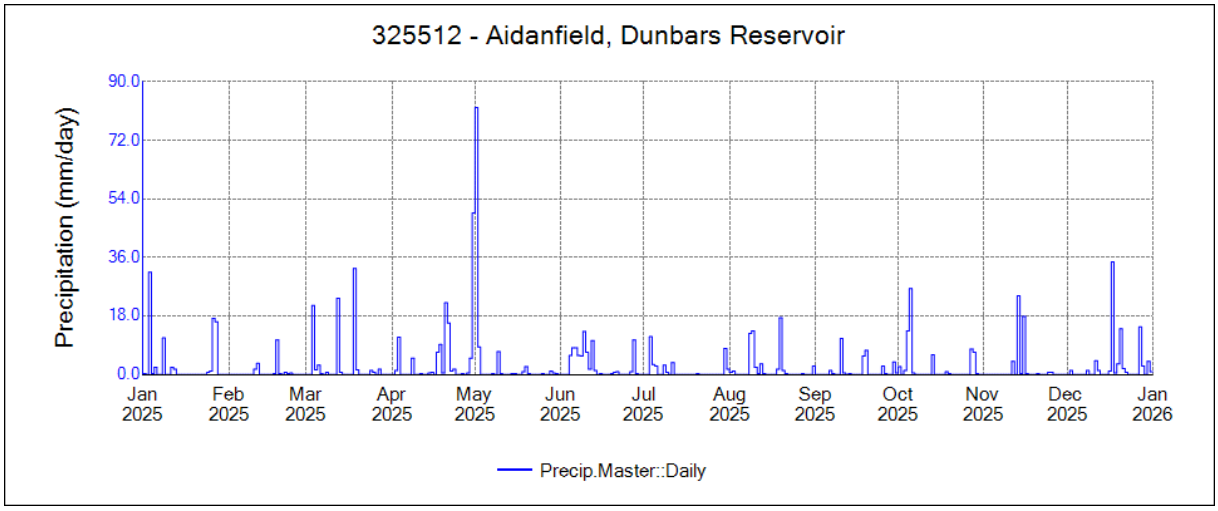
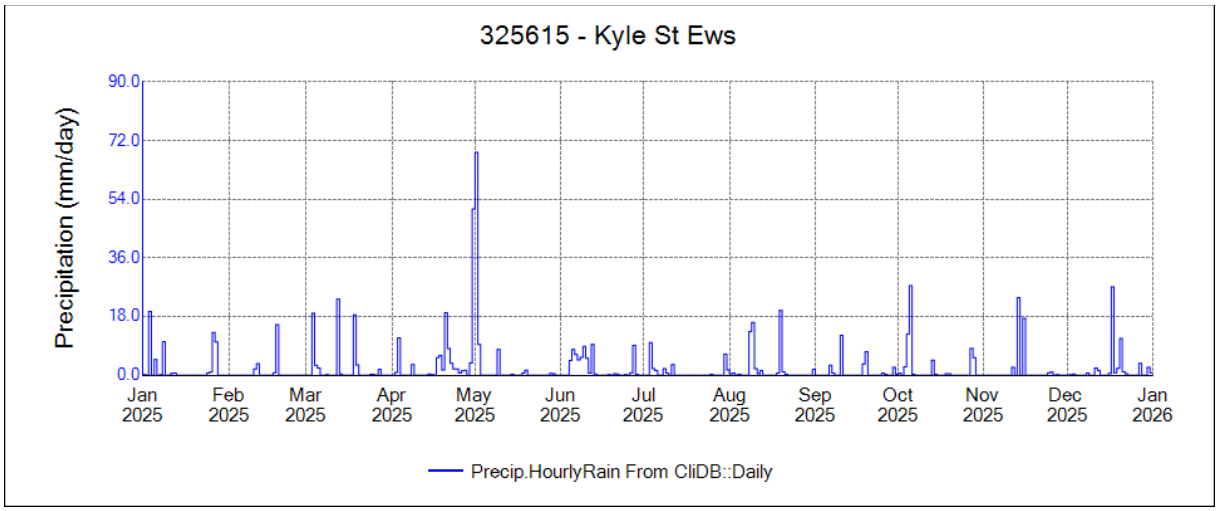
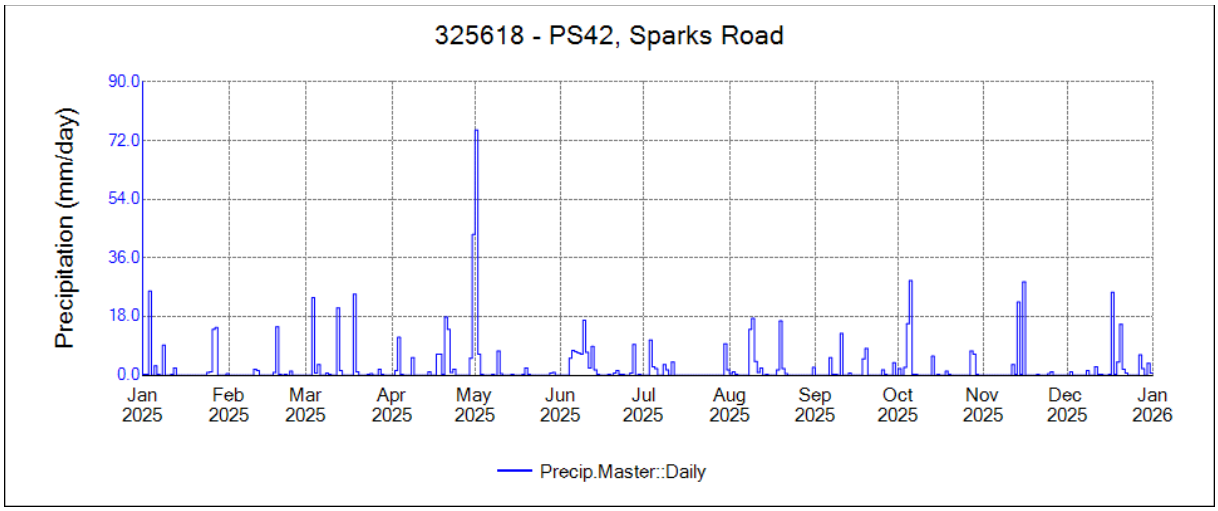


Figure 2-10: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).





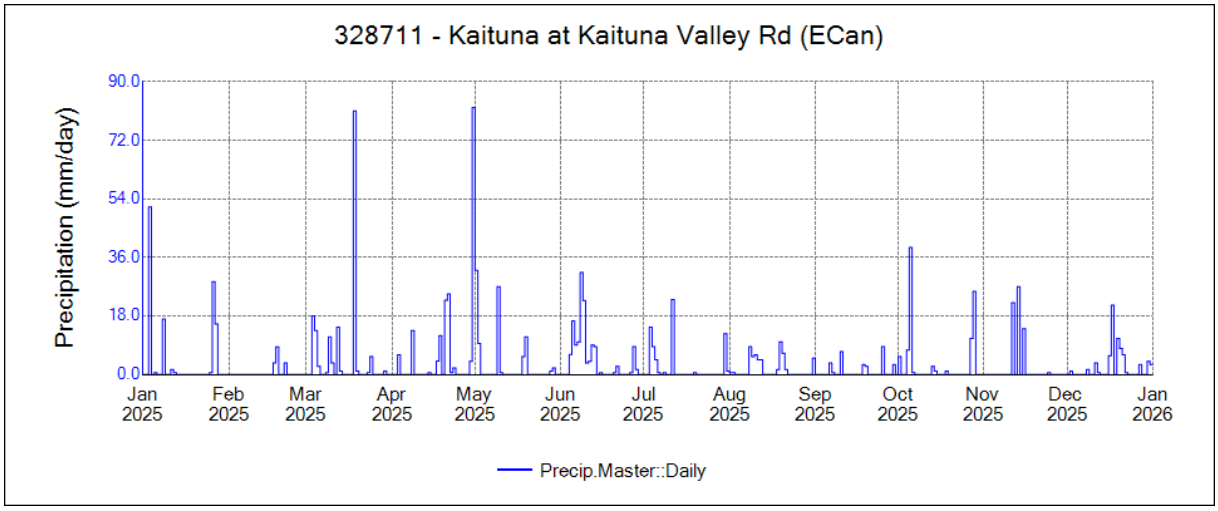
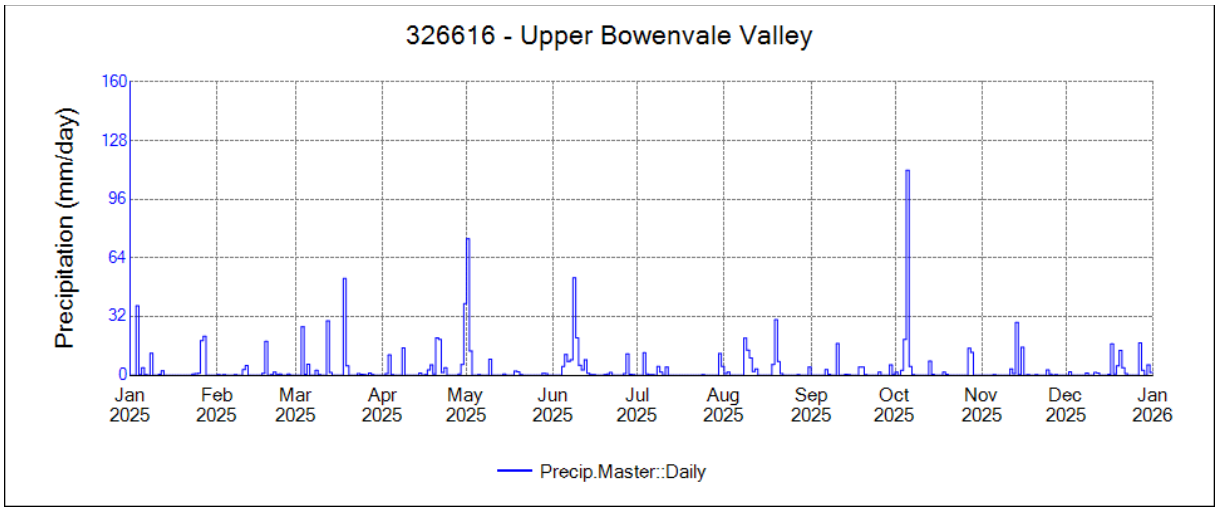
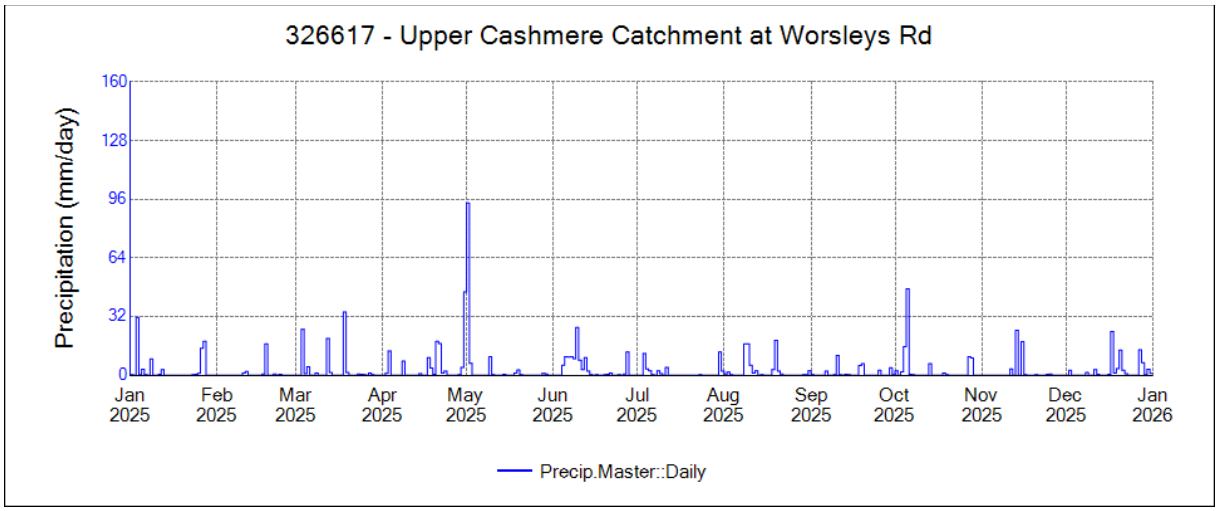


Figure 2-11: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).





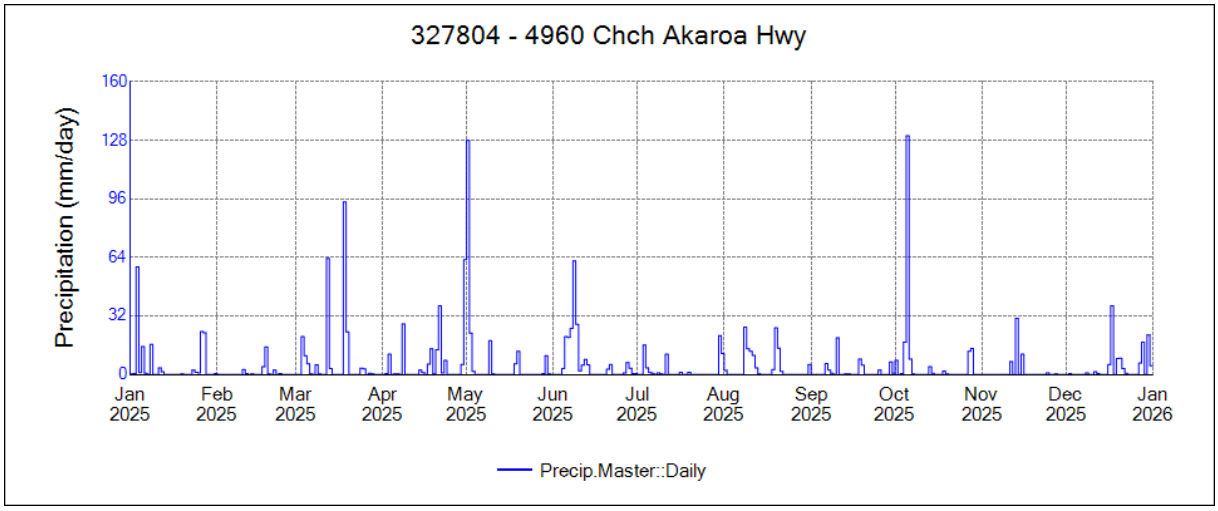


Figure 2-12: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).

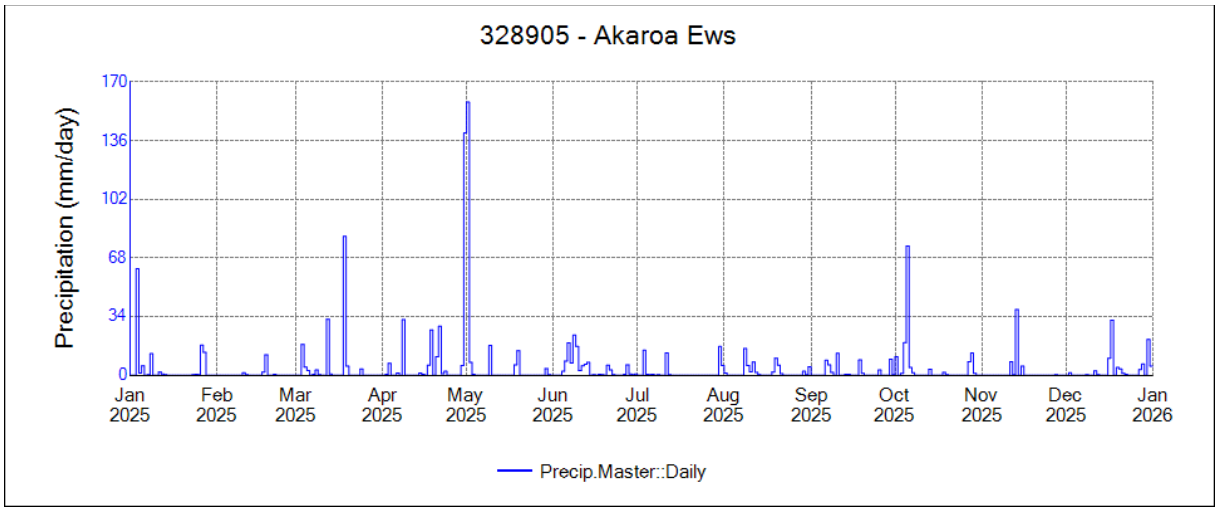


Figure 2-13: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2025 (cont.).

3 Water level and flow

At the end of 2025 the CCC hydrometric network comprised 37 surface water level-recording sites, 14 of which are also recording river flow. All water level data are recorded in metres relative to the Christchurch Drainage Datum.

A project monitoring the stage and flow in St Albans Stream was initiated in October 2023 at CCC's request. As this is a short-term project additional to the hydrometric network scope of works, it has not been included in this section but is reported on in Section 6.

Flow time-series data records are provided for 14 sites. Flow is derived by stage-flow rating relationships with regular gaugings for 13 of these sites, while the Prestons Subdivision site (66446) flow record is generated from a velocity-depth sensor and is not gauged as part of the ISS agreement.

The accuracy of the derived discharge for the Otukaikino at Dickeys Rd (66447) and Cashmere Stream at Worsley's Reserve (66682) sites during high flow periods should be treated with caution. These streams are prone to being 'backed up' by the flooded Waimakariri and Heathcote rivers respectively, which renders the hydraulic control of the stage-discharge relationship ineffective, and these periods become un-rateable. The flow record for Otukaikino shows gaps in the rated flow during these high flow periods.

The cause and remedy of any periods of missing record, or any other discrepancy, have been described previously in the respective quarterly reports in which the gap occurs.

Figure 3-1and Figure 3-2 show the location of the water level/flow sites.

Figure 3-3 and Figure 3-4 provide a data continuity scan showing the extent of any gaps in the water-level records. The cause and remedy of any missing record have been described previously in the respective quarterly reports in which the particular gap occurs.

Table 3-1provides a summary of the maximum, minimum and mean water-level data for all sites as recorded in 2025 compared with that recorded during the full period of record.

Table 3-2 provides a flow summary of the maximum, minimum and mean flow data for all rated sites as recorded in 2025, compared with that recorded during the full period of record.

Table 3-3 provides commentary on the data reliability and issues effecting data quality as at the end of December 2025.

Figure 3-4 to Figure 3-16 show water level (stage) plots for the CCC sites for 2025, while Figure 3-17 to Figure 3-21 show flow plots for the relevant sites.

Audited data for the ECan data-transfer sites (Heathcote River at Buxton Terrace, Avon River at Gloucester St, Styx River at Radcliffe Rd, Hoon Hay Stream at Hoon Hay Weir, Lake Forsyth water-level), as described in Earth Sciences NZ's Individual Site Schedule (ISS) agreements, are updated on a periodic basis when received from ECan. Water-level data from ECan's Avon at Gloucester Street site (966602) are converted to CCC datum via Earth Sciences NZ's data transfer system. Gauging data points are not included in the data set or plots for this site due to the additional work involved in transforming such items from the raw file to the CCC datum site.

Gaugings and ratings for the ECan/CCC shared sites have been undertaken by ECan staff.

Figure 3-1: Location of CCC water level sites during 2025. Permanent sites are labelled with a yellow pin, ECan sites are labelled with a red pin. Dashed area is shown in Figure 3-2.

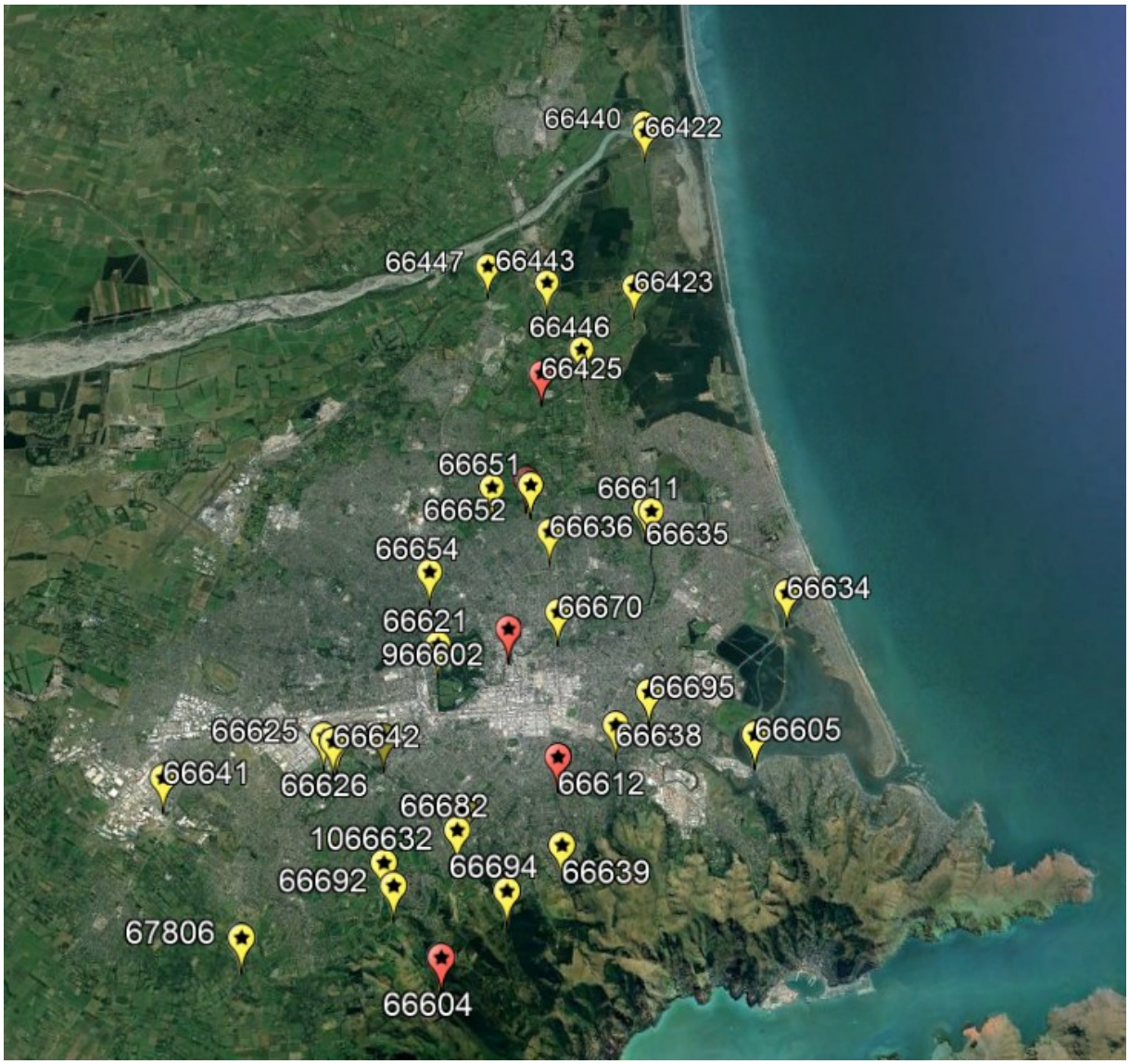


Figure 3-2: Expanded view of CCC water level site locations in Christchurch during 2025. Permanent sites are labelled with a yellow pin, ECan sites are labelled with a red pin.

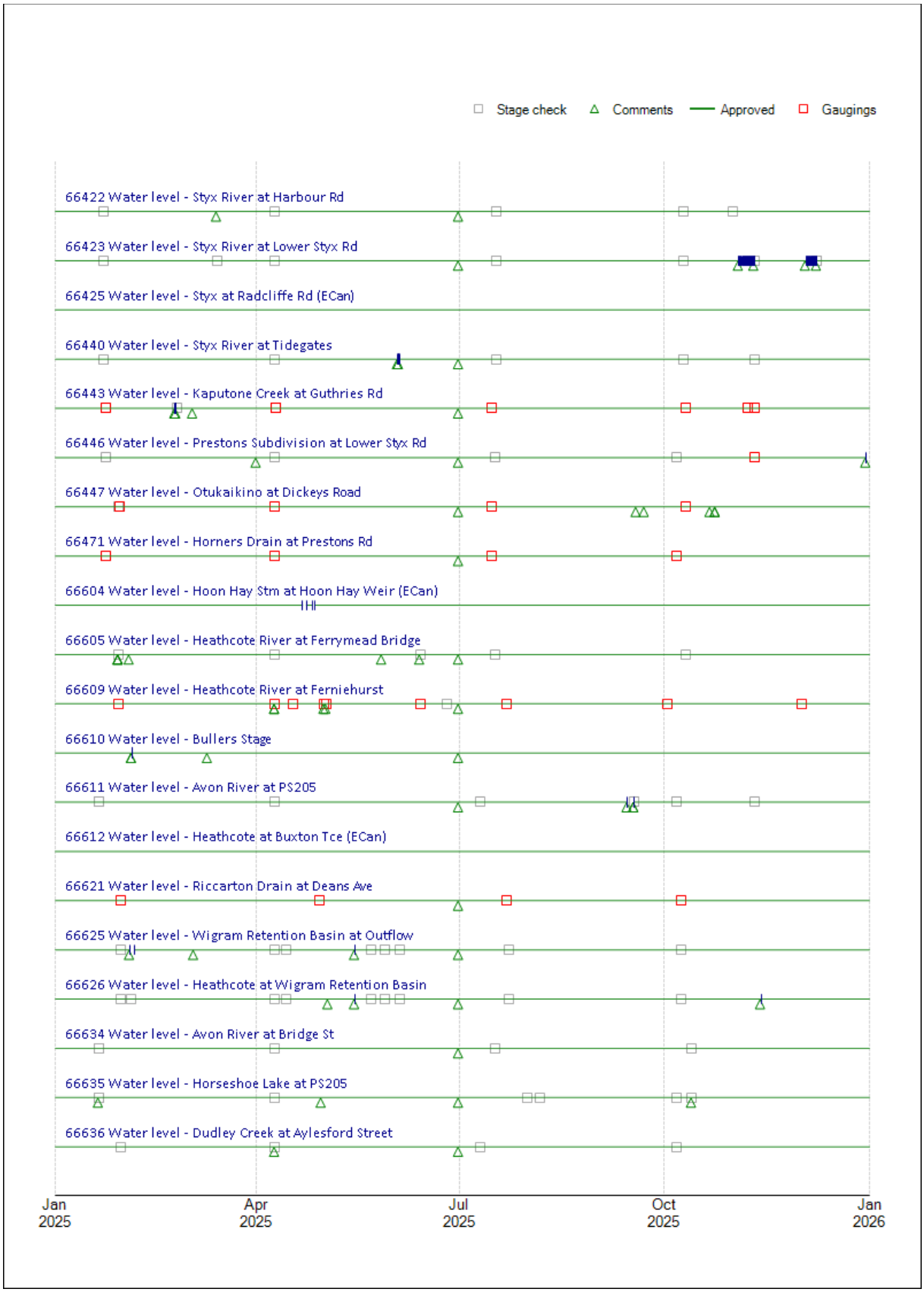

Stage check
Comments
Approved
Gaugings
66422 Water level - Styx River at Harbour Rd
66423 Water level - Styx River at Lower Styx Rd
66425 Water level - Styx at Radcliffe Rd (ECan)
66440 Water level - Styx River at Tidegates
66443 Water level - Kaputone Creek at Guthries Rd
66446 Water level - Prestons Subdivision at Lower Styx Rd
66447 Water level - Otukaikino at Dickeys Road
66471 Water level - Horners Drain at Prestons Rd
66604 Water level - Hoon Hay Stm at Hoon Hay Weir (ECan)
66605 Water level - Heathcote River at Ferrymead Bridge
66609 Water level - Heathcote River at Ferniehurst
66610 Water level - Bullers Stage
66611 Water level - Avon River at PS205
66612 Water level - Heathcote at Buxton Tce (ECan)
66621 Water level - Riccarton Drain at Deans Ave
66625 Water level - Wigram Retention Basin at Outflow
66626 Water level - Heathcote at Wigram Retention Basin
66634 Water level - Avon River at Bridge St
66635 Water level - Horseshoe Lake at PS205
66636 Water level - Dudley Creek at Aylesford Street
Jan 2025
Apr 2025
Jul 2025
Oct 2025
Jan 2026

Figure 3-3: Water level continuity plot for 2025.

Table 3-1: Water level site statistics summary: 2025 comparison with full record.

Station details				Full record		1-January-2025 - 31-December-2025		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
66422	Styx River at Harbour Rd	01-Nov-86	8.159	10.382	*9.143	8.450	10.220	9.238
66423	Styx River at Lower Styx Rd	09-Oct-86	8.753	10.809	*9.701	9.261	10.596	9.805
66425	Styx at Radcliffe Rd (ECan)	30-Dec-92	10.205	12.181	*10.842	10.626	12.073	10.920
66440	Styx River at Tidegates	11-Jul-90	7.400	11.500	*9.407	8.439	11.029	9.493
66443	Kaputone Creek at Guthries Rd	31-May-16	13.262	13.864	13.395	13.299	13.759	13.389
66446	Prestons Subdivision at Lower Styx Rd	29-Aug-17	10.695	11.798	*10.995	10.952	11.737	10.995
66447	Otukaikino at Dickeys Road	08-Jun-18	12.231	14.921	*12.410	12.337	14.575	12.531
66471	Horners Drain at Prestons Rd	25-Jan-04	12.644	14.163	12.843	12.722	13.519	12.761
66604	Hoon Hay Stm at Hoon Hay Weir (ECan)	17-Aug-95	0.000	1.267	*0.074	0.000	1.190	0.078
66605	Heathcote River at Ferrymead Bridge	01-Jan-74	8.150	11.026	*9.357	8.655	10.903	9.503
66609	Heathcote River at Ferniehurst	02-Jan-66	15.240	18.860	*15.772	15.706	16.969	15.886
66610	Bullers Stage	05-Dec-18	12.620	12.850	12.674	12.661	12.825	12.691
66611	Avon River at PS205	21-Aug-87	8.836	11.138	*9.568	9.094	10.940	9.640
66612	Heathcote at Buxton Tce (ECan)	28-Dec-89	10.338	13.089	*10.602	10.504	12.474	10.666
66621	Riccarton Drain at Deans Ave	14-Jul-21	13.554	14.817	*13.601	13.554	14.661	13.596
66625	Wigram Retention Basin at Outflow	01-Dec-20	23.039	25.417	*23.528	23.039	25.417	23.539
66626	Heathcote at Wigram Retention Basin	01-Dec-20	21.841	22.766	22.023	21.906	22.704	22.064
66634	Avon River at Bridge St	18-Sep-97	8.468	11.081	*9.419	8.864	10.885	9.511
66635	Horseshoe Lake at PS205	21-Aug-87	6.500	10.896	*9.348	9.061	10.123	9.505
66636	Dudley Creek at Aylesford Street	03-Mar-14	11.613	13.502	11.782	11.749	12.778	11.785
66638	Heathcote River at Opawa Rd	14-Feb-91	8.789	11.301	*9.588	9.119	10.965	9.745
66639	Bowenvale Flume at Bowenvale Ave	16-Jul-96	24.457	25.367	24.557	24.632	25.125	24.676

Station details				Full record		1-January-2025 - 31-December-2025		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
66641	Halswell Ret.Basin, Halswell Jnt	21-Feb-94	29.319	32.872	30.649	30.493	32.488	30.662
66642	Wigram Retention Basin at Overflow	01-Feb-95	23.047	25.429	*23.607	23.221	25.429	23.844
66651	Croziers Drain u/s of PS219 Philpotts Rd	06-Aug-14	12.710	14.012	12.969	12.809	13.770	12.908
66654	Wairarapa Stream at Rossall St	30-May-16	17.292	18.369	*17.446	17.295	18.026	17.374
66670	Avon River at Fitzgerald Ave	16-May-16	9.743	11.571	10.073	9.913	11.493	10.175
66682	Cashmere Stream at Worsleys Reserve	03-Jun-16	15.837	17.593	15.991	15.882	17.131	16.022
66692	Hoon Hay Valley Drain at Cashmere Rd	16-May-16	17.706	19.455	17.963	17.706	19.455	18.047
66694	Cashmere Valley Drain at Adventure Park	27-Nov-18	-0.070	0.722	0.036	-0.070	0.722	0.046
66695	Heathcote River at Bells Pumpstation	06-Dec-18	8.880	11.000	9.645	9.045	10.900	9.673
67101	Le Bons Bay at Hughes culvert	02-Mar-21	10.071	11.550	10.426	10.090	11.083	10.439
67603	Lake Forsyth at SH75 (ECan)	11-Apr-95	0.367	4.148	*1.781	1.456	4.148	2.186
67806	Knights Stream at Sabys Road	14-Mar-14	19.452	20.654	19.983	20.021	20.654	20.081
966602	Avon at Gloucester St (ECan)	07-Jul-80	1.349	3.441	*1.518	1.473	2.779	1.643
1066625	Heathcote at Lincoln Road	17-Feb-21	20.416	21.538	20.543	20.447	21.202	20.553
1066632	Cashmere Stream at Eastman Wetland	31-Aug-22	17.154	18.502	*17.568	17.366	18.502	17.559

Notes:* indicates gap percentage of 2.5% exceeded

Table 3-2: Flow sites statistics summary: 2025 comparison with full record.

Station details				Full record		1-January-2025 - 31-December-2025		
Number	Name	Start of record	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)
66425	Styx at Radcliffe Rd (ECan)	30-Dec-92	0.732	11.949	*1.474	1.107	7.228	*1.463
66443	Kaputone Creek at Guthries Rd	31-May-16	0.053	0.889	0.179	0.083	0.764	0.172
66446	Prestons Subdivision at Lower Styx Rd	29-Aug-17	0.000	0.928	*0.031	0.013	0.248	*0.035

Station details			Full record			1-January-2025 - 31-December-2025		
Number	Name	Start of record	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)
66447	Otukaikino at Dickeys Road	08-Jun-18	1.909	17.489	*2.825	2.030	17.022	3.193
66471	Horners Drain at Prestons Rd	21-Aug-06	0.007	2.404	*0.097	0.030	1.345	0.066
66604	Hoon Hay Stm at Hoon Hay Weir (ECan)	17-Aug-95	0.000	10.471	*0.025	0.000	8.404	0.031
66609	Heathcote River at Ferniehurst	01-Jan-04	0.099	15.071	0.815	0.312	8.207	0.961
66612	Heathcote at Buxton Tce (ECan)	18-Mar-91	0.100	33.127	*1.067	0.682	17.665	1.488
66621	Riccarton Drain at Deans Ave	21-Dec-21	0.038	4.077	*0.085	0.038	3.255	0.083
66639	Bowenvale Flume at Bowenvale Ave	16-Jul-96	0.000	6.052	0.024	0.000	1.777	0.016
66682	Cashmere Stream at Worsleys Reserve	03-Jun-16	0.000	5.601	0.492	0.206	5.359	0.572
66694	Cashmere Valley Drain at Adventure Park	27-Nov-18	0.000	1.431	0.011	0.000	1.431	0.015
67806	Knights Stream at Sabys Road	14-Mar-14	0.071	2.081	0.255	0.114	1.464	0.298
966602	Avon at Gloucester St (ECan)	07-Jul-80	0.973	30.041	*1.882	1.303	16.506	2.029

Notes:* indicates gap percentage of 2.5% exceeded

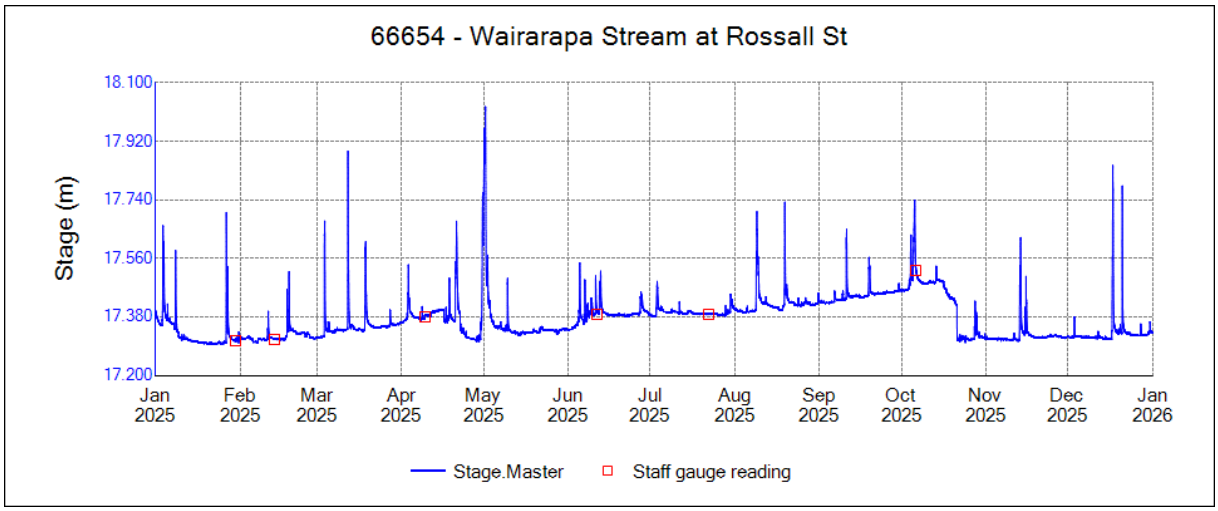
Table 3-3: Summary of water level/flow sites, December 2025.

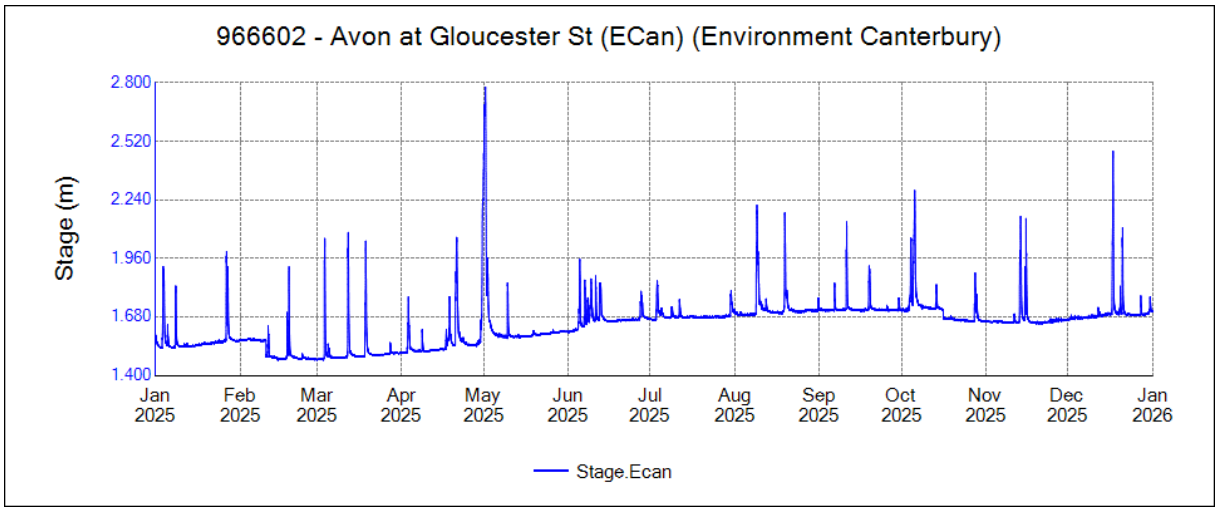
Site	Name	Comments
66422	Styx River at Harbour Rd	Reliable site. Staff gauge is difficult to read due to location and speed of stage changes. Upgraded to 4G in November 2024.
66423	Styx River at Lower Styx Rd	Reliable site. Staff gauge difficult to access due to fence and steep, slippery bank. Upgraded to 4G in October 2024.
66425	Styx River at Radcliffe Rd	ECan/CCC shared site, operations managed by ECan.
66440	Styx River at Tidegates	Site upgraded to water level radar and 4G in 2023. Now operating well.
66443	Kaputone Creek at Guthries Rd	Can be prone to backwatering and ponding effects downstream. Staff gauge upgraded mid-2023. Upgraded to 4G in December 2024.

Site	Name	Comments
66446	Prestons Subdivision at Lower Styx Rd	Site prone to siltation and backwatering from the Styx. The flow sensor is regularly buried resulting in large data gaps but normally works well during flood events. Upgraded to 4G in December 2024.
66447	Otukaikino Stream at Dickeys Road	Prone to vandalism. Site re-installed in November 2022 as a Waterwatch stand-alone sensor/ logger inaccessible to vandals. Prone to backwatering from Waimakariri during floods resulting in inaccurate stage-discharge rating output.
66471	Horners Drain at Prestons Rd	Reliable site. Upgraded to 4G in October 2024.
66604	Hoon Hay Stream at Hoon Hay Weir	ECan/CCC shared site, operations managed by ECan.
66605	Heathcote River at Ferrymead Bridge	Reliable site, radar exchanged in 2020 after old sensor failed. Staff gauge does not cover full range and is difficult to read due to fouling. Upgraded to 4G in January 2025.
66609	Heathcote River at Ferniehurst	Reliable site. Prone to aquatic weed growth and removal regime affecting stage. Site upgrades in 2022 with new logger installed in newly installed CCC electrical cabinet.
66610	Bullers stage	CCC shared site, operations managed by CCC.
66611	Avon River at PS205	Reliable site. Site upgraded to include water level radar and 4G in 2023.
66612	Heathcote River at Buxton Tce	ECan/CCC shared site, operations managed by ECan.
66621	Riccarton Drain at Deans Ave	Reliable site. Shifted from Riccarton Ave site in late 2021 to current location beneath footbridge in Hagley Park.
66625	Wigram Retention Basin at Outflow	Reliable site. Logger box was re-positioned higher after being flooded.
66626	Heathcote River at Wigram Retention Basin	Reliable site.
66634	Avon River at Bridge St	Reliable site. Staff gauge very difficult to read due to poor location and fouling.
66635	Horseshoe Lake at PS205	Site prone to tower blockages due to silt build up in the channel, regularly flushed.
66636	Dudley Creek at Aylesford Street	Reliable site. Upgraded to 4G in December 2024.
66638	Heathcote River at Opawa Rd	Reliable site. Staff gauge relocated and upgraded in 2023. Upgraded to 4G in December 2024.
66639	Bowenvale Flume at Bowenvale Ave	Reliable site. Large amounts of sediment is being deposited in the flume during flood events, requires contractors to clear it. Upgraded to 4G in October 2024.

Site	Name	Comments
66641	Halswell Ret.Basin, Halswell Jnt	Reliable site.
66642	Wigram Retention Basin at Overflow	Reliable site.
66651	Croziers Drain u/s of PS219 Philpotts Rd	Reliable site. Upgraded to 4G in February 2025.
66654	Wairarapa Stream at Rossall St	Reliable site. Prone to aquatic weed growth and removal regime affecting stage. Upgraded to 4G in February 2025.
66670	Avon River at Fitzgerald Ave	Reliable site. Prone to aquatic weed growth effecting stage. Staff gauge and site fittings upgraded mid-2023. Upgraded to 4G in March 2025.
66682	Cashmere Stream at Worsleys Reserve	Reliable site. Prone to backwatering from Heathcote River during floods resulting in inaccurate stage-discharge rating output.
66692	Hoon Hay Valley Drain at Cashmere Rd	Had multiple issues throughout 2022 due to the pressure transducer failing. Sensor was replaced and site is now reliable. Upgraded to 4G in February 2025.
66694	Cashmere Valley Drain at Adventure Park	Reliable site. Steep catchment making field visits and gaugings during period of high flow difficult. Upgraded to 4G in October 2024.
66695	Heathcote River at Bells Pumpstation	Reliable site. Upgraded to 4G in December 2024.
67101	Le Bons Bay at Hughes culvert	Reliable site. Satellite communications.
67603	Lake Forsyth at SH75	ECan/CCC shared site, operations managed by ECan.
67806	Knights Stream at Sabys Road	Reliable site. Prone to aquatic weed growth and removal regime affecting stage/discharge relationship. Upgraded to 4G in October 2024.
966602	Avon at Gloucester St - Ecan	ECan/CCC shared site, operations managed by ECan.
1066625	Heathcote at Lincoln Road	Reliable site. Radar water level sensor and 4G logger installed.
1066632	Cashmere Stream at Eastman Wetland	Reliable site. Installed as part of New Eastman Wetland development. Somewhat prone to aquatic weed growth and removal regime affecting stage. 4G logger installed.

3.1 Stage plots





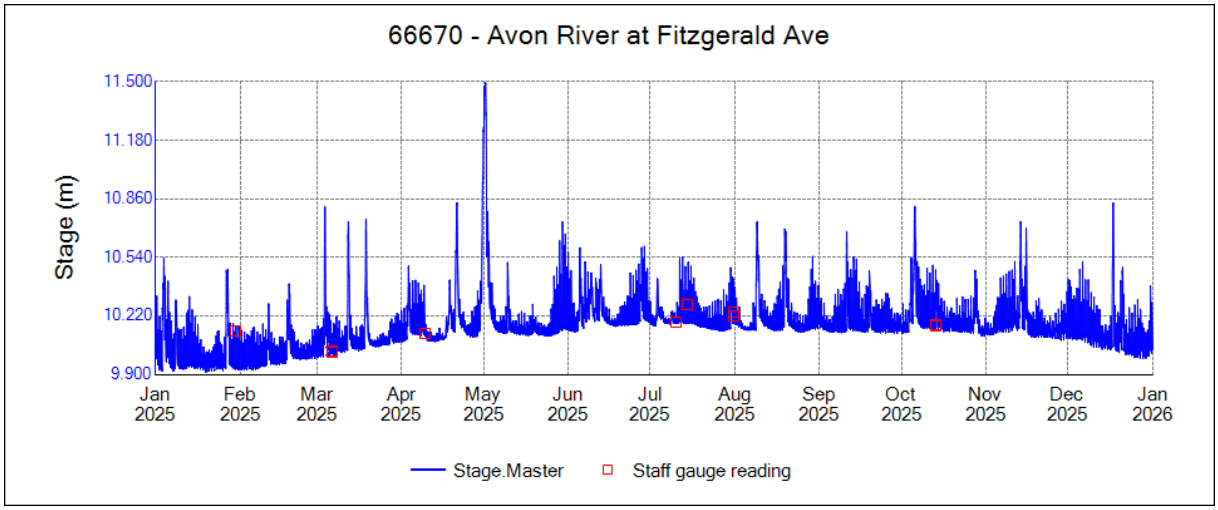
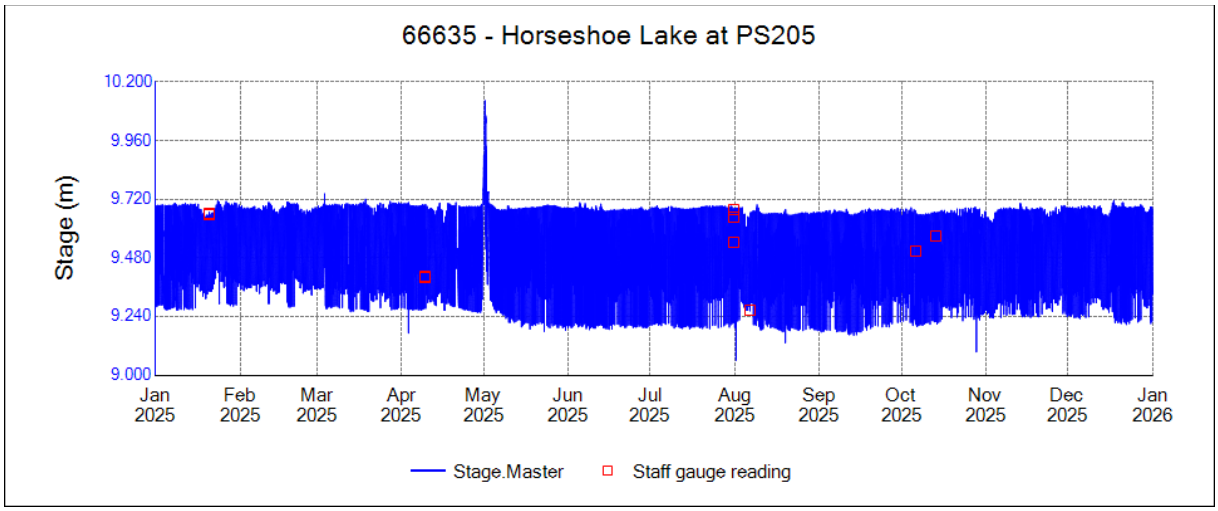
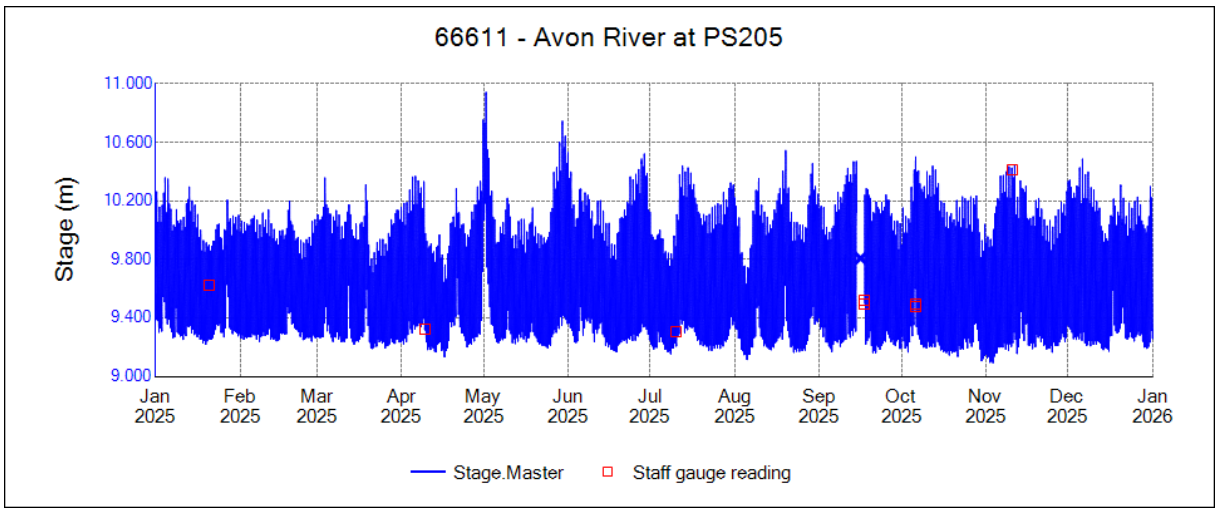


Figure 3-4: CCC hydrometric network water-level plots: 1 January to 31 December 2025.





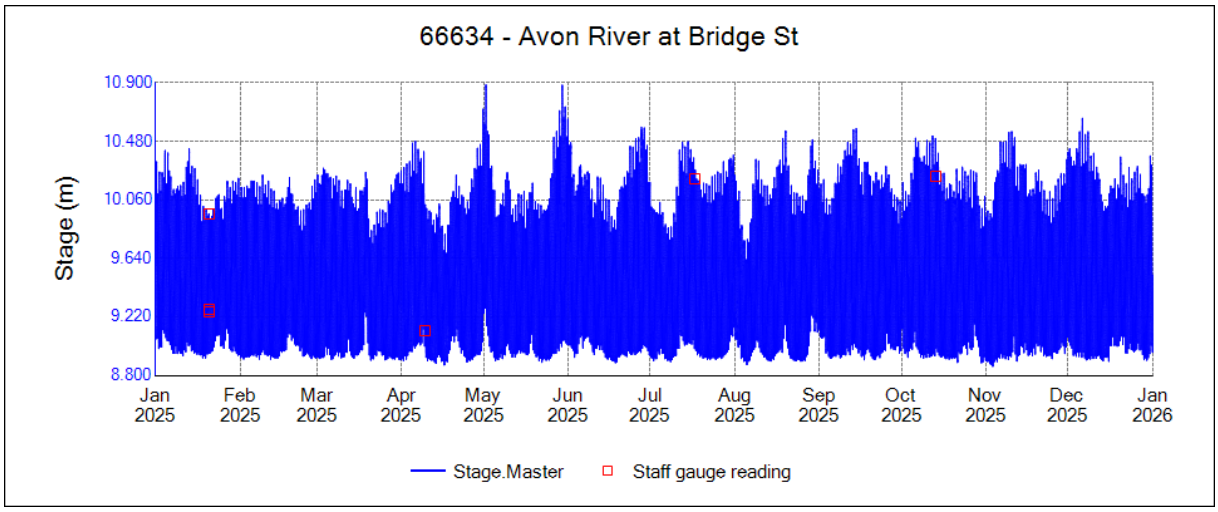
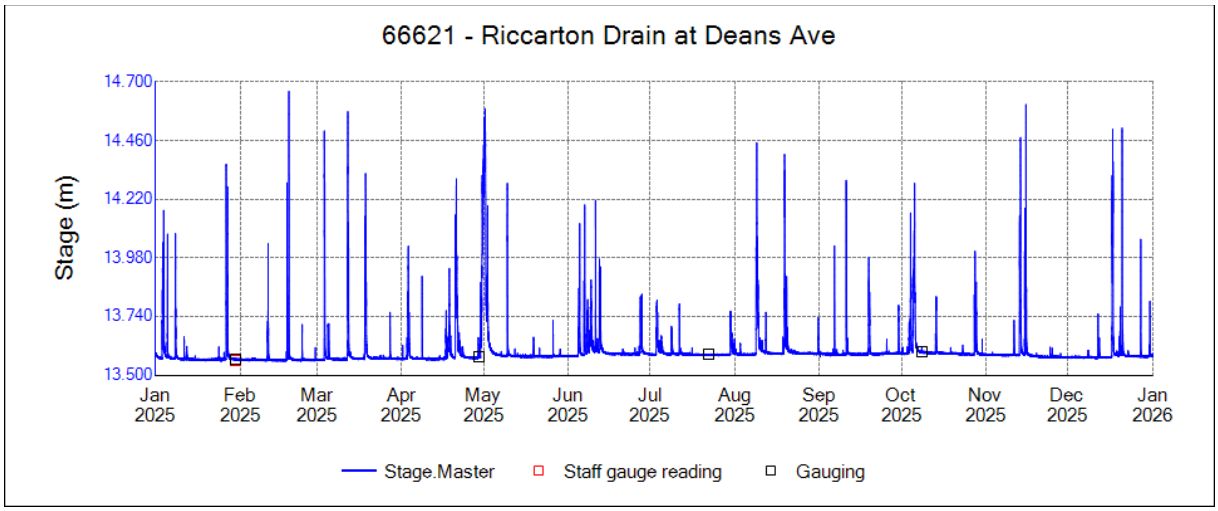
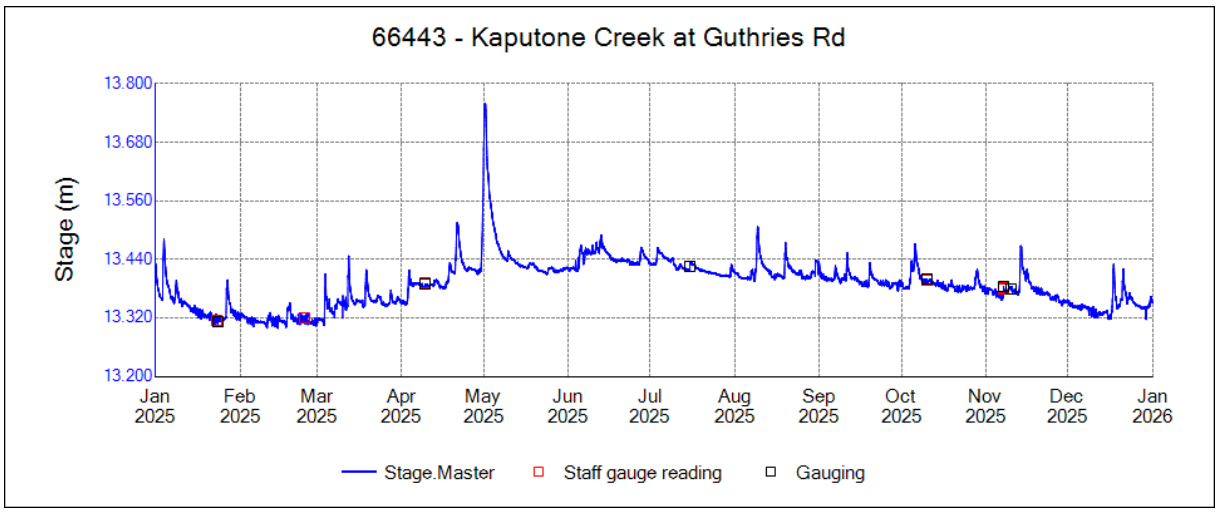


Figure 3-5: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





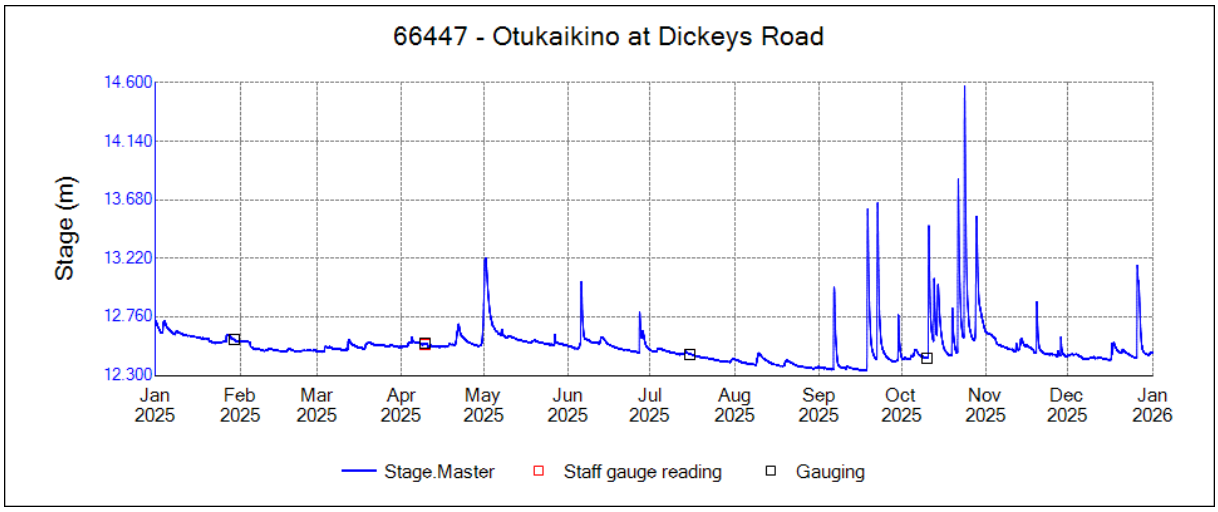
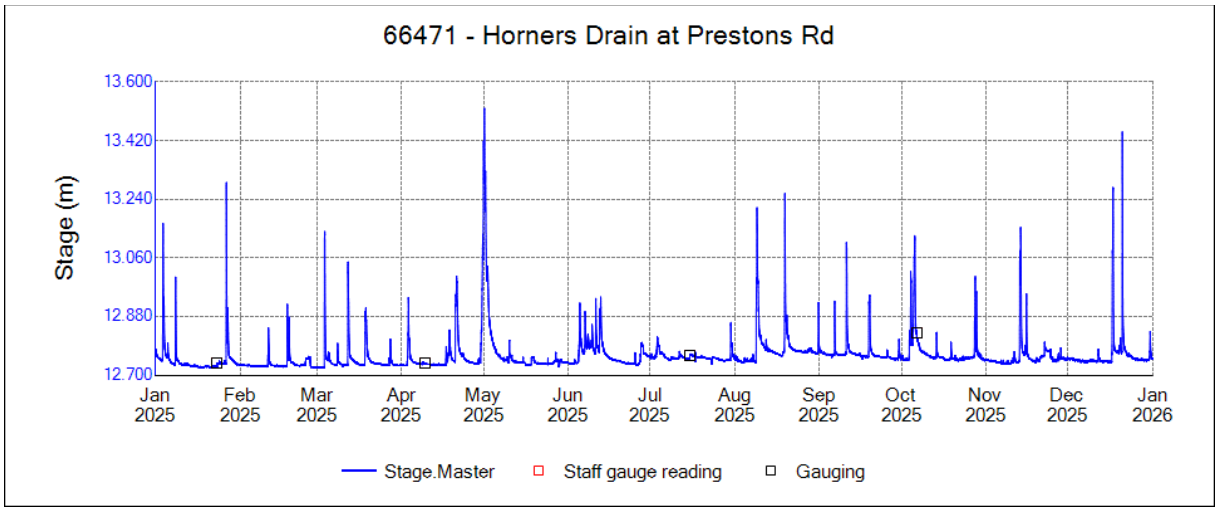
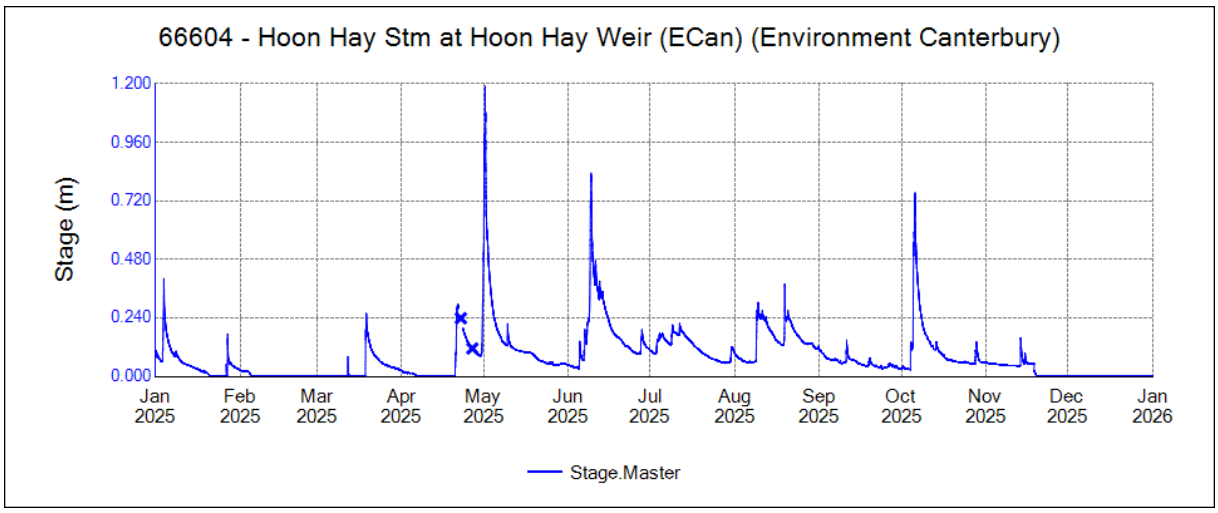


Figure 3-6: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





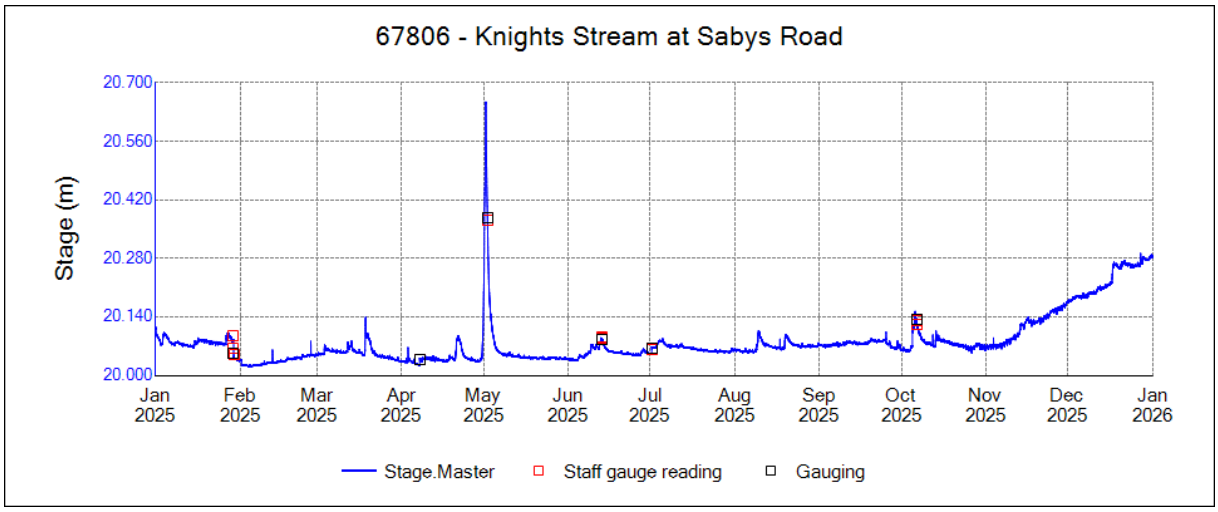
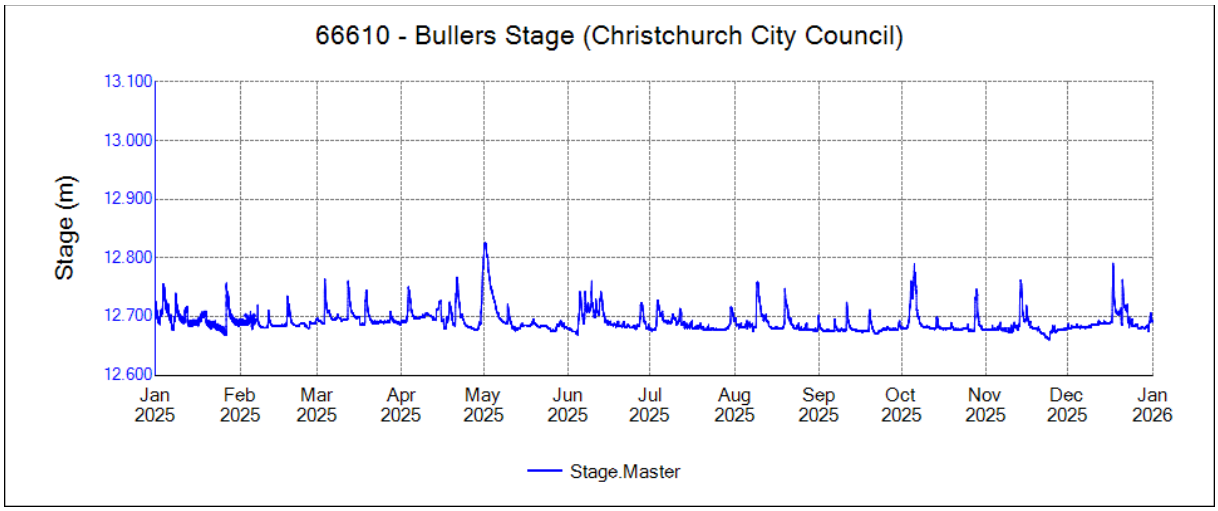
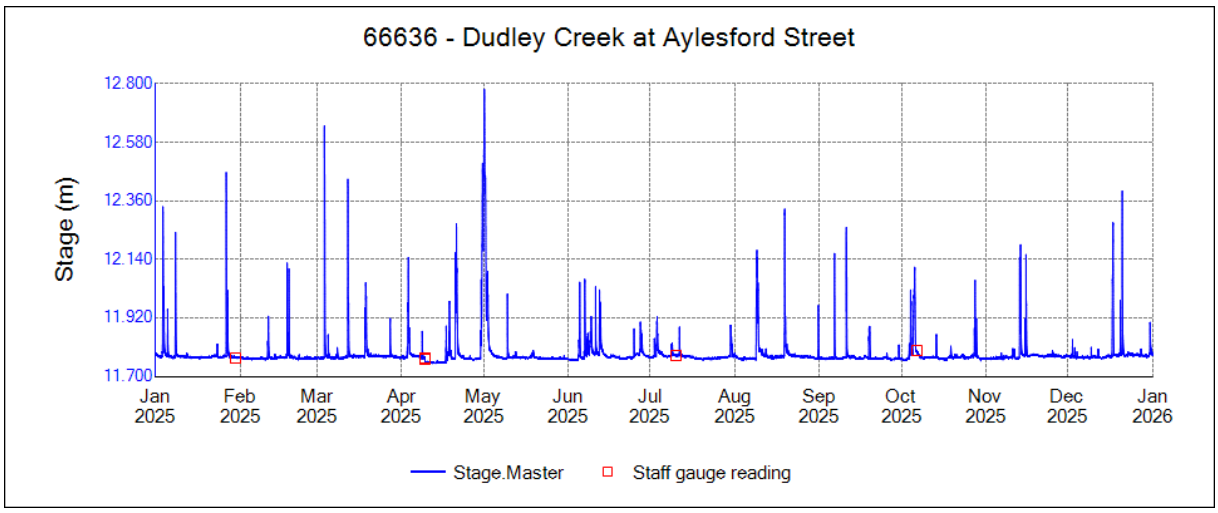


Figure 3-7: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





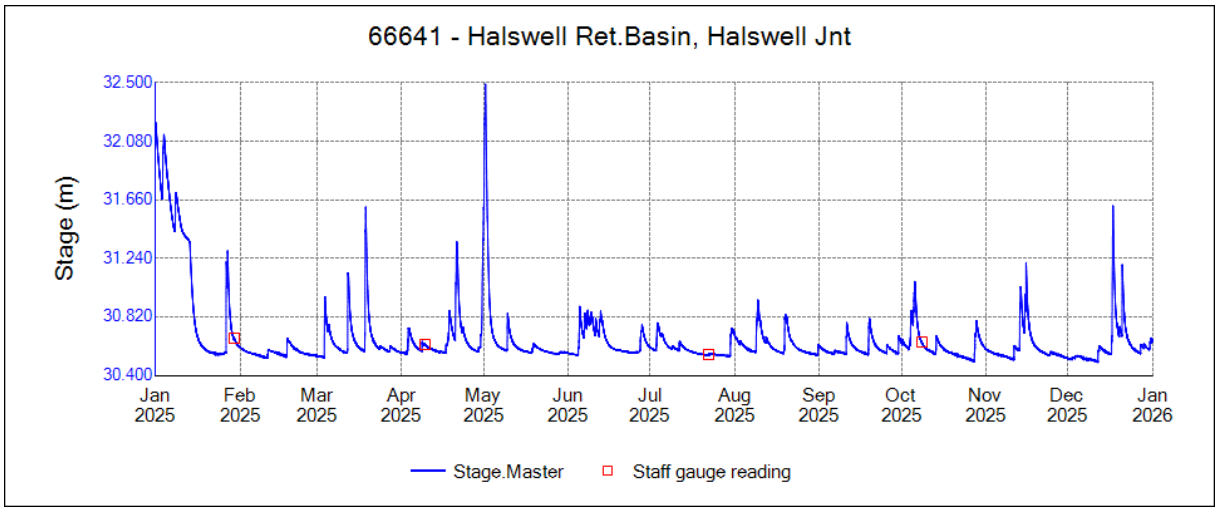
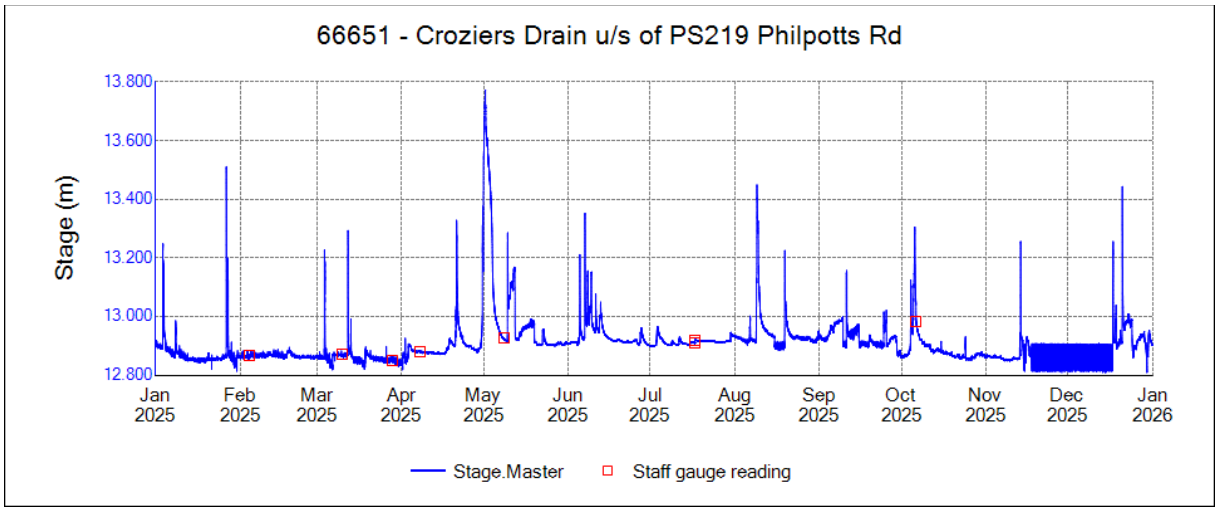
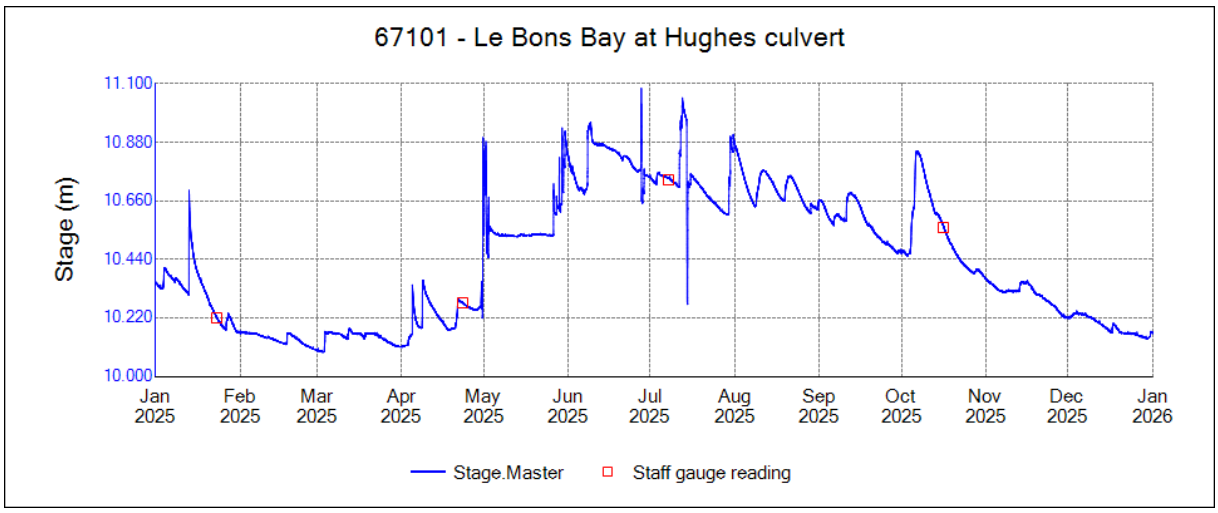


Figure 3-8: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





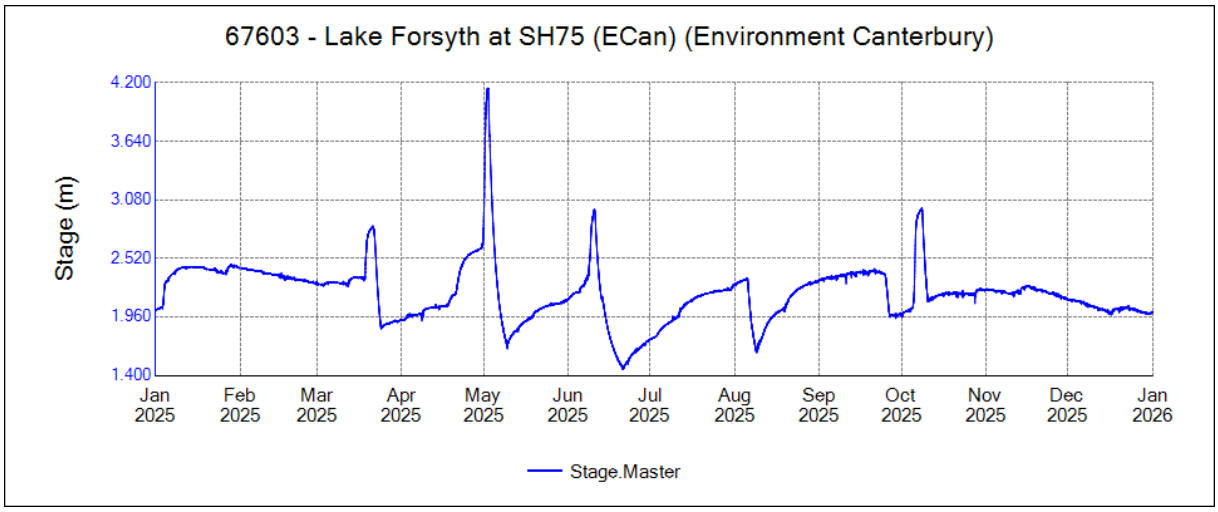
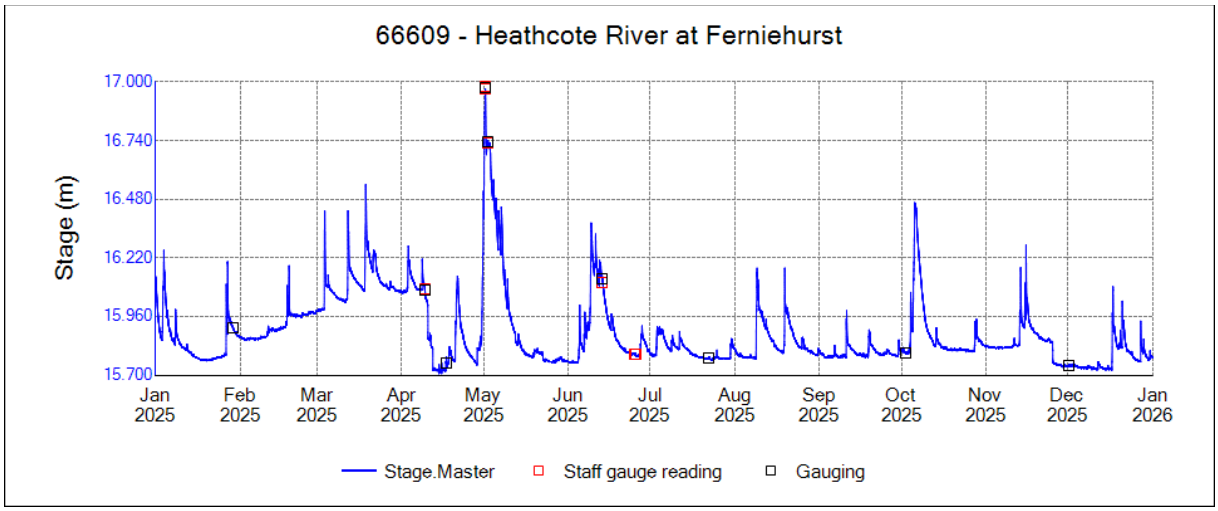
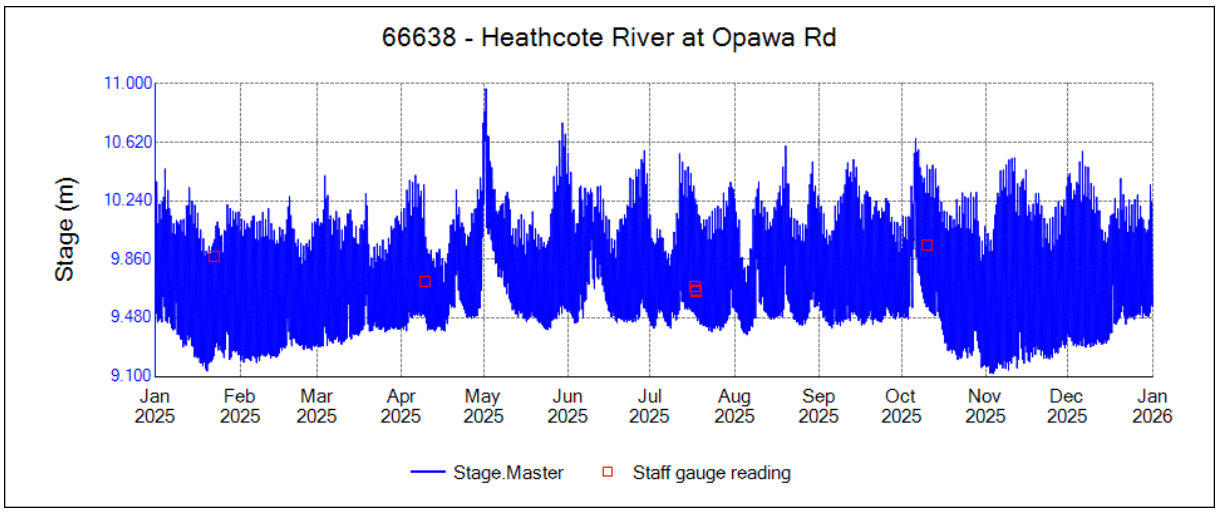


Figure 3-9: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





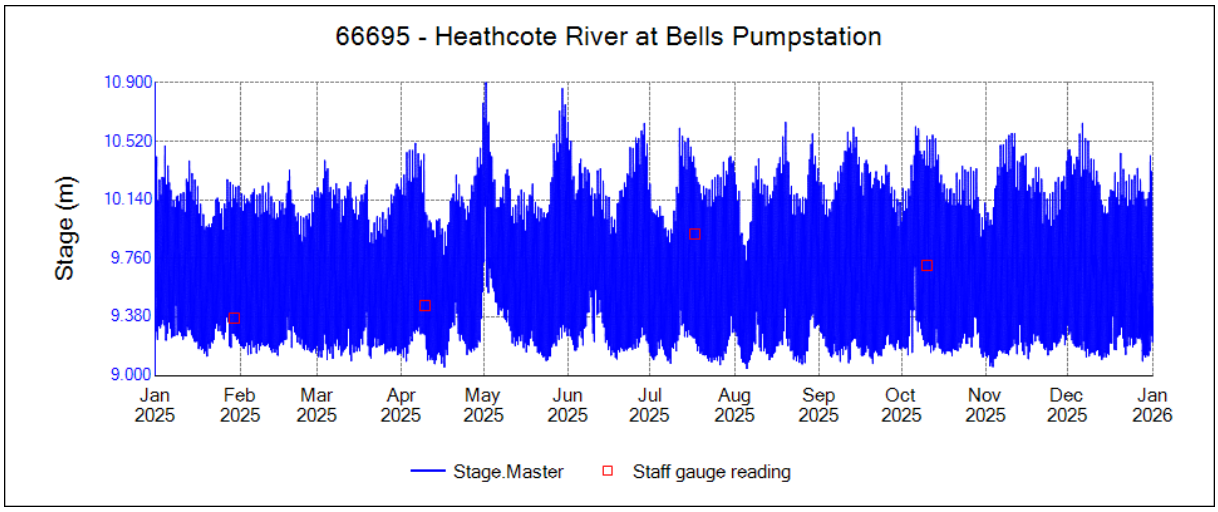
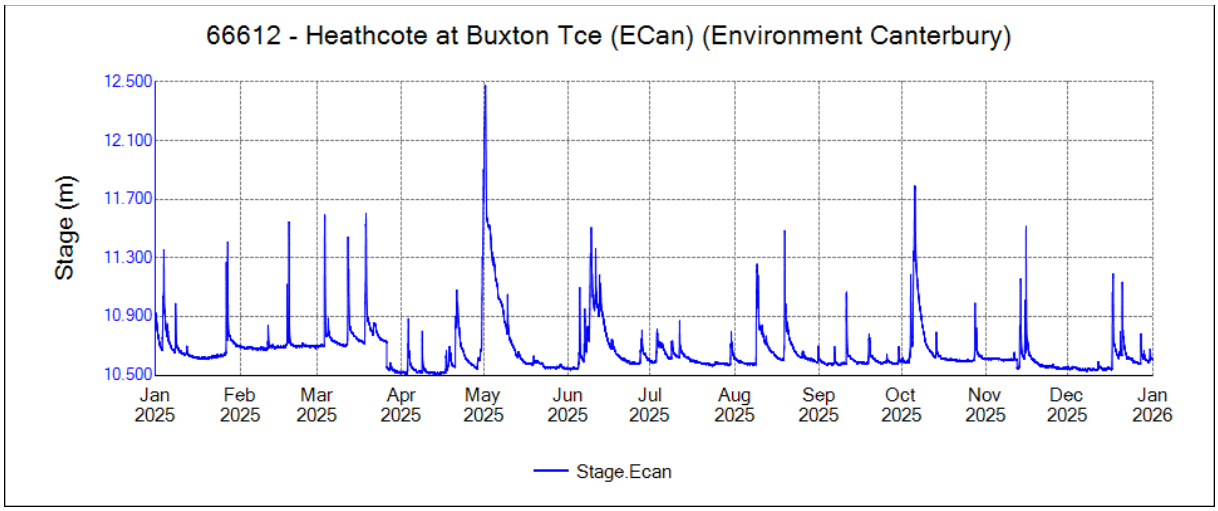
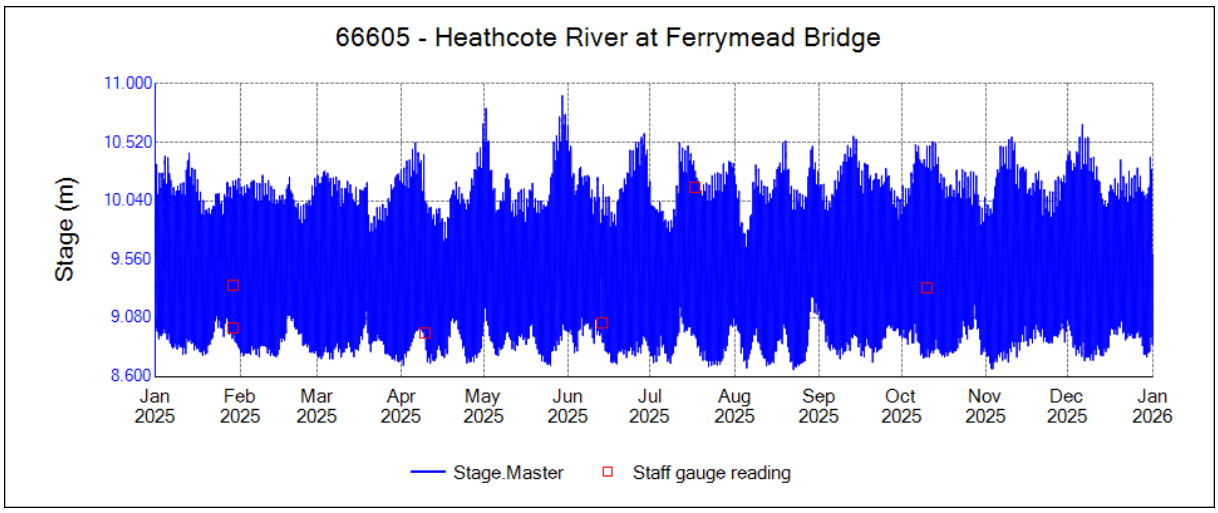


Figure 3-10: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





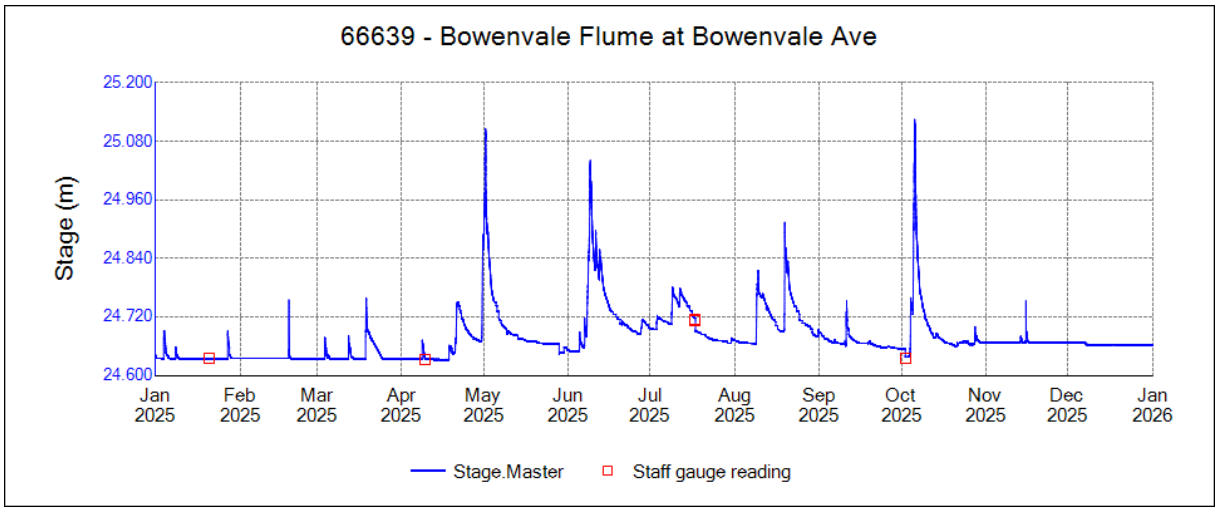
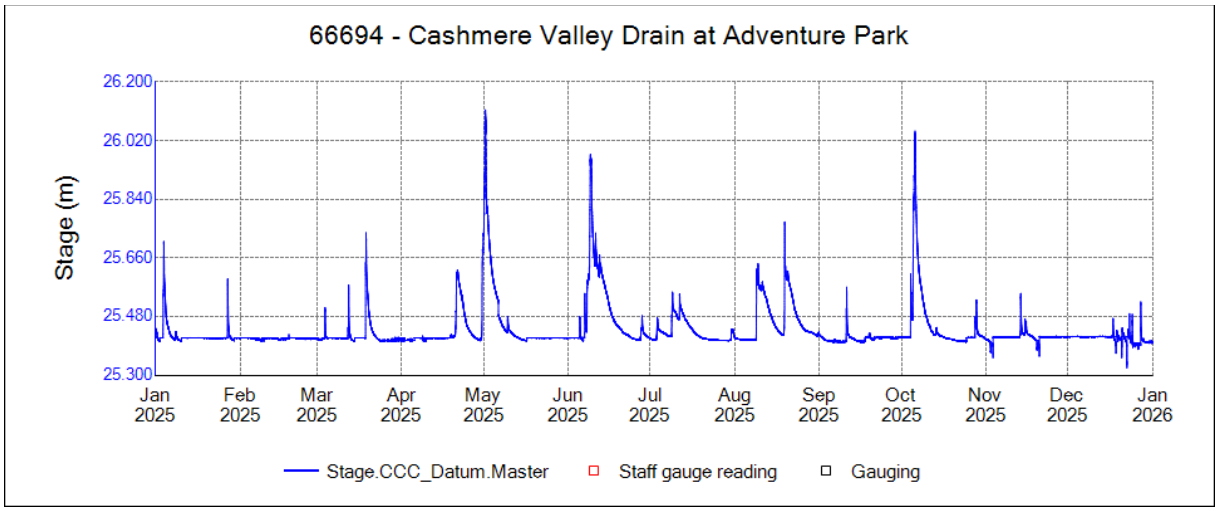
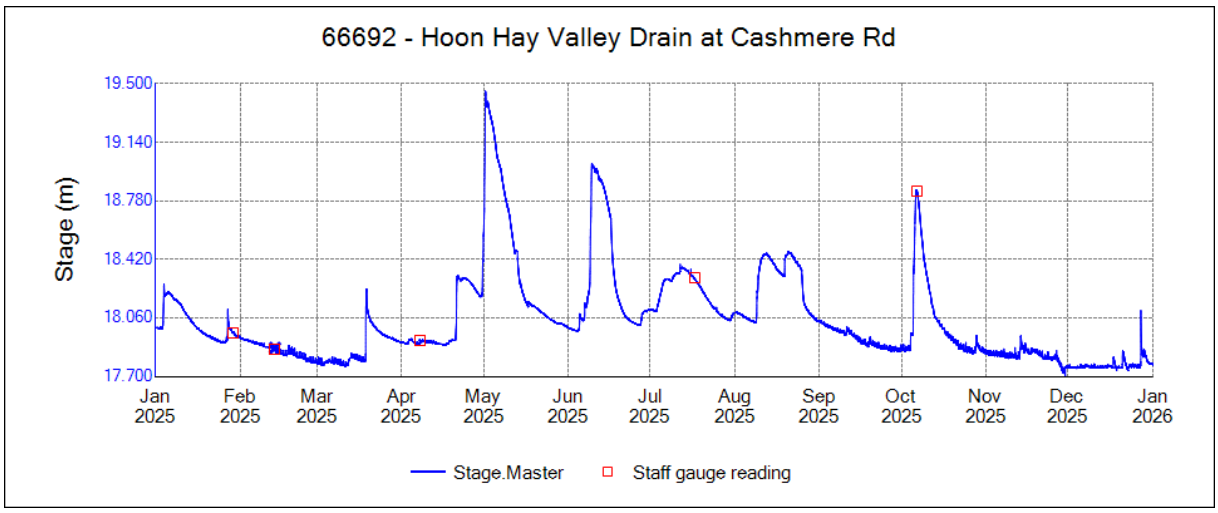


Figure 3-11: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





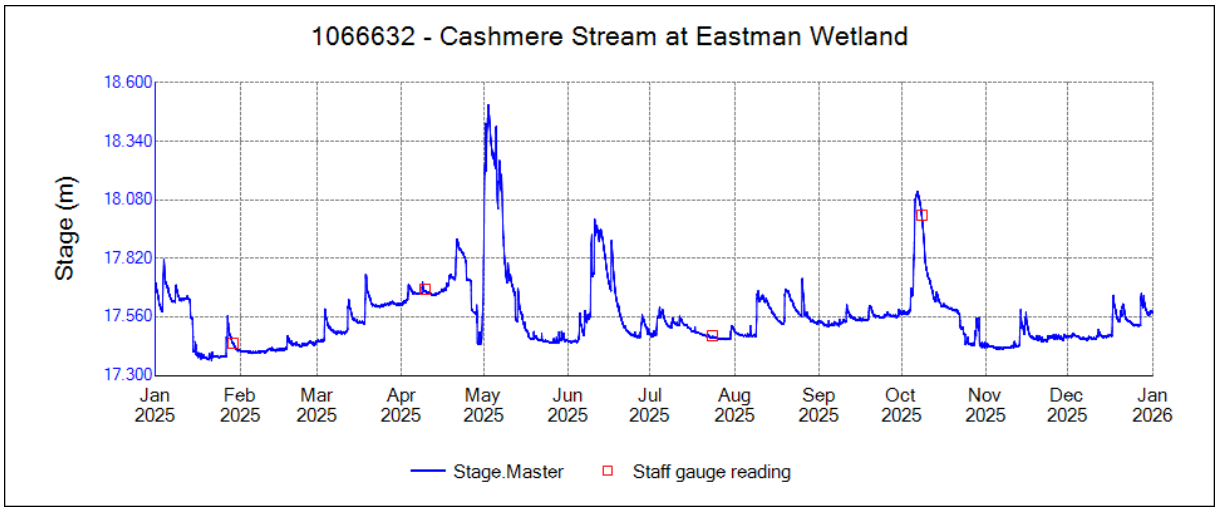
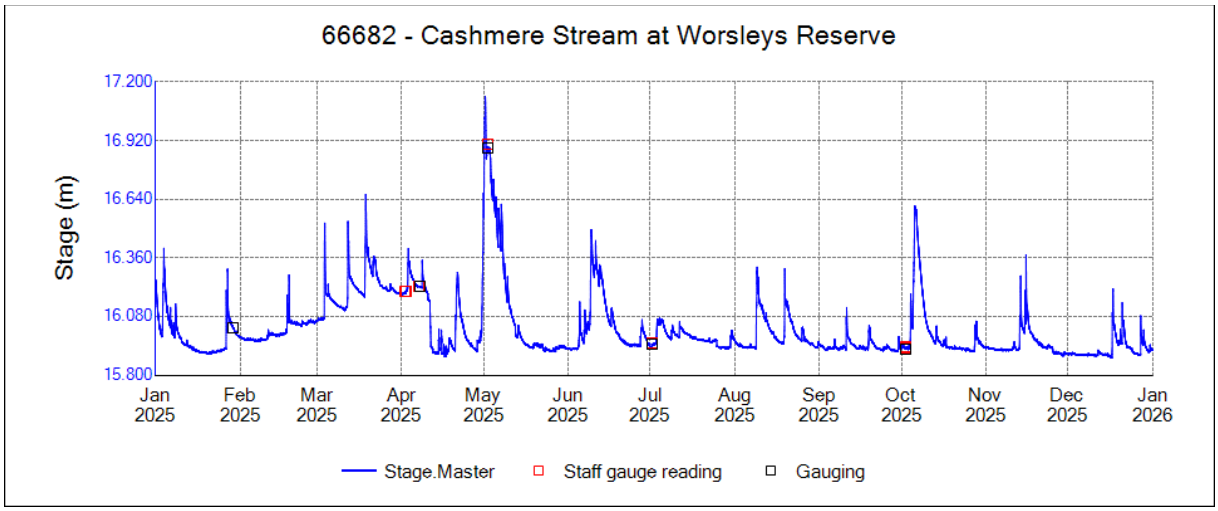
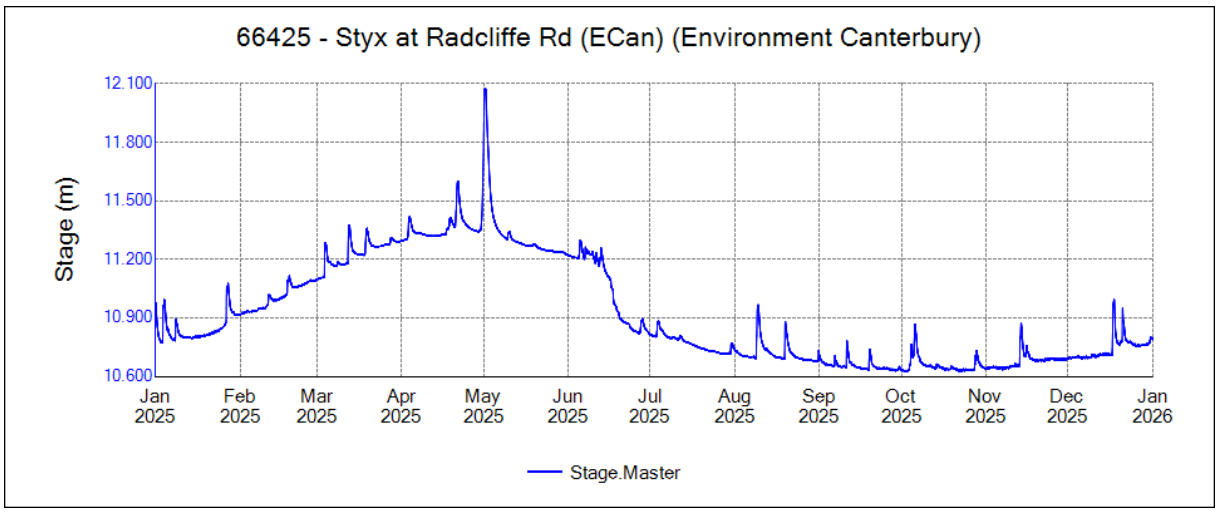


Figure 3-12: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





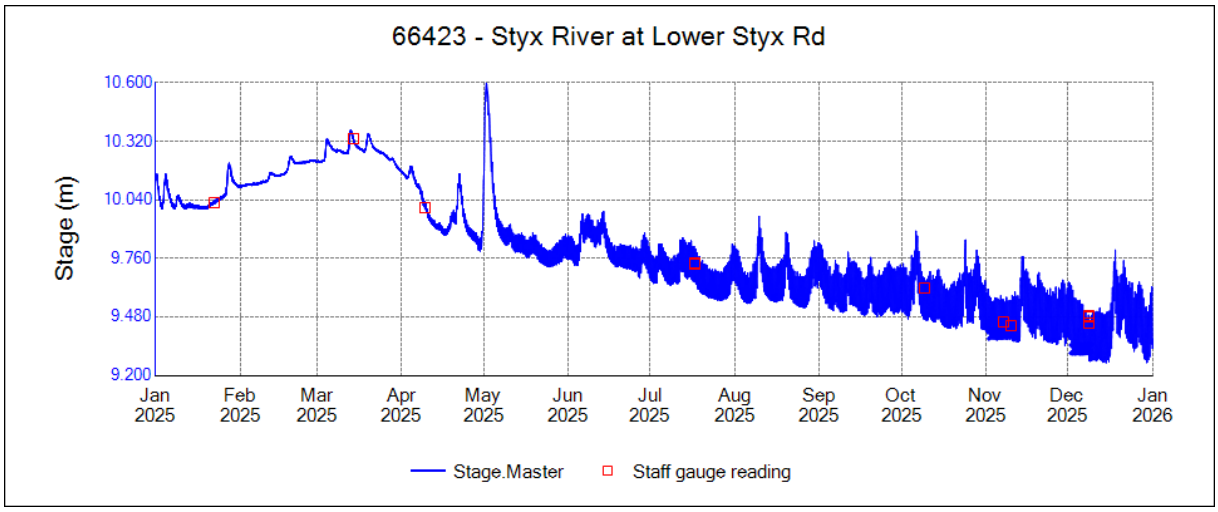
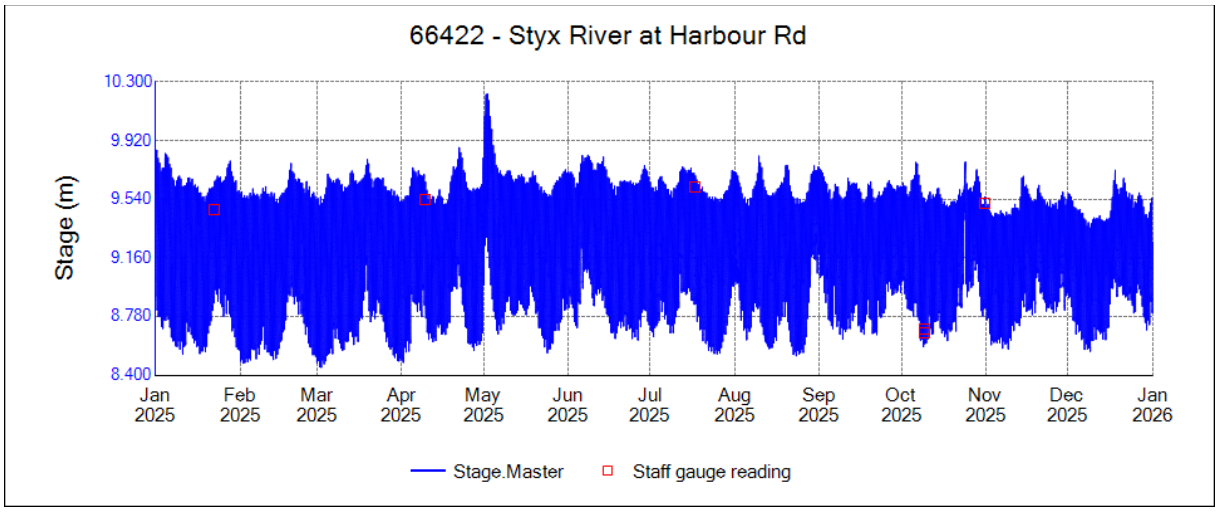
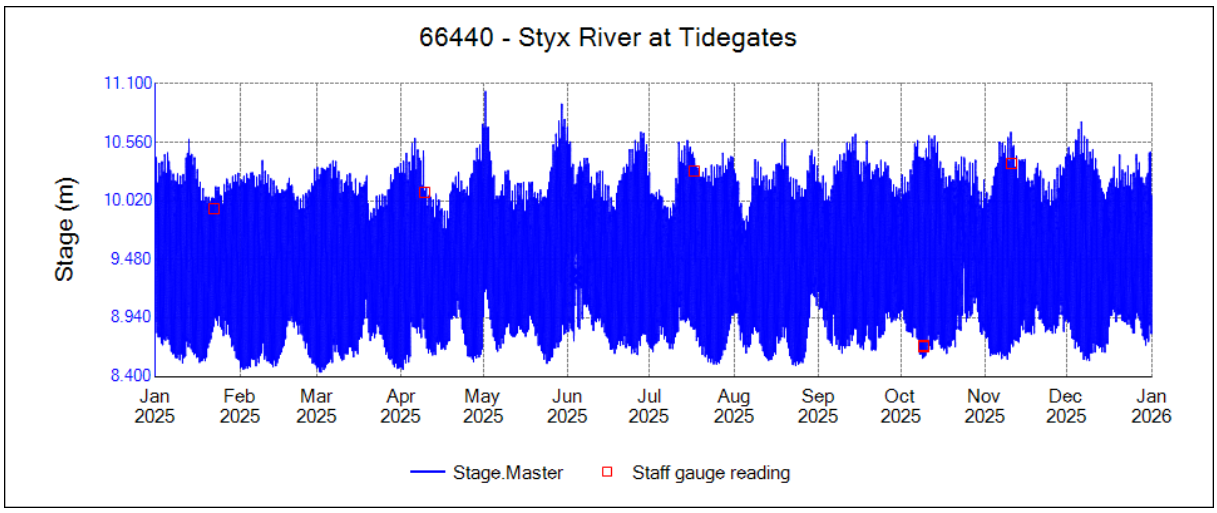


Figure 3-13: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





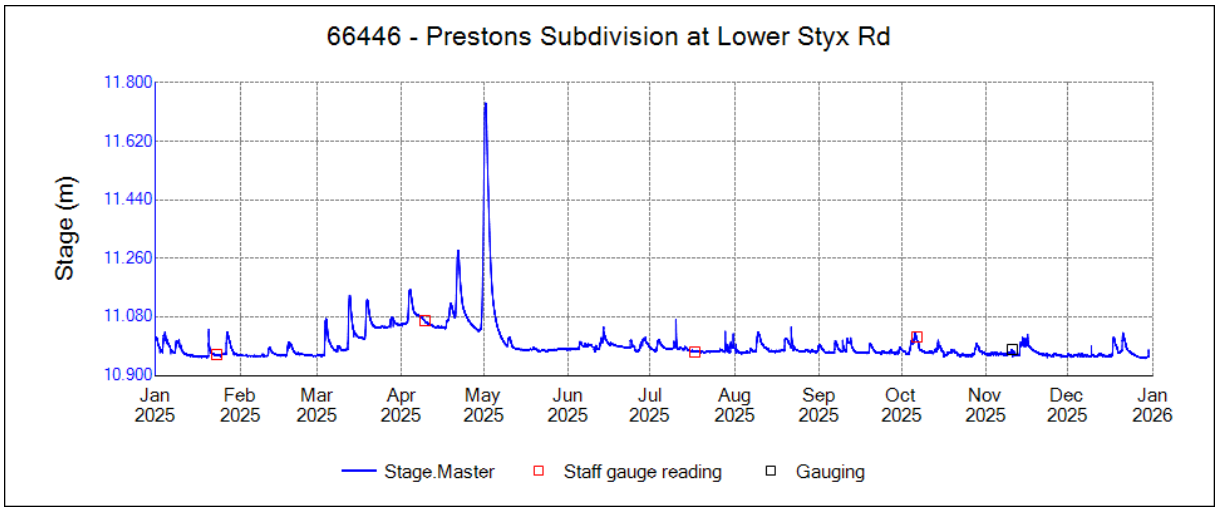
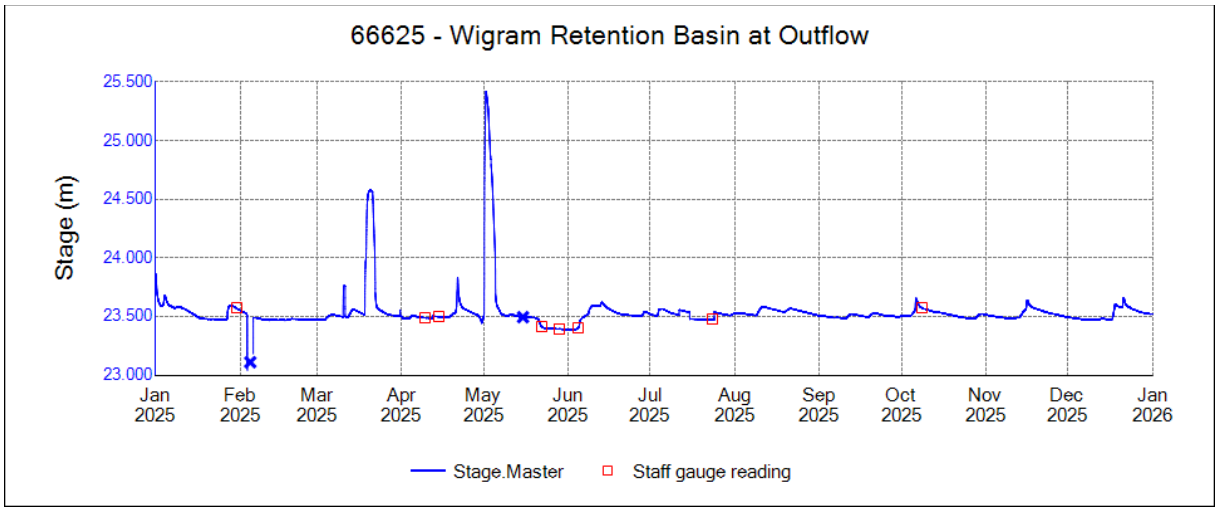
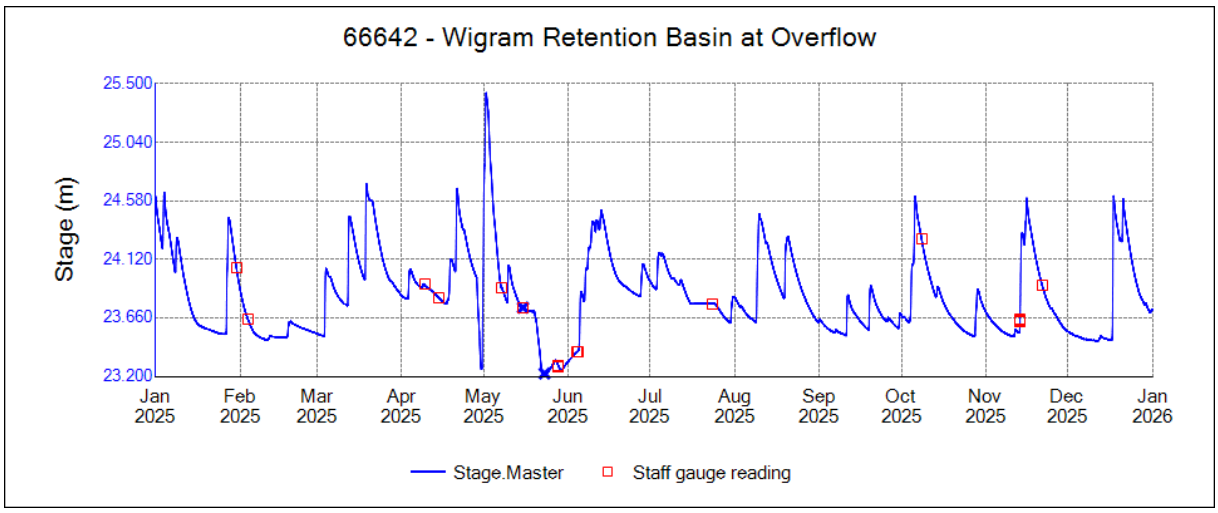


Figure 3-14: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).





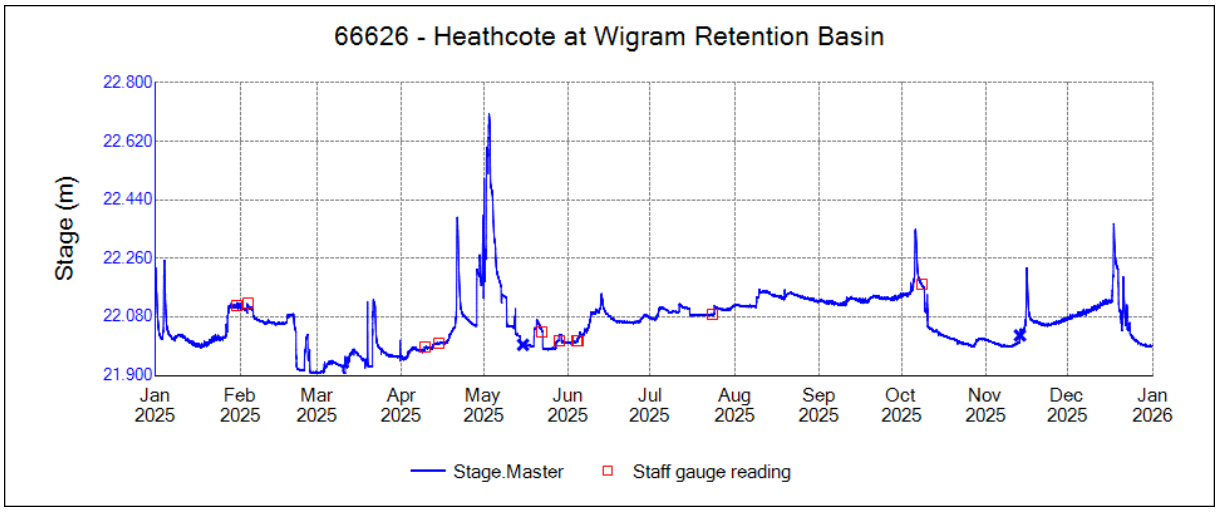


Figure 3-15: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).

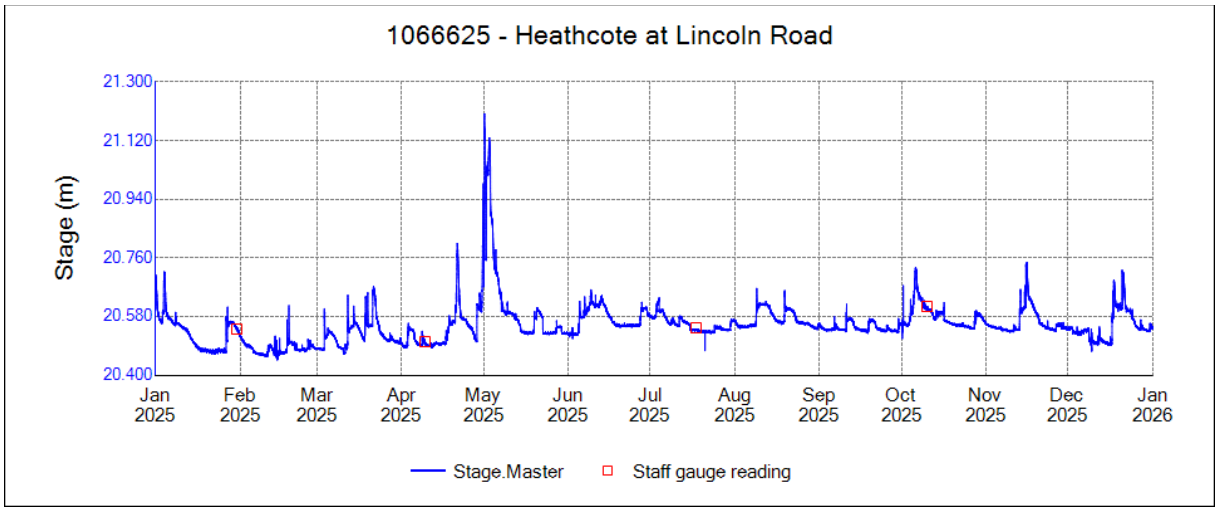
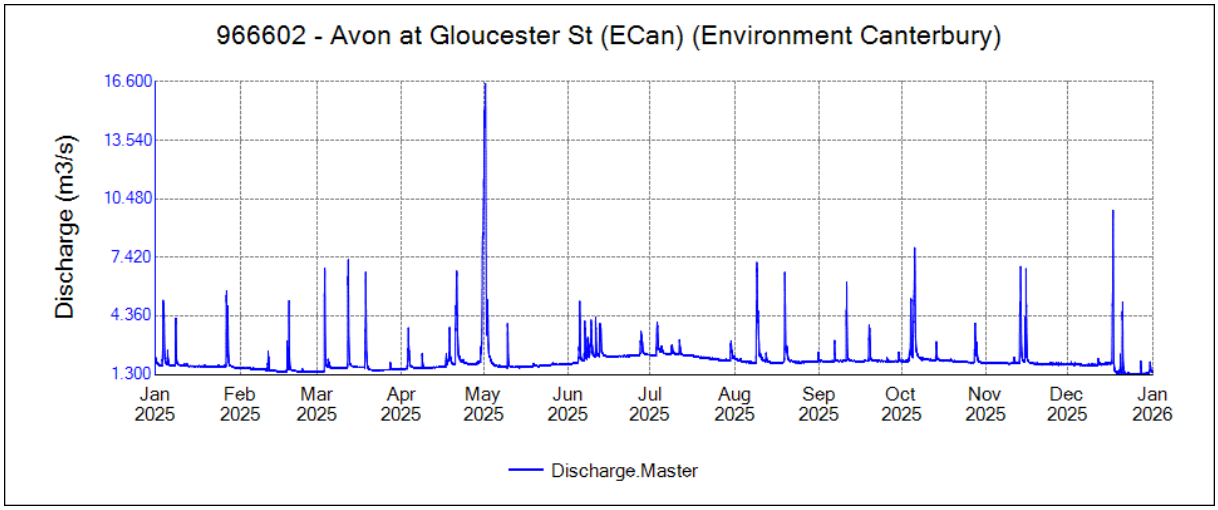
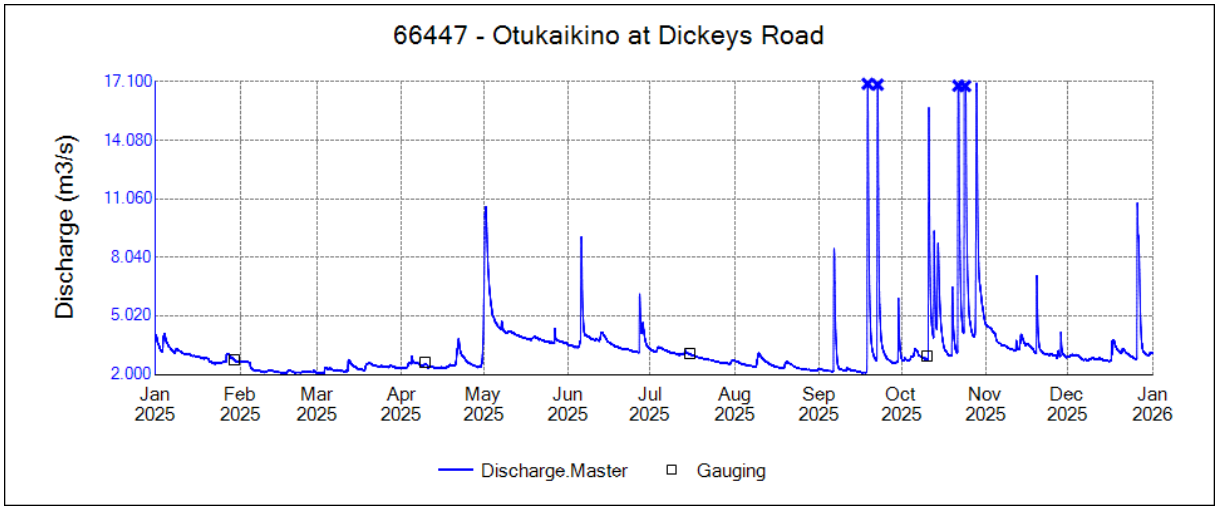


Figure 3-16: CCC hydrometric network water-level plots: 1 January to 31 December 2025 (cont.).

3.2 Flow plots





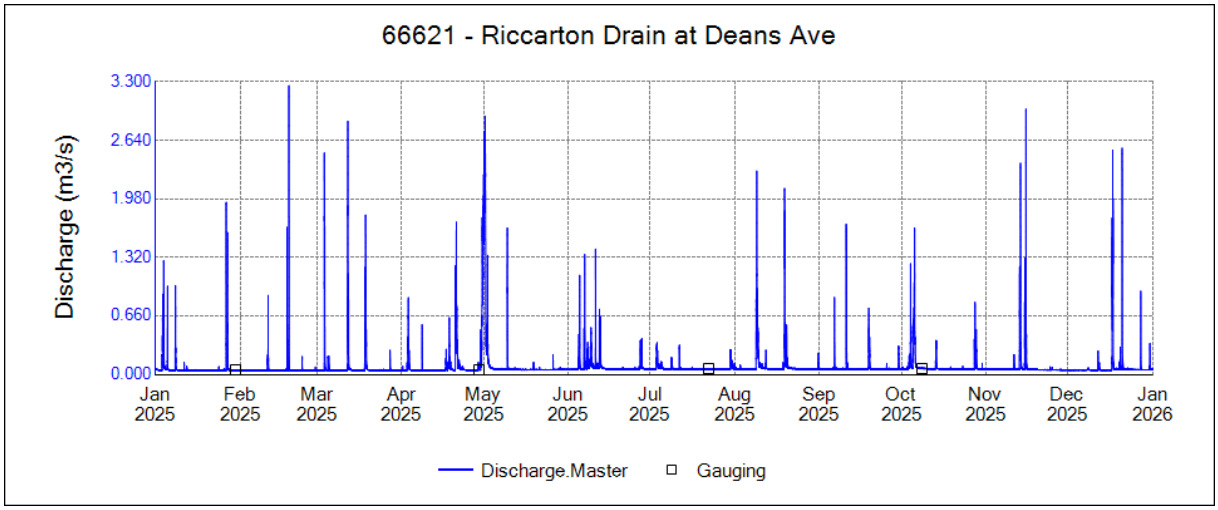
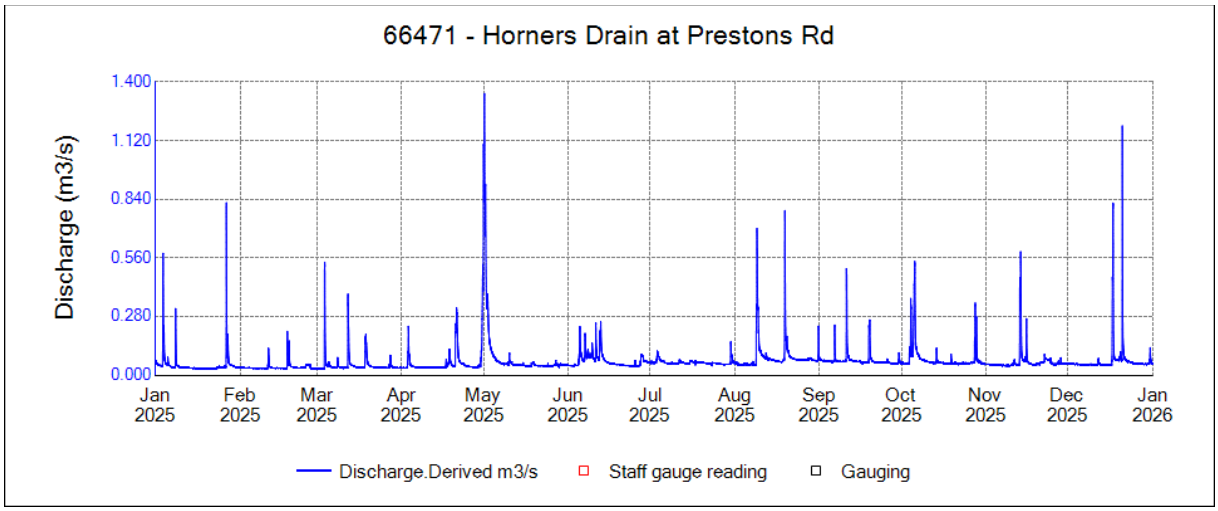
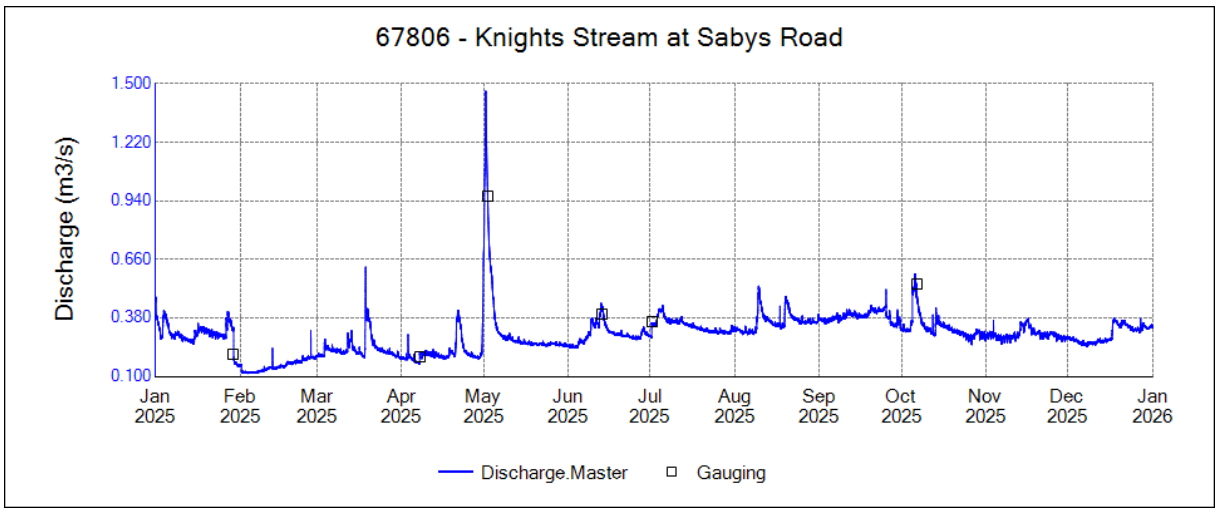


Figure 3-17: CCC hydrometric network flow plots: 1 January to 31 December 2025.





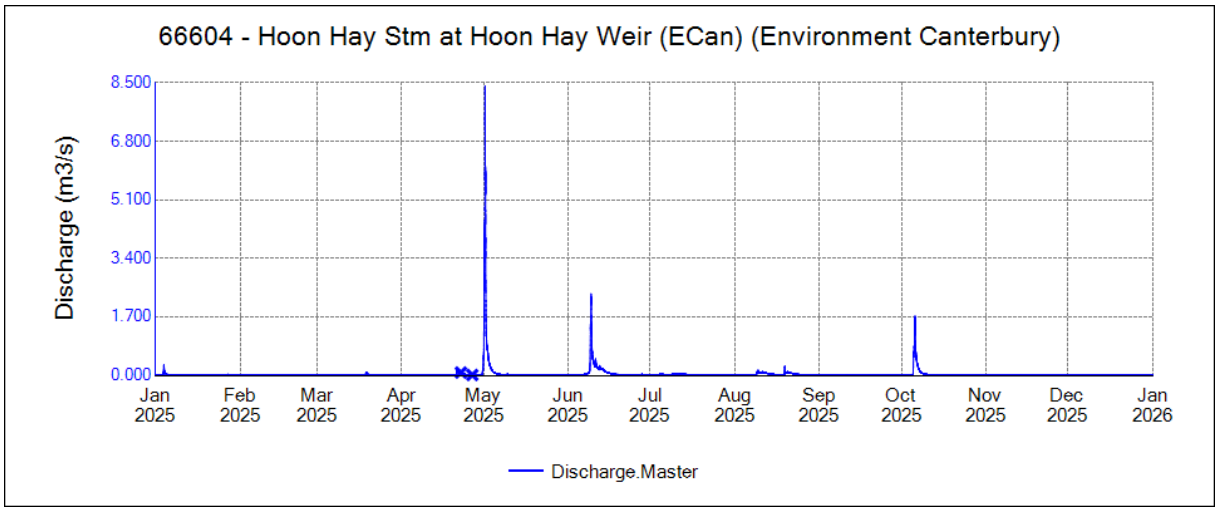
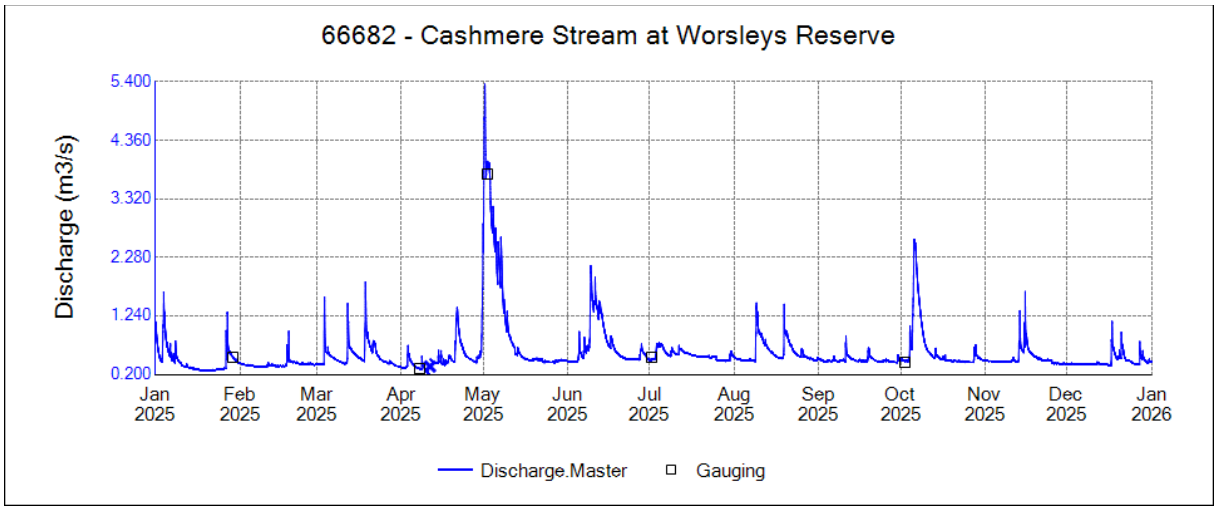
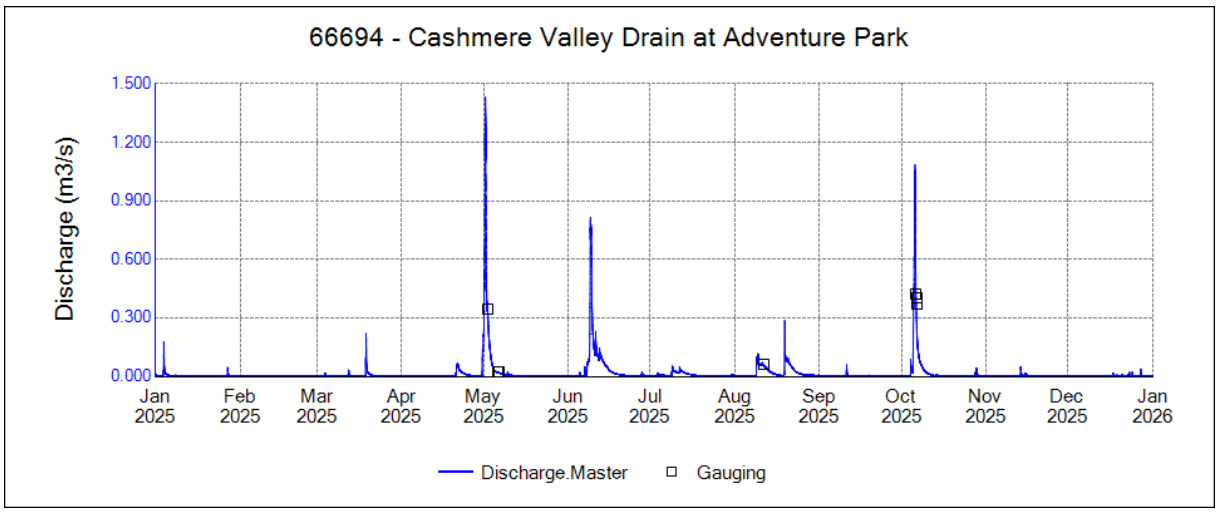


Figure 3-18: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.).





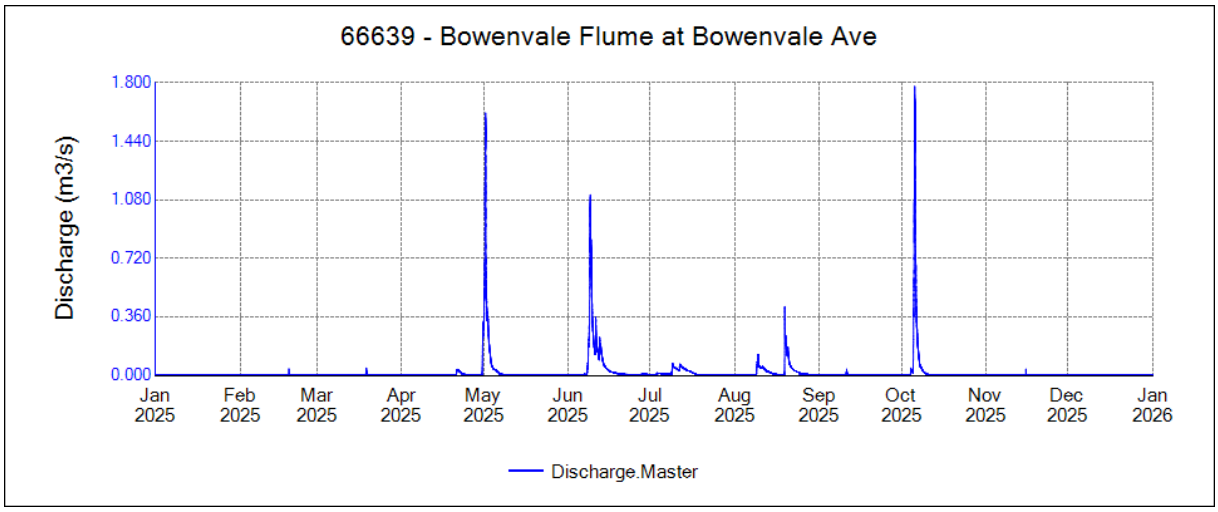
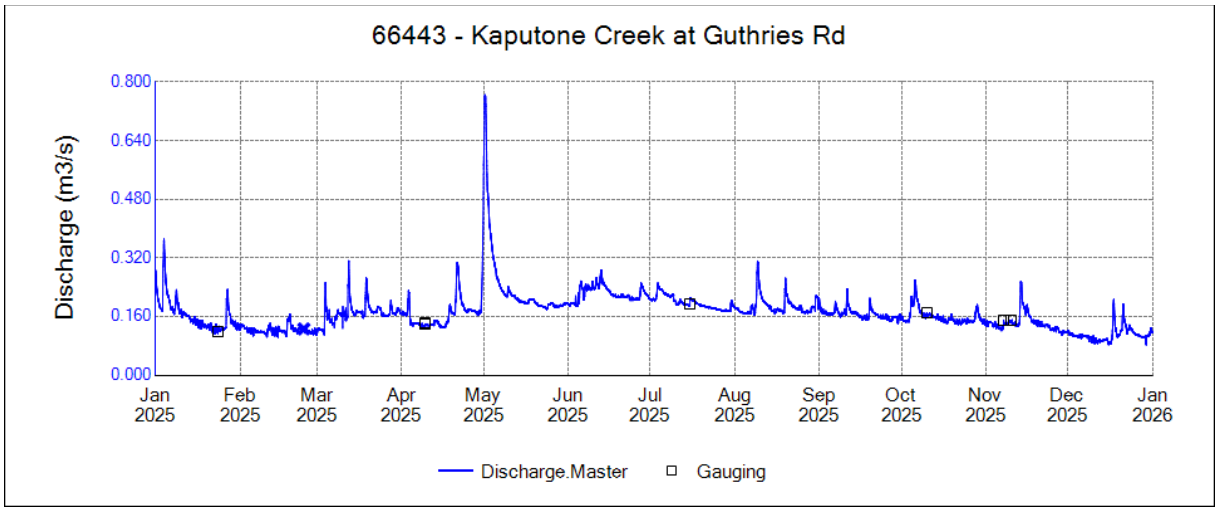
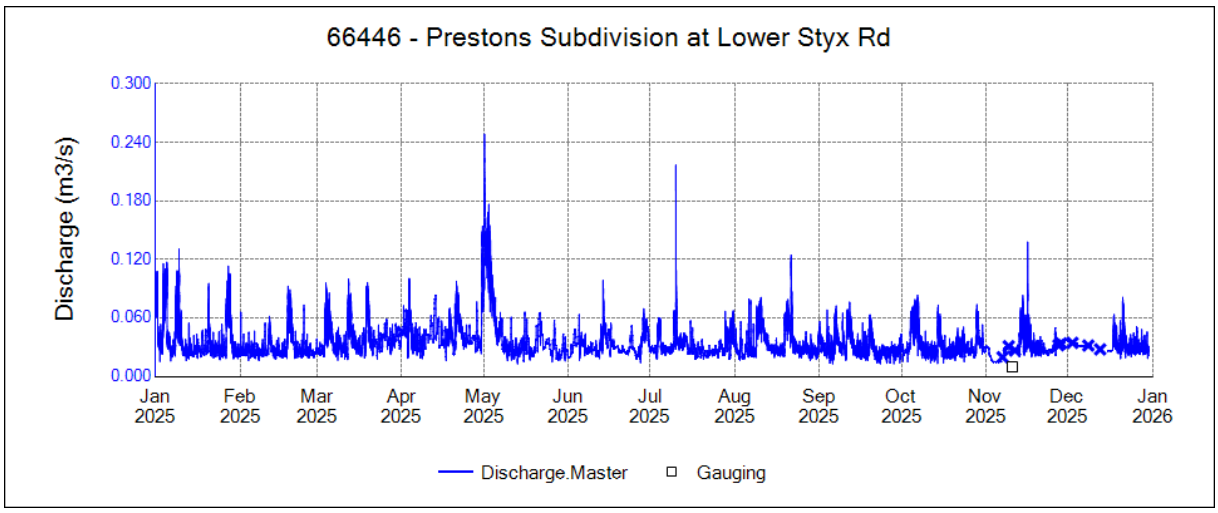


Figure 3-19: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.).





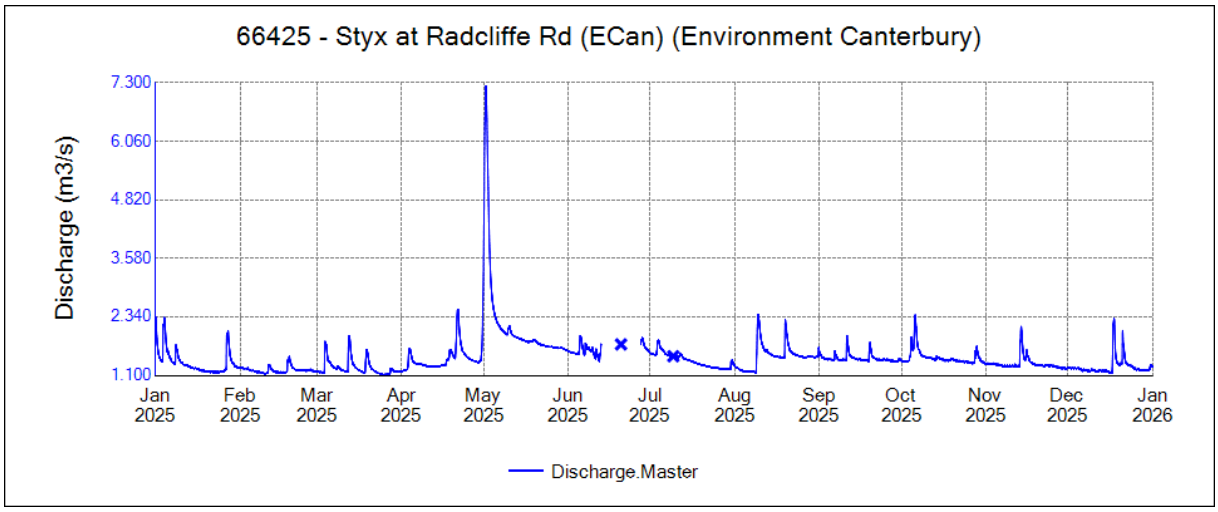
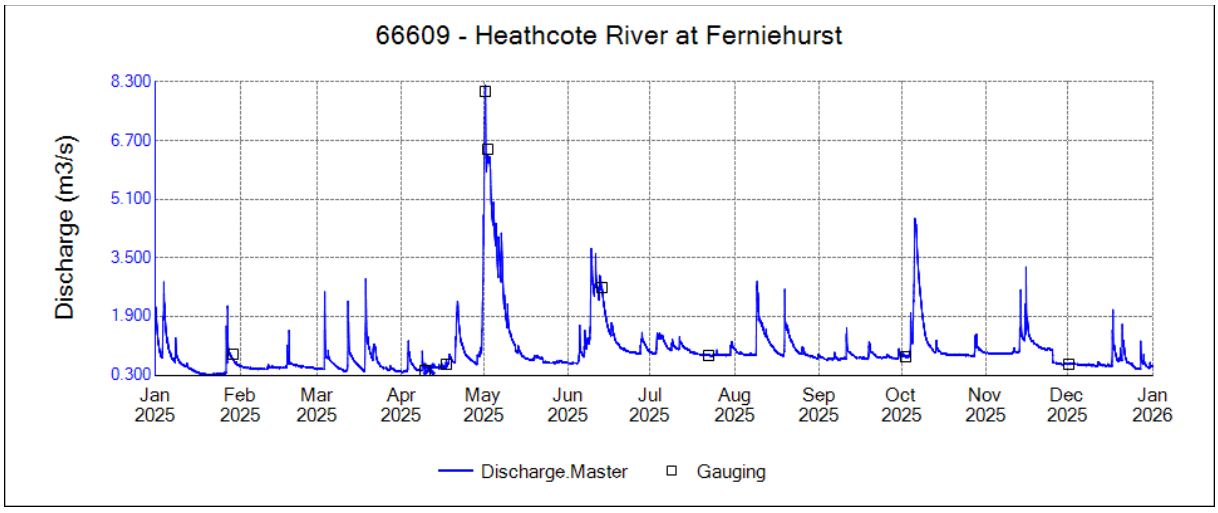


Figure 3-20: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.).



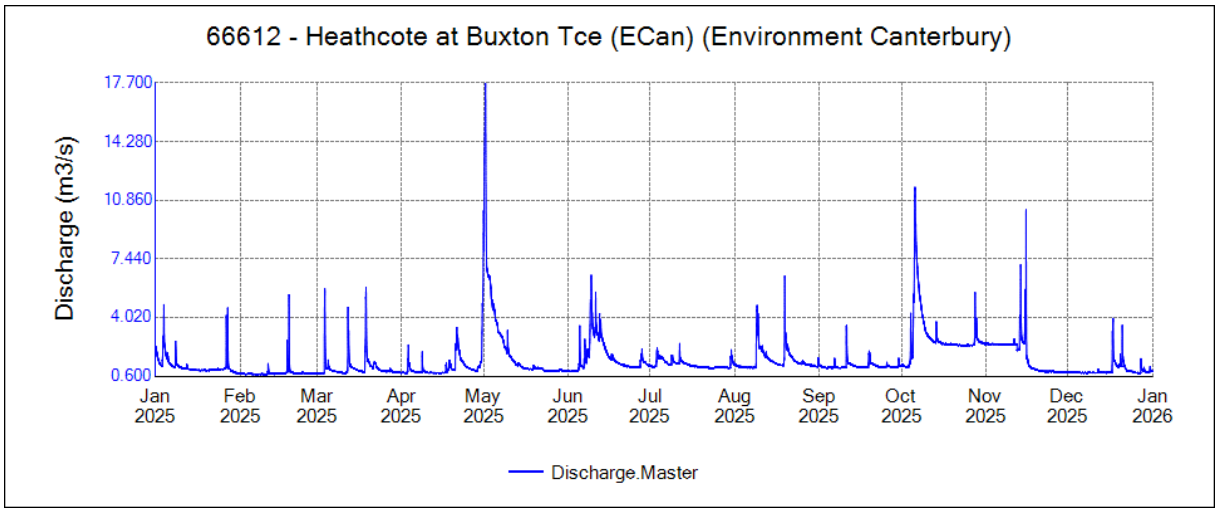


Figure 3-21: CCC hydrometric network flow plots: 1 January to 31 December 2025 (cont.).

4 Groundwater

The CCC groundwater network consists of a total of 27 groundwater sites operated by Earth Sciences NZ as at the end of 2025. Three of these sites are telemetered. Groundwater is recorded in metres relative to the Christchurch Drainage Datum.

Figure 4-1 shows the location of the sites. Figure 4-2 and Figure 4-3 provide a continuity scan showing any gaps in the groundwater record for each site in 2025.

Table 4-1 provides a summary of the maximum, mean and minimum groundwater-levels recorded during 2025 as compared with those recorded for the full periods of record for the permanent and project groundwater sites, respectively.

Groundwater-level plots for each site are shown in Figure 4-4 to Figure 4-12.

All sites in the groundwater network are measured manually with the exception of the Halswell Retention Basin (3255009), Dartford St (3246005) and Sumner (3257031) sites which are telemetered monitoring sites recording 5-minute data. At present the data from the telemetered sites is available up to the last hour.

Manual groundwater levels are measured on either a weekly or fortnightly basis, depending on site status requirements. An additional requirement is that following rainfall of greater than 20 mm in a 24-hour period, groundwater measurements should be delayed by 2-days.

Some groundwater sites located at CCC pumpstations have had periodic limited access during 2025 whilst CCC and Citycare have carried out their recent pumpstation maintenance programme. In these instances, the groundwater bores have been measured when safe site access was available to do so. However, some measurements were missed if access was restricted at these sites during the period.

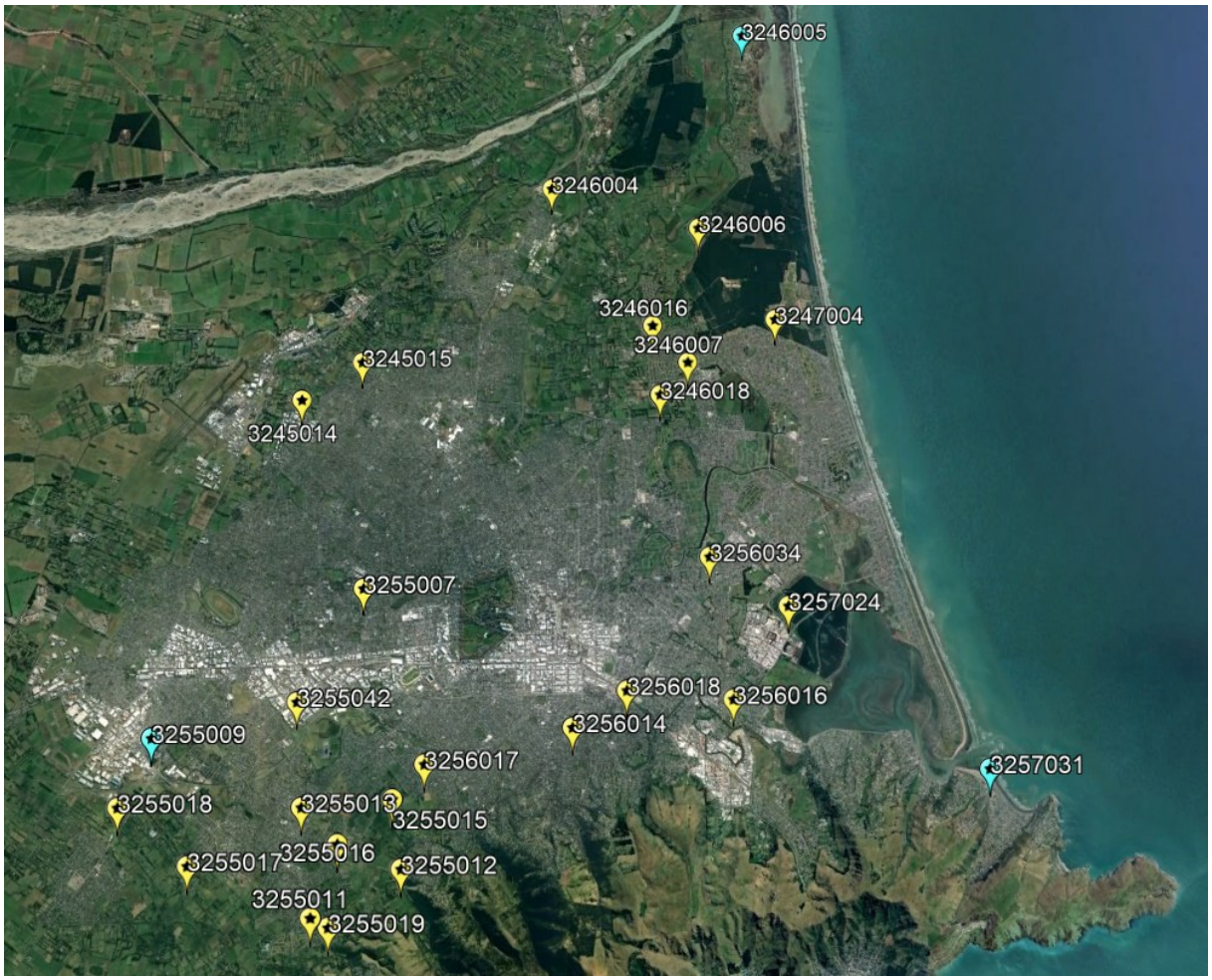


Figure 4-1: Location of CCC groundwater level sites during 2025. Telemetered sites are labelled with blue pins and manual sites with yellow pins.

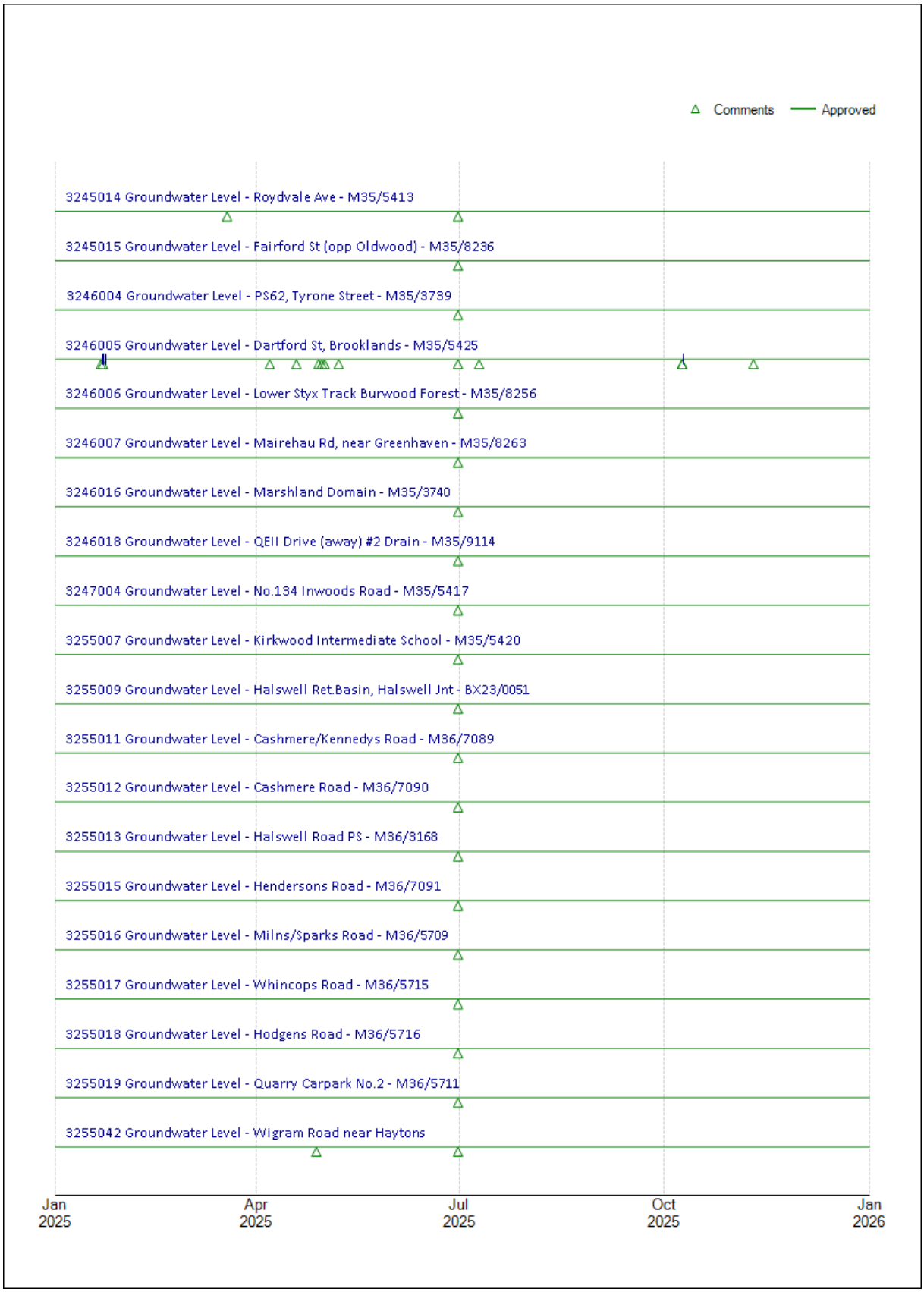


Figure 4-2: Groundwater continuity plot for 2025.

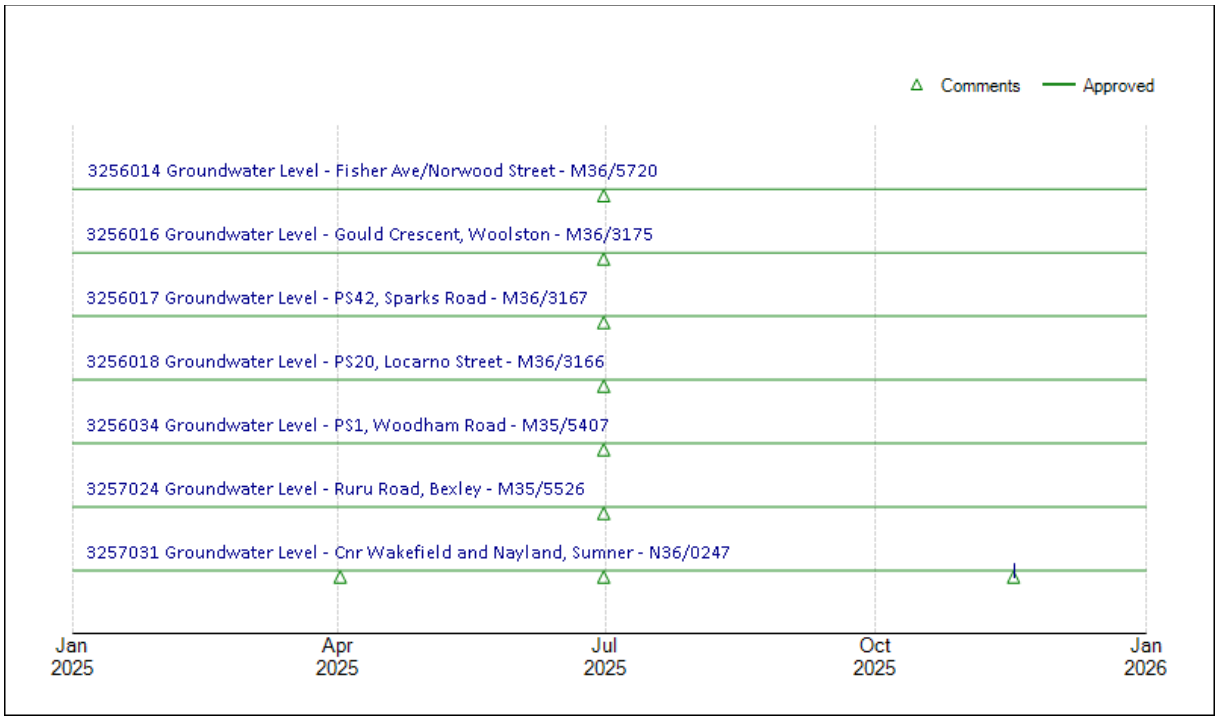
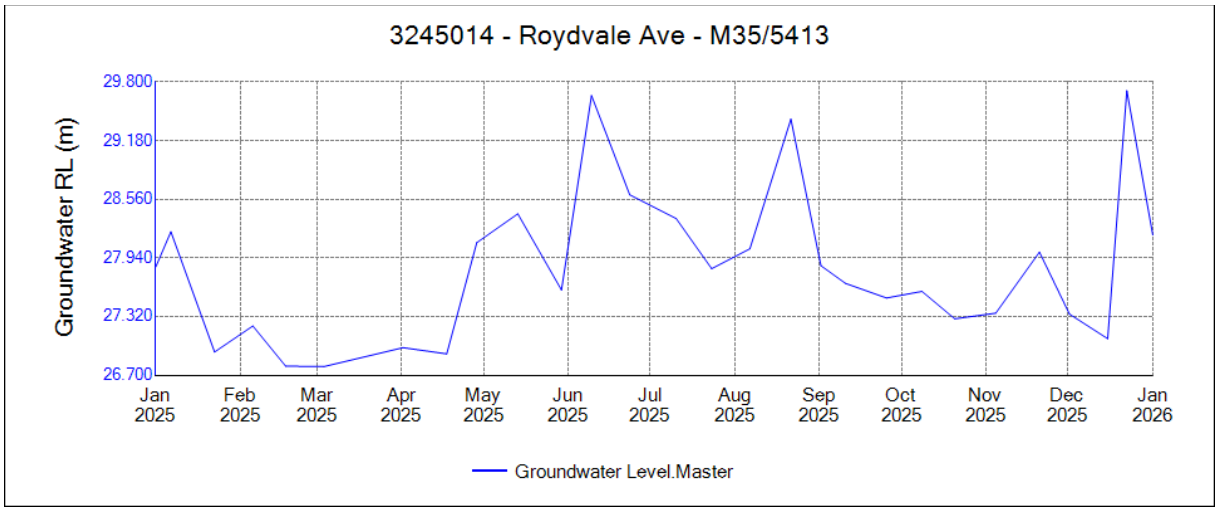


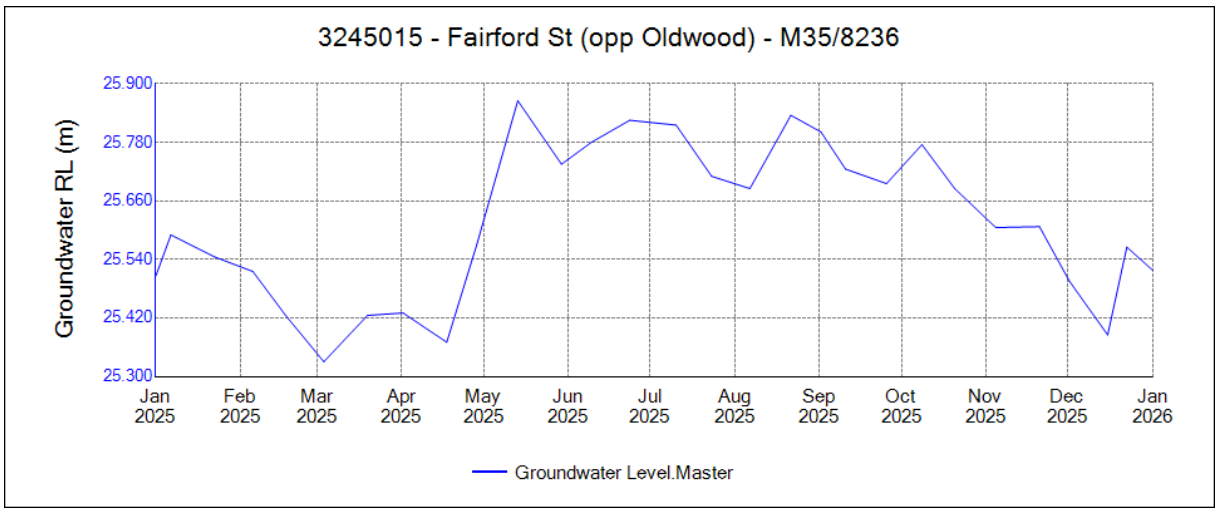
Figure 4-3: Groundwater continuity plot for 2025 (cont.).

Table 4-1: Groundwater site statistics summary: 2025 comparison with full record.

Station details			Full record			1-January-2025 - 1-December-2025		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
3245014	Roydvale Ave - M35/5413	06-Oct-77	26.195	29.795	27.575	26.790	29.705	27.757
3245015	Fairford St (opp Oldwood) - M35/8236	19-Dec-88	24.975	26.525	25.769	25.330	25.865	25.621
3246004	PS62, Tyrone Street - M35/3739	05-Jun-84	11.745	14.935	13.778	13.890	14.791	14.369
3246005	Dartford St, Brooklands - M35/5425	21-Jul-81	8.498	10.873	9.646	9.575	10.573	9.767
3246006	Lower Styx Track Burwood Forest - M35/8256	11-Mar-91	10.400	12.775	11.079	11.115	11.635	11.387
3246007	Mairehau Rd, near Greenhaven - M35/8263	07-Mar-97	10.040	11.450	10.921	10.790	11.140	10.879
3246016	Marshland Domain - M35/3740	07-Mar-97	10.590	13.134	12.359	12.170	12.540	12.319
3246018	QEII Drive (away) #2 Drain - M35/9114	24-May-99	10.750	12.214	11.111	11.044	11.293	11.158
3247004	No.134 Inwoods Road - M35/5417	12-Nov-84	11.320	12.990	12.252	12.235	12.505	12.367
3255007	Kirkwood Intermediate School - M35/5420	06-Jan-67	20.350	22.395	21.459	21.045	21.820	21.462
3255009	Halswell Ret.Basin, Halswell Jnt - BX23/0051	11-Oct-77	23.701	29.585	*25.418	24.510	26.103	25.454
3255011	Cashmere/Kennedys Road - M36/7089	11-Sep-00	19.825	21.610	20.643	20.605	21.140	20.903
3255012	Cashmere Road - M36/7090	11-Sep-00	15.665	19.360	17.904	17.915	19.295	18.743
3255013	Halswell Road PS - M36/3168	05-Jun-84	20.390	22.970	21.749	21.515	22.035	21.773
3255015	Hendersons Road - M36/7091	11-Sep-00	14.985	18.310	17.290	17.015	18.055	17.711
3255016	Milns/Sparks Road - M36/5709	13-Apr-92	18.700	20.940	19.575	19.260	20.743	19.818
3255017	Whincops Road - M36/5715	13-Apr-92	22.135	23.210	22.671	22.540	23.020	22.835
3255018	Hodgens Road - M36/5716	13-Apr-92	24.265	26.775	24.834	25.100	25.450	25.290
3255019	Quarry Carpark No.2 - M36/5711	16-Jun-98	18.320	22.710	19.475	18.580	19.380	19.007
3255042	Wigram Road near Haytons	10-Dec-13	23.836	25.156	24.499	24.336	24.786	24.568
3256014	Fisher Ave/Norwood Street - M36/5720	20-Apr-92	13.050	15.250	14.351	13.830	15.015	14.248
3256016	Gould Crescent, Woolston - M36/3175	07-Aug-78	8.145	10.145	9.448	9.135	9.571	9.347
3256017	PS42, Sparks Road - M36/3167	07-Jul-69	15.860	18.850	17.385	16.950	18.310	17.714
3256018	PS20, Locarno Street - M36/3166	03-Jun-59	11.095	12.695	11.922	11.545	11.830	11.678
3256034	PS1, Woodham Road - M35/5407	03-Jun-59	7.635	12.380	11.108	11.105	11.438	11.297
3257024	Ruru Road, Bexley - M35/5526	10-Mar-86	12.520	13.835	13.175	13.290	13.791	13.627
3257031	Cnr Wakefield and Nayland, Sumner - N36/0247	08-Aug-19	10.471	11.013	10.619	10.512	10.856	10.655

Notes:* indicates gap percentage of 2.5% exceeded





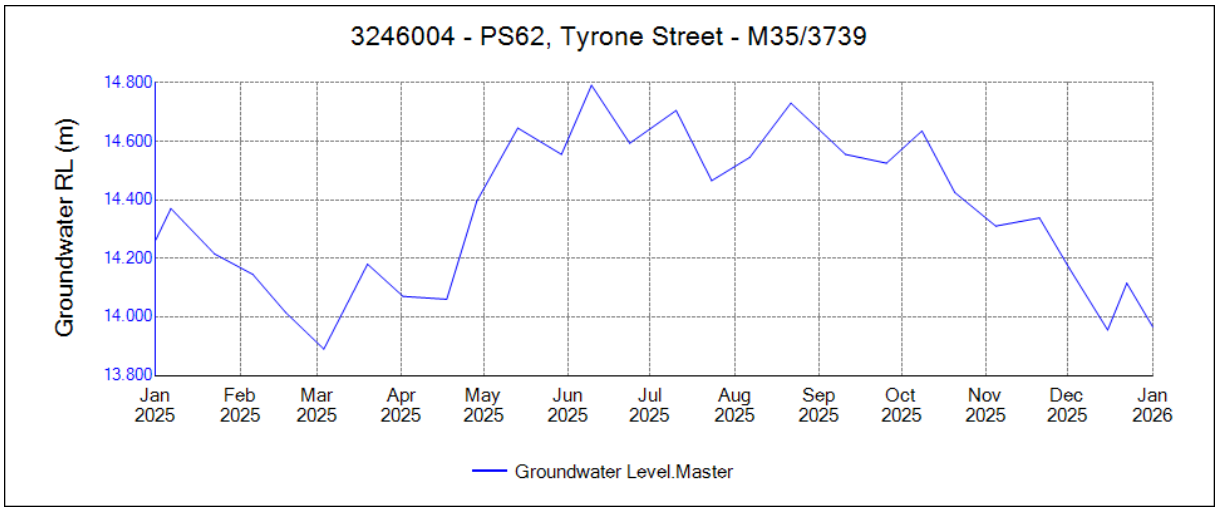
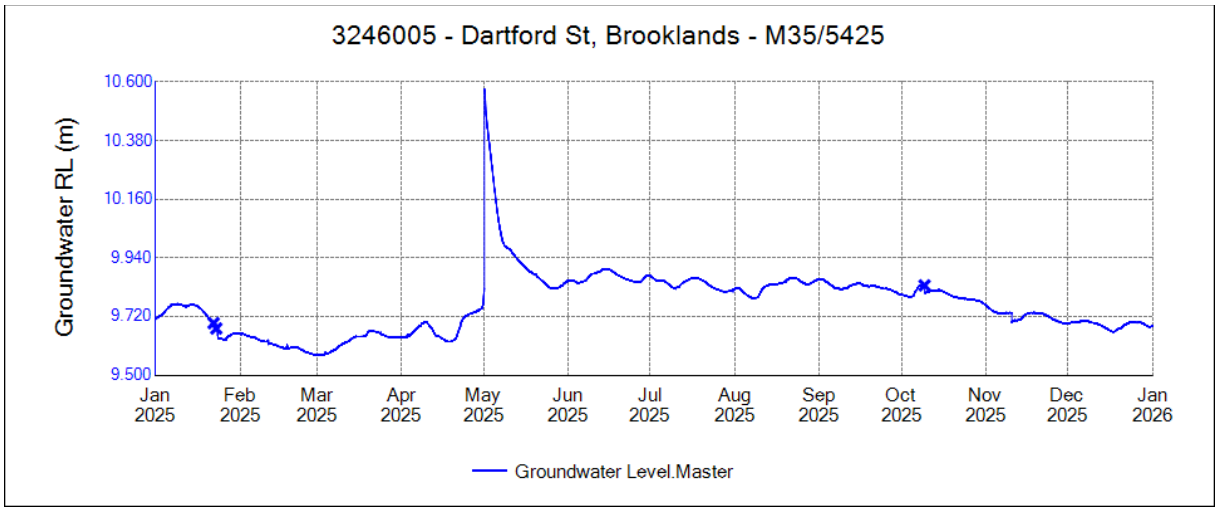
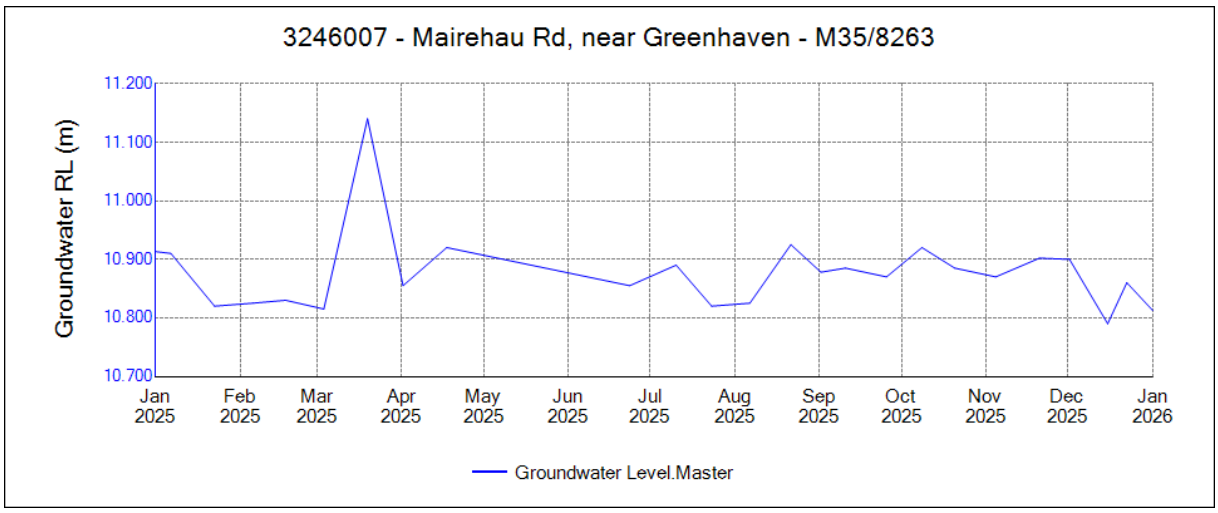


Figure 4-4: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025.





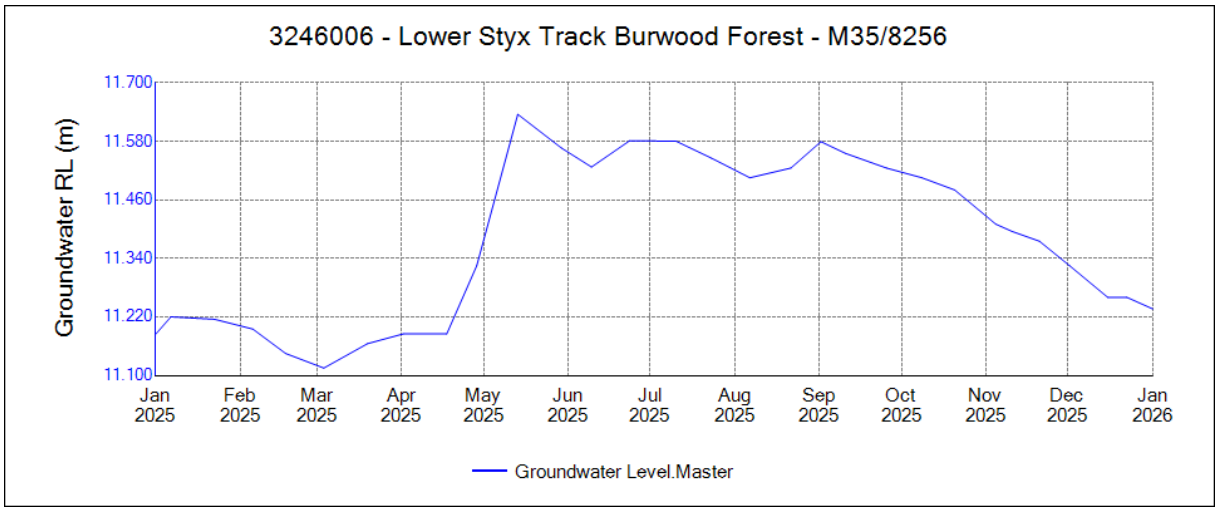
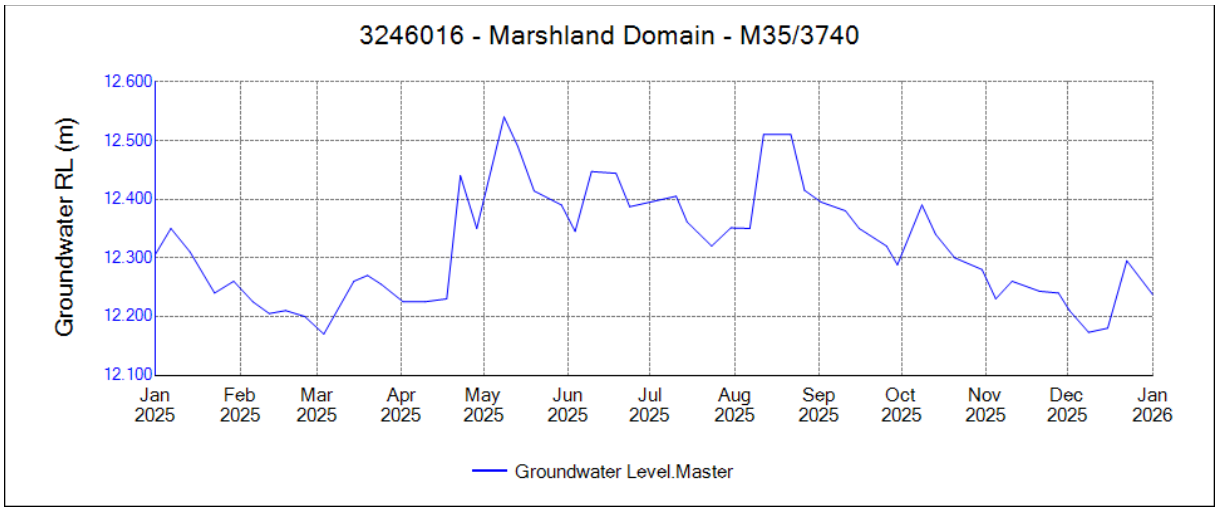
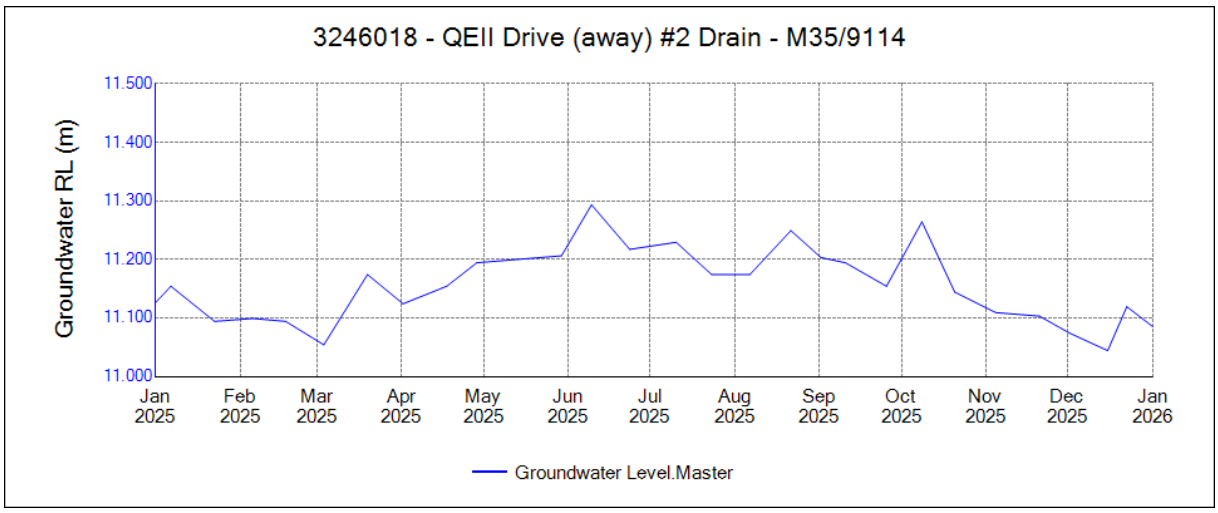


Figure 4-5: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.).





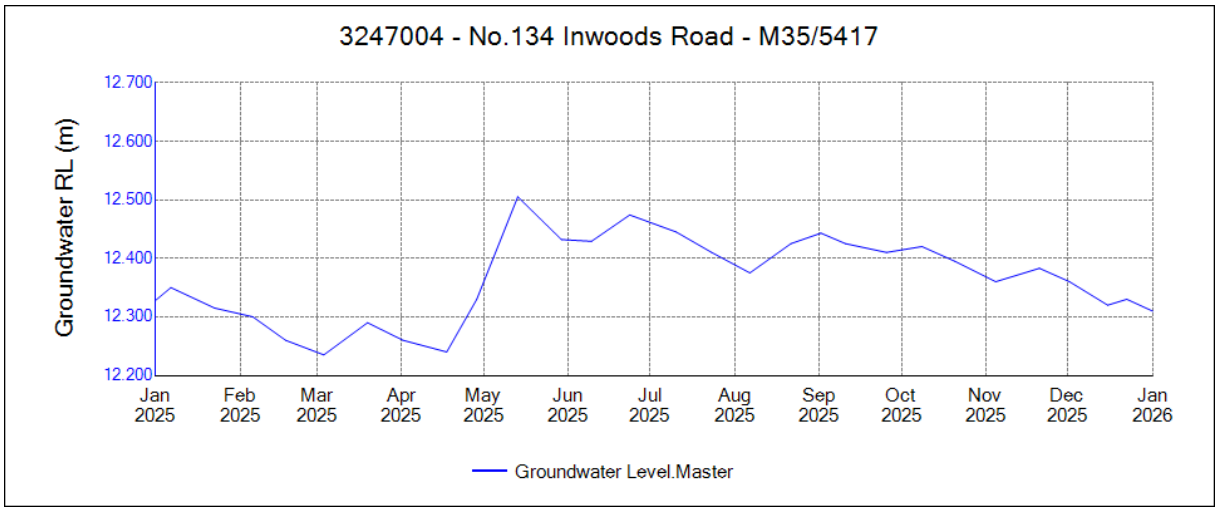
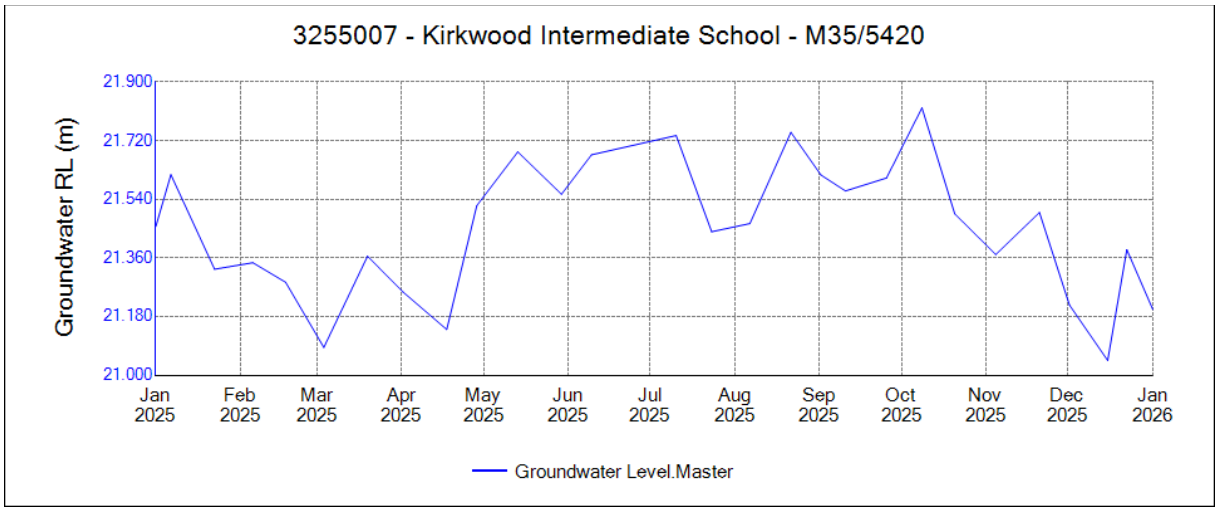
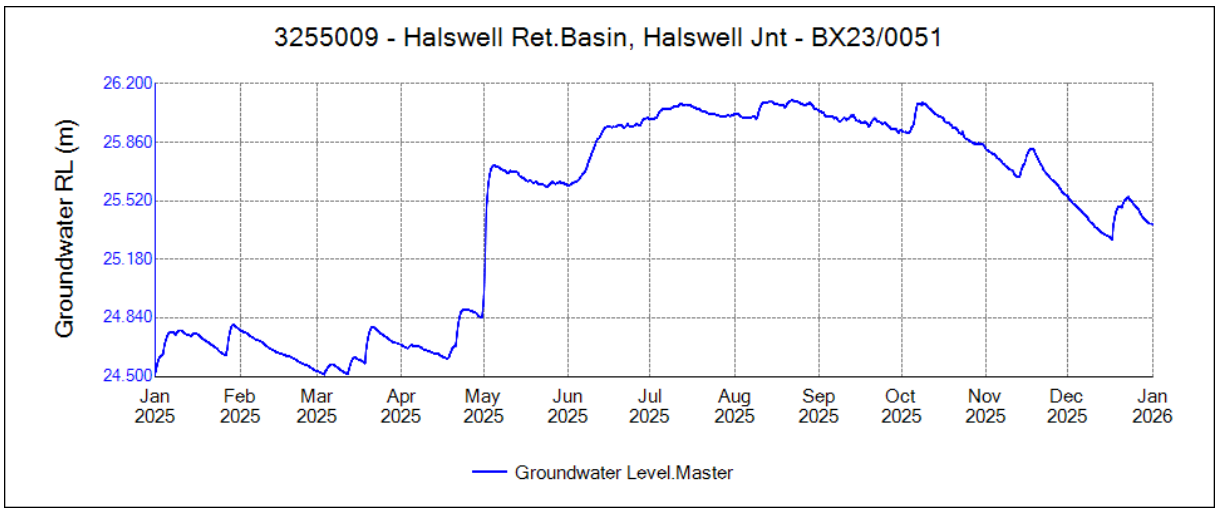


Figure 4-6: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025.(cont.).





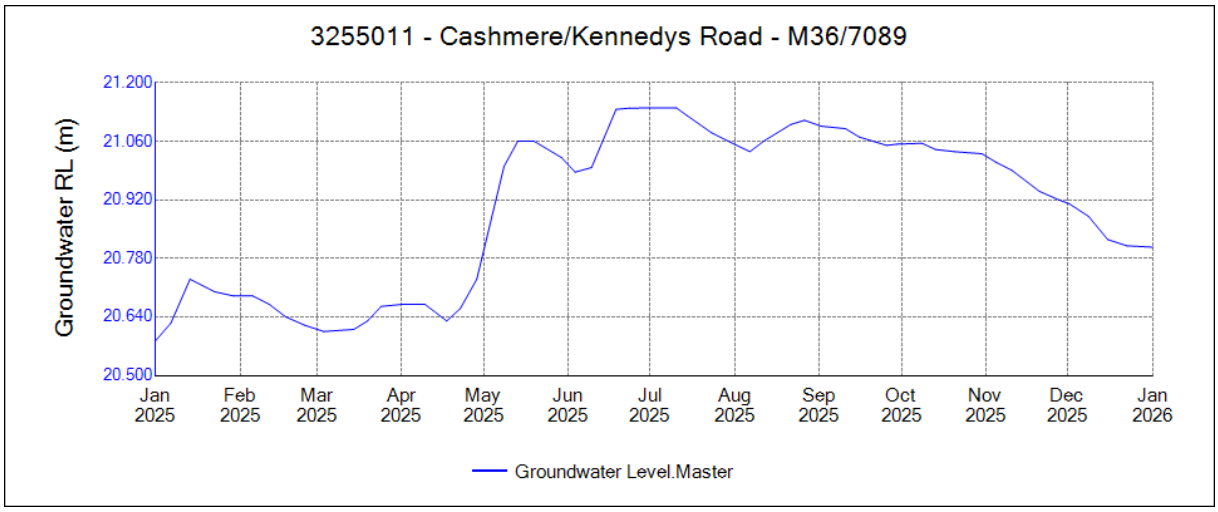
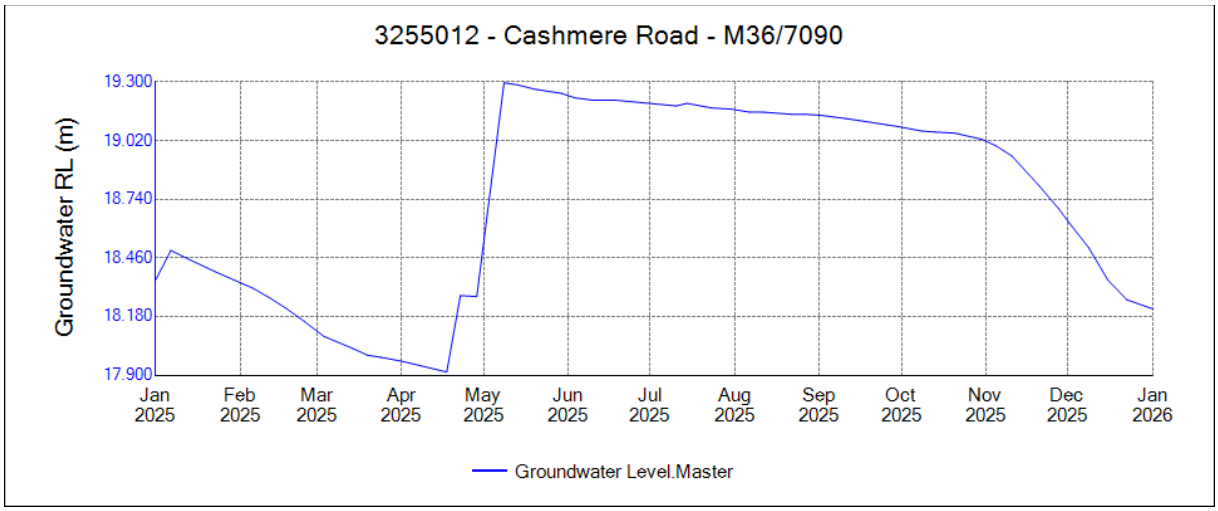
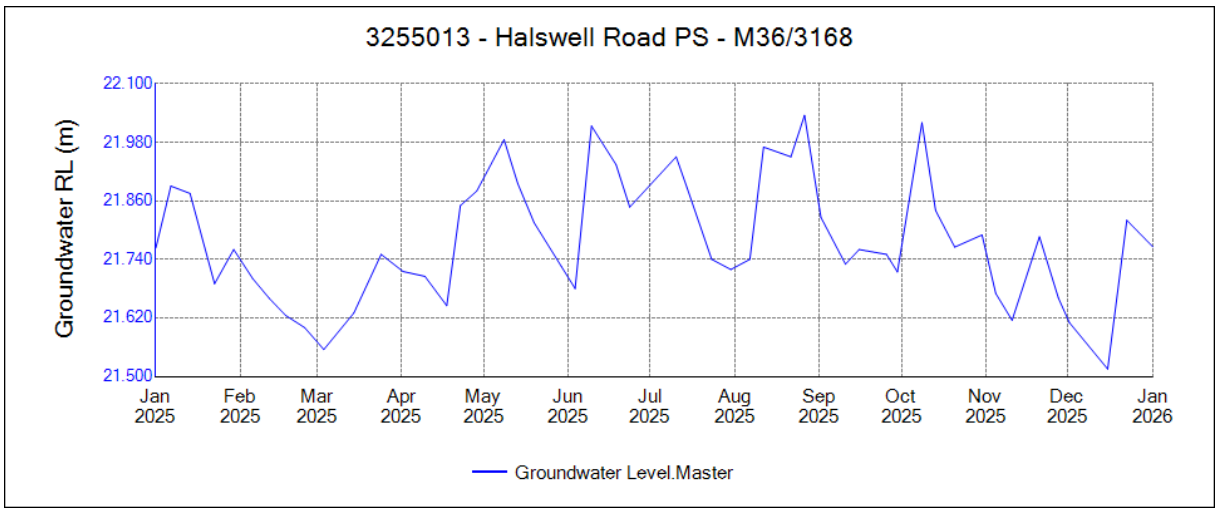


Figure 4-7: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.).





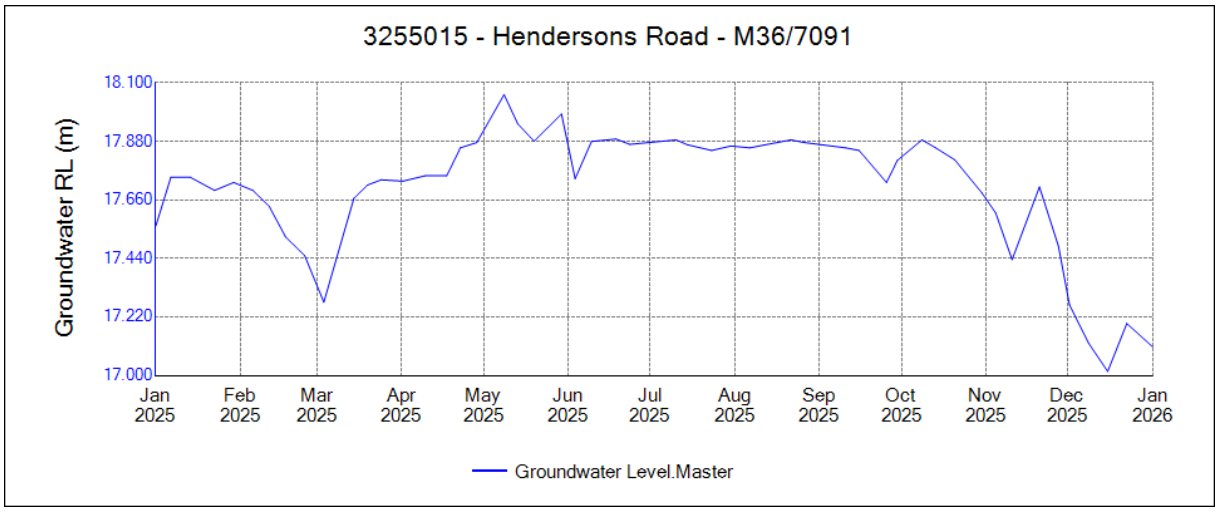
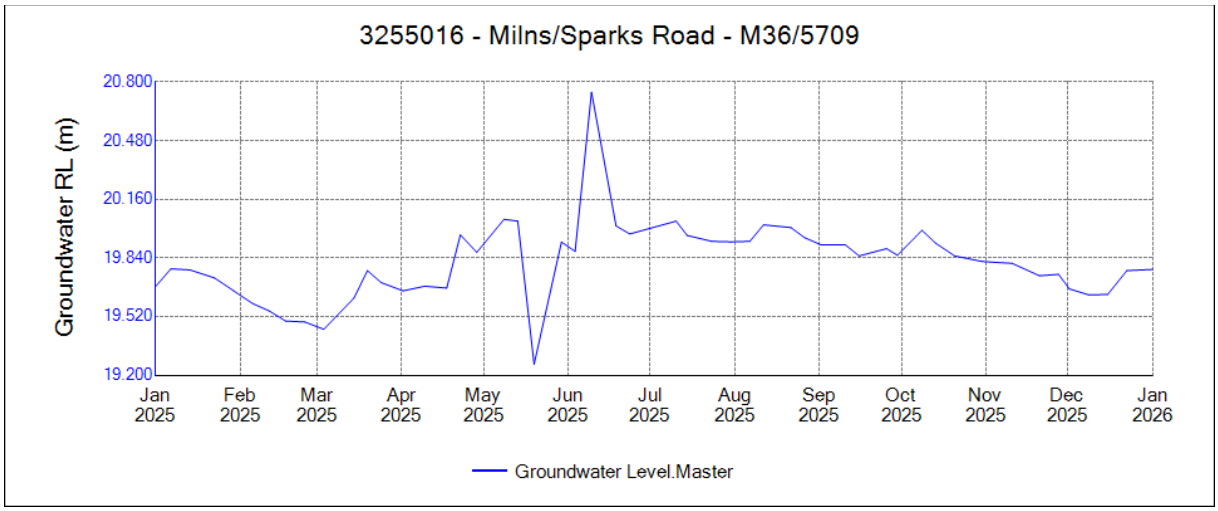
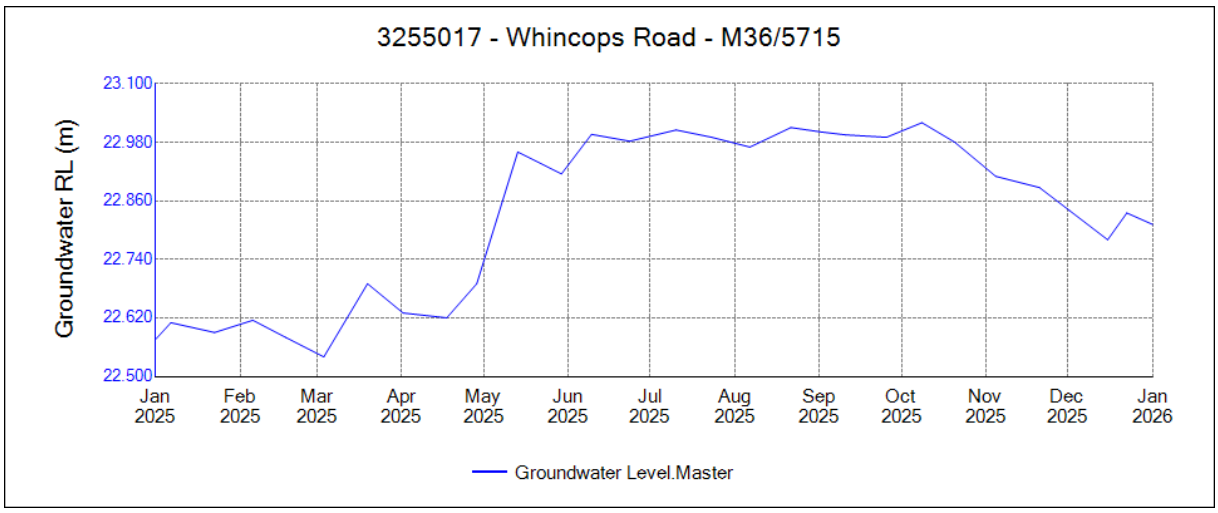


Figure 4-8: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.).





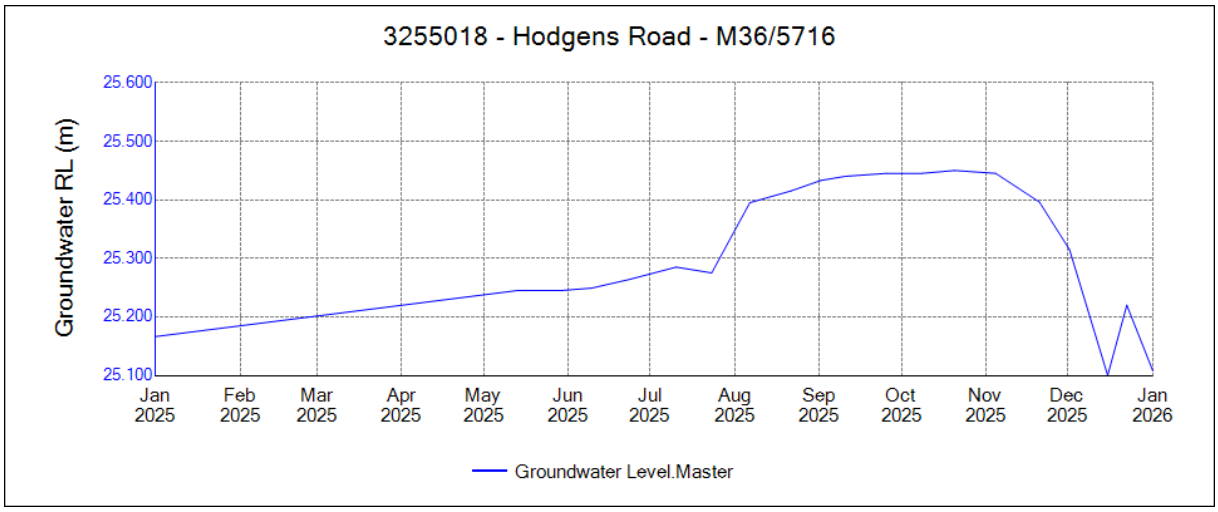
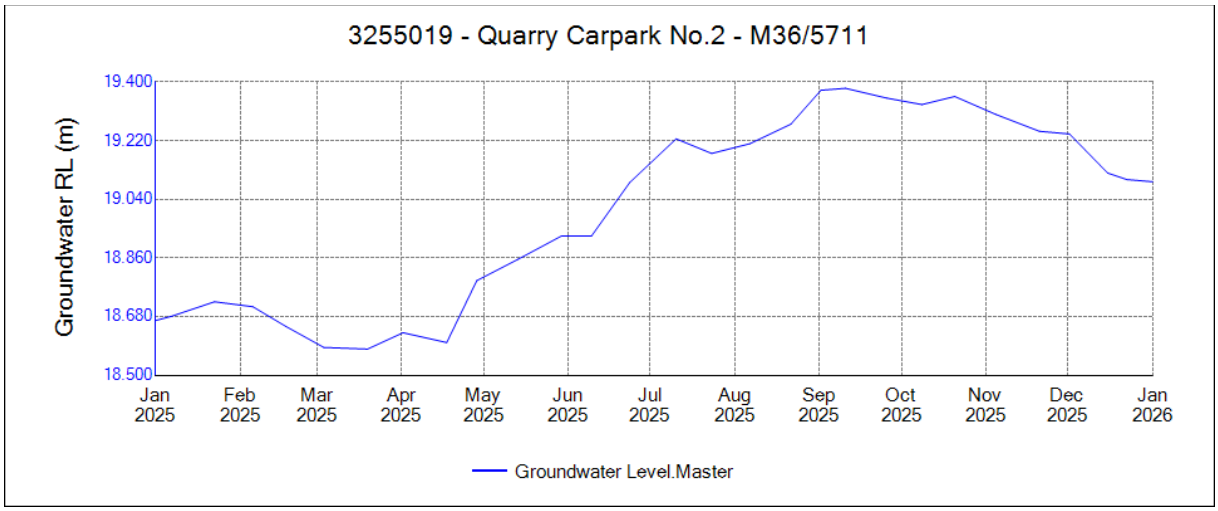
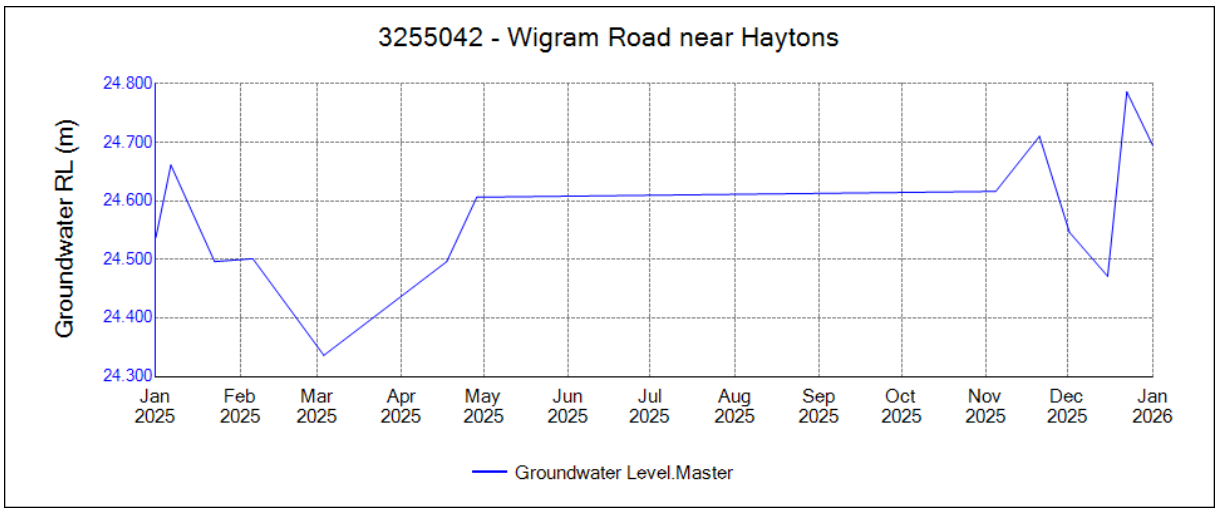


Figure 4-9: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.).





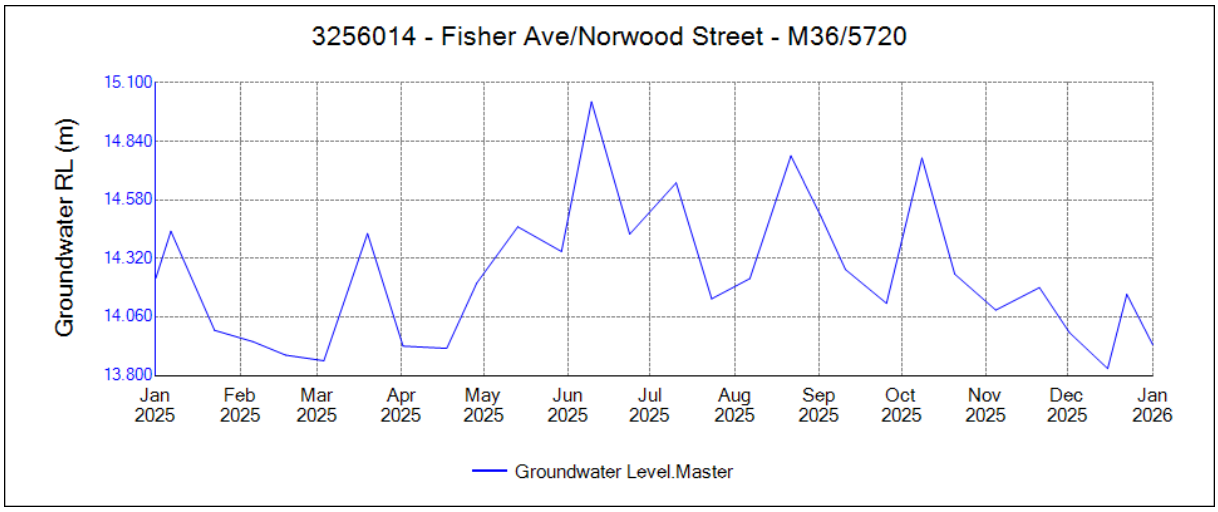
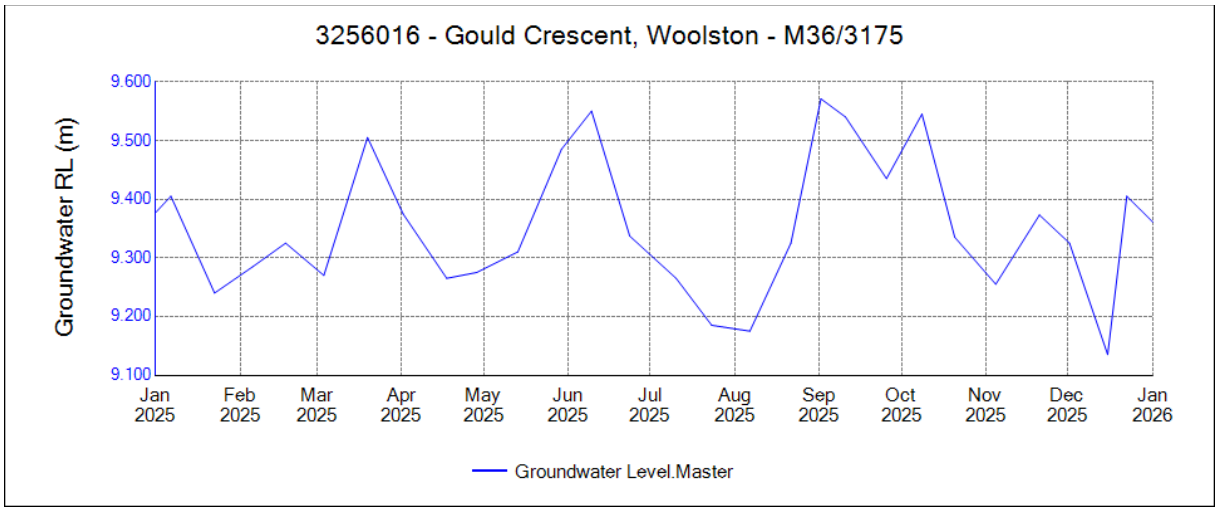
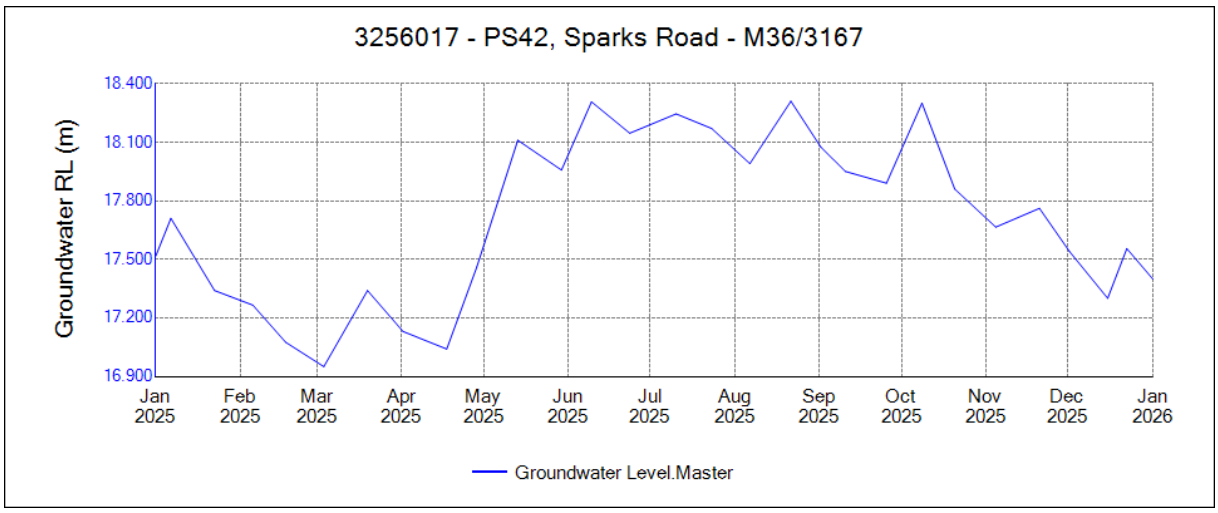


Figure 4-10: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.).





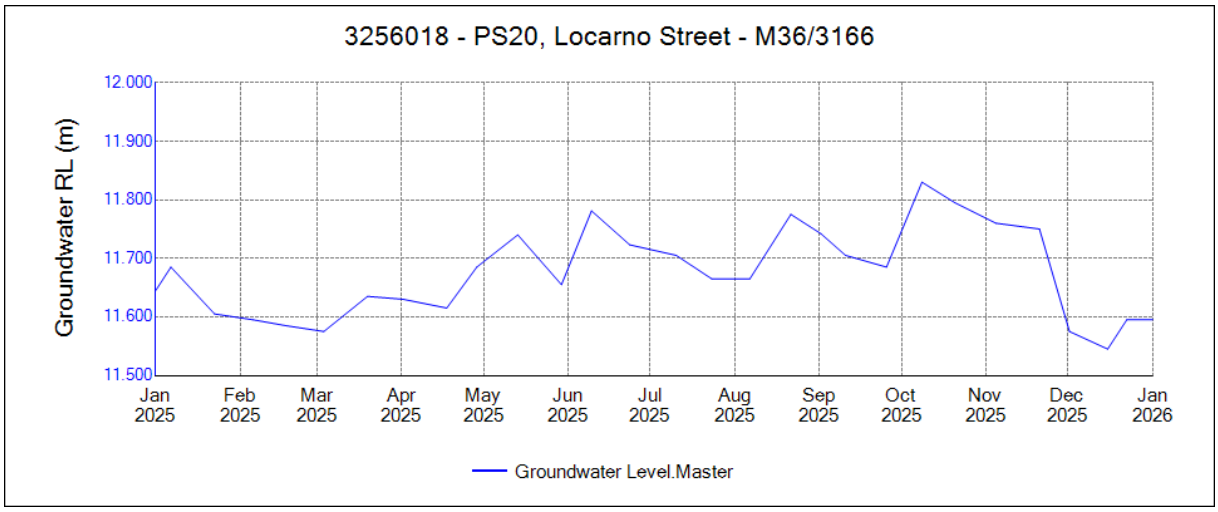
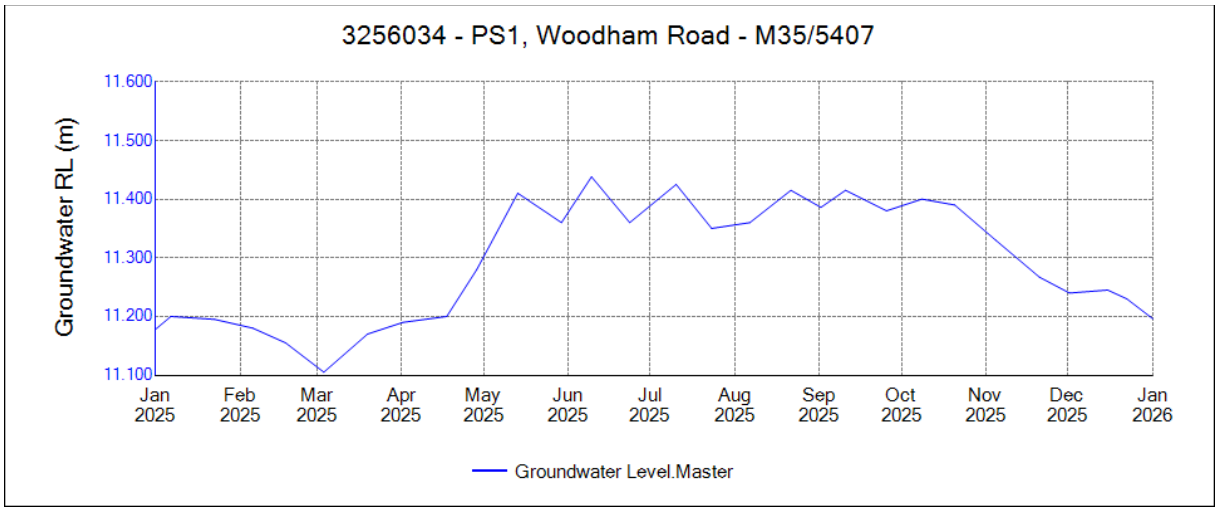
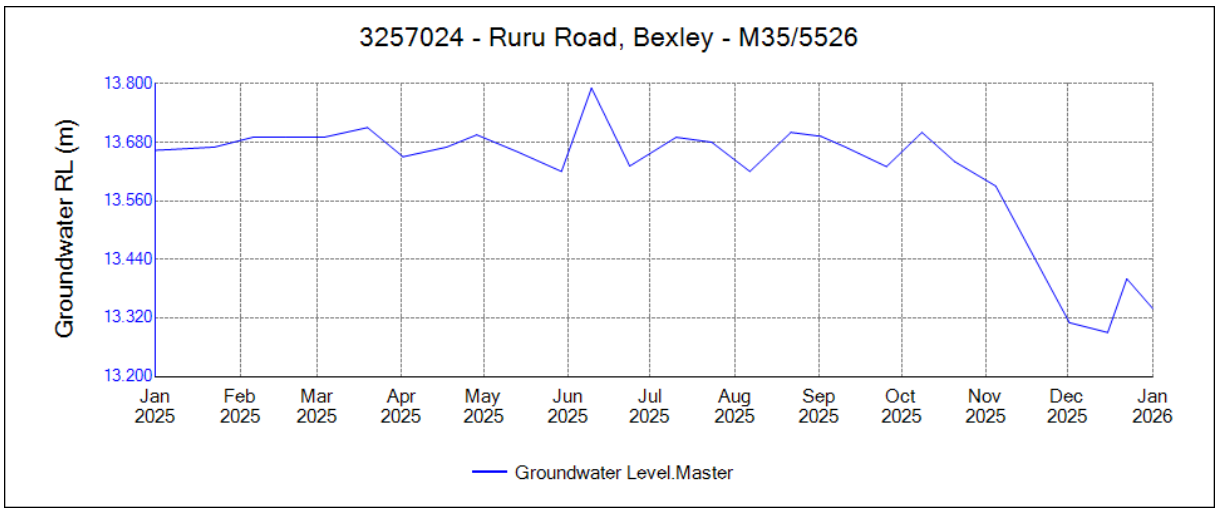


Figure 4-11: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.).





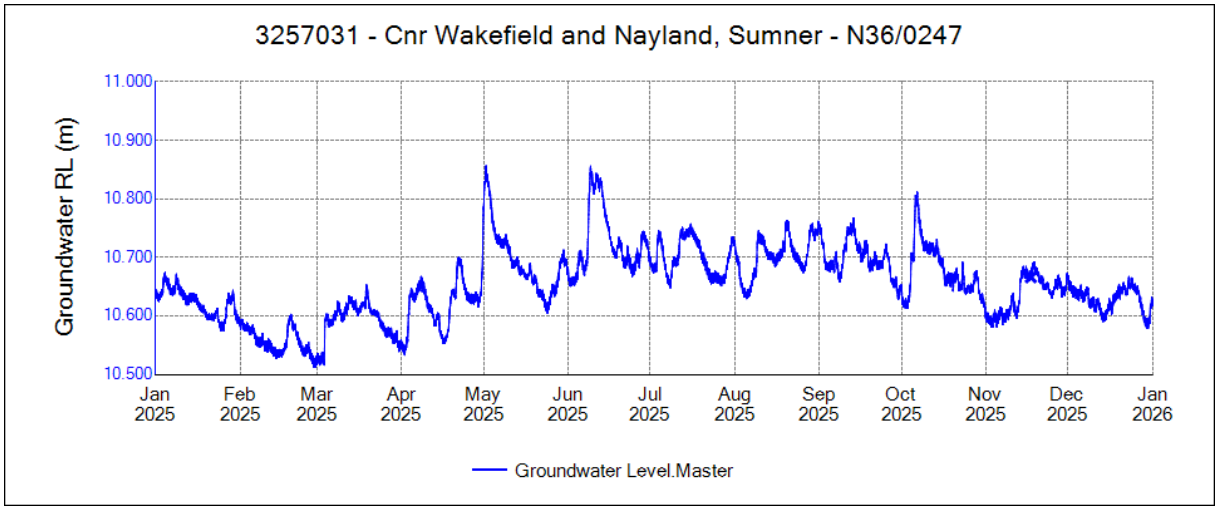


Figure 4-12: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2025 (cont.).

5 Sea-level monitoring

The sea-level site at Sumner Head (Scarborough) was established by Earth Sciences NZ in 1994 and is a Earth Sciences NZ site, with Environment Canterbury and Christchurch City Council having data access. The raw data from sea level site transferred to the CCC database have been transformed with an offset for the CCC datum (previously referred to as Christchurch Drainage Board (CDB) datum) and filed under a new site number 966699. This is to avoid confusion with the raw site data 66699, which is recorded to MSL (Lyttleton vertical datum).

From late February 2019 Earth Sciences NZ began providing CCC a tidal forecast of predicted sea level height (tidal height plus storm surge) at the Sumner gauge relative to Christchurch City Datum via the Aquarius WebPortal. This is to provide advanced warning to the council of any significant forecast storm surge events, which may result in flooding and inundation issues at low lying coastal areas of Christchurch city. The forecasts are provided every six hours and cast forward two and a half days. In addition to the forecast, a text and email alert is sent to CCC staff recipients if the sea level is predicted to exceed 10.6 m RL.

In 2023, CCC commissioned Earth Sciences NZ to install a sea-level monitoring site in Akaroa Harbour as an addition to the CCC hydrometric network. A site was installed on the Akaroa yacht club wharf and data collection commenced on 31 October 2023, with sea level being recorded to the CDB datum. Currently there is no sea-level forecast-warning system associated with this site.

Figure 5-1 shows the location of the three sites, while Figure 5-2 provides a data continuity scan showing the availability of sea level stage and barometric pressure (Sumner Head only) data during the 2025 period.

Note that the data for Lyttelton Port shows as “Provisional” rather than “Approved” in Figure 5-2 and Webportal as it is subject to a different Earth Sciences NZ internal quality assurance process.

Plots for this period for the Sumner Sea-level site are shown in Figure 5-3 to Figure 5-5. Included is a sea level plot with forecast overlaid in relation to the ‘high sea level alert’ of 10.6 m.

Sea-level stage plots for Akaroa Harbour and Lyttelton port are shown in Figure 5-6 and Figure 5-7.

Figure 5-1: Location of sea level monitoring sites during 2025.

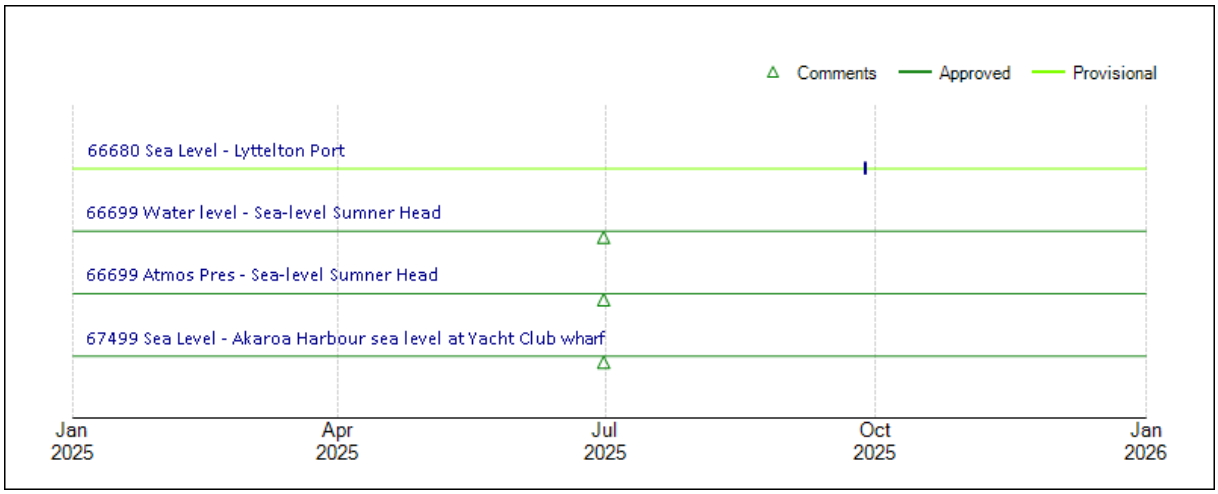


Figure 5-2: Sea-level and barometric pressure continuity plot for 2025.

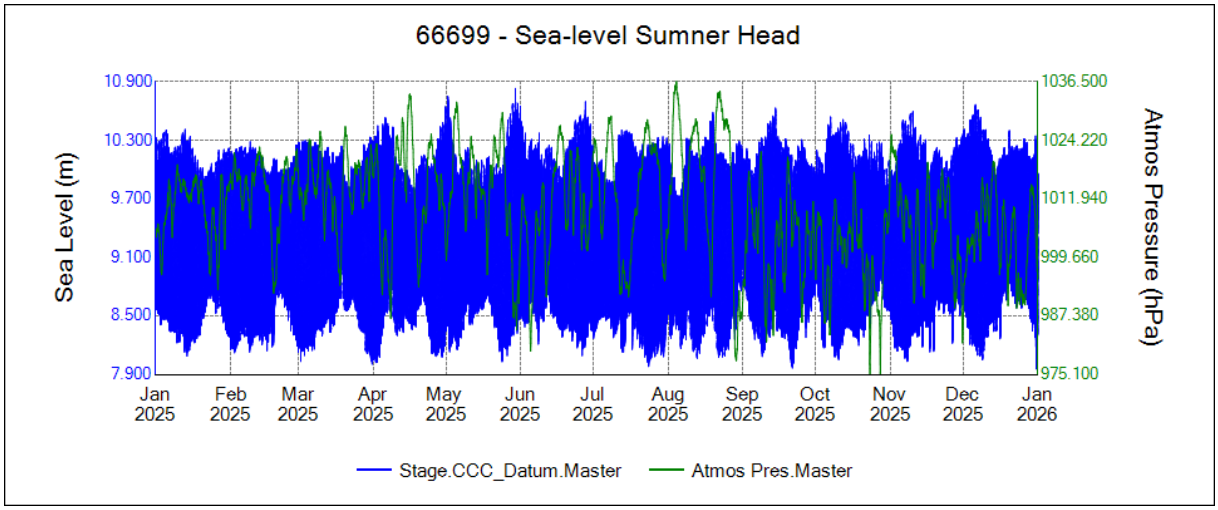


Figure 5-3: Sumner Head sea-level plotted with barometric pressure for the 2025 period.

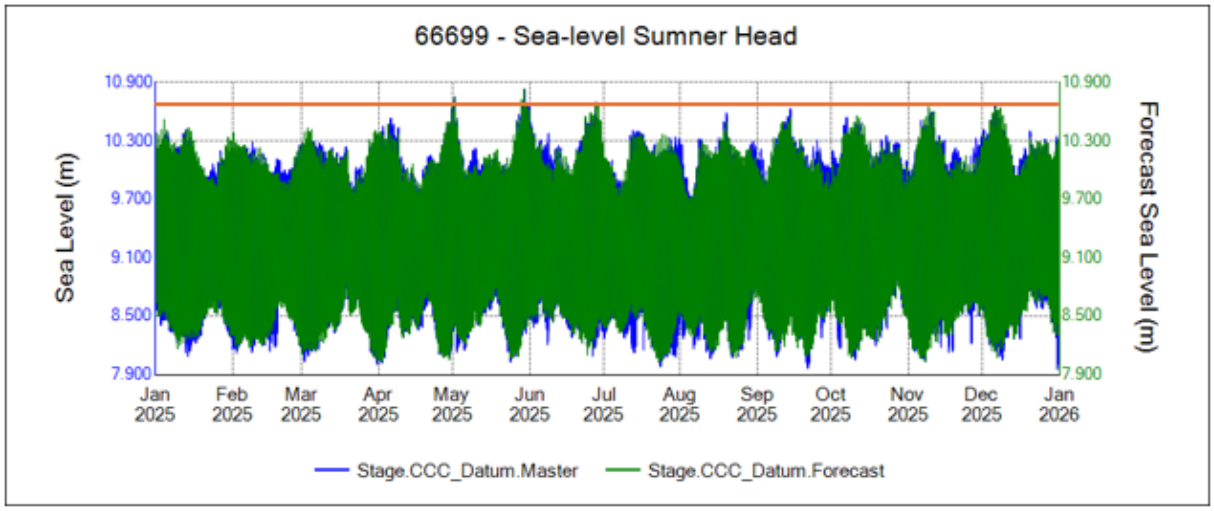


Figure 5-4: Sumner Head sea-level plotted with forecast level and alert threshold for the 2025 period.

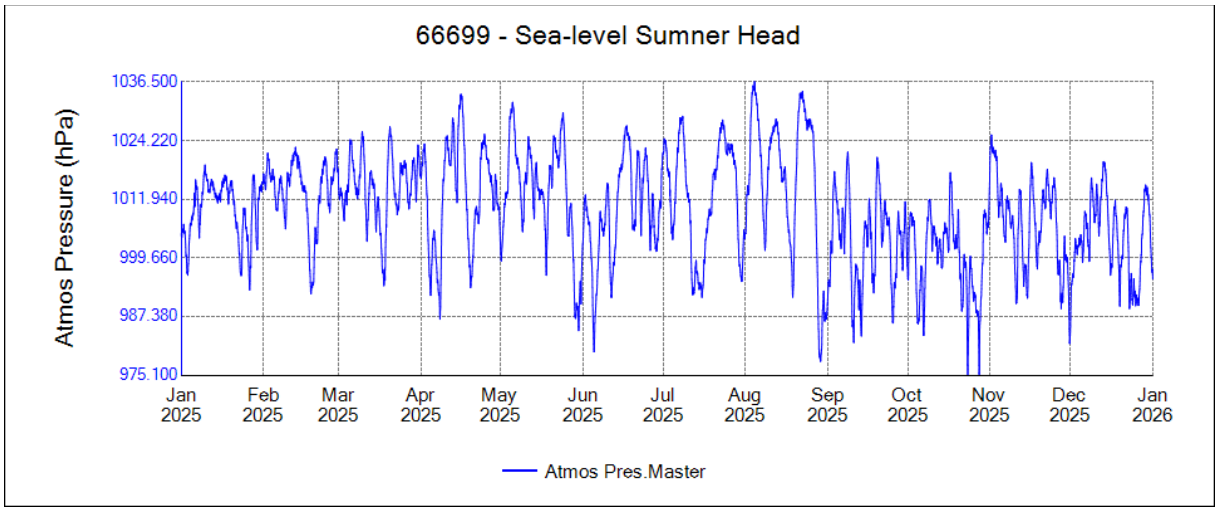


Figure 5-5: Sumner Head sea-level plots: Recorded barometric pressure for the 2025 period.

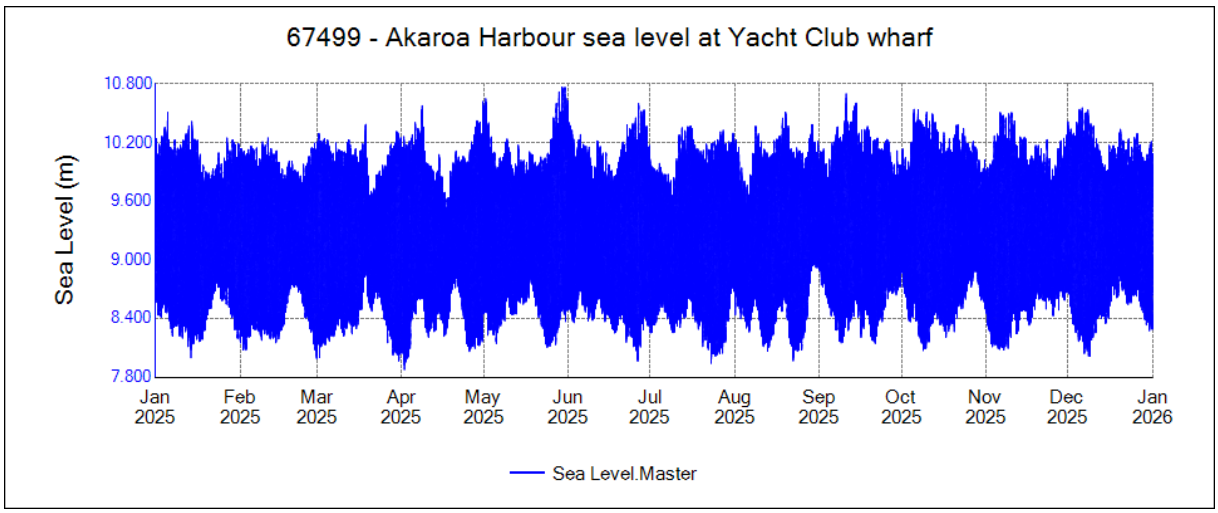


Figure 5-6: Akaroa Harbour sea-level plot for the 2025 period.

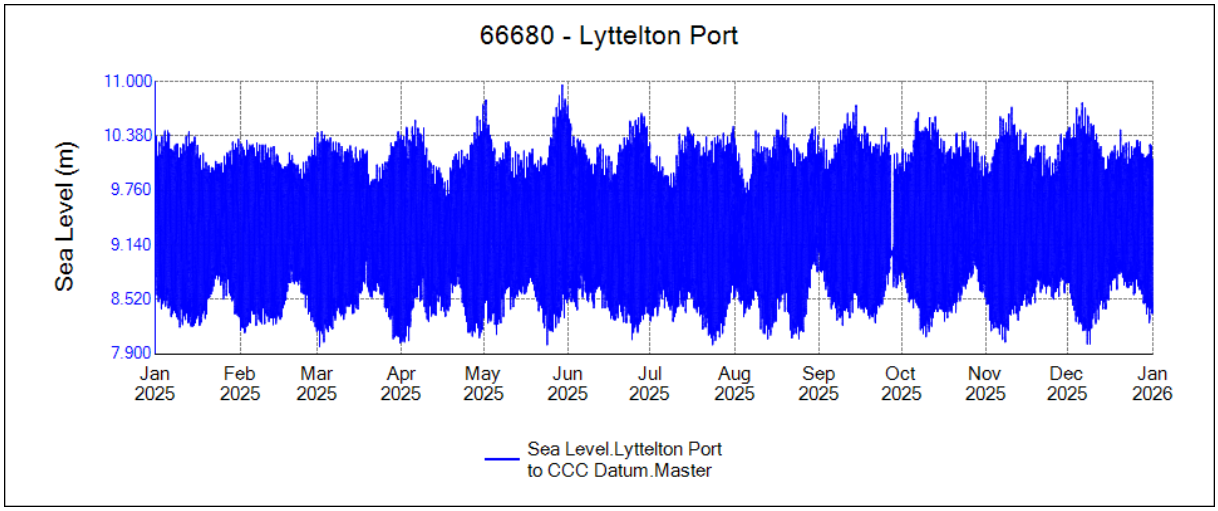


Figure 5-7: Lyttelton Port sea-level plot for the 2025 period.

6 Miscellaneous data

Miscellaneous data refers to the remaining sites either not classified as water-level, rainfall or groundwater sites. Also included in this section are any short-term hydrometric monitoring projects.

Sites and projects in this section include:

- Soil moisture monitoring
- Climate monitoring
- St Albans Creek monitoring

Figure 6-1 shows the location of these sites. Miscellaneous site plots and data continuity scans showing the extent of gaps in the site records are shown for each site in the following sections.

Figure 6-1: Location of CCC miscellaneous sites during 2025. Soil moisture and climate sites are labelled with red pins, CCC CWS sites are labelled with yellow pins, the St Albans Creek at Bishop St monitoring site is labelled with a blue pin, and the Port Levy monitoring sites are labelled with pink pins.

6.1 Soil moisture monitoring

The Upper Bowenvale Valley (326616), Wairewa Christchurch - Akaroa Highway (327804) and Duvauchelle CWS at Akaroa Golf Course (327902) sites have been installed as part of the CCC hydrometric network. Each consist of a rain gauge and an 80 cm Enviropro soil moisture sensor measuring soil moisture and temperature at 10 cm increments.

Figure 6-2 provides a data continuity scan showing the availability of these data for the 2025 period. Note that these data show as “Provisional” rather than “Approved” in Figure 6-2 and Webportal as they are subject to a different Earth Sciences NZ internal quality assurance process.

Bromley EWS is an Earth Sciences NZ electronic weather station where data access has been provided to CCC as part of the land access agreement. The site has a full suite of climate monitoring equipment including soil moisture monitoring similar to the above CCC sites. Similarly, Christchurch Botanic Gardens is an Earth Sciences NZ electronic weather station where data has been made available to CCC.

Figure 6-3 to Figure 6-5 show soil moisture data plots for 10 cm, 20 cm, 50 cm and 80 cm depths against site-recorded precipitation for each of the five sites.

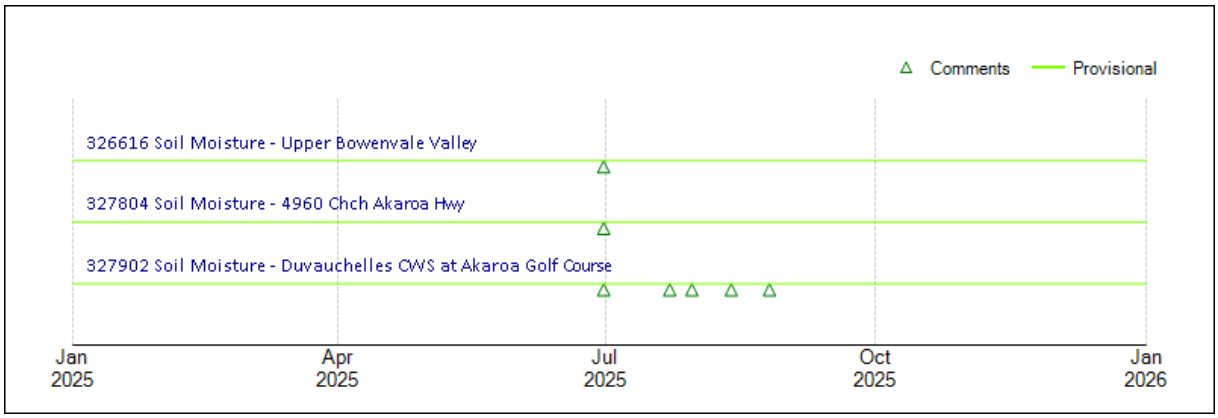
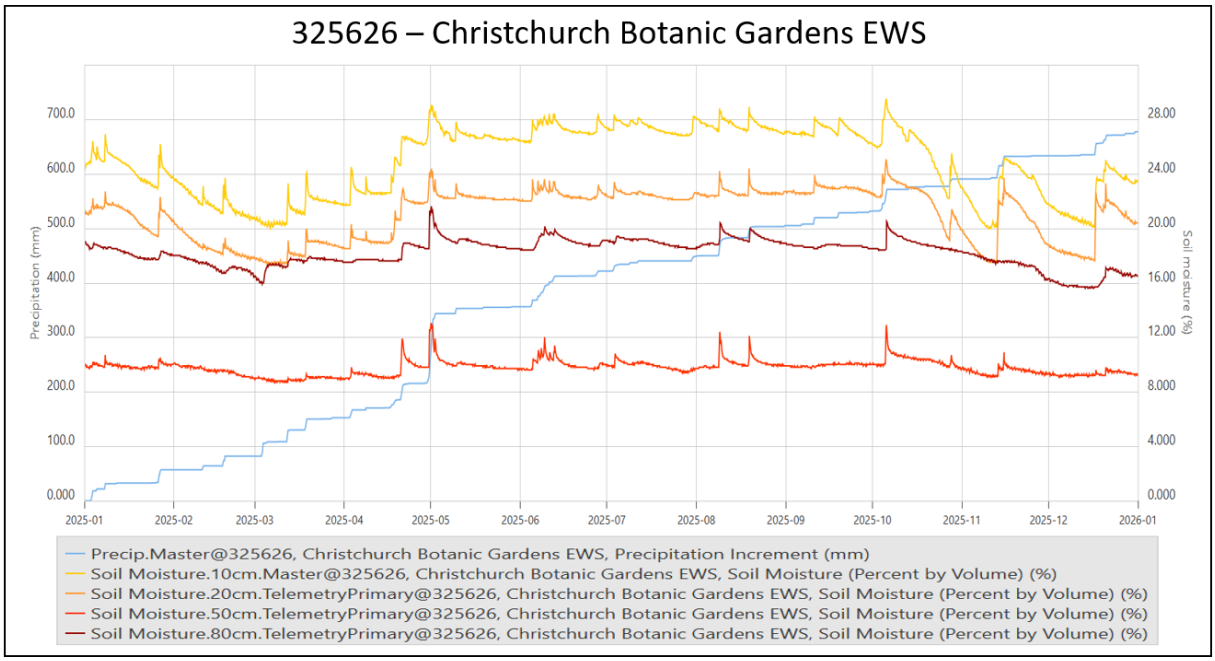


Figure 6-2: Soil moisture continuity plot for 2025.



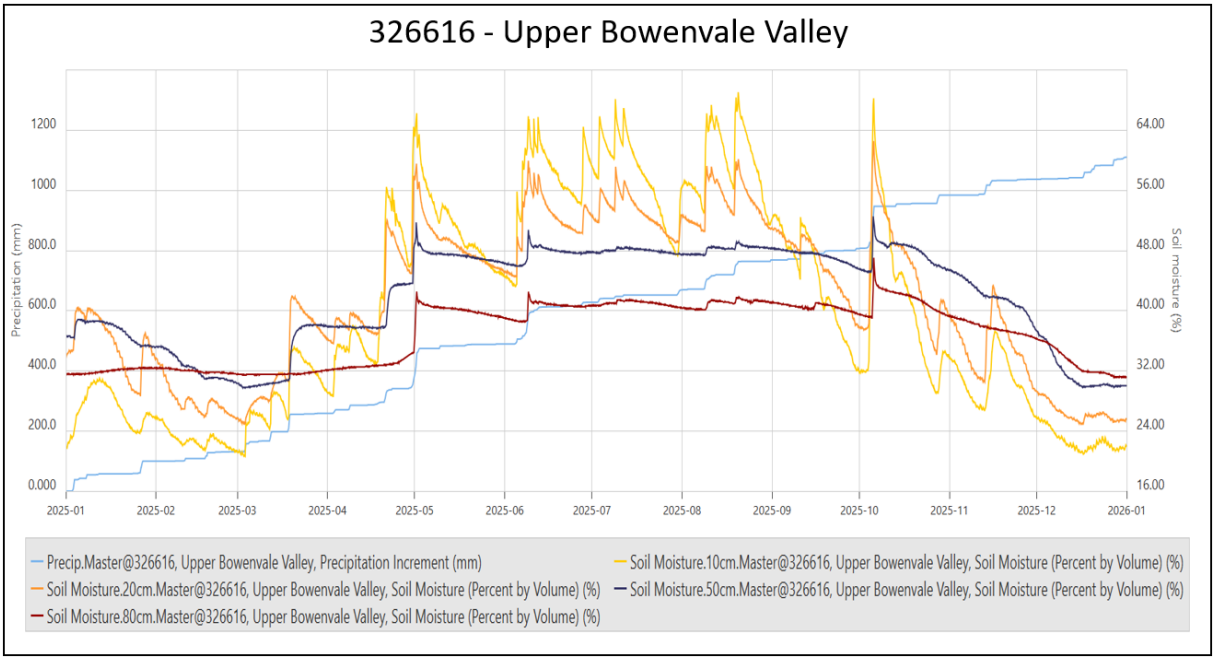
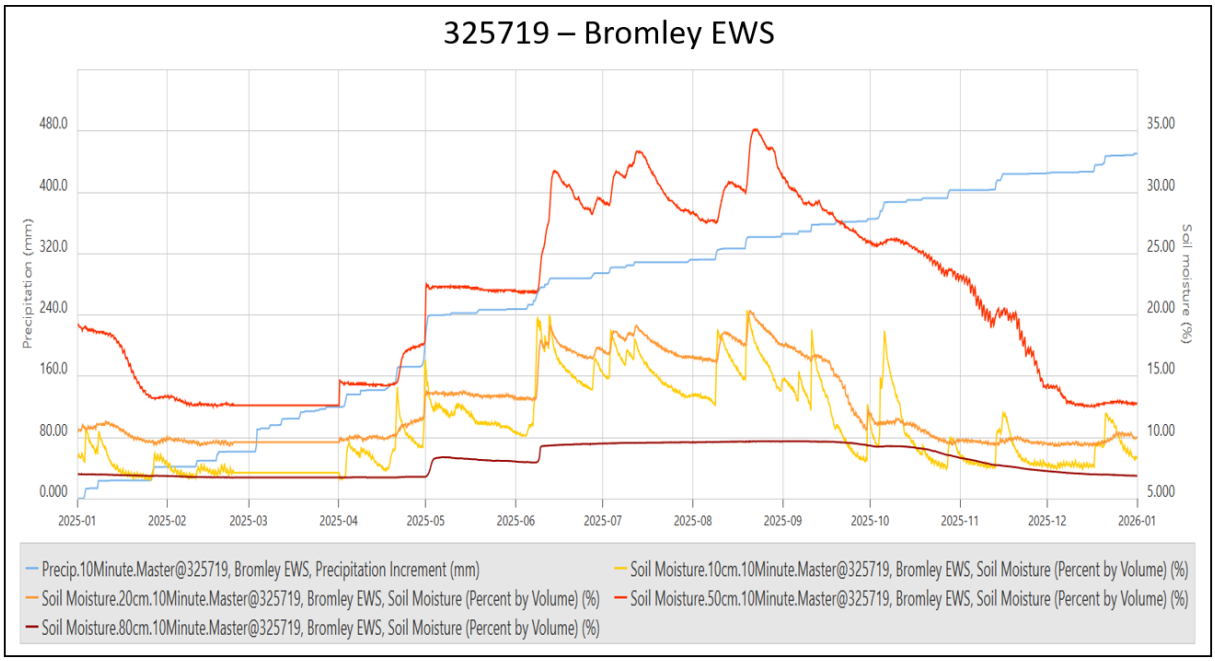


Figure 6-3: CCC hydrometric network soil moisture plots: 1 January to 31 December 2025.



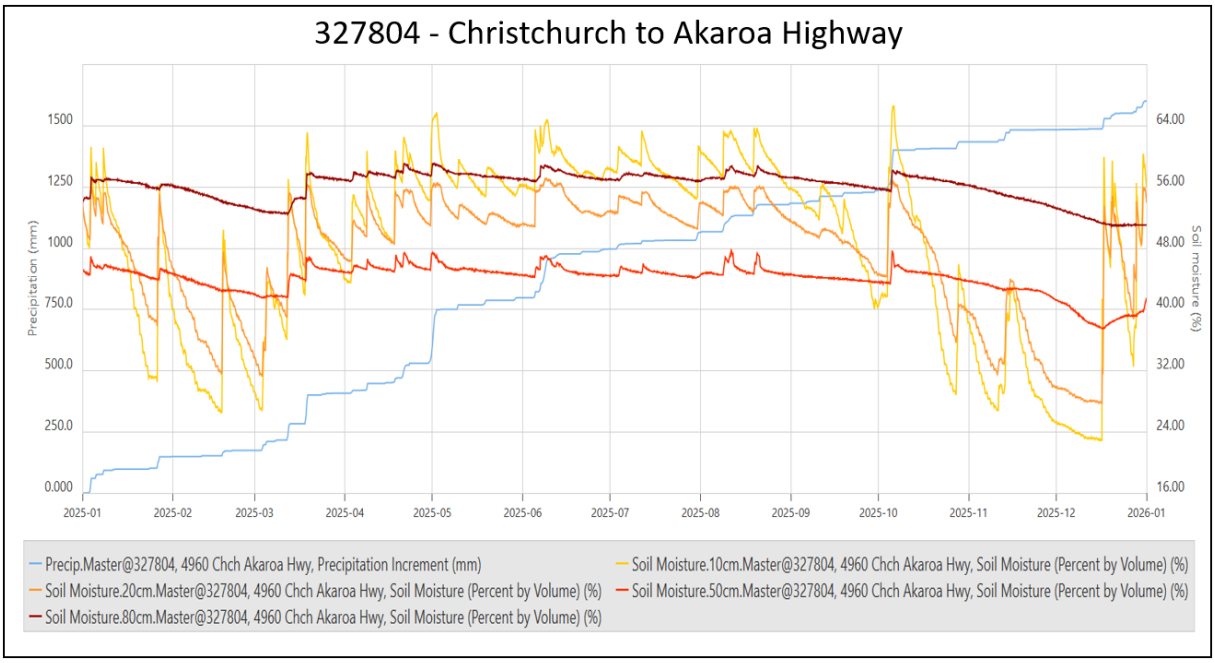


Figure 6-4: CCC hydrometric network soil moisture plots: 1 January to 31 December 2025 (cont.).

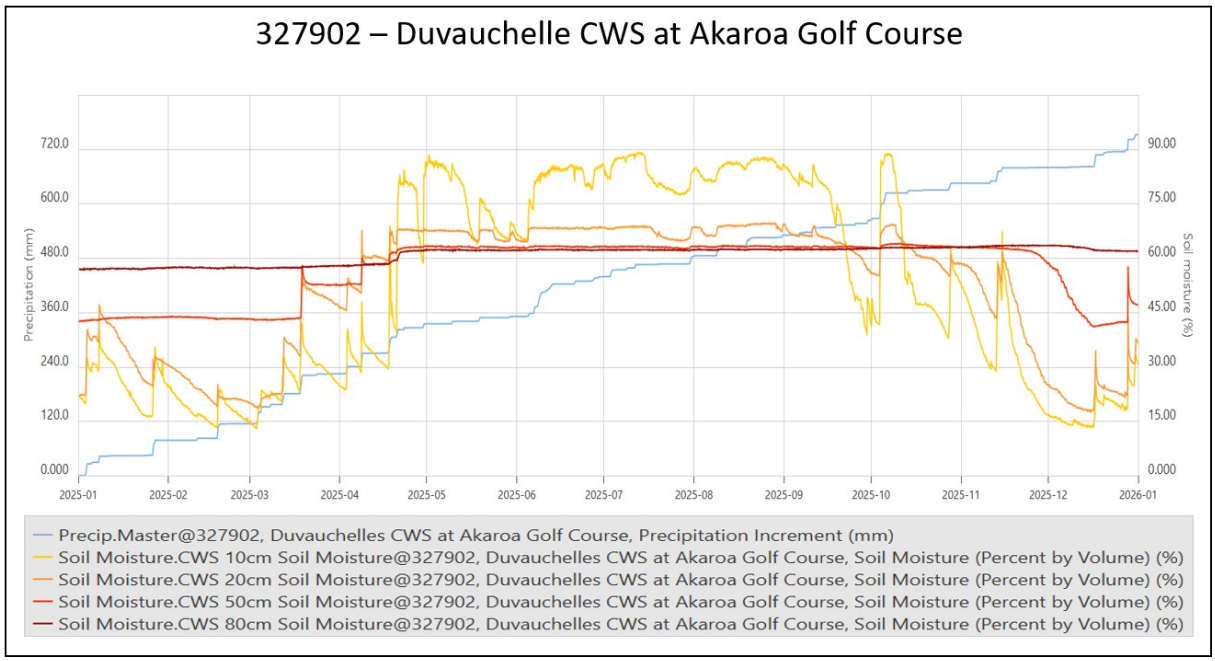


Figure 6-5: CCC hydrometric network soil moisture plots: 1 January to 31 December 2025 (cont.).

6.2 Climate monitoring

On 17 September 2020, Earth Sciences NZ installed the Duvauchelle CWS (327902) on the Akaroa Golf Club grounds for monitoring the local weather and climate, for the CCC purpose of future consent monitoring and wastewater irrigation planning at the golf course.

Data collected by the Duvauchelle CWS includes rainfall, air temperature, relative humidity, wind speed, wind direction, solar radiation, soil moisture and soil temperature (10-80 cm).

Additional climate data from the Earth Sciences NZ climate stations Akaroa EWS (328905), Diamond Harbour EWS (326704), Bromley EWS (325719) and Christchurch Botanic Gardens EWS (325626) are included in the CCC hydrometric database.

Figure 6-6 provides a data continuity plot of air temperature data from the climate monitoring sites for the 2025 period. Note that these channels show as “Provisional” rather than “Approved” since these climate-based data sets are subject to a different Earth Sciences NZ internal quality assurance process.

Data plots for Air Temperature, Barometric Pressure, Wind Speed and Solar Radiation are presented in Figure 6-7 to 6-14.

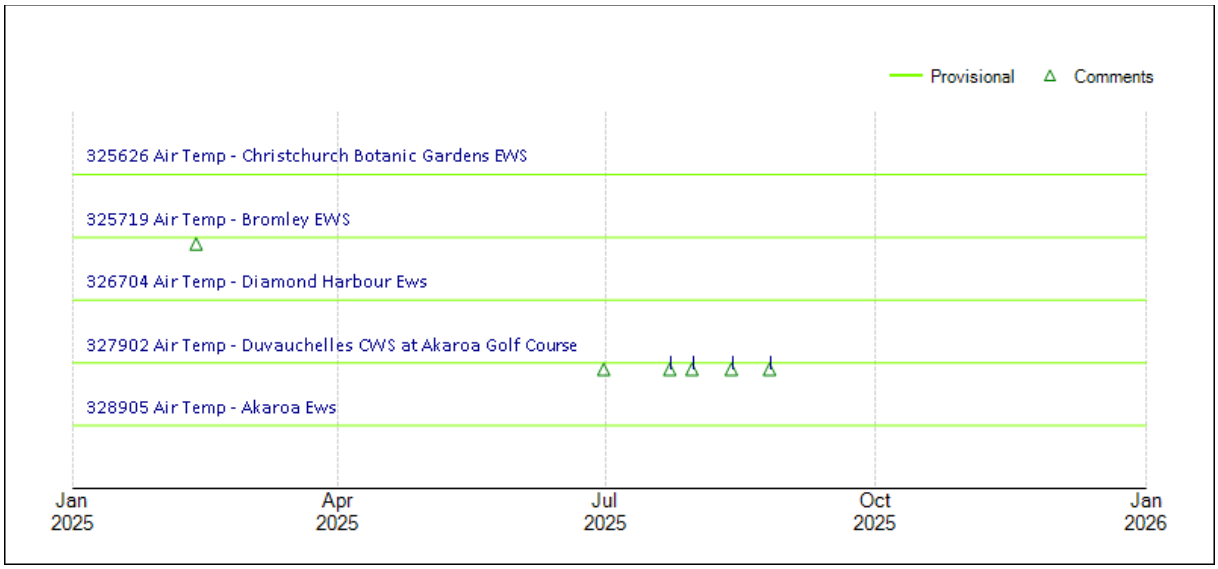
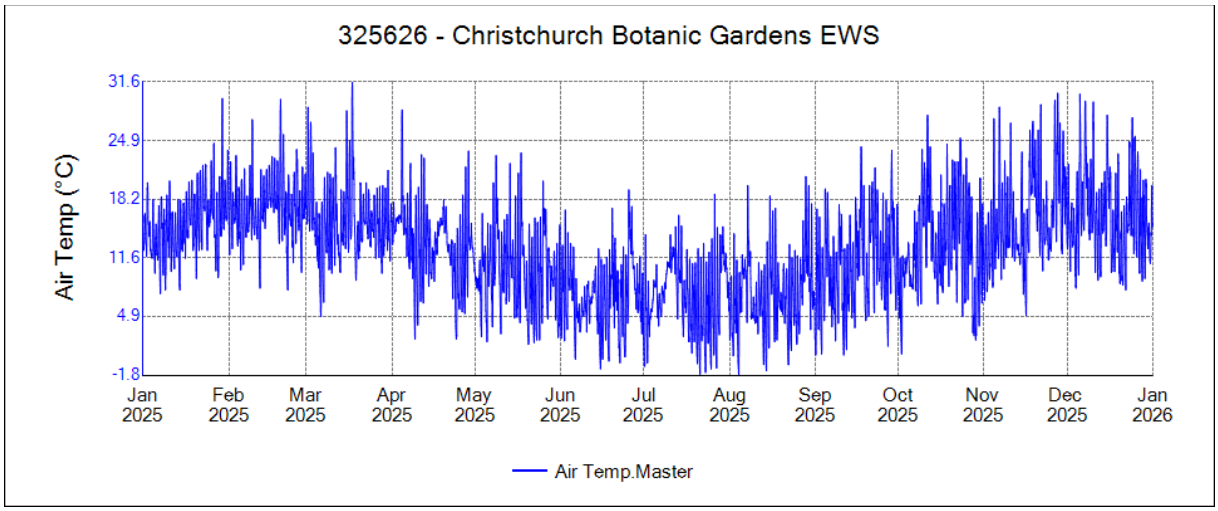
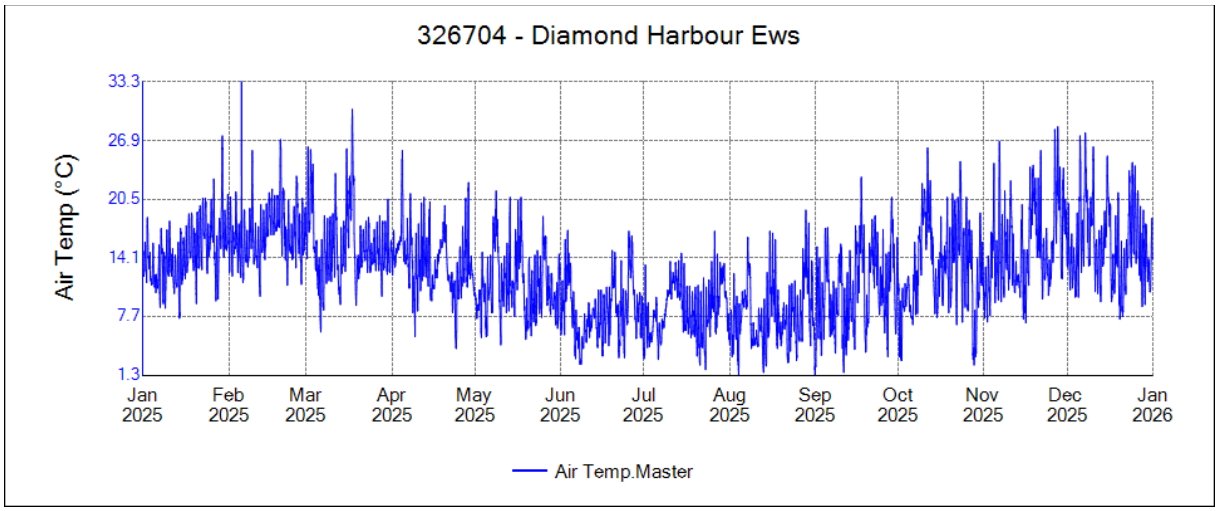


Figure 6-6: Climate station air temperature data continuity scan: 1 January to 31 December 2025.





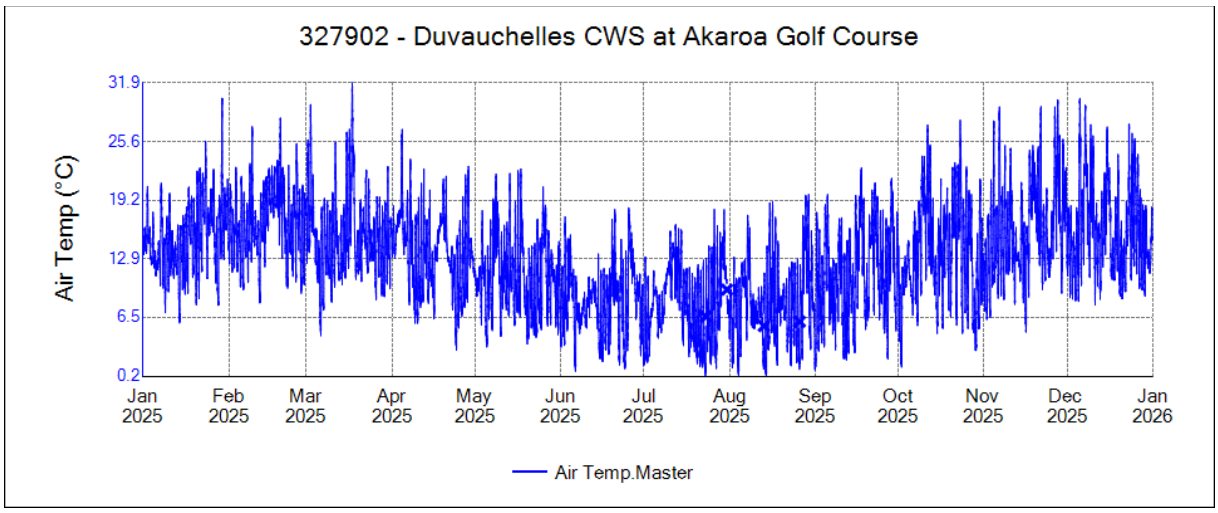
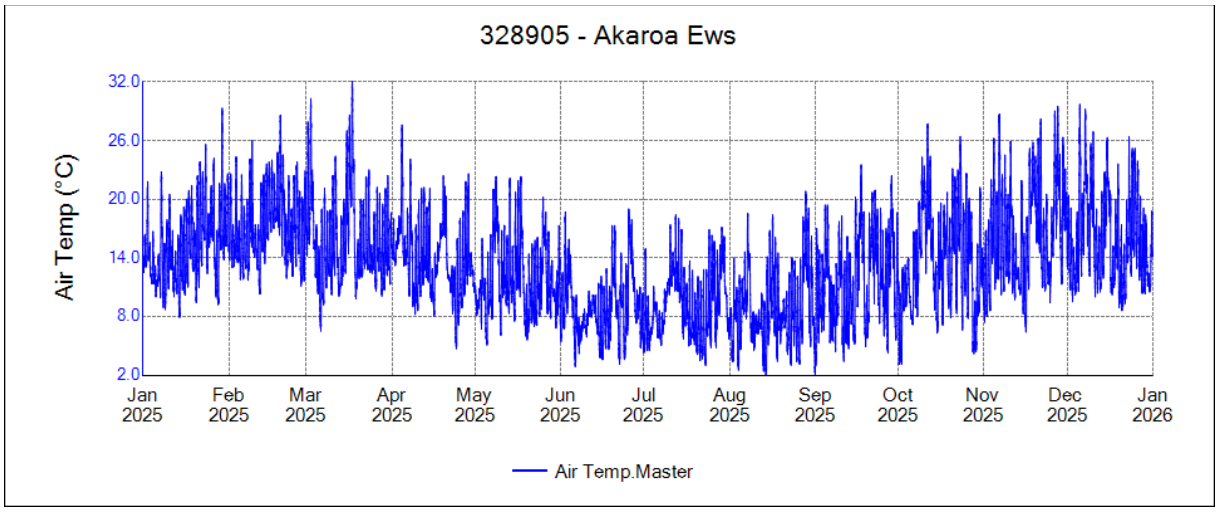


Figure 6-7: Climate station air temperature plots: 1 January to 31 December 2025.



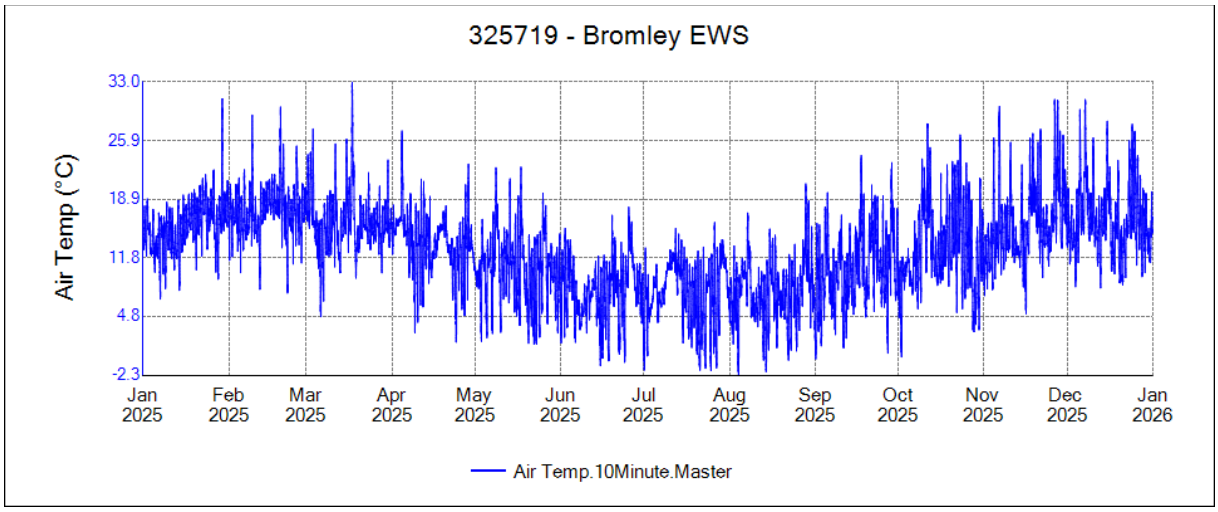
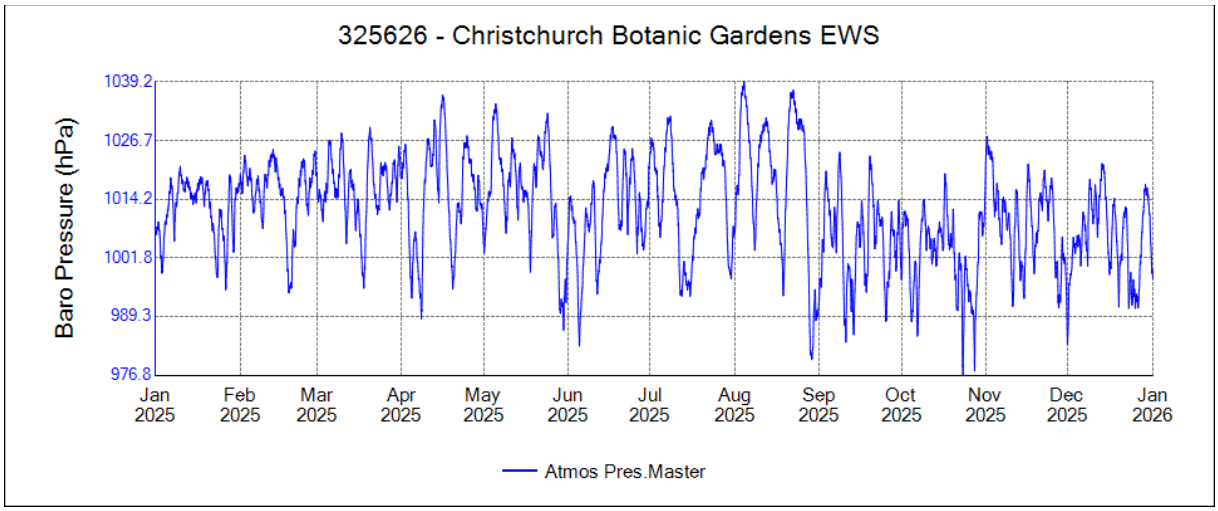
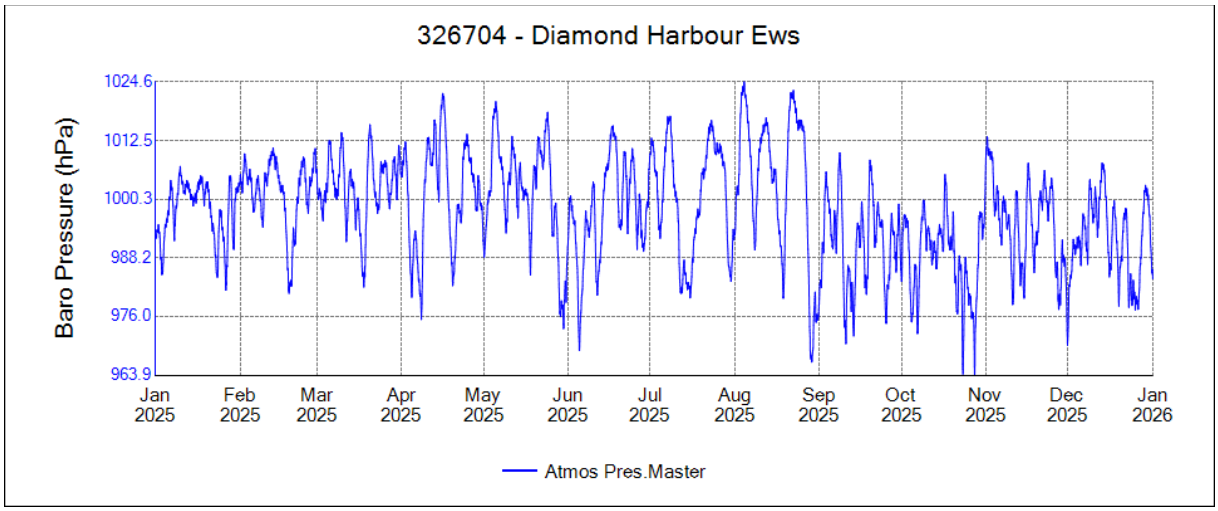


Figure 6-8: Climate station air temperature plots: 1 January to 31 December 2025 (cont.).





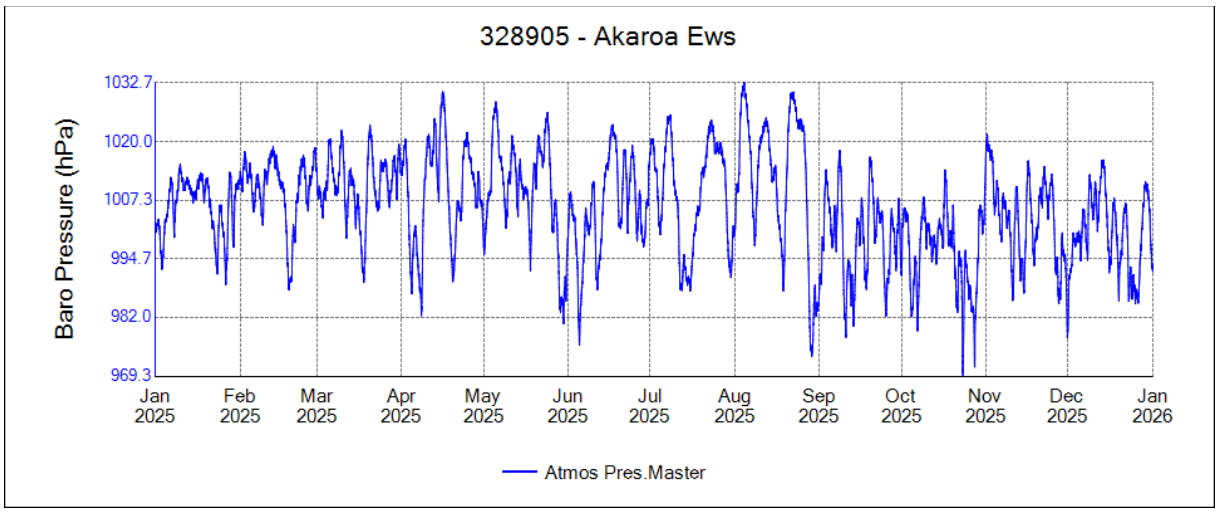


Figure 6-9: Climate station barometric pressure plots: 1 January to 31 December 2025.

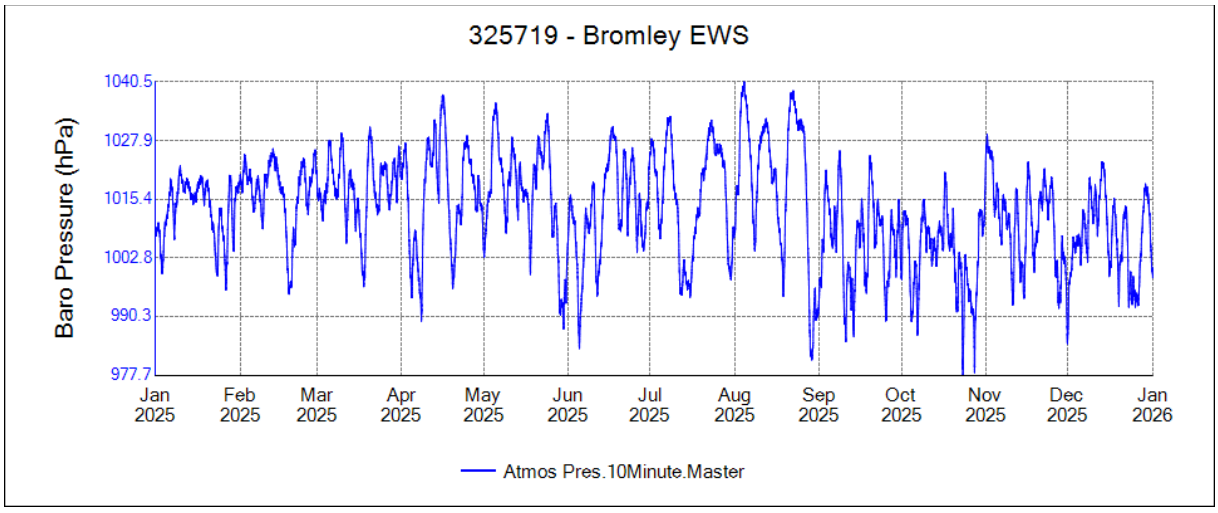
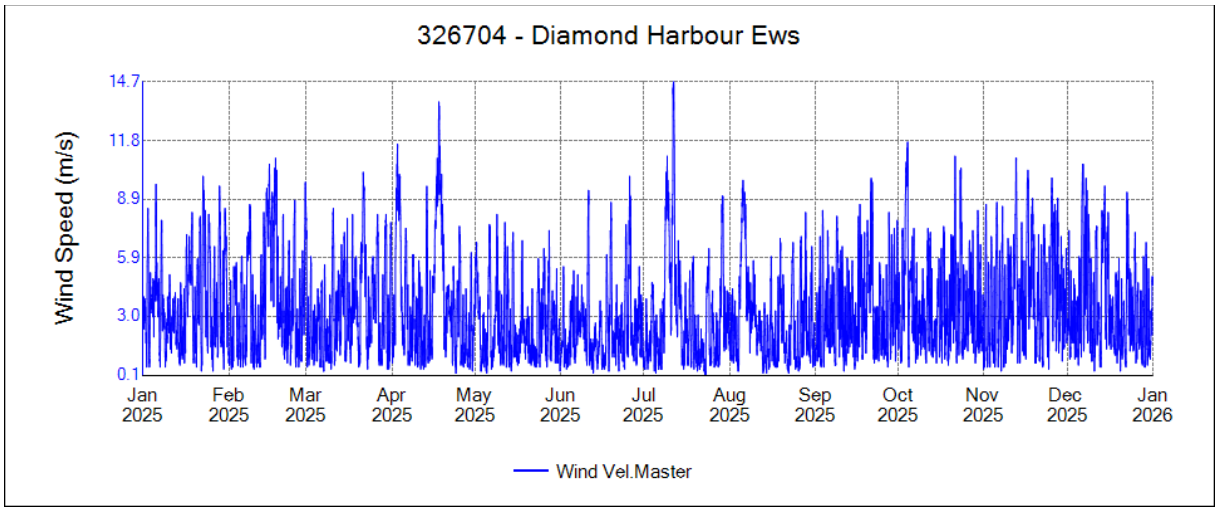
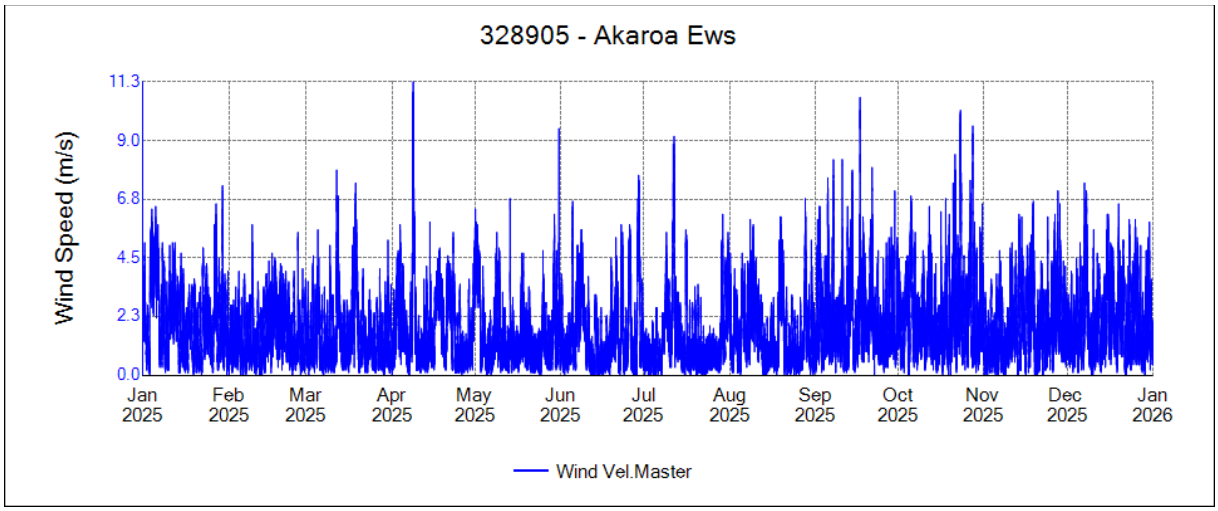


Figure 6-10: Climate station barometric pressure plots: 1 January to 31 December 2025 (cont.).





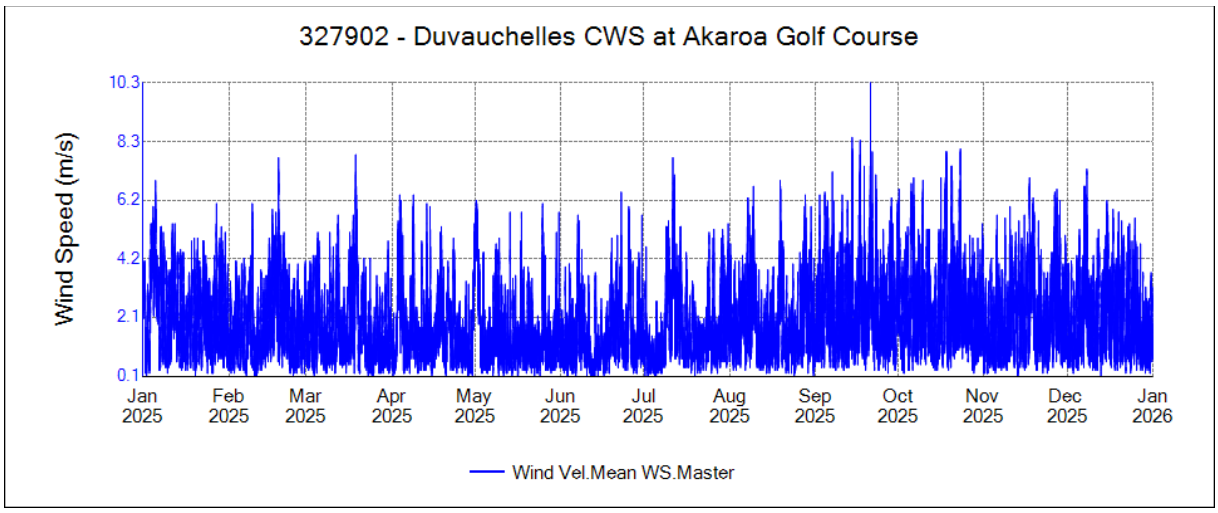


Figure 6-11: Climate station wind speed plots: 1 January to 31 December 2025.

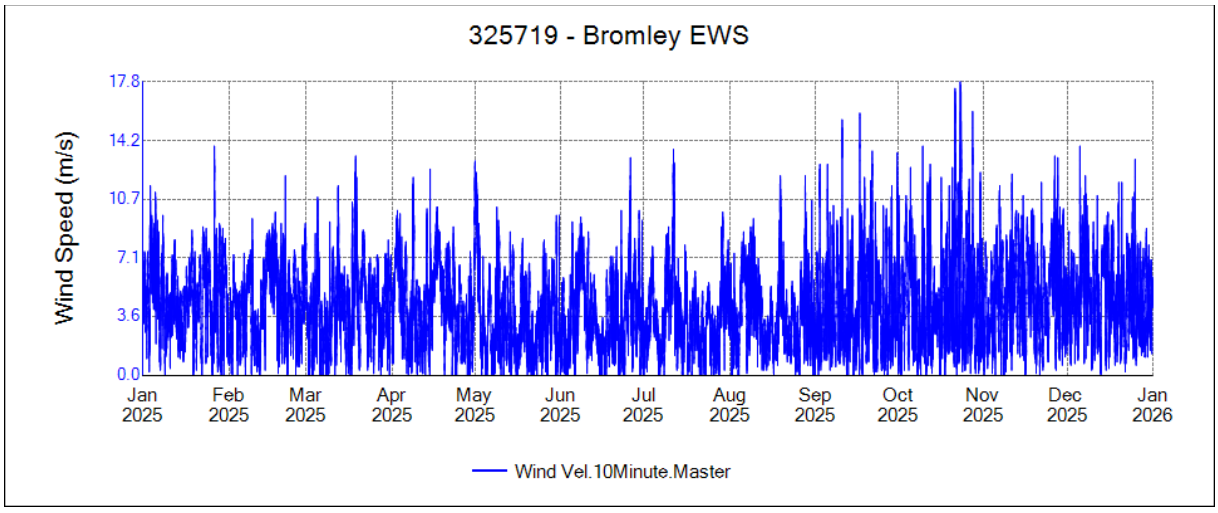
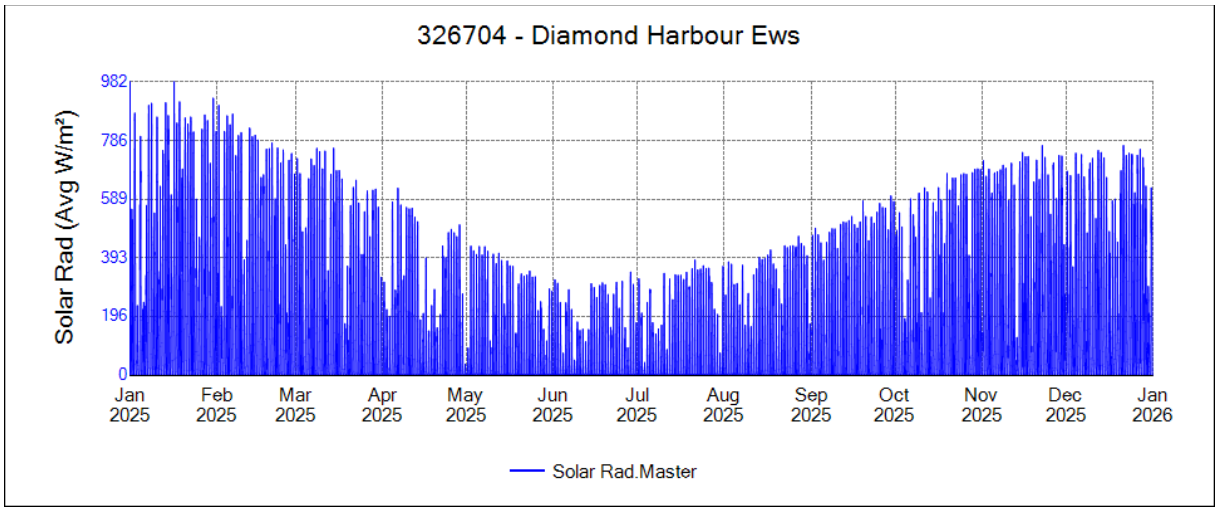
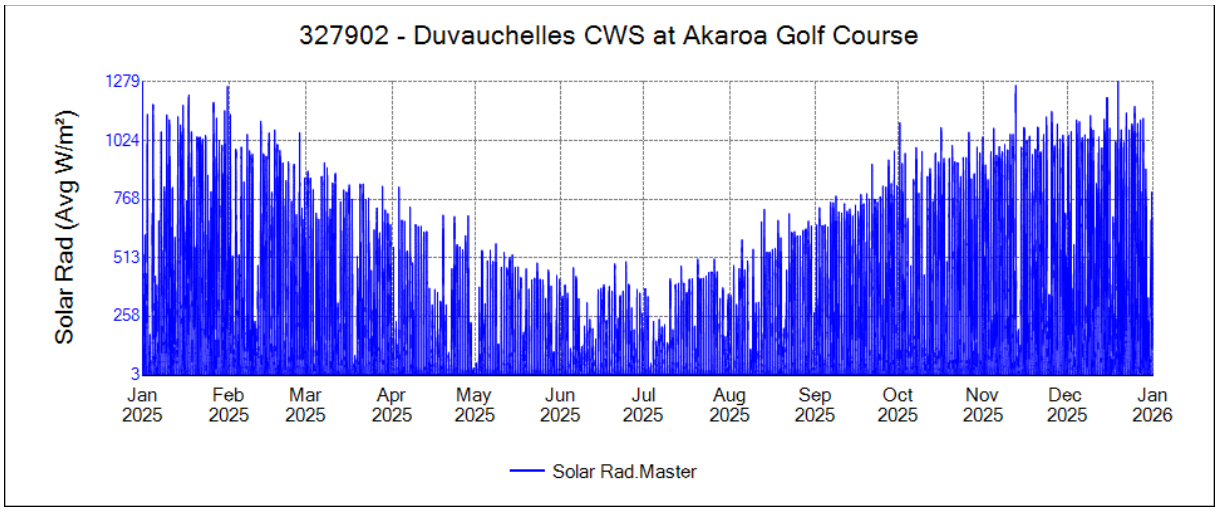


Figure 6-12: Climate station wind speed plots: 1 January to 31 December 2025 (cont.).





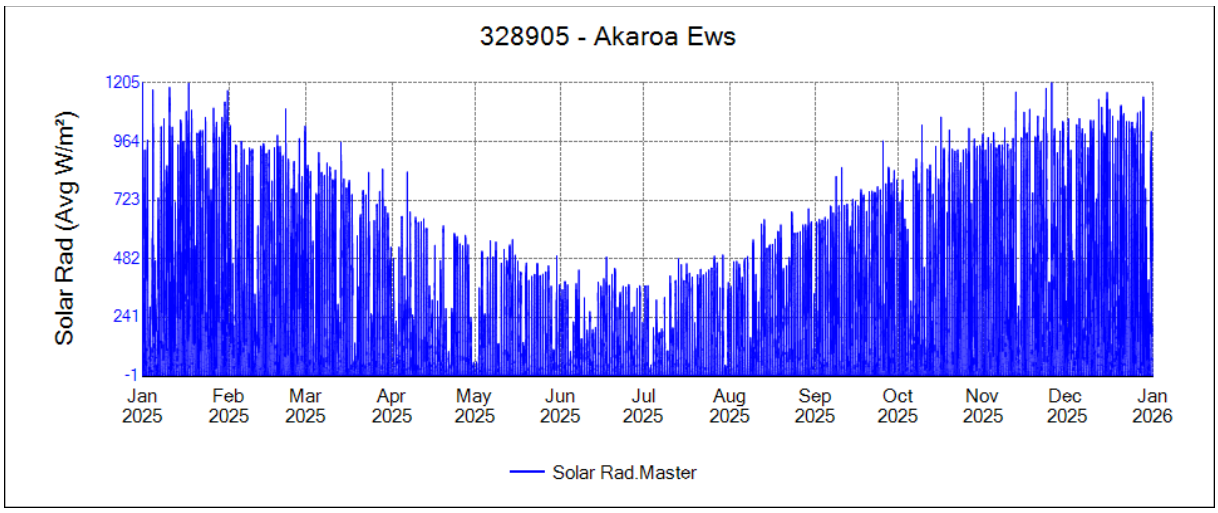


Figure 6-13: Climate station wind speed plots: 1 January to 31 December 2025 (cont.).

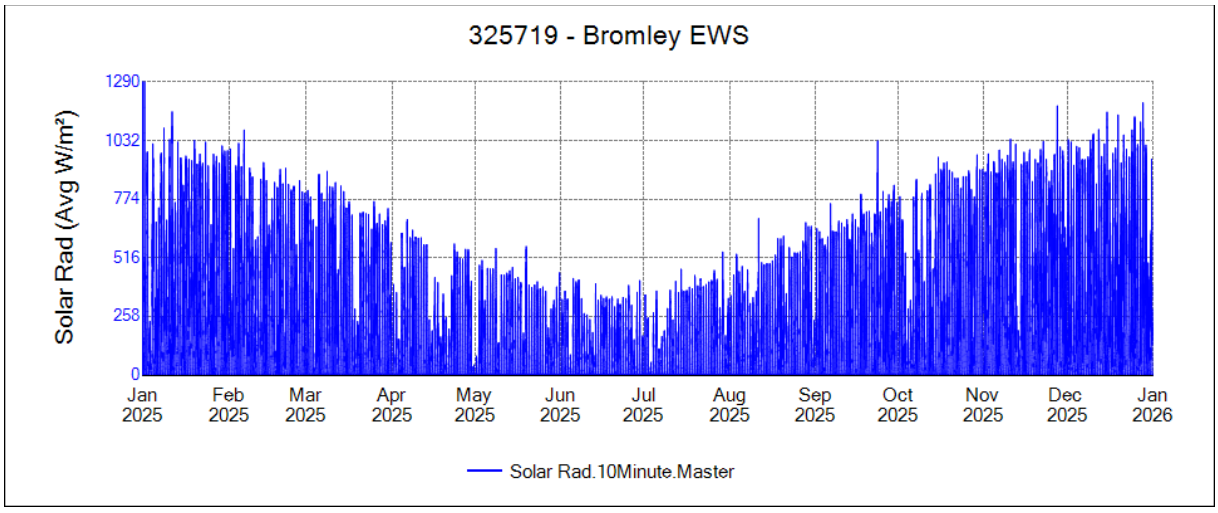


Figure 6-14: Climate station wind speed plots: 1 January to 31 December 2025 (cont.).

6.3 St Albans Creek monitoring

In mid-2023, CCC engaged Earth Sciences NZ to undertake a medium to long-term programme monitoring for surface water levels and flow along a specified reach of St Albans Creek in St Albans. A monitoring station (including a flow meter) was installed near 130 Bishop St during October 2023, with surface water level and discharge being measured. The stream is gauged quarterly in addition to flood/high stage events being targeted.

Figure 6-15 provides a data continuity scan showing the availability of data from the site for the 2025 period and Figure 6-16 and Figure 6-17 show level and flow respectively. Table 6-1 and Table 6-2 provide a summary of the maximum, minimum and mean water level and flow data respectively for the site as recorded in 2025 compared with that recorded during the full period of record.

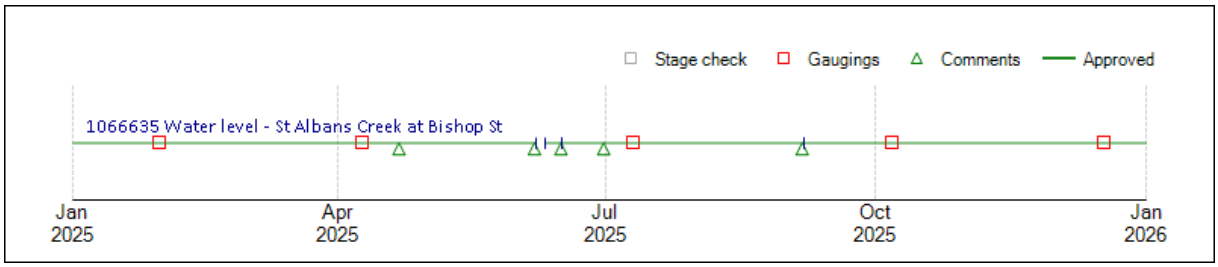


Figure 6-15: St Albans Creek data continuity scan: 1 January to 31 December 2025.

Table 6-1: St Albans Creek water level statistics summary: 2025 comparison with full record.

Station details			Full record			1-January-2025 - 31-December-2025		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
1066635	St Albans Creek at Bishop St	09-Oct-23	14.092	14.757	14.135	14.099	14.757	14.148

Table 6-2: St Albans Creek flow statistics summary: 2025 comparison with full record.

Station details			Full record			1-January-2025 - 31-December-2025		
Number	Name	Start of record	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)
1066635	St Albans Creek at Bishop St	09-Oct-23	0.005	0.458	0.020	0.005	0.458	0.018

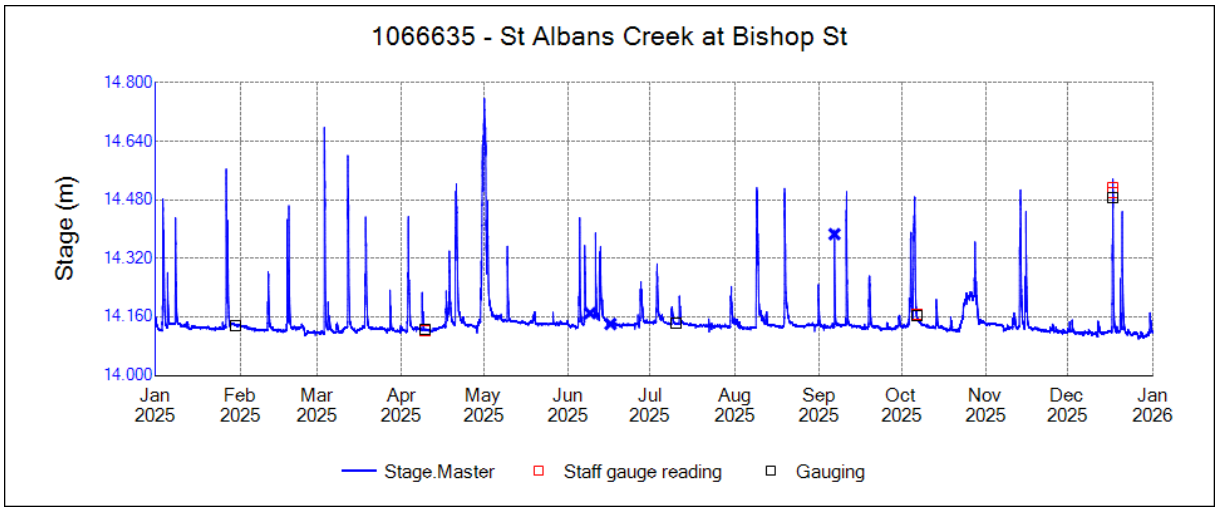


Figure 6-16: St Albans Creek water level: 1 January to 31 December 2025.

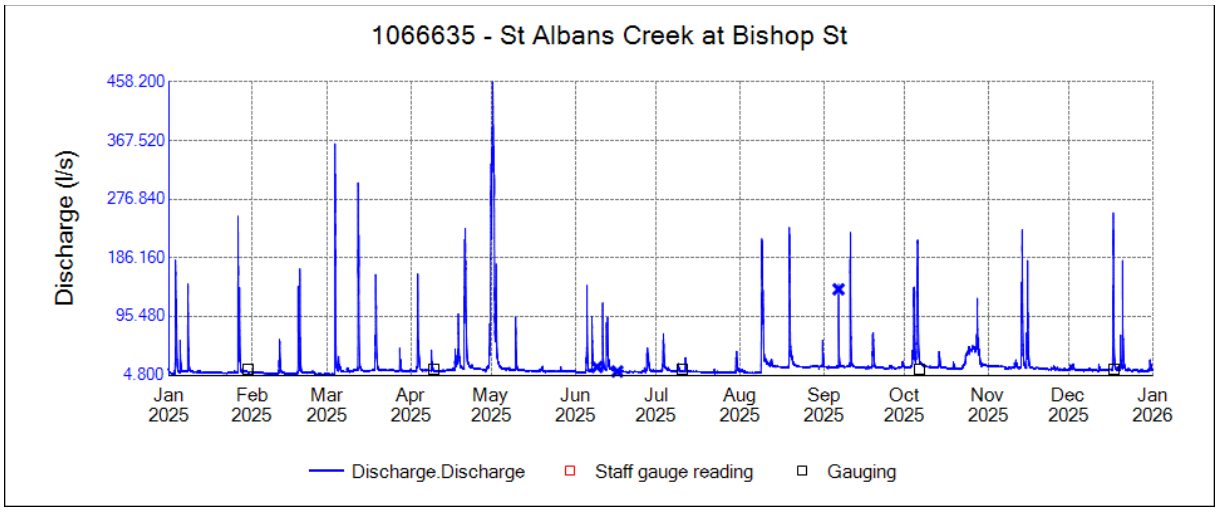


Figure 6-17: St Albans Creek flow: 1 January to 31 December 2025.

7 Additional work activities in 2025

A number of additional work tasks were undertaken by Earth Sciences NZ for CCC throughout the year. Many were unrelated directly to the CCC Hydrometric network project and funded by other CCC Group engagements with Earth Sciences NZ science specialists. Some tasks are on-going, multi-year research projects.

Specific examples of other Earth Sciences NZ assistance during the year include the following:

- Temporary installation of a rain gauge on Lighthouse Rd, Akaroa to aid with the civil defence response for geotechnical monitoring of a potential landslip.
- A water budgeting exercise was undertaken for the Styx River. This was to contribute to groundwater modelling in the Styx River area being undertaken by Tonkin + Taylor.
- The logger upgrade project for the hydrometric network was completed in 2025, with 31 sites having been upgraded to ensure 4G capability.

8 Anticipated work activities in 2026

Along with the regular hydrometric operations, gaugings and maintenance tasks, it is anticipated additional site works and instrumentation improvements will continue during the 2026 calendar year period. We look forward to continuing working closely with CCC for improving the management, efficiency and expansion of the hydrometric network and accurate data collection.

Appendix A Field activities 1 January 2025 – 31 December 2025

Styx River at Harbour Rd (66422)

Visit date	Time	Measurement type	Remark
31-Oct-2025	13:37	Staff gauge reading	Site visit to assess error with encoder sensor, no obvious fault present. Encoder adjusted to ESG @ 13:59 = 9.519 (+/- 4 mm) Battery 13.8 V, mains power lost prior to fault.
09-Oct-2025	12:15	Staff gauge reading	Quarterly visit. Very low tide, at bottom of effective ESG. ESG plates have some bows which may explain the differences observed between staff gauge and encoder readings. @ 12:15 ESG = 8.697 +/- 5 mm ENC = 8.685 m @ 12:25 ESG = 8.676 +/- 5 mm ENC = 8.657
	12:25	Staff gauge reading	
17-Jul-2025	10:35	Staff gauge reading	Quarterly check. At 10:35 ESG = 9.620 m +/- 5 mm Noted a fallen willow tree on the true right, immediately upstream of the tower.
	10:35	Staff gauge reading	
18-Jun-2025	11:45	General visit	On site to verify rain gauge. Checked and cleaned - slightly dirty but not blocked. preclean = 101 tips, post clean tips = 104 tips. Test tips at 12:25 removed.
09-Apr-2025	14:20	Staff gauge reading	Quarterly check. At 14:20 ESG = 9.540 m +/- 5 mm
14-Mar-2025	12:00	General visit	Site visit to change rain gauge from C0 to C1. Water level below ESG. New scheme loaded at 12:06. Two test tips at 12:07
22-Jan-2025	09:52	Staff gauge reading	Quarterly check.

Visit date	Time	Measurement type	Remark
			At 09:52 ENC = 9.470 m ESG = 9.468 m +/- 5 mm

Styx River at Lower Styx Rd (66423)

Visit date	Time	Measurement type	Remark
08-Dec-2025	11:05	Staff gauge reading	Stage trace showing that PT is going dry again at bottom of tide cycle. @ 10:05 ESG = 9.448 m +/- 2 mm PT = 9.444 m Offset = 9.317 m Installed temporary arm with conduit to extend PT into deeper water from base of ESG. @ 10:55 ESG = 9.477 m +/- 2 mm PT = 9.656 m Changed PT stage offset at 10:58, new offset = 9.138 m (gain of 0.179 mm depth). @ 11:05 ESG = 9.484 m +/- 2 mm PT = 9.483 m
	10:55	Staff gauge reading	
	10:05	Staff gauge reading	
10-Nov-2025	08:40	Staff gauge reading	On site to lower PT tube, as it was noted that the water level was dropping below the transducer level. PT cap was full of silt - cleaned. At 08:10 (post PT lower) ESG = 9.420 m +/- 3 mm PT = 9.497 m

Visit date	Time	Measurement type	Remark
			Offset adjusted from 9.394 to 9.317 m
07-Nov-2025	11:32	Staff gauge reading	At 08:40 ESG = 9.440 m PT = 9.440 m Checking site due to strange PT signal at low tide- suspect it is going dry. @ 11:32 ESG = 9.454 m +/- 3 mm PT = 9.465 m Confirmed PT is likely going dry at low tide- some change to river levels (dredging/ weed removal?) must be causing water levels to drop lower than usual.
09-Oct-2025	10:50	Staff gauge reading	Quarterly visit. Outgoing tide, stage dropping. Replaced desiccant.
17-Jul-2025	10:17	Staff gauge reading	Quarterly site check. At 10:17 ESG = 9.738 m +/- 3 mm
	10:17	Staff gauge reading	
18-Jun-2025	10:30	General visit	On site to verify rain gauge. Recorded 104 tips pre clean. Found rain gauge mounting bolts loose and one side of the water drainage port blocked - cleaned and tightened. Post clean tips = 104. Test tips at 11:25 removed.
09-Apr-2025	13:35	Staff gauge reading	At 13:35 ESG = 10.002 m +/- 3 mm PT = 9.995 m Flushed pt pipe and cleaned PT. Cleaned ESG and replaced desiccant. CCC in river clearing weed currently. At 13:40 ESG = 10.001 m +/- 3 mm PT = 10.005 m
	13:40	Staff gauge reading	

Visit date	Time	Measurement type	Remark
14-Mar-2025	11:30	Staff gauge reading	General Comments: Site visit to change rain gauge channel from C0 to C1. New scheme uploaded at 11:34 with rain gauge on C1. Two test tips at 11:36 to remove ESG at 11:40 = 11.329 m +/- 3 mm (high angle).
	11:40	Staff gauge reading	
22-Jan-2025	10:30	Staff gauge reading	Quarterly check. At 10:30 ESG = 10.025 m +/- 5 mm PT = 10.022 m Desiccant replaced.

Styx River at Tidegates (66440)

Visit date	Time	Measurement type	Remark
10-Nov-2025	09:55	Staff gauge reading	Styx River gaugings @ 09:55 ESG = 10.359 m +/- 15 mm SEN = 10.374 m
09-Oct-2025	11:55	Staff gauge reading	Quarterly visit. Very low tide still ebbing, had to scrape of lots of algae from ESG. Lots of whitebaiters around. @ 11:55 ESG = 8.681 m +/- 5 mm ENC = 8.688 m @ 12:00 ESG = 8.670 m +/- 5 mm ENC = 8.678 m
	12:00	Staff gauge reading	
17-Jul-2025	10:50	Staff gauge reading	Quarterly visit.

Visit date	Time	Measurement type	Remark
			At 10:50 ESG = 10.295 m +/- 5 mm Ant nest found on fuse board. Removed and insecticide applied to site.
09-Apr-2025	14:05	Staff gauge reading	Quarterly check. At 14:05 ESG = 10.098 m +/- 5 mm
22-Jan-2025	10:05	Staff gauge reading	Quarterly visit At 10:05 ESG = 9.948 m +/- 10 mm Radar = 9.950 m

Kaputone Creek at Guthries Rd (66443)

Visit date	Time	Measurement type	Remark
10-Nov-2025	08:23	Gauging	Visit to gauge for Styx River water budget investigation. Stream edge recently mowed/tidied up by external contractors. Some vegetation still floating downstream at time of gauging.
07-Nov-2025	09:33	Gauging	Visit to gauge for Styx River water budget investigation. @ 09:20 ESG = 13.381 m +/- 3 mm PT = 13.372 m Cleaned PT @ 09:23, PT = 13.383 m after. StreamPro SxS gauging upstream of culvert, moved by hand on staff.
	09:20	Staff gauge reading	
	09:45	Staff gauge reading	
10-Oct-2025	10:01	Gauging	Quarterly check At 08:40 ESG = 12.432 m +/- 5 mm Gauged 3 m above road bridge using SxS pro

Visit date	Time	Measurement type	Remark
			At 10:20 ESG = 13.400 m +/- 5 mm
	09:40	Staff gauge reading	
	10:20	Staff gauge reading	
15-Jul-2025	13:15	Gauging	Quarterly visit. @ 12:45 ESG = 13.426 m +/- 2 mm PT = 13.416 Cleaned PT @ 12:47. PT is very corroded inside cap and against pressure plate, needs replacing asap. @ 12:50 ESG = 13.426 m +/- 2 mm PT = 13.428 m Gauged by SxS method with StreamPro (small hull), moved by hand, 2 m upstream of culvert. @ 13:30 ESG = 13.426 m +/- 2 mm PT = 13.433 m
	12:45	Staff gauge reading	
	12:50	Staff gauge reading	
	13:30	Staff gauge reading	
09-Apr-2025	15:31	Gauging	Quarterly check At 14:25 ESG = 13.392 m +/- 3 mm Gauged with StreamPro on small hull ~5 m upstream of culvert using MB method. High uncertainty and not a good result. Gauged again in the same location with the FlowTracker, better result.

Visit date	Time	Measurement type	Remark
			Didn't clean out PT on the first stage check, so did it on the post gauging check. Cap very silted. There was an 8 mm step in stage after the clean that aligned with ESG observations, so gauging has been filed to ESG values not PT values. At 15:45 ESG = 13.389 m +/- 3 mm Rating change from bed aggradation/end of summer weed growth/potential debris on control. A potential rating has been missed between 22 and 23 (3rd March - 3rd April) as discharge record isn't looking standard. However, no gauging evidence exists to confirm this.
	15:00	Gauging	
	14:25	Staff gauge reading	
	15:45	Staff gauge reading	
24-Feb-2025	09:20	Staff gauge reading	At 09:20 ESG = 13.320 m +/- 3 mm
			On site to remedy power supply issue. Found that the battery was no longer holding its charge - 11.00v Swapped with new 18 Ah battery and checked output of the solar panel - 20v.
23-Jan-2025	13:23	Gauging	Quarterly site check and gauging At 13:00 ESG = 13.315 m +/- 5 mm PT = 13.311 m Gauged At 13:40 ESG = 13.311 m

Prestons Subdivision at Lower Styx Rd (66446)

Visit date	Time	Measurement type	Remark
10-Nov-2025	12:21	Gauging	Supplementary gauging for CCC Styx River flow investigation.

Visit date	Time	Measurement type	Remark
06-Oct-2025	11:40	Staff gauge reading	Gauged with FlowTracker at culvert opening. Cobbled riverbed and low velocity flow resulting in low quality gauging. Quarterly visit
17-Jul-2025	10:05	Staff gauge reading	At 11:40 ESG = 11.019 m +/- 3 mm Quarterly check. At 10:05 ESG = 10.973 m +/- 3 mm.
09-Apr-2025	12:30	Staff gauge reading	QSD free from rocks or debris in front of sensor. Quarterly check. At 12:30 ESG = 11.069 m +/- 3 mm.
23-Jan-2025	11:40	Staff gauge reading	Quarterly check At 11:40 ESG = 10.962 m +/- 3 mm QSD = 10.962m

Otukaikino at Dickeys Road (66447)

Visit date	Time	Measurement type	Remark
10-Oct-2025	09:03	Gauging	Quarterly gauging and site visit. At 08:40 ESG = 12.432 m +/- 3 mm Gauged at ESG using SxS pro At 09:25 ESG = 12.434 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			Water temp = 12.6 degrees.
	08:40	Staff gauge reading	
	09:25	Staff gauge reading	
15-Jul-2025	14:19	Gauging	Quarterly visit. Moving boat gauging, StreamPro small hull on tagline with traveller. @ 14:00 ESG = 12.461 m +/- 2 mm @ 14:30 ESG = 12.462 m +/- 2 mm
	14:00	Staff gauge reading	
	14:30	Staff gauge reading	
09-Apr-2025	13:59	Gauging	Quarterly check At 13:35: ESG = 12.545 m +/- 3 mm Gauged using MB method and wading with the small SP hull. EMI causing ship track to not be straight along transect. At 14:10: ESG = 12.547 m +/- 3 mm
	13:35	Staff gauge reading	
	14:10	Staff gauge reading	
29-Jan-2025	14:40	Gauging	Quarterly site visit and gauging At 14:20 ESG = 12.578 m +/- 3 mm Sxs gauging carried out at esg. At 15:05 ESG = 12.579 m +/- 3 mm Water temp = 16.8 C

Horners Drain at Prestons Rd (66471)

Visit date	Time	Measurement type	Remark
06-Oct-2025	12:08	Gauging	Quarterly site check and gauging. At 11:50 ESG = 12.828 m +/- 3 mm PT = 12.830 m Gauged 1 m below esg. At 12:20 ESG = 12.830 m +/- 3 mm Pt = 12.828 m Desiccant exchanged, battery volts = 12.53 v.
	11:45	Staff gauge reading	
	12:20	Staff gauge reading	
	12:08	Other field measurement	
15-Jul-2025	11:53	Gauging	Quarterly visit. @ 11:25 ESG = 12.759 m +/- 3 mm PT = 12.752 m Cleaned PT @ 11:30. PT is in poor condition (corrosion) and needs replacing. Flowtracker2 gauging, wading. Used eyelets for tagline cross-section. @ 12:05 ESG = 12.760 m +/- 3 mm PT = 12.771 m Re-positioned PT @ 12:11 @ 12:05

Visit date	Time	Measurement type	Remark
			ESG = 12.759 m +/- 3 mm PT = 12.764 m
	11:25	Staff gauge reading	
	12:05	Staff gauge reading	
	12:15	Staff gauge reading	
09-Apr-2025	13:02	Gauging	Quarterly check and gauging. Removed debris from around base of esg and pt pipe. At 12:45 ESG = 12.735 m +/- 3 mm PT = 12.733 m Gauged using Flowtracker 2. At 13:15 ESG = 12.736 m +/- 3 mm PT = 12.733 m
	12:45	Staff gauge reading	
	13:15	Staff gauge reading	
	13:02	Other field measurement	
23-Jan-2025	12:26	Gauging	Quarterly visit At 12:05 ESG = 12.735 m +/- 3 mm PT = 12.726 m Flushed PT pipe at 12:07 At 12:10 ESG = 12.735 m +/- 3 mm PT = 12.736 m Gauged

Visit date	Time	Measurement type	Remark
			At 12:40 ESG = 12.736 m +/- 3 mm PT = 12.735 m

Heathcote River at Ferrymead Bridge (66605)

Visit date	Time	Measurement type	Remark
10-Oct-2025	12:05	Staff gauge reading	Quarterly site check. Numerous measurements made over 5 minutes and averaged. At 12:05 dipped value (Ave) = 4.930 (14.260 m - 4.917 = 9.343 m +/- 5 mm.
17-Jul-2025	09:25	Staff gauge reading	Quarterly check. A series of four measurements were taken and an average applied.
30-Jun-2025	11:10	General visit	Not a field visit. Scheme edit from the office. Added the "Use CRC" Code into the scheme for use with the Vega C21. This is to serve as a test before uploading to Heathcote at Lincoln Rd site. There was no effect on the RAW 5min stage data as the new scheme was applied with the CRC command. However, due to the continuous readings that occur to generate the 1min & 5min Average tables, these two tables were effected with a large downward spike. This was removed while in the office.
13-Jun-2025	14:17	Staff gauge reading	Vega radar sensor data errors - re wired to replace corroded wiring. ESG needs lower plate added - measurement taken with measure tape from base of lower plate at 10.500. Trench at ESG separate from river at low tide, channel dug for this measurement but will likely be required to be re-dug for following visits.
09-Apr-2025	09:30	Staff gauge reading	Quarterly check. Took 6 measurements between 09:25 and 09:28.

Visit date	Time	Measurement type	Remark
			At 09:25 groundwater dipper value = 5.302 m +/- 5 mm groundwater dipper value =5.305 m +/- 5 mm groundwater dipper value =5.306 m +/- 5 mm At 09:26 groundwater dipper value = 5.308 m +/- 5 mm At 09:27 groundwater dipper value = 5.310 m +/- 5 mm At 09:28 groundwater dipper value = 5.312 m +/- 5 mm. Average value of 5.307 m used at 09:30 (14.260 - 5.307 = 8.953 m)
29-Jan-2025	09:20	Staff gauge reading	4G site upgrade. At 9:20: Stage (measured down from bridge collar) = 9.350 m +/- 20 mm Quite windy - tape swaying a lot and waves on water surface Recorded stage = 9.362 m Exchanged logger with 4G NRL 3004. Scheme issue is causing the averaged stage data to be non-sensical. Scheme is reading Vega radar correctly and instantaneous (RAW) logs are correct, however AVG and avg values are incorrect, Steve D investigating. New logger installed and recording from 10:50. Gap will be linear filled. At 11:30: ESG (measured down from collar) = 9.000 m +/- 20 mm Quite windy - tape swaying a lot and waves on water surface Recorded stage = 9.013 m ESG would be readable at this stage level - need shovel, scrubbing brush, gumboots, possibly tape measure.

Heathcote River at Ferniehurst (66609)

Visit date	Time	Measurement type	Remark
01-Dec-2025	10:05	Gauging	Gauging after weed was cleared from the river. At 09:40 ESG = 15.742 m +/- 3 mm ENC = 15.743 m Gauged using Sxs pro At 10:20 ESG = 15.742 m +/- 3 mm ENC = 15.741 m
	10:20	Staff gauge reading	
	09:40	Staff gauge reading	
02-Oct-2025	11:29	Gauging	Quarterly site visit & gauging. @ 10:55 ESG = 15.799 m +/- 4mm Encoder = 15.800 m Gauged ~4m upstream of ESG with StreamPro, SxS method on tagline. @ 12:00 ESG = 15.799 m +/-4mm Encoder = 15.799 m
	10:56	Staff gauge reading	
	11:58	Staff gauge reading	
22-Jul-2025	09:28	Gauging	Quarterly check and gauging. At 09:05 ESG = 15.773 m +/- 3 mm ENC = 15.774 m

Visit date	Time	Measurement type	Remark
			Gauged ~3 above esg due to downed tree on true right just down from tower. Water temperature = 9.9 degrees. At 09:45 ESG = 15.773 m +/- 3 mm ENC = 15.774 m
	09:05	Staff gauge reading	
	09:45	Staff gauge reading	
25-Jun-2025	12:10	Staff gauge reading	Visit to pump tower. Encoder adjusted to ESG post pumping. Removed fallen tree branches to enable access to Encoder. At 12:10: ESG = 15.790 m +/- 3mm Encoder 15.796 m Cleared fallen tree branches from in the channel which were covering the tower intake. Flushed out tower. Able to observe plume of silt in the channel which allowed the intake to be identified. Large rock and silt was covering intake - these were removed. Pumped water into tower for about 10 minutes - water flowing out as fast as it was entering, however given the large diameter intake pipe, we weren't able to really raise the head in the tower to really flush out all the gunk - still able to feel sludge on the base of the intake pipe with boot. Happy that the tower will now be operating correctly. At 13:02 ESG = 15.790 m +/- 3 mm At 13:05: ESG = 15.790 m +/- 3 mm Encoder = 15.790 m - set to this value following flush. Fallen tree removed from top of logger housing.
	13:10	Staff gauge reading	
13-Jun-2025	12:58	Gauging	General Comments: Rain all week but not particularly high flow. At 12.50:

Visit date	Time	Measurement type	Remark
			ESG = 16.108 m +/- 5 mm Tree still on Encoder housing. Gauged Stream Pro moving boat. At 13.20; ESG = 16.108 m +/- 5 mm
	13:20	Staff gauge reading	
	12:50	Staff gauge reading	
	12:50	Staff gauge reading	
	12:50	Other field measurement	
02-May-2025	12:43	Gauging	Follow-up from yesterday's high flow event. At 12:30: ESG = 16.730 m +/- 10 mm Recorded stage = 16.735 m SxS gauging completed. At 13:00: ESG = 16.730 m +/- 10 mm Recorded stage = 16.733 m
	12:30	Staff gauge reading	
	13:00	Staff gauge reading	
01-May-2025	15:40	Gauging	High flow gauging. At 15:15: ESG = 16.980 m +/- 10 mm Recorded stage = 16.962 m Gauged - RiverPro SxS. River Pro had incorrect time!!! Gauging start time was 15:30 and end time was 15:52. Filed at time 15:40 at stage 16.975 m, based on ESG observations before and after gauging.

Visit date	Time	Measurement type	Remark
			Stage record shows a jump during site visit, with stage data prior to this being lower than ESG obs and falling in line with ESG obs afterwards. This suggests that the stilling well has been suppressed and has co-incidentally cleared itself during the visit. No physical changes were made during the visit. Tree branch is still preventing access to encoder. Fallen branches are visible in the channel in the vicinity of the intake. Data is left unedited, and outlying stage obs commented. At 16:00 ESG = 16.970 m +/- 10 mm Recorded stage = 16.967 m
	15:15	Staff gauge reading	
	16:00	Staff gauge reading	
17-Apr-2025	12:50	Gauging	Confirmation gauging for rating change after council cleared channel weed. Fallen tree is still blocking access to stilling well/ encoder. @ 12:20 ESG = 15.751 m +/- 2 mm @ 13:10 ESG = 15.751 m +/- 2 mm
	12:20	Staff gauge reading	
	13:10	Staff gauge reading	
09-Apr-2025	11:50	Gauging	Routine quarterly visit. Tree branch has fallen onto encoder housing cover and this cannot be opened. Used Snap, Send, Solve to report this - expecting council to clear this in due course. At 11:20: ESG = 16.080 m +/- 3 mm Recorded stage (encoder) = 16.080 m Gauged with StreamPro, about 5 m below bridge (shady, weed free). Channel is VERY weedy downstream. Gauged Q = 0.418 m^3/s (QRev result), uncertainty 11.1%. The main contributors to uncertainty are the top and bottom Q (the extrapolated portions). The CoV is very low, and the gauging is considered a good representation of flow at the time and has been fully considered in rating maintenance.

Visit date	Time	Measurement type	Remark
			At 12:00: ESG = 16.078 m +/- 3mm Recorded stage (encoder) = 16.077 m.
	11:20	Staff gauge reading	
	12:00	Staff gauge reading	
29-Jan-2025	08:04	Gauging	Quarterly check and gauging At 07:40 ESG = 15.907 m +/- 3 mm ENC = 15.908 m Gauged using SxS 2 m below ESG. At 08:20 ESG = 15.907 m +/- 3 mm ENC = 15.907 m

Avon River at PS205 (66611)

Visit date	Time	Measurement type	Remark
10-Nov-2025	10:10	Staff gauge reading	Exchanged battery. At 10:10 ESG = 10.410 m +/- 10 mm
06-Oct-2025	10:45	Staff gauge reading	Quarterly check and battery swap. At 10:45 ESG = 9.495 m +/- 5 mm Exchanged 24 Ah battery. Voltage post swap = 12.86 v. Also exchanged PT desiccant. At 10:55 ESG = 9.475 m +/- 5 mm
	10:55	Staff gauge reading	
17-Sep-2025	12:10	Staff gauge reading	Follow-up visit after site vandalism (radar, solar panel stolen).

Visit date	Time	Measurement type	Remark
			Installed Aquistar PT-12 sensor as temporary sensor. Installed into conduit mounted beside ESG. Sensor S/N 21908013, 3.5 m range. No solar panel installed, put 24 Ahr battery into box for time being. Battery on ~13 V.
	12:15	Staff gauge reading	
15-Sep-2025	15:45	General visit	On site to investigate flat line data. Site has been vandalised, with the solar panel and radar missing.
10-Jul-2025	11:37	Staff gauge reading	Quarterly visit
09-Apr-2025	11:53	Staff gauge reading	Cleaned ESG. At 11:53 ESG = 9.318 m +/- 5 mm At 11:55 ESG = 9.319 m +/- 5 mm
	11:55	Staff gauge reading	
20-Jan-2025	14:10	Staff gauge reading	Routine Quarterly visit. Removed birds nest from under radar shroud. One eel spotted in river near site. At 14:10 ESG = 9.625 m +/- 5 mm Radar = 9.626 m At 14:15 ESG = 9.619 m +/- 5 mm Radar = 9.618 m

Riccarton Drain at Deans Ave (66621)

Visit date	Time	Measurement type	Remark
08-Oct-2025	12:38	Gauging	Quarterly check and gauging At 12:25 ESG = 13.595 m +/- 5 mm

Visit date	Time	Measurement type	Remark
			Gauged ~5 m below esg. At 12:50 ESG = 13.594 m +/- 5 mm
	12:25	Staff gauge reading	
	12:50	Staff gauge reading	
	12:38	Other field measurement	
22-Jul-2025	12:58	Gauging	Quarterly site visit and gauging. At 1235 ESG = 13.585 m +/- 5 mm Gauged using Flow tracker 2 ~3 m below esg. At 13:11 ESG = 13.586 m +/- 5 mm
	12:35	Staff gauge reading	
	13:11	Staff gauge reading	
	12:58	Other field measurement	
29-Apr-2025	08:28	Gauging	At 08:08 ESG = 13.575 m +/- 5 mm Gauged with Flowtracker 2 ~ 10 m below radar. At 08:37 ESG = 13.573 m +/- 5 mm
	08:08	Staff gauge reading	
	08:37	Staff gauge reading	
	08:28	Other field measurement	
30-Jan-2025	10:00	Gauging	Quarterly site check and gauging. At 09:25 ESG = 13.560 m +/- 5 mm

Visit date	Time	Measurement type	Remark
			Gauged ~5 m below esg. At 10:10 ESG = 13.560 m +/- 5 mm

Wigram Retention Basin at Outflow (66625)

Visit date	Time	Measurement type	Remark
08-Oct-2025	10:20	Staff gauge reading	Quarterly check - cleaned ESG. At 10:20 ESG = 23.273 m +/- 5 mm Pumpro = 23.575 m
23-Jul-2025	14:10	Staff gauge reading	Quarterly visit. All good. @ 14:10 ESG = 23.476 m +/- 3 mm PPro = 23.475 m
04-Jun-2025	10:05	Staff gauge reading	Site check At 10:05 ESG = 23.397 m +/- 3 mm
28-May-2025	12:29	Staff gauge reading	General Comments: Site check after master site antenna upgrade. Verified this site is still operating (observed Pump Pro making a reading); At 12.30 ESG = 23.392 m +/- 3 mm P pro 23.394 m
	12:29	Staff gauge reading	
22-May-2025	10:02	Staff gauge reading	On site to investigate LSB comms issue. Found that the connection between the LSB and aerial was loose. Cleared a walking track to the site as vegetation was quite dense. At 10:02 ESG = 23.410 m +/- 5 mm

Visit date	Time	Measurement type	Remark
			Pumppro = 23.411 m
14-Apr-2025	14:30	Staff gauge reading	Relocated LSB aerial 2m higher to top of solar pole.
09-Apr-2025	09:30	Staff gauge reading	Routine quarterly site visit. At 9:30: ESG = 23.493 m +/- 5 mm PumpPro = 23.490 m
30-Jan-2025	13:00	Staff gauge reading	Routine site visit. At 13:00: ESG = 23.572 m +/- 3 mm Recorded stage = 23.572 m

Heathcote at Wigram Retention Basin (66626)

Visit date	Time	Measurement type	Remark
08-Oct-2025	10:30	Staff gauge reading	Quarterly check. At 10:30 ESG = 22.180 m +/- 3 mm
23-Jul-2025	13:55	Staff gauge reading	Quarterly visit. All good. @ 13:55 ESG = 22.088 m +/- 3 mm PT = 22.088 m
04-Jun-2025	09:05	Staff gauge reading	On site to check esg/PT discrepancies. At 09:05 ESG = 22.005 m +/- 3 mm PT = 22.026 m Cleaned aquatic snails and gunk from inside Pt, flushed PT pipe. At 09:20 ESG = 22.005 PT = 22.030 m

Visit date	Time	Measurement type	Remark
			Updated scheme with new offset value for Heathcote at Wigram PT. Changed from 21.686 m to 21.665 m. Logger reinitialised. At 10:00 (post offset change) ESG = 22.007 m +/- 3 mm
	09:20	Staff gauge reading	
	10:00	Staff gauge reading	
28-May-2025	12:40	Staff gauge reading	At 12:40 ESG = 22.007 m +/- 3 mm Pt = 21.995 m Noted a few aquatic snails on the diaphragm which were removed. Cap had some silt which was also removed.
	12:45	Staff gauge reading	At 12:45 ESG = 22.007 m
22-May-2025	11:15	Staff gauge reading	ESG check while in the area. At 11:15 ESG = 23.034 m +/- 5 mm
14-Apr-2025	15:15	Staff gauge reading	ESG check
09-Apr-2025	09:40	Staff gauge reading	Routine quarterly site visit. At 9:40: ESG = 21.985 m +/- 10 mm Recorded stage = 21.976 m Cleaned PT - slimy up on diaphragm face. Recorded stage afterwards = 21.980 m
03-Feb-2025	18:45	Staff gauge reading	
30-Jan-2025	13:20	Staff gauge reading	Routine site check. At 13:20: ESG = 22.115 m +/- 3 mm Recorded Stage = 22.112 m

Visit date	Time	Measurement type	Remark
			Cleaned PT - no major obstructions and no change to recorded stage. Scrubbed logger box and solar panel (covered in bird fouling)

Avon River at Bridge St (66634)

Visit date	Time	Measurement type	Remark
13-Oct-2025	09:25	Staff gauge reading	Quarterly check. Several manual dipped measurements taken. At 09:25 Stage 10.227 m (15.517 - 5.290 = 10.227 m)
17-Jul-2025	09:45	Staff gauge reading	Quarterly check. Series of 4 readings taken and an average applied.
09-Apr-2025	11:20	Staff gauge reading	Quarterly check. Groundwater dipper used from bridge reference point. Six measurements were taken between 11:20 and 11:26. An average of the 6 values has been used. At 11:20 (15.517 m - 6.400 m = 9.117 m +/- 5 mm)
20-Jan-2025	14:35	Staff gauge reading	On site to verify ESG vs logged values as the site was upgraded to a 4G logger during 2024. Water level was verified by using the Trimble Automatic level, shooting the ESG and water level at high tide. At 14:35 Water level = 9.272 m +/- 7 mm Radar = 9.973 m At 10:25 Water level = 9.259 m +/- 7 mm Radar = 9.959 m
	14:40	Staff gauge reading	

Visit date	Time	Measurement type	Remark
20-Jan-2025	10:15	Staff gauge reading	On site to verify ESG vs logged values as the site was upgraded to a 4G logger during 2024. Water level was verified by using the Trimble Automatic level, shooting the ESG and water level at low tide. At 10:15 Water level = 9.957 m +/- 7 mm Radar = 9.963 m At 10:25 Water level = 9.960 m +/- 7 mm Radar = 9.954 m

Horseshoe Lake at PS205 (66635)

Visit date	Time	Measurement type	Remark
13-Oct-2025	10:15	Staff gauge reading	Stage verified by leveling. At 10:15 Leveled value = 9.568 m +/- 3 mm. ENC = 9.567 m
06-Oct-2025	11:05	Staff gauge reading	Site check. At 11:05 ENC = 9.505 m ESG still hasn't been actioned by CCC, so no independent check done ESG on wingwall not readable.
	11:05	Staff gauge reading	
06-Aug-2025	11:40	Staff gauge reading	Quarterly Visit: Level survey of water level to validate WL Encoder instrument onsite due to damaged ESG that is currently out of commission. SB: 2416 / 67

Visit date	Time	Measurement type	Remark
			Multiple WLs surveyed with a variance of 19 - 25 mm from the Encoder. A consistent average is recorded here and used as WL reference to calibrate the Encoder. Encoder stage very level during survey period, only moving a total of 1 mm - adjusted to surveyed WL at 12:15. BM and CCC drainage datum RL supplied by CCC.
31-Jul-2025	09:15	Staff gauge reading	On site to verify that the encoder was correct in relation to the original ESG (located on the wing wall left bank above the turbines). ESG "looks" quite new and it is not clear what the meter numbers are referring to - there is a single digit 1 on the board, however it was not clear whether this was referring to 10, or 11, so it was treated as 11 (see photos). ESG observations made bear little relation to the encoder values observed at the time showing deviations of around 0.580 m. In addition, ESG observations deviate from all historical stage data by a magnitude that would indicate that the ESG is inaccurate. ESG observations were made and noted as read and compared to the changes in encoder values over the time of the visit in an effort to validate that the stilling well is operating correctly (i.e. even if the ESG level is inaccurate, the rates of change should be similar.) The encoder was changing at the same rate as the ESG observations, showing that the stilling well is still well connected to the channel, despite the willow mat covering the intake. These were the obs made in the field: At 09:13 ESG = 10.221 m +/ -5 mm Encoder = 9.638 m Spent an hour attempting to remove the tree from off the static pipe - only partly successful, as there is a large portion of tree branches and roots unable to be removed by hand. At 10:13 ESG = 10.253 +/- 5 mm Encoder = 9.676 m

Visit date	Time	Measurement type	Remark
			The pumpstation turbines began at around 10:15. The observation taken at 10:30 was done as the turbines were operating, which introduces more uncertainty due to the draw-down between ESG and stilling well. At 10:30 ESG = 10.120 m +/- 5 mm Encoder = 9.608 m Following the visit, the CCC survey team was contacted to seek clarification on local benchmarks. This revealed that there is a BM situated directly above the wing wall ESG, with an RL of 11.054 m. Looking at photos from this visit, it is clear that the ESG is completely inaccurate to the CDB datum. In an effort to still use the observation made, the ESG observations have been offset from the ESG datum to CDB datum estimating the ESG elevation relative to the benchmark from the photos. This will be accurate to an estimated 10 mm: From photo, ESG plate 11.630 is level with the benchmark. 11.630 - 11.054 = 0.576 Therefore, ESG observations need to be offset by -0.576 m This results in: At 09:13 ESG = 9.645 m +/ -5 mm Encoder = 9.638 m At 10:13 ESG = 9.677 +/- 5 mm Encoder = 9.676 m At 10:30 ESG = 9.544 m +/- 5 mm. Encoder = 9.608 m
	10:15	Staff gauge reading	
	10:30	Staff gauge reading	
10-Jul-2025	11:25	General visit	Primary ESG at recorder housing damaged & unreadable at time of visit.

Visit date	Time	Measurement type	Remark
			Maintenance request logged with CCC, follow up visit required.
09-Apr-2025	11:40	Staff gauge reading	Quarterly check. Cleaned ESG. At 11:40 ESG = 9.400 m +/- 3 mm Encoder = 9.402 m At 11:45 ESG = 9.398 m +/- 3 mm Encoder = 9.402 m
	11:45	Staff gauge reading	
20-Jan-2025	13:40	Staff gauge reading	Quarterly site visit At 13:40 ESG = 9.658 m +/- 5 mm ENC = 9.658 m Flushed stilling well from 13:45 - 13:50 Willow tree which was situated directly behind the stilling tower on lake edge has fallen into the lake, on top of the intake, making it difficult to see outflow bubbles during pumping. At 13:55 ESG = 9.663 m +/- 5 mm ENC = 9.663 m

Dudley Creek at Aylesford Street (66636)

Visit date	Time	Measurement type	Remark
06-Oct-2025	12:40	Staff gauge reading	Quarterly site check. At 12:20 ESG = 12.830 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 12.828 m Desiccant exchanged.
10-Jul-2025	10:54	Staff gauge reading	Quarterly visit
09-Apr-2025	12:40	Staff gauge reading	Quarterly visit. PT took a very long time to respond to stage readings after cleaning. Left site after ~10 min and it was still reading low. Offset not changed as it is hoped that the measured depth will continue to rise after the visit in the classic PT fashion. At 12:40 ESG = 11.770 m +/- 3 mm PT = 11.773 m Cleared silt from PT cap and changed the very green desiccant 12:45 - 12:50. At 13:00 ESG = 11.768 m +/- 3 mm PT = 13:05, removed PT from water to check it was on bottom of pipe. At 13:10 ESG = 11.765 m +/- 3 mm PT = 11.757 m. Taking a very long time to re-establish its stage after cleaning.
	13:00	Staff gauge reading	
	13:10	Staff gauge reading	
30-Jan-2025	08:35	Staff gauge reading	Quarterly check. At 08:35 ESG = 11.767 m +/- 3 mm PT = 11.769 m

Bowenvale Flume at Bowenvale Ave (66639)

Visit date	Time	Measurement type	Remark
10-Oct-2025	12:20	Staff gauge reading	Quarterly check. At 12:20 ESG = 9.950 m +/- 3 mm PumpPro = 9.946 m
17-Jul-2025	16:42	Staff gauge reading	Site revisited as offset had been turned off on Pump Pro during earlier inspection. 4:49 - Offset added (+8.875)
	16:53	Staff gauge reading	
	16:55	Staff gauge reading	
	16:49	Staff gauge reading	
17-Jul-2025	09:00	Staff gauge reading	Quarterly visit. At 09:00 ESG = 9.679 m +/- 3 mm Battery volts = 13.3v
	09:00	Staff gauge reading	
09-Apr-2025	09:02	Staff gauge reading	Routine quarterly check. Removed graffiti from cabinet. At 09:02 ESG = 9.712 m +/- 3 mm PumpPro = 9.710 m
22-Jan-2025	12:07	Staff gauge reading	Quarterly visit. At 12:07 ESG = 9.880 m +/- 5 mm PumpPro = 9.880 m
22-Jan-2025	12:07	Staff gauge reading	Quarterly check. At 12:07

Visit date	Time	Measurement type	Remark
			ESG = 9.880 m +/- 5 mm PumpPro = 9.880 m

Halswell Ret.Basin, Halswell Jnt (66641)

Visit date	Time	Measurement type	Remark
08-Oct-2025	12:00	Staff gauge reading	Quarterly check. At 12:00 ESG = 30.639 m +/- 10 mm (due to wind and surge) PT = 30.634 m
22-Jul-2025	13:47	Staff gauge reading	Quarterly visit. PT removed and cleaned. @ 13:47 ESG = 30.552 m +/- 4 mm PT = 30.544 m @ 13:55 (after cleaning) ESG = 30.552 m +/- 4 mm PT = 30.554 m Dummy site installed for field testing NuLOG logger. Second PT-12 installed in old steel PT tube and raingauge signal brought in via a RG signal splitter. 10 tips (2mm) through OTA during NuLOG install (approx 15:15) and more tips at 15:32 whilst cleaning raingauge. All tips recorded by both NuLOG and NRL, need to be deleted from NRL record.
	13:55	Staff gauge reading	
09-Apr-2025	08:55	Staff gauge reading	Routine quarterly site visit. At 8:55: ESG = 30.625 m +/- 3 mm Recorded stage (PT12) = 30.613 m Cleaned PT - COVERED in sludge and slime including up inside diaphragm. At 9:05 (after cleaning) PT12 stage = 30.625 m Cleaned rain gauge (was all OK anyway)

Visit date	Time	Measurement type	Remark
29-Jan-2025	12:50	Staff gauge reading	Quarterly check. At 12:50 ESG = 30.670 m +/- 3 mm PT = 30.660 m PT removed and pipe flushed. Removed PT cap and noted it was full of larvae of some kind. Removed best as could, but wasn't able to remove all of the debris owing to the sensitive nature of the diaphragm. At 13:10 ESG = 30.670 m +/- 3 mm PT = 30.673 m

Wigram Retention Basin at Overflow (66642)

Visit date	Time	Measurement type	Remark
21-Nov-2025	12:10	Staff gauge reading	On site to fix upper esg numbers. The plates had mistakenly been assigned the wrong RL. 25 and 26 m should have been 24 & 25 m respectively. At 12:10 ESG = 23.919 m +/- 5 mm
13-Nov-2025	09:35	Staff gauge reading	Voltage had been decreasing and battery was not being charged. Found that the solar panel had been torn off it's mount (suspect wind) and had torn the panel surround and wiring. New panel, wiring and 24 Ahr battery installed. @ 09:35 ESG = 23.640 m +/- 5 mm SEN = 23.641 m
	09:20	Staff gauge reading	
	09:45	Staff gauge reading	
08-Oct-2025	10:30	Staff gauge reading	Quarterly site check.

Visit date	Time	Measurement type	Remark
			At 10:30 ESG = 24.275 +/- 5 mm
23-Jul-2025	13:45	Staff gauge reading	No debris in rain gauge. Quarterly visit. All good. @ 13:45 ESG = 23.770 m +/- 3 mm PPRO = 23.770 m
04-Jun-2025	09:40	Staff gauge reading	At 09:40 ESG = 23.397 m +/- 3 mm
			Updated scheme with new offset value for Heathcote at Wigram PT. Changed from 21.686 m to 21.665 m. Logger reinitialised.
			At 09:50 ESG = 23.397 m +/- 3 mm
	09:50	Staff gauge reading	
28-May-2025	08:57	Staff gauge reading	At 09:00 ESG = 23.282 m +/- 3 mm Pump pro = 23.283 m
			Air line and orifice moved so that the orifice sits ~400 mm lower than at the previous location. New aerial also installed at the top of the logger box mast. Old rain gauge and equipment removed from island.
			At 11:30 ESG = 23.278 m +/- 3 mm Pump pro = 23.277 m
	10:47	Staff gauge reading	
	10:50	Staff gauge reading	
	11:30	Staff gauge reading	
22-May-2025	11:05	General visit	Site check, while checking LSB comms from the remote site. Contractors were on site and had drained the retention basin to below the Pumppro orifice level.

Visit date	Time	Measurement type	Remark
15-May-2025	13:55	Staff gauge reading	On site to relocate the logger/pump pro cabinet to the catwalk to prevent the risk of inundation during future flood events. Bottom of the cabinet surveyed and found to be 26.490 m. At 13:55 ESG = 23.738 m +/- 3 mm Pumppro = 23.739 m
07-May-2025	13:40	Staff gauge reading	On site to start the logger box relocation process. New 60 mm steel pole mounted to catwalk concrete footing. New rain gauge mounted to the end of the catwalk and wired to logger. Scheme updated. At 13:40 ESG = 23.900 m +/- 3 mm
14-Apr-2025	15:00	Staff gauge reading	Site check
09-Apr-2025	09:45	Staff gauge reading	Routine quarterly site visit. At 9:45 ESG = 23.920 m +/- 5 mm Pump Pro = 23.918 m Cabling has been added to logger enclosure - power and SCADA feed (although power feed not live yet). This is in conduit which is cut to length so moving the box will need some more thought now. (see photos)
03-Feb-2025	18:40	Staff gauge reading	
30-Jan-2025	13:10	Staff gauge reading	Routine site check. At 13:10: ESG = 24.050 m +/- 5 mm Recorded stage (PumpPro) = 24.047 m

Croziers Drain u/s of PS219 Philpotts Rd (66651)

Visit date	Time	Measurement type	Remark
06-Oct-2025	10:30	Staff gauge reading	Quarterly check, all ok. At 10:30 ESG = 12.983 m +/- 5 mm
17-Jul-2025	12:05	Staff gauge reading	Quarterly check. At 12:05 ESG = 12.920 m +/- 5 mm. PT = 12.910 m PT removed from pipe and cleaned. At 12:15 ESG = 12.290 m +/- 5 mm PT = 12.290 m
	12:05	Staff gauge reading	
	12:15	Staff gauge reading	
08-May-2025	10:30	Staff gauge reading	At 10:30 ESG = 12.927 m +/- 5 mm PT = 12.924 m Swapped out Intech 4-20 mA interface for a 4-20 mA microwire to see if power consumption at site decreases. Following the swap, the measured mA was 7.32. At 11:00 ESG = 12.925 m +/- 5 mm PT = 12.924 m
	11:00	Staff gauge reading	
07-Apr-2025	13:30	Staff gauge reading	Investigating power supply issues - slow decline in battery voltage over several days. No obvious issue. Solar panel (10W) (in sun) outputting 0.8A. Battery voltage (no solar panel) 12.5 V - 12.8V with panel connected. Tested current draw of various components - entire system draws 0.08 A (80 mA) continuously which spikes up to 0.91 A on logger scan. The Isolated Dc-DC power supply

Visit date	Time	Measurement type	Remark
			draws .0.57 A continuously, and the Intech interface draws 0.0235 A continuously (total 0.08 A)....so all of the quiescent current draw goes into the DC-DC power supply and Intech interface. Replaced panel with 20W solar panel - this was outputting 0.9-1.0 A, however the sun was now quite oblique to the panel (it will work better in morning sun). 0.9 A is getting right throughout the system indicating that reg is working, all connections are clean and secure. 0.9A being input to battery, however battery doesn't climb above 12.8 V (it's quite a new battery) Replaced battery however replacement not fully charged (12.45 V), however voltage jumped to 13.1 under solar panel. Monitor from here to see if 20 W panel is sufficient. At 13:30: ESG = 12.880 m Recorded stage (PT12) = 12.885 m Cleaned PT (was all good), and really carefully checked ESG. Read ESG in conjunction with PT12 read in scheme to eliminate any discrepancy as pump station is running, causing short-term fluctuations in level. At 13:35: ESG = 12.880 m PT12 = 12.887 m Amended offset in scheme and uploaded to Neon (too effect at 14:05) ESG = 12.880 m PT12 = 12.880 m
	13:35	Staff gauge reading	
	14:00	Staff gauge reading	
28-Mar-2025	11:05	Staff gauge reading	Site visit to investigate low voltage. This has been occurring since the site equipment upgrade in February. No obvious issues - solar panel outputting 0.8 A in sunshine (which is expected). Replaced battery.

Visit date	Time	Measurement type	Remark
			At 11:05: ESG = 12.860 m Recorded stage (PT12) = 12.850 m Adjusted scheme offset and uploaded. NOTE: This adjustment was an error, as found at next visit. ESG was read between PT12 reads and logger test mode update. With the pump station pumping, this causes short period fluctuations in water level. Data subsequently offset.
10-Mar-2025	09:55	Staff gauge reading	At 09:55 PT = 12.869 m ESG = 12.867 m On site to replace PT, as unit is quite corroded. Also added a T junction to conduit at ground level.
	10:55	Staff gauge reading	At 10:55 ESG = 12.872 m +/- 3 mm PT = 12.870 m
04-Feb-2025	08:00	Staff gauge reading	Logger upgrade to 4G NRL. At 8:00: ESG = 12.868 m +/- 3 mm Recorded stage (PT) = 12.857 m Cleaned PT (although not at all dirty), and returned which corrected measured stage. At 8:05: ESG = 12.868 m +/- 3 mm PT stage = 12.868 m. Exchanged logger and gear plate with 4G NRL. Microwire removed and replaced with Intech 4-20 mA interface. Replaced broken conduit. General clean-up of site. No recorded data during logger exchange - gap filled (linear) as stage was stable for the duration (as per ESG obs.). Step in data from PT clean has been left.

Visit date	Time	Measurement type	Remark
			NRL initialised at 10:50, however incorrect offset in scheme. Amended offset to 12.676 m which corrected recorded stage. At 10:55: ESG = 12.868 m +/- 3 mm PT Stage = 12.868 m PT to be replaced - looking very "weathered" and showing history of variability from ESG obs. Today, was giving depth of 9-10 mm when out of the water (should be 0 mm).

Flow Dudley Diversion Pipeline at Walter Park (66652)

Visit date	Time	Measurement type	Remark
Visit date	**Time**	**Measurement type**	**Remark**
17-Jun-2025	12:00	General visit	Removed solar panel and logger panel from site. Sensor remains in pipeline with cable up into logger housing. Housing requires "security" hex heads to remove it.

Wairarapa Stream at Rossall St (66654)

Visit date	Time	Measurement type	Remark
06-Oct-2025	10:05	Staff gauge reading	Quarterly site check. At 10:05 ESG = 17.523 m +/- 3 mm Desiccant exchanged.
22-Jul-2025	11:40	Staff gauge reading	Quarterly check. At 11:40 ESG = 17.387 m PT = 17.390 m Battery volts = 13.69 v
11-Jun-2025	14:34	Staff gauge reading	Site issue investigation. ESG at 14:34 - 17.388 m

Visit date	Time	Measurement type	Remark
			Stage unchanged at 15:07
09-Apr-2025	09:25	Staff gauge reading	Site visit after no data had been transmitted since 11pm the night before. After lots of investigations on site, it was discovered that the SIM card had accidentally been disabled by IS the previous day. A replacement One SIM Card was sourced and site re-initialised fine. New SIM card #6401 1601 0897 1801 this has been a historical Field Team test SIM. At 09:25 ESG = 17.380 m +/- 3 mm PT = 17.375 m Cleaned PT at 09:33, little bit of silt in the cap but nothing major. 2 Large branches in the stream immediately next to the site that will be catching debris and elevating the water level over time. At 10:40 ESG = 17.381 m +/- 2 mm PT = 17.383 m
	10:40	Staff gauge reading	
13-Feb-2025	11:27	Staff gauge reading	Visit to upgrade logger to 4G model. New logger panel installed into existing fibreglass housing. No issues. Ran earth cable out of box and bolted to pole. New logger installed has S/N 48100822. @ 11:27 ESG = 17.310m +/- 2 mm PT = 17.313 m @ 12:20 ESG = 17.310m +/- 2 mm PT = 17.313 m Stage offset 17.02 m
	12:20	Staff gauge reading	
30-Jan-2025	09:25	Staff gauge reading	At 09:25 ESG = 17.305

Visit date	Time	Measurement type	Remark
			PT = 17.294 PT cleaned At 09:30 ESG = 17.305 m +/- 3 mm PT = 17.305

Avon River at Fitzgerald Ave (66670)

Visit date	Time	Measurement type	Remark
13-Oct-2025	10:35	Staff gauge reading	Quarterly check At 10:35 ESG = 10.165 m +/- 3 mm PT = 10.173 m Cleaned PT At 10:40 ESG = 10.170 m +/- 3 mm PT = 10.170 m
	10:40	Staff gauge reading	
31-Jul-2025	10:50	Staff gauge reading	At 10:50 ESG = 10.220 m +/- 3 mm Pt pulled and cleaned - not much silt evident in PT cap, however, membrane is somewhat corroded. AT 11:00 ESG = 10.237 m +/- 3 mm
	11:00	Staff gauge reading	
14-Jul-2025	11:51	Staff gauge reading	Re-cleared PT of aquatic weed, PT still out by 10mm
10-Jul-2025	10:42	Staff gauge reading	Quarterly visit. Aquatic plant growth present around base of ESG, cleared what was reachable at time of visit.

Visit date	Time	Measurement type	Remark
			@ 10:42 ESG = 10.184 m +/- 2 mm
09-Apr-2025	12:25	Staff gauge reading	Quarterly visit.
06-Mar-2025	09:05	Staff gauge reading	ESG = 10.120 m +/- 5 mm at 12:25 (read from the bridge). On site to upgrade logger to 4G. Installed new logger panel and new small stainless steel logger housing in same position as previous. New logger S/N 48100993.
			At 09:10 ESG = 10.024 m +/- 3 mm PT = 10.026 m
			At 09:50 ESG = 10.020 m +/- 3 mm PT = 10.026 m
	09:50	Staff gauge reading	
30-Jan-2025	09:00	Staff gauge reading	Quarterly check.
			Debris removed from ESG.
			At 09:00 ESG = 10.140 m +/- 5 mm

Cashmere Stream at Worsleys Reserve (66682)

Visit date	Time	Measurement type	Remark
02-Oct-2025	12:42	Gauging	Quarterly site visit & gauging.
			@ 12:21 ESG = 15.935 Gauged ~5m DS of ESG under bridge. @ 12:56 ESG = 15.929 m (+/- 10 mm) uncertainty due to permanently discoloured plate.
			Damage and significant discolouration on ESG (see photos) replacement required.
	12:21	Staff gauge reading	
	12:56	Staff gauge reading	

Visit date	Time	Measurement type	Remark
01-Jul-2025	14:29	Gauging	At 14:10 Esg = 15.951 m +/- 3 mm Pt = 15.935 m Cleaned pt and pipe, silica exchanged. At 14:15 Esg = 15.951 m +/- 3 mm Pt = 15.947 m Gauged using FT2 2 m below site. At 14:45 Esg = 15.952 m +/- 3 mm Pt = 15.947 m
	14:15	Staff gauge reading	
	14:45	Staff gauge reading	
	14:10	Staff gauge reading	
	14:29	Other field measurement	
02-May-2025	11:19	Gauging	Gauging visit following on from significant rain event. At 11:00: ESG = 16.903 m +/- 10 mm Recorded stage = 16.884 m SxS gauging completed. At 11:45: ESG = 16.900 m +/- 10 mm Recorded stage = 16.887 m
	11:00	Staff gauge reading	
	11:45	Staff gauge reading	
07-Apr-2025	12:32	Gauging	Quarterly visit and fixups from previous visit: tightened solar panel and installed Laird 4G aerial out bottom of logger box.

Visit date	Time	Measurement type	Remark
			@ 11:45 ESG = 16.224 m +/- 2 mm PT = 16.223 m Flowtracker2 gauging, 8m downstream of ESG. Weedy in stream at ESG causing turbulence in velocities. @ 12:45 ESG = 16.226 m +/- 2 mm PT = 16.223 m
	11:45	Staff gauge reading	
	12:45	Staff gauge reading	
02-Apr-2025	10:05	Staff gauge reading	NRL 4G logger upgrade. At 10:05: ESG = 16.200 m +/- 3 mm Recorded stage (PT12) before logger exchange = 16.189 m Exchanged logger for 4G NRL model. Replaced enclosure for Stainless Steel model also. Existing scheme offset retained. Victron Energy Solar Regulator on new gear plate was faulty - swapped with SunSaver 10 from old gear plate which is working fine. At 11:20: ESG = 16.200 m +/- 3 mm Recorded stage (PT12) new logger = 16.189 m Pulled up PT12 - VERY grimy on the outside, with rust-coloured residue all over it. Rusty sludge up around diaphragm, however not completely blocked. Cleaned out and returned to position in mounting tube. NO offset adjustment. At 11:25: ESG = 16.200 m +/- 3 mm Recorded stage (PT12) = 16.198 m Replaced desiccant.

Visit date	Time	Measurement type	Remark
			Replaced battery. Solar panel was facing south. Hose clamp brackets are loose. Rotated back into north-facing position and tightened lower hose clamp. Bring A-frame ladder to reach top hose clamp to tighten this also.
	11:20	Staff gauge reading	
	11:25	Staff gauge reading	
29-Jan-2025	09:11	Gauging	Quarterly site check and gauging. At 08:45 ESG = 16.026 m +/- 3 mm PT = 16.024 m At 08:50 ESG = 16.024 m +/- 3 mm Gauged 2 m below ESG. At 09:25 ESG = 16.026 m PT = 16.024

Hoon Hay Valley Drain at Cashmere Rd (66692)

Visit date	Time	Measurement type	Remark
06-Oct-2025	12:31	Staff gauge reading	Quarterly site visit. @ 12:30 ESG = 18.841 m (+/- 2 mm) PT = 18.844 m High flow conditions with stage at top end of ESG. High volume of sediment of water due to discolouration. PT will likely need a thorough clean & ESG dug out with next visit.
17-Jul-2025	14:15	Staff gauge reading	Quarterly check.

Visit date	Time	Measurement type	Remark
			At 14:15 ESG = 18.303 m +/- 3 mm PT = 18.304 m
07-Apr-2025	13:05	Staff gauge reading	Quarterly visit. Stream very overgrown with grasses and duckweed. @ 13:50 ESG = 17.920 m +/- 2 mm PT = 17.902 m Checked PT @ 13:10, relatively clean inside. Flushed housing and dug silt from underneath tube (wasn't buried though). @ 13:15 ESG = 17.920 m +/- 2 mm PT = 17.907 m PT came closer to ESG but still out by 13 mm. Adjusted offset , old = 17.738, new = 17.751
	13:15	Staff gauge reading	
13-Feb-2025	13:00	Staff gauge reading	Visit for 4G upgrade, new stainless steel logger installed also. Mounted with new 8mm studs cemented into concrete pillar (same location as old box). No issues with 4G setup. New logger has S/N 48100967. PT at site seems to be drifting a lot between visits, probably needs service/ calibration. Updated Stage offset in scheme @ 15:30, new offset = 17.738 m. @ 13:00 ESG = 17.868 m +/- 2 mm PT = 17.883 m @ 15:20 ESG = 17.869 m +/- 2 mm PT = 17.895 m (stage offset had reverted with scheme on new logger)

Visit date	Time	Measurement type	Remark
			@ 15:35 PT = 17.868 m Need to replace conduit for PT and solar cable: one 4.5 m length of 32 mm rigid elec conduit, another 1 m conduit, some flexi, 1x tee piece and 1x L piece Panel also needs to be earthed- only mounted to concrete at the moment, not earthed.
	15:20	Staff gauge reading	
29-Jan-2025	09:55	Staff gauge reading	Quarterly check At 09:55 ESG = 17.966 m +/- 3 mm PT = 17.975 m Cleaned PT and ESG. Flushed transducer pipe and ensured the bottom was clear of the silt level. No change to transducer stage. Changed offset from 17.764 m to 17.755 m At 10:10 ESG = 17.966 m +/- 3 mm PT = 17.967 m

Cashmere Valley Drain at Adventure Park (66694)

Visit date	Time	Measurement type	Remark
06-Oct-2025	10:29	Gauging	Quarterly site visit & gauging. Pre obvs: @ 09:50 ESG: 0.405 m (+/- 5 mm) PT: 0.412 m High flow conditions with increased sediment load (obvious discolouration).

Visit date	Time	Measurement type	Remark
			Salt dilution gauging ~ 4 m upstream of DS bridge (at site). Tracer input ~10m downstream of US bridge. Multiple gauging's completed over a dropping stage. Post obvs: @ 12:08 ESG: 0.382 m (+/-5 mm) PT: 0.381 m
	11:18	Gauging	
	11:49	Gauging	
	12:08	Staff gauge reading	
	12:10	Staff gauge reading	
	09:50	Staff gauge reading	
	09:50	Staff gauge reading	
11-Aug-2025	11:11	Gauging	Gauging as flow is up. Flow is just over-topping weir at throat by ~22 mm. @ 12:10 ESG = 0.177 m +- 3 mm PT = 0.174 m 2x failed dilution gaugings (tech issues). Flowtracker2 gauging at d/s end of culvert (top of flume throat). flow = 59 l/s @ 11:15. Site Name: Cashmere Valley Drain at Adventure Park @ 12:10 ESG = 0.177 m +- 3 mm PT = 0.174 m
	10:05	Staff gauge reading	
	12:10	Staff gauge reading	
	11:11	Other field measurement	
17-Jul-2025	13:50	Staff gauge reading	Quarterly site visit. Flume had a very small amount of water flowing through it, however it was too shallow to gauge. Flume has quite a bit of sediment build up in it.
	13:50	Staff gauge reading	

Visit date	Time	Measurement type	Remark
13-Jun-2025	09:55	Staff gauge reading	General site visit and gauging, however Sommer Dilution kit malfunctioned during measurement. No measurement filed. At 9:55 ESG (local datum) = 0.215 m +/- 5 mm Recorded stage = 0.215 m ESG (CDB datum) = 25.600 m +/- 5 mm Cleaned PT12. No silt in cap. Attempted dilution gauging, however Sommer kit malfunctioned (flat batteries). Measurement not filed. At 11:30: ESG (Local datum) = 0.210 m +/-5 mm Recorded stage = 0.213 m ESG (CDB datum) = 25.600 m +/- 5 mm
	11:30	Staff gauge reading	
06-May-2025	10:35	Gauging	Follow up gauging from large flow event. Flow now very much reduced, however downstream channel rocks are having significant influence of water level - wooden control structure is still drowned out - even at this low flow level. At 9:40: ESG = 0.135 m +/- 3 mm PT12 stage = 0.137 m PT123 cleaned, although not gunged up at all. Set up dilution gauging. Completed FT2 gauging while waiting for dilution gauging to run through. Dilution gauging looked OK, however did have a high uncertainty (TQ-Commander uncertainty) at 36% (or +/- 9 l/s). The calibration fit was 0.9985, which seems to be quite poor! While it was a good mixing reach, the resulting conductivity signal was quite flat, with a long tail. This has also added to uncertainty. FT2 gauging deserves more weighting. Dilution gauging result = 27.2 l/s (not entered to Aquarius)

Visit date	Time	Measurement type	Remark
			FT2 result = 20.244 l/s At 10:30: ESG = 0.135 m +/- 3 mm PT12 stage = 0.137 m Moved rocks from the downstream reach, effectively lowering the bed elevation to allow better channel conveyance and get the wooden weir structure back in effect as the control. This had quite a big impact, lowering stage in the recorder section and obtaining critical flow through the flume throat again. The flume will drown out again (as the overall channel is now very bouldery with high roughness) but will be able to be rated accurately and reliably up to the stage height of the wooden flume structure (0.130 m - so for low flows). Rating updated with new period from when channel was modified with rock armouring. At 11:10: (after rocks cleared out) ESG = 0.090 m +/- 3 mm PT12 stage = 0.092 m FT2 gauging filed again at this time (same actual measurement) so rating can be updated following the rock clearance.
	11:30	Gauging	
	09:40	Staff gauge reading	
	10:30	Staff gauge reading	
	11:10	Staff gauge reading	
	10:33	Other field measurement	
02-May-2025	09:55	Gauging	Flow gauging following significant rainfall event in Christchurch. First gauging since channel re-formation works. At 9:20: ESG = 0.400 m +/- 5 mm CCC Datum ESG = 25.800 m +/- 5 mm Recorded stage = 0.405 m Gauged inside culvert - FT2 wading gauging. Gauged Q = 341.873 l/s. FT2 uncertainty = 2.6%

Visit date	Time	Measurement type	Remark
			Water very dirty, but culvert and weir approach feel clear and free from sediment and rocks. At 10:20: ESG = 0.405 m +/- 5 mm CCC Datum ESG = 25.805 m +/- 5 mm Recorded stage = 0.408 m
	09:15	Staff gauge reading	
	10:20	Staff gauge reading	
	09:49	Other field measurement	
29-Jan-2025	08:00	Staff gauge reading	Quarterly check. Flume dry.

Heathcote River at Bells Pumpstation (66695)

Visit date	Time	Measurement type	Remark
10-Oct-2025	12:15	Staff gauge reading	Quarterly check/ At 12:15 ESG = 9.712 m +/- 5 mm
17-Jul-2025	09:12	Staff gauge reading	Quarterly visit, no wind. At 09:12 ESG = 9.919 m +/- 3 mm
09-Apr-2025	09:13	Staff gauge reading	Quarterly check, cleaned staff gauge. At 09:13 ESG = 9.455 m +/- 3 mm
29-Jan-2025	12:25	Staff gauge reading	Routine ESG observation ESG very slimy - scrubbed clean. At 12:25: ESG = 9.370 m +/- 5 mm

Sea-level Sumner Head (66699)

Visit date	Time	Measurement type	Remark
28-Nov-2025	08:40	General visit	On site to investigate odd stage trace. Swapped gas bottles and purged air line. Snoop tested fittings in bunker - no obvious issues. Bubble rate set to 120/min. New bottles = 22,000 Kpa, flow rate = 220 Kpa. Trimmed vegetation around site/access track.
10-Oct-2025	11:25	Other field measurement	Quarterly check. Baro ref = 1004.28 hpa Gas = 7000 kpa, flow = 180 kpa Purged gas system 11:30 and adjusted gas flow to 120/min, post purge.
22-Jul-2025	10:30	Other field measurement	Quarterly site check. At 10:30 Vaisala baro reference = 1026.14 hPa Noted that the bubble rate pre gas purge was quite a bit more than 120 per minute. Bubbler system purged and bubble rate reduced to 120 per minute. Gas = 1100 kpa, flow rate ~175 kpa Solar panel clear from vegetation, however some vegetation trimmed to try and remove the shading effect later on in the day.
27-May-2025	11:14	Other field measurement	Site visit to replace 2G/3G modem to 4G and replace aerial. ;Barometer validation: 1010.29 at 11:14;Gas flow: 122kPa Site Name: Sumner Head sea-level Visit Comment: 180 bubbles p/m, 165 bp/m adjusted to 123 bp/m at 11:28;Gas purge completed at 11:32. Removed older Harvest 2G/3G modem/aerial and installed new SAM 4G modem/aerial. I.P. Address of new modem 10.235.19.186. Still coming through Flosys while loggernet upgrades are being finalised for the entire EIO Flosys network.
17-Apr-2025	11:05	General visit	Replacing gas bottles.

Visit date	Time	Measurement type	Remark
09-Apr-2025	10:00	Other field measurement	Adjusted bubble rate to ~130 b/m. Gas pressure = 22000 kPa Flow rate = 1300 kPa Quarterly visit. Gas = 1000 kPa - needs to be replaced. Flow rate = 220 kPa Bubble rate = 160/minute Purged Adjusted bubble rate to 120/minute
29-Jan-2025	12:00	Other field measurement	Reference baro = 1015.27 hpa at 10:00 Solar panel clear from vegetation. Routine site visit. Purged line at 12:00-12:02. At 12:00: Ref Baro (YSI) = 1001.6 Logged Baro = 1001.3 Gas bottles = 4500 kPa

Opara Stream at Okains Bay (67002)

Visit date	Time	Measurement type	Remark
16-Oct-2025	13:50	General visit	Updated scheme to show tip count for test tip function, also changed RG to channel C1. Cleaned rain gauge. 1x FCD run = 97 tips Manual tips at 14:15
07-Jul-2025	15:20	General visit	Quarterly visit. No issues. Council have gravelled a pad through the gate and just downstream of the site, apparently, they are putting in a groundwater bore for drinking water. Likely to be some infrastructure (shed?) to follow. Cleaned RG, some sediment in buckets and some strange surface cracking in one bucket. 1x FCD run, 95 tips.

Visit date	Time	Measurement type	Remark
			Everything else good.
23-Apr-2025	14:45	General visit	Quarterly visit. No issues. Grass good length.
23-Jan-2025	12:30	General visit	Quarterly visit. No visible issues, no cleaning or test tips put through.

Le Bons Bay at Hughes culvert (67101)

Visit date	Time	Measurement type	Remark
16-Oct-2025	13:00	Staff gauge reading	Quarterly visit. ESG = 10.560 m +/- 2 mm SEN = 10.561 m
07-Jul-2025	14:45	Staff gauge reading	Quarterly visit. No issues. @ 14:45 ESG = 10.74 m +/- 2 mm
23-Apr-2025	13:55	Staff gauge reading	Quarterly visit. All good. @ 13:55 ESG = 10.274 m +/- 2 mm AMZ = 10.277 m
23-Jan-2025	11:58	Staff gauge reading	Quarterly visit. No issues. Cleaned ESG with spade prior to reading. Pond scum in culvert water, pretty stagnant looking. @ 11:58 ESG = 10.219 m +/- 3 mm AMZ = 10.220 m

Akaroa Harbour sea level at Yacht Club wharf (67499)

Visit date	Time	Measurement type	Remark
16-Oct-2025	11:34	Other field measurement	Quarterly visit. Light southerly into harbour, 100 mm undulation on water surface.
07-Jul-2025	11:30	Other field measurement	Quarterly visit. Water very calm, occasional swell from passing boats. Incoming tide. @ 11:30 stage REF = 9.509 m +/- 10 mm (staff measure 1.788 m +/- 10 mm down from ref point)

Visit date	Time	Measurement type	Remark
			stage SENSOR = 9.480 m @ 11:33 stage REF = 9.532 m +/- 10 mm (staff measure 1.765 m +/- 10 mm down from ref point) stage SENSOR = 9.527 m Washed solar panel with hose.
	11:33	Other field measurement	
23-Apr-2025	12:40	Other field measurement	Quarterly visit. Light-mod southerly wind, small wavelets < 50 mm. All ok on site, solar panel reasonably clean. @ 12:40 REF DTW = 1.370 m +/- 15 mm REF SL RL = 9.927 m +/- 15 mm RAD SL RL AVG = 9.940 m @ 12:45 REF DTW = 1.425 m +/- 15 mm REF SL RL = 9.872 m +/- 15 mm RAD SL RL AVG = 9.884 m
	12:45	Other field measurement	
23-Jan-2025	10:43	Other field measurement	Quarterly visit. Good conditions, ~20 mm wavelets give 20 mm uncertainty on reference readings. @ 10:43 distance ref = 1.414 m +- 20 mm ==> sea level stage = 11.297 - 1.414 = 9.853 m /- 20 mm Radar sea level = 9.880 m (RAW) @ 10:53 distance ref = 1.397 m +- 20 mm ==> sea level stage = 11.297 - 1.397 = 9.900 m /- 20 mm Radar sea level = 9.892 m (RAW) Washed solar panel, wrote reference offset notes on inside of logger housing door.

Knights Stream at Sabys Road (67806)

Visit date	Time	Measurement type	Remark
06-Oct-2025	13:47	Gauging	Quarterly visit & gauging. Pre obvs: @ 13:05 ESG: 20.133 m (+/-3mm) PT: 20.122 m Large build of aquatic weed in front of and around ESG & PT. Cleared prior to instrument validation/gauging but noticeable vegetation debris floating downstream throughout gauging duration that was catching on ESG/PT. Stage variation observed between ESG & PT due to aquatic weed clearance around the area at beginning of site visit. Following stage validation is within expected accuracy range. PT removed and cleaned prior to FT2 gauging (gauged ~2m DS of ESG) Post obvs: @ 14:05 ESG: 20.133 m (+/- 3mm) PT: 20.132 m
	13:03	Staff gauge reading	
	13:03	Staff gauge reading	
	14:05	Staff gauge reading	
	14:05	Staff gauge reading	
	13:03	Other field measurement	
01-Jul-2025	13:22	Gauging	At 12:50 ESG = 20.061 m +/- 3 mm Pt = 20.051 m Cleaned pt and pipe At 13:00 ESG = 20.061 m +/- 3 mm Pt = 20.061 m

Visit date	Time	Measurement type	Remark
			Gauged using FT2 1 m below ESG. At 13:35 ESG = 20.064 m +/- 3 mm Pt = 20.066 m
	13:00	Staff gauge reading	
	13:35	Staff gauge reading	
	13:22	Other field measurement	
13-Jun-2025	10:27	Gauging	Spot gauging to check new rating @ 0955 ESG = 20.088 m +- 3 mm PT = 20.083 m @ 1040 ESG = 20.091 m +- 3 mm PT =20.085 m
	09:55	Staff gauge reading	
	10:40	Staff gauge reading	
02-May-2025	09:52	Gauging	Flood gauging
	10:07	Staff gauge reading	
	09:30	Staff gauge reading	
07-Apr-2025	14:24	Gauging	Quarterly visit. Flow is obviously backed up by downstream weed growth. Control is partially drowned out. @ 13:40 ESG = 20.039 m +/- 3 mm PT = 20.024 m Cleaned PT @ 13:45, some biofouling. Cleared debris off ESG. @ 13:50 - 14:00 PT = 20.067 m, 30 mm high. Tried flushing and re-seating but didn't change value. Changed stage offset, old = 19.638, new = 19.608.

Visit date	Time	Measurement type	Remark
			Flowtracker2 gauging 2 m d/s of ESG. Large branch encroaching over solar panel, needs to be trimmed.
	13:40	Staff gauge reading	
	14:40	Staff gauge reading	
29-Jan-2025	12:07	Gauging	Quarterly check and gauging. Cleared debris off ESG. At 11:30 ESG = 20.095 m +/- 3 mm PT = 20.084 m Large amount of debris and weed growth built up on control, largely on true right. Removed debris. At 11:50 ESG = 20.066 m PT = 20.064 m Gauged 1.5 below esg/site. At 12:25 ESG = 20.053 m +/- 3 mm PT = 20.049 m

PS62, Tyrone Street (324608)

Visit date	Time	Measurement type	Remark
10-Mar-2025	09:30	General visit	On site to diagnose issues with the 4G upgrade - Crazy amounts of 'rain' recorded each day. Earthed backing board correctly and changed the wiring so that the rain gauge was connected to C1 and not C0. Updated scheme to reflect this also. Test tips done at 10:30.

Visit date	Time	Measurement type	Remark
06-Mar-2025	10:30	General visit	Visit to upgrade logger to 4G. New Logger panel installed into same polycarb box in pumpstation. New logger has S/N 48100817. Test tips put through at 11:10 in test mode, not logged to record.

Firestone Factory, Papanui (324610)

Visit date	Time	Measurement type	Remark
07-Apr-2025	10:00	General visit	Upgraded site to include new logger box and 4G logger. Test tips removed. New rain gauge installed (and verified) as the read switch from the old one broke while upgrading the site.

PS80, Templeton (325403)

Visit date	Time	Measurement type	Remark
05-Jun-2025	12:35	General visit	On site to upgrade logger and housing to 4G. New battery also installed. RG #: 01183 (calibrated: 15/8/13) swapped out for RG #: 01847 (02?) (Calibrated: 6/22) New RG passed validation. 5 Manual Tips at 13:46 removed.

College of Education, Ilam (325507)

Visit date	Time	Measurement type	Remark
07-Mar-2025	08:40	Other field measurement	Visit to fix new logger panel in place. No tips put through RG.
06-Mar-2025	13:00	Other field measurement	Visit to upgrade logger to 4G. New Logger panel temporarily installed into existing logger box, needs return visit to fix in place. New 4G logger has S/N 48100986. Rain gauge calibrated - test tips put through in test mode, not logged in record.

Aidanfield, Dunbars Reservoir (325512)

Visit date	Time	Measurement type	Remark
02-Apr-2025	13:20	General visit	4G NRL logger upgrade. New NRL 3004 logger and gear plate installed in existing stainless-steel enclosure. Rain gauge calibrated - 106 tips. Gauge is looking very tidy.

PS42, Sparks Road (325618)

Visit date	Time	Measurement type	Remark
02-Apr-2025	12:15	General visit	Logger upgrade to NRL 4G model. Removed old Ecologger and Harvest Modem, and installed NRL in its place. Installed 7ah battery also. Because logger is located inside electrical cabinet, external aerial installed - located inside the pump station building. Rain gauge calibration carried out - 103 tips, 110 tips. Gauge in good condition.

Tunnel Road, Heathcote (325619)

Visit date	Time	Measurement type	Remark
17-Jun-2025	09:30	General visit	On site to concrete in rain gauge stand, which was previously identified as being very wobbly. Test tips at 12:30 removed in addition to erroneous data (occurred during the rain gauge being rewired). Rain gauge verified using FCD - all ok.
10-Mar-2025	09:30	General visit	Responding to high recorded precip following NRL logger upgrade (no actual precip fell). Rain gauge connected to counter channel C1 (low frequency hardware channel) from C0 - this config is recommended by I.S. after this fault has been occurring at many sites around the country. Obvious high precip totals deleted from data base. Test data during this visit deleted also.
07-Mar-2025	11:30	Other field measurement	Visit to carry out 4G upgrade. New logger panel installed in new polycarb box into bunker, mounted to back wooden panel. Removed some old comm's equipment. New logger has S/N 48100891. Old 65Ahr battery and float charger removed. New float charger as part of new logger panel installed, new 7Ahr battery installed. Cleaned out rain gauge as it had debris in it.

Van Asch St, Sumner (325711)

Visit date	Time	Measurement type	Remark
01-Aug-2025	11:30	General visit	On site to upgrade site logger to 4G NRL. Removed old rain gauge and stand and mounted new pole onto concrete pad, with stainless steel logger housing and 20 W solar panel. Replaced TB3 rain gauge. TB3 has s/n 14-821, NRL has s/n 48100826.
09-Apr-2025	10:30	General visit	On site to check on bamboo condition and the state of the rain gauge. Also investigated an alternative location for the rain gauge. Bamboo has been sprayed and is dying off. Spoke to a local resident who confirmed that the gauge is on CCC land. Cleaned rain gauge and measured the concrete pad. Concrete pad measures 900 x 900mm square and is good condition - rain gauge tripod mount is secure. Should be possible to mount a 40mm galvanised pole in the centre of the pad by way of a flange and raise the gauge and logger box above bamboo/vegetation height. Total approximate height would need to be 3 m in order to clear bamboo and vegetation to the east.

Reservoir No.4, Clifton Tce (325712)

Visit date	Time	Measurement type	Remark
05-Jun-2025	09:59	General visit	CCC site upgrade to 4G logger 10:00 to 10:26. New logger & wiring set up. New battery - June 2025. RG serial #: 00522 (n/a) replaced with #: 94229 (calibrated: May 25) New RG passed validation. 5 Manual Tips at 11:34 Site photos attached to field visit.

Upper Bowenvale Valley (326616)

Visit date	Time	Measurement type	Remark
15-Sep-2025	11:20	General visit	Verification on rain gauge carried out. Pre-clean tips = 101 Dismantled and cleaned rain gauge. No issues identified at site. Post clean tips = 101

Upper Cashmere Catchment at Worsleys Rd (326617)

Visit date	Time	Measurement type	Remark
07-Mar-2025	09:25	Other field measurement	Visit to upgrade logger to 4G. New Logger panel installed into same fibreglass Irrimate box. No issues. New logger S/N 48100825. Test tips put through at 09:25. Removed from record.

4960 Chch Akaroa Hwy (327804)

Visit date	Time	Measurement type	Remark
30-Oct-2025	10:15	General visit	On site to swap over TB3 rain gauge, as per last visit. Gauge 94-220 swapped for 01-183. FCD ran through twice = 107 and 108 tips respectively. Test tips at 11:00 removed.
16-Oct-2025	09:10	General visit	First FCD run the buckets wouldn't tip- found that the bucket was "fused" underneath to the knob that it sits on. Once seal was broken the buckets moved freely. Couldn't undo the funnel assembly to clean, fused tight and can't get vice grips onto it. Cleaned filter in funnel as best possible. FCD runs after cleaning: 108, 110 tips. Test tips to logger @ 10:03.

Duvauchelles CWS at Akaroa Golf Course (327902)

Visit date	Time	Measurement type	Remark
14-May-2025	10:00	Other field measurement	Replaced cable for raingauge, found the old cable had been chewed (rat/ mouse) with some copper exposed which was causing recent flatlining issues during rain events. Put 2x FCD runs through, 97 and 98 tips so well in spec.

Heathcote at Lincoln Road (1066625)

Visit date	Time	Measurement type	Remark
10-Oct-2025	12:40	Staff gauge reading	Quarterly check. At 12:40 ESG = 20.610 m +/- 10 mm
17-Jul-2025	14:40	Staff gauge reading	Quarterly site visit. At 14:40 ESG - 20.545m +/-5mm Radar - 20.539m Site conditions contributing to measurement variance - accepted as it is within 10mm tolerance.
09-Apr-2025	10:10	Staff gauge reading	Routine quarterly site visit. At 10:10: ESG = 20.503 m +/- 5 mm Recorded stage (Vega) = 20.501 m Willow upstream of site has been removed.
30-Jan-2025	14:00	Staff gauge reading	Routine visit and stage check. At 14:00: 20.540 m +/- 5 mm 20.541 m Cleaned graffiti off logger housing.

Cashmere Stream at Eastman Wetland (1066632)

Visit date	Time	Measurement type	Remark
08-Oct-2025	11:10	Staff gauge reading	Quarterly site visit. Stream discoloured. Unable to see Pt pipe, however was able to feel the end of it with a shovel - no debris build up. Weed cleared from around ESG 11:00 - 11:05.

Visit date	Time	Measurement type	Remark
			At 11:10 ESG = 18.009 m +/- 5 mm
23-Jul-2025	14:40	Staff gauge reading	Quarterly visit. All good. @ 14:40 ESG = 17.475 +/- 3 mm PT = 17.469 m
09-Apr-2025	10:50	Staff gauge reading	Routine quarterly site visit. At 10:50 ESG = 17.680 m +/- 10 mm Recorded stage (PT12) = 17.672 m Vegetation very overgrown around base of enclosure pole. PT access box completely overgrown - needs to be cut back.
29-Jan-2025	10:45	Staff gauge reading	Quarterly site check. Large build-up of weed and debris on ESG and PT pipe structure. Cleared. At 10:45 ESG = 17.443 m +/- 5 mm

St Albans Creek at Bishop St (1066635)

Visit date	Time	Measurement type	Remark
17-Dec-2025	10:33	Gauging	High stage gauging At 10:10 ESG = 14.514 m +/- 3 mm Gauged 2 m below ESG using FT2. At 10:45 ESG = 14.498 m +/- 3 mm
	10:15	Staff gauge reading	
	10:55	Staff gauge reading	
	10:33	Other field measurement	

Visit date	Time	Measurement type	Remark
06-Oct-2025	13:12	Gauging	Quarterly check and gauging.
	13:05	Staff gauge reading	
	13:25	Staff gauge reading	
	13:12	Other field measurement	
10-Jul-2025	12:35	Gauging	Quarterly visit. FlowTracker gauging 10cm upstream of QSD sensor. Some disturbance to sensor likely within gauging duration.
	12:22	Staff gauge reading	
09-Apr-2025	11:56	Gauging	Quarterly visit. Cut back branches that had completely overgrown the solar panel. Gauged with FlowTracker ~20cm D/S of QSD (~5cm d/s of the tile), so mean velocity and area can be considered almost representative of QSD values. Only stood in the creek with one foot at a time with the other on the bank to try minimise disturbance/water backing up over the QSD. At 11:30 ESG = 14.121 m +/- 3 mm QSD = 14.125 m At 12:10 ESG = 14.123 m +/- 3 mm QSD = 14.125 m
	11:30	Staff gauge reading	
	12:10	Staff gauge reading	
	11:56	Other field measurement	
	11:56	Other field measurement	
30-Jan-2025	08:16	Gauging	Quarterly gauging and site check. At 08:00 ESG = 14.136 m +/- 3 mm Gauged ~1 m above QSD. At 08:30 ESG = 14.137 m +/- 3 mm

Appendix B CCC site logging frequency as at 31 December 2025

Table B-1: Site logging frequency as at 31 December 2025.

Code	Site no.	Location	Parameter	Method	Read int	Comments
SBK	324606	Harbour Rd, Brooklands	Rainfall	Telemetry	5 Min	
SSP	324607	Lower Styx Rd, Brooklands	Rainfall	Telemetry	5 Min	
SBE	324608	PS 62, Tyrone St, Belfast	Rainfall	Telemetry	5 Min	
ABR	324610	Firestone Factory, Papanui	Rainfall	Telemetry	5 Min	
XTE	325403	PS 80, Templeton	Rainfall	Telemetry	5 Min	
ARI	325507	College of Education	Rainfall	Telemetry	5 Min	
HWE	325508	Wigram Retention Pond, Wigram	Rainfall	Telemetry	5 Min	
HHA	325510	Halswell Retention Basin Hals. Jctn.Rd	Rainfall	Telemetry	5 Min	
ABO	325626	Botanic Gardens, Hagley Park	Rainfall	Telemetry	5 Min	
ALA	325617	PS 205, New Brighton Rd	Rainfall	Telemetry	5 Min	
HHN	325618	PS 42, Sparks Rd, Spreydon	Rainfall	Telemetry	5 Min	
HTU	325619	Tunnel Rd Heathcote River	Rainfall	Telemetry	5 Min	
HSI	325621	Bowenvale Flume, Bowenvale Valley	Rainfall	Telemetry	5 Min	
XSU	325711	Van Asch St, Sumner	Rainfall	Telemetry	5 Min	
XCL	325712	Reservoir #4, Clifton	Rainfall	Telemetry	5 Min	
HSK	326616	Upper Bowenvale Valley	Rainfall	Telemetry	5 Min	
SBK	66422	Harbour Rd, Brooklands	Waterlevel	Telemetry	5 Min	
SSP	66423	Lower Styx Rd, Brooklands	Waterlevel	Telemetry	5 Min	
SRF	66425	Radcliffe Rd, Styx River	Waterlevel, Flow	Telemetry	5 Min	ECan site
SBL	66440	Tidegates (below), Styx River	Waterlevel	Telemetry	5 Min	
	66443	Kaputone Creek, Guthries Rd	Waterlevel, Flow	Telemetry	5 Min	
	66446	Prestons Subdivision, Lower Styx Rd	Waterlevel, Flow	Telemetry	5 Min	
	66447	Otukaikino Stream, Dickeys Rd	Waterlevel, Flow	Telemetry	5 Min	
AGL	66602	Gloucester St, Avon River	Waterlevel, Flow	Telemetry	5 Min	ECan site
HFM	66605	Ferrymead Bridge, Heathcote River	Waterlevel	Telemetry	5 Min	
HFE	66609	Ferniehurst St Bridge, Heathcote River	Waterlevel, Flow	Telemetry	5 Min	
ALA	66611	PS 205, New Brighton Rd	Waterlevel	Telemetry	5 Min	

Code	Site no.	Location	Parameter	Method	Read int	Comments
HBX	66612	Buxton Tce, Heathcote River	Waterlevel, Flow	Telemetry	5 Min	ECan site
	66621	Riccarton Drain at Deans Ave	Waterlevel, Flow	Telemetry	5 Min	
	1066625	Heathcote at Lincoln Rd	Waterlevel	Telemetry	5 Min	
AEB	66634	Bridge St, Avon River	Waterlevel	Telemetry	5 Min	
ALB	66635	Horseshoe Lake, New Brighton Rd	Waterlevel	Telemetry	5 Min	
HOP	66638	Opawa Bridge, Heathcote River	Waterlevel	Telemetry	5 Min	
HSI	66639	Bowenvale Flume, Bowenvale Valley	Waterlevel, Flow	Telemetry	5 Min	
HHA	66641	Halswell Retention Basin Hals. Jctn.Rd	Waterlevel	Telemetry	5 Min	
HWE	66642	Wigram Retention Pond, Wigram	Waterlevel	Telemetry	5 Min	
	66695	Heathcote River, Bells Pumpstation	Waterlevel	Telemetry	5 min	
KNI	67806	Knights Stream, Sabys Rd	Waterlevel	Telemetry	5 Min	
CDR	66651	Croziers Drain, Philpotts Rd	Waterlevel	Telemetry	5 Min	
	66654	Wairarapa Stream, Rossall St	Waterlevel	Telemetry	5 Min	
	66670	Avon River, Fitzgerald Ave	Waterlevel	Telemetry	5 Min	
	66682	Cashmere Stream, Worsleys Reserve	Waterlevel, Flow	Telemetry	5 Min	
	66692	Hoonhay Valley drain, Cashmere Rd	Waterlevel	Telemetry	5 Min	
FOR	67603	Lake Forsyth	Waterlevel	Telemetry	5 Min	ECan site
AAY	3245014	Roydvale Ave near Wairakei, Bryndwr	Groundwater	Manual	Fortnightly	
SFB	3245015	Fairford St, opp Oldwood, Bishopdale	Groundwater	Manual	Fortnightly	
SBE	3246004	PS62, Tyrone St, Belfast	Groundwater	Manual	Fortnightly	
SDA	3246005	Dartford St, Brooklands	Groundwater	Telemetry	5 min	
SF1	3246006	Lower Styx Rd, Brooklands	Groundwater	Manual	Fortnightly	
BIN	3247004	No 134 Inwoods Rd, Parklands	Groundwater	Manual	Fortnightly	
ARC	3255007	Kirkwood Int. School, Riccarton Rd	Groundwater	Manual	Fortnightly	
ARI	3255008	College of Education, Upper Riccarton	Groundwater	Manual	Fortnightly	
HHA	3255009	PS 67, Halswell Jctn Rd	Groundwater	Telemetry	5 Min	
HSX	3255010	Sparks Rd, Spreydon	Groundwater	Manual	Fortnightly	
HFI	3256014	Fisher Ave/Norwood St, St Martins	Groundwater	Manual	Fortnightly	
HGO	3256016	Gould Crs, Woolston	Groundwater	Manual	Fortnightly	
HHN	3256017	PS 42, Sparks Rd, Spreydon	Groundwater	Manual	Fortnightly	

Code	Site no.	Location	Parameter	Method	Read int	Comments
HLR	3256018	PS 20, Locarno St, St Martins	Groundwater	Manual	Fortnightly	
AWO	3256034	PS 1, Woodham Rd, Aranui	Groundwater	Manual	Fortnightly	
XRU	3257024	Ruru Rd, Bexley	Groundwater	Manual	Fortnightly	
	3257031	Sumner groundwater bore	Groundwater	Telemetry	5 min	
ABO	325626	Botanic Gardens, Hagley Park	Temperature	Earth Science NZ	Hourly	Data transfer only
AKA	328905	Akaroa EWS rain, Stanley Reserve	Rainfall	Earth Sciences NZ	10 Min	Data transfer only
XSL	66699	Sumner Head, Sumner	Sea Level	Earth Sciences NZ	5 Min	Data transfer only
	67499	Akaroa Harbour sea level at yacht club	Sea Level	Telemetry	1 Min	
AP2	3246016	Marshland Domain	Groundwater	Manual	Weekly	
AQO	3240618	QEll Drive away from #2 Drain	Groundwater	Manual	Weekly	
HCX	3255011	Cashmere/Kennedys Rd	Groundwater	Manual	Weekly	
HCY	3255012	Cashmere Rd	Groundwater	Manual	Weekly	
HHL	3255013	Halswell Rd PS	Groundwater	Manual	Weekly	
HHM	3255014	Haytons Rd	Groundwater	Manual	Fortnightly	
HHX	3255015	Hendersons Rd	Groundwater	Manual	Weekly	
HSH	3255016	Milns/Sparks Rd	Groundwater	Manual	Weekly	
NDW	3255017	Whincops Rd	Groundwater	Manual	Fortnightly	
NHG	3255018	Hodgens Rd	Groundwater	Manual	Fortnightly	
NK2	3255019	Quarry carpark No 2	Groundwater	Manual	Fortnightly	
XKA	323605	Kaiapoi - 42A Peraki St	Rainfall	Data handling	5 Min	Data transfer only
HAI	325512	Aidenfield, Dunbars Reservoir	Rainfall	Telemetry	5 Min	
4960	327804	4960 CHCH-Akaroa Hwy	Rainfall	Telemetry	5 Min	
	327504	Duvauchelle CWS	Rainfall, temp	Telemetry	10 Min	
HDR	66471	Horners Drain	Waterlevel, Flow	Datalogger	5 Min	
DUD	66639	Dudley Creek, Aylesford St	Waterlevel, Flow	Telemetry	5 Min	
CAP	66694	Cashmere Valley Drain, Christchurch Adventure Park	Waterlevel, Flow	Telemetry	5 Min	
	1066632	Cashmere Stream at Eastman Wetland	Waterlevel	Telemetry	5 Min	
	67002	Opara Stream at Okains Bay	Rainfall	Telemetry	5 Min	

Appendix C CCC alarm list

Table C-1: CCC site alarm list.

CCC Automated Site Alarms As at April 2026

NOTE: All telemetered CCC hydrometric sites have operational alarms (Data late, Low volts)

Water level alarms

Site Name	Site Number	Alarm Generation	Alarm type	trigger	reset	message	email recipients	SMS Recipients Mobile Phone Numbers
Dudley Creek at Aylesford Street - Water level	66636	NEON	Instantaneous High	12.500	12.450	Dudley Creek at Aylesford St warning level (>12.500m)	iris.brookland@ccc.govt.nz;fieldteam-christchurch@niwa.co.nz;mark.mullen@ccc.govt.nz	+64274362666;+64272093560;+64272941992
			Instantaneous High	12.700	12.500	Dudley Creek at Aylesford St high stage alarm (>12.700m)		
Heathcote River at Opawa Road - Water level	66638	NEON	Instantaneous High	10.600	10.400	Heathcote River at Opawa Road >RL 10.60m Possible Aynsley Tce flooding	fieldteam-christchurch@niwa.co.nz;mark.pinner@ccc.govt.nz;Chris.Keith-Gillon@tfc.govt.nz;incident@tfc.govt.nz;iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz	+64272160925;+64272093560;+640274362666;+64272941992
			Instantaneous High	10.750	10.600	Heathcote River at Opawa Road >RL 10.75m Flooding on Aynsley Tce !		
Croziers Drain at Philpots Road, PS219	66651	NEON	Instantaneous High	13.700	13.500	High Stage. Croziers drain >13.700m	graham.harrington@ccc.govt.nz; iris.brookland@ccc.govt.nz	+64272093560;+64274362666
Avon River at Fitzgerald Ave - Water level	66670	NEON	Instantaneous High	10.840	10.740	WARNING. Avon River level within 200mm of Fitzgerald Ave	fieldteam-christchurch@niwa.co.nz;mark.pinner@ccc.govt.nz;Chris.Keith-Gillon@tfc.govt.nz;incident@tfc.govt.nz;iris.brookland@ccc.govt.nz;graham.harrington@ccc.govt.nz	+64273416112;+64274362666;+64272160925;+64272093560;+64272941992
			Instantaneous High	11.040	10.940	ALERT: Avon River at or above Fitzgerald Ave. Lane closures may be necessary		
Van Asch Rain - 4hr period	325711	NEON	Incremental High	8	5	Rainfall in Sumner > 8 mm, possible flooding in Marriner Street if outfall has not been cleared in previous low tide	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560;+64272941992
Firestone FactoryRain - 24h period	324610	NEON	Incremental High	35	15	Rainfall in Flockton basin > 35mm, may need to deploy pump in Warrington Street	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560;+64272941992
Heathcote at Ferrymead bridge - water level	66605	NEON	Instaneous High	10.700	10.400	Water level at Ferrymead Bridge > 10.7m. Possible road flooding in McCormacks Bay Road	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560;+64272941992
Le Bons Bay - Huges Culvert Rising level alarm	67101	NEON	Instaneous High	11.000	10.900	WARNING: Le Bons Bay Hughes culvert - water level rising.	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272093560;+64272730482
Le Bons Bay - Huges Culvert High level alarm	67101	NEON	Instaneous High	11.200	10.900	Le Bons Bay Hughes culvert high water level - may require clearance or maintenance.	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272093560;+64272730482
Ruru Rd groundwater High	3257024	AQUARIUS multi-parameter alert	High	Rain >20mm (4hr) and Groundwater >13.400m		Rainfall in Maces Road > 20mm, may need pump in Maces Road	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560
Ruru Rd groundwater High (2)	3257024	AQUARIUS multi-parameter alert	High	Rain >30mm (24hr) and Groundwater >13.200m		Rainfall in Ebbtide Street > 30mm, may need to deploy pump in Ebbtide Street	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560

Table C-2: CCC site alarm list (cont.).

12 hour period rain alarms								
Botanic Gardens - High Rain 12hr period	325616	NEON	Incremental	25	15	Botanic Gardens >25mm in 12hrs	iris.brookland@ccc.govt.nz;glis.hovens@ccc.govt.nz;ian.baker@ccc.govt.nz	+64274362666;+64272093560;+64272013186;+64272083236
Upper Cashmere at Worsley Rd - High Rain 12hr period	326617	NEON	Incremental High	10	5	Upper Cashmere @ Worsley Rd Rain >10mm	t.hill@niwa.co.nz;duncan.harvest@ecan.govt.nz;nick.moody@ecan.govt.nz	
Akaroa EWS - High Rain 12hr period	328905	NEON	Incremental High	50	30	Akaroa Rainfall >50mm in 12hrs	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz	+64274362666;+64272730482;+64272093560
Akaroa CHCH Highway (Wairewa) - High Rain 12hr period	327804	NEON	Incremental High	50	30	Wairewa Rainfall >50mm in 12hrs	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz	+64274362666;+64272730482;+64272093560
PS62 Tyrone St, Belfast - High Rain 12hr period	324608	NEON	Incremental High	10	5	Tyrone St Rain >10mm	brad.paterson@ecan.govt.nz	
24 hour period rain alarms								
PS42 Sparks Rd - High Rain 24hr period	325618	NEON	Incremental High	10	6	Sparks Rd Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Sparks Rd Rain >20mm	SlopeSafety@engeo.co.nz	
Bowenvale flume - High Rain 24hr period	325621	NEON	Incremental High	10	6	Bowenvale Flume Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Bowenvale Flume Rain >20mm	SlopeSafety@engeo.co.nz	
Upper Bowenvale - High Rain 24hr period	326616	NEON	Incremental High	10	6	Upper Bowenvale Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Upper Bowenvale Rain >20mm	SlopeSafety@engeo.co.nz	
Kyle Street - High Rain 24hr period	325615	NEON	Incremental High	10	6	Kyle St Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Kyle St Rain >20mm	SlopeSafety@engeo.co.nz	
Sumner High Tide Forecast	966699	EcoConnect	High	10.6			Paul.dickson@ccc.govt.nz	+64274959528
CCC Sumner sealevel forecast - Tide Alert		Webportal Tide forecast	High	10.6			Peter.Christensen@ccc.govt.nz	+64223422164
							Incident@tfc.govt.nz	
							Mark.pinner@ccc.govt.nz	
							Chris.Keith-Gillon@tfc.govt.nz	
							Tom.Parsons@ccc.govt.nz	+64274777828
							Iris.brookland@ccc.govt.nz	+64274362666;+64272093560
							Mark.Mullen@ccc.govt.nz	
							Tom.SimonsSmith@ccc.govt.nz	
CCC Park Ranger - Tide Alert		Webportal Tide forecast	High	10.6		CCC Park Rangers - Beacon Street Alert	Graham.harrington@ccc.govt.nz	+273416442
							kate.dawkins@ccc.govt.nz	
							Robbie.hewson@ccc.govt.nz	+274592891
							Steve.leiataua@ccc.govt.nz	+64272267450

Table C-3: CCC site alarm list (cont.).

Water Supply Contamination Risk Management Alerts								
Akaroa EWS - High Rain 12hr period	328905	NEON	Incremental High	25	15	Akaroa EWS Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Akaroa CHCH Highway (Wairewa) - High Rain 12hr period	327804	NEON	Incremental High	25	15	Wairewa Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Duvauchelles CWS - High Rain 12hr period	327902	NEON	Incremental High	25	15	Duvauchelles CWS Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Okains Bay at Opara Stream - High Rain 12hr period	67002	NEON	Incremental High	25	15	Okains Bay Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Botanic Gardens - High Rain 12hr period	325616	NEON	Incremental High	25	15	Botanic Gardens >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Akaroa EWS - High Rain 24hr period	328905	NEON	Incremental High	50	30	Akaroa EWS Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Akaroa CHCH Highway (Wairewa) - High Rain 24hr period	327804	NEON	Incremental High	50	30	Wairewa Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Duvauchelles CWS - High Rain 24hr period	327902	NEON	Incremental High	50	30	Duvauchelles CWS Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Okains Bay at Opara Stream - High Rain 24hr period	67002	NEON	Incremental High	50	30	Okains Bay Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Botanic Gardens - High Rain 24hr period	325616	NEON	Incremental High	50	30	Botanic Gardens >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz; Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
CCC Facilities Team								
Avon at Gloucester Street High Level Alert	966602	Webportal	Instaneous High	12.9		Water levels in Avon River at Gloucester Street have reached 12.9 mRL. Prepare to deploy flood barriers to protect Civic Building at Hereford Street	webportal - CCC Facilities team distribution group	
Upper Heathcote Stormwater Operations								
Heathcote at Lincoln Rd	1066625	NEON	Instaneous High	23.0m	22.5m	Stage exceeded acceptable limit. Check data - CCC Lincoln Rd site	Fieldteam-Christchurch@niwa.co.nz	
			Instaneous Low	20.0m	20.5m	Stage exceeded acceptable limit. Check data - CCC Lincoln Rd site	Fieldteam-Christchurch@niwa.co.nz	
Heathcote at Ferniehurst St	66609	NEON	Instaneous High	18000mm	17500mm	Stage exceeded acceptable limit. Check data - CCC Ferniehurst site	Fieldteam-Christchurch@niwa.co.nz	
			Instaneous Low	15000mm	15500mm	Stage exceeded acceptable limit. Check data - CCC Ferniehurst site	Fieldteam-Christchurch@niwa.co.nz	
Wigram Retention basin at Overflow (Pond 1)	66642	NEON	Instaneous High	25.5	25.0	Stage exceeded acceptable limit. Check data - CCC Wigram Overflow Pond1 site	Fieldteam-Christchurch@niwa.co.nz	
			Instaneous Low	23.2m	23.5	Stage exceeded acceptable limit. Check data - CCC Wigram Overflow Pond1 site	Fieldteam-Christchurch@niwa.co.nz	
Wigram Retention bason at Outflow (Pond 2)	66625	NEON LoRa	Instaneous High	25.5	25.0	Stage exceeded acceptable limit. Check data - CCC Wigram Outfall Pond2 site	Fieldteam-Christchurch@niwa.co.nz	
			Instaneous Low	23.3	23.5	Stage exceeded acceptable limit. Check data - CCC Wigram Outfall Pond2 site	Fieldteam-Christchurch@niwa.co.nz	
ENGEO								
Bridle Path - Rainfall alerts (WEBPORTAL)		Webportal				Alert levels based on cumulative duration-periods rainfall at Upper Bowenvale Valley (326616) and Clifton Tce Reservior (325712) Rain data (precip.master)	Refer to AQ webportal alert settings for list of ENGEO recipients	

Christchurch City Council hydrometric network annual report: 1 January to 31 December 2024

Prepared for Christchurch City Council

May 2025

Prepared by:
Patrick Butler, Kathy Walter, Gregor Macara,

For any information regarding this report please contact:

Patrick Butler
Environmental Monitoring Technician
Environmental Information Operations
+64 3 343 7809
patrick.butler@niwa.co.nz

National Institute of Water & Atmospheric Research Ltd
PO Box 8602
Riccarton
Christchurch 8440

Phone +64 3 348 8987

NIWA CLIENT REPORT No: 2025117IE
Report date: May 2025
NIWA Project: NET25900

Revision	Description	Date
Version 1.0	Final version sent to client	19 May 2025

Quality Assurance Statement		
	Reviewed by:	Marty Flanagan
	Formatting checked by:	Rachel Wright
	Approved for release by:	Charles Pearson

© All rights reserved. This publication may not be reproduced or copied in any form without the permission of the copyright owner(s). Such permission is only to be given in accordance with the terms of the client's contract with NIWA. This copyright extends to all forms of copying and any storage of material in any kind of information retrieval system.

Whilst NIWA has used all reasonable endeavours to ensure that the information contained in this document is accurate, NIWA does not give any express or implied warranty as to the completeness of the information contained herein, or that it will be suitable for any purpose(s) other than those specifically contemplated during the project or agreed by NIWA and the client.

Contents

Executive summary **8**

1 Introduction **9**

1.1 Health and safety reporting 12

1.2 Routine site checks 12

1.3 Missing data record 12

2 Rainfall **17**

3 Water level and flow **33**

4 Groundwater **62**

5 Sea-level monitoring **76**

6 Miscellaneous data **80**

6.1 Soil moisture monitoring 81

6.2 Climate monitoring 84

6.3 St Albans Creek monitoring 92

6.4 Port Levy monitoring 94

7 Additional work activities in 2024 ..... **99**

8 Anticipated work activities in 2025 ..... **100**

8.1 Scheduled work 100

8.2 Hardware/Equipment upgrade – 2G/3G modem site upgrades 100

Appendix A Field activities 1 January 2024 – 31 December 2024 ..... **101**

Appendix B CCC site logging frequency as at 31 December 2024 ..... **248**

Appendix C CCC hydrometric network asset list field structures and equipment **252**

Appendix D CCC alarm list **256**

Tables

Table 1-1: Monthly climate summary for Christchurch in 2024. 10

Table 1-2: Seasonal climate summary for Christchurch in 2024. 11

Table 1-3: Annual climate summary for Christchurch in 2024. 11

Table 1-4: CCC hydrometric network missing record summary for 1 January to 31 December 2024. 13

Table 1-5: Summary of missing record for telemetered water level sites for 2024. 15

Table 1-6: Summary of missing record for telemetered rainfall sites for 2024. 16
Table 1-7: Summary of missing record for telemetered groundwater sites for 2024. 16
Table 2-1: Rainfall site statistics summary: 2024 comparison with full record. 21
Table 2-2: Summary of rainfall sites as of 31 December 2024. 22
Table 3-1: Water level site statistics summary: 2024 comparison with full record. 38
Table 3-2: Flow sites statistics summary: 2024 comparison with full record. 40
Table 3-3: Summary of water level/flow sites, December 2024. 41
Table 4-1: Groundwater site statistics summary: 2024 comparison with full record. 66
Table 6-1: St Albans Creek water level statistics summary: 2024 comparison with full record. 92
Table 6-2: St Albans Creek flow statistics summary: 2024 comparison with full record. 92
Table 6-3: Port Levy water level statistics summary: 2024 comparison with full record. 95
Table 6-4: Port Levy flow statistics summary: 2024 comparison with full record. 95

Table B-1: Site logging frequency as at 31 December 2024. 248
Table C-1: CCC hydrometric network asset list by site. 252
Table C-2: CCC hydrometric network asset list by site (cont.). 252
Table C-3: CCC hydrometric network asset list by site (cont.). 254
Table C-4: CCC hydrometric network asset list by site (cont.). 255
Table D-1: CCC site alarm list. 256
Table D-2: CCC site alarm list (cont.). 257
Table D-3: CCC site alarm list (cont.). 258

Figures

Figure 1-1: Total number of gaps in the CCC hydrometric network. 14
Figure 1-2: Percentage of missing record relative to total recordable hours in the CCC hydrometric network. 14
Figure 2-1: Location of CCC rainfall sites for 2024. 18
Figure 2-2: Rainfall network continuity scan 1 January to 31 December 2024. 19
Figure 2-3: Rainfall network continuity scan: 1 January to 31 December 2024 (cont.). 20
Figure 2-4: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024. 23
Figure 2-5: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 24
Figure 2-6: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 25
Figure 2-7: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 26
Figure 2-8: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 27
Figure 2-9: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 28
Figure 2-10: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 29

Figure 2-11: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 30
Figure 2-12: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 31
Figure 2-13: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.). 32
Figure 3-1: Location of CCC water level sites during 2024. 34
Figure 3-2: Expanded view of CCC water level site locations in Christchurch during 2024. 35
Figure 3-3: Water level continuity plot for 2024. 36
Figure 3-4: Water level continuity plot for 2024 (cont.). 37
Figure 3-5: CCC hydrometric network water-level plots: 1 January to 31 December 2024. 44
Figure 3-6: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 45
Figure 3-7: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 46
Figure 3-8: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 47
Figure 3-9: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 48
Figure 3-10: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 49
Figure 3-11: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 50
Figure 3-12: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 51
Figure 3-13: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 52
Figure 3-14: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 53
Figure 3-15: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 54
Figure 3-16: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.). 55
Figure 3-17: CCC hydrometric network flow plots: 1 January to 31 December 2024. 57
Figure 3-18: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.). 58
Figure 3-19: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.). 59
Figure 3-20: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.). 60
Figure 3-21: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.). 61
Figure 4-1: Location of CCC groundwater level sites during 2024. 63
Figure 4-2: Groundwater continuity plot for 2024. 64
Figure 4-3: Groundwater continuity plot for 2024 (cont.). 65
Figure 4-4: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024. 67

Figure 4-5: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 68
Figure 4-6: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 69
Figure 4-7: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 70
Figure 4-8: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 71
Figure 4-9: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 72
Figure 4-10: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 73
Figure 4-11: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 74
Figure 4-12: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.). 75
Figure 5-1: Location of sea-level monitoring sites during 2024. 77
Figure 5-2: Sea-level and barometric pressure continuity plot for 2024. 77
Figure 5-3: Sumner Head sea-level plotted with barometric pressure for the 2024 period. 78
Figure 5-4: Sumner Head sea-level plotted with forecast level and alert threshold for the 2024 period. 78
Figure 5-5: Sumner Head sea-level plots: Recorded barometric pressure for the 2024 period. 78
Figure 5-6: Akaroa Harbour sea-level plot for the 2024 period. 79
Figure 6-1: Location of CCC miscellaneous sites during 2024. 80
Figure 6-2: Soil moisture continuity plot for 2024. 81
Figure 6-3: CCC hydrometric network soil moisture plots: 1 January to 31 December 2024. 82
Figure 6-4: CCC hydrometric network soil moisture plots: 1 January to 31 December 2024 (cont.). 83
Figure 6-5: Climate station air temperature data continuity scan: 1 January to 31 December 2024. 84
Figure 6-6: Climate station air temperature plots: 1 January to 31 December 2024. 85
Figure 6-7: Climate station air temperature plots: 1 January to 31 December 2024 (cont.). 86
Figure 6-8: Climate station barometric pressure plots: 1 January to 31 December 2024. 87
Figure 6-9: Climate station barometric pressure plots: 1 January to 31 December 2024 (cont.). 88
Figure 6-10: Climate station wind speed plots: 1 January to 31 December 2024. 89
Figure 6-11: Climate station wind speed plots: 1 January to 31 December 2024 (cont.). 90
Figure 6-12: Climate station wind speed plots: 1 January to 31 December 2024 (cont). 90
Figure 6-13: Climate station solar radiation plots: 1 January to 31 December 2024. 91
Figure 6-14: Climate station solar radiation plots: 1 January to 31 December 2024 (cont.). 91
Figure 6-15: St Albans Creek data continuity scan: 1 January to 31 December 2024. 92
Figure 6-16: St Albans Creek water level: 1 January to 31 December 2024. 93

Figure 6-17: St Albans Creek flow: 1 January to 31 December 2024. 93
Figure 6-18: Port Levy water level data continuity scan: 1 January to 31 December 2024. 94
Figure 6-19: Owhetoro Stream at Port Levy rainfall plot: 1 January to 31 December 2024. 95
Figure 6-20: Port Levy water level plots: 1 January to 31 December 2024. 96
Figure 6-21: Port Levy flow plots: 1 January to 31 December 2024. 97
Figure 6-22: Port Levy water turbidity plots: 1 January to 31 December 2024. 98

No table of figures entries found.

Executive summary

This annual report summarises the operational performance and data integrity from the stations of Christchurch City Council's (CCC) hydrometric network, as managed by the National Institute of Water & Atmospheric Research Ltd. (NIWA) for 2024. It is provided in addition to the quarterly summary reports produced through the calendar year.

As at the end of 2024, the CCC network comprised 97 data recording sites in the Christchurch area, 28 rainfall, 37 water-level, 27 groundwater and 5 miscellaneous sites.

These sites are either permanent or project (temporary), and most are telemetered via cellular modem or satellite link. The remainder of un-telemetered sites are measured on a routine manual data collection basis (groundwater sites). Some sites are Environment Canterbury (ECan)/CCC 'data shared' sites or treated as additional datasets from NIWA-specific sites, transferred from the NIWA climate database.

Monitoring sites are typically categorised as either water level, rainfall or groundwater sites. Two sea level sites exist in the network, as well various miscellaneous sites and projects which are generally short-term monitoring sites requested by CCC for specific investigations.

For the 2024 period, data integrity was maintained at a high level across the sites. Total missing record was low at 0.3% of the total hours recorded for all datalogger sites.

The specific causes of missing record have been described in each quarterly report when they occurred. To summarise the main reasons, missing record in 2024 primarily occurred at the Wigram Basin Outflow (66625) and Overflow (66642) sites. The basin was dewatered for a significant period in 2024 to clean out the sediment, and the water level dropped below the detection level of the sensors. Additional periods of missing data are noted for Riccarton Drain at Deans Ave (66621) and Lake Forsyth at SH75 (67603).

Additional work outside the Hydrometric Network Agreement is reported, detailing various projects and additional tasks that NIWA assisted CCC to complete during the year. These have ranged from additional labour (flow gauging, new site installations) to sharing of expertise and advice (liaising, data transfer and archiving, software support, hydrological site design). A significant additional project was started in late 2024 with the planned upgrade of 2/3G cellular logger site equipment being replaced with 4G capability. This project was 40% complete at end of 2024, with full completion expected (31 sites upgraded) by 30 June 2025.

The Hydrometric Service Agreement 4600001152 (02/03-199) between CCC and NIWA as signed in 2013 for a 10-year renewal period, expired on 30 June 2023. An extension agreement was put in place for a further 2-year period of hydrometric services, until 30 July 2025.

In terms of Health and Safety reporting, no incidents were reported in association with NIWA's operation of CCC's hydrometric network during 2024

1 Introduction

The National Institute of Water and Atmospheric Research (NIWA) is contracted to manage and operate the Christchurch City Council's (CCC) hydrometric network. This annual report summarises data collected, and activities associated with the operation of the CCC hydrometric network from 1 January to 31 December 2024.

Annual reports provide a summary of all activities over each calendar year.

Quarterly reports are produced every 3 months to complement audited data updates for the quarter periods ending 31 March, 30 June, 30 September and 31 December. Quarterly reports summarise site maintenance and operation, periods of missing data, and updates of progress with any planned site improvements.

The following quarterly reports were produced for 2024:

1. NIWA Client Report No. 2024134EI (quarter ending 31 March 2024)
2. NIWA Client Report No. 2024258EI (quarter ending 30 June 2024)
3. NIWA Client Report No. 2024372EI (quarter ending 30 September 2024)
4. NIWA Client Report No. 2025037EI (quarter ending 31 December 2024)

Section 1.1 of this report provides an overview of Christchurch City climate during 2024. Section 1.2 reports on Health and Safety for the project in 2024.

Section 1.3 outlines the quality assurance checks undertaken on the data and provides statistics on project data capture performance.

Activities associated with the operation of rainfall, water-level/flow, groundwater and sea-level monitoring sites are described in Sections 2, 3, 4 and 5 respectively.

Activities associated with miscellaneous sites and monitoring projects are described in Section 6.

Some additional works are often carried out by NIWA on request from CCC during the year, often to do with short-term water sampling projects or similar. A summary of these works is presented in Section 7.

Proposed work activities that are anticipated by NIWA to be completed in 2024 are described in Section 8.

A summary of field activities during the year is provided in Appendix A. Appendix B provides the logging frequencies for CCC sites. An updated asset list defining the structures, instrumentation and other equipment at each site is provided in Appendix C.

The telemetry operations of the CCC hydrometric network are closely monitored for any communication failures at telemetered sites through a process in which NIWA staff are alerted when no data are received from a site for more than a definable period, generally two polling intervals (2 hours). Should this occur, messages are automatically sent to the cell phones and email addresses of the various NIWA operational staff. This ensures any data outages are quickly noted and addressed, within the service level agreement timeframes expressed in the hydrometric contract. Additionally, specific Site Threshold Alerts are configured for certain storm events to notify CCC and NIWA operational staff of potential issues when thresholds are exceeded, such as High Rain, High Water

level, High tidal forecast. An updated list of these Alarm configurations, actions and their CCC recipients is provided in Appendix D. Christchurch climate summary during 2024

1.1 Christchurch City climate summary 2024

The mean temperature in Christchurch was 11.9°C, 0.3°C above the long-term average. Rainfall (553 mm; 90% of the annual normal) was near the long term normal. The city received 2403 total sunshine hours, which is 112% of normal (above normal sunshine hours).

March and May were the only months with lower than the average temperatures in Christchurch. The mean temperature in May was 2.4°C below average, making it Christchurch's 4th-coldest May since records began in 1863. The December temperature was 1.4°C higher than average for the time of year, making it the city's warmest month (relative to the time of year). The absolute warmest month was January, with a mean temperature of 18.4°C. The absolute coldest month was July, with a mean temperature of 6.6°C.

Near normal rainfall was recorded in Christchurch for the year overall. March was the driest month, with just 19 mm recorded (41% of the March normal). December was a particularly wet month, with 105 mm (219% of the December normal).

Christchurch received above or well above normal sunshine hours for eight of the 12 months of 2024. September was a particularly sunny month, with the city recording 225 hours of sunshine (133% of normal). The least sunny month was June, with 123 hours (107% of June normal sunshine hours).

A summary of climate data from Christchurch Airport is shown in Tables 2-1, 2-2 and 2-3.

Table 1-1: Monthly climate summary for Christchurch in 2024.

Month	Mean temp. (°C)	Departure from normal (°C)	Rainfall (mm)	% of normal	Sunshine (hours)	% of normal
January	18.4	+1.3	31	73%	297	130%
February	16.9	0.0	32	80%	216	111%
March	13.7	-1.2	19	41%	213	112%
April	12.1	+0.2	26	46	182	115%
May	6.9	-2.4	40	68%	164	116%
June	7.2	+0.8	75	110%	123	107%
July	6.6	+0.6	29	45%	126	99%
August	7.8	+0.5	59	102%	178	114%
September	9.9	+0.6	41	98%	225	133%
October	12.1	+0.8	76	154%	227	111%
November	14.2	+1.0	21	47%	234	103%
December	17.1	+1.4	105	219%	220[1]	102%

[1] *Missing one day of data.*

Table 1-2: Seasonal climate summary for Christchurch in 2024.

Season	Mean temp. (°C)	Departure from normal (°C)	Rainfall (mm)	% of normal	Sunshine (hours)	% of normal
Summer 2023-2024	17.3	+0.8	97	74%	701	110%
Autumn 2024	10.9	-1.2	85	53%	559	114%
Winter 2024	7.2	+0.6	163	86%	427	107%
Spring 2024	12.1	+0.8	138	101%	685	114%

Table 1-3: Annual climate summary for Christchurch in 2024.

	2024 Mean temp. (°C)	Departure from normal (°C)	2024 Rainfall (mm)	% of normal	2024 Sunshine (hours)	% of normal
Christchurch	11.9	+0.3	553	90%	2403[2]	112%

1.1.1 Extreme events for Christchurch in 2024

On 5-6 February, a very hot Australian-sourced air mass lay over New Zealand. The presence of a strong high-pressure system over the North Island caused a northwest wind to blow across the South Island, producing the hottest temperatures of the summer season.

On the afternoon of 14 February, a wildfire ignited in the Worsley area in the Port Hills near Christchurch. The fire initially required 130 firefighters on the ground and 11 helicopters, and saw a State of Local Emergency declared for Christchurch City and the Selwyn District. Around 30 properties were evacuated. The fire was initially fanned by hot, dry, north-westerly winds before a southerly change on 15 February made smoke more noticeable around Christchurch City.

From 20-21 May, heavy rainfall occurred over northern and eastern parts of New Zealand. Surface flooding was reported in parts of Christchurch, including Marine Parade in New Brighton.

On 1 June, strong north-westerly winds fanned approximately twelve vegetation fires across Canterbury. According to NIWA's New Zealand Drought Index, much of eastern Canterbury was classified as dry or very dry in early June.

From 3-4 August, clear skies following a cool southerly airflow resulted in heavy frosts for many parts of the country. Christchurch Airport registered a minimum temperature of -6.1°C. This was the city's second-lowest August minimum temperature since its records began in 1863.

From 18-19 August, a cold southerly outbreak delivered snowfall to low elevations across the South Island. On 18 August, the more notable snowfalls occurred in Canterbury, where the southerly airflow undercut a relatively warm and moist airmass that had arrived from the north. Snow fell to approximately 200 m above sea level in parts of Canterbury, with sea level snowfall reported at Woodend Beach. Snow also settled in Rangiora, Springfield, and Hanmer Springs. From 26-29 November, a northerly airflow prevailed over New Zealand, delivering high temperatures to many eastern and northern areas. Temperatures were especially high on 28 November, when Bromley

[2] Missing one day of data.

(eastern Christchurch) reached 32.1°C, the highest November temperature for that location since records began in 1962.

1.2 Health and safety reporting

Health and Safety is an important consideration for any fieldwork completed by NIWA staff. No incidents were reported in association with NIWA's operation of CCC's hydrometric network during 2024.

NIWA's safety and health management system was audited as part of its membership of the ACC Partnership Programme, and accreditation to this was maintained at the Tertiary (highest) level.

1.3 Quality assurance checks

1.3.1 Routine site checks

All water-level sites are visited at least once per quarter for routine maintenance inspections in accordance with the requirements prescribed in the Site Schedules. Manual water-level readings from the reference staff gauge are also made during these visits and are used to make any necessary calibration corrections to the raw data, and consequential adjustments of the archived data. Unless otherwise stated, all water level sites are maintained to record within +/- 10mm from the reference staff gauge. Sites with known instability or prone to more sensor fouling (e.g., Water Quality sites) are visited more frequently to implement cleaning or sensor corrections.

All rain gauges in the network are verified once a year in the field. Any gauges that fall outside the verification specifications are replaced.

Groundwater manual measurements are made on a weekly and fortnightly basis along with any maintenance of site infrastructure or identifications. Telemetered groundwater sites are visited at least once per quarter for routine maintenance inspections.

1.3.2 Missing data record

Figure 1-1 shows the trend in the total number of gaps for all the water-level, rainfall, and telemetered groundwater data since 2005. Figure 1-2 shows the percentage of missing record for the year by site. Manual groundwater sites are not included in these statistics due to the data frequency of weekly/fortnightly manual readings.

Gaps or missing record of hydrological sites (refer to Table 1-5, Table 1-6 and Table 1-7) have occurred in the past for several reasons. The primary factors being equipment failure generally resulting from various causes including water-level instrument faults, rain gauge blockages, power supply failure, and vandalism. When such incidents occur, every endeavour is made to restore services as quickly as possible to minimise data loss and maintain continuous data records. Consequently, the total amount of missing record is kept to a minimum by responding quickly when faults occur, thus ensuring that the average time of missing data is kept to a minimum and represents a very small percentage of the total year's record.

The total number of gaps for telemetered water-level sites for 2024 is higher compared with 2023, however the gaps were on average much smaller as the total hours of missing record decreased from 5060 hours in 2023 to 869 hours for 2024.

This missing record recorded for 2024 is attributed largely to the two Wigram Retention Basin monitoring sites (Outflow and Overflow) where water levels were lowered to below-sensor levels whilst works were carried out in the ponds, as opposed to any specific instrument fault. This occurred in July (upper pond) and in December (lower pond).

Additional notable gaps occurred at Riccarton Drain at Deans Ave and Horseshoe Lake at PS205. These were due to unrelated sensor faults which were resolved in a timely manner.

The total number of gap hours for telemetered rainfall sites was well down in 2024 to 14 hours compared to 473 missing hours recorded in 2023.

The telemetered groundwater sites recorded no gaps for the year, down from 55 hours in 2023.

Overall, the number of gaps and missing record for 2024 is considered low by comparison with similar data networks with the total missing record equivalent to 0.15 % of total recordable hours of all sites for the 2024 period.

For more detail of specific faults or data gaps and causes and remedies please refer to the respective quarterly reports in which the gap occurs.

Table 1-4 Provides a summary of the missing record for 2024, broken down into the three site categories of water level, rainfall and telemetered groundwater. Table 1-5, Table 1-6 and Table 1-7 provide a breakdown by site for each site category respectively.

Figure 1-1and Figure 1-2 show the number of gaps and the percentage of missing record respectively for the last 20 years for each site category.

Table 1-4: CCC hydrometric network missing record summary for 1 January to 31 December 2024.

	Number of Gaps	Gap hours	Percentage Missing Record, %
Water level sites	26	868.8	0.262
Rainfall sites	6	14	0.006
Groundwater sites (telemetered)	0	0	0
Combined	32	882.8	0.146

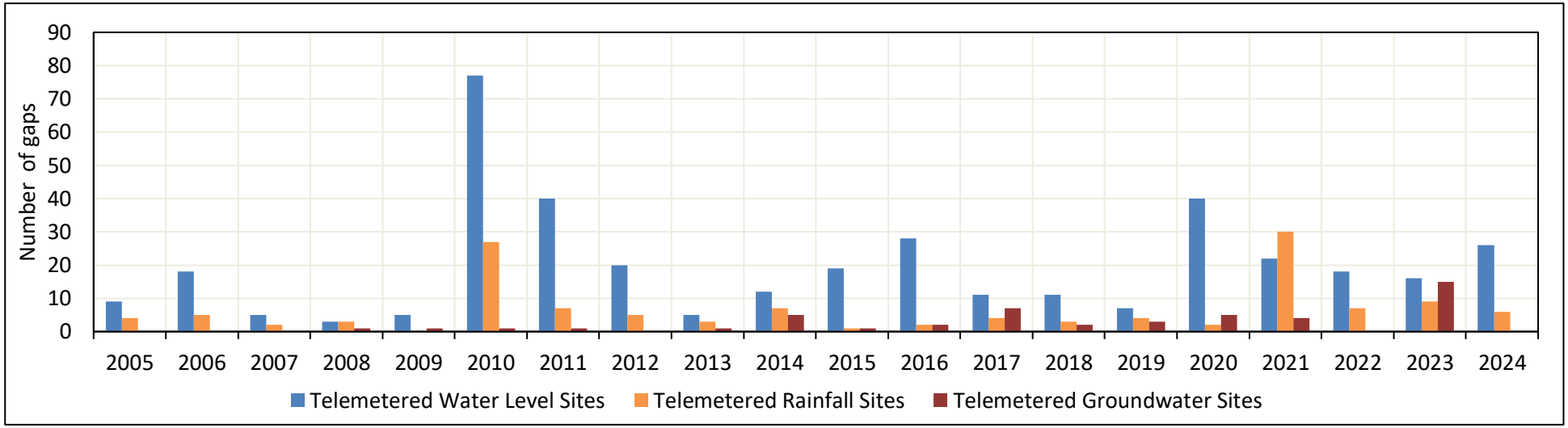


Figure 1-1: Total number of gaps in the CCC hydrometric network.

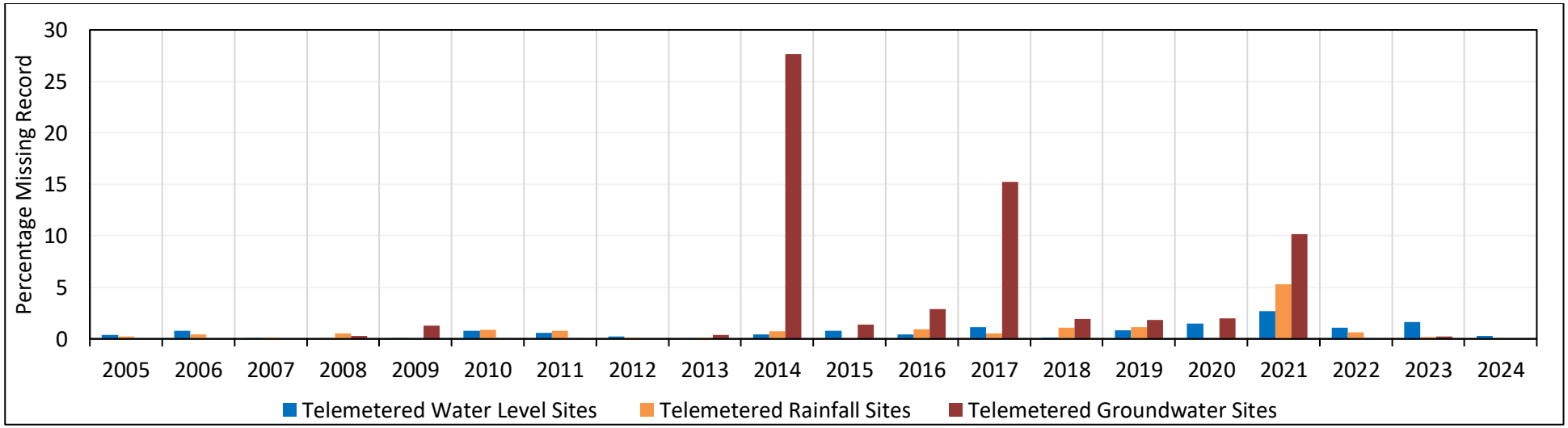


Figure 1-2: Percentage of missing record relative to total recordable hours in the CCC hydrometric network.

Table 1-5: Summary of missing record for telemetered water level sites for 2024.

Station details		1-January-2024 to 31-December-2024		
Number	Name	No. gaps	Total Gap (hours)	Percentage Gap
66422	Styx River at Harbour Rd	1	2.3	0.03
66423	Styx River at Lower Styx Rd	1	0.7	0.01
66425	Styx at Radcliffe Rd - ECan	0	0.0	0.00
66440	Styx River at Tidegates	1	0.5	0.01
66443	Kaputone Creek at Guthries Rd	0	0.0	0.00
66446	Prestons Subdivision at Lower Styx Rd	0	0.0	0.00
66447	Otukaikino at Dickeys Road	1	10.2	0.12
66471	Horners Drain at Prestons Rd	0	0.0	0.00
66604	Hoon Hay Stm at Hoon Hay Weir - ECan	0	0.0	0.00
66605	Heathcote River at Ferrymead Bridge	0	0.0	0.00
66609	Heathcote River at Ferniehurst	0	0.0	0.00
66610	Bullers Drain	0	0.0	0.00
66611	Avon River at PS205	0	0.0	0.00
66612	Heathcote at Buxton Tce - ECan	1	0.4	0.00
66621	Riccarton Drain at Deans Ave	2	93.6	1.07
66624	No2 Drain, Shirley Golf Course	0	0.0	0.00
66625	Wigram Retention Basin at Outflow	3	146.9	1.68
66626	Heathcote at Wigram Retention Basin	0	0.0	0.00
66634	Avon River at Bridge St	1	1.3	0.01
66635	Horseshoe Lake at PS205	4	32.6	0.37
66636	Dudley Creek at Aylesford Street	3	3.4	0.04
66638	Heathcote River at Opawa Rd	1	1.0	0.01
66639	Bowenvale Flume at Bowenvale Ave	0	0.0	0.00
66641	Halswell Ret.Basin, Halswell Jnt	0	0.0	0.00
66642	*Wigram Retention Basin at Overflow	1	432.0	4.93
66651	Croziers Dr u/s of PS219 Philpotts Rd	0	0.0	0.00
66654	Wairarapa Stream at Rossall St	2	10.0	0.11
66670	Avon River at Fitzgerald Ave	0	0.0	0.00
66682	Cashmere Stream at Worsleys Reserve	0	0.0	0.00
66692	Hoon Hay Valley Drain at Cashmere Rd	0	0.0	0.00
66694	Cashmere Valley Drain at Adventure Park	0	0.0	0.00
66695	Heathcote River at Bells Pumpstation	1	1.3	0.01
67101	Le Bons Bay at Hughes Culvert	0	0.0	0.00
67603	Lake Forsyth at SH75 - ECan	2	132.0	1.51
67806	Knights Stream at Sabys Road	0	0.0	0.00
966602	Avon at Gloucester St - Ecan	1	0.6	0.01

1066632	Cashmere Stream at Eastman Wetland	0	0.0	0.00
Average		**0.7**	**23.5**	**0.3**
Total		**26**	**868.8**	**0.3**

Table 1-6: Summary of missing record for telemetered rainfall sites for 2024.

Station details		1-January-2024 to 31-December-2024		
Number	**Name**	**No. gaps**	**Total Gap (hours)**	**Percentage Gap**
66642	Wigram at Retention Basin	0	0.0	0.00
67002	Opara Stream at Okains Bay	0	0.0	0.00
323605	42A Peraki Street, Kaiapoi	0	0.0	0.00
324501	Aero club	3	9.0	0.10
324606	Styx River at Harbour Rd	0	0.0	0.00
324607	Styx River at Lower Styx Rd	0	0.0	0.00
324608	PS62, Tyrone Street	0	0.0	0.00
324610	Firestone Factory, Papanui	0	0.0	0.00
325403	PS80, Templeton	0	0.0	0.00
325507	College of Education, Ilam	0	0.0	0.00
325510	Halswell Ret.Basin, Halswell Jnt	0	0.0	0.00
325512	Aidanfield, Dunbars Reservoir	0	0.0	0.00
325615	Kyle St EWS (NIWA)	3	5.0	0.06
325626	Christchurch Botanical Gardens EWS (NIWA)	0	0.0	0.00
325617	Avon River at PS205	0	0.0	0.00
325618	PS42, Sparks Road	0	0.0	0.00
325619	Tunnel Road, Heathcote	0	0.0	0.00
325621	Bowenvale Flume at Bowenvale Ave	0	0.0	0.00
325711	Van Asch St, Sumner	0	0.0	0.00
325712	Reservoir No.4, Clifton Tce	0	0.0	0.00
325719	Bromley EWS (NIWA)	0	0.0	0.00
326616	Upper Bowenvale Valley	0	0.0	0.00
326617	Upper Cashmere Catchment at Worsleys Rd	0	0.0	0.00
326704	Diamond Harbour EWS (NIWA)	0	0.0	0.00
327804	4960 Chch Akaroa Hwy	0	0.0	0.00
327902	Duvauchelles CWS at Akaroa Golf Course	0	0.0	0.00
328711	Kaituna at Kaituna Valley Rd – Ecan	0	0.0	0.00
328905	Akaroa EWS (NIWA)	0	0.0	0.00
Average		**0.2**	**0.5**	**0.0**
Total		**6.0**	**14.0**	**0.0**

Table 1-7: Summary of missing record for telemetered groundwater sites for 2024.

Station details		1-January-2024 to 31-December-2024		
Number	**Name**	**Number of gaps**	**Total gap (hrs)**	**Percentage gap**
66471	Dartford St, Brooklands	0	0.0	0.00
66649	Halswell Retention Basin	0	0.0	0.00
3257031	Sumner, Wakefield Ave	0	0.0	0.00
Average		**0**	**0.0**	**0.0**
Total		**0**	**0.0**	**0.0**

2 Rainfall

At the end of 2024 the CCC hydrometric rainfall network comprised of 28 sites.

Additional rainfall data are included in the CCC hydrometric database for Christchurch Aero Club (324501), Kaituna Valley (328711 - ECan site), Kaiapoi (323605 - Waimakariri District Council) site, Duvauchelle CWS (327903) as well as from the NIWA electronic weather station (EWS) sites at Kyle Street EWS (325615), Akaroa EWS (328905), Diamond Harbour EWS (326704), Christchurch Botanic Gardens EWS (325626) and Bromley EWS (325719).

Figure 2-1 shows the site locations. Figure 2-2 and Figure 2-3 provide a data continuity scan showing the extent of any gaps in the rainfall records. The cause and remedy of the periods of missing records have been described previously in the respective quarterly reports in which the gap occurs.

Table 2-1 provides a statistical summary of the rainfall intensity at these sites during 2024 as compared with the intensities recorded during the full period of record.

Table 2-2 provides comments that identify issues that are suspected to be affecting gauge accuracy or exposure with the rain gauge network, as assessed using a meteorological instrumentation standard.

Daily rainfall plots for each rainfall site, for the 2024 calendar year, are shown in Figure 2-4 to Figure 2-13.

Attention is drawn to the y-axes of the plots as they are grouped by maximum daily event sizes for ease of event comparison, with groupings of 50 mm, 70 mm and 90 mm maxima.

Figure 2-1: Location of CCC rainfall sites for 2024.

Figure 2-2: Rainfall network continuity scan 1 January to 31 December 2024.

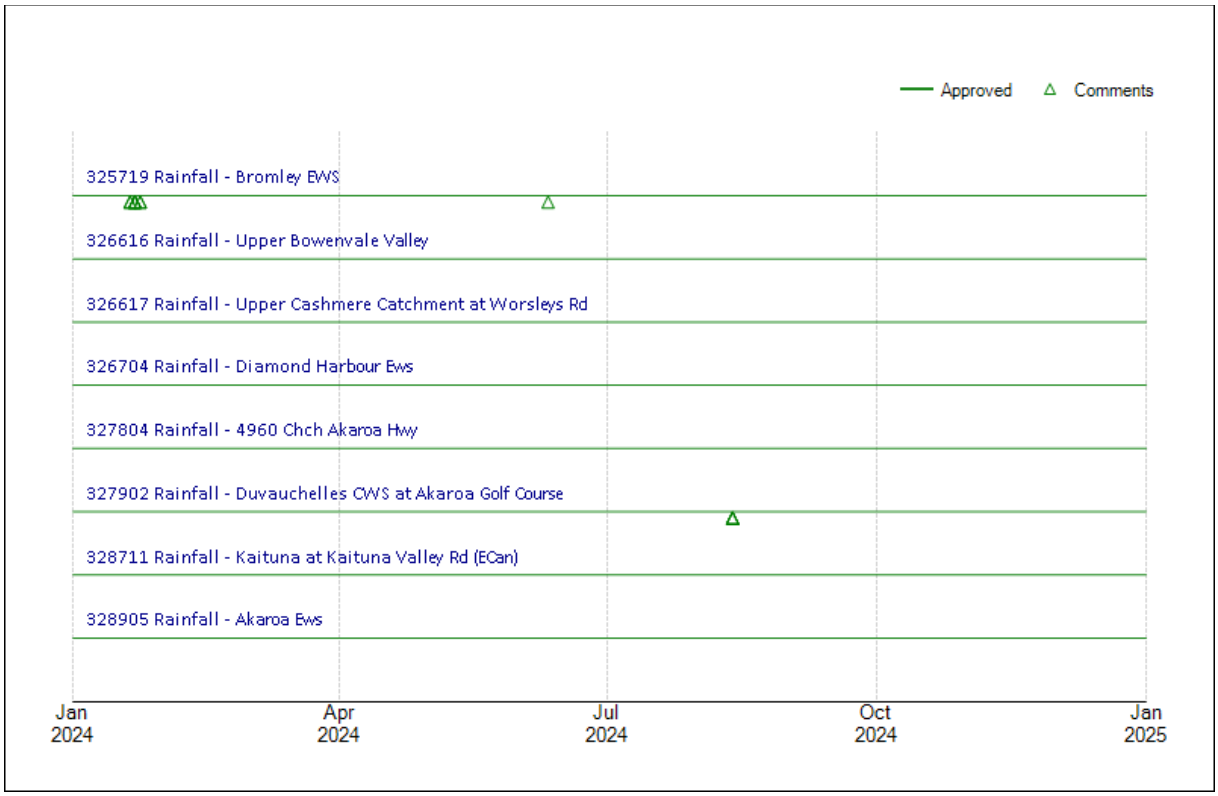


Figure 2-3: Rainfall network continuity scan: 1 January to 31 December 2024 (cont.).

Table 2-1: Rainfall site statistics summary: 2024 comparison with full record.

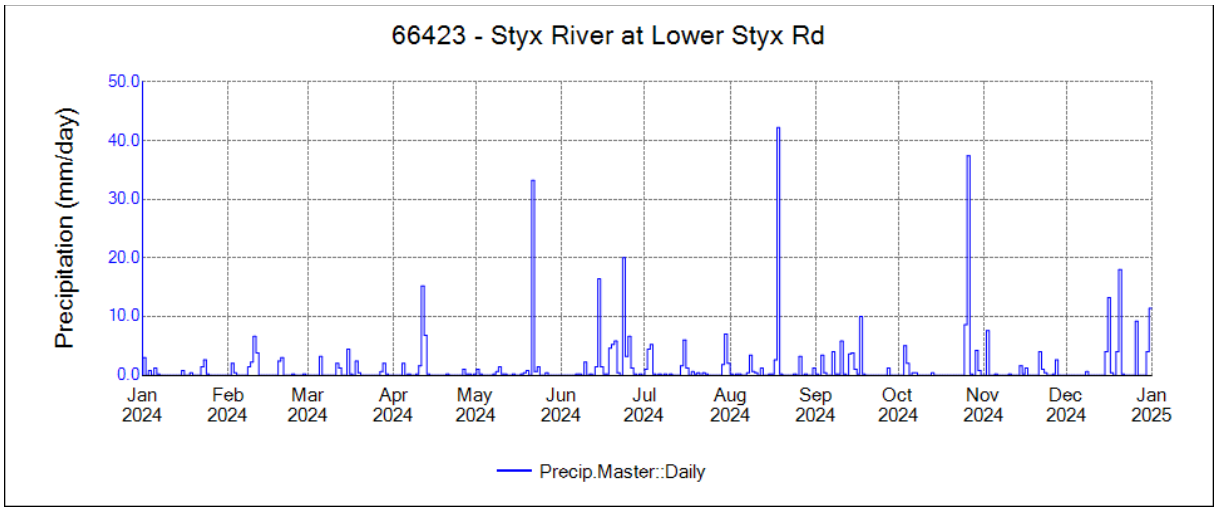
Station details		Full record					1-January-2024 - 31-December-2024			
Number	Name	Start of record	Maximum (mm/hr)	Maximum (mm/day)	Mean (mm/day)	Average (mm/yr)	Maximum (mm/hr)	Maximum (mm/day)	Mean (mm/day)	Period Total (mm/yr)
66422	Styx River at Harbour Rd	01-Jan-87	21.2	98.4	1.5	546.0	16.4	50.0	1.3	475.7
66423	Styx River at Lower Styx Rd	01-Jan-87	24.8	93.4	1.6	568.3	8.6	42.2	1.2	454.6
66611	Avon River at PS205	01-Jan-87	19.6	100.6	1.6	*580.1	12.2	39.4	1.1	403.5
66639	Bowenvale Flume at Bowenvale Ave	01-Dec-88	22.6	122.6	2.1	749.4	7.2	38.2	1.4	506.8
66641	Halswell Ret.Basin, Halswell Jnt	01-May-99	19.8	84.8	1.8	667.9	7.8	42.4	1.6	597.6
66642	Wigram Retention Basin at Overflow	01-Feb-95	27.8	67.4	1.7	*620.7	6.8	41.6	1.4	502.2
67002	Opara Stream at Okains Bay	26-Sep-19	13.6	109.4	2.3	*847.8	8.2	43.4	1.8	663.6
323605	42A Peraki Street, Kaiapoi (WDC)	01-Apr-87	41.0	111.4	1.7	611.6	10.0	53.2	1.3	485.3
324501	Christchurch Aero	01-Jan-60	26.1	87.4	1.6	598.3	7.0	52.2	1.5	553.8
324608	PS62, Tyrone Street	01-Dec-81	28.0	86.8	1.5	559.1	7.2	45.2	1.2	448.4
324610	Firestone Factory, Papanui	01-Jan-81	33.2	72.8	1.6	*591.2	7.0	36.0	1.1	396.5
325403	PS80, Templeton	01-Mar-90	25.4	87.8	1.8	642.7	12.2	42.2	1.5	543.5
325507	College of Education, Ilam	01-Jun-64	32.0	108.0	1.7	634.9	7.6	37.2	1.3	478.7
325512	Aidanfield, Dunbars Reservoir	26-Jul-05	12.8	73.2	1.7	634.4	7.0	44.4	1.4	524.8
325615	Kyle St EWS (NIWA)	31-Oct-02	25.9	79.9	1.7	615.1	15.6	41.5	1.1	400.7
325618	PS42, Sparks Road	01-Dec-67	34.6	129.1	1.9	702.2	8.4	45.2	1.5	552.7
325619	Tunnel Road, Heathcote	01-Jan-62	31.6	136.6	1.7	633.0	7.8	42.6	1.2	425.0
325626	Christchurch Botanic Gardens EWS (NIWA)	08-Oct-21	10.4	84.4	1.8	674.8	9.0	40.4	1.3	458.3
325711	Van Asch St, Sumner	01-Dec-67	26.8	123.4	1.7	602.5	7.2	37.0	1.2	420.0
325712	Reservoir No.4, Clifton Tce	26-Mar-03	19.8	121.6	1.6	589.1	11.2	40.8	1.2	422.0
325719	Bromley EWS (NIWA)	28-Jun-19	12.6	85.4	1.3	*467.0	9.6	37.8	1.0	359.2
326616	Upper Bowenvale Valley	01-May-88	20.7	170.6	2.4	894.3	11.8	58.4	1.8	663.8
326617	Upper Cashmere Catchment at Worsleys Rd	14-Jun-16	15.4	88.8	2.2	799.0	11.6	55.6	1.7	619.7
326704	Diamond Harbour EWS (NIWA)	01-Jan-19	13.0	85.0	1.8	657.5	10.0	36.0	1.4	499.0
327804	4960 Chch Akaroa Hwy	13-Nov-12	24.0	164.0	3.3	1219.5	18.2	57.0	2.6	962.4
327902	Duvauchelles CWS at Akaroa Golf Course	17-Sep-20	20.0	146.6	2.4	880.8	9.0	44.2	1.7	622.9
328711	Kaituna at Kaituna Valley Rd (ECan)	01-Jun-90	19.8	92.3	2.1	*764.1	8.1	36.0	1.6	594.4
328905	Akaroa EWS (NIWA)	19-Dec-08	22.0	183.8	2.8	1005.0	12.2	87.6	2.0	736.6

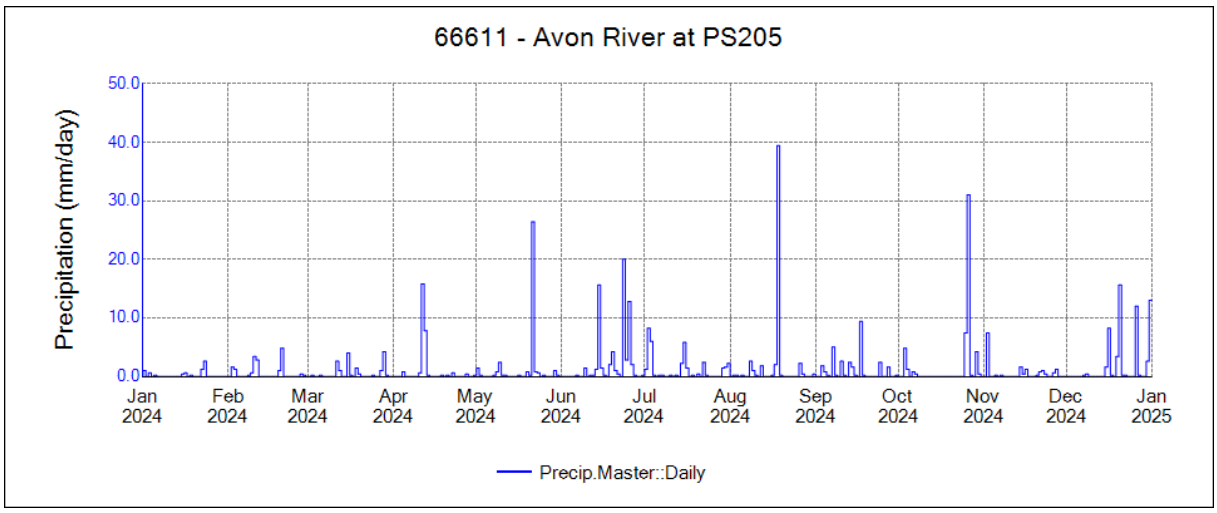
Notes:

* indicates gap percentage of 2.5% exceeded

Site	Name	Comments
66422	Styx River at Harbour Rd	Instrument above standard installation height (on tower). 4G logger installed.
66423	Styx River at Lower Styx Rd	4G logger installed.
66611	Avon River at PS205	Instrument above standard installation height (on roof). 4G logger installed.
66639	Bowenvale Flume at Bowenvale Ave	Instrument above standard installation height (on tower). Upgraded to 4G in October 2024.
66641	Halswell Ret.Basin, Halswell Jnt	Fair exposure due to vegetation. Upgraded to 4G in October 2024.
66642	Wigram Retention Basin at Overflow	Instrument above standard installation height (on pole). 4G logger installed. 4G logger installed.
67002	Opara Stream at Okains Bay	Site exposure worsening due to established trees.
323605	42A Peraki Street, Kaiapoi (WDC)	Instrument above standard installation height (on roof).
324501	Christchurch Aero	
324608	PS62, Tyrone Street	Instrument above standard installation height (on roof). Upgraded to 4G in March 2025.
324610	Firestone Factory, Papanui	Instrument above standard installation height (on post).
325403	PS80, Templeton	Instrument above standard installation height (on roof).
325507	College of Education, Ilam	Instrument above standard installation height (on roof). Upgraded to 4G in March 2025.
325512	Aidanfield, Dunbars Reservoir	Instrument above standard installation height (on roof).
325615	Kyle St EWS (NIWA)	Poor exposure due to buildings and vegetation.
325618	PS42, Sparks Road	Instrument above standard installation height (on tower).
325619	Tunnel Road, Heathcote	Instrument above standard installation height (on tower). Poor exposure due to surrounding trees. Upgraded to 4G in March 2025.
325626	Christchurch Botanic Gardens EWS (NIWA)	Poor exposure due to established trees.
325711	Van Asch St, Sumner	Poor exposure due to vegetation.
325712	Reservoir No.4, Clifton Tce	Instrument above standard installation height (on roof).
325719	Bromley EWS (NIWA)	
326616	Upper Bowenvale Valley	Poor exposure due to steep terrain. 4G logger installed.
326617	Upper Cashmere Catchment at Worsleys Rd	Instrument above standard installation height (on roof). Upgraded to 4G in March 2025.
326704	Diamond Harbour EWS (NIWA)	
327804	4960 Chch Akaroa Hwy	Fair exposure due to steep terrain
327902	Duvauchelles CWS at Akaroa Golf Course	Upgraded to 4G in August 2024.
328711	Kaituna at Kaituna Valley Rd (ECan)	
328905	Akaroa EWS (NIWA)	

Table 2-2: Summary of rainfall sites as of 31 December 2024.





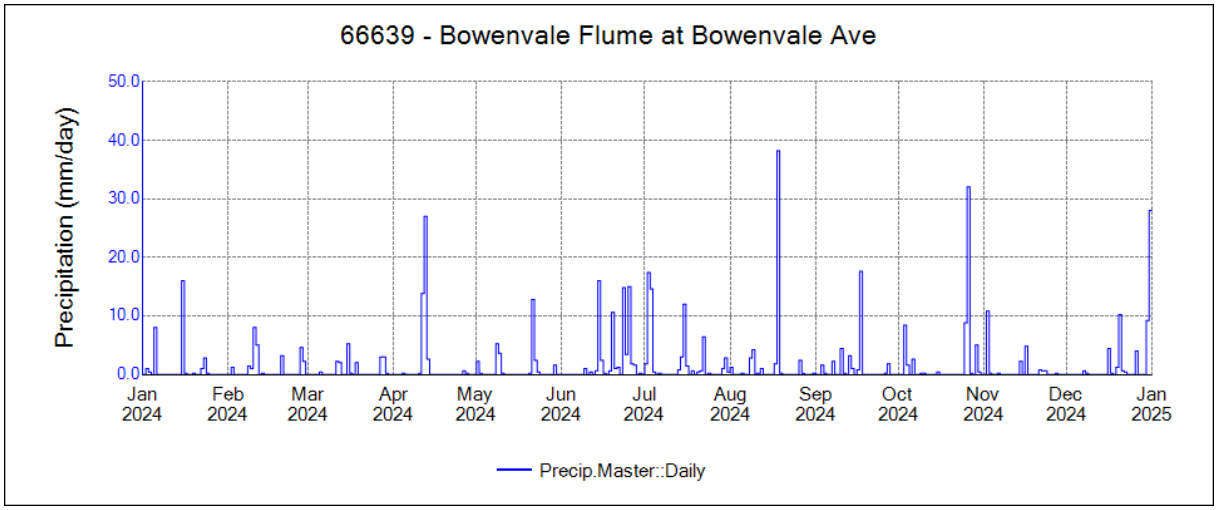
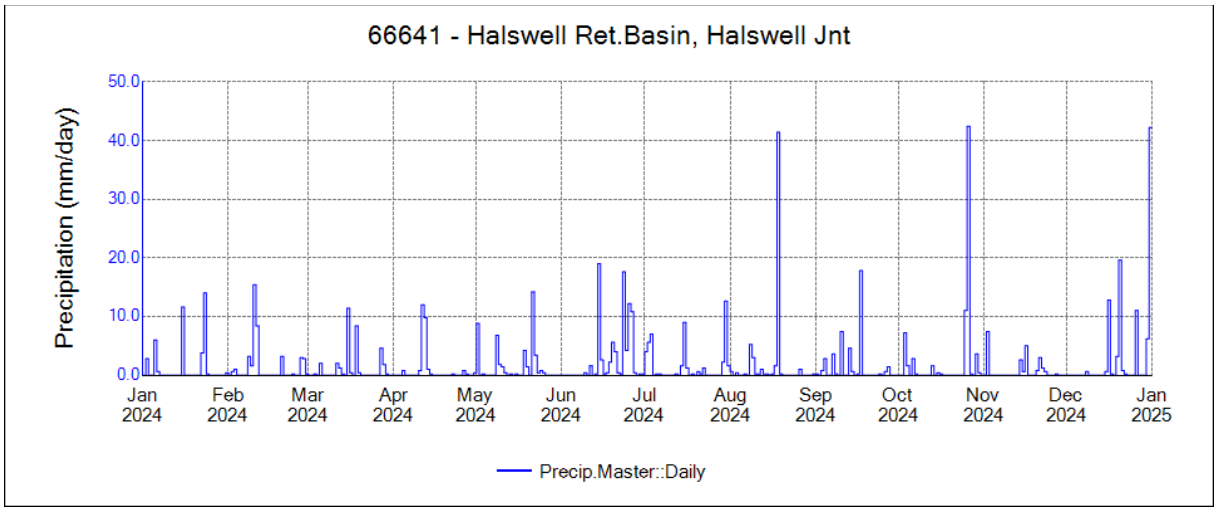
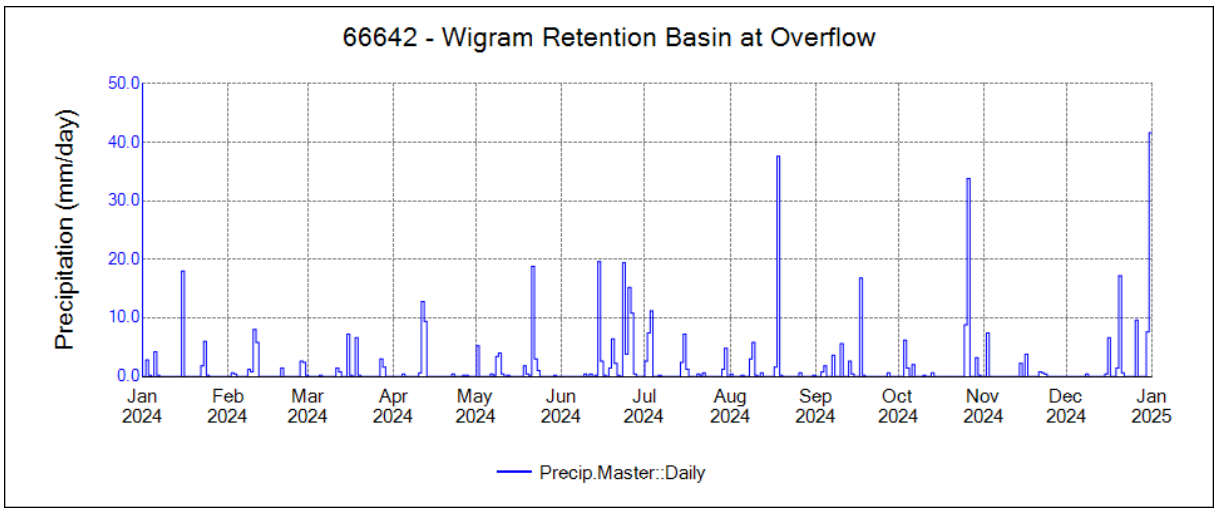


Figure 2-4: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024.





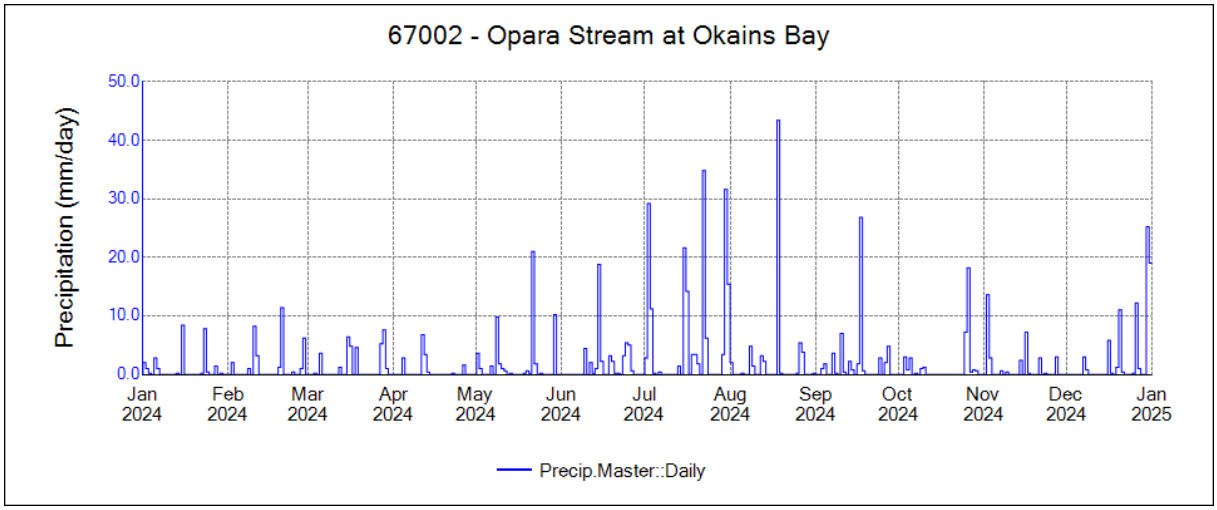
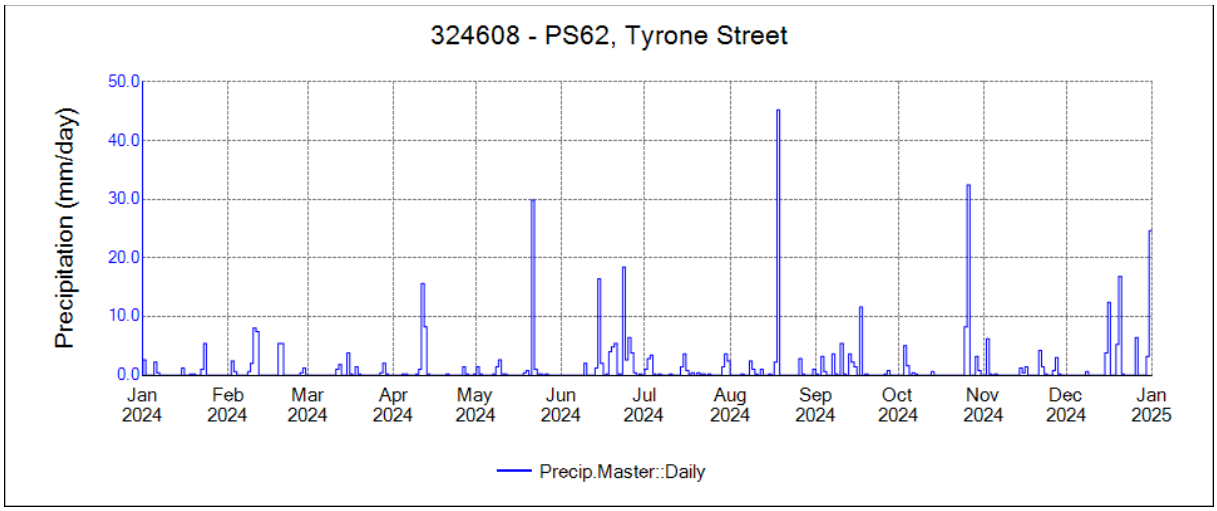
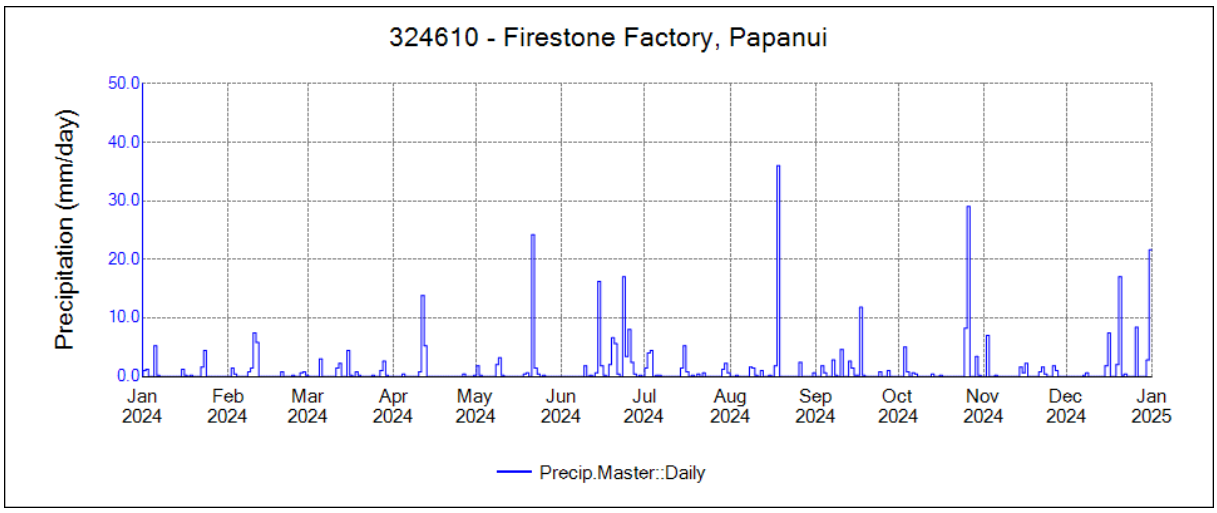


Figure 2-5: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).





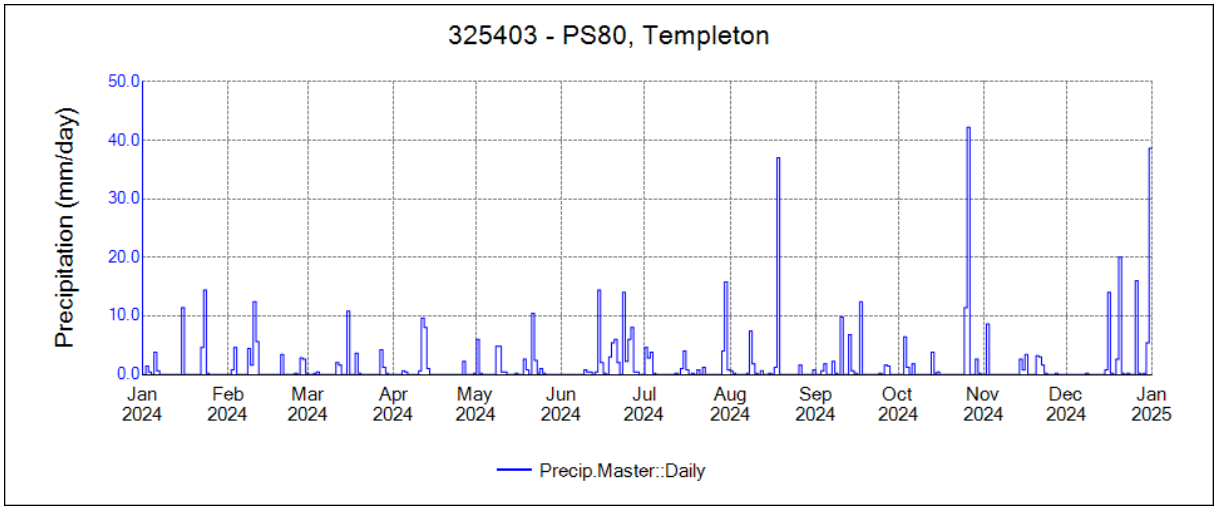
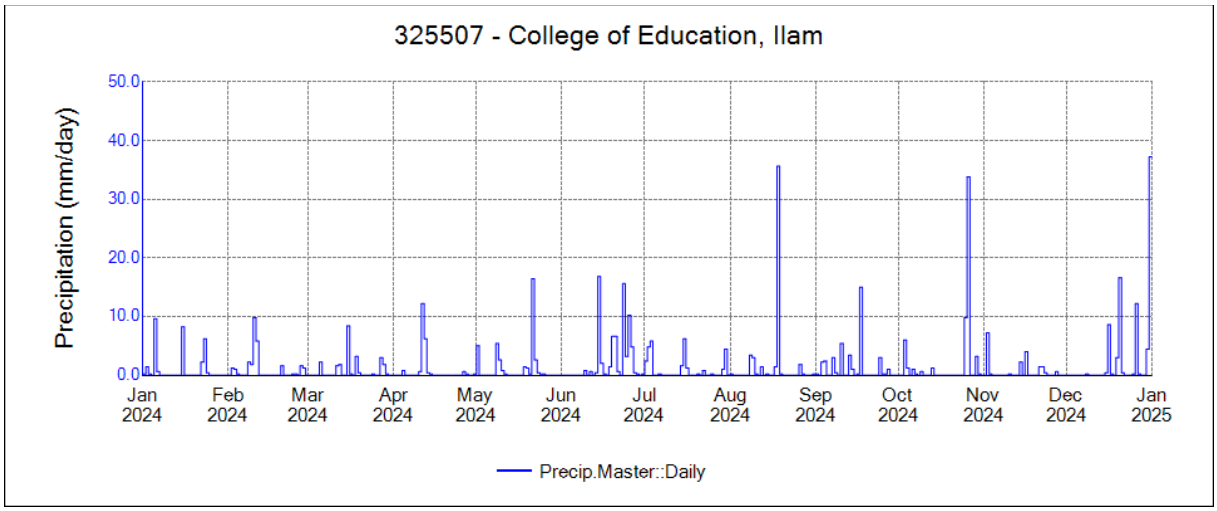
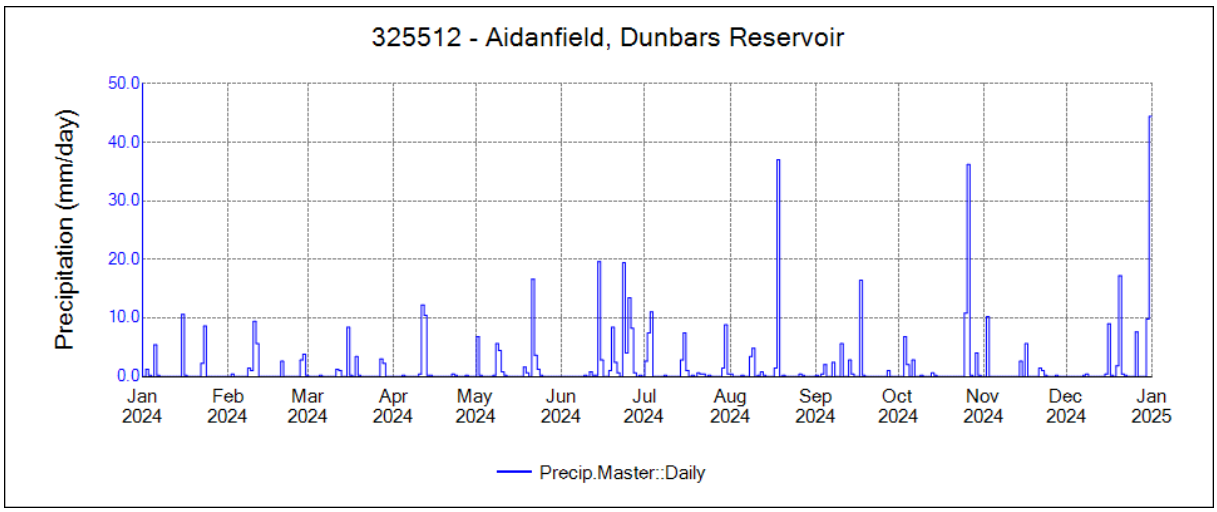


Figure 2-6: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).





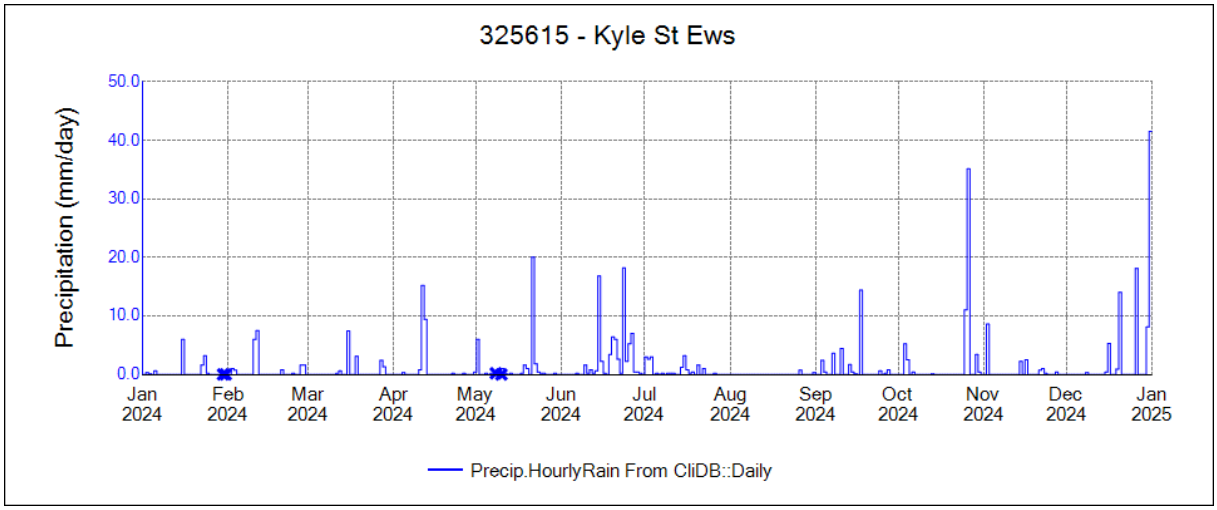
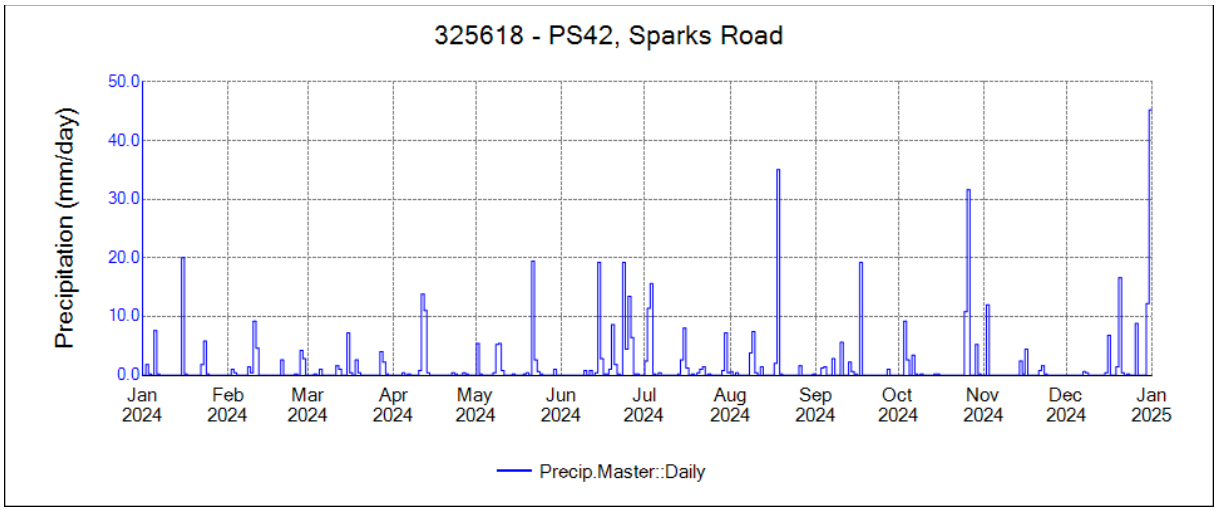
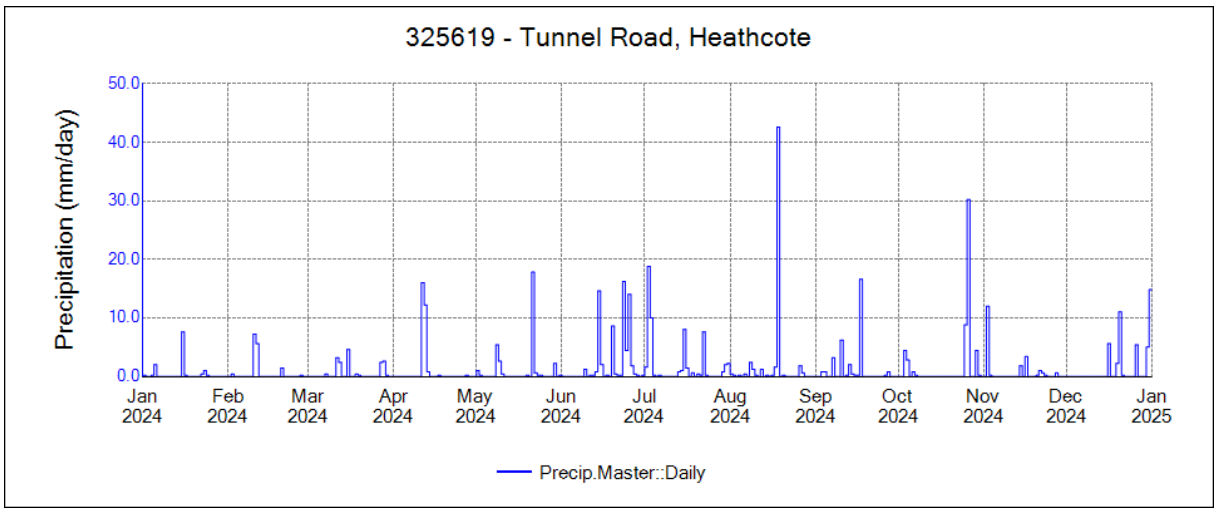


Figure 2-7: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).





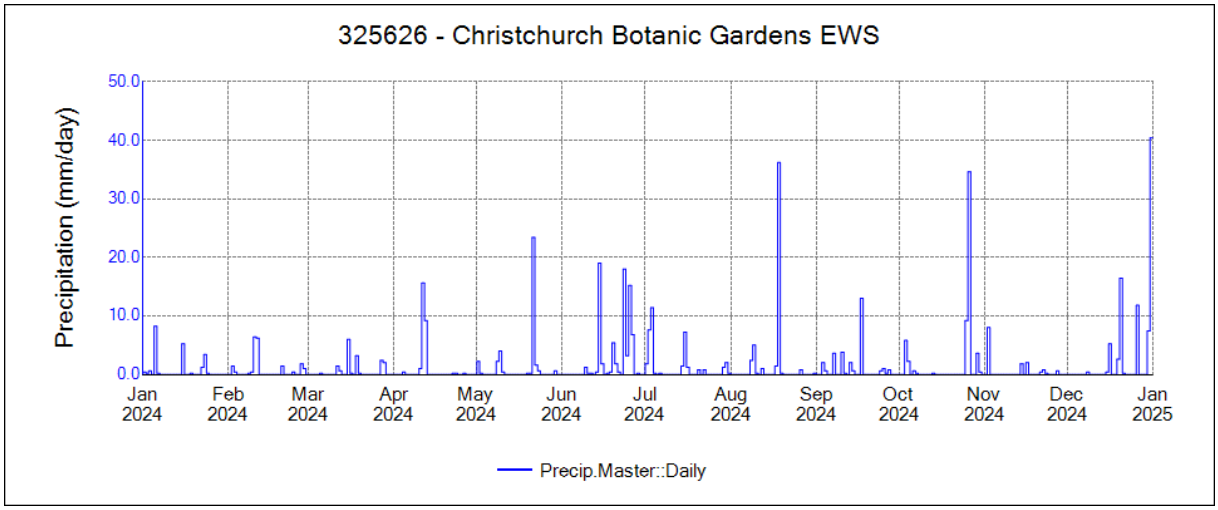
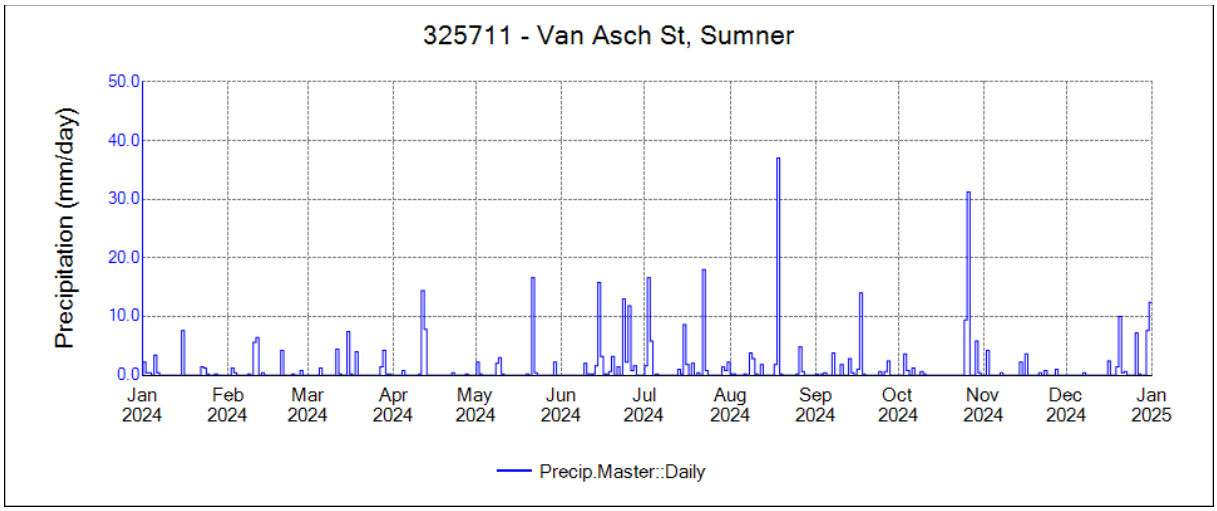
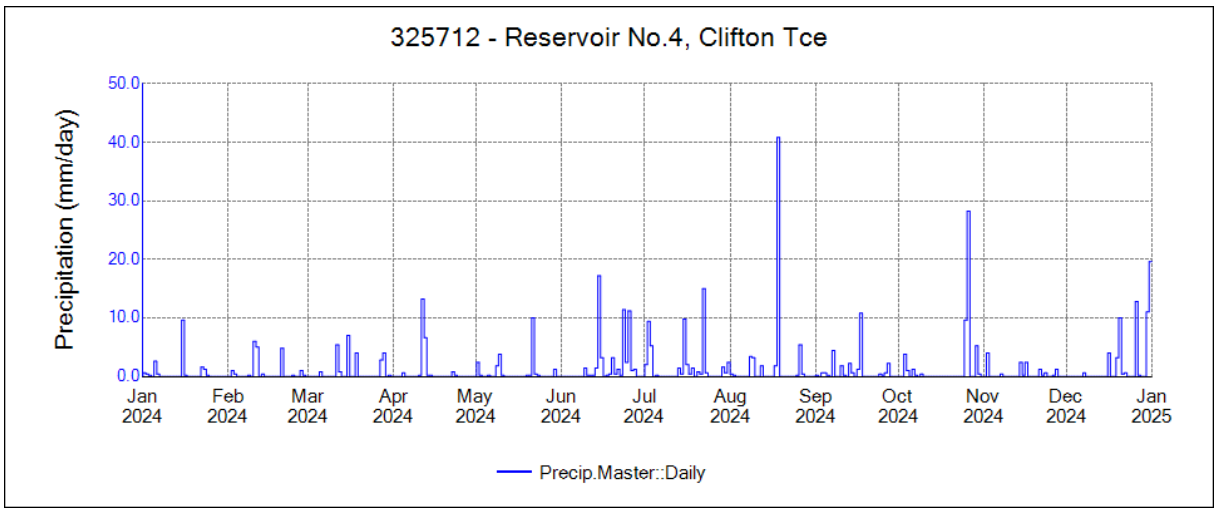


Figure 2-8: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).





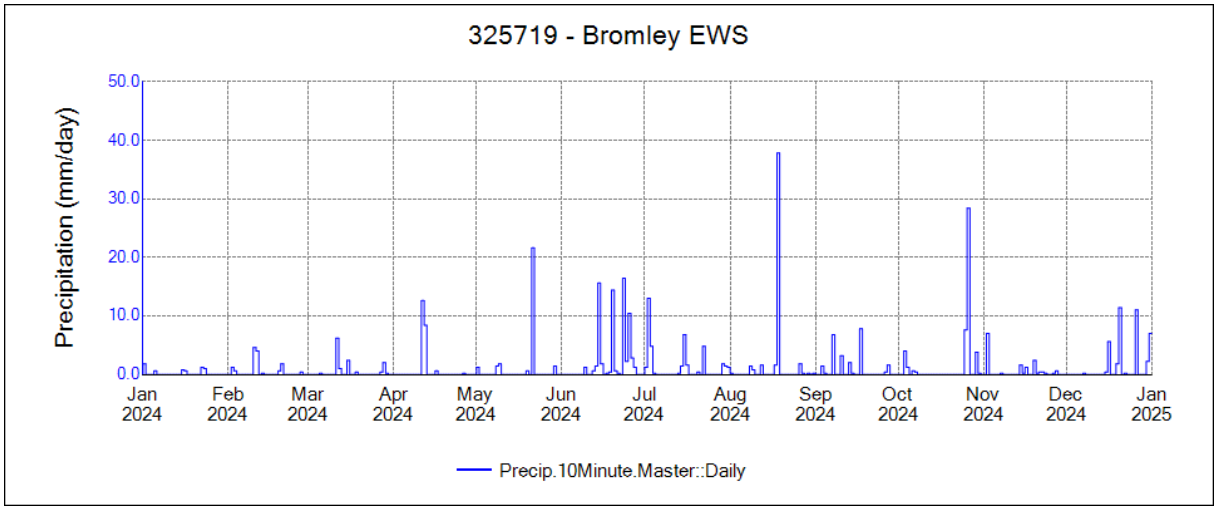
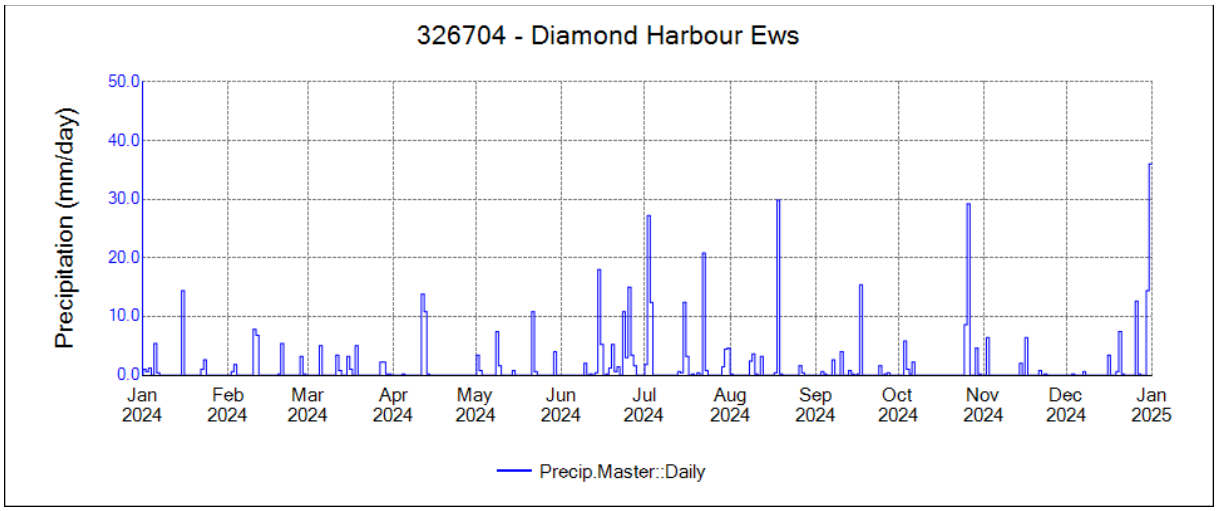
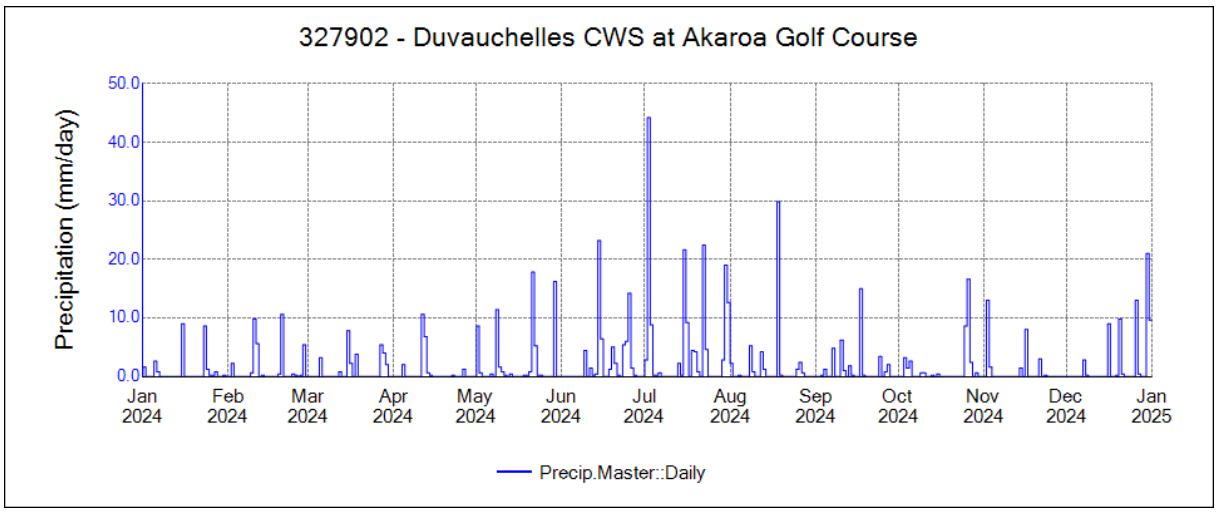


Figure 2-9: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).





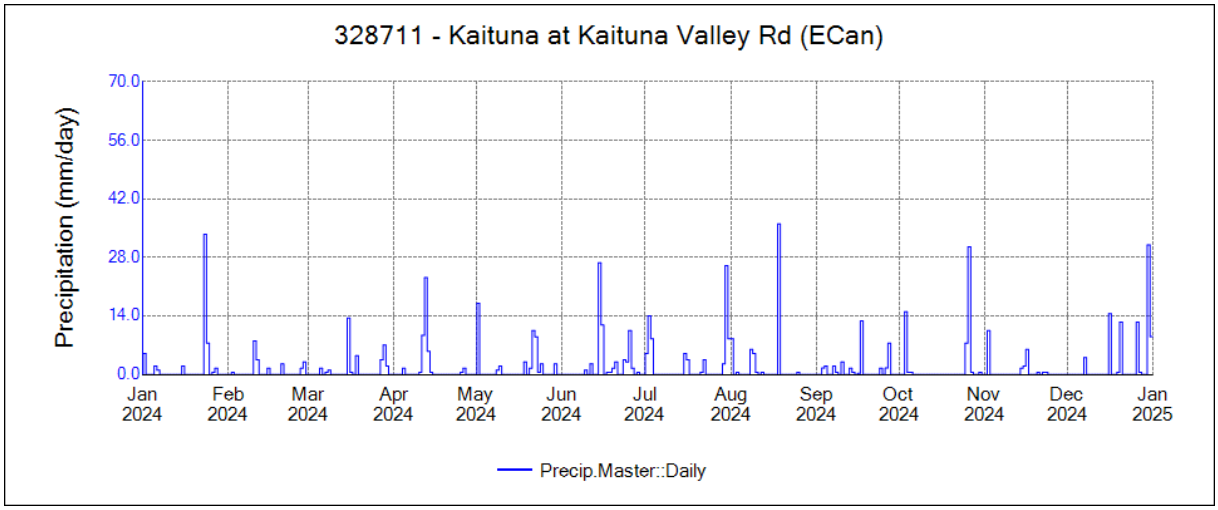
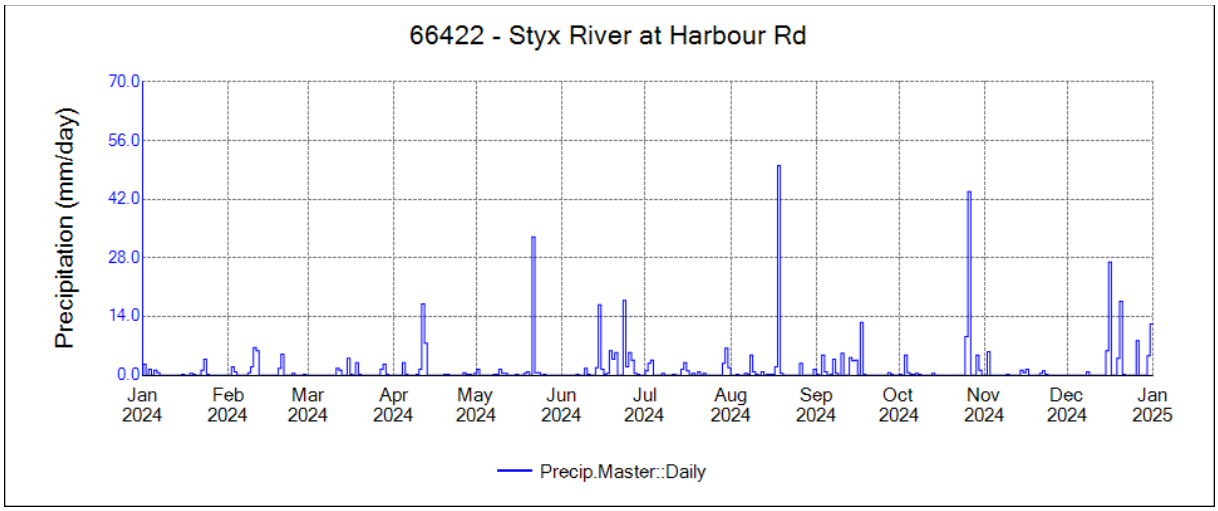
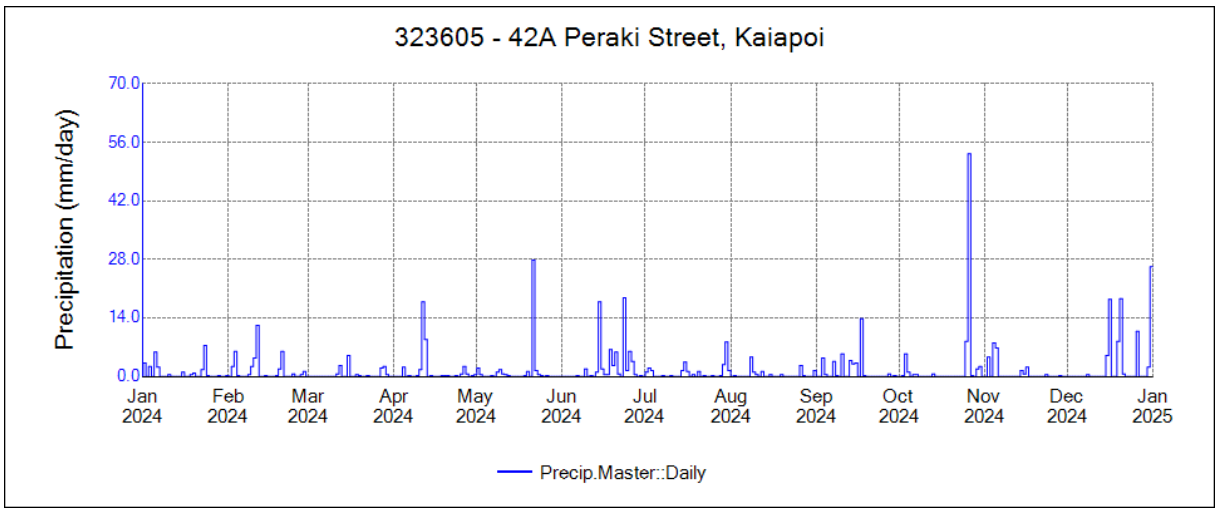


Figure 2-10: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).





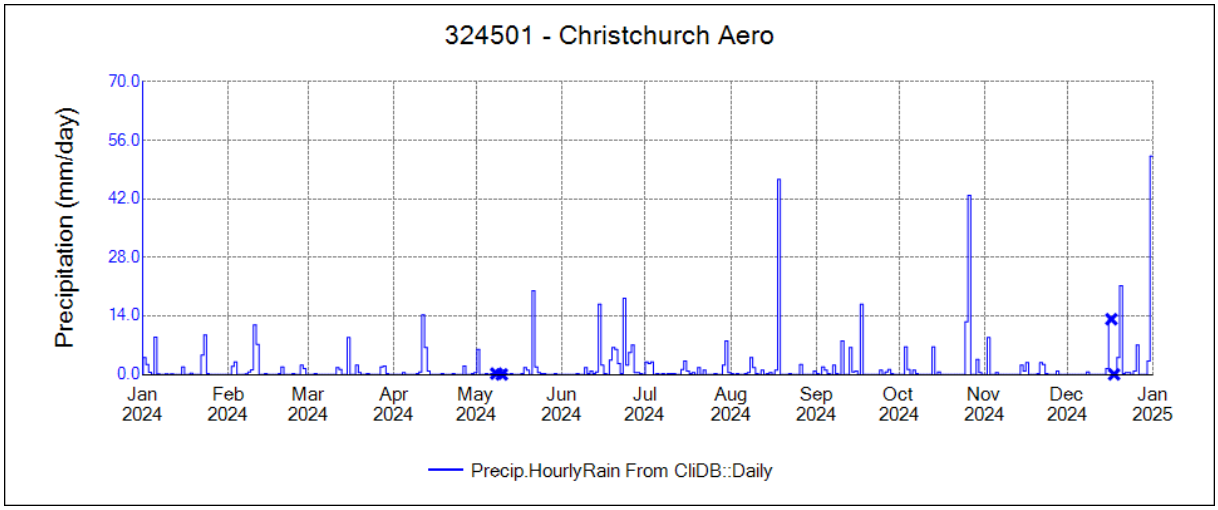
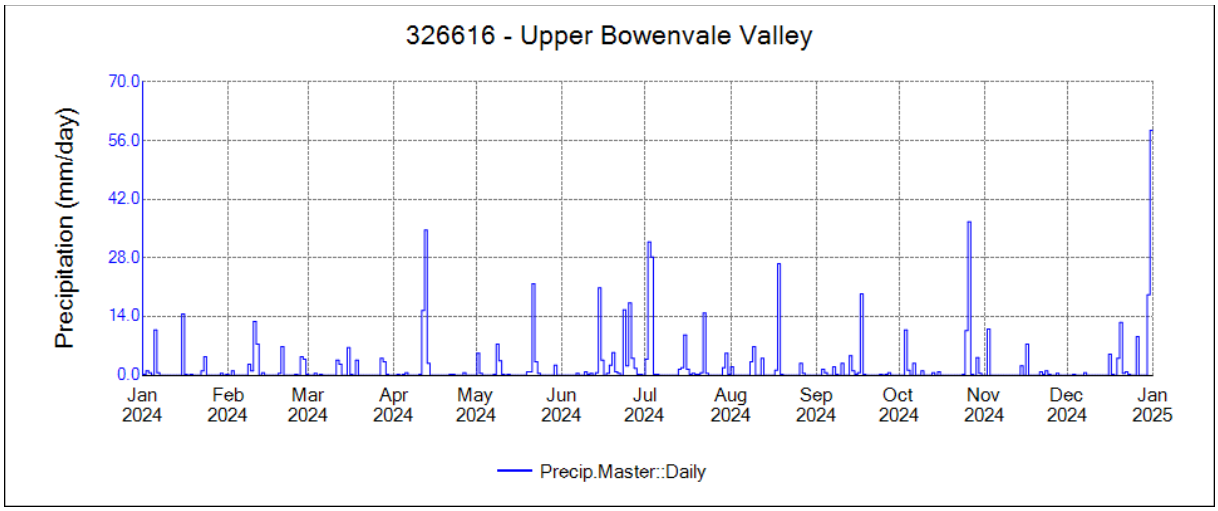
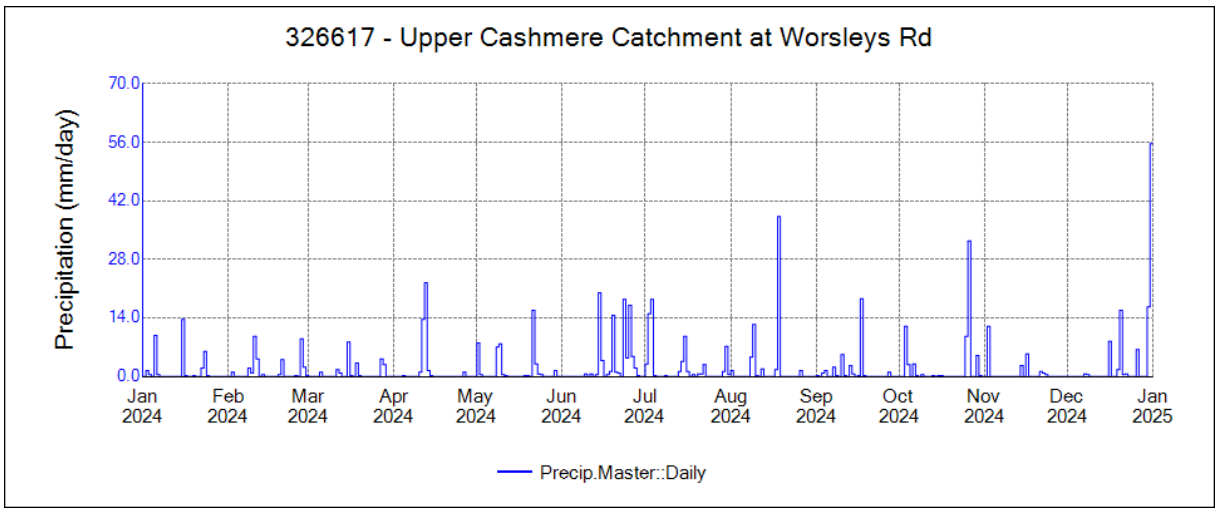


Figure 2-11: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).





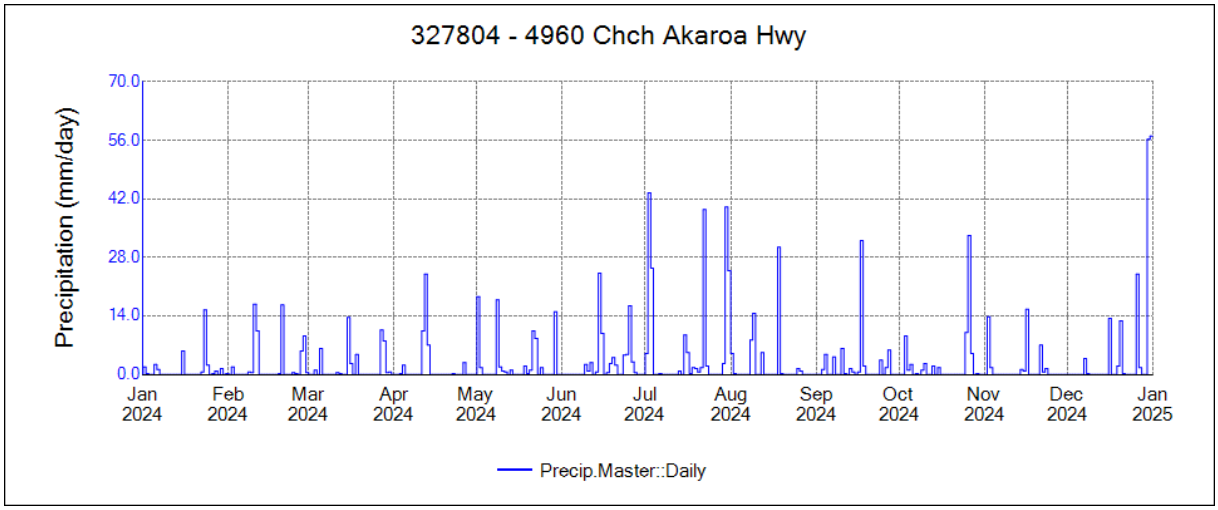


Figure 2-12: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).

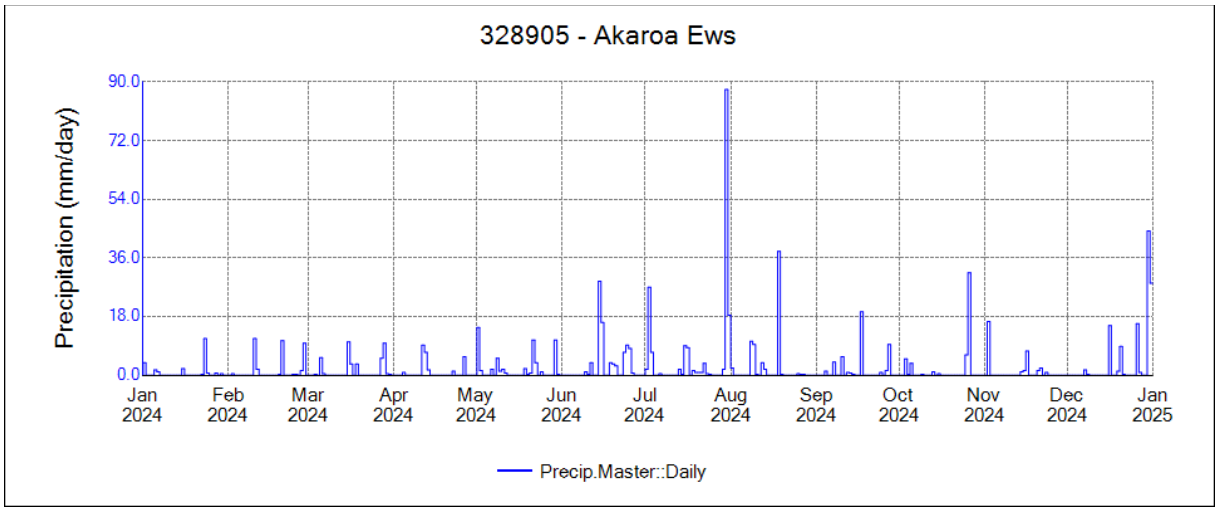


Figure 2-13: CCC hydrometric network daily rainfall plots: 1 January to 31 December 2024 (cont.).

3 Water level and flow

At the end of 2024 the CCC hydrometric network comprised 37 surface water level-recording sites, 14 of which are also recording river flow. All water level data are recorded in metres relative to the Christchurch Drainage Datum.

A project monitoring the stage and flow in St Albans Stream was initiated in October 2023 at CCC's request. As this is a short-term project additional to the hydrometric network scope of works, it has not been included in this section but is reported on in Section 7.

Flow time-series data records are provided for 14 sites. Flow is derived by stage-flow rating relationships with regular gaugings for 13 of these sites, while the Prestons Subdivision site (66446) flow record is generated from a velocity-depth sensor and is not gauged as part of the ISS agreement.

The accuracy of the derived discharge for the Otukaikino at Dickeys Rd (66447) and Cashmere Stream at Worsley's Reserve (66682) sites during high flow periods should be treated with caution. These streams are prone to being 'backed up' by the flooded Waimakariri and Heathcote rivers respectively, which renders the hydraulic control of the stage-discharge relationship ineffective, and these periods become un-rateable. The flow record for Otukaikino shows gaps in the rated flow during these high flow periods.

The cause and remedy of any periods of missing record, or any other discrepancy, have been described previously in the respective quarterly reports in which the gap occurs.

Figure 3-1 and Figure 3-2 show the location of the water level/flow sites.

Figure 3-3 and Figure 3-4 provide a data continuity scan showing the extent of any gaps in the water-level records. The cause and remedy of any missing record have been described previously in the respective quarterly reports in which the particular gap occurs.

Table 3-1 provides a summary of the maximum, minimum and mean water-level data for all sites as recorded in 2024 compared with that recorded during the full period of record.

Table 3-2 provides a flow summary of the maximum, minimum and mean flow data for all rated sites as recorded in 2024, compared with that recorded during the full period of record.

Table 3-3 provides commentary on the data reliability and issues effecting data quality as at the end of December 2024.

Figure 3-5 to Figure 3-16 show water level (stage) plots for the CCC sites for 2022, while Figure 3-17 to Figure 3-21 show flow plots for the relevant sites.

Audited data for the ECan/CCC shared sites (Heathcote River at Buxton Terrace, Avon River at Gloucester St, Styx River at Radcliffe Rd, Hoon Hay Stream at Hoon Hay Weir, Lake Forsyth water-level), as described in NIWA's Individual Site Schedule (ISS) agreements, are updated on a periodic basis when received from ECan. Water-level data from ECan's Avon at Gloucester Street site (966602) are converted to CCC datum via NIWA's data transfer system. Gauging data points are not included in the data set or plots for this site due to the additional work involved in transforming such items from the raw file to the CCC datum site.

Gaugings and ratings for the ECan/CCC shared sites have been undertaken by ECan staff.

Figure 3-1: Location of CCC water level sites during 2024. Permanent sites are labelled with a yellow pin, shared/Environment Canterbury run sites are labelled with a red pin. Dashed area is shown in Figure 5-2.

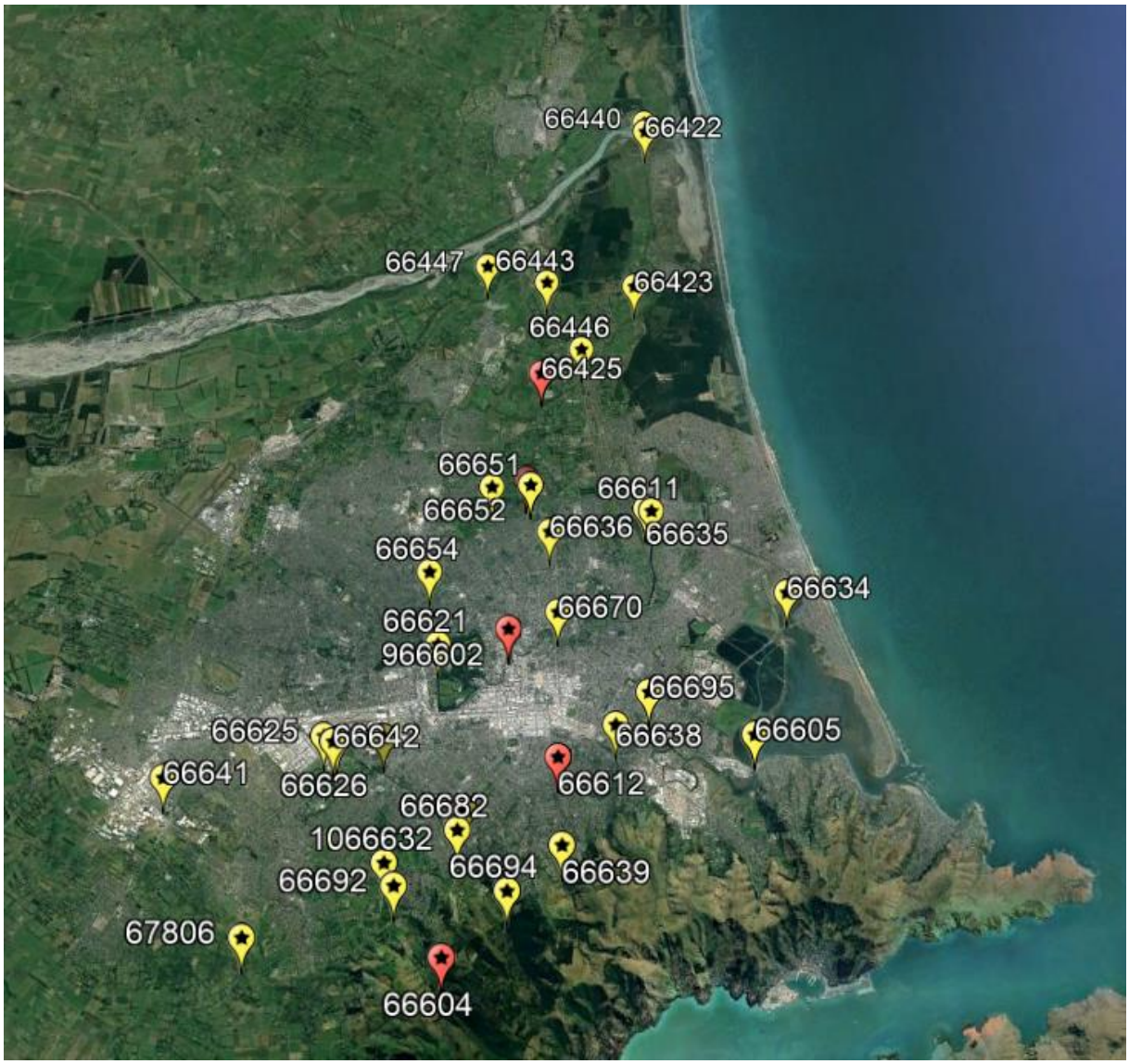


Figure 3-2: Expanded view of CCC water level site locations in Christchurch during 2024. Permanent sites are labelled with a yellow pin, shared/Environment Canterbury run sites are labelled with a red pin.

Figure 3-3: Water level continuity plot for 2024.

Figure 3-4: Water level continuity plot for 2024 (cont.).

Table 3-1: Water level site statistics summary: 2024 comparison with full record.

Station details			Full record			1-January-2024 - 31-December-2024		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
66422	Styx River at Harbour Rd	01-Nov-86	8.159	10.382	*9.141	8.438	10.041	9.230
66423	Styx River at Lower Styx Rd	09-Oct-86	8.753	10.809	*9.698	9.446	10.259	9.718
66425	Styx at Radcliffe Rd (ECan)	30-Dec-92	10.205	12.181	*10.839	10.505	11.485	10.776
66440	Styx River at Tidegates	11-Jul-90	7.400	11.500	*9.404	8.412	10.828	9.476
66443	Kaputone Creek at Guthries Rd	31-May-16	13.262	13.864	13.396	13.288	13.613	13.363
66446	Prestons Subdivision at Lower Styx Rd	29-Aug-17	10.695	11.798	*10.995	10.944	11.136	10.984
66447	Otukaikino at Dickeys Road	08-Jun-18	12.231	14.921	*12.386	12.319	13.252	12.440
66471	Horners Drain at Prestons Rd	25-Jan-04	0.013	14.163	*12.846	12.717	13.528	12.785
66604	Hoon Hay Stm at Hoon Hay Weir (ECan)	17-Aug-95	0.000	1.267	*0.074	0.000	0.402	0.023
66605	Heathcote River at Ferrymead Bridge	01-Jan-74	8.150	11.026	*9.354	8.679	10.743	9.501
66609	Heathcote River at Ferniehurst	02-Jan-66	15.240	18.860	*15.770	15.689	16.634	15.813
66610	Bullers Stage	05-Dec-18	12.620	12.850	12.671	12.647	12.778	12.671
66611	Avon River at PS205	21-Aug-87	8.836	11.138	*9.566	9.009	10.587	9.602
66612	Heathcote at Buxton Tce (ECan)	28-Dec-89	10.338	13.089	*10.600	10.497	12.059	10.616
66621	Riccarton Drain at Deans Ave	14-Jul-21	13.559	14.817	*13.603	13.559	14.757	13.585
66625	Wigram Retention Basin at Outflow	01-Dec-20	23.046	25.194	*23.526	23.046	24.267	23.491
66626	Heathcote at Wigram Retention Basin	01-Dec-20	21.841	22.766	22.013	21.904	22.372	21.966
66634	Avon River at Bridge St	18-Sep-97	8.468	11.081	*9.416	8.858	10.700	9.494
66635	Horseshoe Lake at PS205	21-Aug-87	6.500	10.896	*9.343	8.991	9.912	9.507
66636	Dudley Creek at Aylesford Street	03-Mar-14	11.613	13.502	11.781	11.750	12.776	11.816
66638	Heathcote River at Opawa Rd	14-Feb-91	8.789	11.301	*9.584	9.076	10.742	9.653
66639	Bowenvale Flume at Bowenvale Ave	16-Jul-96	24.457	25.367	24.553	24.633	24.853	24.645
66641	Halswell Ret.Basin, Halswell Jnt	21-Feb-94	29.319	32.872	*30.648	30.502	32.323	31.002

Station details			Full record			1-January-2024 - 31-December-2024		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
66642	Wigram Retention Basin at Overflow	01-Feb-95	23.047	25.310	*23.598	23.221	24.749	*23.607
66651	Croziers Drain u/s of PS219 Philpotts Rd	06-Aug-14	12.710	14.012	12.974	12.715	13.683	12.928
66654	Wairarapa Stream at Rossall St	30-May-16	17.292	18.369	*17.455	17.292	17.937	17.362
66670	Avon River at Fitzgerald Ave	16-May-16	9.743	11.571	10.062	9.743	11.070	9.950
66682	Cashmere Stream at Worsleys Reserve	03-Jun-16	15.837	17.593	15.987	15.841	16.745	15.946
66692	Hoon Hay Valley Drain at Cashmere Rd	16-May-16	17.712	19.319	17.953	17.756	18.504	17.910
66694	Cashmere Valley Drain at Adventure Park	27-Nov-18	-0.015	0.664	0.034	-0.002	0.403	0.030
66695	Heathcote River at Bells Pumpstation	06-Dec-18	8.880	11.000	9.640	9.000	10.800	9.645
67101	Le Bons Bay at Hughes culvert	02-Mar-21	10.071	11.550	10.422	10.073	11.101	10.326
67603	Lake Forsyth at SH75 (ECan)	11-Apr-95	0.367	3.480	*1.766	1.364	2.702	1.922
67806	Knights Stream at Sabys Road	14-Mar-14	19.452	20.491	19.973	20.000	20.146	20.034
966602	Avon at Gloucester St (ECan)	07-Jul-80	1.349	3.441	*1.515	1.477	2.475	1.594
1066625	Heathcote at Lincoln Road	17-Feb-21	20.416	21.538	20.540	20.437	20.759	20.508
1066632	Cashmere Stream at Eastman Wetland	31-Aug-22	17.154	18.046	*17.573	17.154	17.961	17.520

Notes:

* indicates gap percentage of 2.5% exceeded

Table 3-2: Flow sites statistics summary: 2024 comparison with full record.

Station details			Full record			1-January-2024 - 31-December-2024		
Number	Name	Start of record	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)
66425	Styx at Radcliffe Rd (ECan)	30-Dec-92	0.732	11.949	*1.475	1.085	4.629	*1.343
66443	Kaputone Creek at Guthries Rd	31-May-16	0.053	0.889	0.179	0.085	0.520	0.141
66446	Prestons Subdivision at Lower Styx Rd	29-Aug-17	0.000	0.928	*0.031	0.010	0.251	*0.031
66447	Otukaikino at Dickeys Road	08-Jun-18	1.909	17.489	*2.752	1.909	12.173	2.490
66471	Horners Drain at Prestons Rd	21-Aug-06	6.713	2403.871	98.876	26.967	1330.230	76.503
66604	Hoon Hay Stm at Hoon Hay Weir (ECan)	17-Aug-95	0.000	10.471	*0.025	0.000	0.308	0.003
66609	Heathcote River at Ferniehurst	01-Jan-04	0.099	15.071	0.808	0.355	5.559	0.717
66612	Heathcote at Buxton Tce (ECan)	18-Mar-91	0.100	33.127	*1.054	0.418	11.484	0.890
66621	Riccarton Drain at Deans Ave	21-Dec-21	0.038	4.077	*0.085	0.038	3.750	0.065
66639	Bowenvale Flume at Bowenvale Ave	16-Jul-96	0.000	6.052	0.024	0.000	0.220	0.001
66682	Cashmere Stream at Worsleys Reserve	03-Jun-16	0.000	5.601	0.482	0.000	3.146	0.399
66694	Cashmere Valley Drain at Adventure Park	27-Nov-18	0.000	5.731	0.011	0.000	1.304	0.004
67806	Knights Stream at Sabys Road	14-Mar-14	0.071	2.081	0.251	0.176	0.657	0.267
966602	Avon at Gloucester St (ECan)	07-Jul-80	0.973	30.041	*1.878	1.457	12.163	1.767

Notes:

* indicates gap percentage of 2.5% exceeded

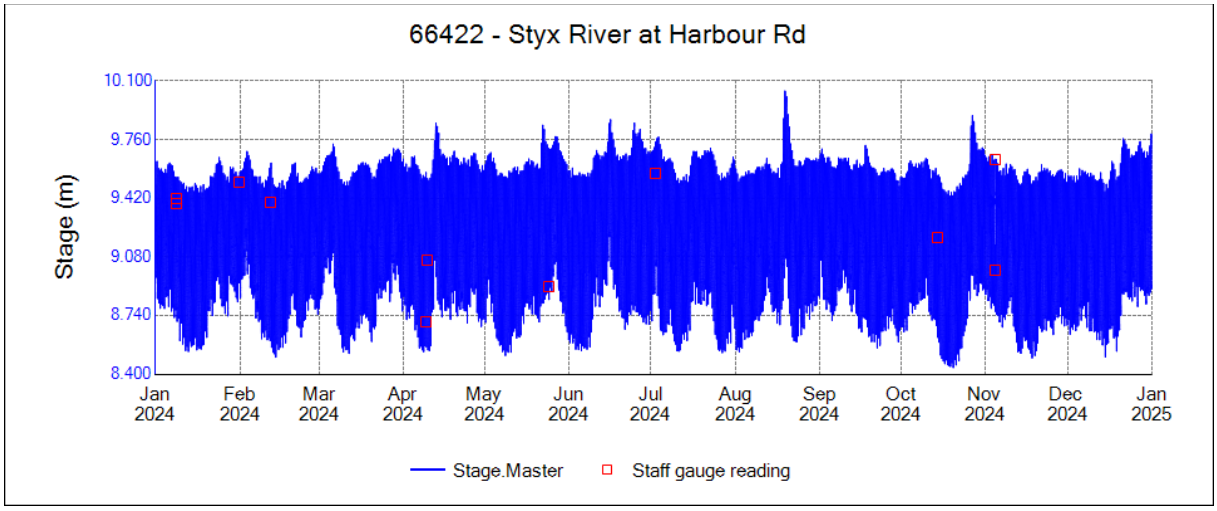
Table 3-3: Summary of water level/flow sites, December 2024.

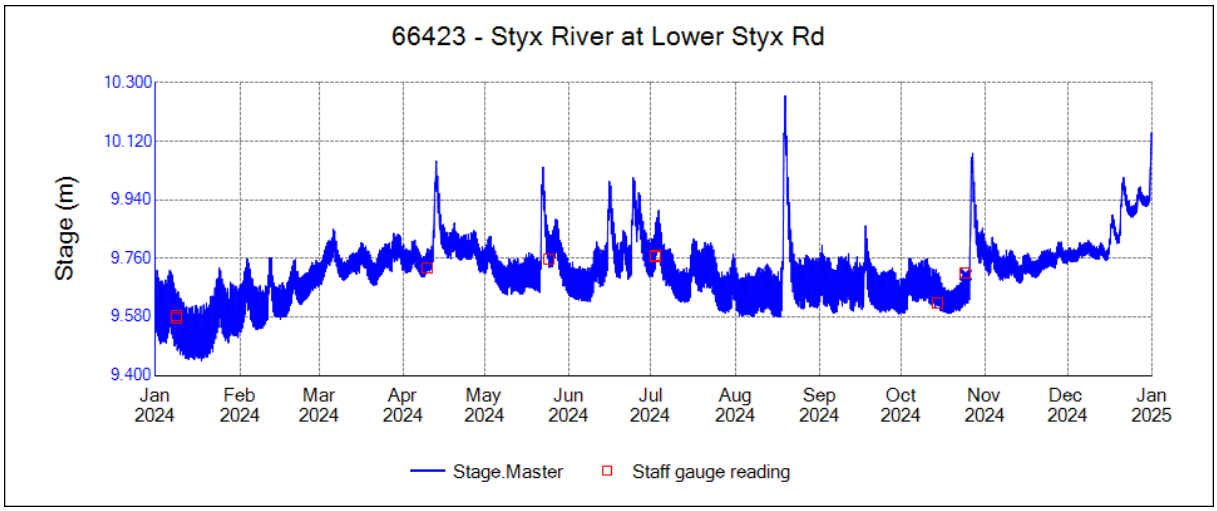
Site	Name	Comments
66422	Styx River at Harbour Rd	Reliable site. Staff gauge is difficult to read due to location and speed of stage changes. Upgraded to 4G in November 2024.
66423	Styx River at Lower Styx Rd	Reliable site. Staff gauge difficult to access due to fence and steep, slippery bank. Upgraded to 4G in October 2024.
66425	Styx River at Radcliffe Rd	ECan/CCC shared site, operations managed by ECan.
66440	Styx River at Tidegates	Site upgraded to water level radar and 4G in 2023. Now operating well.
66443	Kaputone Creek at Guthries Rd	Can be prone to backwatering and ponding effects downstream. Staff gauge upgraded mid-2023. Upgraded to 4G in December 2024.
66446	Prestons Subdivision at Lower Styx Rd	Site prone to siltation and backwatering from the Styx. The flow sensor is regularly buried resulting in large data gaps but normally works well during flood events. Upgraded to 4G in December 2024.
66447	Otukaikino Stream at Dickeys Road	Prone to vandalism. Site re-installed in November 2022 as a Waterwatch stand-alone sensor/ logger inaccessible to vandals. Prone to backwatering from Waimakariri during floods resulting in inaccurate stage-discharge rating output.
66471	Horners Drain at Prestons Rd	Reliable site. Upgraded to 4G in October 2024.
66604	Hoon Hay Stream at Hoon Hay Weir	ECan/CCC shared site, operations managed by ECan.
66605	Heathcote River at Ferrymead Bridge	Reliable site, radar exchanged in 2020 after old sensor failed. Staff gauge does not cover full range and is difficult to read due to fouling. Upgraded to 4G in January 2025.
66609	Heathcote River at Ferniehurst	Reliable site. Prone to aquatic weed growth and removal regime affecting stage. Site upgrades in 2022 with new logger installed in newly installed CCC electrical cabinet.
66610	Bullers stage	CCC shared site, operations managed by CCC.
66611	Avon River at PS205	Reliable site. Site upgraded to include water level radar and 4G in 2023.
66612	Heathcote River at Buxton Tce	ECan/CCC shared site, operations managed by ECan.
66621	Riccarton Drain at Deans Ave	Reliable site. Shifted from Riccarton Ave site in late 2021 to current location beneath footbridge in Hagley Park.
66625	Wigram Retention Basin at Outflow	Reliable site. Logger box was re-positioned higher after being flooded.

Site	Name	Comments
66626	Heathcote River at Wigram Retention Basin	Reliable site.
66634	Avon River at Bridge St	Reliable site. Staff gauge very difficult to read due to poor location and fouling.
66635	Horseshoe Lake at PS205	Site prone to tower blockages due to silt build up in the channel, regularly flushed.
66636	Dudley Creek at Aylesford Street	Reliable site. Upgraded to 4G in December 2024.
66638	Heathcote River at Opawa Rd	Reliable site. Staff gauge relocated and upgraded in 2023. Upgraded to 4G in December 2024.
66639	Bowenvale Flume at Bowenvale Ave	Reliable site. Large amounts of sediment is being deposited in the flume during flood events, requires contractors to clear it. Upgraded to 4G in October 2024.
66641	Halswell Ret.Basin, Halswell Jnt	Reliable site.
66642	Wigram Retention Basin at Overflow	Reliable site.
66651	Croziers Drain u/s of PS219 Philpotts Rd	Reliable site. Upgraded to 4G in February 2025.
66654	Wairarapa Stream at Rossall St	Reliable site. Prone to aquatic weed growth and removal regime affecting stage. Upgraded to 4G in February 2025.
66670	Avon River at Fitzgerald Ave	Reliable site. Prone to aquatic weed growth effecting stage. Staff gauge and site fittings upgraded mid-2023. Upgraded to 4G in March 2025.
66682	Cashmere Stream at Worsleys Reserve	Reliable site. Prone to backwatering from Heathcote River during floods resulting in inaccurate stage-discharge rating output.
66692	Hoon Hay Valley Drain at Cashmere Rd	Had multiple issues throughout 2022 due to the pressure transducer failing. Sensor was replaced and site is now reliable. Upgraded to 4G in February 2025.
66694	Cashmere Valley Drain at Adventure Park	Reliable site. Steep catchment making field visits and gaugings during period of high flow difficult. Upgraded to 4G in October 2024.
66695	Heathcote River at Bells Pumpstation	Reliable site. Upgraded to 4G in December 2024.
67101	Le Bons Bay at Hughes culvert	Reliable site. Satellite communications.
67603	Lake Forsyth at SH75	ECan/CCC shared site, operations managed by ECan.

Site	Name	Comments
67806	Knights Stream at Sabys Road	Reliable site. Prone to aquatic weed growth and removal regime affecting stage. Upgraded to 4G in October 2024.
966602	Avon at Gloucester St - Ecan	ECan/CCC shared site, operations managed by ECan.
1066625	Heathcote at Lincoln Road	Reliable site. Radar water level sensor and 4G logger installed.
1066632	Cashmere Stream at Eastman Wetland	Reliable site. Installed as part of New Eastman Wetland development. Somewhat prone to aquatic weed growth and removal regime affecting stage. 4G logger installed.

Stage plots





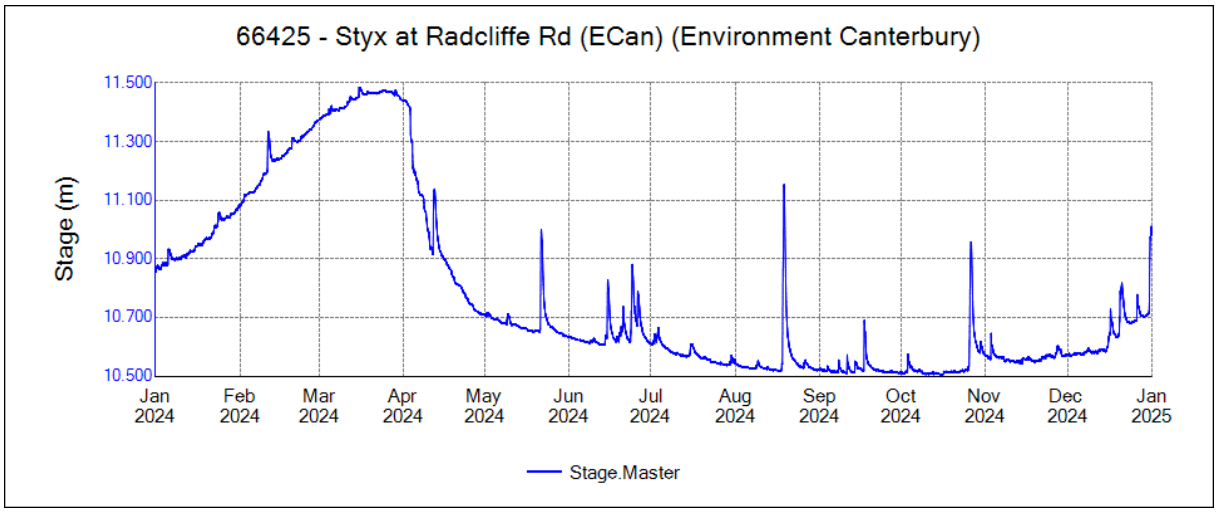


Figure 3-5: CCC hydrometric network water-level plots: 1 January to 31 December 2024.

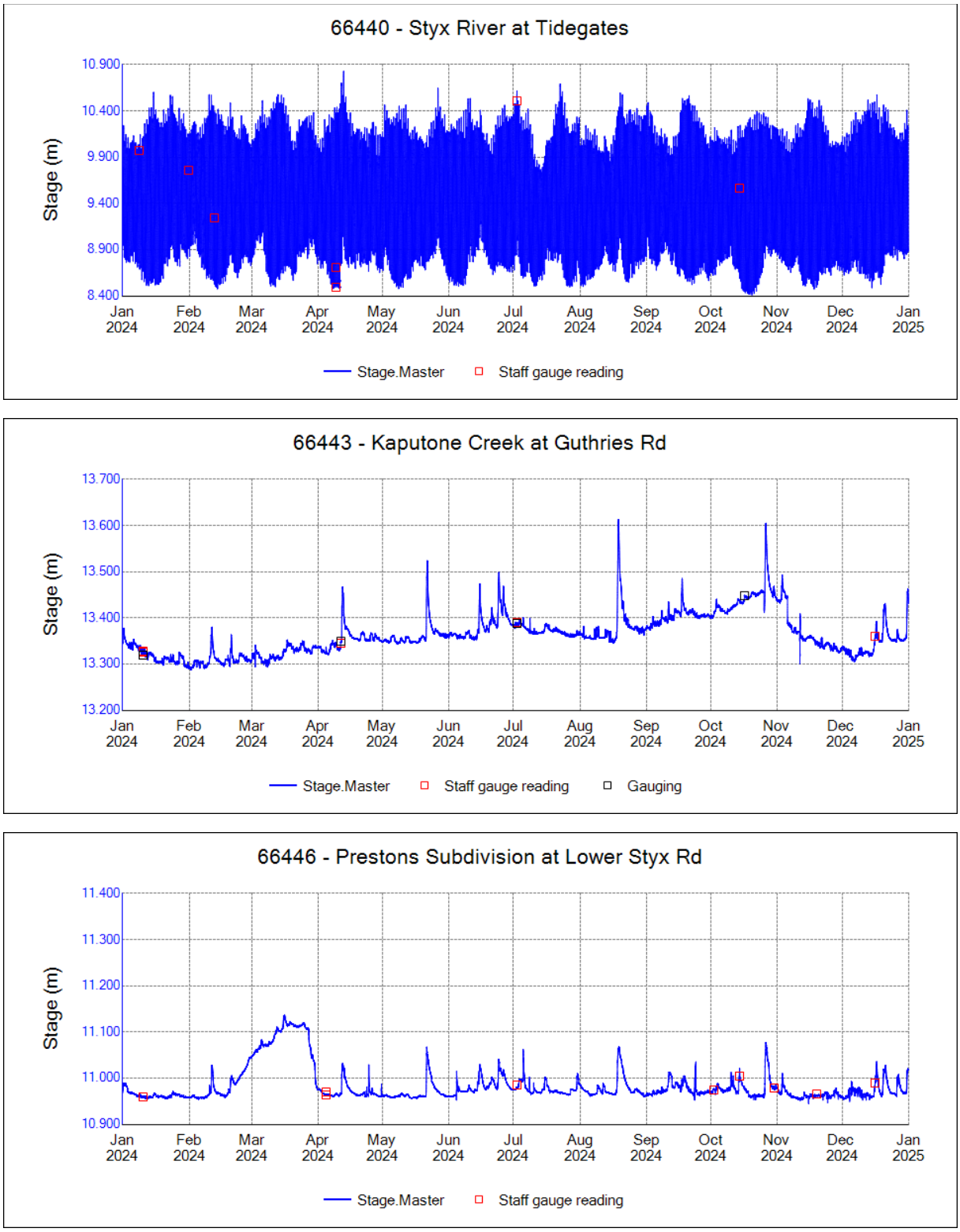


Figure 3-6: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

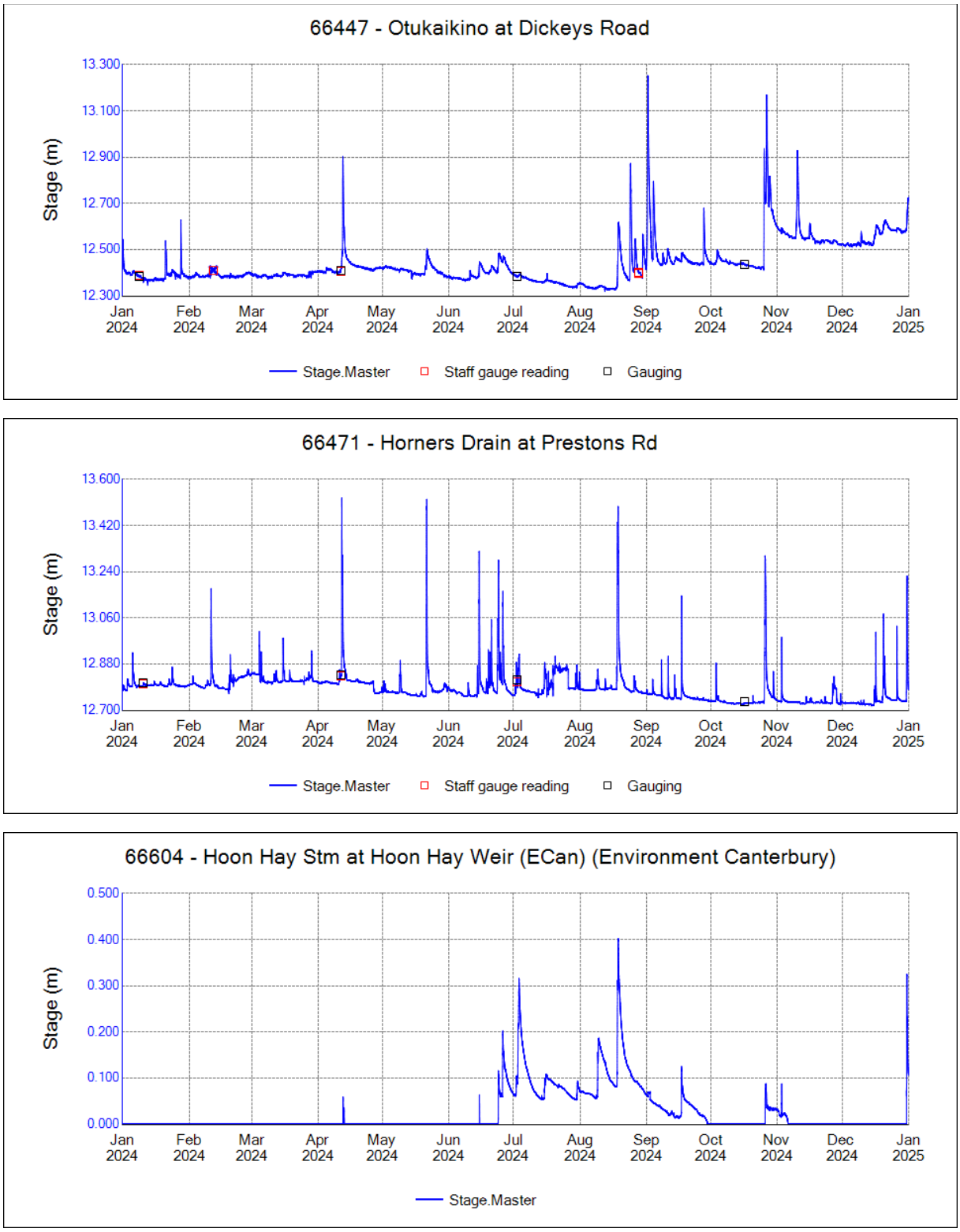


Figure 3-7: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

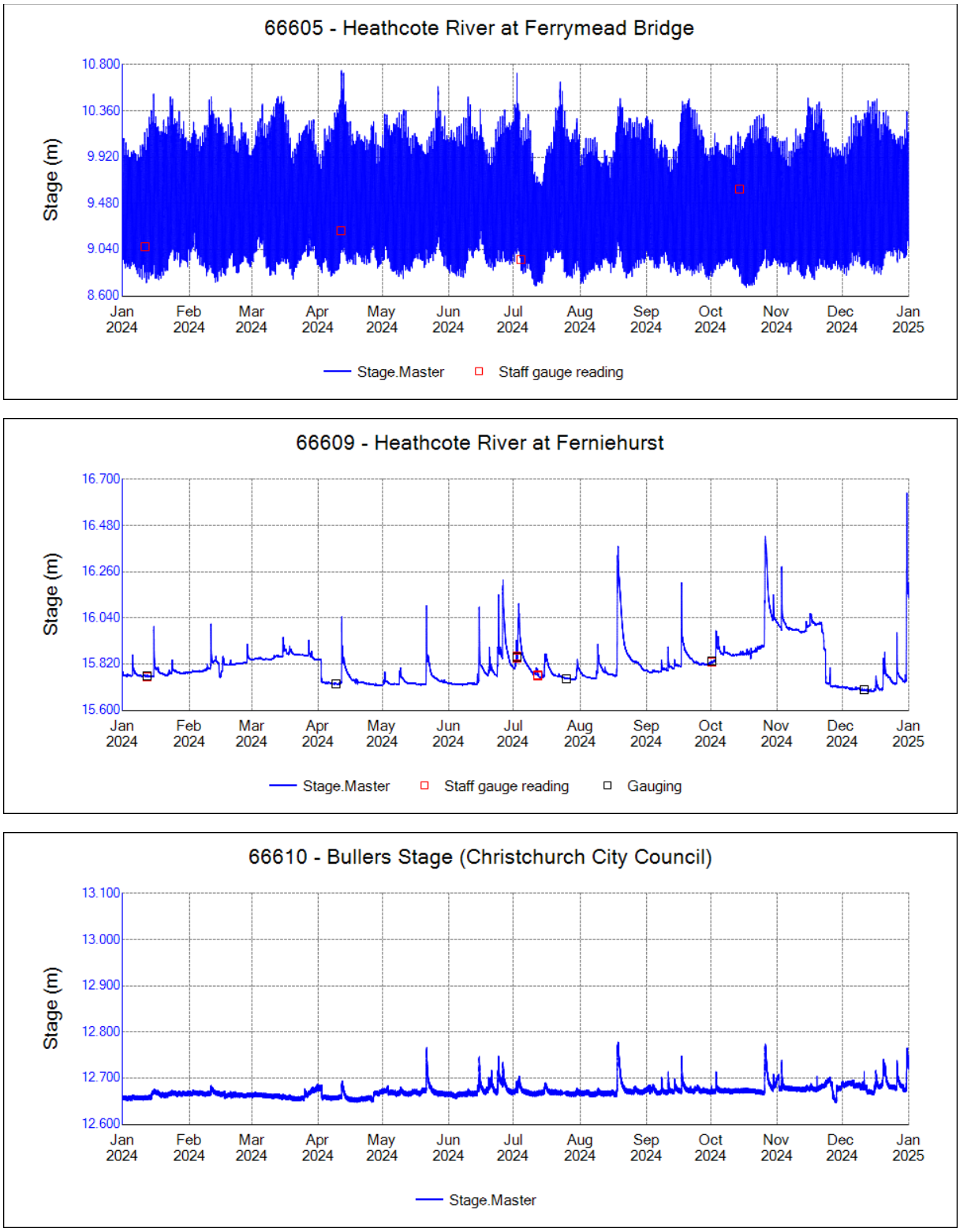


Figure 3-8: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

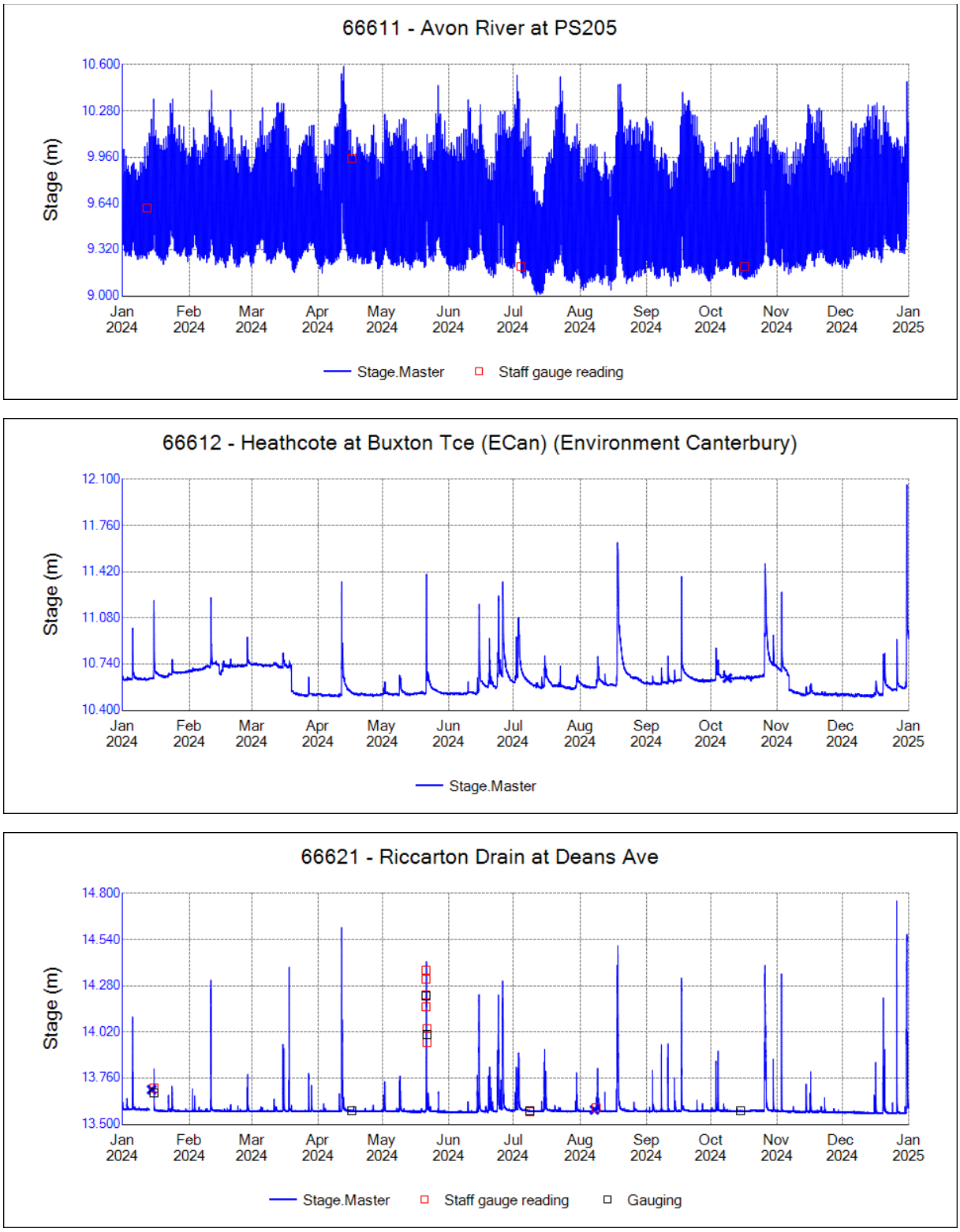


Figure 3-9: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

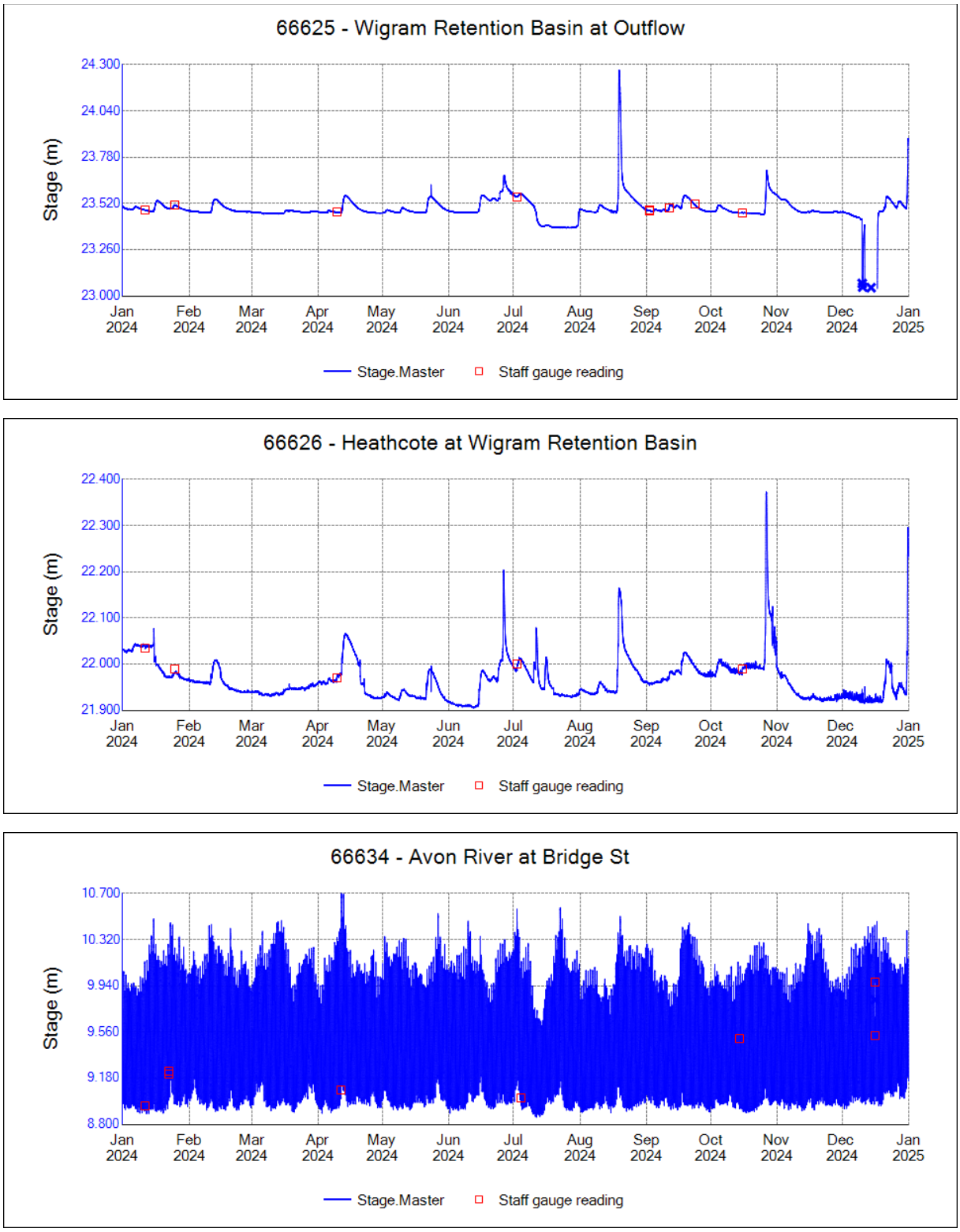


Figure 3-10: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

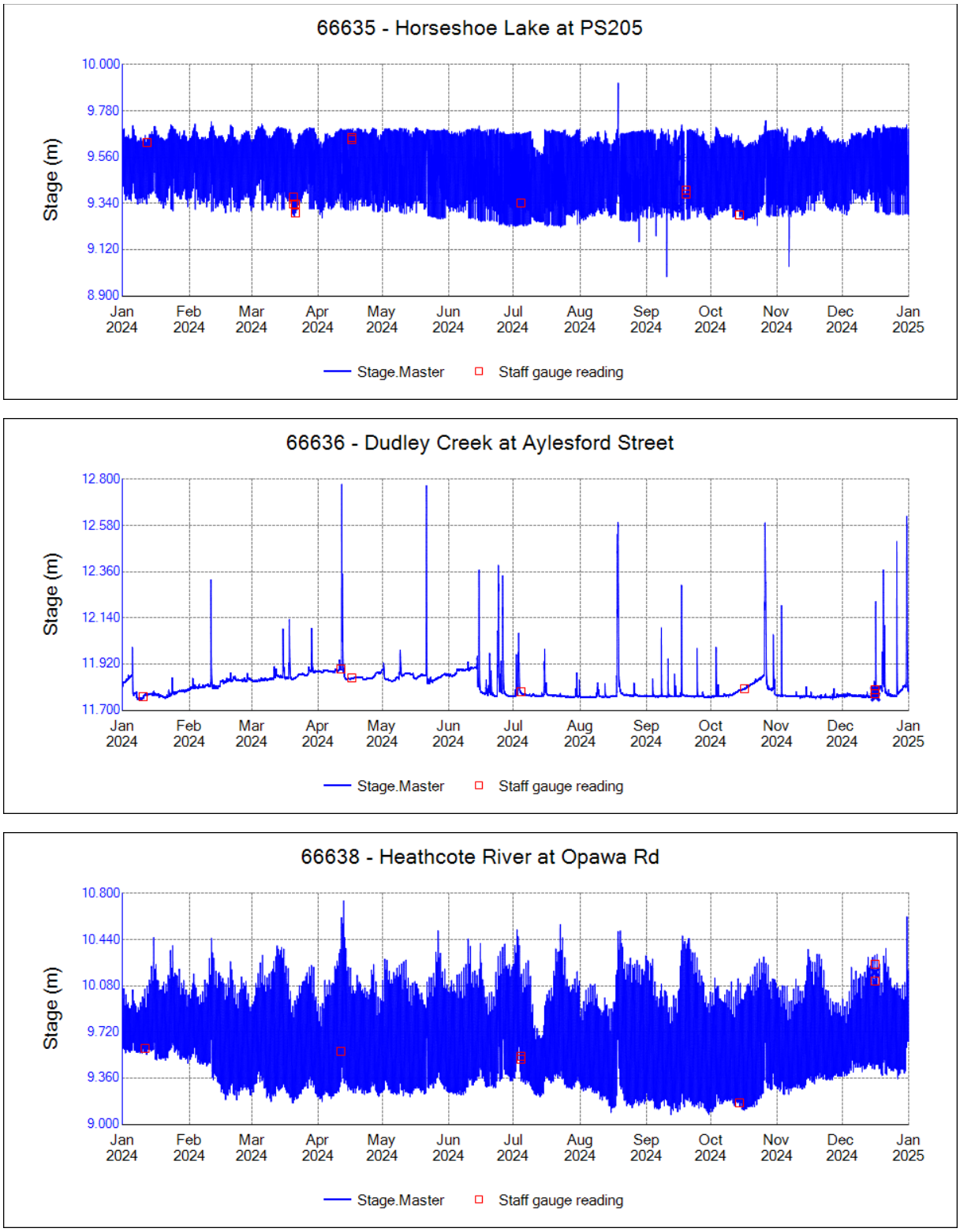


Figure 3-11: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

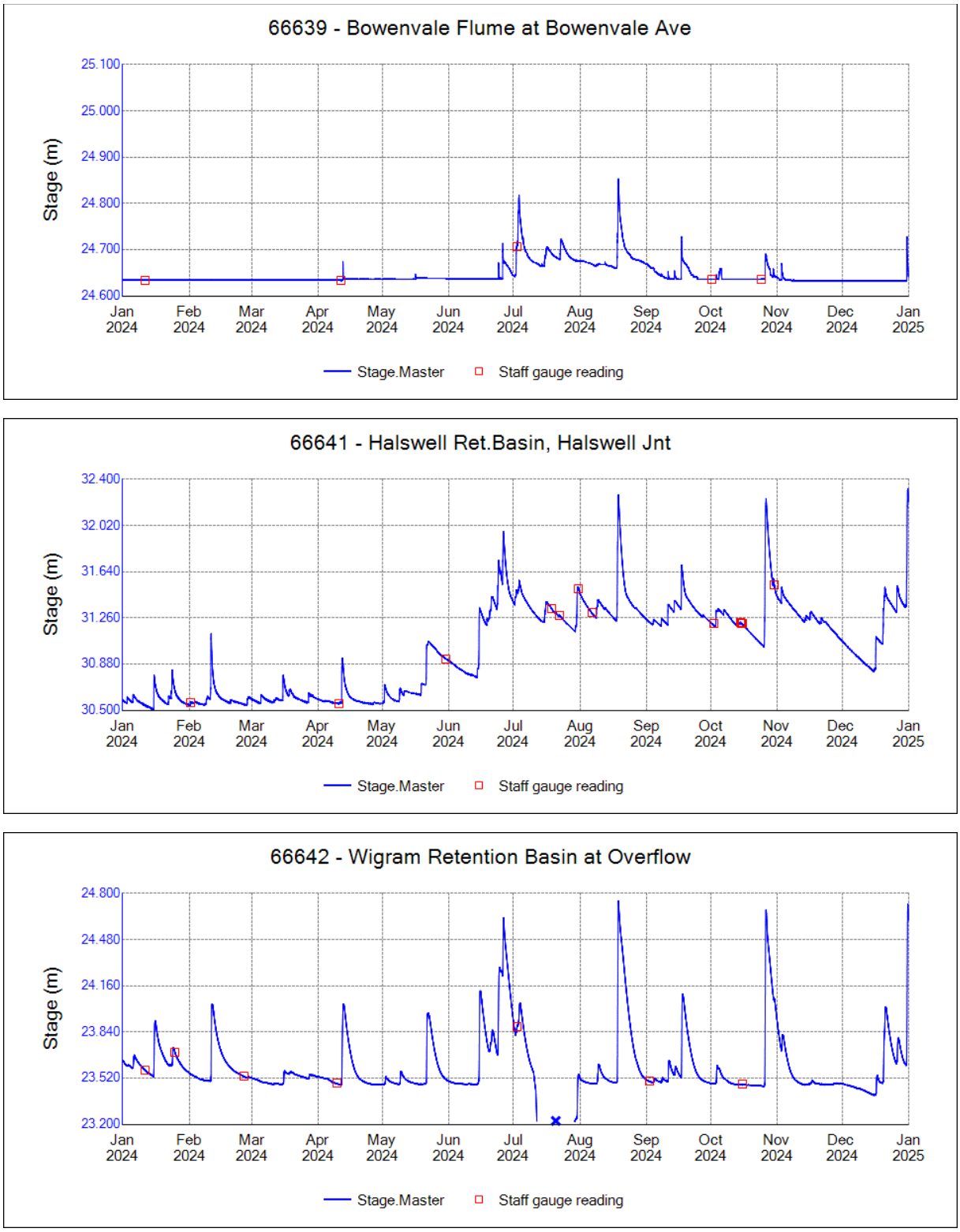


Figure 3-12: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

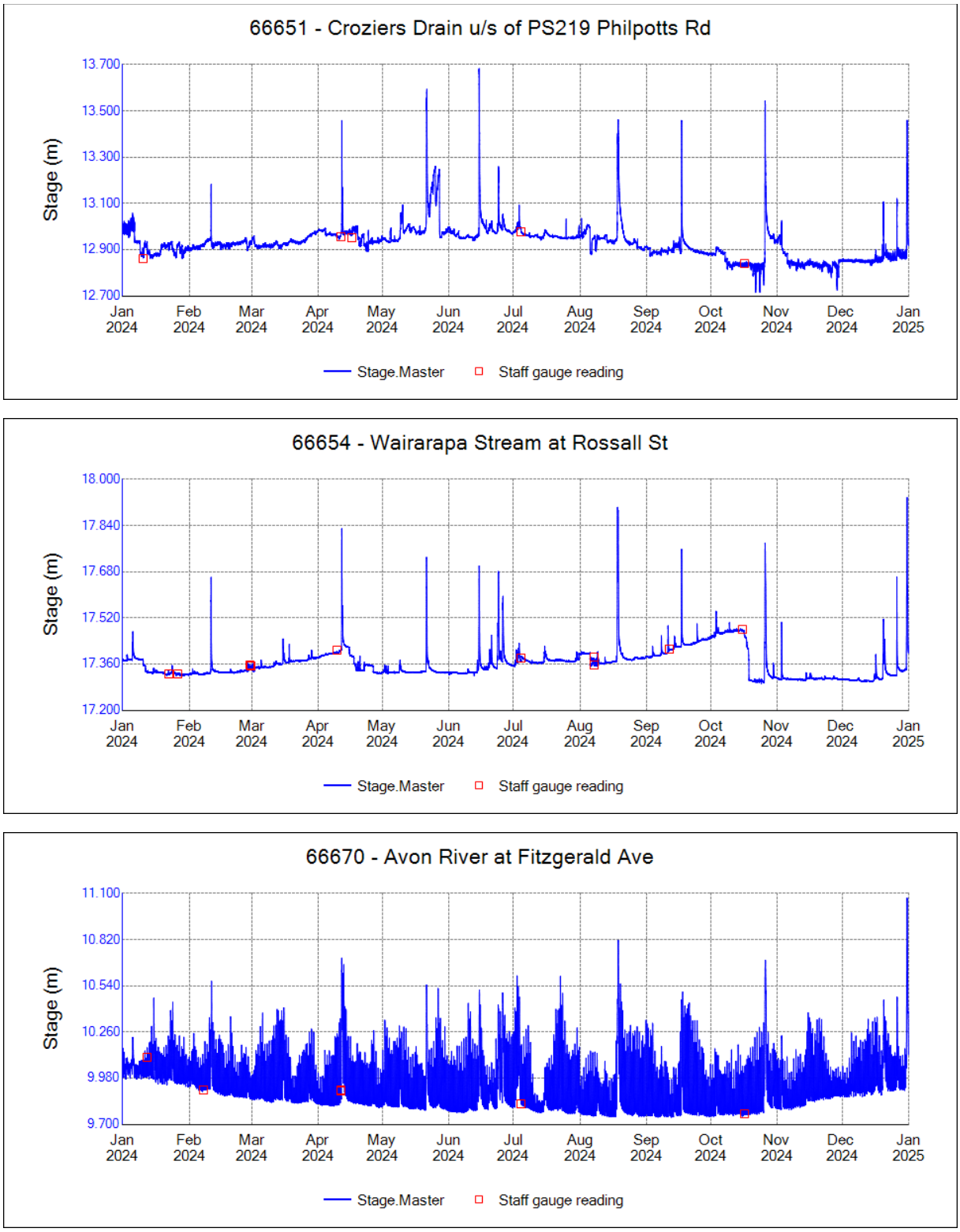
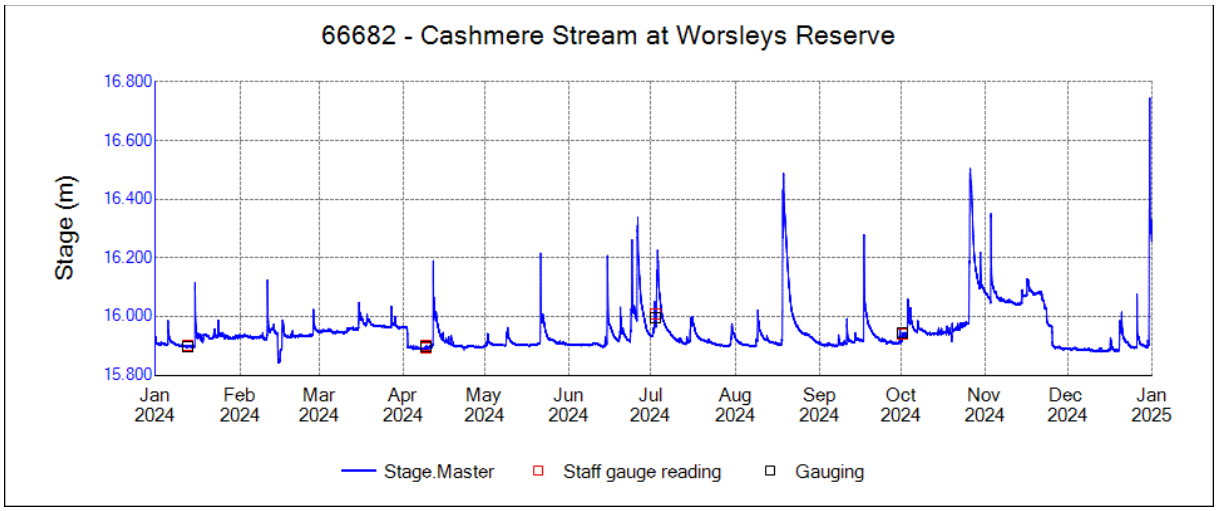
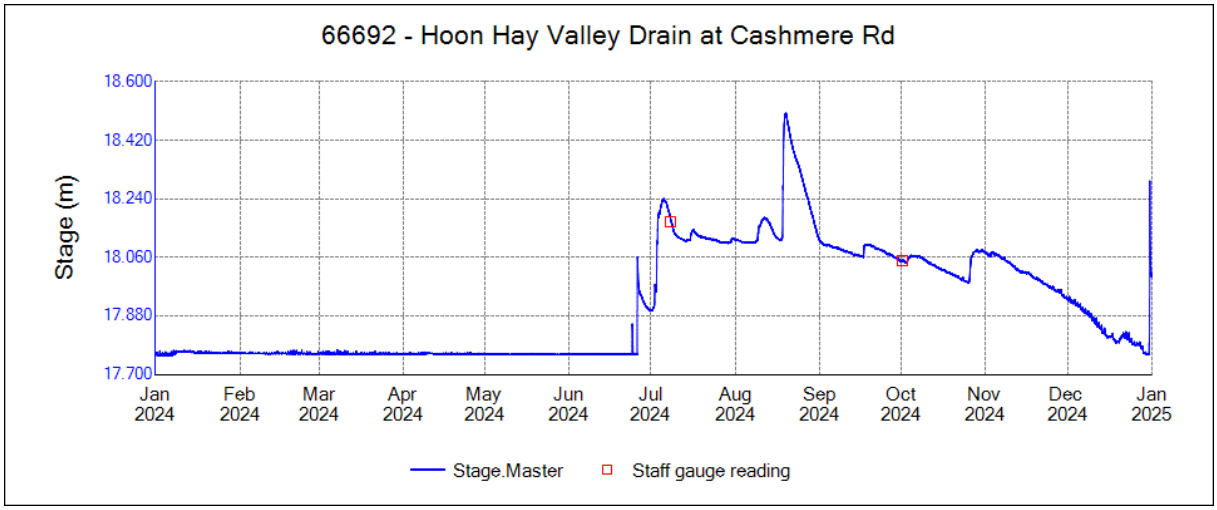


Figure 3-13: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).





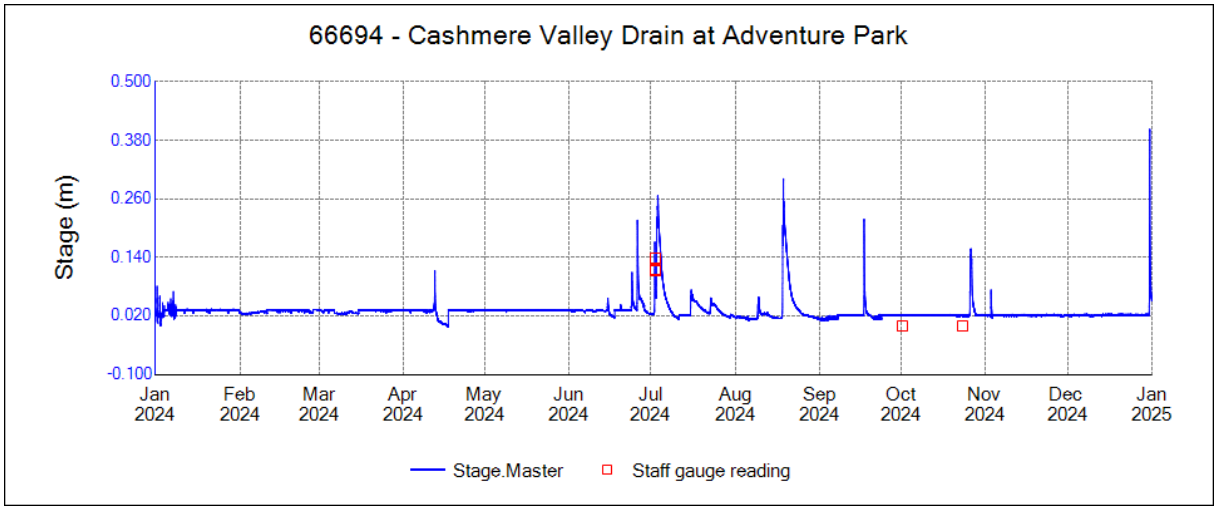


Figure 3-14: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

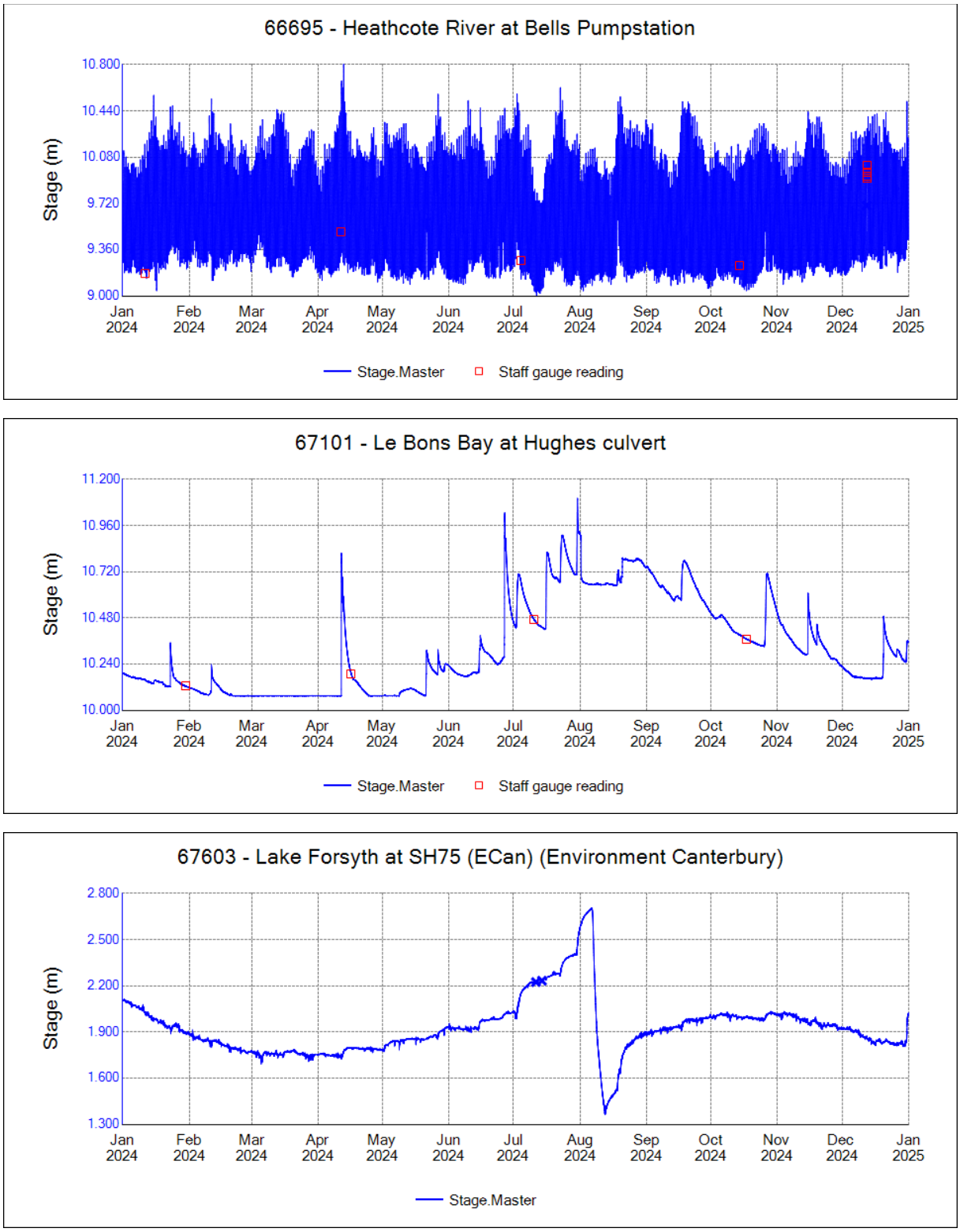


Figure 3-15: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).

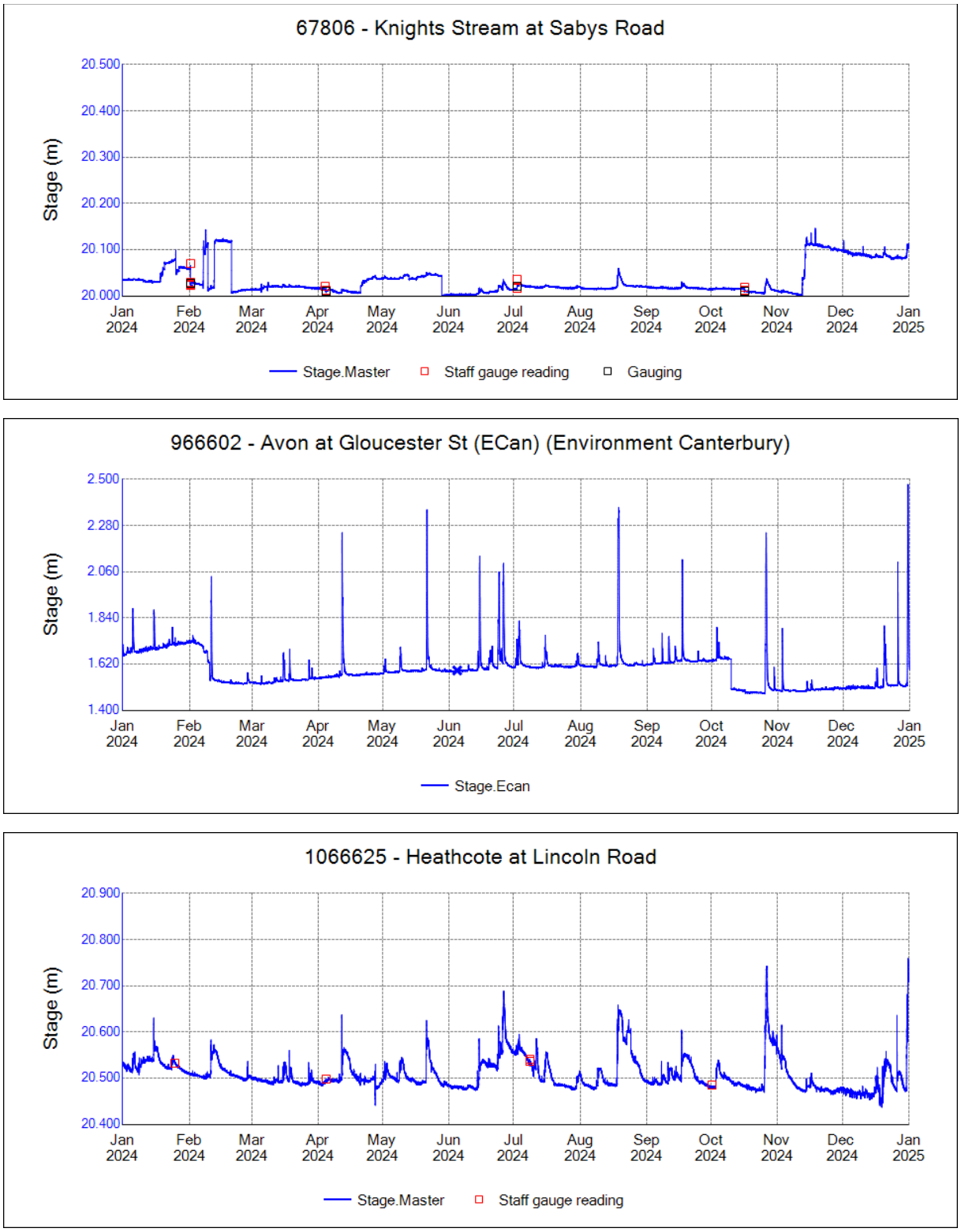
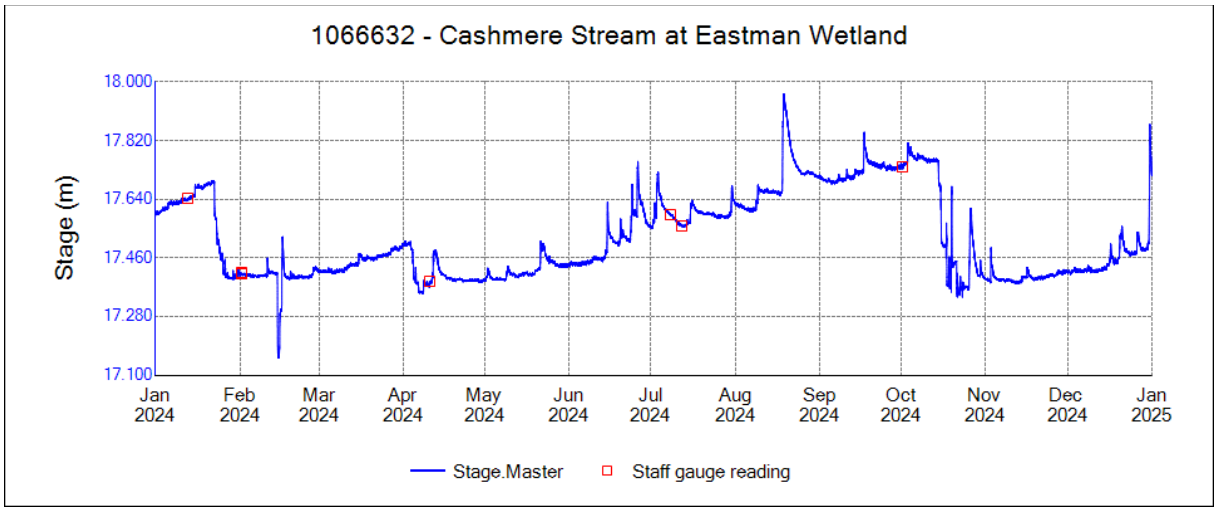


Figure 3-16: CCC hydrometric network water-level plots: 1 January to 31 December 2024 (cont.).


1066632 - Cashmere Stream at Eastman Wetland
Stage (m)
18.000
17.820
17.640
17.460
17.280
17.100
Jan 2024
Feb 2024
Mar 2024
Apr 2024
May 2024
Jun 2024
Jul 2024
Aug 2024
Sep 2024
Oct 2024
Nov 2024
Dec 2024
Jan 2025
Stage.Master
Staff gauge reading

Flow plots

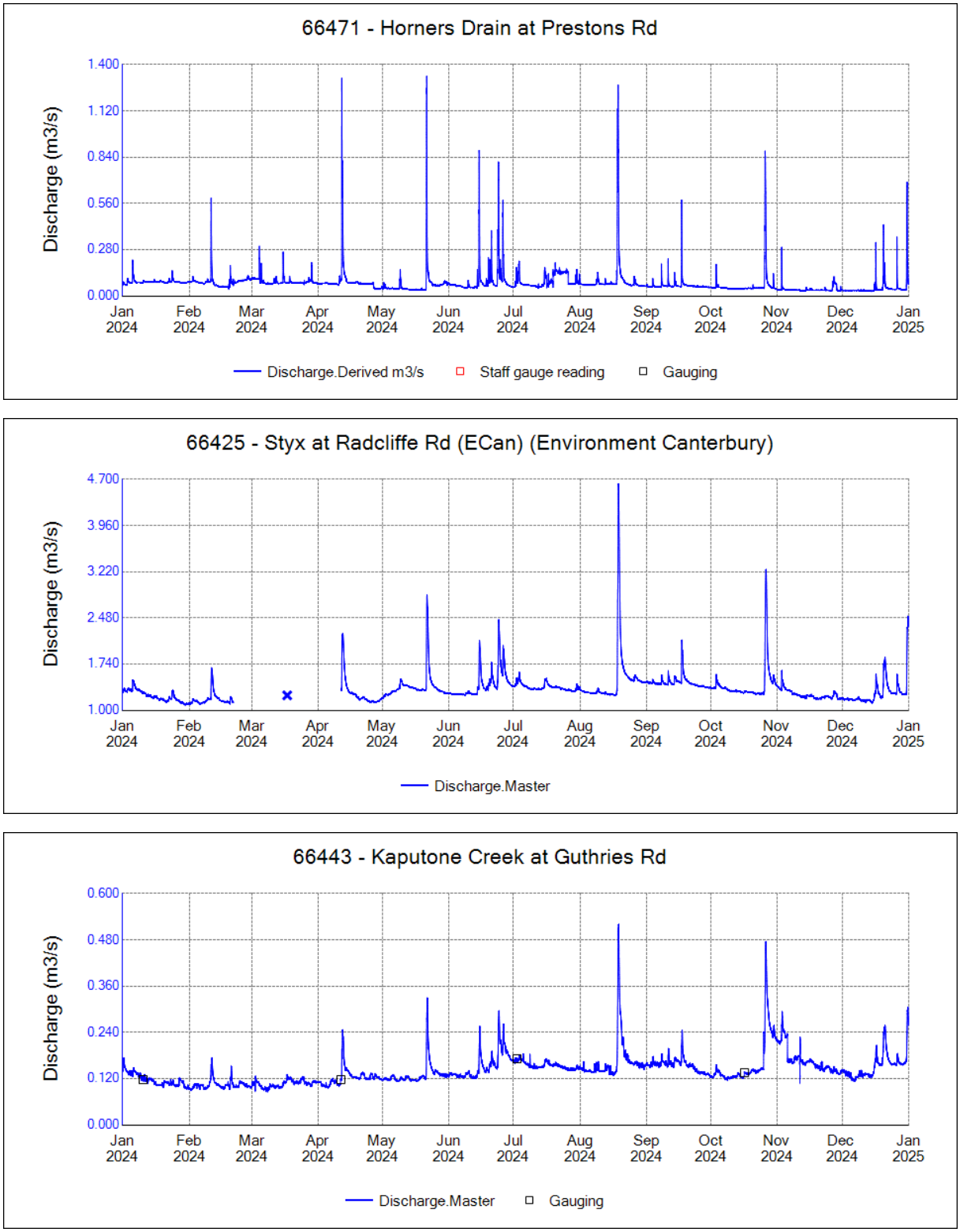
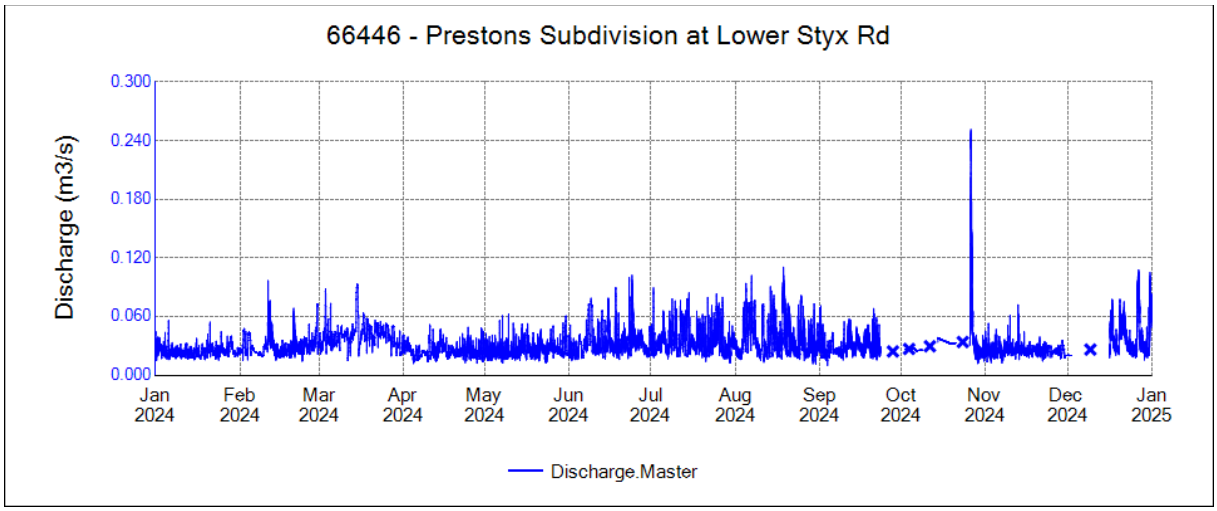
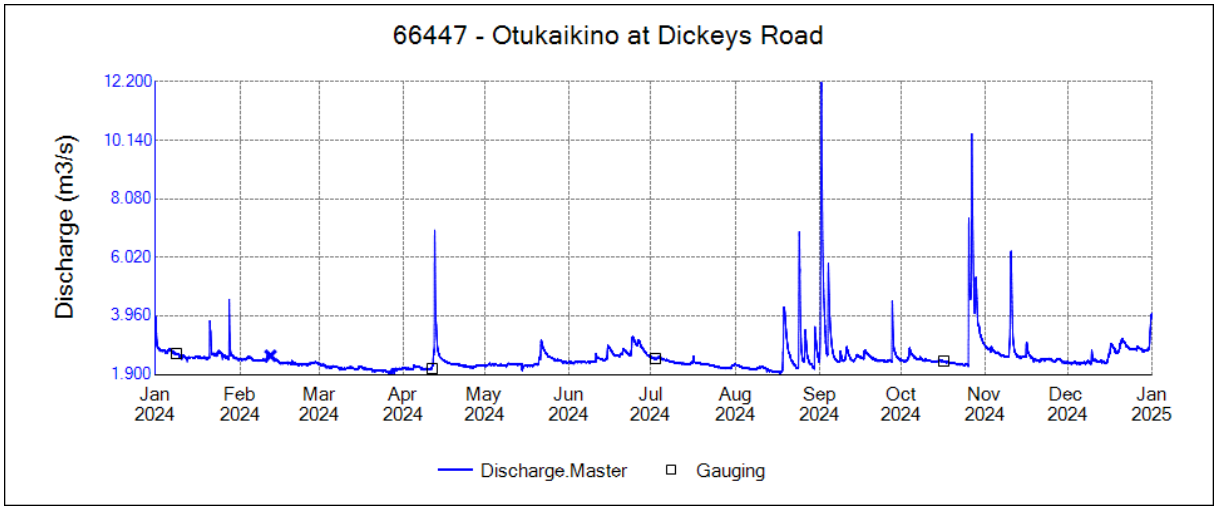


Figure 3-17: CCC hydrometric network flow plots: 1 January to 31 December 2024.





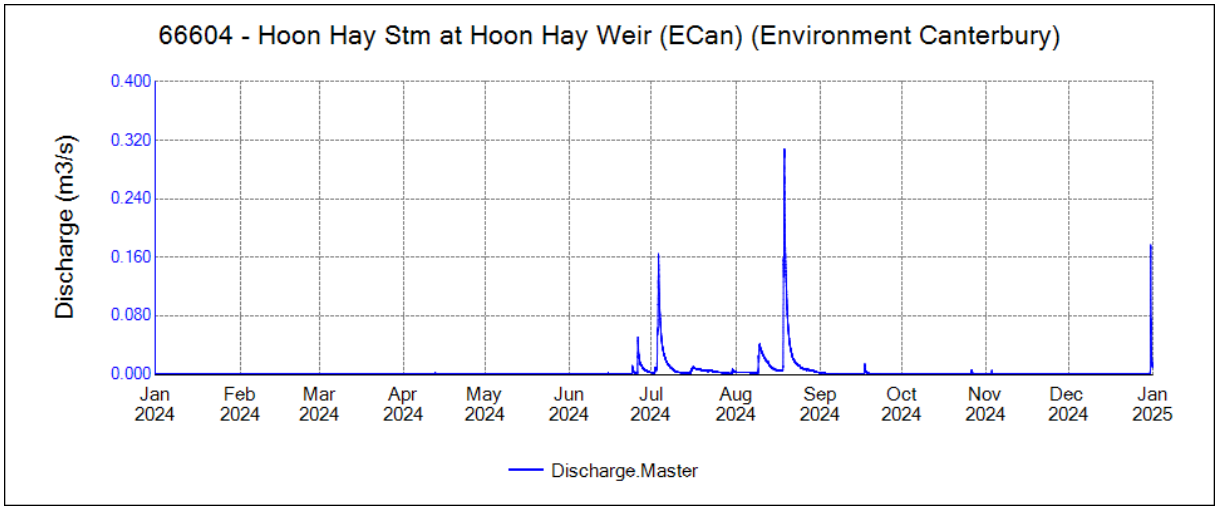
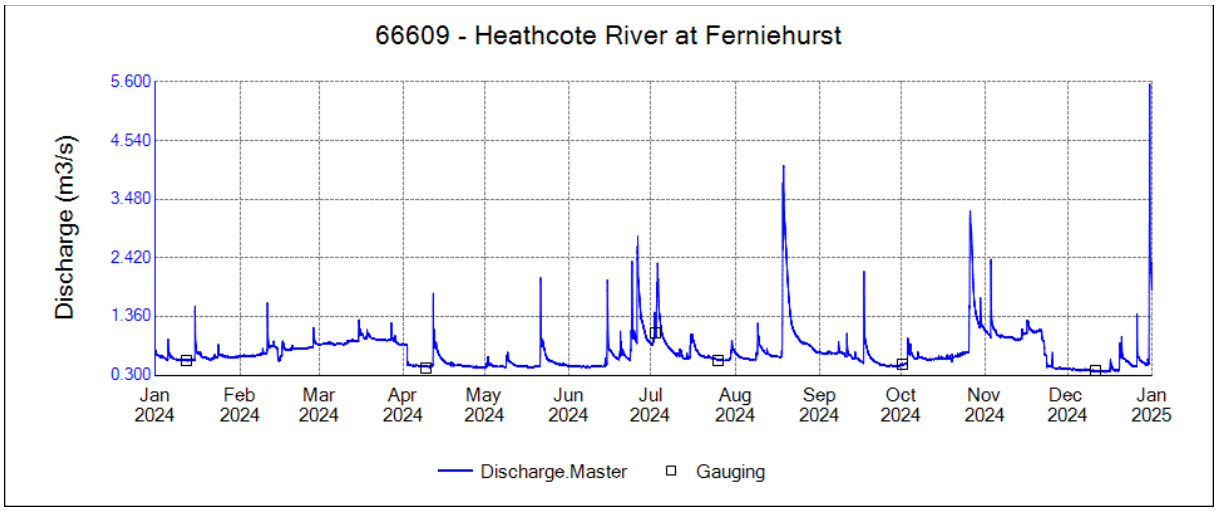
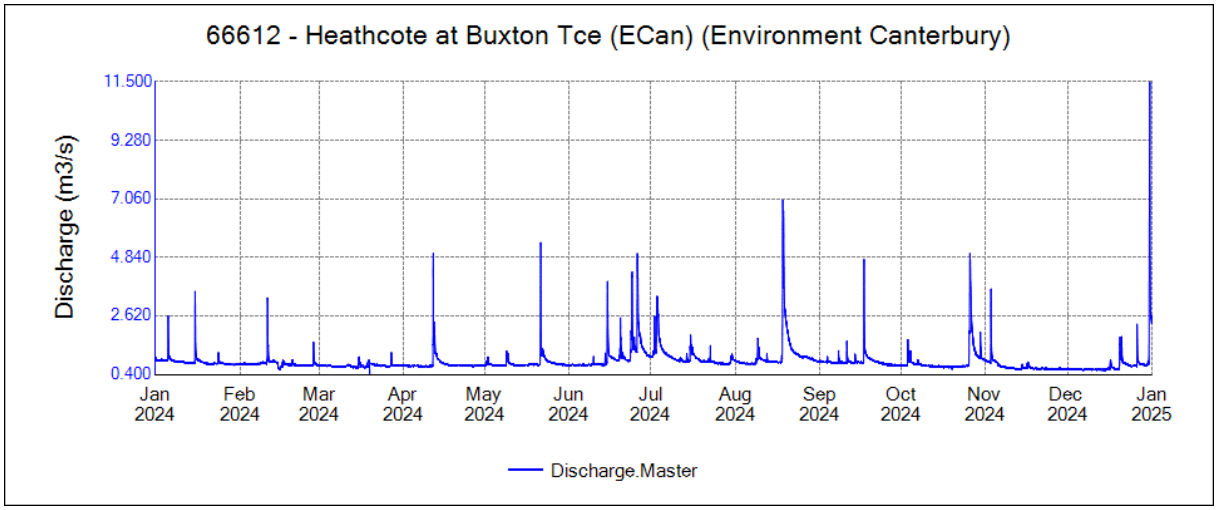


Figure 3-18: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.).





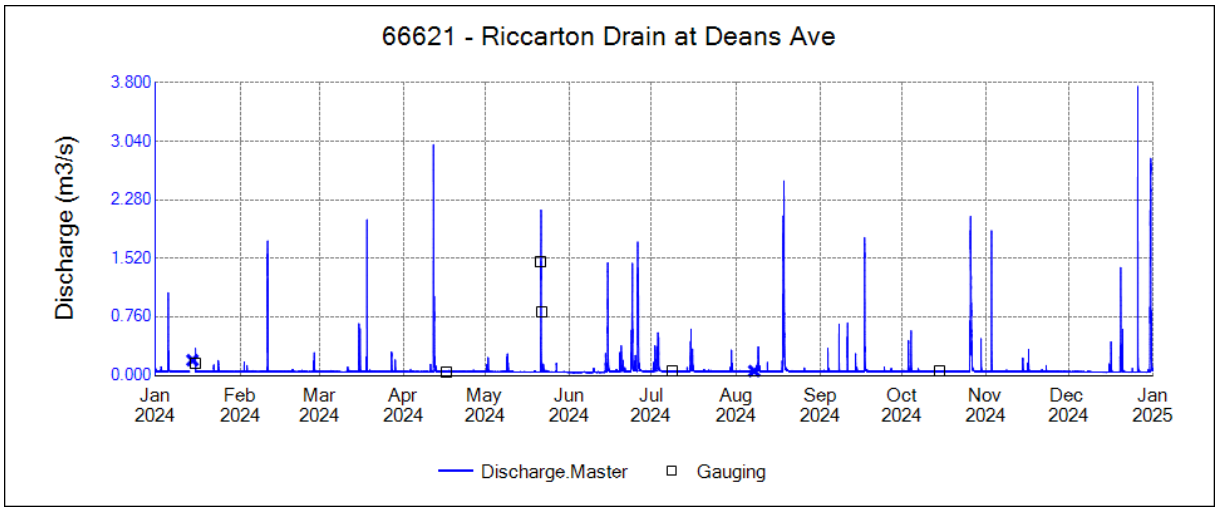
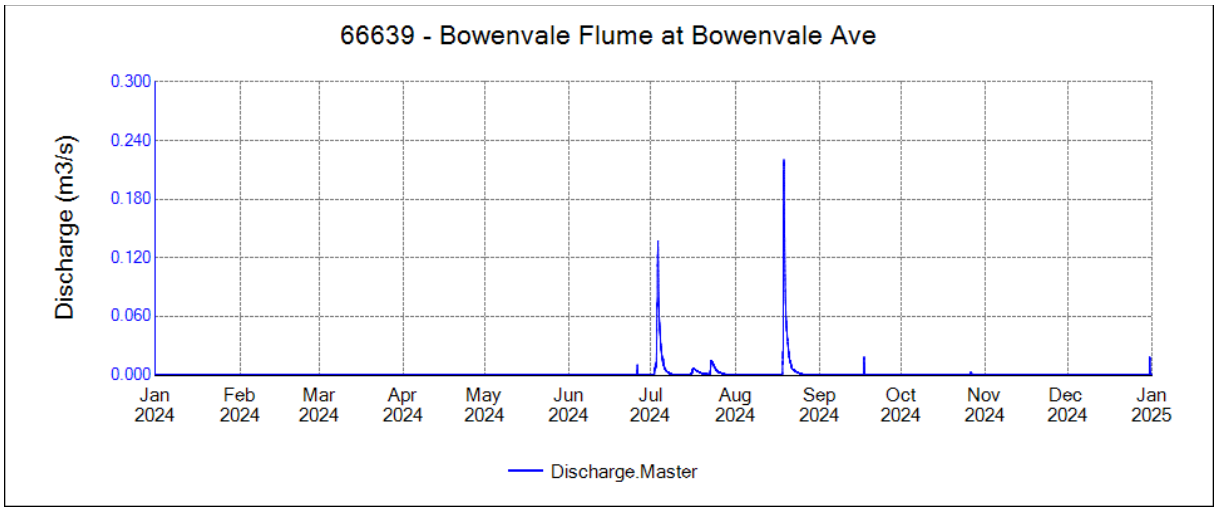
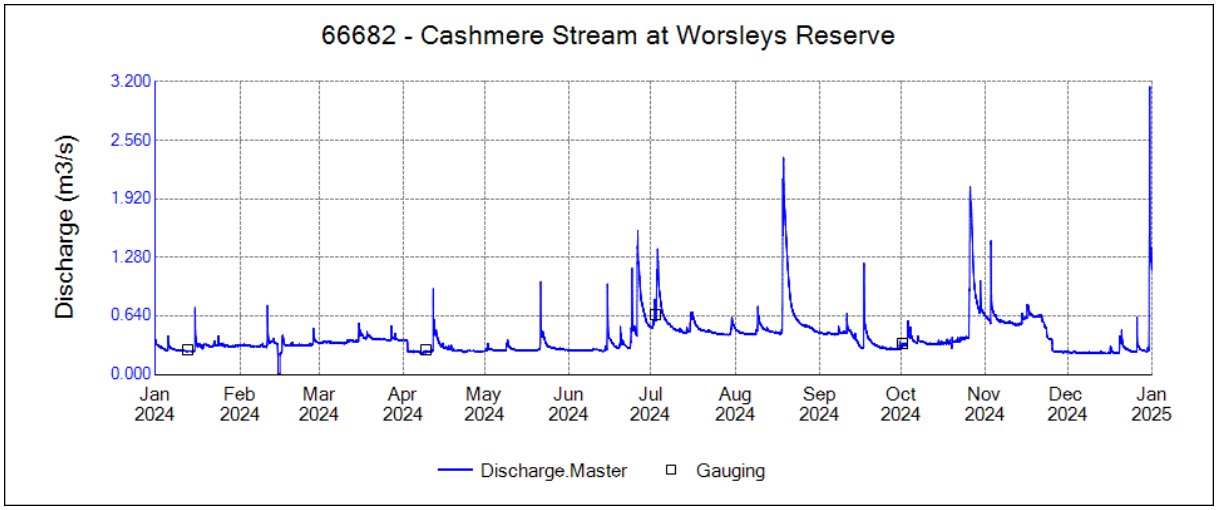


Figure 3-19: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.).





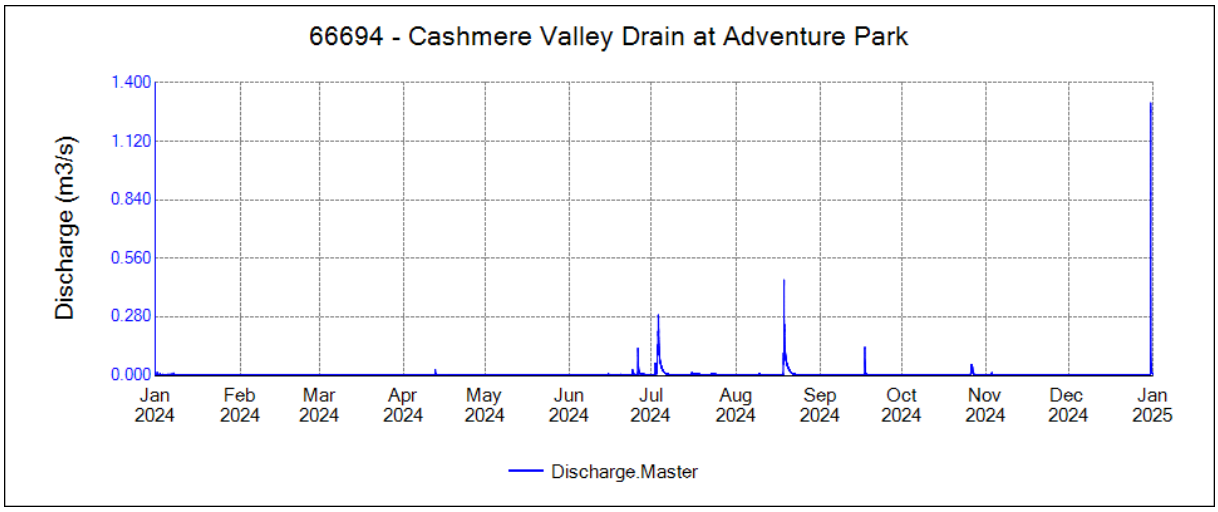
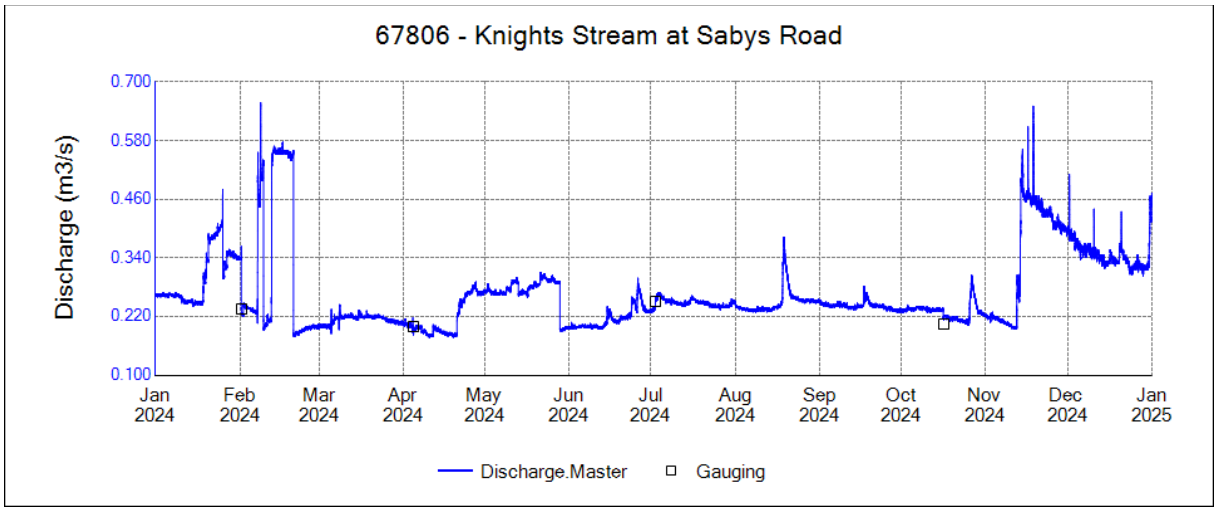


Figure 3-20: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.).



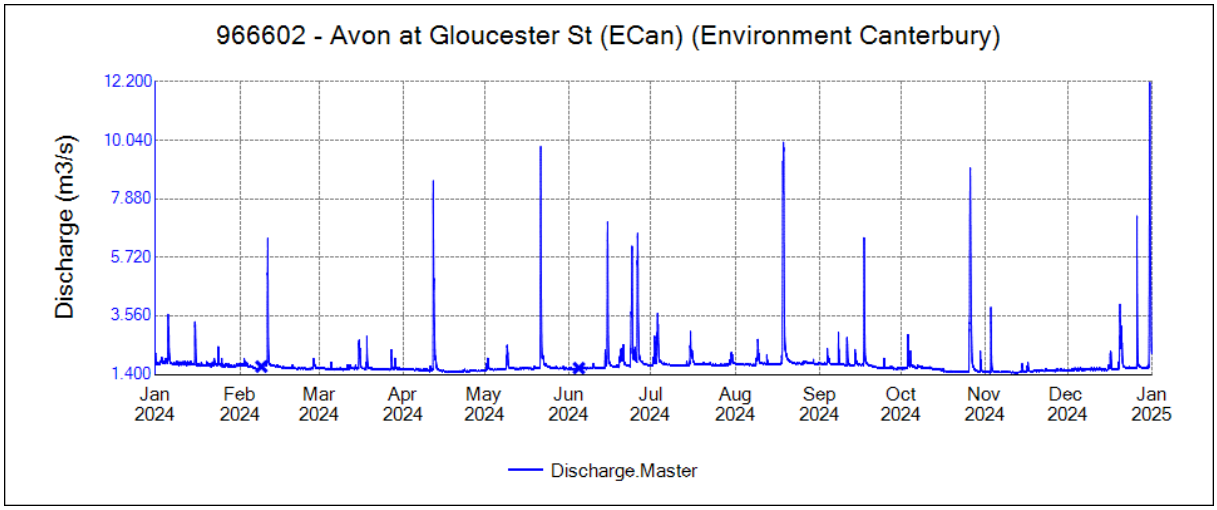


Figure 3-21: CCC hydrometric network flow plots: 1 January to 31 December 2024 (cont.).

4 Groundwater

The CCC groundwater network consists of a total of 27 groundwater sites operated by NIWA as at the end of 2024. Three of these sites are telemetered. Groundwater is recorded in metres relative to the Christchurch Drainage Datum.

Figure 4-1 shows the location of the sites. Figure 4-2 and Figure 4-3 provide a continuity scan showing any gaps in the groundwater record for each site in 2024.

Table 4-1 provides a summary of the maximum, mean and minimum groundwater-levels recorded during 2024 as compared with those recorded for the full periods of record for the permanent and project groundwater sites, respectively.

Groundwater-level plots for each site are shown in Figure 4-4 to Figure 4-12.

All sites in the groundwater network are measured manually with the exception of the Halswell Retention Basin (3255009), Dartford St (3246005) and Sumner (3257031) sites which are telemetered monitoring sites recording 5-minute data. At present the data from the telemetered sites is available up to the last hour.

Manual groundwater levels are measured on either a weekly or fortnightly basis, depending on site status requirements. An additional requirement is that following rainfall of greater than 20 mm in a 24-hour period, groundwater measurements should be delayed by 2-days.

Some groundwater sites located at CCC pumpstations have had periodic limited access during 2024 whilst CCC and Citycare have carried out their recent pumpstation maintenance programme. In these instances, the groundwater bores have been measured when safe site access was available to do so. However, some measurements were missed if access was restricted at these sites during the period.

The manually-read site Hodgens Road - M36/5716 (3255018) is frequently dry, and the continuity scan (Figure 4-2) shows that no water has been recorded in the bore since February 2024.

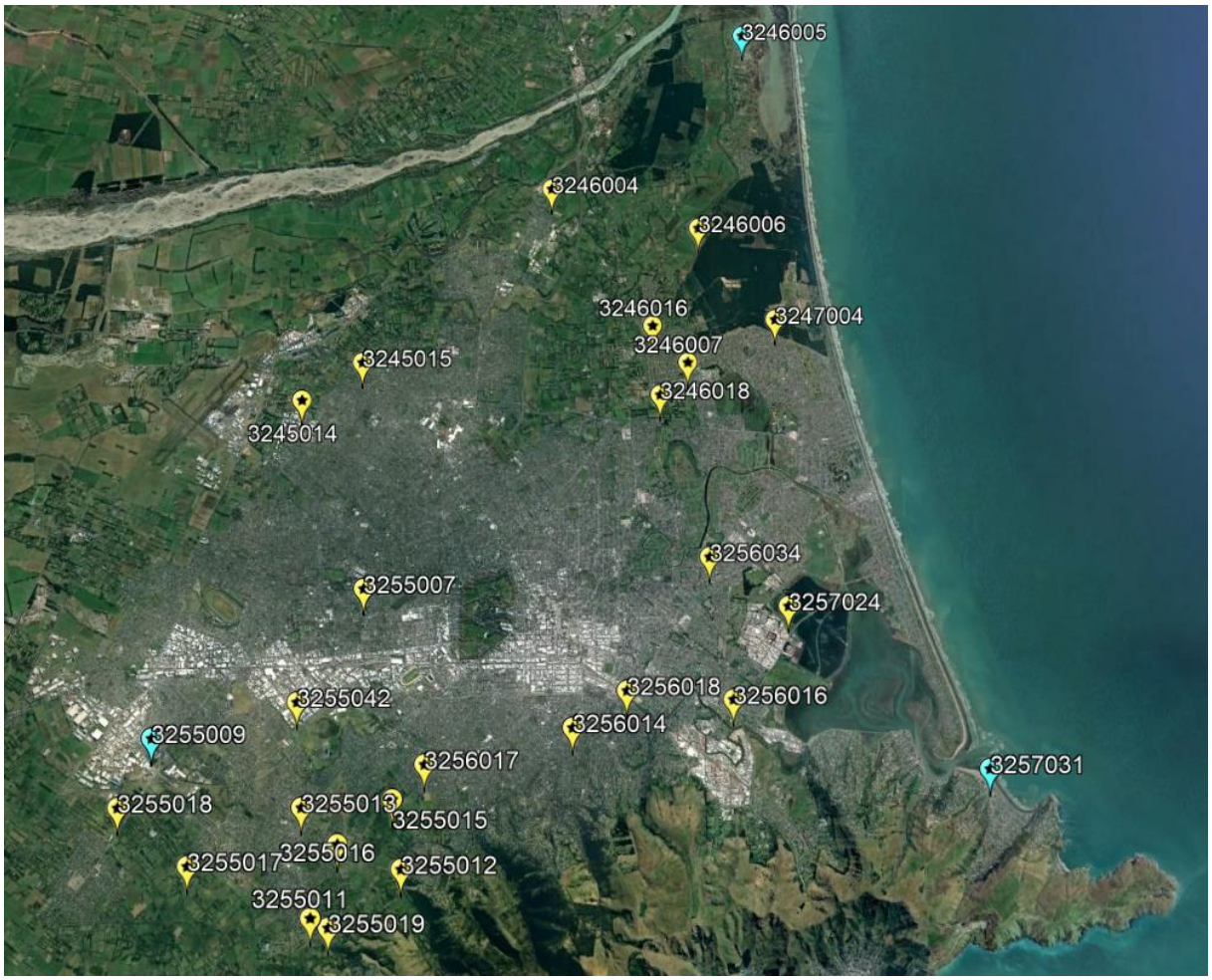


Figure 4-1: Location of CCC groundwater level sites during 2024. Telemetered sites are labelled with blue pins and manual sites with yellow pins.

Figure 4-2: Groundwater continuity plot for 2024.

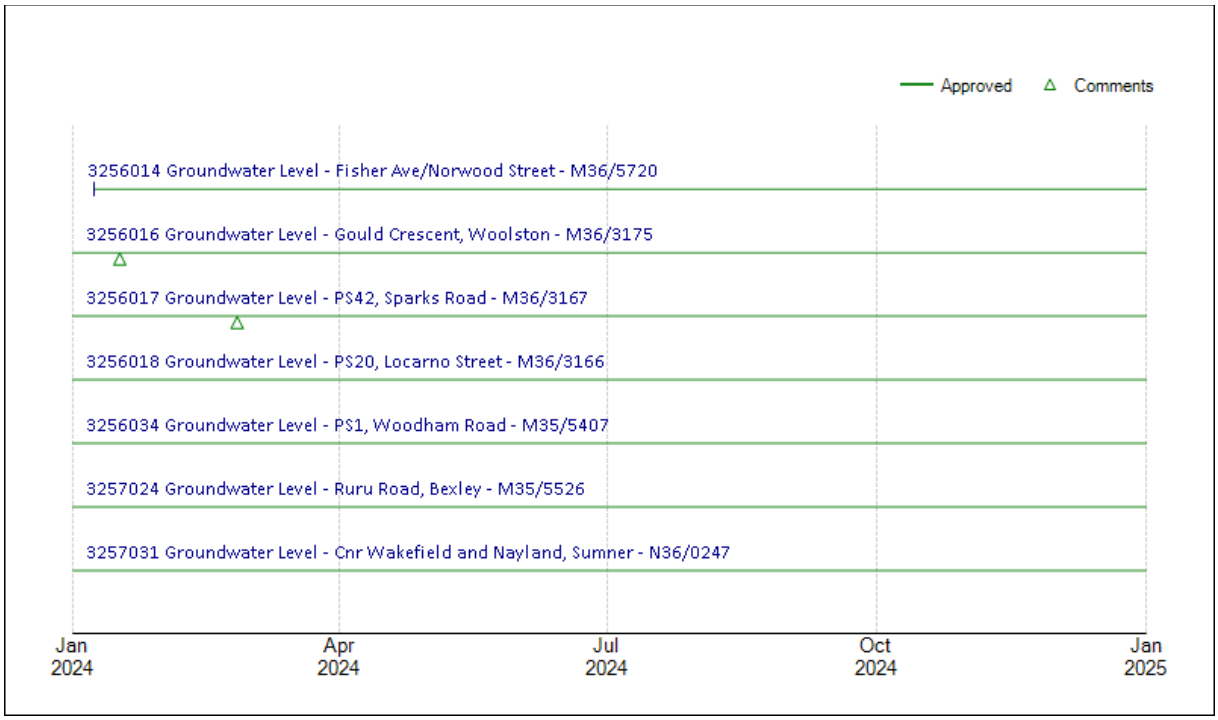


Figure 4-3: Groundwater continuity plot for 2024 (cont.).

Table 4-1: Groundwater site statistics summary: 2024 comparison with full record.

Station details			Full record			1-January-2024 - 1-December-2024		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
3245014	Roydvale Ave - M35/5413	06-Oct-77	26.195	29.795	27.571	26.505	27.845	26.750
3245015	Fairford St (opp Oldwood) - M35/8236	19-Dec-88	24.975	26.525	25.773	25.075	25.695	25.407
3246004	PS62, Tyrone Street - M35/3739	05-Jun-84	11.745	14.935	13.763	13.465	14.695	14.145
3246005	Dartford St, Brooklands - M35/5425	21-Jul-81	8.498	10.873	9.643	9.565	10.565	9.698
3246006	Lower Styx Track Burwood Forest - M35/8256	11-Mar-91	10.400	12.775	11.070	10.925	11.315	11.122
3246007	Mairehau Rd, near Greenhaven - M35/8263	07-Mar-97	10.040	11.450	10.923	10.699	11.050	10.809
3246016	Marshland Domain - M35/3740	07-Mar-97	10.590	13.134	12.361	12.105	12.635	12.267
3246018	QEII Drive (away) #2 Drain - M35/9114	24-May-99	10.750	12.214	11.109	11.034	11.234	11.125
3247004	No.134 Inwoods Road - M35/5417	12-Nov-84	11.320	12.990	12.249	12.145	12.455	12.294
3255007	Kirkwood Intermediate School - M35/5420	06-Jan-67	20.350	22.395	21.459	20.795	21.650	21.225
3255009	Halswell Ret.Basin, Halswell Jnt - BX23/0051	11-Oct-77	23.701	29.585	*25.417	24.336	25.646	24.811
3255011	Cashmere/Kennedys Road - M36/7089	11-Sep-00	19.825	21.610	20.633	20.110	21.030	20.539
3255012	Cashmere Road - M36/7090	11-Sep-00	15.665	19.360	17.869	16.455	18.975	17.776
3255013	Halswell Road PS - M36/3168	05-Jun-84	20.390	22.970	21.749	20.840	22.030	21.563
3255015	Hendersons Road - M36/7091	11-Sep-00	14.985	18.310	17.273	16.960	17.991	17.579
3255016	Milns/Sparks Road - M36/5709	13-Apr-92	18.700	20.940	19.568	19.010	20.010	19.670
3255017	Whincops Road - M36/5715	13-Apr-92	22.135	23.210	22.666	22.500	22.840	22.636
3255018	Hodgens Road - M36/5716	13-Apr-92	24.265	26.775	24.813	24.975	25.485	25.215
3255019	Quarry Carpark No.2 - M36/5711	16-Jun-98	18.320	22.710	19.492	18.640	19.030	18.797
3255042	Wigram Road near Haytons	10-Dec-13	23.836	25.156	24.492	24.146	24.636	24.363
3256014	Fisher Ave/Norwood Street - M36/5720	20-Apr-92	13.050	15.250	14.354	13.240	14.670	13.937
3256016	Gould Crescent, Woolston - M36/3175	07-Aug-78	8.145	10.145	9.450	9.170	9.565	9.351
3256017	PS42, Sparks Road - M36/3167	07-Jul-69	15.860	18.850	17.379	15.930	17.935	17.114
3256018	PS20, Locarno Street - M36/3166	03-Jun-59	11.095	12.695	11.925	11.545	12.045	11.642
3256034	PS1, Woodham Road - M35/5407	03-Jun-59	7.635	12.380	11.105	11.080	11.320	11.181
3257024	Ruru Road, Bexley - M35/5526	10-Mar-86	12.520	13.835	13.164	13.370	13.760	13.593
3257031	Cnr Wakefield and Nayland, Sumner - N36/0247	08-Aug-19	10.471	11.013	10.610	10.487	10.767	10.578

Notes:

* indicates gap percentage of 2.5% exceeded

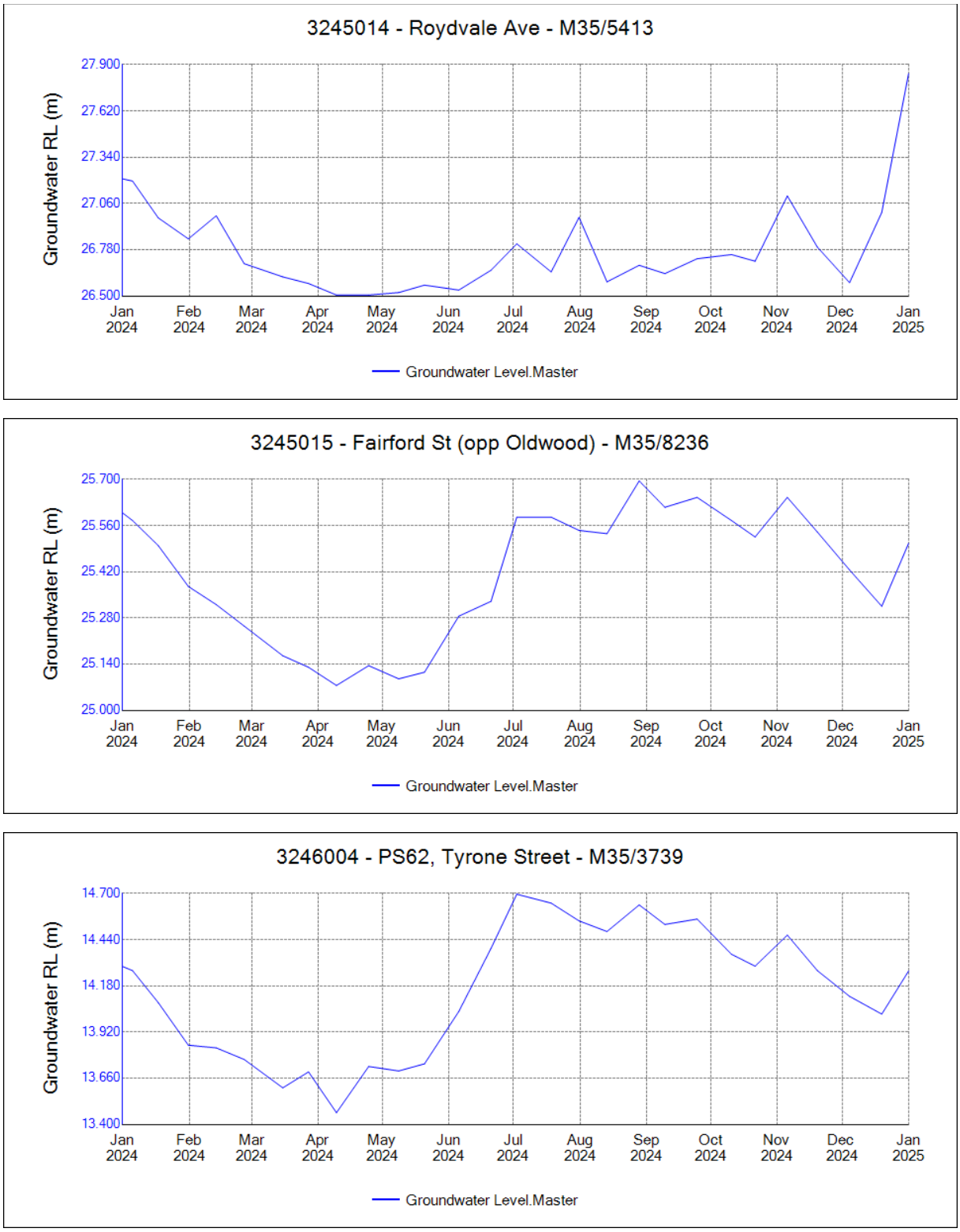
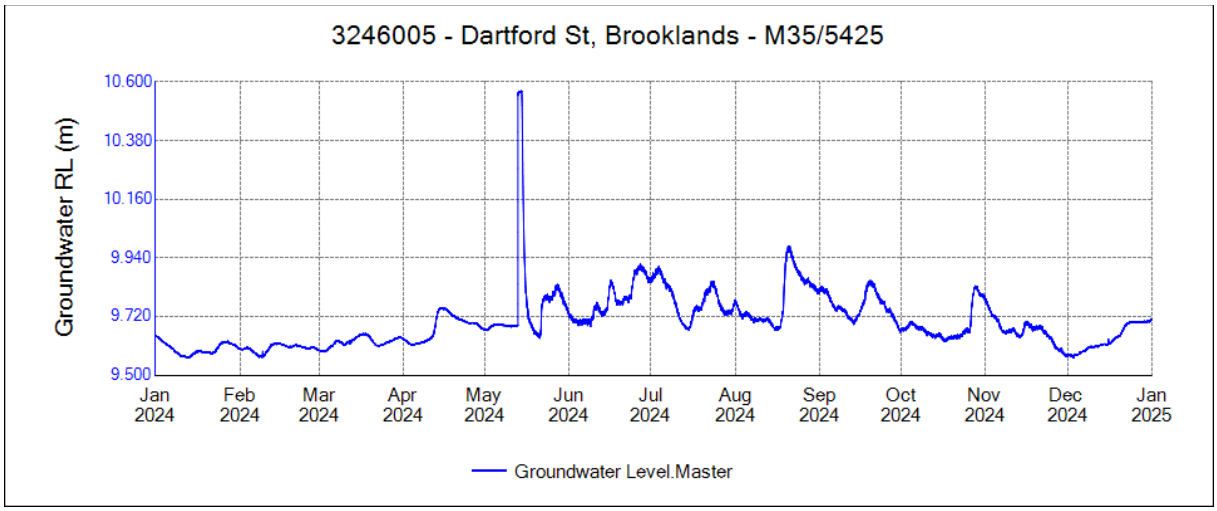
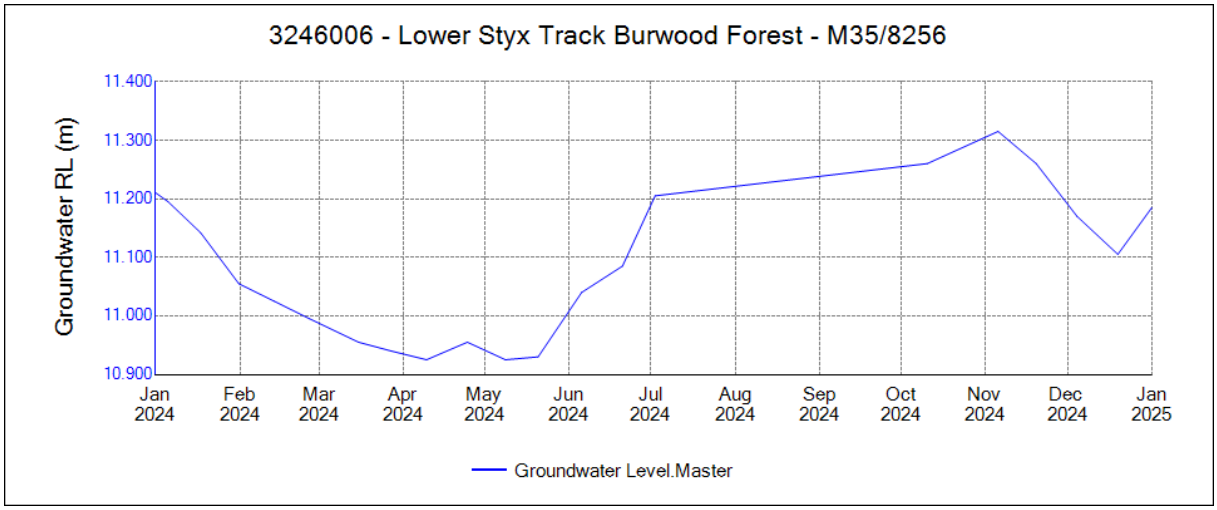


Figure 4-4: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024.





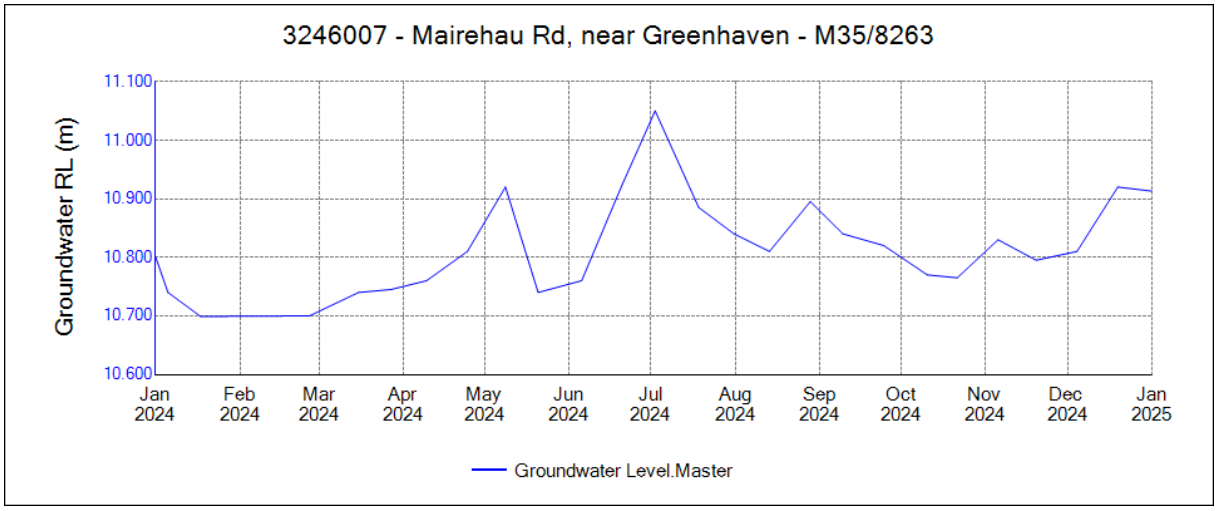
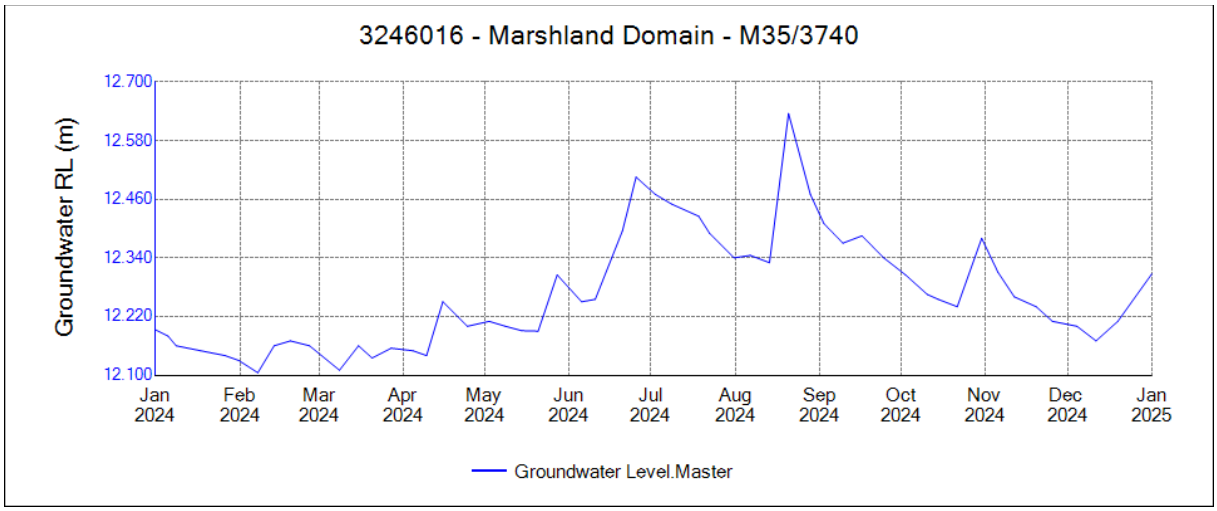
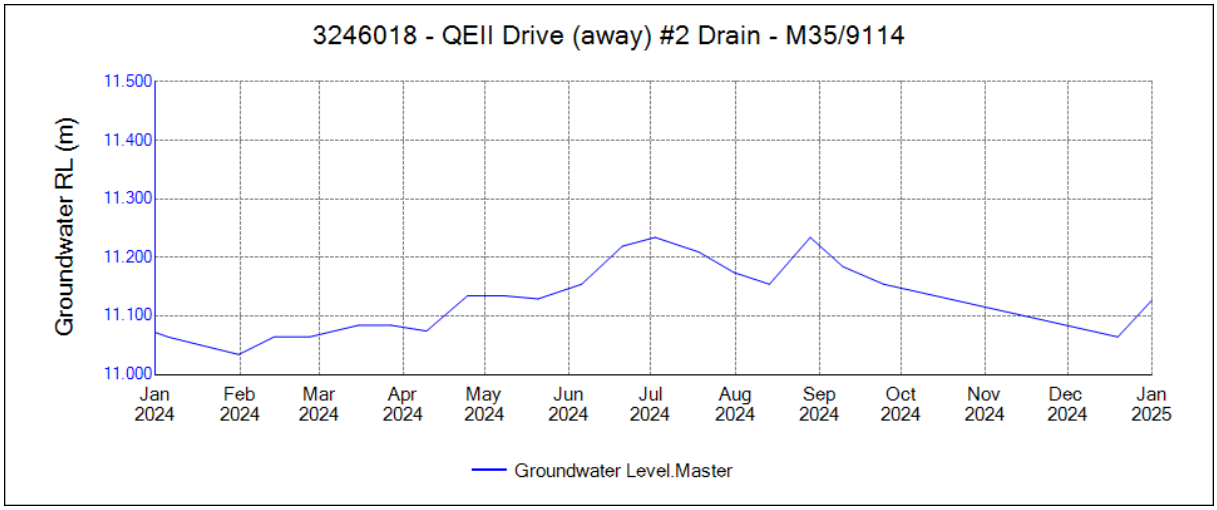


Figure 4-5: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).





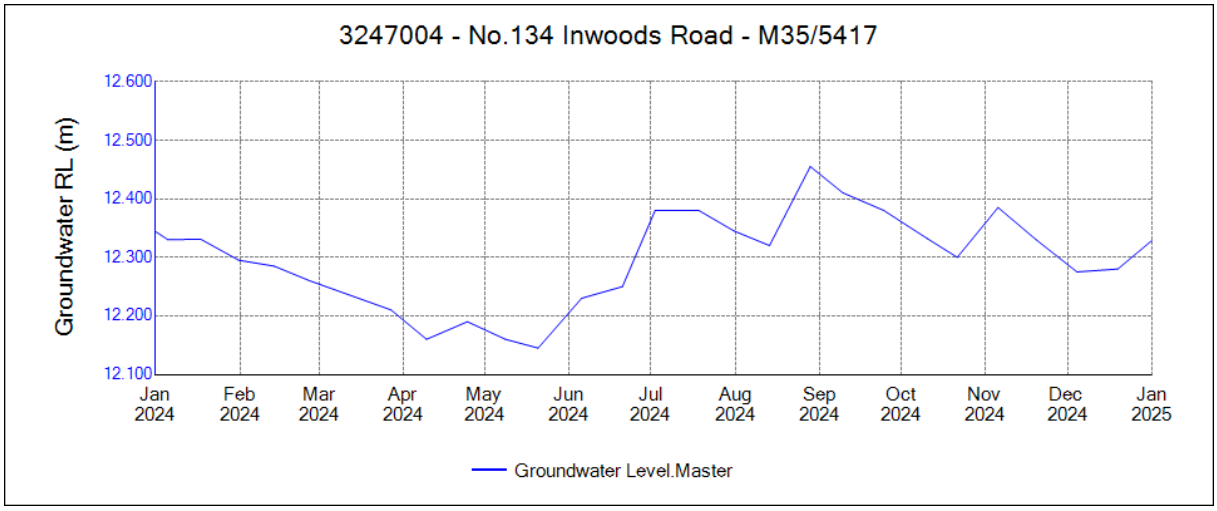
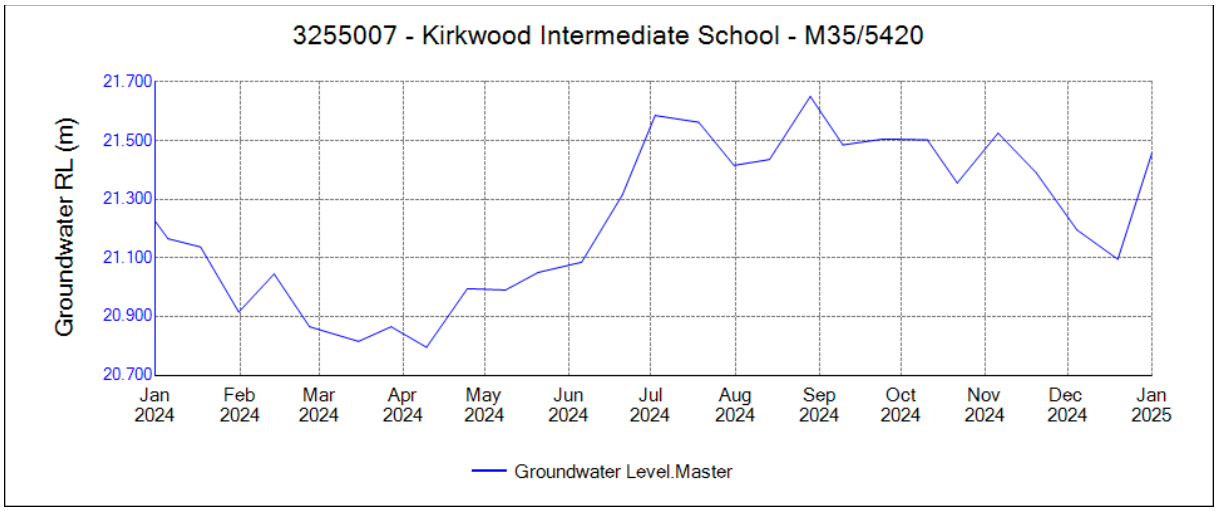
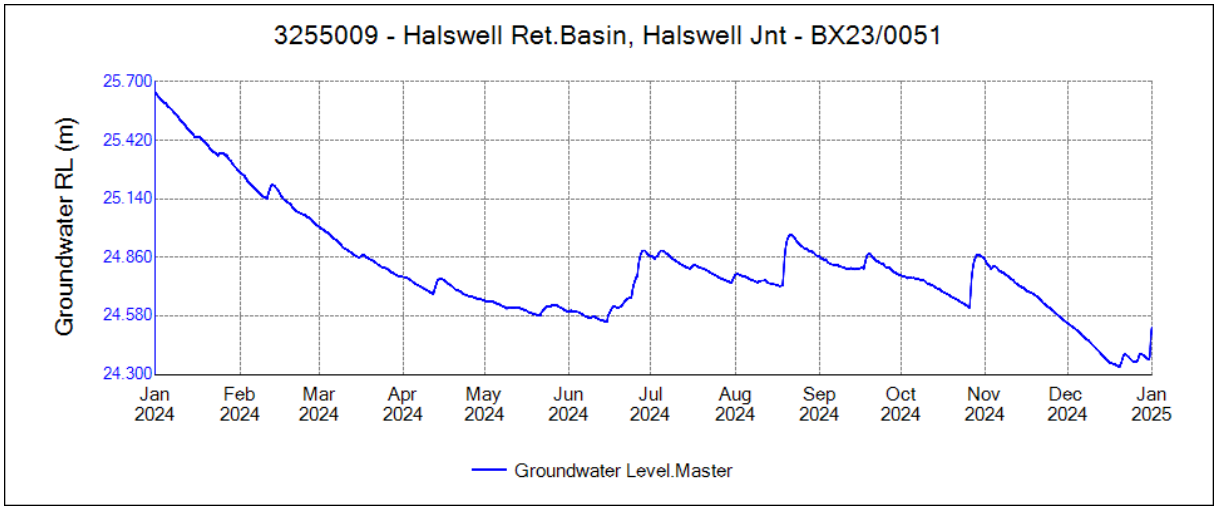


Figure 4-6: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).





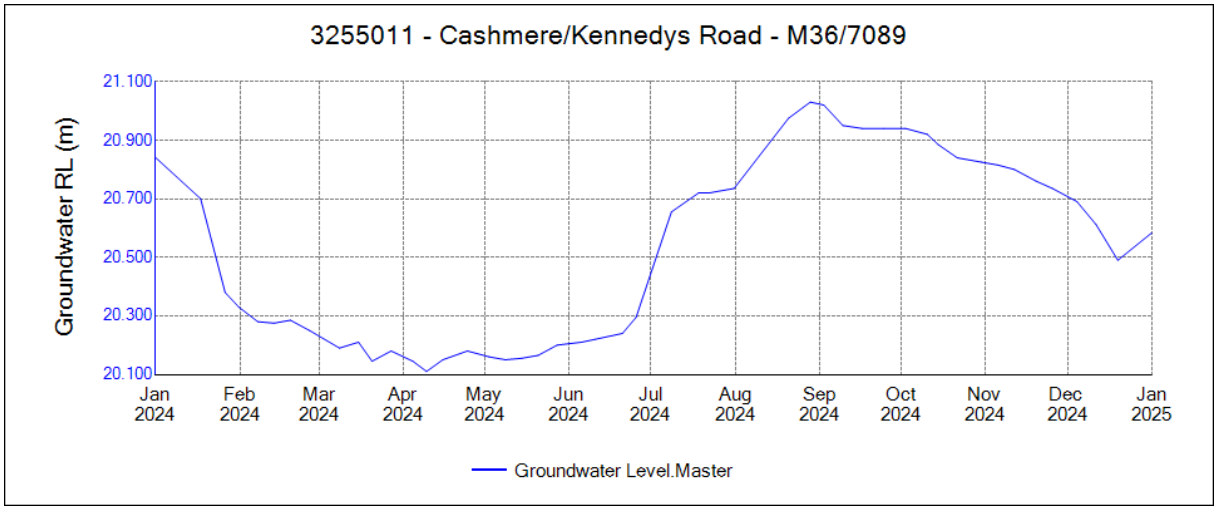
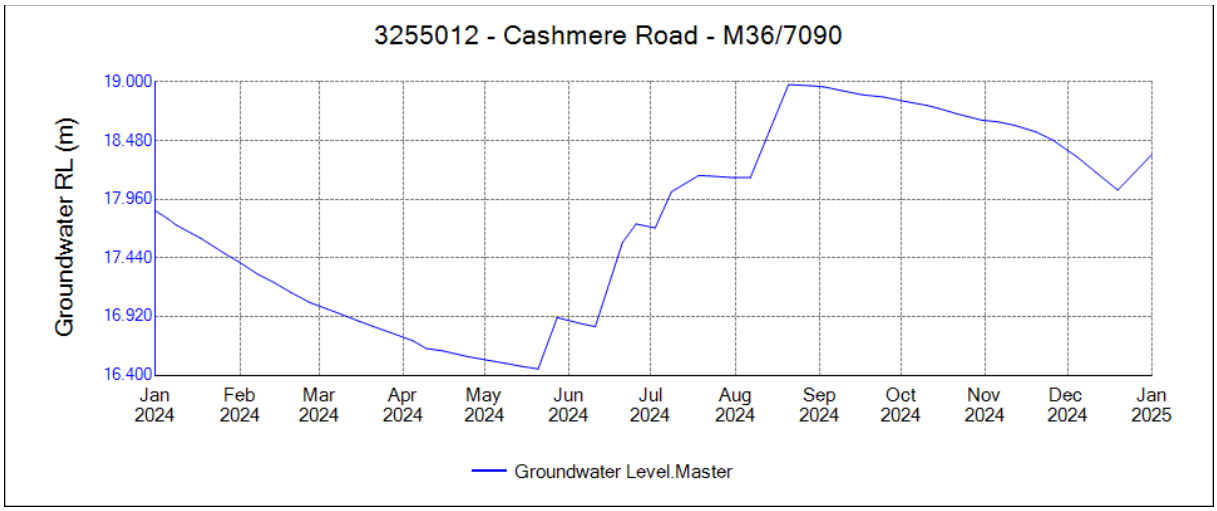
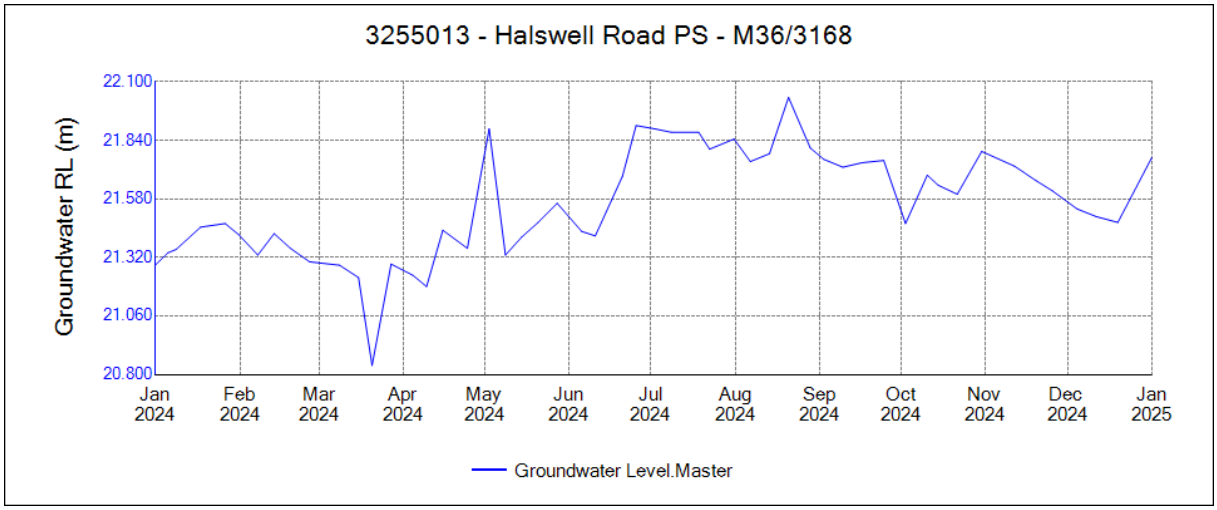


Figure 4-7: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).





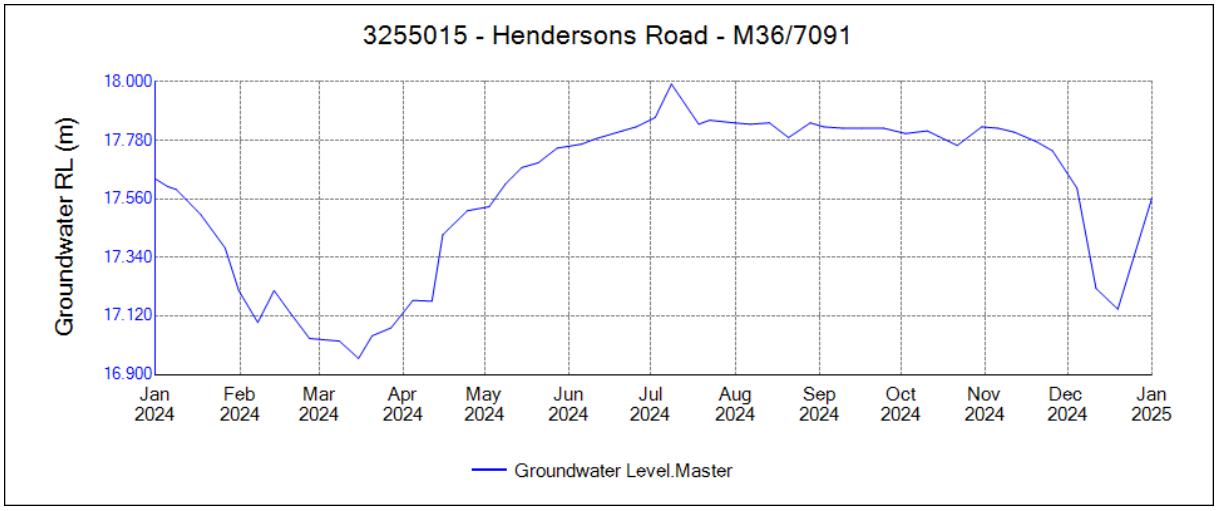
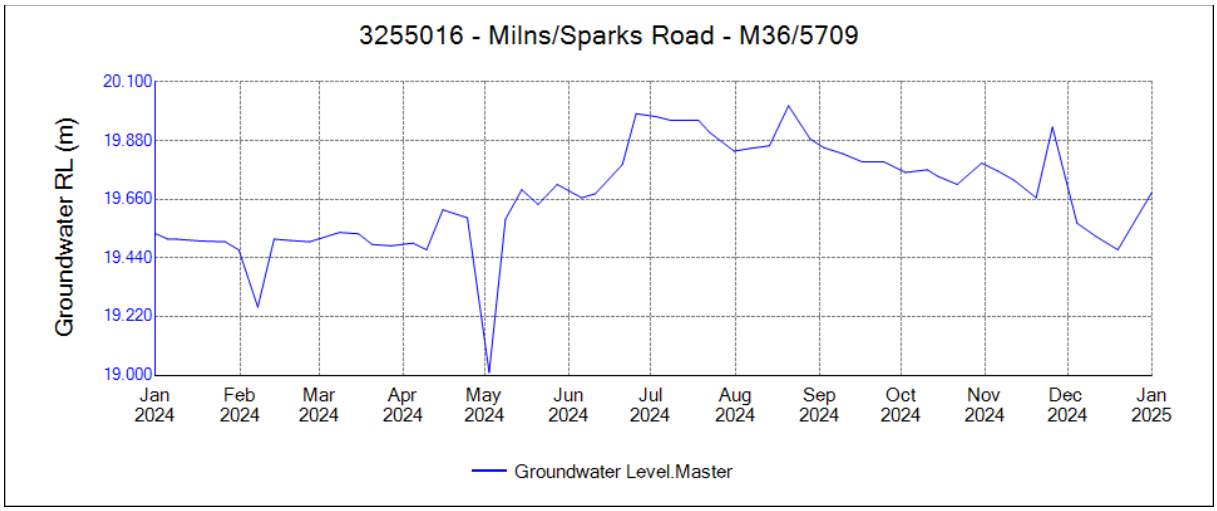
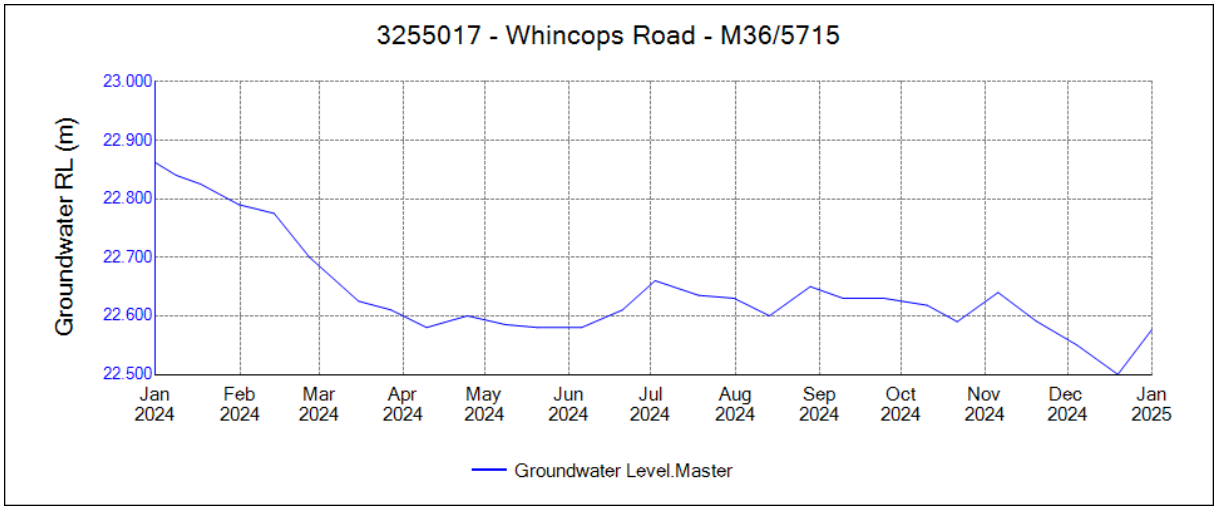


Figure 4-8: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).





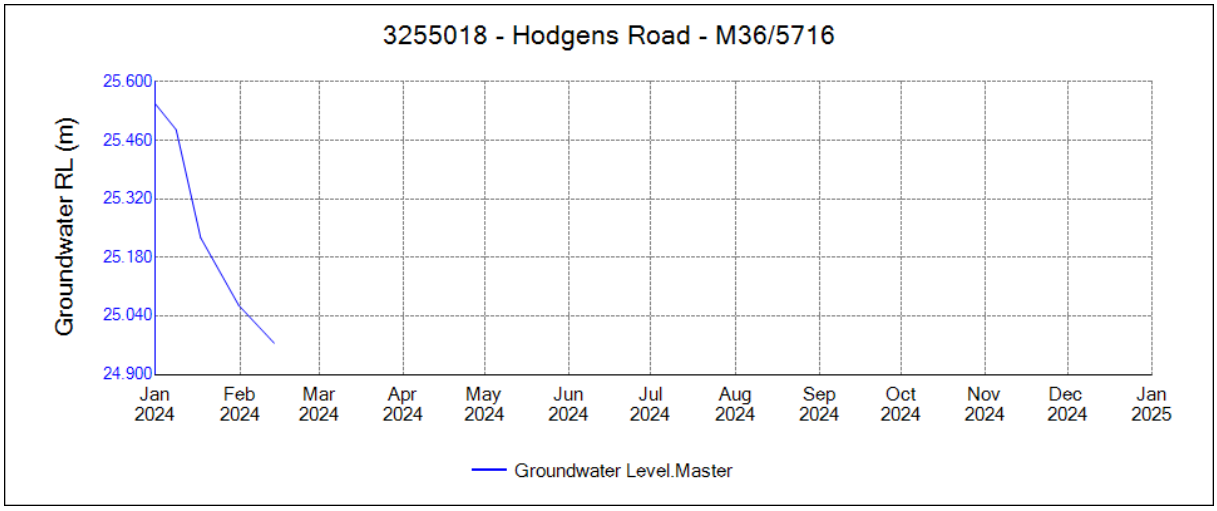
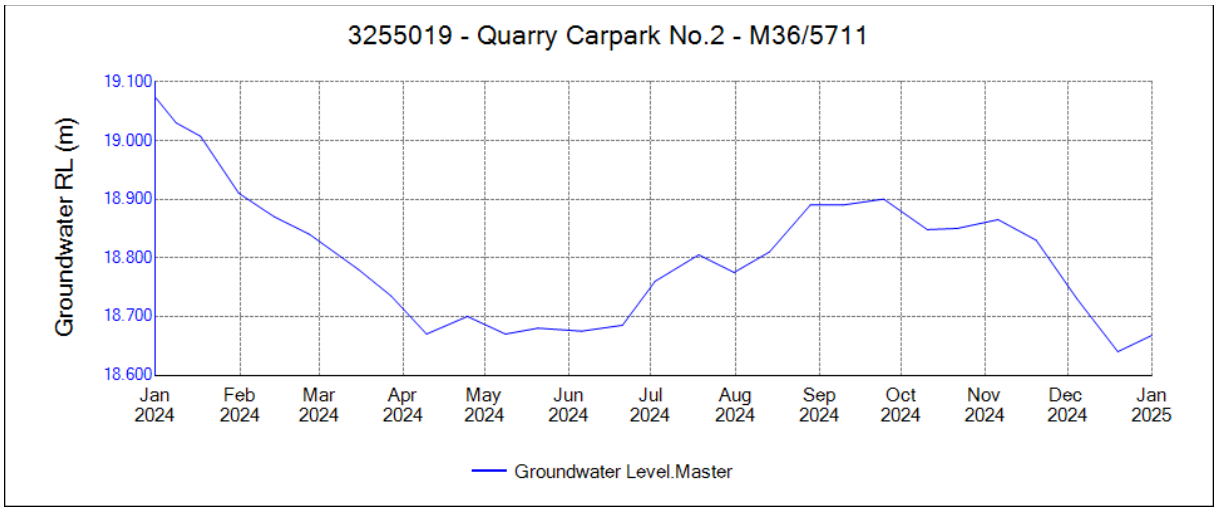
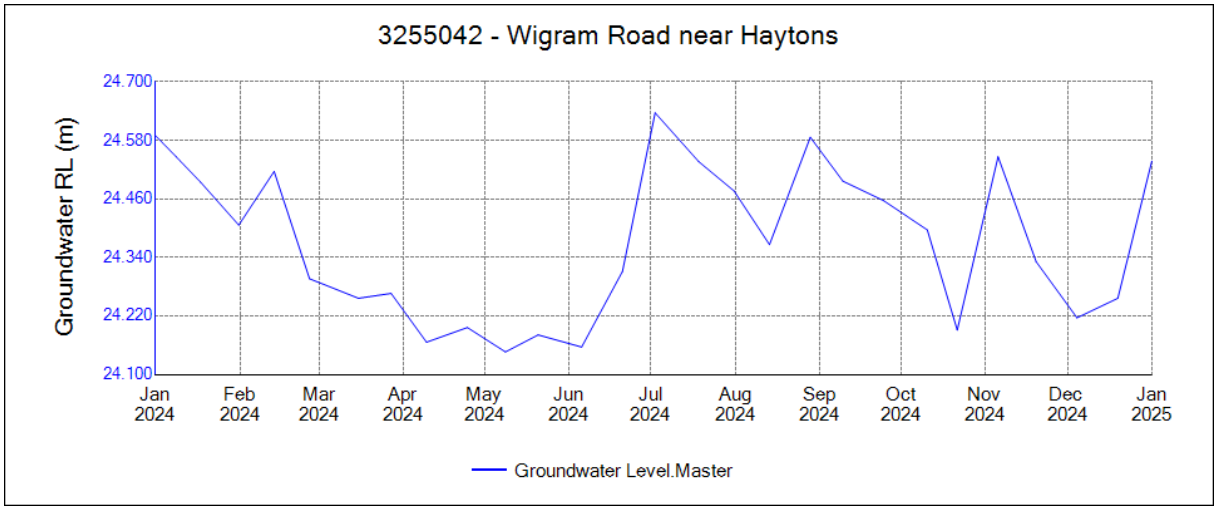


Figure 4-9: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).





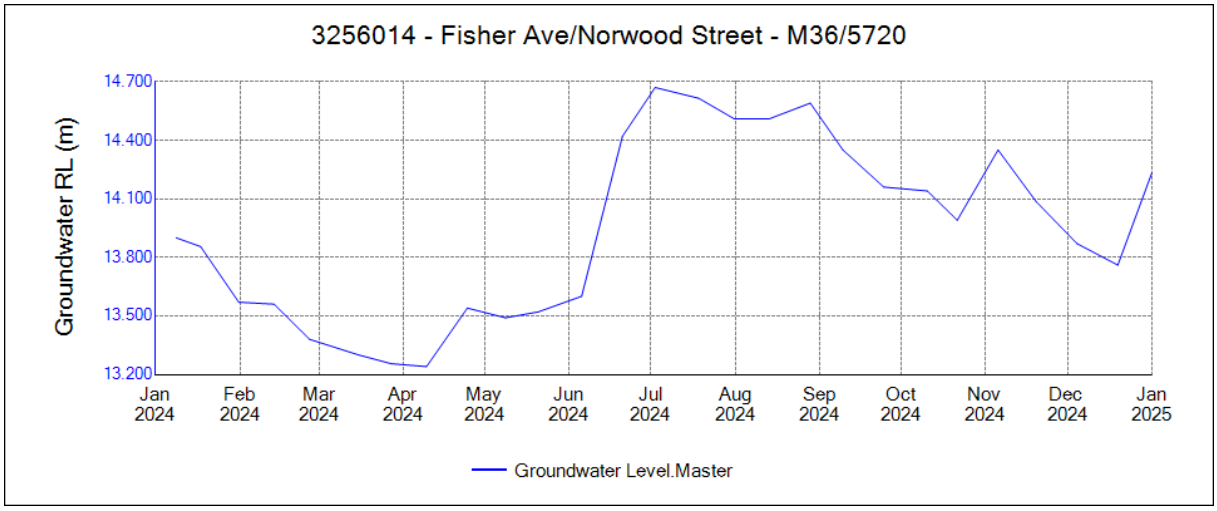
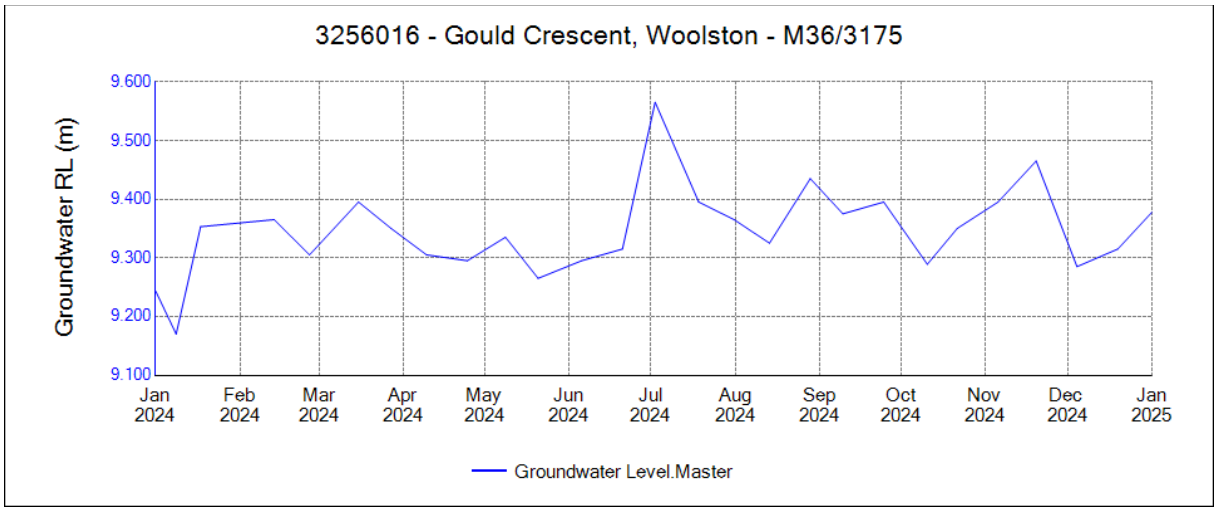
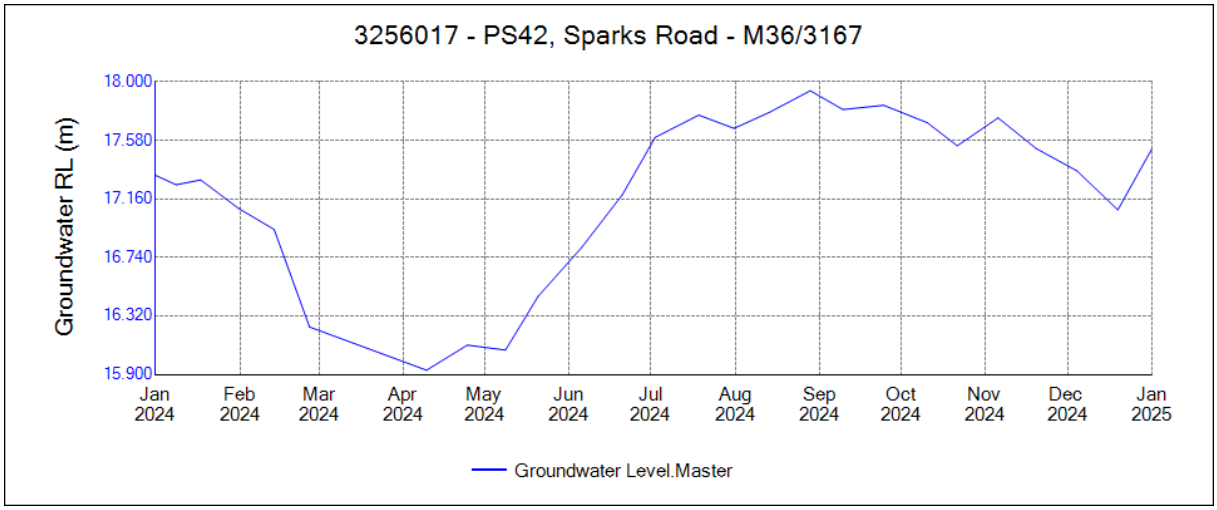


Figure 4-10: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).





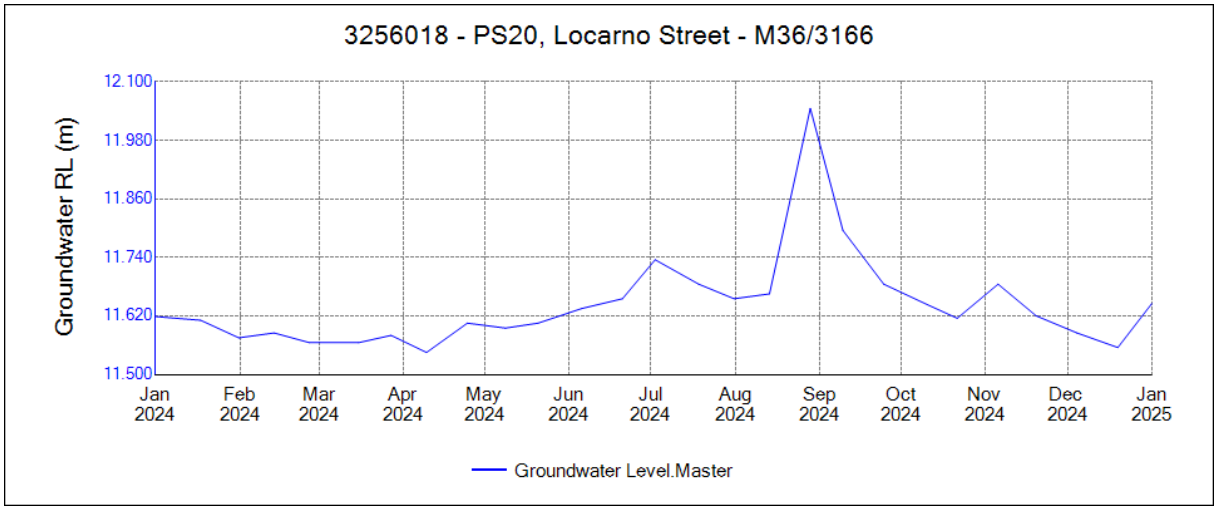
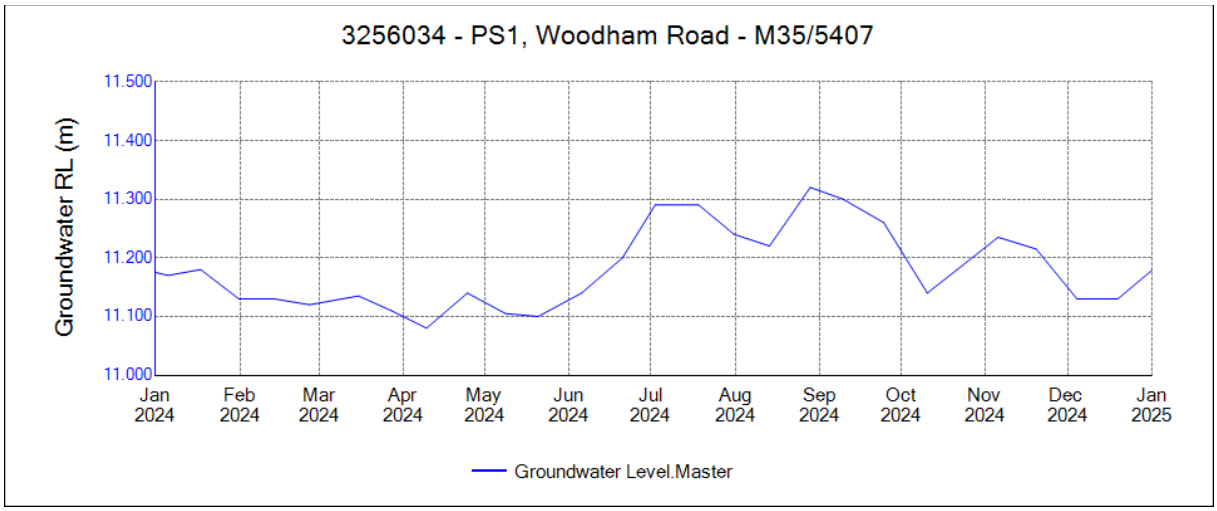
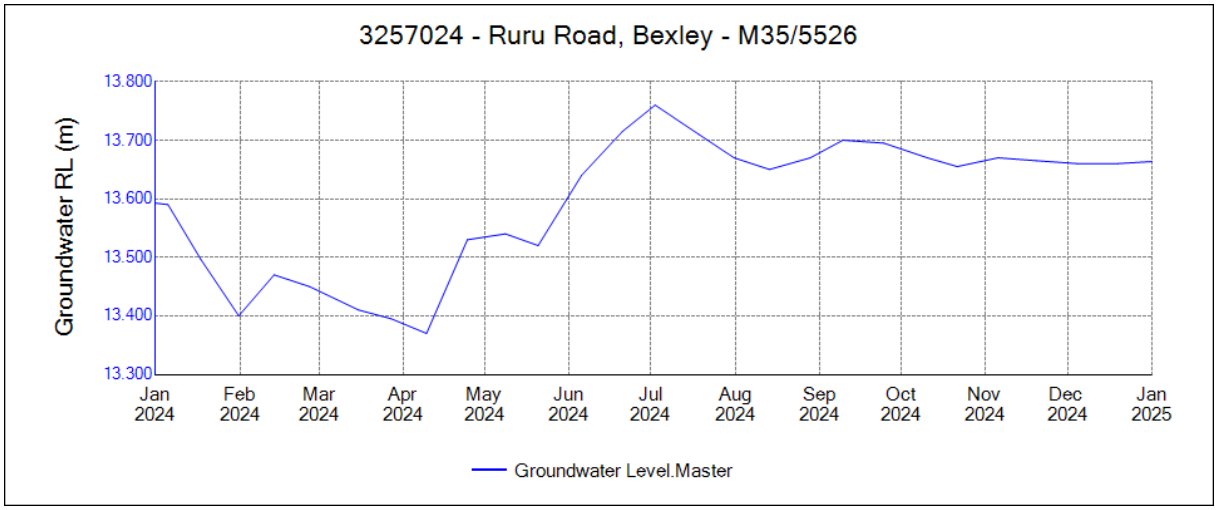


Figure 4-11: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).





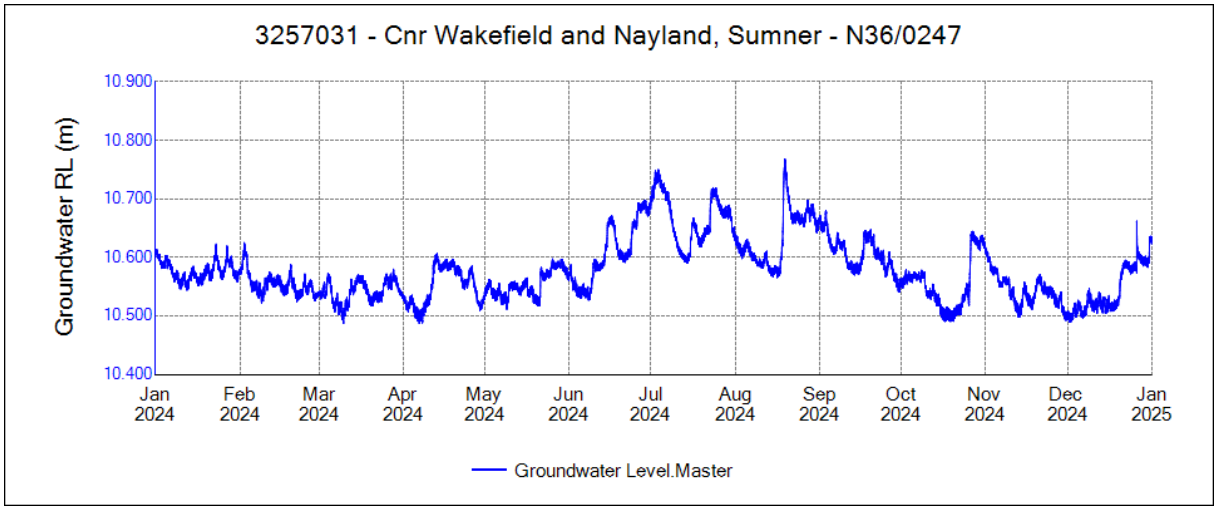


Figure 4-12: CCC hydrometric network groundwater-level plots: 1 January to 31 December 2024 (cont.).

5 Sea-level monitoring

The sea-level site at Sumner Head (Scarborough) was established by NIWA in 1994 and is a NIWA site, with Environment Canterbury and Christchurch City Council having shared data access. The raw data from sea level site transferred to the CCC database have been transformed with an offset for the CCC datum (previously referred to as Christchurch Drainage Board (CDB) datum) and filed under a new site number 966699. This is to avoid confusion with the raw site data 66699, which is recorded to MSL (Lyttleton vertical datum).

From late February 2019 NIWA began providing CCC a tidal forecast of sea level height at the Sumner gauge relative to Christchurch City Datum via the Aquarius WebPortal. This is to provide advanced warning to the council of any significant forecast storm surge events, which may result in flooding and inundation issues at low lying coastal areas of Christchurch city. The forecasts are provided every six hours and cast forward two and a half days. In addition to the forecast, a text and email alert is sent to CCC staff recipients if the sea level is predicted to exceed 10.6 m RL.

In 2023, CCC commissioned NIWA to install a sea-level monitoring site in Akaroa Harbour as an addition to the CCC hydrometric network. A site was installed on the Akaroa yacht club wharf and data collection commenced on 31 October 2023, with sea level being recorded to the CDB datum. Currently there is no sea-level forecast-warning system associated with this site.

Figure 5-1 shows the location of the two sites, while Figure 5-2 provides a data continuity scan showing the availability of sea level stage and barometric pressure (Sumner Head only) data during the 2024 period.

Plots for this period for the Sumner Sea-level site are shown in Figure 5-3 to Figure 5-5. Included is a sea level plot with forecast overlaid in relation to the ‘high sea level alert’ of 10.6 m.

A sea-level stage plot for Akaroa Harbour is shown in Figure 5-6.

Figure 5-1: Location of sea-level monitoring sites during 2024.

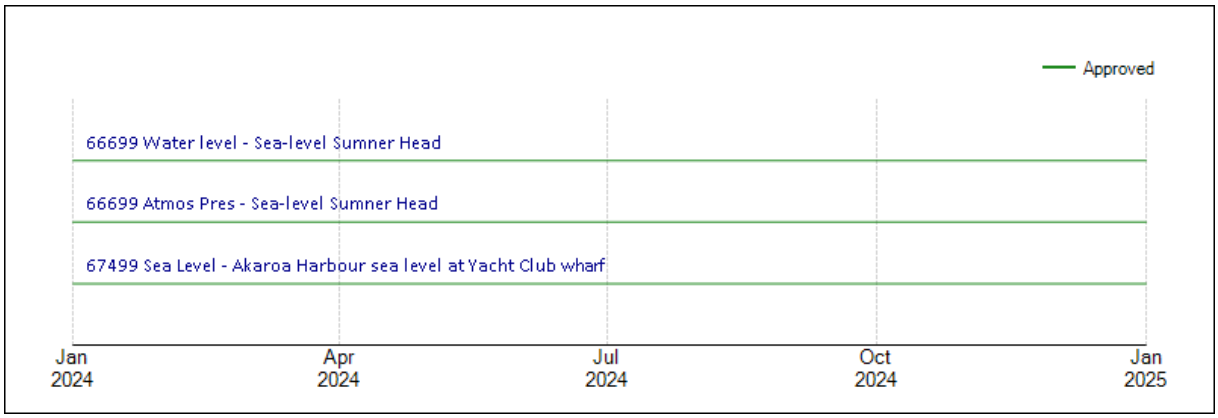


Figure 5-2: Sea-level and barometric pressure continuity plot for 2024.

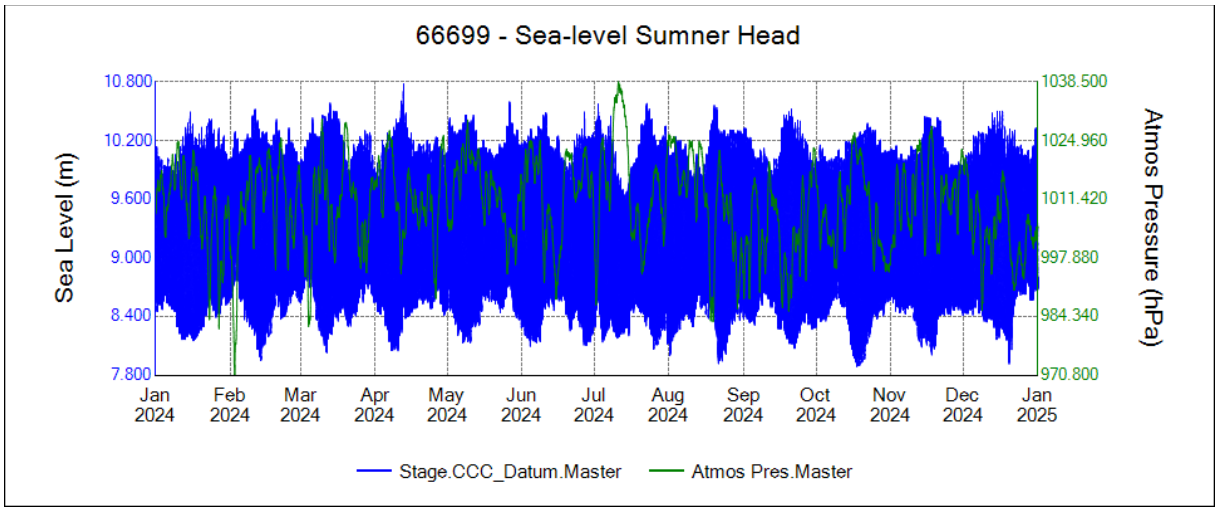


Figure 5-3: Sumner Head sea-level plotted with barometric pressure for the 2024 period.

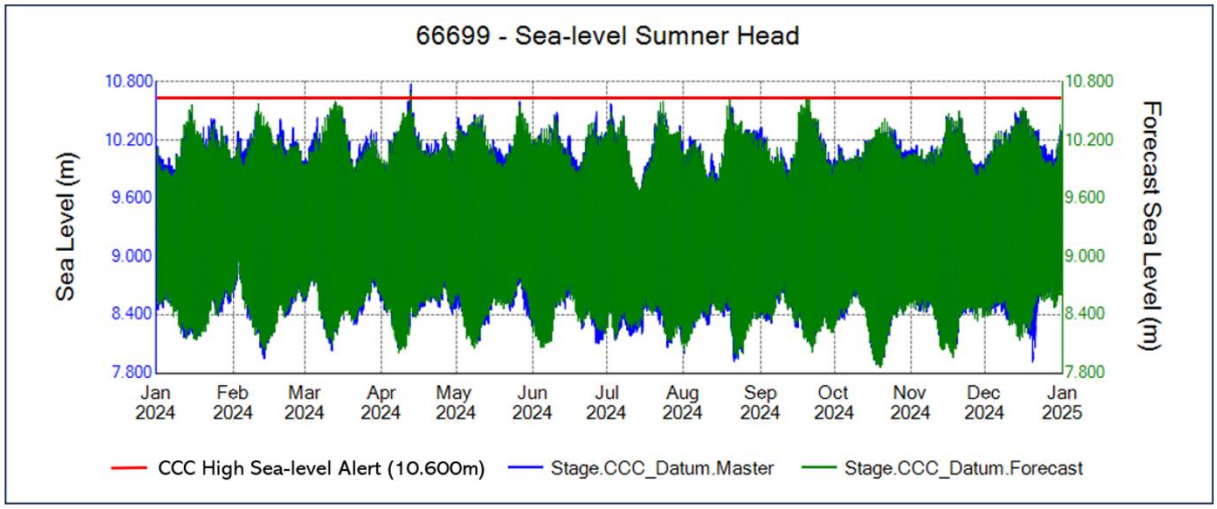


Figure 5-4: Sumner Head sea-level plotted with forecast level and alert threshold for the 2024 period.

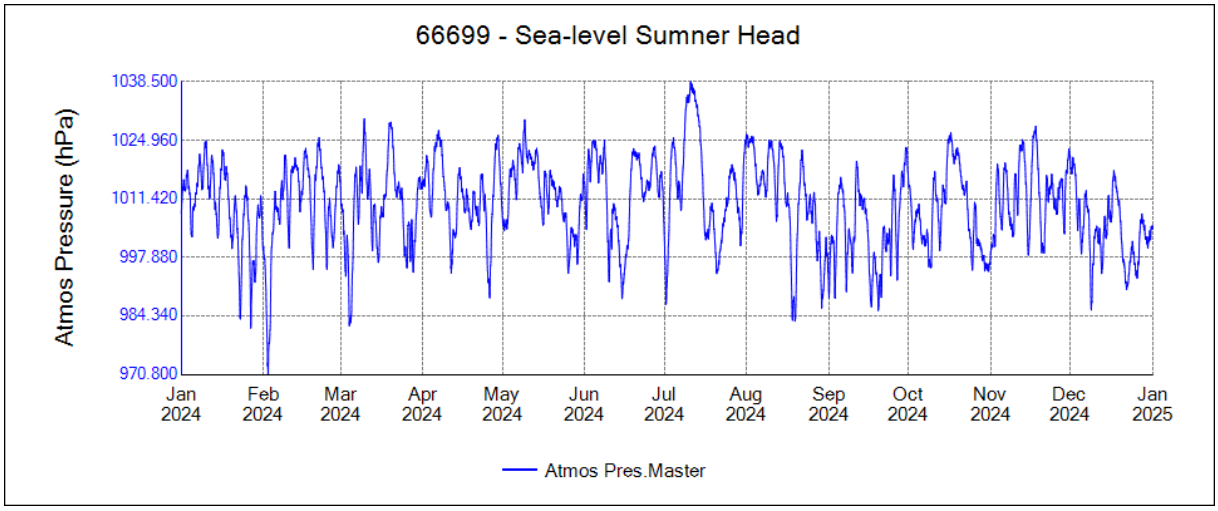


Figure 5-5: Sumner Head sea-level plots: Recorded barometric pressure for the 2024 period.

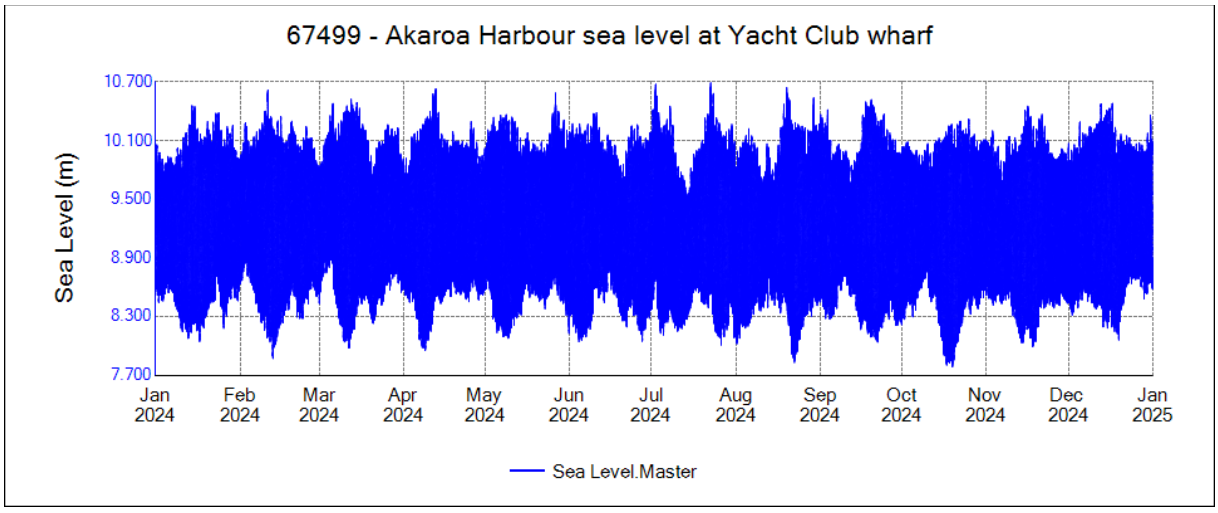


Figure 5-6: Akaroa Harbour sea-level plot for the 2024 period.

6 Miscellaneous data

Miscellaneous data refers to the remaining sites either not classified as water-level, rainfall or groundwater sites. Also included in this section are any short-term hydrometric monitoring projects.

Sites and projects in this section include:

- Soil moisture monitoring
- Climate monitoring
- St Albans Creek monitoring
- Port Levy streams monitoring

Figure 6-1 shows the location of these sites. Miscellaneous site plots and data continuity scans showing the extent of gaps in the site records are shown for each site in the following sections.

Figure 6-1: Location of CCC miscellaneous sites during 2024. Soil moisture and climate sites are labelled with red pins, CCC CWS sites are labelled with yellow pins, the St Albans Creek at Bishop St monitoring site is labelled with a blue pin, and the Port Levy monitoring sites are labelled with pink pins.

6.1 Soil moisture monitoring

The Upper Bowenvale Valley (326616), Wairewa Christchurch - Akaroa Highway (327804) and Duvauchelle CWS at Akaroa Golf Course (327902) sites have been installed as part of the CCC hyrdrometric network. Each consist of a rain gauge and an 80 cm Enviropro soil moisture sensor measuring soil moisture and temperature at 10 cm depth increments.

Figure 6-2 provides a data continuity scan showing the availability of these data for the 2024 period. Note that these data show as “Provisional” rather than “Approved” in Figure 6-2 and Webportal as they are subject to a different NIWA internal quality assurance process.

Bromley EWS is a NIWA electronic weather station where data access has been provided to CCC as part of the land access agreement. The site has a full suite of climate monitoring equipment including soil moisture monitoring similar to the above CCC sites.

Figure 6-3 and Figure 6-4 show soil moisture data plots for 10 cm, 20 cm, 50 cm and 80 cm depths against site-recorded precipitation for each of the four sites.

Two significant periods of missing data exist in the Bromley EWS soil moisture record. These are due to a sensor fault and logger programming issues.

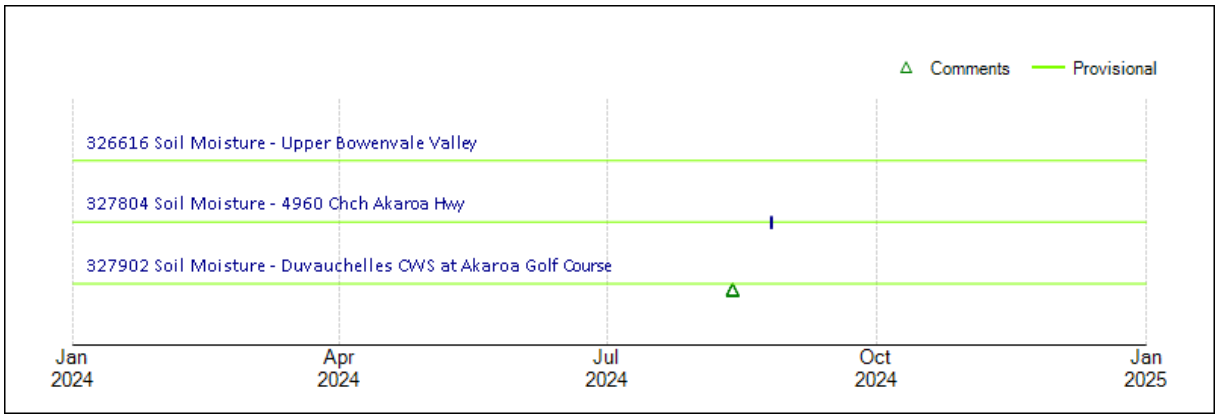
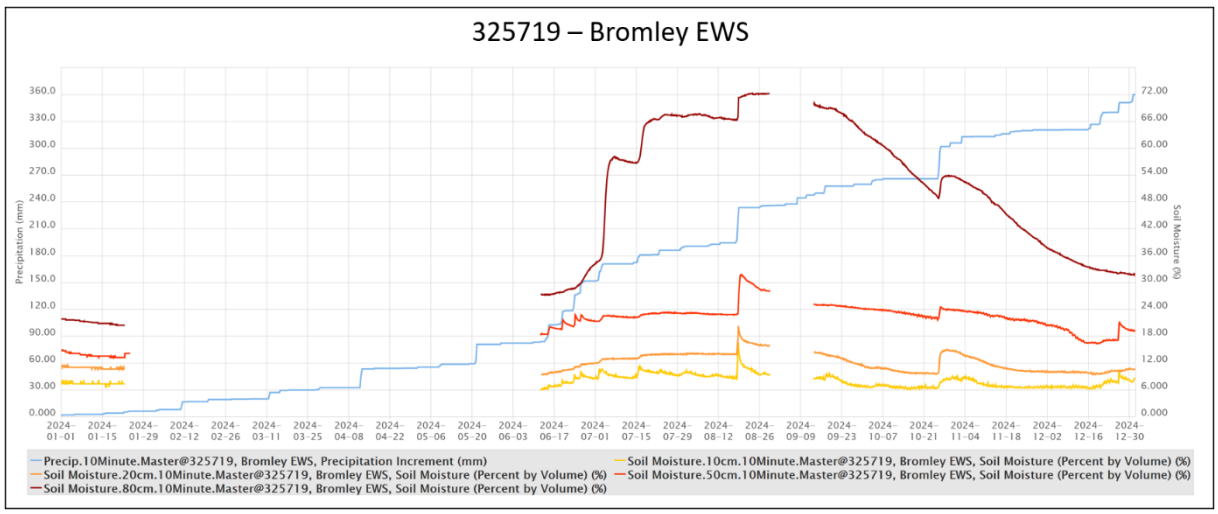


Figure 6-2: Soil moisture continuity plot for 2024.



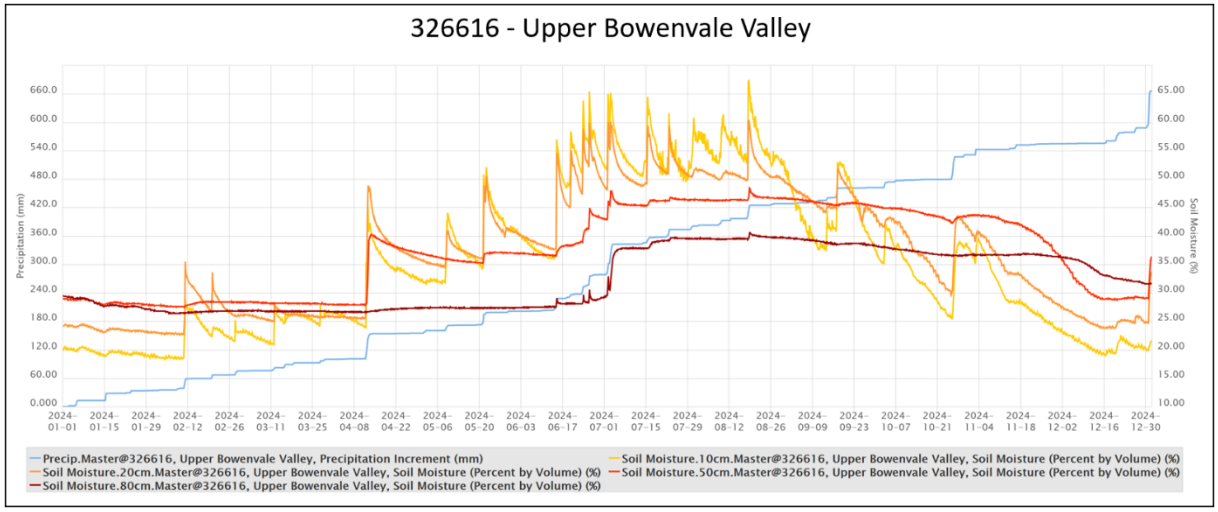
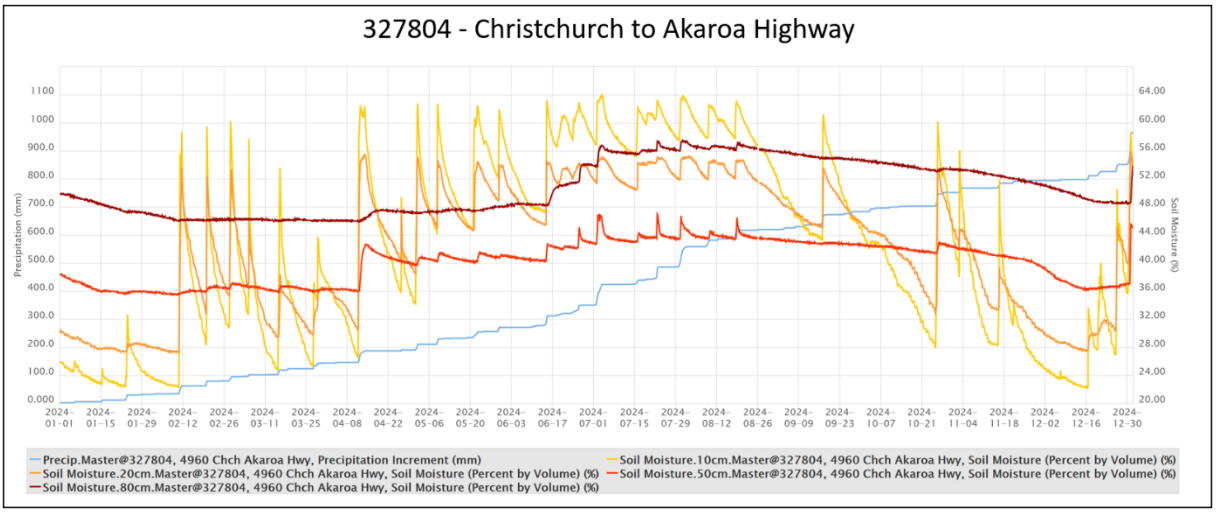


Figure 6-3: CCC hydrometric network soil moisture plots: 1 January to 31 December 2024.



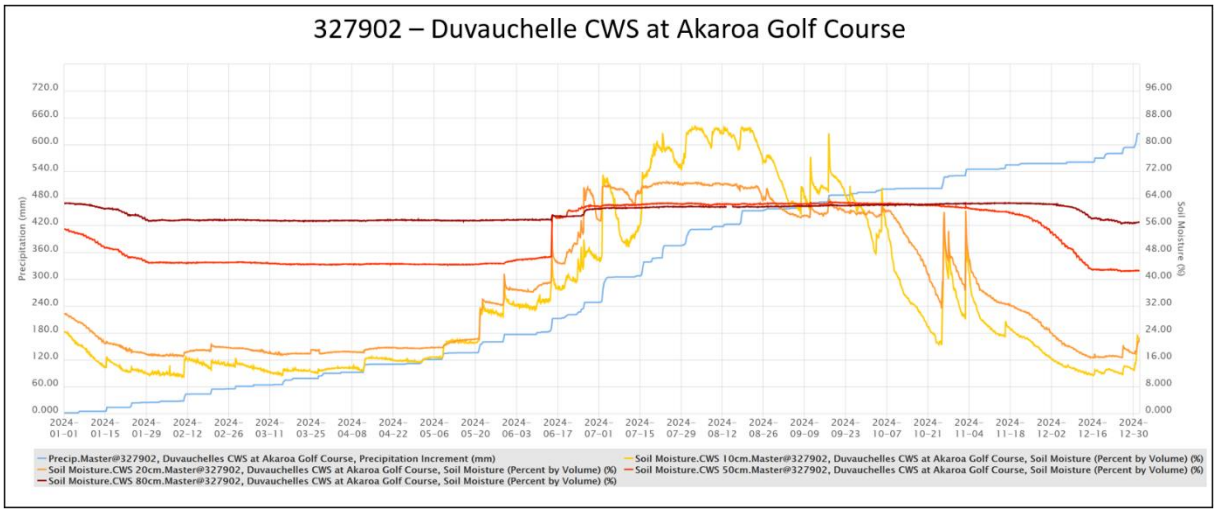


Figure 6-4: CCC hydrometric network soil moisture plots: 1 January to 31 December 2024 (cont.).

6.2 Climate monitoring

On 17 September 2020, NIWA installed the Duvauchelle CWS (327902) on the Akaroa Golf Club grounds for monitoring the local weather and climate, for the CCC purpose of future consent monitoring and wastewater irrigation planning at the golf course.

Data collected by the Duvauchelle CWS includes rainfall, air temperature, relative humidity, wind speed, wind direction, solar radiation, soil moisture and soil temperature (10-80 cm).

Additional climate data from the NIWA climate stations Akaroa EWS (328905), Diamond Harbour EWS (326704), Bromley EWS (325719) and Christchurch Botanic Gardens EWS (325626) are included in the CCC hydrometric database.

Figure 6-5 provides a data continuity plot of air temperature data from the climate monitoring sites for the 2024 period. Note that these channels show as “Provisional” rather than “Approved” since these climate-based data sets are subject to a different NIWA internal quality assurance process.

Data plots for Air Temperature, Barometric Pressure, Wind Speed and Solar Radiation are presented - respectively in Figure 6-6 to Figure 6-14.

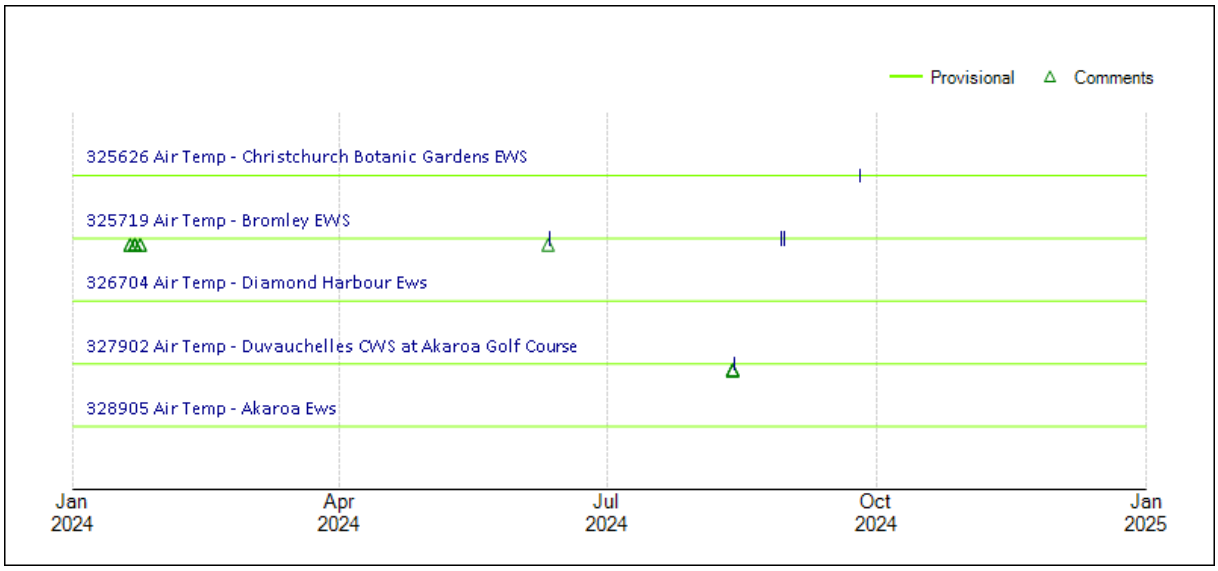


Figure 6-5: Climate station air temperature data continuity scan: 1 January to 31 December 2024.

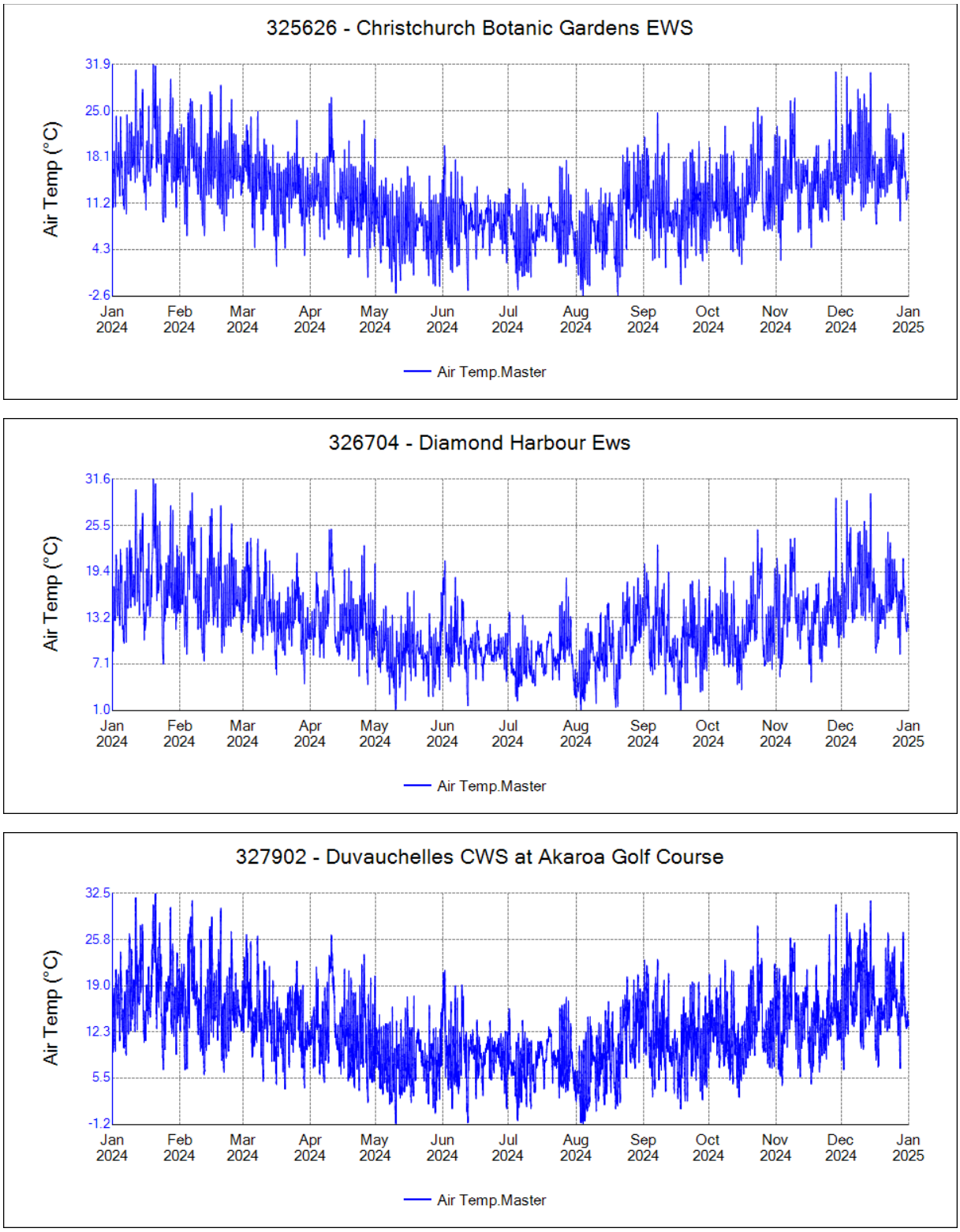
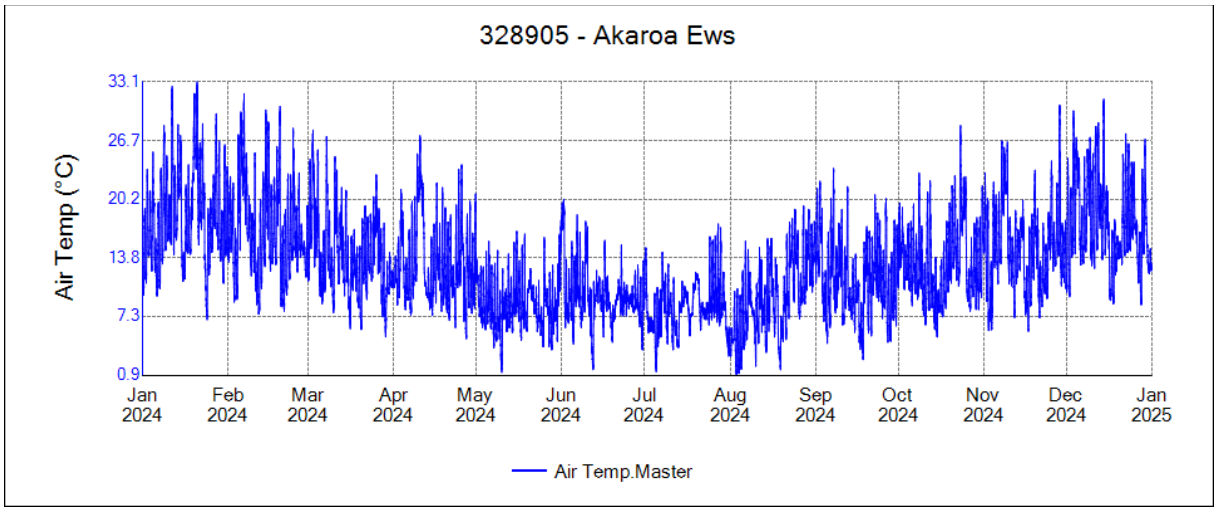


Figure 6-6: Climate station air temperature plots: 1 January to 31 December 2024.



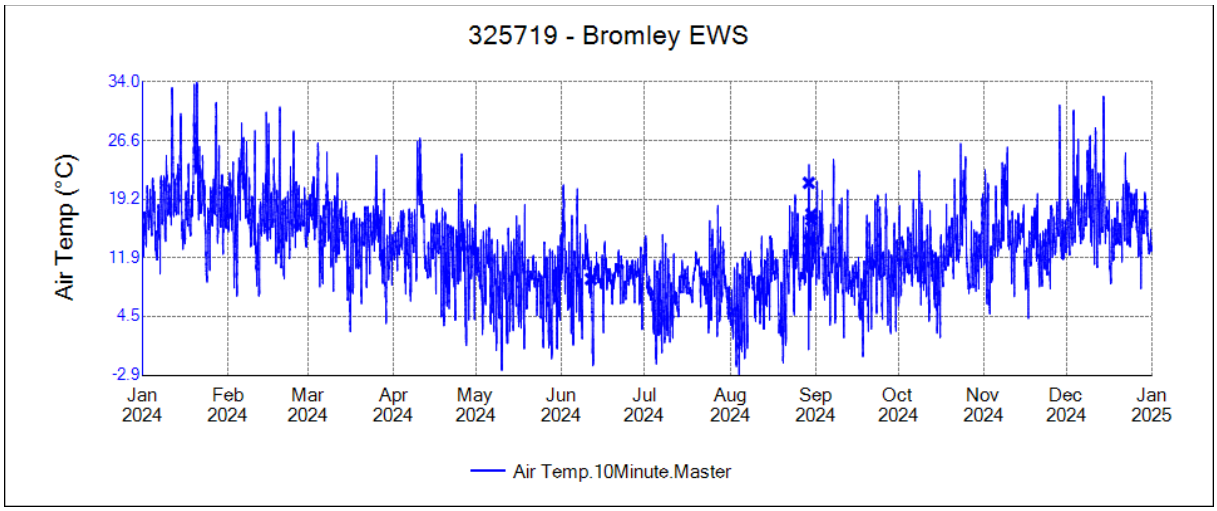
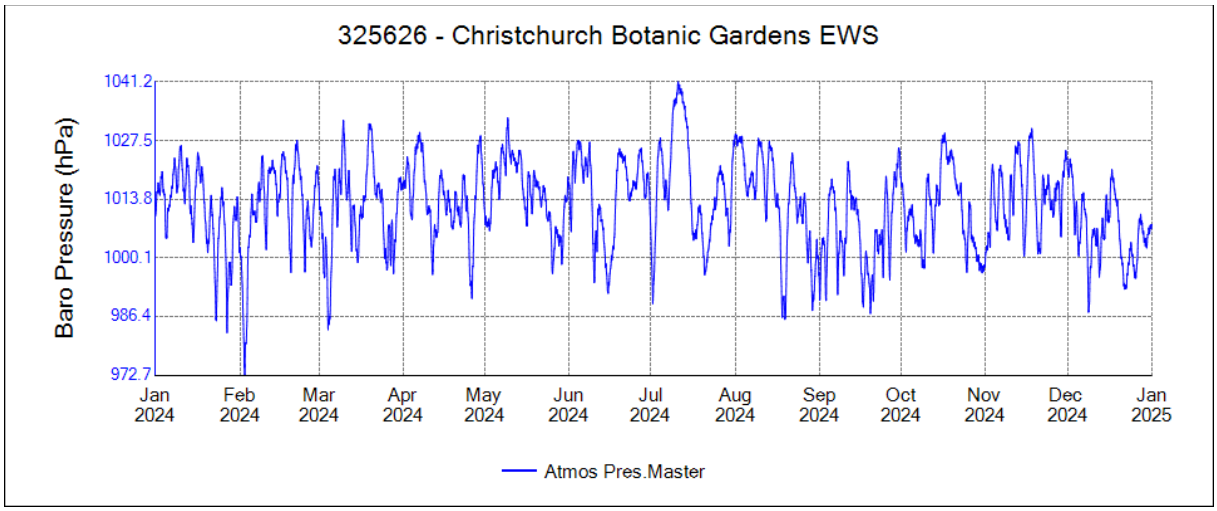
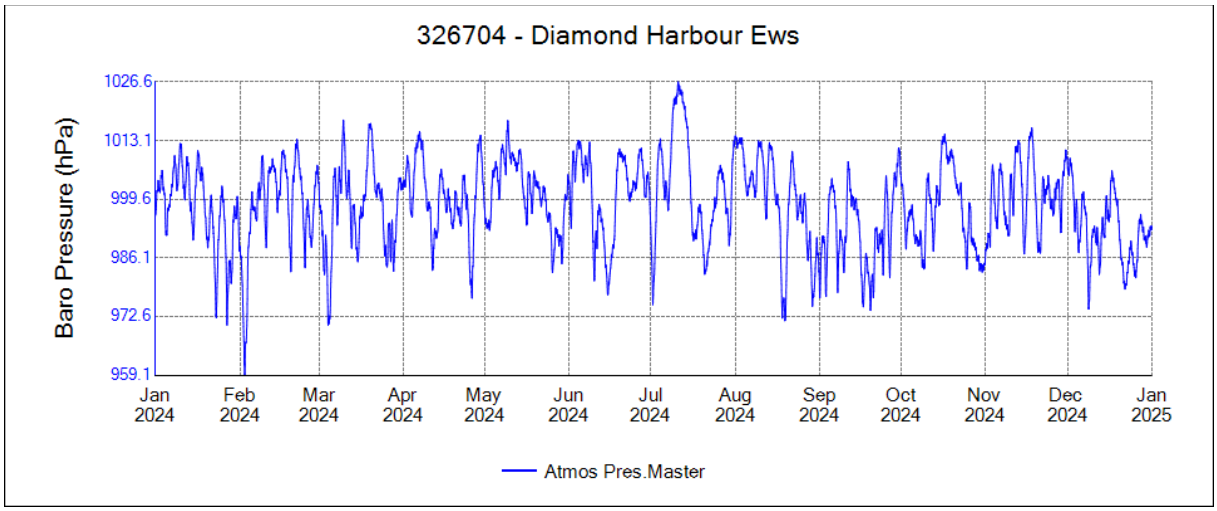


Figure 6-7: Climate station air temperature plots: 1 January to 31 December 2024 (cont.).





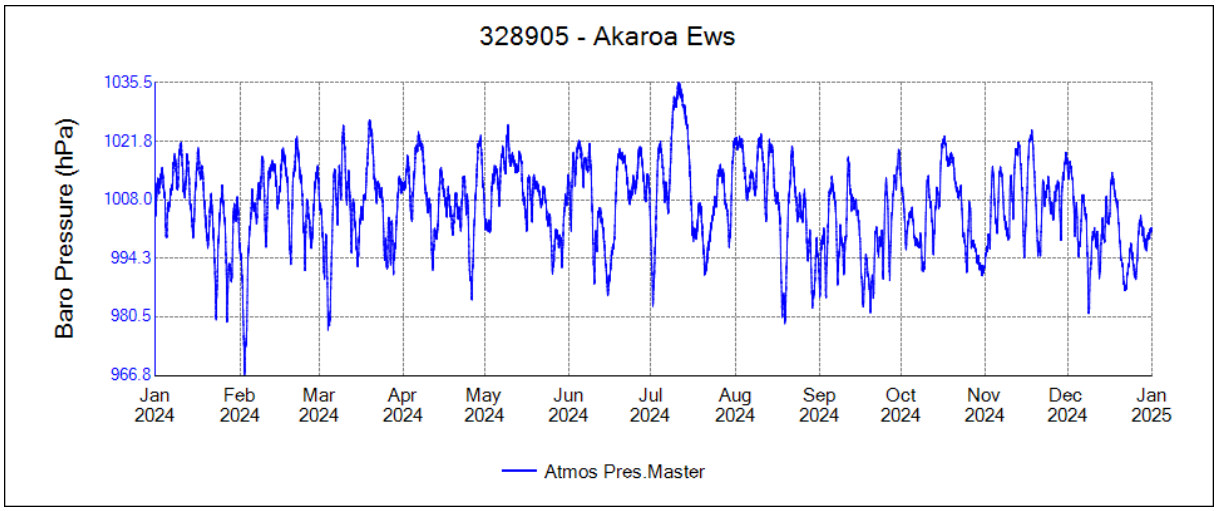


Figure 6-8: Climate station barometric pressure plots: 1 January to 31 December 2024.

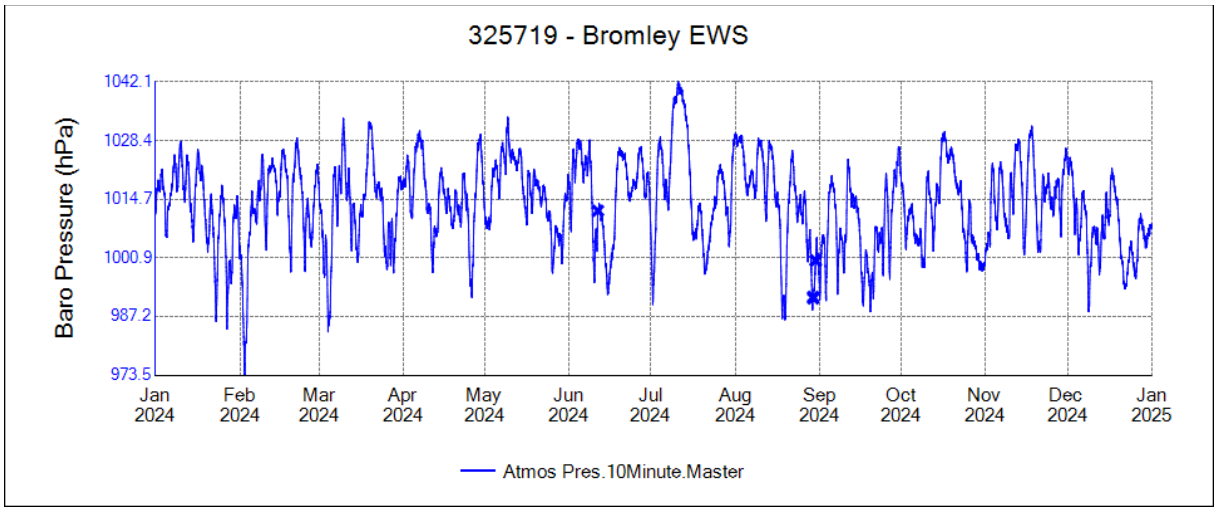


Figure 6-9: Climate station barometric pressure plots: 1 January to 31 December 2024 (cont.).

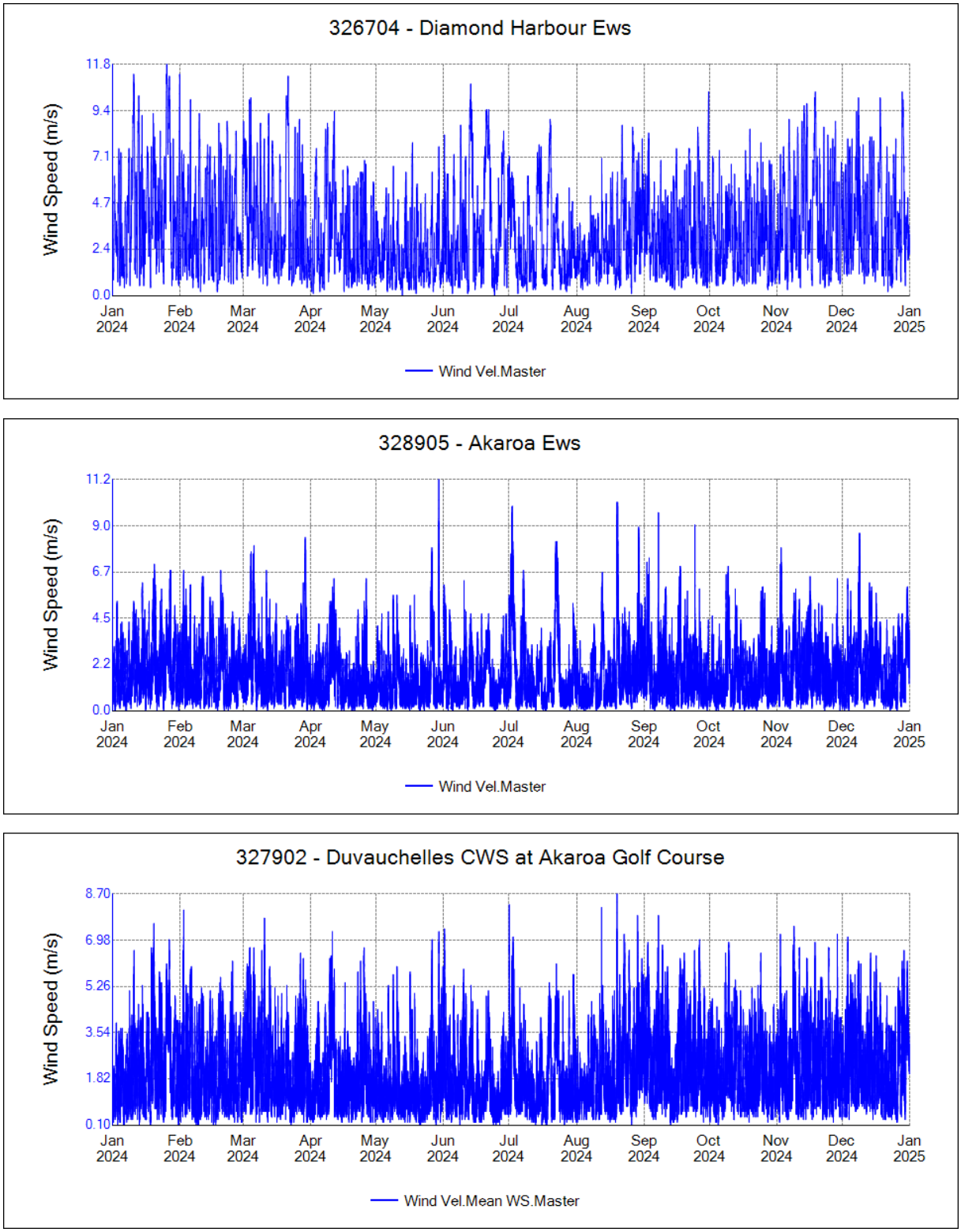


Figure 6-10: Climate station wind speed plots: 1 January to 31 December 2024.

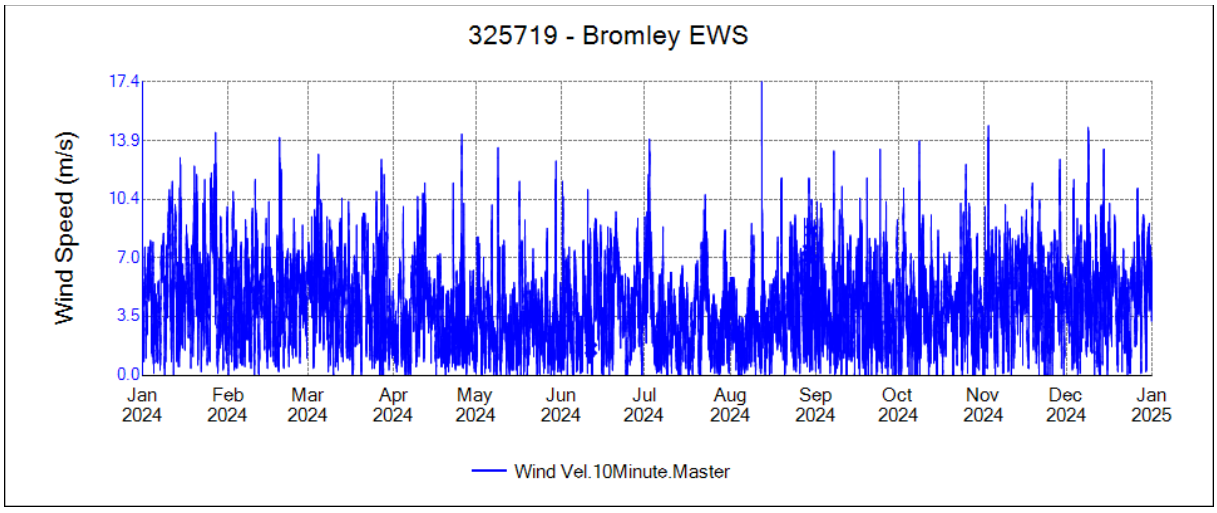
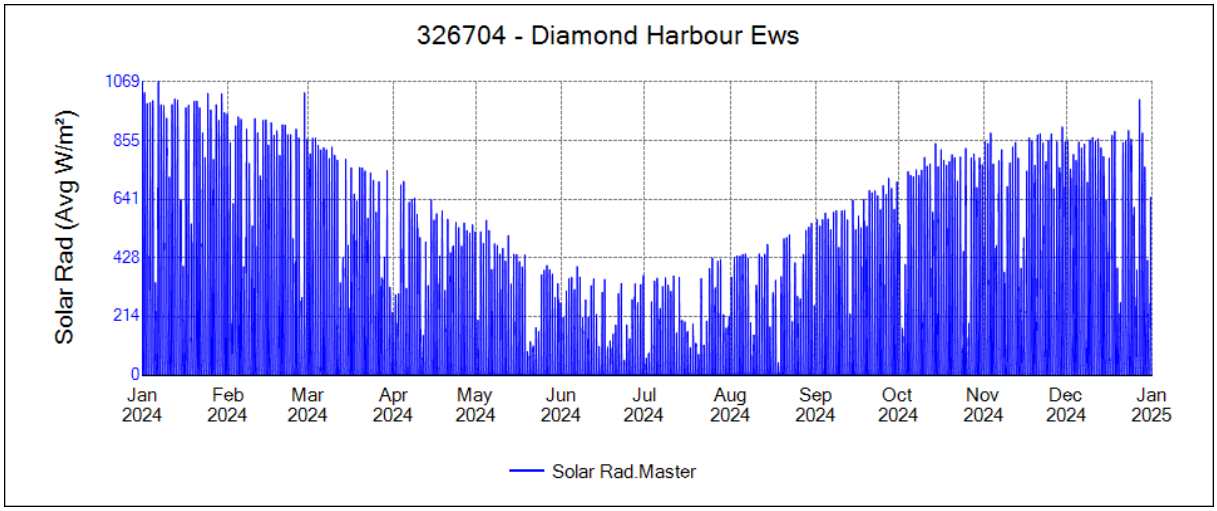


Figure 6-11: Climate station wind speed plots: 1 January to 31 December 2024 (cont.).



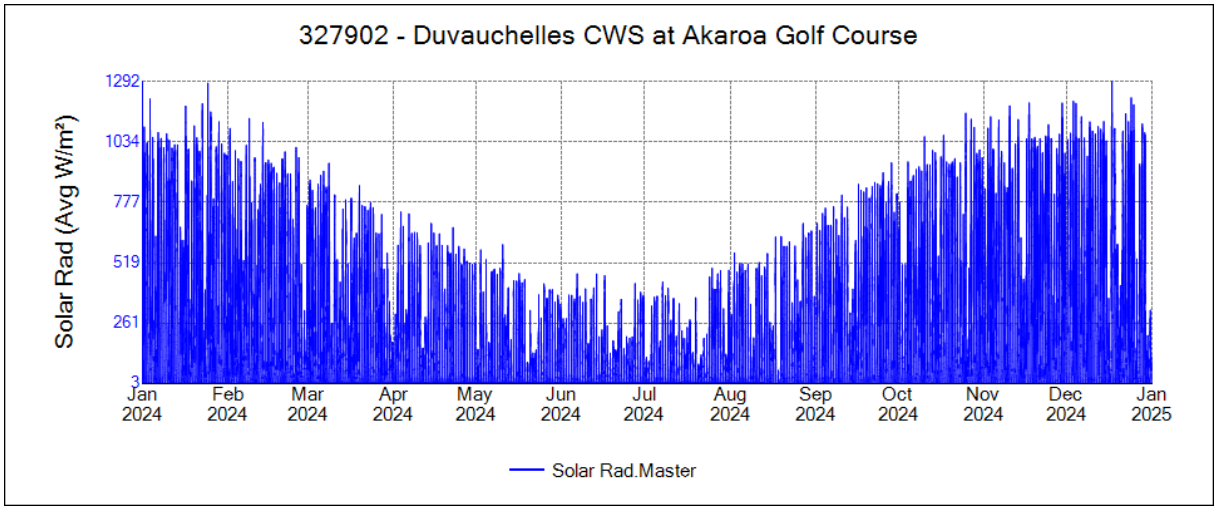


Figure 6-12: Climate station wind speed plots: 1 January to 31 December 2024 (cont).

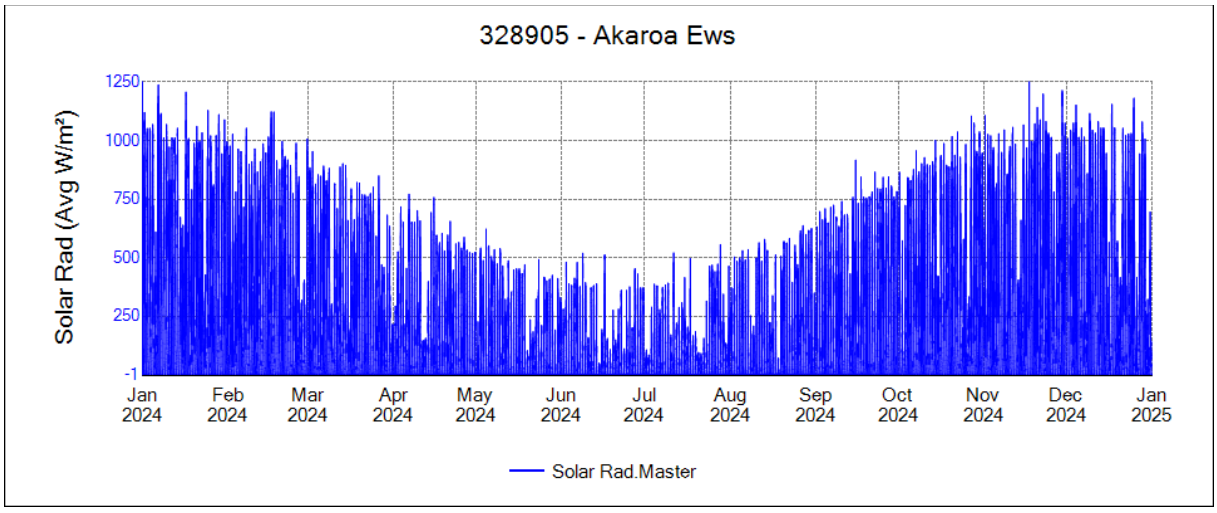


Figure 6-13: Climate station solar radiation plots: 1 January to 31 December 2024.

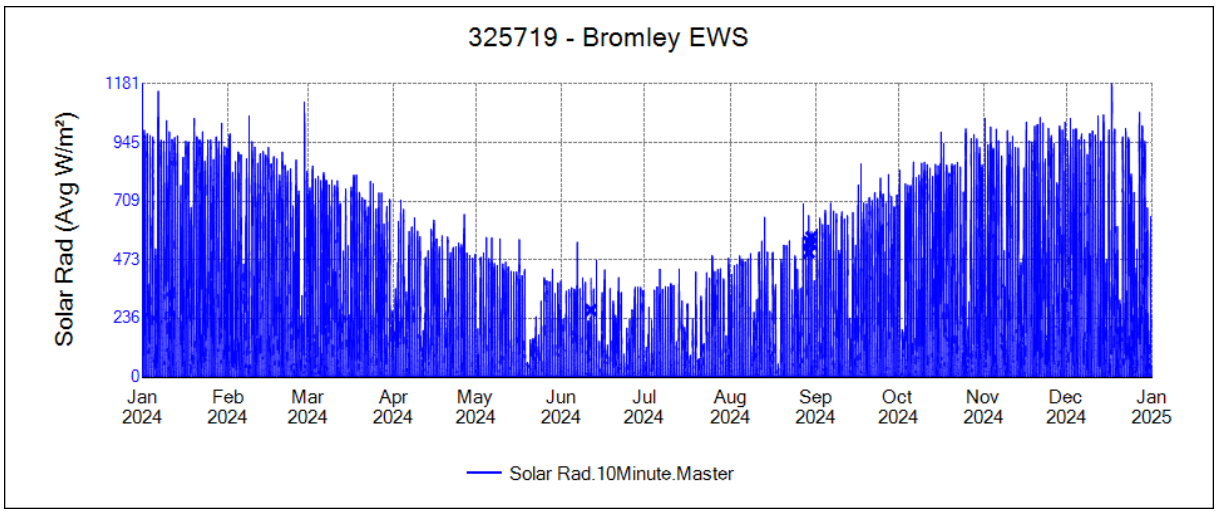


Figure 6-14: Climate station solar radiation plots: 1 January to 31 December 2024 (cont.).

6.3 St Albans Creek monitoring

In mid-2023, CCC engaged NIWA to undertake a medium to long-term programme monitoring for surface water levels and flow along a specified reach of St Albans Creek in St Albans. A monitoring station (including a flow meter) was installed near 130 Bishop St during October 2023, with surface water level and discharge being measured. The stream is gauged quarterly in addition to flood/high stage events being targeted.

Figure 6-15 provides a data continuity scan showing the availability of data from the site for the 2024 period and Figure 6-16 and Figure 6-17 show level and flow respectively. Table 6-1 and Table 6-2 provide a summary of the maximum, minimum and mean water level and flow data respectively for the site as recorded in 2024 compared with that recorded during the full period of record.

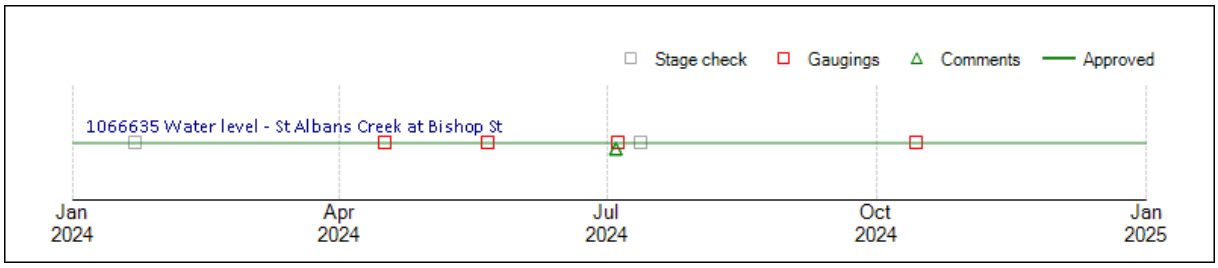


Figure 6-15: St Albans Creek data continuity scan: 1 January to 31 December 2024.

Table 6-1: St Albans Creek water level statistics summary: 2024 comparison with full record.

Station details			Full record			1-January-2024 - 31-December-2024		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
1066635	St Albans Creek at Bishop St	09-Oct-23	14.092	14.720	14.125	14.092	14.720	14.124

Table 6-2: St Albans Creek flow statistics summary: 2024 comparison with full record.

Station details			Full record			1-January-2024 - 31-December-2024		
Number	Name	Start of record	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)
1066635	St Albans Creek at Bishop St	09-Oct-23	0.001	0.587	0.017	0.001	0.587	0.016

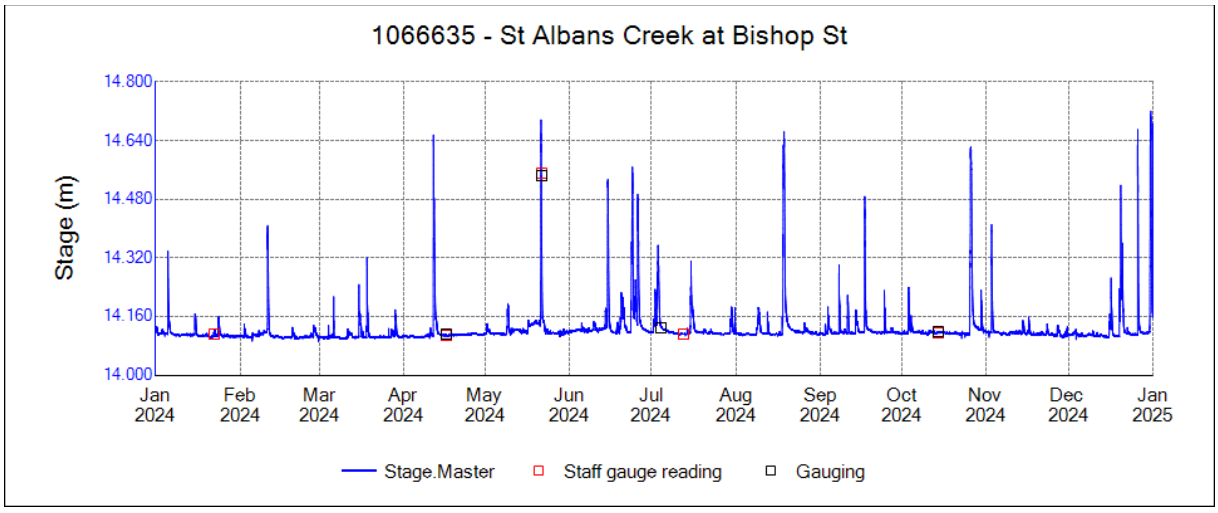


Figure 6-16: St Albans Creek water level: 1 January to 31 December 2024.

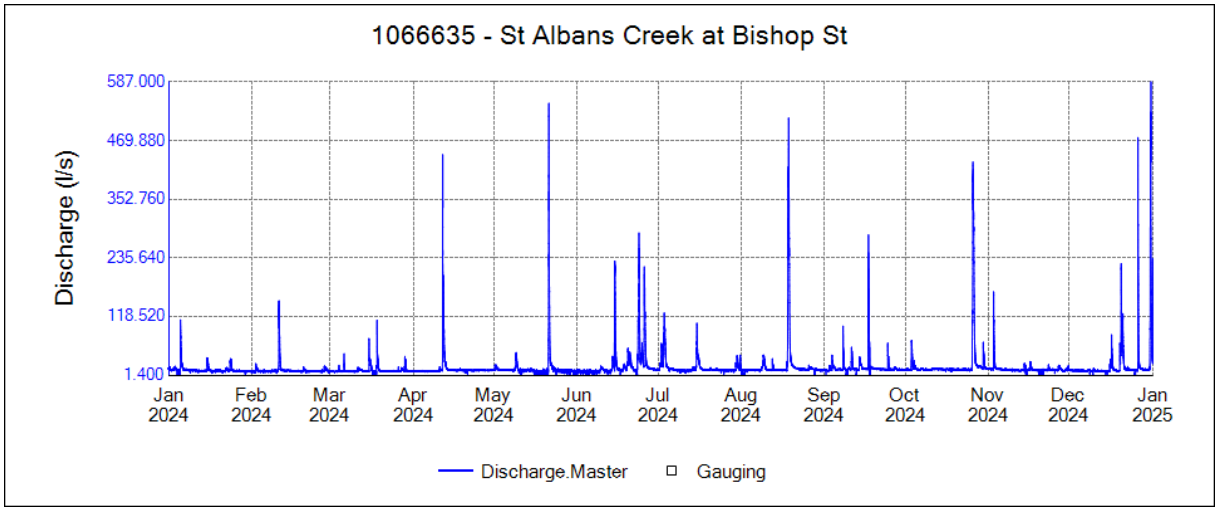


Figure 6-17: St Albans Creek flow: 1 January to 31 December 2024.

6.4 Port Levy monitoring

In 2022, CCC commissioned NIWA to install and operate two sites in the Port Levy valley catchment to continuously monitor stream flow and turbidity, along with monthly water quality sampling carried out by NIWA staff. The project aimed to provide data to CCC for their assessment of the quality of water in the catchment for the purposes of developing a local drinking water scheme.

Site instrumentation and telemetry equipment was installed at the Te Kawa Stream at Port Levy (66802) site on 30 March 2023, and at Owhetoro Stream at Port Levy (66801) site on 3 April 2023. Monthly water quality sampling also commenced at this time. A rain gauge was installed at the Owhetoro Stream site on 19 October 2023. Data collection ceased when the sites were removed on 8 October 2024 at the project completion of the monitoring period. Note that the traces in the following figures cut off at this date.

Figure 6-18 shows the data continuity for the two sites for the 1 January to 31 December 2024 period.

Figure 6-20 to Figure 6-22 show the rainfall, stage, discharge and turbidity plots respectively for the two sites for the 2024 period.

Table 6-3 and Table 6-4 show the site statistics for water level and discharge respectively for the two sites for the 2024 period.

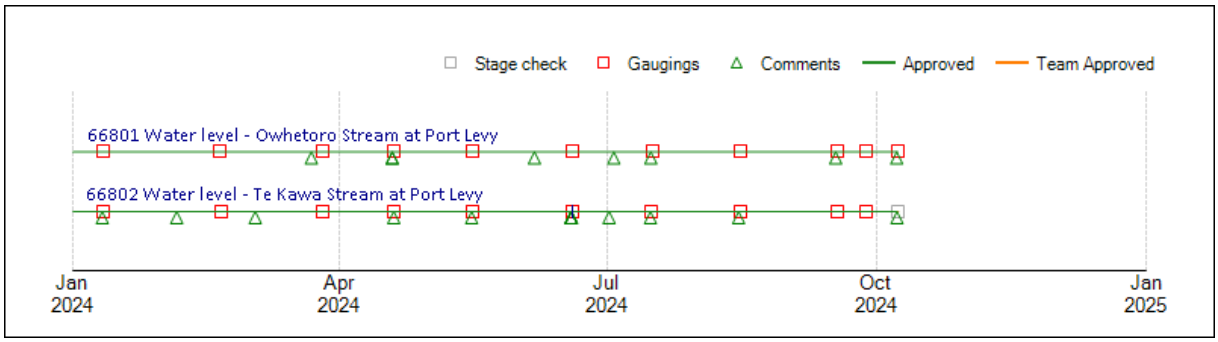


Figure 6-18: Port Levy water level data continuity scan: 1 January to 31 December 2024.

Table 6-3: Port Levy water level statistics summary: 2024 comparison with full record.

Station details			Full record			1-January-2024 - 31-December-2024		
Number	Name	Start of record	Minimum (m)	Maximum (m)	Mean (m)	Minimum (m)	Maximum (m)	Mean (m)
66801	Owhetoro Stream at Port Levy	03-Apr-23	1.114	2.338	1.248	1.114	1.759	1.177
66802	Te Kawa Stream at Port Levy	30-Mar-23	1.246	2.232	1.336	1.246	1.899	1.304

Table 6-4: Port Levy flow statistics summary: 2024 comparison with full record.

Station details			Full record			1-January-2024 - 31-December-2024		
Number	Name	Start of record	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)	Minimum (m^3/s)	Maximum (m^3/s)	Mean (m^3/s)
66801	Owhetoro Stream at Port Levy	03-Apr-23	0.027	11.216	0.159	0.027	3.515	0.088
66802	Te Kawa Stream at Port Levy	30-Mar-23	0.030	11.059	0.223	0.030	7.151	0.113

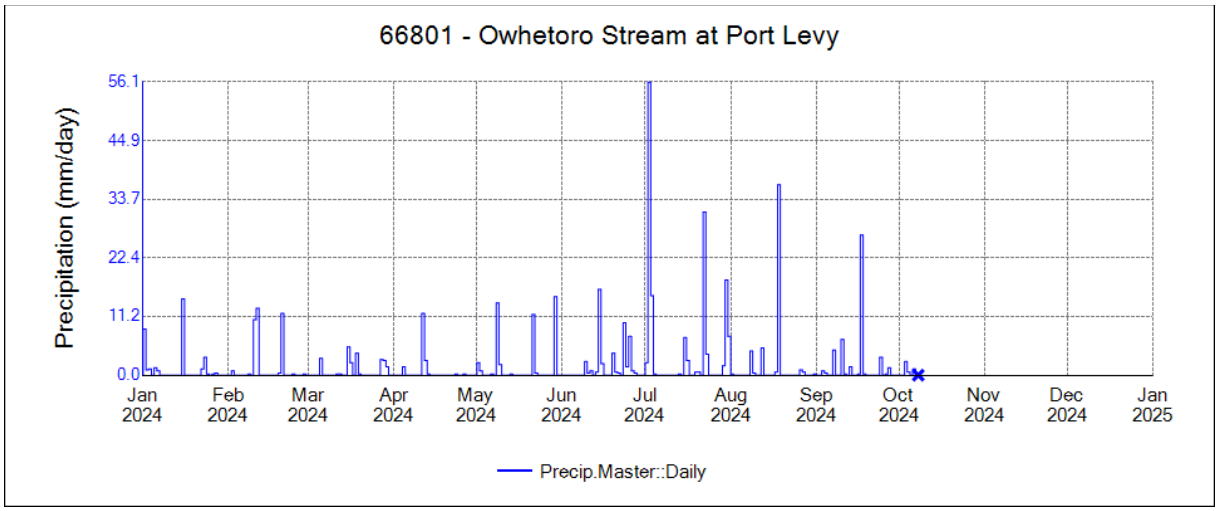
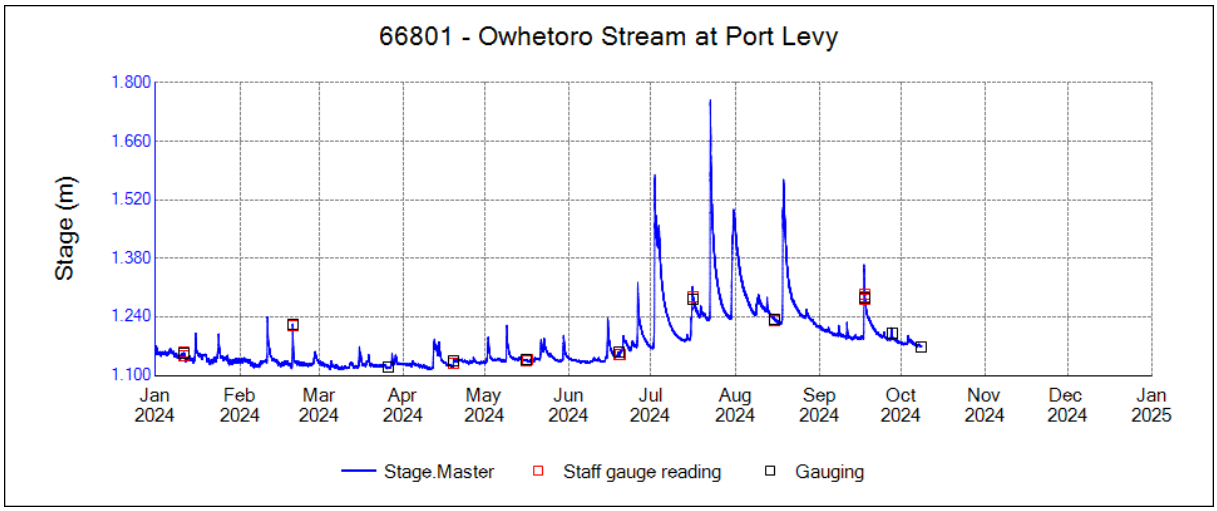


Figure 6-19: Owhetoro Stream at Port Levy rainfall plot: 1 January to 31 December 2024.



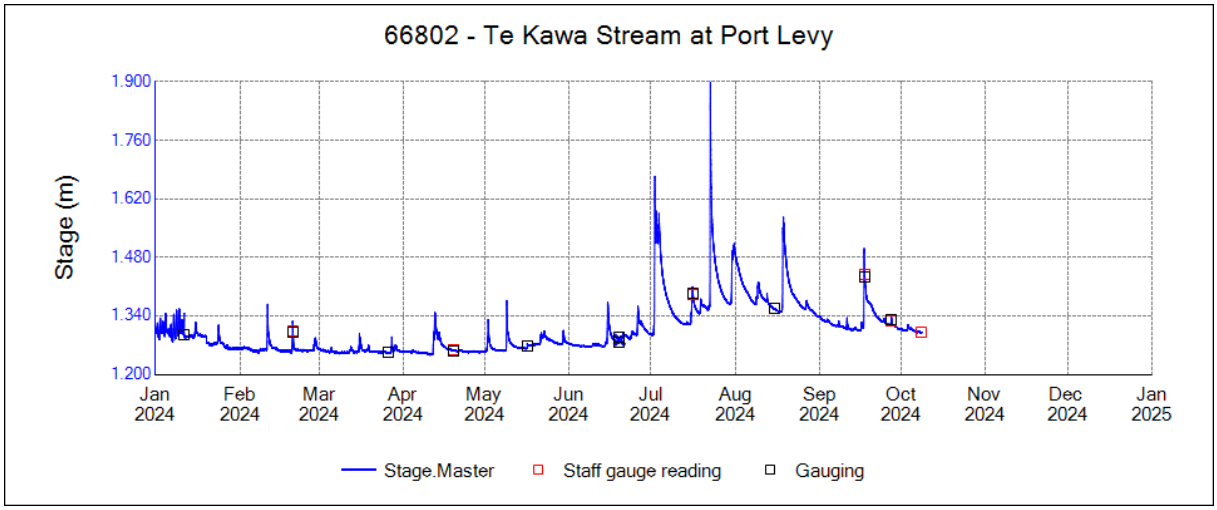
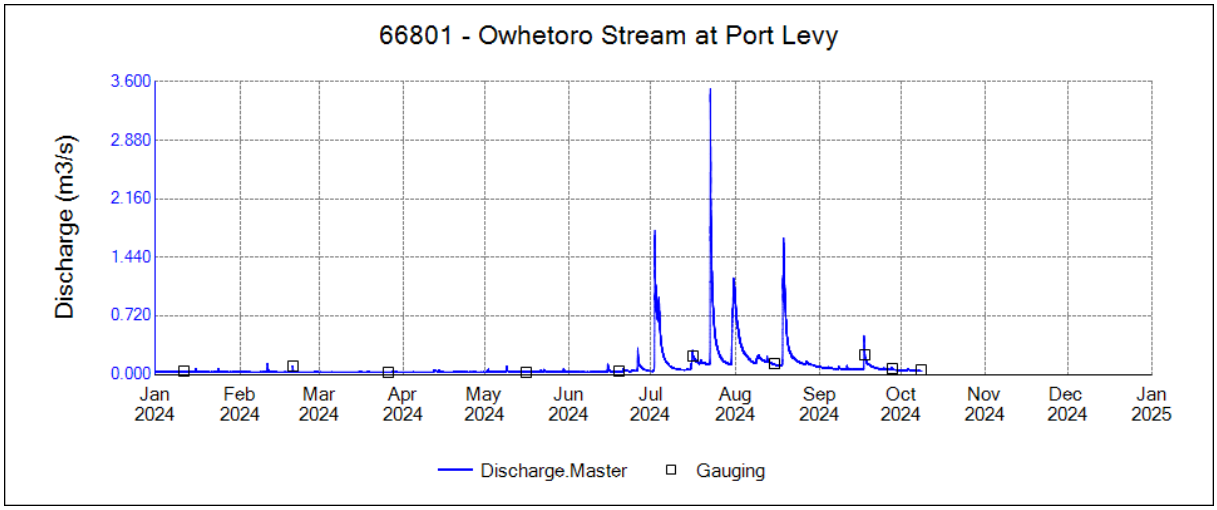


Figure 6-20: Port Levy water level plots: 1 January to 31 December 2024.



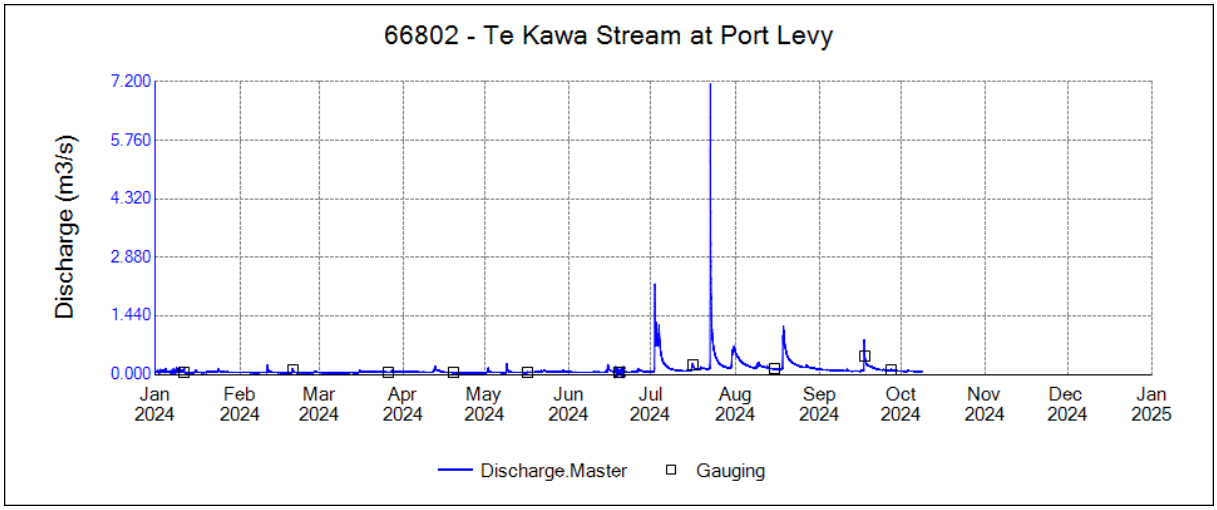
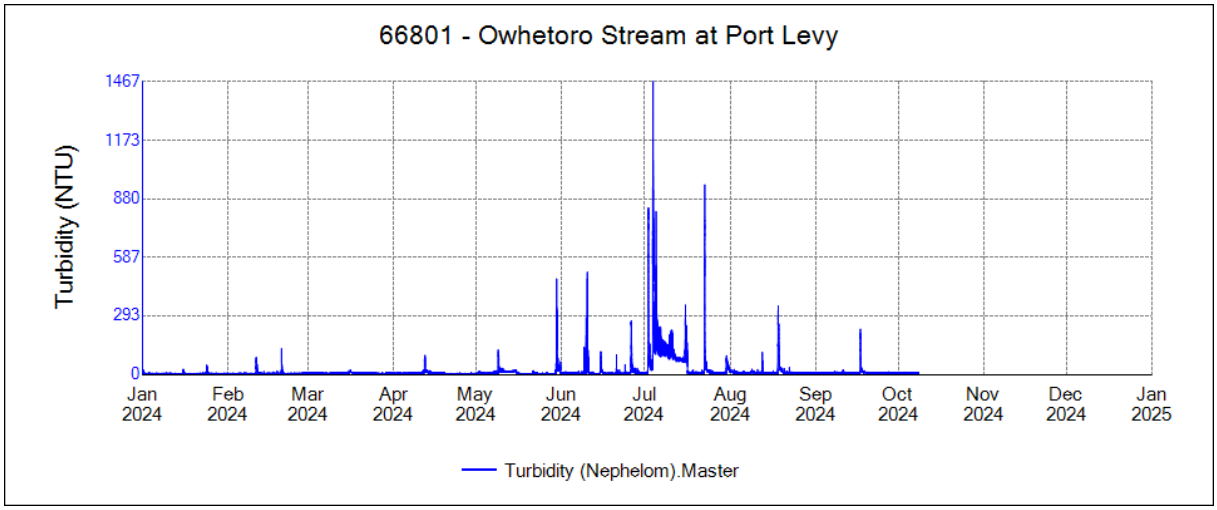


Figure 6-21: Port Levy flow plots: 1 January to 31 December 2024.



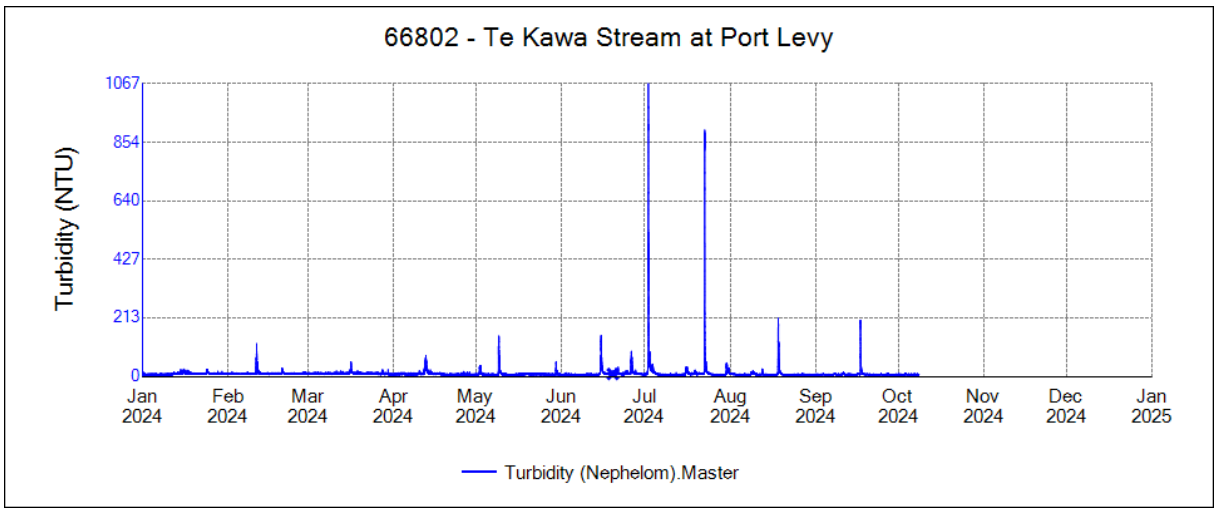


Figure 6-22: Port Levy water turbidity plots: 1 January to 31 December 2024.

7 Additional work activities in 2024

A number of additional work tasks were undertaken by NIWA for CCC throughout the year. Many were unrelated directly to the CCC Hydrometric network project and funded by other CCC Group engagements with NIWA science specialists. Some tasks are on-going, multi-year research projects.

Specific examples of other NIWA assistance during the year include the following:

- Water Quality monitoring stream sampling in Port Levy valley catchment for local drinking water scheme development (refer to section 6.4)
- Installation and monitoring of level and flow at St Albans Creek in order to help manage flooding along Edgeware Road (refer to section 6.3).
- Manual data ingestion of sea level data from Lyttleton Port Company, displayed in webportal as Site 66680 for CCC use (G. Harrington).

8 Anticipated work activities in 2025

8.1 Scheduled work

The Hydrometric Service Agreement 4600001152 (02/03-199) between CCC and NIWA expired on 30 June 2023 but was extended as a variation through to 30 July 2025.

Along with the regular hydrometric operations, gaugings and maintenance tasks, it is anticipated the following site works and additional site upgrades will be completed prior to the completion of the extended contract on 30 July 2025:

- Complete the 4G logger upgrades within the hydrometric network. This is due to be completed by 30 June 2025 (see section 8.2 for further details).
- Raise the main logger cabinet of Wigram Retention Basin above potential flood levels and relocate the rain gauge to the catwalk structure.

8.2 Hardware/Equipment upgrade – 2G/3G modem site upgrades

At the beginning of 2024, thirty-one (31) sites in the CCC hydrometric network were identified as requiring equipment upgrades to maintain operational performance. Specifically, any sites running data telemetry over the 2G/3G mobile networks would require upgrading to 4G-compatible loggers and modems due to the planned shutdown of the national 2G/3G mobile data networks in late 2025, as announced by Telco providers (Spark NZ and One NZ).

A programme of replacement with related costings was agreed between NIWA and CCC in May 2024 (NIWA proposal 2024083pEI). The upgrade rollout began in the latter half of 2024, with 13 sites being upgraded by the end of 2024. To date (May 2025), 28 sites have been upgraded, with 3 sites remaining to be upgraded before 30 June 2025.

Two of the initial 33 sites, Dudley Diversion Pipeline at Walter Park (66652) and No2 Drain, Shirley Golf Course (66624) have since been permanently closed as requested.

Appendix A Field activities 1 January 2024 – 31 December 2024

Styx River at Harbour Rd (66422)

Visit date	Time	Measurement type	Remark
04-Nov-2024	08:30	Staff gauge reading	On site for 4G logger upgrade. At 08:30 ESG = 9.645 m +/- 5 mm ENC = 9.647 m At 11:25 ESG = 9.000 m +/- 5 mm ENC = 9.001 m
04-Nov-2024	11:25	Staff gauge reading	On site to upgrade Harvest modem and hydrologger to NRL 4G logger and encoder. At 08:30 ESG = 9.645 m +/- 5 mm ENC = 9.647 m Equipment replaced. At 11:25 ESG = 9.000 m +/- 5 mm ENC = 9.001 m
14-Oct-2024	10:35	Staff gauge reading	Quarterly check At 10:35 ESG =9.190 m +/- 5 mm Encoder = 9.194 m
02-Jul-2024	13:02	Staff gauge reading	Quarterly check At 13:02 ESG = 9.565 m +/- 5 mm ENC = 9.563 m
24-May-2024	11:00	Staff gauge reading	Rain gauge inspection. Pre clean: 112, 111 Post clean: 107, 107

Visit date	Time	Measurement type	Remark
			Did not replace rain gauge. At 11:00 ESG = 8.905 m +/- 5 mm ENC = 8.905 m Could not connect to logger.
09-Apr-2024	12:35	Staff gauge reading	Quarterly check and ESG plate replacement as CCC surveyors had identified that the staff plates were -39 mm too low. At 12:35 ESG = 8.700 m +/- 5 mm ENC = 8.702 m Level sighting pre replace = 10.395 m ESG plates replaced and plates raised by 39 mm Level sighting post replace = 10.356 m Tower flushed 13:50 - 14:10, encoder adjusted.
09-Apr-2024	14:15	Staff gauge reading	At 14:15 ESG = 9.057 m +/- 10 mm ENC = 9.056 m Quarterly check and esg plate replacement as CCC surveyors had identified that the staff plates were -39 mm too low. At 12:35 ESG = 8.700 m +/- 5 mm ENC = 8.702 m Level sighting pre replace = 10.395 m ESG plates replaced and plates raised by 39 mm Level sighting post replace = 10.356 m Tower flushed 13:50 - 14:10, encoder adjusted.

Visit date	Time	Measurement type	Remark
			At 14:15 ESG = 9.057 m +/- 10 mm ENC = 9.056 m
12-Feb-2024	09:57	Staff gauge reading	Stage verification check, outgoing tide.
31-Jan-2024	10:45	Staff gauge reading	Surgy on ESG due to strong wind. At 10:45 ESG = 9.510 m +/- 10 mm ENC = 9.5111 m
08-Jan-2024	13:30	Staff gauge reading	Quarterly visit. @ 13:30 ESG = 9.391 m +/- 3 mm ENC = 9.39 m Flushed stilling well 13:50 - 14:00. No visible plume but maintained ~200 mm elevated head so water must've been escaping through the intake OK. Encoder settled back to equal with ESG OK. @ 14:03 ESG = 9.42 m +/- 3 mm ENC = 9.421 m
08-Jan-2024	14:03	Staff gauge reading	Quarterly visit. @ 13:30 ESG = 9.391 m +/- 3 mm ENC = 9.39 m Flushed stilling well 13:50 - 14:00. No visible plume but maintained ~200 mm elevated head so water must've been escaping through the intake OK. Encoder settled back to equal with ESG OK. @ 14:03 ESG = 9.42 m +/- 3 mm ENC = 9.421 m

Styx River at Lower Styx Rd (66423)

Visit date	Time	Measurement type	Remark
24-Oct-2024	14:20	Staff gauge reading	On site for 4G logger upgrade. At 14:20 ESG = 9.715 m +/- 5 mm Transducer = 9.709 m Gear plate/logger replaced. At 15:00 ESG = 9.715 m +/- 5 mm Transducer = 9.709 m
24-Oct-2024	15:00	Staff gauge reading	On site to upgrade logger and backing board from 3G to 4G. At 14:20 ESG = 9.715 m +/- 5 mm Transducer = 9.709 m Gear plate/logger replaced. At 15:00 ESG = 9.715 m +/- 5 mm Transducer = 9.709 m
14-Oct-2024	11:05	Staff gauge reading	Quarterly check. At 11:05 ESG = 9.620 m +/- 3 mm Sensor = 9.617 m Desiccant exchanged.
02-Jul-2024	13:30	Staff gauge reading	Quarterly site check. At 13:30 ESG = 9.766 m +/- 3 mm Transducer = 9.753 m

Visit date	Time	Measurement type	Remark
02-Jul-2024	13:40	Staff gauge reading	Flushed tower and cleaned transducer. At 13:40 ESG = 9.770 m +/- 3 mm Transducer = 9.771 m Quarterly site check. At 13:30 ESG = 9.766 m +/- 3 mm Transducer = 9.753 m
24-May-2024	13:05	Staff gauge reading	Flushed tower and cleaned transducer. At 13:40 ESG = 9.770 m +/- 3 mm Transducer = 9.771 m Rain gauge inspection. Pre clean tips: 107, 107 Post clean tips: 111, 110 Post exchange tips: 101, 102 At 13:05 ESG = 9.755 m +/- 5 mm PT = 9.756 m Desiccant fine. Battery swapped - new May 2024 Rain gauge cleaned - was fairly clean. Replaced TB3 after clean test. New S/N: 00-92
09-Apr-2024	14:30	Staff gauge reading	Test tips at 14:55 - deleted off Aquarius. Quarterly visit. At 14:30

Visit date	Time	Measurement type	Remark
			ESG = 9.723 m +/- 3 mm PT = 9.730 m Pulled PT and flushed tower at 14:37, desiccant exchanged. At 14:40 ESG = 9.730 m +/- 3 mm PT = 97.31 m
09-Apr-2024	14:40	Staff gauge reading	Quarterly visit. A 14:30 ESG = 9.723 m +/- 3 mm PT = 9.730 m Pulled pt and flushed tower at 14:37, desiccant exchanged. At 14:40 ESG = 9.730 m +/- 3 mm PT = 97.31 m
08-Jan-2024	14:45	Staff gauge reading	Quarterly visit. @ 14:45 ESG = 9.577 m +/- 3 mm PT = 9.587 m PT reading 10 mm high- checked bottom of pipe is free of mud, flushed/ cleaned PT, no change to reading. @ 14:55 ESG = 9.584 m +/- 3 mm PT = 9.594 m Changed PT stage offset: old = +9.404 m, new = +9.394 m Replaced desiccant. Checked raingauge free of debris.

Visit date	Time	Measurement type	Remark
08-Jan-2024	14:55	Staff gauge reading	Quarterly visit. @ 14:45 ESG = 9.577 m +/- 3 mm PT = 9.587 m PT reading 10 mm high- checked bottom of pipe is free of mud, flushed/ cleaned PT, no change to reading. @ 14:55 ESG = 9.584 m +/- 3 mm PT = 9.594 m Changed PT stage offset: old = +9.404 m, new = +9.394 m Replaced desiccant. Checked raingauge- free of debris.

Styx River at Tidegates (66440)

Visit date	Time	Measurement type	Remark
14-Oct-2024	10:45	Staff gauge reading	Quarterly check. At 10:45 ESG = 9.565 m +/- 10 mm
02-Jul-2024	13:10	Staff gauge reading	Quarterly check. At 13:10 ESG = 10.505 m +/- 5 mm.
09-Apr-2024	10:25	Staff gauge reading	Quarterly check and ESG plate replacement as CCC surveyors had identified that the staff plates were -30 mm too low. At 10:25 ESG = 8.706 m +/- 5 mm Radar = 8.707 m Level sighting pre replace = 10.531 m ESG plates replaced. Level sighting post replace = 10.501 m Radar offset adjusted -30 mm At 12:00 ESG = 8.494 m +/- 5 mm Radar = 8.495 m
09-Apr-2024	12:00	Staff gauge reading	Quarterly check and esg plate replacement as CCC surveyors had identified that the staff plates were -30 mm too low. At 10:25 ESG = 8.706 m +/- 5 mm Radar = 8.707 m Level sighting pre replace = 10.531 m ESG plates replaced. Level sighting post replace = 10.501 m

Visit date	Time	Measurement type	Remark
			Radar offset adjusted -30 mm
12-Feb-2024	10:15	Staff gauge reading	At 12:00 ESG = 8.494 m +/- 5 mm Radar = 8.495 m Stage check
31-Jan-2024	11:00	Staff gauge reading	At 10:15 ESG = 9.241 m +/- 5 mm Strong Nor'easter causing significant surge on ESG.
08-Jan-2024	13:10	Staff gauge reading	Radar = 9.755 m +/- 15 mm ESG = 9.759 m Quarterly visit. Rising/ high tide. No issues.
			@ 13:10 ESG = 9.969 +/- 3 mm RADAR = 9.963 m

Kaputone Creek at Guthries Rd (66443)

Visit date	Time	Measurement type	Remark
16-Dec-2024	09:55	Staff gauge reading	4G logger upgrade. At 9:55: ESG = 13.360 m +/- 3 mm Recorded stage = 13.356 m Replaced logger with 4G NRL. Exchanged entire gear plate (new terminals and regulator too) Logger enclosure was overgrown with willows - trimmed back. Removed PT12 and cleaned at 10:30. This caused a jump in recorded stage, and re-aligned record with ESG observations. At 10:35: ESG = 13.360 m +/- 3 mm Recorded stage = 13.362 m.
16-Dec-2024	10:35	Staff gauge reading	4G NRL upgrade. At 9:55: ESG = 13.360 m +/- 3 mm Recorded stage = 13.356 m Replaced logger with 4G NRL. Exchanged entire gear plate (new terminals and regulator too) Logger enclosure was overgrown with willows - trimmed back. Removed PT12 and cleaned at 10:30. This caused a jump in recorded stage, and re-aligned record with ESG observations. At 10:35: ESG = 13.360 m +/- 3 mm Recorded stage = 13.362 m.
16-Oct-2024	12:15	Gauging	Routine quarterly site visit. At 11:35: ESG = 13.447 m +/- 3 mm Recorded Stage = 13.436 m Removed and cleaned PT12. No silt inside diaphragm chamber, however showing signs of age with corrosion visible up against the diaphragm. After clean at 11:40:

Visit date	Time	Measurement type	Remark
			ESG = 13.447 m +/- 3 mm Recorded Stage = 13.448 m Stage looks to be more elevated than usual - certainly above the dirty mark on the ESG (maybe backing up from downstream influences?) Gauged - Stream Pro moving boat about 2m above bridge. Gauged Q = 0.136 m3/s. QRev uncertainty 25.5%!! This is due to a very large top Q uncertainty (Extrap couldn't reliably define a curve shape). Gauging filed and fully considered for rating. At 12:35: ESG = 13.447 m +/- 3 mm Recorded stage = 13.448 m Willows overgrowing enclosure and solar panel - trim with Silky next visit.
16-Oct-2024	11:35	Staff gauge reading	Routine quarterly site visit. At 11:35: ESG = 13.447 m +/- 3 mm Recorded Stage = 13.436 m Removed and cleaned PT12. No silt inside diaphragm chamber, however showing signs of age with corrosion visible up against the diaphragm. After clean at 11:40: ESG = 13.447 m +/- 3 mm Recorded Stage = 13.448 m Stage looks to be more elevated than usual - certainly above the dirty mark on the ESG (maybe backing up from downstream influences?) Gauged - Stream Pro moving boat about 2m above bridge. Gauged Q = 0.136 m3/s. QRev uncertainty 25.5%!! This is due to a very large top Q uncertainty (Extrap couldn't reliably define a curve shape). Gauging filed an fully considered for rating. At 12:35: ESG = 13.447 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			Recorded stage = 13.448 m Willows overgrowing enclosure and solar panel - trim with Silky next visit.
16-Oct-2024	11:40	Staff gauge reading	Routine quarterly site visit. At 11:35: ESG = 13.447 m +/- 3 mm Recorded Stage = 13.436 m Removed and cleaned PT12. No silt inside diaphragm chamber, however showing signs of age with corrosion visible up against the diaphragm. After clean at 11:40: ESG = 13.447 m +/- 3 mm Recorded Stage = 13.448 m Stage looks to be more elevated than usual - certainly above the dirty mark on the ESG (maybe backing up from downstream influences?) Gauged - Stream Pro moving boat about 2m above bridge. Gauged Q = 0.136 m3/s. QRev uncertainty 25.5%!! This is due to a very large top Q uncertainty (Extrap couldn't reliably define a curve shape). Gauging filed an fully considered for rating.
			At 12:35: ESG = 13.447 m +/- 3 mm Recorded stage = 13.448 m Willows overgrowing enclosure and solar panel - trim with Silky next visit.
16-Oct-2024	12:35	Staff gauge reading	Routine quarterly site visit. At 11:35: ESG = 13.447 m +/- 3 mm Recorded Stage = 13.436 m Removed and cleaned PT12. No silt inside diaphragm chamber, however showing signs of age with corrosion visible up against the diaphragm. After clean at 11:40:

Visit date	Time	Measurement type	Remark
			ESG = 13.447 m +/- 3 mm Recorded Stage = 13.448 m Stage looks to be more elevated than usual - certainly above the dirty mark on the ESG (maybe backing up from downstream influences?) Gauged - Stream Pro moving boat about 2m above bridge. Gauged Q = 0.136 m3/s. QRev uncertainty 25.5%!! This is due to a very large top Q uncertainty (Extrap couldn't reliably define a curve shape). Gauging filed an fully considered for rating. At 12:35: ESG = 13.447 m +/- 3 mm Recorded stage = 13.448 m Willows overgrowing enclosure and solar panel - trim with Silky next visit.
02-Jul-2024	12:15	Gauging	Quarterly site check and gauging. At 11:40 ESG = 13.389 m +/- 3 mm Gauged using Sxs At 12:25 ESG = 13.389 m +/- 3 mm
02-Jul-2024	11:40	Staff gauge reading	Quarterly site check and gauging. At 11:40 ESG = 13.389 m +/- 3 mm Gauged using Sxs At 12:25 ESG = 13.389 m +/- 3 mm
02-Jul-2024	12:25	Staff gauge reading	Quarterly site check and gauging. At 11:40

Visit date	Time	Measurement type	Remark
			ESG = 13.389 m +/- 3 mm Gauged using Sxs
11-Apr-2024	11:00	Gauging	At 12:25 ESG = 13.389 m +/- 3 mm Quarterly visit. At 10:36 ESG = 13.345 m +/- 3 mm PT = 13.336 m Cleaned and flushed PT 10:35 - 10:40. At 10:45 ESG = 13.345 m +/- 3 mm PT = 13.348 m At 10:50 ESG = 13.345 m +/- 3 mm PT 13.348 m Gauged ~2 m upstream of bridge using Flow tracker 2.
11-Apr-2024	10:45	Staff gauge reading	At 11:15 ESG = 13.345 m +/- 3 mm PT = 13.348 m Quarterly visit. At 10:36 ESG = 13.345 m +/- 3 mm PT = 13.336 m Cleaned and flushed PT 10:35 - 10:40. At 10:45

Visit date	Time	Measurement type	Remark
			ESG = 13.345 m +/- 3 mm PT = 13.348 m At 10:50 ESG = 13.345 m +/- 3 mm PT 13.348 m Gauged ~2 m upstream of bridge using Flow tracker 2. At 11:15 ESG = 13.345 m +/- 3 mm PT = 13.348 m
11-Apr-2024	10:50	Staff gauge reading	Quarterly visit. At 10:36 ESG = 13.345 m +/- 3 mm PT = 13.336 m Cleaned and flushed PT 10:35 - 10:40. At 10:45 ESG = 13.345 m +/- 3 mm PT = 13.348 m At 10:50 ESG = 13.345 m +/- 3 mm PT 13.348 m Gauged ~2 m upstream of bridge using Flow tracker 2. At 11:15 ESG = 13.345 m +/- 3 mm PT = 13.348 m
11-Apr-2024	11:15	Staff gauge reading	Quarterly visit. At 10:36

Visit date	Time	Measurement type	Remark
			ESG = 13.345 m +/- 3 mm PT = 13.336 m Cleaned and flushed PT 10:35 - 10:40. At 10:45 ESG = 13.345 m +/- 3 mm PT = 13.348 m At 10:50 ESG = 13.345 m +/- 3 mm PT 13.348 m Gauged ~2 m upstream of bridge using Flow tracker 2. At 11:15 ESG = 13.345 m +/- 3 mm PT = 13.348 m
11-Apr-2024	10:00	Other field measurement	Quarterly visit. At 10:36 ESG = 13.345 m +/- 3 mm PT = 13.336 m Cleaned and flushed PT 10:35 - 10:40. At 10:45 ESG = 13.345 m +/- 3 mm PT = 13.348 m At 10:50 ESG = 13.345 m +/- 3 mm PT 13.348 m Gauged ~2 m upstream of bridge using Flow tracker 2.

Visit date	Time	Measurement type	Remark
			At 11:15 ESG = 13.345 m +/- 3 mm PT = 13.348 m
10-Jan-2024	11:16	Gauging	Quarterly check. All good. Gauged with Flowtracker2 1.5 m upstream of culvert. @ 10:52 ESG = 13.326 m +/- 3 mm PT = 13.320 m @ 11:35 ESG = 13.327 m +/- 3 mm PT = 13.319 m
10-Jan-2024	10:52	Staff gauge reading	Quarterly check. All good. Gauged with Flowtracker2 1.5 m upstream of culvert. @ 10:52 ESG = 13.326 m +/- 3 mm PT = 13.320 m @ 11:35 ESG = 13.327 m +/- 3 mm PT = 13.319 m
10-Jan-2024	11:35	Staff gauge reading	Quarterly check. All good. Gauged with Flowtracker2 1.5 m upstream of culvert. @ 10:52 ESG = 13.326 m +/- 3 mm PT = 13.320 m @ 11:35 ESG = 13.327 m +/- 3 mm PT = 13.319 m

Prestons Subdivision at Lower Styx Rd (66446)

Visit date	Time	Measurement type	Remark
16-Dec-2024	11:00	Staff gauge reading	4G NRL logger upgrade. At 11:00: ESG = 10.992 m +/- 3 mm Recorded stage = 10.990 m Thick, anaerobic sludge on bed of culvert. Very low inflow from pond. Stirred up sludge several times to get low inflow to push it through (otherwise it just settles out again in the low velocity water). Got to a point where I could see the QSD sensor, so managed to clear enough sludge to give it a clean sampling volume. QSD NOT exchanged. Now we have a clear sampling volume, monitor to see if stage data still "drops out". Cut back bushes around logger enclosure. Exchanged logger for 4G NRL. At 12:10: ESG = 10.992 m +/- 3 mm Recorded stage = 10.990 m
16-Dec-2024	12:10	Staff gauge reading	4G NRL logger upgrade. At 11:00: ESG = 10.992 m +/- 3 mm Recorded stage = 10.990 m Thick, anaerobic sludge on bed of culvert. Very low inflow from pond. Stirred up sludge several times to get low inflow to push it through (otherwise it just settles out again in the low velocity water). Got to a point where I could see the QSD sensor, so managed to clear enough sludge to give it a clean sampling volume. QSD NOT exchanged. Now we have a clear sampling volume, monitor to see if stage data still "drops out". Cut back bushes around logger enclosure. Exchanged logger for 4G NRL. At 12:10:

Visit date	Time	Measurement type	Remark
			ESG = 10.992 m +/- 3 mm Recorded stage = 10.990 m
19-Nov-2024	10:15	Staff gauge reading	Passing the site while doing large groundwater run. Swept sensor and read staff gauge.
30-Oct-2024	13:35	Staff gauge reading	Staff gauge: 10.965 m ± 3 mm Stage verification visit. At 13:35 ESG = 10.978 m +/- 3 mm QSD = 10.975 m
14-Oct-2024	09:55	Staff gauge reading	Site is flowing. QSD = 2 l/s. On site to investigate zero flow data. At 09:55 ESG = 11.005 m +/- 3 mm. Noted that water from the retention pond was flowing into the mouth of the culvert, however it did not seem to be flowing past the sensor. Suspect there is a blockage downstream of the sensor. Removed some rocks near the mouth of the culvert in case these were adversely affecting the QSD sensor. There are still a large number of rocks in the mouth of the culvert. At 10:10 ESG = 11.005 m +/- 3 mm.
14-Oct-2024	10:10	Staff gauge reading	On site to investigate zero flow data. At 09:55 ESG = 11.005 m +/- 3 mm. Noted that water from the retention pond was flowing into the mouth of the culvert, however it did not seem to be flowing past the sensor. Suspect there is a blockage downstream of the sensor. Removed some rocks near the mouth of the culvert in case these were adversely effecting the QSD sensor. There are still a large number of rocks in the mouth of the culvert. At 10:10 ESG = 11.005 m +/- 3 mm.

Visit date	Time	Measurement type	Remark
02-Oct-2024	10:20	Staff gauge reading	Quarterly check. Discharge had been a 0 for a number of days. Removed some rocks, silt and a resident eel from in front of the sensor. Appears to be working again.
02-Jul-2024	13:50	Staff gauge reading	Quarterly check At 13:50 ESG = 10.985 m +/- 3 mm Sonflow = 10.980 m
04-Apr-2024	13:05	Staff gauge reading	Quarterly visit. At 13:05 ESG = 10.970 m +/- 3 mm QSD = 10.964 m Tried to clear any potential sediment off QSD 13:05 – 13:10. Hard to see sensor – poor water clarity. At 13:15 ESG = 10.968 m +/- 3 mm QSD = 10.963 m
04-Apr-2024	13:15	Staff gauge reading	Quarterly visit. At 13:05 ESG = 10.970 m +/- 3 mm QSD = 10.964 m Tried to clear any potential sediment off QSD 13:05 – 13:10. Hard to see sensor – poor water clarity. At 13:15 ESG = 10.968 m +/- 3 mm QSD = 10.963 m
10-Jan-2024	11:50	Staff gauge reading	Quarterly check. Cleaned QSD by hand. All good. @ 11:50 ESG = 10.959 m +/- 2 mm QSD = 10.958 m

Otukaikino at Dickeys Road (66447)

Visit date	Time	Measurement type	Remark
16-Oct-2024	13:15	Gauging	Routine quarterly visit. At 12:45: ESG = 12.435 +/- 3 mm Recorded stage = 12.432 m Gauged - Stream Pro moving boat. Gauged Q = 2.34 m3/s. QRev uncertainty 10% (high top Q uncertainty due to Extrap uncertainty) At 13:35: ESG = 12.435 m +/- 3 mm Recorded stage = 12.432 m
16-Oct-2024	12:45	Staff gauge reading	Routine quarterly visit. At 12:45: ESG = 12.435 +/- 3 mm Recorded stage = 12.432 m Gauged - Stream Pro moving boat. Gauged Q = 2.34 m3/s. QRev uncertainty 10% (high top Q uncertainty due to Extrap uncertainty) At 13:35: ESG = 12.435 m +/- 3 mm Recorded stage = 12.432 m
16-Oct-2024	13:35	Staff gauge reading	Routine quarterly visit. At 12:45: ESG = 12.435 +/- 3 mm Recorded stage = 12.432 m Gauged - Stream Pro moving boat. Gauged Q = 2.34 m3/s. QRev uncertainty 10% (high top Q uncertainty due to Extrap uncertainty) At 13:35: ESG = 12.435 m +/- 3 mm Recorded stage = 12.432 m

Visit date	Time	Measurement type	Remark
28-Aug-2024	10:21	Staff gauge reading	On site to swap battery on the Waterwatch unit as it was down to 11%. At 10:21 ESG = 12.398 m +/- 3 mm Battery swapped At 10:41 ESG = 12.399 m +/- 3 mm
28-Aug-2024	10:41	Staff gauge reading	On site to swap battery on the Waterwatch unit as it was down to 11%. At 10:21 ESG = 12.398 m +/- 3 mm Battery swapped At 10:41 ESG = 12.399 m +/- 3 mm
02-Jul-2024	11:05	Gauging	At 10:00 ESG = 12.384 m +/- 3 mm At 10:55 ESG = 12.383 m +/- 3 mm Gauged using SxS method. At 11:20 ESG = 12.382 m +/- 3 mm
02-Jul-2024	10:00	Staff gauge reading	At 10:00 ESG = 12.384 m +/- 3 mm At 10:55 ESG = 12.383 m +/- 3 mm Gauged using Sxs

Visit date	Time	Measurement type	Remark
02-Jul-2024	10:55	Staff gauge reading	At 11:20 ESG = 12.382 m +/- 3 mm At 10:00 ESG = 12.384 m +/- 3 mm At 10:55 ESG = 12.383 m +/- 3 mm Gauged using Sxs
02-Jul-2024	11:20	Staff gauge reading	At 11:20 ESG = 12.382 m +/- 3 mm At 10:00 ESG = 12.384 m +/- 3 mm At 10:55 ESG = 12.383 m +/- 3 mm Gauged using Sxs
11-Apr-2024	10:02	Gauging	At 11:20 ESG = 12.382 m +/- 3 mm Quarterly visit At 09:33 WW = 12.410 m At 09:35 ESG = 12.408 m +/- 3 mm SxS gauging at ESG. Eddy on true right bank. Q = 2.277 m3/s uncert = 3.06%. Qrev = 2.12 m3/s uncert = 3.6%. Temp = 14.2 At 10:13 WW = 12.410 m At 10:15

Visit date	Time	Measurement type	Remark
11-Apr-2024	09:35	Staff gauge reading	ESG = 12.406 m +/- 3 mm Quarterly visit At 09:33 WW = 12.410 m At 09:35 ESG = 12.408 m +/- 3 mm SxS gauging at ESG. Eddy on true right bank. Q = 2.277 m3/s uncert = 3.06%. Qrev = 2.12 m3/s uncert = 3.6%. Temp = 14.2 At 10:13 WW = 12.410 m At 10:15 ESG = 12.406 m +/- 3 mm
11-Apr-2024	10:15	Staff gauge reading	Quarterly visit At 09:33 WW = 12.410 m At 09:35 ESG = 12.408 m +/- 3 mm SxS gauging at ESG. Eddy on true right bank. Q = 2.277 m3/s uncert = 3.06%. Qrev = 2.12 m3/s uncert = 3.6%. Temp = 14.2 At 10:13 WW = 12.410 m At 10:15 ESG = 12.406 m +/- 3 mm
11-Apr-2024	09:45	Other field measurement	Quarterly visit At 09:33 WW = 12.410 m At 09:35

Visit date	Time	Measurement type	Remark
			ESG = 12.408 m +/- 3 mm SxS gauging at ESG. Eddy on true right bank. Q = 2.277 m3/s uncert = 3.06%. Qrev = 2.12 m3/s uncert = 3.6%. Temp = 14.2 At 10:13 WW = 12.410 m At 10:15 ESG = 12.406 m +/- 3 mm
12-Feb-2024	09:27	Staff gauge reading	Investigating sensor outage. Unable to connect to sensor. Replaced battery and sensor came back to life. At 09:27 measured water level from sensor = 2.265 m +/- 5 mm.
08-Jan-2024	12:17	Gauging	Routine visit. SxS gauging with StreamPro on tagline, moved by hand. @ 11:50 ESG = 12.388 m +- 3 mm @ 12:45 ESG = 12.389 m
08-Jan-2024	11:50	Staff gauge reading	Routine visit. SxS gauging with StreamPro on tagline, moved by hand. @ 11:50 ESG = 12.388 m +- 3 mm @ 12:45 ESG = 12.389 m
08-Jan-2024	12:45	Staff gauge reading	Routine visit. SxS gauging with StreamPro on tagline, moved by hand. @ 11:50 ESG = 12.388 m +- 3 mm @ 12:45 ESG = 12.389 m

Horners Drain at Prestons Rd (66471)

Visit date	Time	Measurement type	Remark
16-Oct-2024	10:55	Gauging	Routine site visit and gauging. Also 4G NRL logger upgrade. At 9:30: ESG = 12.732 m +/- 3mm Logged stage = 12.725 m Installed new 4G NRL. No changes made to PT offset. At 10:10: ESG = 12.732 m +/- 3mm Logged stage (new logger) = 12.725 m Gauged - FT2 about 3m below ESG. Gauged Q 48.7 l/s. Removed and cleaned PT12 and flushed out PT tube after gauging. PT was covered in aquatic bugs, but no silt against diaphragm. Tube had a bit of silt in it, but not blocked. At 11:20: ESG = 12.732 m +/- 3mm Logged stage = 12.729 m Stage data not edited
16-Oct-2024	09:30	Staff gauge reading	Routine site visit and gauging. Also 4G NRL logger exchange. At 9:30: ESG = 12.732 m +/- 3mm Logged stage = 12.725 m Installed new 4G NRL. No changes made to PT offset. At 10:10: ESG = 12.732 m +/- 3mm Logged stage (new logger) = 12.725 m Gauged - FT2 about 3m below ESG. Gauged Q 48.7 l/s. Removed and cleaned PT12 and flushed out PT tube after gauging. PT was covered in aquatic bugs, but no silt against diaphragm. Tube had a bit of silt in it, but not blocked. At 11:20:

Visit date	Time	Measurement type	Remark
			ESG = 12.732 m +/- 3mm Logged stage = 12.729 m Stage data not edited
16-Oct-2024	10:10	Staff gauge reading	Routine site visit and gauging. Also 4G NRL logger exchange. At 9:30: ESG = 12.732 m +/- 3mm Logged stage = 12.725 m Installed new 4G NRL. No changes made to PT offset. At 10:10: ESG = 12.732 m +/- 3mm Logged stage (new logger) = 12.725 m Gauged - FT2 about 3m below ESG. Gauged Q 48.7 l/s. Removed and cleaned PT12 and flushed out PT tube after gauging. PT was covered in aquatic bugs, but no silt against diaphragm. Tube had a bit of silt in it, but not blocked. At 11:20: ESG = 12.732 m +/- 3mm Logged stage = 12.729 m Stage data not edited
16-Oct-2024	11:20	Staff gauge reading	Routine site visit and gauging. Also 4G NRL logger exchange. At 9:30: ESG = 12.732 m +/- 3mm Logged stage = 12.725 m Installed new 4G NRL. No changes made to PT offset. At 10:10: ESG = 12.732 m +/- 3mm Logged stage (new logger) = 12.725 m Gauged - FT2 about 3m below ESG. Gauged Q 48.7 l/s. Removed and cleaned PT12 and flushed out PT tube after gauging. PT was covered in aquatic bugs, but no silt against diaphragm. Tube had a bit of silt in it, but not blocked. At 11:20: ESG = 12.732 m +/- 3mm Logged stage = 12.729 m

Visit date	Time	Measurement type	Remark
			Stage data not edited
16-Oct-2024	10:55	Other field measurement	Routine site visit and gauging. Also 4G NRL logger exchange. At 9:30: ESG = 12.732 m +/- 3mm Logged stage = 12.725 m Installed new 4G NRL. No changes made to PT offset. At 10:10: ESG = 12.732 m +/- 3mm Logged stage (new logger) = 12.725 m Gauged - FT2 about 3m below ESG. Gauged Q 48.7 l/s. Removed and cleaned PT12 and flushed out PT tube after gauging. PT was covered in aquatic bugs, but no silt against diaphragm. Tube had a bit of silt in it, but not blocked. At 11:20: ESG = 12.732 m +/- 3mm Logged stage = 12.729 m
			Stage data not edited
02-Jul-2024	14:26	Gauging	At 14:05 ESG = 12.810 m +/- 3 mm Transducer = 12.800 m Cleaned transducer and pipe. At 14:15 ESG = 12.817 m +/- 3 mm Transducer = 12.800 m Gauged using flowtracker2 At 14:40 ESG = 12.816 m +/- 3 mm Transducer = 12.808 m
02-Jul-2024	14:05	Staff gauge reading	At 14:05 ESG = 12.810 m +/- 3 mm Transducer = 12.800 m

Visit date	Time	Measurement type	Remark
			Cleaned transducer and pipe. At 14:15 ESG = 12.817 m +/- 3 mm Transducer = 12.800 m Gauged using flowtracker2 At 14:40 ESG = 12.816 m +/- 3 mm Transducer = 12.808 m
02-Jul-2024	14:15	Staff gauge reading	At 14:05 ESG = 12.810 m +/- 3 mm Transducer = 12.800 m Cleaned transducer and pipe. At 14:15 ESG = 12.817 m +/- 3 mm Transducer = 12.800 m Gauged using flowtracker2 At 14:40 ESG = 12.816 m +/- 3 mm Transducer = 12.808 m
02-Jul-2024	14:40	Staff gauge reading	At 14:05 ESG = 12.810 m +/- 3 mm Transducer = 12.800 m Cleaned transducer and pipe. At 14:15 ESG = 12.817 m +/- 3 mm Transducer = 12.800 m

Visit date	Time	Measurement type	Remark
02-Jul-2024	14:26	Other field measurement	Gauged using flowtracker2 At 14:40 ESG = 12.816 m +/- 3 mm Transducer = 12.808 m At 14:05 ESG = 12.810 m +/- 3 mm Transducer = 12.800 m Cleaned transducer and pipe. At 14:15 ESG = 12.817 m +/- 3 mm Transducer = 12.800 m Gauged using flowtracker2 At 14:40 ESG = 12.816 m +/- 3 mm Transducer = 12.808 m
11-Apr-2024	11:59	Gauging	Quarterly visit and battery swap, desiccant ok. At 11:40 ESG = 12.832 m +/- 3 mm PT = 12.828 m Flushed and cleaned PT At 11:50 ESG = 12.832 m +/- 3 mm PT = 12.836 m Flowtracker2 gauging carried out Q = 100.3 l/s, water temp = 14.0. At 12:15

Visit date	Time	Measurement type	Remark
			ESG = 12.832 m +/- 3 mm PT = 12.836 m
11-Apr-2024	11:40	Staff gauge reading	Quarterly visit and battery swap, desiccant ok. At 11:40 ESG = 12.832 m +/- 3 mm PT = 12.828 m Flushed and cleaned PT At 11:50 ESG = 12.832 m +/- 3 mm PT = 12.836 m Flowtracker 2 gauging carried out Q = 100.3 l/s, water temp = 14.0. At 12:15 ESG = 12.832 m +/- 3 mm PT = 12.836 m
11-Apr-2024	11:50	Staff gauge reading	Quarterly visit and battery swap, desiccant ok. At 11:40 ESG = 12.832 m +/- 3 mm PT = 12.828 m Flushed and cleaned PT At 11:50 ESG = 12.832 m +/- 3 mm PT = 12.836 m Flowtracker 2 gauging carried out Q = 100.3 l/s, water temp = 14.0. At 12:15 ESG = 12.832 m +/- 3 mm PT = 12.836 m

Visit date	Time	Measurement type	Remark
11-Apr-2024	12:15	Staff gauge reading	Quarterly visit and battery swap, desiccant ok. At 11:40 ESG = 12.832 m +/- 3 mm PT = 12.828 m Flushed and cleaned PT At 11:50 ESG = 12.832 m +/- 3 mm PT = 12.836 m Flowtracker 2 gauging carried out Q = 100.3 l/s, water temp = 14.0. At 12:15 ESG = 12.832 m +/- 3 mm PT = 12.836 m
11-Apr-2024	10:59	Other field measurement	Quarterly visit and battery swap, desiccant ok. At 11:40 ESG = 12.832 m +/- 3 mm PT = 12.828 m Flushed and cleaned PT At 11:50 ESG = 12.832 m +/- 3 mm PT = 12.836 m Flowtracker 2 gauging carried out Q = 100.3 l/s, water temp = 14.0. At 12:15 ESG = 12.832 m +/- 3 mm PT = 12.836 m
10-Jan-2024	12:48	Gauging	Quarterly check. All good.

Visit date	Time	Measurement type	Remark
			@ 12:15 ESG = 12.803 m +/- 3 mm PT = 12.796 m Flushed PT @ 12:26 @ 12:30 (after clean) PT = 12.806 m At 13:05 ESG = 12.802 m +/- 3 mm PT = 12.807 m Replaced desiccant.
10-Jan-2024	12:15	Staff gauge reading	Quarterly check. All good. @ 12:15 ESG = 12.803 m +/- 3 mm PT = 12.796 m Flushed PT @ 12:26 @ 12:30 (after clean) PT = 12.806 m At 13:05 ESG = 12.802 m +/- 3 mm PT = 12.807 m Replaced desiccant.
10-Jan-2024	13:05	Staff gauge reading	Quarterly check. All good. @ 12:15 ESG = 12.803 m +/- 3 mm PT = 12.796 m

Visit date	Time	Measurement type	Remark
			Flushed PT @ 12:26 @ 12:30 (after clean) PT = 12.806 m At 13:05 ESG = 12.802 m +/- 3 mm PT = 12.807 m Replaced desiccant.

Heathcote River at Ferrymead Bridge (66605)

Visit date	Time	Measurement type	Remark
14-Oct-2024	12:15	Staff gauge reading	An average of four groundwater dipper readings taken due to surge. At 12:15 manual reading (averaged) = 9.610 m +/- 0.005 mm.
04-Jul-2024	10:10	Staff gauge reading	Quarterly check, low tide, gentle breezes. Stage ref reading = 14.260 - 5.320 = 8.940 m
11-Apr-2024	15:40	Staff gauge reading	Quarterly visit. Used dipper off bridge- calm conditions, light breeze and flat water -> good reading. @ 15:50 Dipped value = 5.04 m +/- 5 mm Stage ref reading = 14.26 - 5.04 = 9.22 m +/- 5 mm
11-Jan-2024	13:37	Staff gauge reading	Quarterly visit. All good. Low-incoming tide, gusty breeze. @ 13:37 used dipper off bridge with extra weight to steady against wind Dipped value = 5.19 m +/- 10 mm STAGE REF = 14.26 m - 5.19 m = 9.07 m +/- 10 mm

Heathcote River at Ferniehurst (66609)

Visit date	Time	Measurement type	Remark
11-Dec-2024	11:35	Gauging	Post weed clearance gauging.

Visit date	Time	Measurement type	Remark
11-Dec-2024	11:05	Staff gauge reading	At 11:05 ENC = 15.696 m ESG = 15.697 m +/- 3 mm SxS gauging ~ 5 m upstream of ESG. Qrev = 373 l/s. ISO uncertainty = 5.4% due to station number. At 11:55 ENC = 15.695 m ESG = 15.697 m +/- 3 mm Post weed clearance gauging.
11-Dec-2024	11:55	Staff gauge reading	At 11:05 ENC = 15.696 m ESG = 15.697 m +/- 3 mm SxS gauging ~ 5 m upstream of ESG. Qrev = 373 l/s. ISO uncertainty = 5.4% due to station number. At 11:55 ENC = 15.695 m ESG = 15.697 m +/- 3 mm Post weed clearance gauging.
11-Dec-2024	11:20	Other field measurement	At 11:05 ENC = 15.696 m ESG = 15.697 m +/- 3 mm SxS gauging ~ 5 m upstream of ESG. Qrev = 373 l/s. ISO uncertainty = 5.4% due to station number. At 11:55 ENC = 15.695 m ESG = 15.697 m +/- 3 mm Post weed clearance gauging.

Visit date	Time	Measurement type	Remark
			At 11:05 ENC = 15.696 m ESG = 15.697 m +/- 3 mm SxS gauging ~ 5 m upstream of ESG. Qrev = 373 l/s. ISO uncertainty = 5.4% due to station number. At 11:55 ENC = 15.695 m ESG = 15.697 m +/- 3 mm
01-Oct-2024	08:39	Gauging	Quarterly site visit. At 08:20 ESG = 15.830 m +/- 3 mm ENC = 15.831 m SxS gauging ~ 4 m downstream of ESG. Qrev = 497 l/s. ISO uncertainty = 7.2% Lots of debris floating downstream due to CCC contractors mowing the grass on the riverbanks upstream. At 09:00 ESG = 15.830 m +/- 3 mm ENC = 15.832 m
01-Oct-2024	08:20	Staff gauge reading	Quarterly site visit. At 08:20 ESG = 15.830 m +/- 3 mm ENC = 15.831 m SxS gauging ~ 4 m downstream of ESG. Qrev = 497 l/s. ISO uncertainty = 7.2% Lots of debris floating downstream due to CCC contractors mowing the grass on the river banks upstream. At 09:00

Visit date	Time	Measurement type	Remark
			ESG = 15.830 m +/- 3 mm ENC = 15.832 m
01-Oct-2024	09:00	Staff gauge reading	Quarterly site visit. At 08:20 ESG = 15.830 m +/- 3 mm ENC = 15.831 m SxS gauging ~ 4 m downstream of ESG. Qrev = 497 l/s. ISO uncertainty = 7.2% Lots of debris floating downstream due to CCC contractors mowing the grass on the river banks upstream. At 09:00 ESG = 15.830 m +/- 3 mm ENC = 15.832 m
01-Oct-2024	08:30	Other field measurement	Quarterly site visit. At 08:20 ESG = 15.830 m +/- 3 mm ENC = 15.831 m SxS gauging ~ 4 m downstream of ESG. Qrev = 497 l/s. ISO uncertainty = 7.2% Lots of debris floating downstream due to CCC contractors mowing the grass on the river banks upstream. At 09:00 ESG = 15.830 m +/- 3 mm ENC = 15.832 m
25-Jul-2024	13:59	Gauging	On site to do tech training with a variety of new NIWA staff. Multiple ADCP gaugings carried out (SxS and moving boat) during the course of the day.
25-Jul-2024	13:50	Staff gauge reading	On site to do tech training with a variety of new NIWA staff. Multiple ADCP gaugings carried out (Sxs and moving boat) during the course of the day.
25-Jul-2024	14:05	Staff gauge reading	On site to do tech training with a variety of new NIWA staff. Multiple ADCP gaugings carried out (Sxs and moving boat) during the course of the day.

Visit date	Time	Measurement type	Remark
12-Jul-2024	12:00	Staff gauge reading	Site visit following a cell network outage. Logger remained offline, however was still recording data. At 12:00 ESG = 15.767 m +/- 5 mm Encoder = 15.765 m Data downloaded and logger reinitialised using a test sim. Following successful initialisation the original sim was put back in and the logger again reinitialised. Firmware was upgraded from version 42 to version 52. At 15:15 ESG = 15.768 m +/- 5 mm Encoder = 15.765 m
12-Jul-2024	12:15	Staff gauge reading	Site visit following a cell network outage. Logger remained offline, however was still recording data. At 12:00 ESG = 15.767 m +/- 5 mm Encoder = 15.765 m Data downloaded and logger reinitialised using a test sim. Following successful initialisation the original sim was put back in and the logger again reinitialised. Firmware was upgraded from version 42 to version 52. At 15:15 ESG = 15.768 m +/- 5 mm Encoder = 15.765 m
02-Jul-2024	13:35	Gauging	Quarterly site visit and gauging. Observations: At 13:07 Staff gauge: 15.855 m ± 3 mm Encoder: 15.858 m Gauging comment:

Visit date	Time	Measurement type	Remark
			Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m upstream of the staff gauge. Results were run through QRev Observations: At 13:50 Staff gauge: 15.848 m ± 3 mm Encoder: 15.850 m Site comments: Encoder quite wet, we need to make a plan to improve ventilation.
02-Jul-2024	13:07	Staff gauge reading	Quarterly site visit and gauging. Observations: At 13:07 Staff gauge: 15.855 m ± 3 mm Encoder: 15.858 m Gauging comment: Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m upstream of the staff gauge. Results were run through QRev Observations: At 13:50 Staff gauge: 15.848 m ± 3 mm Encoder: 15.850 m Site comments: Encoder quite wet, we need to make a plan to improve ventilation.
02-Jul-2024	13:50	Staff gauge reading	Quarterly site visit and gauging. Observations: At 13:07 Staff gauge: 15.855 m ± 3 mm Encoder: 15.858 m Gauging comment:

Visit date	Time	Measurement type	Remark
02-Jul-2024	13:35	Other field measurement	Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m upstream of the staff gauge. Results were run through QRev Observations: At 13:50 Staff gauge: 15.848 m ± 3 mm Encoder: 15.850 m Site comments: Encoder quite wet, we need to make a plan to improve ventilation. Quarterly site visit and gauging. Observations: At 13:07 Staff gauge: 15.855 m ± 3 mm Encoder: 15.858 m Gauging comment: Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m upstream of the staff gauge. Results were run through QRev Observations: At 13:50 Staff gauge: 15.848 m ± 3 mm Encoder: 15.850 m Site comments: Encoder quite wet, we need to make a plan to improve ventilation.
09-Apr-2024	12:31	Gauging	Routine quarterly gauging. Weed had been cleared ~ 2 weeks earlier. Gauged with StreamPro ~2 m below ESG. Moderate amount of unmeasured right bank water (0.8 m) due to the relatively low water level causing bins to drop out close to the edge, this has contributed to a high QRev uncertainty (Right edge Q being over 5% and the large amount of unmeasured top Q).

Visit date	Time	Measurement type	Remark
09-Apr-2024	11:45	Staff gauge reading	Rating change over warm summer period has been missed between previous gauging and this one where the weed growth has occurred. This has not been back corrected i.e., a retrospective rating was not created as there is no gauging to tie it to. Routine quarterly gauging. Weed had been cleared ~ 2 weeks earlier. Gauged with StreamPro ~2 m below ESG. Moderate amount of unmeasured right bank water (0.8 m) due to the relatively low water level causing bins to drop out close to the edge, this has contributed to a high QRev uncertainty (Right edge Q being over 5% and the large amount of unmeasured top Q).
09-Apr-2024	12:45	Staff gauge reading	Rating change over warm summer period has been missed between previous gauging and this one where the weed growth has occurred. This has not been back corrected i.e., a retrospective rating was not created as there is no gauging to tie it to. Routine quarterly gauging. Weed had been cleared ~ 2 weeks earlier. Gauged with StreamPro ~2 m below ESG. Moderate amount of unmeasured right bank water (0.8 m) due to the relatively low water level causing bins to drop out close to the edge, this has contributed to a high QRev uncertainty (Right edge Q being over 5% and the large amount of unmeasured top Q).
12-Jan-2024	12:35	Gauging	Rating change over warm summer period has been missed between previous gauging and this one where the weed growth has occurred. This has not been back corrected i.e., a retrospective rating was not created as there is no gauging to tie it to. Quarterly visit. Gauged with StreamPro, moving boat on tagline w/ traveller 4 m upstream of ESG. @ 12:00 ESG = 15.762 m +/- 3 mm ENC = 15.765 m @ 12:55 ESG = 15.760 m +/- 3 mm ENC = 15.761 m
12-Jan-2024	12:00	Staff gauge reading	Quarterly visit. Gauged with StreamPro, moving boat on tagline w/ traveller 4 m upstream of ESG.

Visit date	Time	Measurement type	Remark
			@ 12:00 ESG = 15.762 m +/- 3 mm ENC = 15.765 m @ 12:55 ESG = 15.760 m +/- 3 mm ENC = 15.761 m
12-Jan-2024	12:55	Staff gauge reading	Quarterly visit. Gauged with StreamPro, moving boat on tagline w/ traveller 4 m upstream of ESG. @ 12:00 ESG = 15.762 m +/- 3 mm ENC = 15.765 m @ 12:55 ESG = 15.760 m +/- 3 mm ENC = 15.761 m

Avon River at PS205 (66611)

Visit date	Time	Measurement type	Remark
16-Oct-2024	14:00	Staff gauge reading	Quarterly site visit. At 13:55 ESG = 9.199 m +/- 3 mm Radar = 9.189 m Lag between ESG and sensor with tide incoming. At 14:00 ESG = 9.202 m +/- 3 mm Radar = 9.204 m
04-Jul-2024	12:05	Staff gauge reading	Quarterly check. At 12:05 ESG = 9.205 m +/- 5 mm Radar = 9.202 m

Visit date	Time	Measurement type	Remark
16-Apr-2024	13:45	Staff gauge reading	Quarterly checks At 13:50 ESG = 9.950 m +/- 3 mm Radar = 9.947 m
12-Jan-2024	11:00	Staff gauge reading	Quarterly check. Roadworks on New Brighton Rd, no vehicle access. Have to walk to site from Lake Terrace Rd. Cleaned ESG. Water surgey for ESG reading. All good. @ 11:00 ESG = 9.610 m +/- 10 mm RADAR = 9.607 m

Riccarton Drain at Deans Ave (66621)

Visit date	Time	Measurement type	Remark
14-Oct-2024	13:05	Gauging	Quarterly site visit. At 12:50 ESG = 13.573 m +/- 3 mm Flowtracker2 gauging ~ 40 m downstream. Q = 51.67 L/s. Uncertainty = 3.1% At 13:15 ESG = 13.574 m +/- 3 mm
14-Oct-2024	12:50	Staff gauge reading	Quarterly site visit. At 12:50 ESG = 13.573 m +/- 3 mm Flowtracker 2 gauging ~ 40 m downstream. Q = 51.67 L/s. Uncertainty = 3.1% At 13:15 ESG = 13.574 m +/- 3 mm
14-Oct-2024	13:15	Staff gauge reading	Quarterly site visit.

Visit date	Time	Measurement type	Remark
			At 12:50 ESG = 13.573 m +/- 3 mm Flowtracker 2 gauging ~ 40 m downstream. Q = 51.67 L/s. Uncertainty = 3.1% At 13:15 ESG = 13.574 m +/- 3 mm
14-Oct-2024	13:05	Other field measurement	Quarterly site visit. At 12:50 ESG = 13.573 m +/- 3 mm Flowtracker 2 gauging ~ 40 m downstream. Q = 51.67 L/s. Uncertainty = 3.1% At 13:15 ESG = 13.574 m +/- 3 mm
08-Aug-2024	12:30	Staff gauge reading	Waterwatch sensor not reporting. Replaced battery, seemed to be working after. App prompted me to confirm that the battery had been replaced, however battery status still says 67% @ 12:40 ESG = 13.593 m +/- 5 mm WW distance to water = 2.404 m WW logged stage = 13.6 m Calculated offset needs to be 13.593 + 2.404 = 15.997. Checked online and current offset is 15.998 so left as is.
08-Jul-2024	15:30	Staff gauge reading	Stage gradually climbing while onsite. On site to install an ESG in the culvert. At 15:30 ESG value = 13.577 m
08-Jul-2024	11:30	Gauging	Quarterly visit. At 11:20

Visit date	Time	Measurement type	Remark
			Measured stage value = 13.969 - 0.398 m = 13.571 m +/- 5 mm Gauged using Flowtracker2
08-Jul-2024	11:20	Staff gauge reading	At 11:40 13.969 m - 0.395 m = 13.574 m +/- 5 mm Quarterly visit. At 11:20 Measured stage value = 13.969 - 0.398 m = 13.571 m +/- 5 mm Gauged using Flowtracker 2
08-Jul-2024	11:40	Staff gauge reading	At 11:40 13.969 m - 0.395 m = 13.574 m +/- 5 mm Quarterly visit. At 11:20 Measured stage value = 13.969 - 0.398 m = 13.571 m +/- 5 mm Gauged using Flowtracker 2
08-Jul-2024	11:30	Other field measurement	At 11:40 13.969 m - 0.395 m = 13.574 m +/- 5 mm Quarterly visit. At 11:20 Measured stage value = 13.969 - 0.398 m = 13.571 m +/- 5 mm Gauged using Flowtracker 2
21-May-2024	11:40	Gauging	At 11:40 13.969 m - 0.395 m = 13.574 m +/- 5 mm High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm

Visit date	Time	Measurement type	Remark
21-May-2024	09:40	Gauging	Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm Gauging 2 failed due to Parani issues. Parani kept losing connection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm Gauging 3 completed ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm
21-May-2024	09:22	Staff gauge reading	Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s.

Visit date	Time	Measurement type	Remark
			At 10:40 ESG = 14.365 m +/- 6 mm Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm
21-May-2024	09:43	Staff gauge reading	Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm
21-May-2024	09:59	Staff gauge reading	Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm

Visit date	Time	Measurement type	Remark
21-May-2024	10:40	Staff gauge reading	Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm
21-May-2024	11:37	Staff gauge reading	Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows.

Visit date	Time	Measurement type	Remark
			At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm
21-May-2024	11:47	Staff gauge reading	Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm At 11:47 ESG = 13.961 m +/- 3 mm
21-May-2024	09:22	Other field measurement	Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. High flow gauging. At 09:22 ESG = 14.162 m +/- 4 mm At 09:43 ESG = 14.228 m +/- 5 mm At 09:59 ESG = 14.315 m +/- 6 mm Gauging 1 ~ 20 m downstream of bridge. Qrev = 1.47 m3/s. At 10:40 ESG = 14.365 m +/- 6 mm Gauging 2 failed due to Parani issues. Parani kept losing conection. Eventually got another Parani to work but missed the higher flows. At 11:37 ESG = 14.040 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			At 11:47 ESG = 13.961 m +/- 3 mm
16-Apr-2024	11:36	Gauging	Gauging 3 completely ~ 30 m downstream of bridge. Qrev = 0.83 m3/s. Quarterly site visit.
16-Apr-2024	11:15	Staff gauge reading	At 11:15 ESG = 394 mm from top of metal. 13.969 - 0.394 = 13.575 m +/- 3 mm Flowtracker2 gauging ~ 30 m downstream of bridge. Section under bridge has gravel build up creating a eddy on the true left side. Q = 43.478 l/s. Uncertainty = 3.8%. At 11:45 ESG = 395 mm from top of metal. 13.969 - 0.395 = 13.574 m +/- 3 mm Quarterly site visit.
16-Apr-2024	11:45	Staff gauge reading	At 11:15 ESG = 394 mm from top of metal. 13.969 - 0.394 = 13.575 m +/- 3 mm Flowtracker 2 gauging ~ 30 m downstream of bridge. Section under bridge has gravel build up creating a eddy on the true left side. Q = 43.478 l/s. Uncertainty = 3.8%. At 11:45 ESG = 395 mm from top of metal. 13.969 - 0.395 = 13.574 m +/- 3 mm Quarterly site visit.
			At 11:15 ESG = 394 mm from top of metal. 13.969 - 0.394 = 13.575 m +/- 3 mm Flowtracker 2 gauging ~ 30 m downstream of bridge. Section under bridge has gravel build up creating a eddy on the true left side. Q = 43.478 l/s. Uncertainty = 3.8%. At 11:45 ESG = 395 mm from top of metal. 13.969 - 0.395 = 13.574 m +/- 3 mm

Visit date	Time	Measurement type	Remark
16-Apr-2024	11:36	Other field measurement	Quarterly site visit. At 11:15 ESG = 394 mm from top of metal. 13.969 - 0.394 = 13.575 m +/- 3 mm Flowtracker 2 gauging ~ 30 m downstream of bridge. Section under bridge has gravel build up creating a eddy on the true left side. Q = 43.478 l/s. Uncertainty = 3.8%. At 11:45 ESG = 395 mm from top of metal. 13.969 - 0.395 = 13.574 m +/- 3 mm
15-Jan-2024	13:41	Gauging	Quarterly visit/ visit to fix/replace Waterwatch. Waterwatch not longer sending through data. Would not respond to Bluetooth attempts pre and post battery swap. Replaced with pool Waterwatch S/N = 20008ED. At 13:32 ESG = 264 mm +/- 5 mm from top of metal. 13.969 m - 0.264 m = 13.705 m Flowtracker 2 gauging under the bridge. Q = 158.274 L/s with uncertainty of 4.1%. Stage was dropping quick during gauging.
15-Jan-2024	13:32	Staff gauge reading	Quarterly visit/ visit to fix/replace Waterwatch. Waterwatch not longer sending through data. Would not respond to Bluetooth attempts pre and post battery swap. Replaced with pool Waterwatch S/N = 20008ED. At 13:32 ESG = 264 mm +/- 5 mm from top of metal. 13.969 m - 0.264 m = 13.705 m Flowtracker 2 gauging under the bridge. Q = 158.274 L/s with uncertainty of 4.1%. Stage was dropping quick during gauging.
15-Jan-2024	13:41	Other field measurement	Quarterly visit/ visit to fix/replace Waterwatch. Waterwatch not longer sending through data. Would not respond to Bluetooth attempts pre and post battery swap. Replaced with pool Waterwatch S/N = 20008ED.

Visit date	Time	Measurement type	Remark
			At 13:32 ESG = 264 mm +/- 5 mm from top of metal. 13.969 m - 0.264 m = 13.705 m Flowtracker 2 gauging under the bridge. Q = 158.274 L/s with uncertainty of 4.1%. Stage was dropping quick during gauging.

Wigram Retention Basin at Outflow (66625)

Visit date	Time	Measurement type	Remark
15-Oct-2024	12:30	Staff gauge reading	Quarterly site visit. At 12:30 ESG = 23.468 m +/- 3 mm P.Pro = 23.468 m
23-Sep-2024	10:30	Staff gauge reading	At 10:30 ESG = 23.515 m +/- 3 mm Pumppro = 23.514 m On site to swap out Pump pro and swagelock fittings as it was observed that the stage trace becomes noisy between midnight to 06:00 daily. Swagelock fitting also swapped out. Snoop tested post install - all ok. S/N of new Pumppro has S/N 610596. At 11:20 ESG = 23.515 Pumppro = 23.513
23-Sep-2024	11:25	Staff gauge reading	At 10:30 ESG = 23.515 m +/- 3 mm Pumppro = 23.514 m On site to swap out Pump pro and swaglock fittings as it was observed that the stage trace becomes noisy between midnight to 06:00 daily. Swaglock fitting also swapped out. Snoop tested post install - all ok. S/N of new pumppro is 610596. At 11:20 ESG = 23.515 Pumppro = 23.513

Visit date	Time	Measurement type	Remark
11-Sep-2024	09:37	Staff gauge reading	On site to investigate noisy Pumppro signal. At 09:38 ESG = 23.495 m +/- 3 mm Pumpro = 23.493 m Verified that the Pumppro compressor was working and that the orifice was not buried in silt. The orifice is attached to the back of the ESG board, and had 400 to 500 mm of water below it to the concrete base of the pond. Water level above the orifice was approximately 400 mm. Checked the tightness of the pumpro fittings and tightened the lock nut approximately half a turn. Snoop tested the fittings and found no issues. At 09:55 ESG = 23.495 m +/- 3 mm
11-Sep-2024	09:55	Staff gauge reading	On site to investigate noisy Pumpro signal. At 09:38 ESG = 23.495 m +/- 3 mm Pumpro = 23.493 m Verified that the pumpro compressor was working and that the orifice was not buried in silt. The orifice is attached to the back of the esg board, and had 400 to 500 mm of water below it to the concrete base of the pond. Water level above the orifice was approximately 400 mm. Checked the tightness of the pumpro fittings and tightened the lock nut approximately half a turn. Snoop tested the fittings and found no issues. At 09:55 ESG = 23.495 m +/- 3 mm
02-Sep-2024	10:17	Staff gauge reading	On site to investigate erratic stage trace. At 10:17 Staff gauge = 23.480 m +/- 3 mm Pumpro = 23.470 m Pumpro compressor found to be not working properly. Swapped with replacement unit.

Visit date	Time	Measurement type	Remark
02-Sep-2024	10:45	Staff gauge reading	At 10:45 Staff gauge = 23.480 m +/- 3 mm At 10:50 Staff gauge = 23.480 m +/- 3 mm. At 11:00 Staff gauge = 23.479 m +/- 3 mm On site to investigate erratic stage trace. At 10:17 Staff gauge = 23.480 m +/- 3 mm Pumpro = 23.470 m Pumpro compressor found to be not working properly. Swapped with replacement unit.
02-Sep-2024	10:50	Staff gauge reading	At 10:45 Staff gauge = 23.480 m +/- 3 mm At 10:50 Staff gauge = 23.480 m +/- 3 mm. At 11:00 Staff gauge = 23.479 m +/- 3 mm On site to investigate erratic stage trace. At 10:17 Staff gauge = 23.480 m +/- 3 mm Pumpro = 23.470 m Pumpro compressor found to be not working properly. Swapped with replacement unit. At 10:45 Staff gauge = 23.480 m +/- 3 mm At 10:50

Visit date	Time	Measurement type	Remark
			Staff gauge = 23.480 m +/- 3 mm. At 11:00 Staff gauge = 23.479 m +/- 3 mm
02-Sep-2024	11:00	Staff gauge reading	On site to investigate erratic stage trace. At 10:17 Staff gauge = 23.480 m +/- 3 mm Pumpro = 23.470 m Pumpro compressor found to be not working properly. Swapped with replacement unit. At 10:45 Staff gauge = 23.480 m +/- 3 mm At 10:50 Staff gauge = 23.480 m +/- 3 mm. At 11:00 Staff gauge = 23.479 m +/- 3 mm
02-Jul-2024	15:50	Staff gauge reading	Quarterly site visit. Observations: At 15:50 Staff gauge: 23.555 m ± 3 mm Pumppro: 23.558 m Site comments: All OK.
09-Apr-2024	13:25	Staff gauge reading	Routine visit. ESG = 23.470 m +/- 3 mm at 13:45 PPro = 23.470 m Re-orientated solar panel that was facing ~WSW. It now faces more North, I didn't have my compass on me so couldn't align it exactly True North however it is now in a much better

Visit date	Time	Measurement type	Remark
			orientation. I suspect that the hose clamps and slightly loosened over the years and the wind had slowly rotated it.
25-Jan-2024	09:40	Staff gauge reading	At 08:45 ESG = 23.510 m +/- 3 mm Pump pro = 23.512 m On site to verify benchmark, ESG and weir crest level. Three level runs carried out and weir crest found to be 46 mm lower than the CCC recorded RL. CCC thought weir crest level was 23.500 m. Actual levelled value = 23.454 m. The level sheets can be found in: O:\ccc03506\Working\Site Information\CCC SITE DETAILS\Wigram Retention basin. No changes made to site. At 09:45 ESG = 23.510 m +/- 3 mm Pumppro = 23.512 m
25-Jan-2024	08:45	Staff gauge reading	At 08:45 ESG = 23.510 m +/- 3 mm Pump pro = 23.512 m On site to verify benchmark, ESG and weir crest level. Three level runs carried out and weir crest found to be 46 mm lower than the CCC datum. CCC thought weir crest level was 23.500 m. Actual levelled value = 23.454 m. The level sheets can be found in: O:\ccc03506\Working\Site Information\CCC SITE DETAILS\Wigram Retention basin. No changes made to site. At 09:45 ESG = 23.510 m +/- 3 mm Pump pro = 23.512 m
11-Jan-2024	11:55	Staff gauge reading	Site level check. No adjustment

Heathcote at Wigram Retention Basin (66626)

Visit date	Time	Measurement type	Remark
15-Oct-2024	12:50	Staff gauge reading	Quarterly site visit. At 12:50 ESG = 21.990 m +/- 3 mm PT = 21.977 m Cleaned and flushed PT 12:55 - 13:00. At 13:05 ESG = 21.990 m +/- 3 mm PT = 21.989 m
15-Oct-2024	13:05	Staff gauge reading	Quarterly site visit. At 12:50 ESG = 21.990 m +/- 3 mm PT = 21.977 m Cleaned and flushed PT 12:55 - 13:00. At 13:05 ESG = 21.990 m +/- 3 mm PT = 21.989 m
02-Jul-2024	15:55	Staff gauge reading	Quarterly site visit. Observations: At 15:55 Staff gauge: 21.999 m ± 3 mm Pressure transducer: 21.986 m Site comments: Cleaned pressure transducer and stilling pipe. Observations: At 16:15

Visit date	Time	Measurement type	Remark
02-Jul-2024	16:15	Staff gauge reading	Staff gauge: 21.999 m ± 3 mm Pressure transducer: 22.000 m Quarterly site visit. Observations: At 15:55 Staff gauge: 21.999 m ± 3 mm Pressure transducer: 21.986 m Site comments: Cleaned pressure transducer and stilling pipe.
09-Apr-2024	13:45	Staff gauge reading	Observations: At 16:15 Staff gauge: 21.999 m ± 3 mm Pressure transducer: 22.000 m Routine visit. ESG at 13:45 = 21.970 m +/- 3 mm Cleaned and flushed out PT at 13:46, there was a little bit of silt in the PT cap but not major. ESG at 13:55 = 21.970 m +/- 3 mm
09-Apr-2024	13:55	Staff gauge reading	Routine visit. ESG at 13:45 = 21.970 m +/- 3 mm Cleaned and flushed out PT at 13:46, there was a little bit of silt in the PT cap but not major. ESG at 13:55 = 21.970 m +/- 3 mm
25-Jan-2024	10:05	Staff gauge reading	At 09:55 ESG = 21.988 m +/- 3 mm PT = 21.983 ESG clear from debris.
11-Jan-2024	12:05	Staff gauge reading	Site level check. Pulled PT and cleaned. Offset adjustment added to NEON following visit.

Avon River at Bridge St (66634)

Visit date	Time	Measurement type	Remark
16-Dec-2024	08:00	Staff gauge reading	4G Logger upgrade. At 8:00: Reference stage (laser measure from arm on bridge was 5.550 m) = 9.967 m +/- 10 mm Recorded stage = 9.964 m (Reference stage - 15.517 - 5.550 m) Exchanged logger with NRL 4G model. Retained existing sensor interface equipment and gear plate (only exchanged logger). Change to be aware of is that the new NRL has a 5V range analogue channel (old NMM was only 2.5V). Voltage divider removed as no longer required. Interface unit has 0-5 V output. There "should" be nothing to amend on the scaling or offset, however this will need to be monitored over the coming weeks to validate this. At 9:25: Reference stage (laser measure from arm on bridge was 5.991 m) = 9.527m +/- 10 mm Recorded stage = 9.648 m (Reference stage - 15.517 - 5.991 m) NOTHING AMENDED YET IN THE LOGGER SCHEME (OFFSET) OF DATA EDITS - WE NEED SEVERAL REFERENCE MEASUREMENTS OVER THE RANGE TO VALIDATE THIS!!
16-Dec-2024	09:25	Staff gauge reading	4G Logger upgrade. At 8:00: Reference stage (laser measure from arm on bridge was 5.550 m) = 9.967 m +/- 10 mm Recorded stage = 9.964 m (Reference stage - 15.517 - 5.550 m) Exchanged logger with NRL 4G model. Retained existing sensor interface equipment and gear plate (only exchanged logger). Change to be aware of is that the new NRL has a 5V range anlogue channel (old NMM was only 2.5V). Voltage divider removed as no longer required. Interface unit has 0-5 V output. There "should" be nothing to amend on the scaling or offset, however this will need to be monitored over the coming weeks to validate this. At 9:25: Reference stage (laser measure from arm on bridge was 5.991 m) = 9.527m +/- 10 mm Recorded stage = 9.648 m (Reference stage - 15.517 - 5.991 m)

Visit date	Time	Measurement type	Remark
			NOTHING AMENDED YET IN THE LOGGER SCHEME (OFFSET) OF DATA EDITS - WE NEED SEVERAL REFERENCE MEASUREMENTS OVER THE RANGE TO VALIDATE THIS!!
14-Oct-2024	12:05	Staff gauge reading	Quarterly check
04-Jul-2024	10:18	Staff gauge reading	An average of 7 readings taken using groundwater dipper = 9.502 m +/- 5 mm Quarterly check.
11-Apr-2024	14:10	Staff gauge reading	At 10:17 Dipped value = 15.517 - 6.500 m = 9.017 +/- 10 mm Routine quarterly site visit. Measured water surface using laser measure tape. Measured distance = 6.435 m (mean of 6 readings) - choppy surface At 14:10: Stage = 9.082 +/- 15 mm Measured value = 9.076 m
22-Jan-2024	11:20	Staff gauge reading	New batteries needed (18 a/h) due to age Follow-up visit as last visit reference checks were out. Rising tide. @ 11:20 dipped value = 6.305 m +/- 15 mm down from collar stage REF = 15.517 - 6.305 = 9.212 m +/- 15 mm @ 11:40 dipped value = 6.280 m +/- 15 mm down from collar stage REF = 15.517 - 6.280 = 9.237 m +/- 15 mm
22-Jan-2024	11:40	Staff gauge reading	Readings are out from recorder but on both sides (+/-), very difficult to get precise reference reading on the read time with rising tide and wavelets. Follow-up visit as last visit reference checks were out. Rising tide. @ 11:20 dipped value = 6.305 m +/- 15 mm down from collar -> stage REF = 15.517 - 6.305 = 9.212 m +/- 15 mm @ 11:40 dipped value = 6.280 m +/- 15 mm down from collar -> stage REF = 15.517 - 6.280 = 9.237 m +/- 15 mm

Visit date	Time	Measurement type	Remark
			Readings are out from recorder but on both sides (+/-), very difficult to get precise reference reading on the read time with rising tide and wavelets.
11-Jan-2024	12:03	Staff gauge reading	Quarterly visit. All good. Lots of drinks cans scattered around logger box area, some tagging on box. Dead swan on the bridge, reported to council. @ 12:03 used dipper off bridge: Dipped value = 6.57 m +/- 10 mm STAGE REF = 15.517 - 6.57 = 8.947 m +/- 10 mm

Horseshoe Lake at PS205 (66635)

Visit date	Time	Measurement type	Remark
14-Oct-2024	11:43	Staff gauge reading	Quarterly check. ESG fouled - cleaned. At 12:43 ESG = 9.282 m +/- 3 mm Encoder = 9.282 m
19-Sep-2024	13:15	Staff gauge reading	On site to ascertain the reason for multiple flat line periods over recent days. Encoder was found to be operating correctly and the problem was traced to the NRT logger which for unknown reasons was not sending the correct commands to be able to receive the data from the encoder. Logger was brought back to NIWA. Returned to site at 13:00 to install replacement NRL. At 13:15: ESG = 9.400 +/- 5 mm Enc = 9.399 m At 13:30: ESG = 9.382 m +/- 5 mm Enc = 9.383 m
19-Sep-2024	13:30	Staff gauge reading	On site to ascertain the reason for multiple flat line periods over recent days. Encoder was found to be operating correctly and the problem was traced to the NRT logger which for unknown reasons was not sending the correct commands to be able to receive the data from the encoder. Logger was brought back to NIWA.

Visit date	Time	Measurement type	Remark
			Returned to site at 13:00 to install replacement NRL. At 13:15: ESG = 9.400 +/- 5 mm Enc = 9.399 m At 13:30: ESG = 9.382 m +/- 5 mm Enc = 9.383 m
04-Jul-2024	12:25	Staff gauge reading	Quarterly site check. ESG cleaned.
			At 12:25 ESG = 9.342 m +/- 3 mm
16-Apr-2024	14:05	Staff gauge reading	Quarterly site visit. At 14:05 ESG = 9.645 m +/- 3 mm ENC = 9.646 m Flushed tower 14:07 - 14:17. ENC stabilised at 9.719 m. No obvious plume. At 14:25 ESG = 9.652 m +/- 3 mm ENC = 9.654 m
16-Apr-2024	14:25	Staff gauge reading	Quarterly site visit. At 14:05 ESG = 9.645 m +/- 3 mm ENC = 9.646 m Flushed tower 14:07 - 14:17. ENC stabilised at 9.719 m. No obvious plume. At 14:25 ESG = 9.652 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			ENC = 9.654 m
21-Mar-2024	11:00	Staff gauge reading	Investigating no-comms issue. Red NEON light on solid on arrival. @ 11:00 ESG = 9.336 +/- 3 mm ENC = 9.337 m Upgraded firmware to V51. Possible issue with SIM, wouldn't initialise at first. Swapped SIMS, got initialised, then swapped SIM back, comms seem ok afterwards. @ 12:15 ESG = 9.293 m +/- 3 mm ENC = 9.295 m
21-Mar-2024	12:15	Staff gauge reading	Investigating no-comms issue. Red NEON light on solid on arrival. @ 11:00 ESG = 9.336 +/- 3 mm ENC = 9.337 m Upgraded firmware to V51. Possible issue with SIM, wouldn't initialise at first. Swapped SIMS, got initialised , then swapped SIMS back, comms seem ok afterwards. @ 12:15 ESG = 9.293 m +/- 3 mm ENC = 9.295 m
20-Mar-2024	12:50	Staff gauge reading	Visit to investigate comms delays. At 12:50 ESG = 9.335 m +/- 5 mm (dirty ESG) ENC = 9.335 m Volts on logger = 13.552 v Volts on bat = 12.87 v Litter around site but doesn’t appear to be messed with. Logger initialised on second attempt but slow to do so. First failed likely due to poor connection.

Visit date	Time	Measurement type	Remark
20-Mar-2024	13:05	Staff gauge reading	Aerial a little loose but good – tightened. All networks available from scan. RSSI = 19 (green) At 13:05 ESG = 9.367 m +/- 3 mm ENC = 9.366 m Visit to investigate comms delays. At 12:50 ESG = 9.335 m +/- 5 mm (dirty ESG) ENC = 9.335 m Volts on logger = 13.552 v Volts on bat = 12.87 v Litter around site but doesn't appear to be messed with. Logger initialised on second attempt but slow to do so. First failed likely due to poor connection. Aerial a little loose but good – tightened. All networks available from scan. RSSI = 19 (green) At 13:05 ESG = 9.367 m +/- 3 mm ENC = 9.366 m
12-Jan-2024	11:15	Staff gauge reading	Quarterly check. All good. Cleaned ESG. @ 11:15 ESG = 9.627 m +/- 2 mm ENC = 9.628 m LOG = 9.629 m

Dudley Creek at Aylesford Street (66636)

Visit date	Time	Measurement type	Remark
16-Dec-2024	09:45	Staff gauge reading	4G logger upgrade. At 09:45 ESG = 11.795 m +/- 3 mm PT = 11.795 m Gear plate/logger upgraded. At 10:45 ESG = 11.781 m +/- 3 mm PT = 11.891 m Cleaned PT pipe and cleaned PT. At 11:55 ESG = 11.780 m +/- 3 mm PT = 11.795 m At 11:00 offset in scheme was changed from 11.667 to 11.652 m At 11:05 ESG = 11.779 m +/- 3 mm PT = 11.776 m
16-Dec-2024	10:45	Staff gauge reading	Onsite to upgrade 3G logger to 4G. At 09:45 ESG = 11.795 m +/- 3 mm PT = 11.795 m Gear plate/logger upgraded. At 10:45 ESG = 11.781 m +/- 3 mm PT = 11.891 m

Visit date	Time	Measurement type	Remark
			Cleaned PT pipe and cleaned PT. At 11:55 ESG = 11.780 m +/- 3 mm PT = 11.795 m At 11:00 offset in scheme was changed from 11.667 to 11.652 m At 11:05 ESG = 11.779 m +/- 3 mm PT = 11.776 m
16-Dec-2024	11:05	Staff gauge reading	Onsite to upgrade 3G logger to 4G. At 09:45 ESG = 11.795 m +/- 3 mm PT = 11.795 m Gear plate/logger upgraded. At 10:45 ESG = 11.781 m +/- 3 mm PT = 11.891 m Cleaned PT pipe and cleaned PT. At 11:55 ESG = 11.780 m +/- 3 mm PT = 11.795 m At 11:00 offset in scheme was changed from 11.667 to 11.652 m At 11:05 ESG = 11.779 m +/- 3 mm PT = 11.776 m
16-Oct-2024	13:00	Staff gauge reading	Quarterly site visit.

Visit date	Time	Measurement type	Remark
			At 13:00 ESG = 11.800 m +/- 3 mm PT = 11.803 m
04-Jul-2024	13:55	Staff gauge reading	Desiccant fine. Quarterly check. At 13:55 ESG = 11.787 m +/- 3 mm
04-Jul-2024	14:15	Staff gauge reading	Exchanged silica and 18Ahr battery. Cleaned ESG. Quarterly check. At 13:55 ESG = 11.787 m +/- 3 mm
16-Apr-2024	12:45	Staff gauge reading	Exchanged silica and 18Ahr battery. Cleaned esg. Recheck quarterly. At 12:45 ESG = 11.854 m +/- 3 mm PT = 11.852 m
11-Apr-2024	14:00	Staff gauge reading	Quarterly site visit. Desiccant fine. At 14:00 ESG = 11.895 m +/- 3 mm PT = 11.894 m
10-Jan-2024	14:20	Staff gauge reading	Quarterly check. Cleaned bottom of ESG. @ 14:20 ESG = 11.765 m +/- 3 mm PT = 11.757 m

Visit date	Time	Measurement type	Remark
			Cleaned PT @ 14:25. 11 mm jump following clean. Checked bottom of PT tube is free of mud, PT is sitting on bolt. Left as-is, no changes to offset. @ 14:30 ESG = 11.763 +/- 3 mm PT = 11.768 m Replaced desiccant.
10-Jan-2024	14:30	Staff gauge reading	Quarterly check. Cleaned bottom of ESG. @ 14:20 ESG = 11.765 m +/- 3 mm PT = 11.757 m Cleaned PT @ 14:25. 11 mm jump following clean. Checked bottom of PT tube is free of mud, PT is sitting on bolt. Left as-is, no changes to offset. @ 14:30 ESG = 11.763 +/- 3 mm PT = 11.768 m Replaced desiccant.

Heathcote River at Opawa Rd (66638)

Visit date	Time	Measurement type	Remark
16-Dec-2024	08:05	Staff gauge reading	4G logger upgrade. At 08:05 ESG = 10.248 m +/- 3 mm Pumppro = 10.248 m Logger and backing plate wiring etc upgraded. At 09:00 ESG = 10.118 m +/- 3 mm Pumppro = 10.118 m.
16-Dec-2024	09:00	Staff gauge reading	4G upgrade. At 08:05 ESG = 10.248 m +/- 3 mm Pumppro = 10.248 m Logger and backing plate wiring etc upgraded. At 09:00 ESG = 10.118 m +/- 3 mm Pumppro = 10.118 m.
14-Oct-2024	11:25	Staff gauge reading	Quarterly site visit. At 11:25 ESG = 9.164 m +/- 3 mm P.Pro = 9.166 m Water level was below ESG. Dug out channel to get water to be below ESG and measured down with tape measure. Tried to removed graffiti from stainless housing. Graffiti remover spray had broken nozzle. Tried using CRC spray with limited success.
04-Jul-2024	09:35	Staff gauge reading	Quarterly check

Visit date	Time	Measurement type	Remark
04-Jul-2024	09:45	Staff gauge reading	At 09:35 ESG = 9.525 m +/- 3 mm Pumppro = 9.520 m Battery exchanged. At 09:45 ESG = 9.509 m +/- 3 mm Pumppro = 9.506 m Quarterly check
11-Apr-2024	13:50	Staff gauge reading	At 09:35 ESG = 9.525 m +/- 3 mm Amazon = 9.520 m Battery exchanged. At 09:45 ESG = 9.509 m +/- 3 mm Amazon = 9.506 m Routine quarterly visit. At 13:50: ESG = 9.570 m +/- 5 mm Pumppro = 9.569 m New battery needed (38 aH) due to age (2017)
11-Jan-2024	14:05	Staff gauge reading	Quarterly visit. All good. Used new bank-mounted ESG reference. Mid-incoming tide. @ 1405 ESG = 9.587 m +/- 3 mm PPro = 9.584 m

Bowenvale Flume at Bowenvale Ave (66639)

Visit date	Time	Measurement type	Remark
24-Oct-2024	09:30	Staff gauge reading	On site to upgrade gear plate and logger from 3G to 4G. Hydrologger replaced with encoder and new aerial installed. Flume dry, stage value = 49.272 m
24-Oct-2024	13:30	Staff gauge reading	On site to upgrade gear plate and logger from 3G to 4G. Hydrologger replaced with encoder and new aerial installed. Flume dry, stage value = 49.272 m
01-Oct-2024	08:00	Staff gauge reading	Quarterly site visit. At 08:00 ESG = 24.635 m (Dry)
02-Jul-2024	10:00	Staff gauge reading	Quarterly site visit. Observations: At 10:00 Staff gauge: 24.707 m ± 3 mm Encoder: 49.408 m (24.204 mm) Site comments: Adjusted encoder down to 49.415 m (24.707 m).
11-Apr-2024	13:30	Staff gauge reading	Observations: At 10:05 Staff gauge: 24.707 m ± 3 mm Encoder: 49.415 m (24.707 m). Routine quarterly visit. Flume is dry. Cleaned out float recess and loose debris from flume (in anticipation of rain soon!) Encoder reading at 13:30 = 49.267, which equates to Stage = 24.633. This is about right (dry ESG = 24.620, but float has about 10 mm of buoyancy to overcome) Field visit observation filed as 24.633 m. Flume needs a sweep out - not too much buildup of silt, but some.
11-Jan-2024	12:35	Staff gauge reading	Quarterly check. Flume dry. Grass/ weeds growing in silt bed down almost to level of ESG.

Halswell Ret.Basin, Halswell Jnt (66641)

Visit date	Time	Measurement type	Remark
30-Oct-2024	11:20	Staff gauge reading	Visit to connect earth wire for new logger to tower and to verify stage data. At 11:20 ESG = 31.531 m +/- 3 mm PT = 31.532 m Earth attached to bolt under structure on angled beam. At 12:15 ESG = 31.528 m +/- 3 mm PT 31.527 m
30-Oct-2024	12:15	Staff gauge reading	Visit to connect earth wire fro new logger to tower and to verify stage data. At 11:20 ESG = 31.531 m +/- 3 mm PT = 31.532 m Earth attached to bolt under structure on angled beam. At 12:15 ESG = 31.528 m +/- 3 mm PT 31.527 m
15-Oct-2024	09:15	Staff gauge reading	Visit to fix stage reference discrepancies and to upgrade logger to 4G. At 09:15 ESG = 31.210 m +/- 3 mm PT = 31.243 m (difference = 33 mm) 09:20 - 09:40 added more holes to PVC pipe. Pipe was free from silt and should be connected to the water fine. At 09:45 ESG = 31.210 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 31.242 m (Difference = 32 mm) Upgraded logger to 4G. New serial number: 48100401. Model: 3004-C000. Test tips on rain gauge at 10:53 At 10:55 ESG = 31.209 m +/- 3 mm PT = 31.242 m (Difference = 33 mm) Decreased offset by 33 mm from 30.196 m to 30.163 m at 11:00. At 11:05 ESG = 31.209 m +/- 3 mm PT = 31.209 m At 12:00 ESG = 31.209 m +/- 3 mm PT = 31.210 m
15-Oct-2024	09:45	Staff gauge reading	Visit to fix stage reference discrepancies and to upgrade logger to 4G. At 09:15 ESG = 31.210 m +/- 3 mm PT = 31.243 m (difference = 33 mm) 09:20 - 09:40 added more holes to PVC pipe. Pipe was free from silt and should be connected to the water fine. At 09:45 ESG = 31.210 m +/- 3 mm PT = 31.242 m (Difference = 32 mm)

Visit date	Time	Measurement type	Remark
			Upgraded logger to 4G. New serial number: 48100401. Model: 3004-C000. Test tips on rain gauge at 10:53 At 10:55 ESG = 31.209 m +/- 3 mm PT = 31.242 m (Difference = 33 mm) Decreased offset by 33 mm from 30.196 m to 30.163 m at 11:00. At 11:05 ESG = 31.209 m +/- 3 mm PT = 31.209 m At 12:00 ESG = 31.209 m +/- 3 mm PT = 31.210 m
15-Oct-2024	10:55	Staff gauge reading	Visit to fix stage reference discrepancies and to upgrade logger to 4G. At 09:15 ESG = 31.210 m +/- 3 mm PT = 31.243 m (difference = 33 mm) 09:20 - 09:40 added more holes to PVC pipe. Pipe was free from silt and should be connected to the water fine. At 09:45 ESG = 31.210 m +/- 3 mm PT = 31.242 m (Difference = 32 mm) Upgraded logger to 4G. New serial number: 48100401. Model: 3004-C000. Test tips on rain gauge at 10:53

Visit date	Time	Measurement type	Remark
			At 10:55 ESG = 31.209 m +/- 3 mm PT = 31.242 m (Difference = 33 mm) Decreased offset by 33 mm from 30.196 m to 30.163 m at 11:00. At 11:05 ESG = 31.209 m +/- 3 mm PT = 31.209 m At 12:00 ESG = 31.209 m +/- 3 mm PT = 31.210 m
15-Oct-2024	11:05	Staff gauge reading	Visit to fix stage reference discrepancies and to upgrade logger to 4G. At 09:15 ESG = 31.210 m +/- 3 mm PT = 31.243 m (difference = 33 mm) 09:20 - 09:40 added more holes to PVC pipe. Pipe was free from silt and should be connected to the water fine. At 09:45 ESG = 31.210 m +/- 3 mm PT = 31.242 m (Difference = 32 mm) Upgraded logger to 4G. New serial number: 48100401. Model: 3004-C000. Test tips on rain gauge at 10:53 At 10:55 ESG = 31.209 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 31.242 m (Difference = 33 mm) Decreased offset by 33 mm from 30.196 m to 30.163 m at 11:00. At 11:05 ESG = 31.209 m +/- 3 mm PT = 31.209 m At 12:00 ESG = 31.209 m +/- 3 mm PT = 31.210 m
15-Oct-2024	12:00	Staff gauge reading	Visit to fix stage reference discrepancies and to upgrade logger to 4G. At 09:15 ESG = 31.210 m +/- 3 mm PT = 31.243 m (difference = 33 mm) 09:20 - 09:40 added more holes to PVC pipe. Pipe was free from silt and should be connected to the water fine. At 09:45 ESG = 31.210 m +/- 3 mm PT = 31.242 m (Difference = 32 mm) Upgraded logger to 4G. New serial number: 48100401. Model: 3004-C000. Test tips on rain gauge at 10:53 At 10:55 ESG = 31.209 m +/- 3 mm PT = 31.242 m (Difference = 33 mm)

Visit date	Time	Measurement type	Remark
			Decreased offset by 33 mm from 30.196 m to 30.163 m at 11:00. At 11:05 ESG = 31.209 m +/- 3 mm PT = 31.209 m At 12:00 ESG = 31.209 m +/- 3 mm PT = 31.210 m
14-Oct-2024	13:45	Staff gauge reading	Follow up to the quarterly check. At 13:45 ESG = 31.222 m +/- 3 mm PT = 31.208 m Cleaned and flushed PT 13:48 - 13:53. Desiccant good. At 14:00 ESG = 31.221 m +/- 3 mm PT = 31. 257 m At 14:10 ESG = 31.221 m +/- 3 mm PT = 31. 257 m Suspect water from flushing is still in the pipe and has raised the stage for the PT. Need to return with drill to add more holes to PVC pipe for. Flushed again 14:11 - 14:14 but not no change. At 14:20 ESG = 31.221 m +/- 3 mm PT = 31. 257 m Have not adjusted the offset.

Visit date	Time	Measurement type	Remark
14-Oct-2024	14:00	Staff gauge reading	Follow up to the quarterly check. At 13:45 ESG = 31.222 m +/- 3 mm PT = 31.208 m Cleaned and flushed PT 13:48 - 13:53. Desiccant good. At 14:00 ESG = 31.221 m +/- 3 mm PT = 31. 257 m At 14:10 ESG = 31.221 m +/- 3 mm PT = 31. 257 m Suspect water from from flushing is still in the pipe and has raised the stage for the PT. Need to return with drill to add more holes to PVC pipe for. Flushed again 14:11 - 14:14 but not no change. At 14:20 ESG = 31.221 m +/- 3 mm PT = 31. 257 m Have not adjusted the offset.
14-Oct-2024	14:10	Staff gauge reading	Follow up to the quarterly check. At 13:45 ESG = 31.222 m +/- 3 mm PT = 31.208 m Cleaned and flushed PT 13:48 - 13:53. Desiccant good.

Visit date	Time	Measurement type	Remark
			At 14:00 ESG = 31.221 m +/- 3 mm PT = 31. 257 m At 14:10 ESG = 31.221 m +/- 3 mm PT = 31. 257 m Suspect water from from flushing is still in the pipe and has raised the stage for the PT. Need to return with drill to add more holes to PVC pipe for. Flushed again 14:11 - 14:14 but not no change. At 14:20 ESG = 31.221 m +/- 3 mm PT = 31. 257 m Have not adjusted the offset.
14-Oct-2024	14:20	Staff gauge reading	Follow up to the quarterly check. At 13:45 ESG = 31.222 m +/- 3 mm PT = 31.208 m Cleaned and flushed PT 13:48 - 13:53. Desiccant good. At 14:00 ESG = 31.221 m +/- 3 mm PT = 31. 257 m At 14:10 ESG = 31.221 m +/- 3 mm PT = 31. 257 m

Visit date	Time	Measurement type	Remark
			Suspect water from from flushing is still in the pipe and has raised the stage for the PT. Need to return with drill to add more holes to PVC pipe for. Flushed again 14:11 - 14:14 but not no change. At 14:20 ESG = 31.221 m +/- 3 mm PT = 31. 257 m Have not adjusted the offset.
02-Oct-2024	08:50	Staff gauge reading	Quarterly check. At 08:50 ESG = 31.210 m +/- 5 mm PT = 31.196 m
06-Aug-2024	10:25	Staff gauge reading	Visit to replace potentially faulty PT and to add new PVC PT housing. At 10:25 ESG = 31.301 m +/- 5 mm PT (old) = 31.300 m PT replaced with 10 m PT12 (S/N: 130021625055). New PVC electrical pipe fixed to existing galv pipe for PT housing. Old galv pipe is ~ 50 mm off sediment layer on bed. Hard surface (concrete foundation?) is ~ 200 mm below sediment layer. New PVC pipe is ~ 150 mm above sediment layer. Bolt has been added to end of PVC which should be obvious when PT hits it. Cap on old PT was clear of silt. At 12:05 ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m At 12:10 ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m Offset required + 0.084 m. Old offset = 30.112 m. New offset = 30.196 m.

Visit date	Time	Measurement type	Remark
06-Aug-2024	12:05	Staff gauge reading	At 12:40 ESG = 31.300 m +/- 5 mm PT (new) = 31.299 m Visit to replace potentially faulty PT and to add new PVC PT housing. At 10:25 ESG = 31.301 m +/- 5 mm PT (old) = 31.300 m PT replaced with 10 m PT12 (S/N: 130021625055). New PVC electrical pipe fixed to existing galv pipe for PT housing. Old galv pipe is ~ 50 mm off sediment layer on bed. Hard surface (concrete foundation?) is ~ 200 mm below sediment layer. New PVC pipe is ~ 150 mm above sediment layer. Bolt has been added to end of PVC which should be obvious when PT hits it. Cap on old PT was clear of silt. At 12:05 ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m At 12:10 ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m Offset required + 0.084 m. Old offset = 30.112 m. New offset = 30.196 m.
06-Aug-2024	12:10	Staff gauge reading	At 12:40 ESG = 31.300 m +/- 5 mm PT (new) = 31.299 m Visit to replace potentially faulty PT and to add new PVC PT housing. At 10:25 ESG = 31.301 m +/- 5 mm PT (old) = 31.300 m

Visit date	Time	Measurement type	Remark
			PT replaced with 10 m PT12 (S/N: 130021625055). New PVC electrical pipe fixed to existing galv pipe for PT housing. Old galv pipe is ~ 50 mm off sediment layer on bed. Hard surface (concrete foundation?) is ~ 200 mm below sediment layer. New PVC pipe is ~ 150 mm above sediment layer. Bolt has been added to end of PVC which should be obvious when PT hits it. Cap on old PT was clear of silt. At 12:05 ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m At 12:10 ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m Offset required + 0.084 m. Old offset = 30.112 m. New offset = 30.196 m. At 12:40 ESG = 31.300 m +/- 5 mm PT (new) = 31.299 m
06-Aug-2024	12:40	Staff gauge reading	Visit to replace potentially faulty PT and to add new PVC PT housing. At 10:25 ESG = 31.301 m +/- 5 mm PT (old) = 31.300 m PT replaced with 10 m PT12 (S/N: 130021625055). New PVC electrical pipe fixed to existing galv pipe for PT housing. Old galv pipe is ~ 50 mm off sediment layer on bed. Hard surface (concrete foundation?) is ~ 200 mm below sediment layer. New PVC pipe is ~ 150 mm above sediment layer. Bolt has been added to end of PVC which should be obvious when PT hits it. Cap on old PT was clear of silt. At 12:05 ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m At 12:10

Visit date	Time	Measurement type	Remark
			ESG = 31.300 m +/- 5 mm PT (new) = 31.216 m Offset required + 0.084 m. Old offset = 30.112 m. New offset = 30.196 m. At 12:40 ESG = 31.300 m +/- 5 mm PT (new) = 31.299 m
31-Jul-2024	10:00	Staff gauge reading	Stage check as the previous two have had significant deviations from the recorded values. At 10:00 ESG = 31.498 m +/- 3 mm
22-Jul-2024	11:40	Staff gauge reading	On-site to follow up from stage step-change at last visit. @ 11:40 ESG = 31.279 m +/- 3 mm PT = 31.313 m PT reading 40 mm high on arrival. Checked PT- no silt or biofouling. Probed to bottom of PT housing tube, couldn't feel any silt, hit a hard surface, probably the concrete under the tube. Hard to tell if there is a bolt in the tube for the PT to sit on, it may just be dangling free. Did some checks of the PT depth reading with the groundwater dipper, seems ok. @ 12:05 (after cleaning and checks) ESG = 31.278 m +/- 3 mm PT = 31.318 m No other option but to change stage offset: old offset = 30.152 m (unchanged since 7/10/2022), new offset = 30.112 m @ 12:20 PT = 31.277 m
22-Jul-2024	11:40	Staff gauge reading	On-site to follow up from stage step-change at last visit. @ 11:40 ESG = 31.279 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 31.313 m PT reading 40 mm high on arrival. Checked PT- no silt or biofouling. Probed to bottom of PT housing tube, couldn't feel any silt, hit a hard surface, probably the concrete under the tube. Hard to tell if there is a bolt in the tube for the PT to sit on, it may just be dangling free. Did some checks of the PT depth reading with the groundwater dipper, seems ok. @ 12:05 (after cleaning and checks) ESG = 31.278 m +/- 3 mm PT = 31.318 m No other option but to change stage offset: old offset = 30.152 m (unchanged since 7/10/2022), new offset = 30.112 m @ 12:20 PT = 31.277 m
18-Jul-2024	13:05	Staff gauge reading	Quarterly site visit At 13:05 ESG = 31.338 m +/- 3 mm PT = 31.342 m At 13:10 replaced the desiccant. Cleaned and flushed the PT 13:15 - 13:20. PT was very full of silt and algae. New 24 Ah battery installed. Cut away grass from around the ESG. Raingauge clear. Mouse droppings in tower. At 13:40 ESG = 31.338 m +/- 3 mm PT = 31.375 m Can't check if PT is on bolt but the full extent of the PT conduit has been push into the PT housing pipe.

Visit date	Time	Measurement type	Remark
			Suspect PT pipe has silted up at base. Flushed the pipe with numerous buckets of water from 13:45 - 13:50 but this has only resulted in a slight decrease At 13:55 ESG = 31.337 m +/- 3 mm PT = 31.372 m At 14:00 ESG = 31.337 m +/- 3 mm PT = 31.372 Have not adjusted the offset. Will reassess.
18-Jul-2024	13:40	Staff gauge reading	Quarterly site visit At 13:05 ESG = 31.338 m +/- 3 mm PT = 31.342 m At 13:10 replaced the desiccant. Cleaned and flushed the PT 13:15 - 13:20. PT was very full of silt and algae. New 24 Ah battery installed. Cut away grass from around the ESG. Raingauge clear. Mouse dropping in tower. At 13:40 ESG = 31.338 m +/- 3 mm PT = 31.375 m Can't check if PT is on bolt but the full extent of the PT conduit has been push into the PT housing pipe. Suspect PT pipe has silted up at base. Flushed the pipe with numerous buckets of water from 13:45 - 13:50 but this has only resulted in a slight decrease At 13:55 ESG = 31.337 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 31.372 m At 14:00 ESG = 31.337 m +/- 3 mm PT = 31.372 Have not adjusted the offset. Will reassess.
18-Jul-2024	13:55	Staff gauge reading	Quarterly site visit At 13:05 ESG = 31.338 m +/- 3 mm PT = 31.342 m At 13:10 replaced the desiccant. Cleaned and flushed the PT 13:15 - 13:20. PT was very full of silt and algae. New 24 Ah battery installed. Cut away grass from around the ESG. Raingauge clear. Mouse dropping in tower. At 13:40 ESG = 31.338 m +/- 3 mm PT = 31.375 m Can't check if PT is on bolt but the full extent of the PT conduit has been push into the PT housing pipe. Suspect PT pipe has silted up at base. Flushed the pipe with numerous buckets of water from 13:45 - 13:50 but this has only resulted in a slight decrease At 13:55 ESG = 31.337 m +/- 3 mm PT = 31.372 m At 14:00 ESG = 31.337 m +/- 3 mm PT = 31.372

Visit date	Time	Measurement type	Remark
			Have not adjusted the offset. Will reassess.
18-Jul-2024	14:00	Staff gauge reading	Quarterly site visit At 13:05 ESG = 31.338 m +/- 3 mm PT = 31.342 m At 13:10 replaced the desiccant. Cleaned and flushed the PT 13:15 - 13:20. PT was very full of silt and algae. New 24 Ah battery installed. Cut away grass from around the ESG. Raingauge clear. Mouse dropping in tower. At 13:40 ESG = 31.338 m +/- 3 mm PT = 31.375 m Can't check if PT is on bolt but the full extent of the PT conduit has been push into the PT housing pipe. Suspect PT pipe has silted up at base. Flushed the pipe with numerous buckets of water from 13:45 - 13:50 but this has only resulted in a slight decrease At 13:55 ESG = 31.337 m +/- 3 mm PT = 31.372 m At 14:00 ESG = 31.337 m +/- 3 mm PT = 31.372
			Have not adjusted the offset. Will reassess.
30-May-2024	11:30	Staff gauge reading	On site to carry out rain gauge inspection. Rain gauge = TB3 0.2 mm S/N 12-152. Pre clean verification = 115 tips. Cleaned and checked.

Visit date	Time	Measurement type	Remark
			Post clean checks = 115, 118 tips. gauge swapped out for S/N 01-188. Post installation check = 102 tips. Test tips at 13:35 removed.
10-Apr-2024	14:15	Staff gauge reading	Quarterly check. Contractors on site, removing vegetation from around the retention pond.
01-Feb-2024	12:10	Staff gauge reading	Quarterly site visit. At 12:10 ESG = 30.558 m +/- 3 mm PT = 30.542 m Replaced desiccant 12:12 - 12:15. Cleaned & flushed PT 12:18 - 12:22. PT was very blocked with larvae. Cleaned raingauge 12:25 - 12:35. Wee bit of dirt & grass seed. At 12:35 ESG = 30.558 m +/- 3 mm PT = 30.566 m
01-Feb-2024	12:35	Staff gauge reading	Quarterly site visit. At 12:10 ESG = 30.558 m +/- 3 mm PT = 30.542 m Replaced desiccant 12:12 - 12:15. Cleaned & flushed PT 12:18 - 12:22. PT was very blocked with larvae. Cleaned raingauge 12:25 - 12:35. Wee bit of dirt & grass seed. At 12:35 ESG = 30.558 m +/- 3 mm PT = 30.566 m

Wigram Retention Basin at Overflow (66642)

Visit date	Time	Measurement type	Remark
15-Oct-2024	12:45	Staff gauge reading	Quarterly site visit. At 12:45 ESG = 23.475 m +/- 5 mm P.Pro = 23.472 m At 13:10 ESG = 23.475 m +/- 5 mm P.Pro = 23.473 m
15-Oct-2024	13:10	Staff gauge reading	Quarterly site visit. At 12:45 ESG = 23.475 m +/- 5 mm P.Pro = 23.472 m At 13:10 ESG = 23.475 m +/- 5 mm P.Pro = 23.473 m
02-Sep-2024	11:10	Staff gauge reading	On site to verify that the replacement Pumpro at the outflow site was sending it's data correctly. At 11:20 Staff gauge = 23.495 m +/- 5 mm
02-Jul-2024	16:00	Staff gauge reading	Quarterly site visit. At 15:55 Staff gauge: 23.878 m ± 5 mm Pump Pro: 23.879 All OK.
09-Apr-2024	13:40	Staff gauge reading	Routine visit. At 13:40 ESG = 24.482 m +/- 3 mm PPro = 23.481 m

Visit date	Time	Measurement type	Remark
26-Feb-2024	14:25	Staff gauge reading	All ok - noted that the Solar panel had sustained wind damage and had been remounted - this will need to be replaced as the next big NW wind event will rip it down again. Site vandalised, panel wiring had been cut and panel was on the ground near site. Reinstated panel and applied denzo tape to pole and panel mount. At 14:25 ESG = 23.530 m +/- 3 mm Pump pro = 23.528 m Note: It is also possible that this was caused by weather- strong winds may have blown the panel off and torn the cable.
25-Jan-2024	09:55	Staff gauge reading	At 0955 ESG = 23.695 m +/- 3 mm Pump pro = 23.694 m
11-Jan-2024	12:10	Staff gauge reading	Site level checks. No adjustments required.

Croziers Drain u/s of PS219 Philpotts Rd (66651)

Visit date	Time	Measurement type	Remark
16-Oct-2024	13:25	Staff gauge reading	Quarterly site visit. At 13:25 ESG = 12.838 m +/- 3 mm PT = 12.835 m Contractors working on pumpstation. Desiccant fine.
04-Jul-2024	12:50	Staff gauge reading	Quarterly visit. At 12:50 ESG = 12.978 m +/- 5 mm Transducer = 12.988 m Flushed PT pipe and updated offset as cleaning made the discrepancy worse. At 13:35 ESG = 12.978 m +/- 5 mm Transducer = 12.978 m
04-Jul-2024	13:35	Staff gauge reading	Quarterly visit. At 12:50 ESG = 12.978 m +/- 5 mm Transducer = 12.988 m Flushed pt pipe and updated offset as cleaning made the discrepancy worse. At 13:35 ESG = 12.978 m +/- 5 mm Transducer = 12.978 m
16-Apr-2024	13:20	Staff gauge reading	Recheck quarterly. At 13:20 ESG = 12.949 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 12.962 m Cleaned and flushed PT. PT is definitely on the bolt. At 13:30 ESG = 12.949 m +/- 3 mm PT = 12.965 m No offset change.
16-Apr-2024	13:30	Staff gauge reading	Recheck quarterly. At 13:20 ESG = 12.949 m +/- 3 mm PT = 12.962 m Cleaned and flushed PT. PT is definitely on the bolt. At 13:30 ESG = 12.949 m +/- 3 mm PT = 12.965 m No offset change.
11-Apr-2024	13:15	Staff gauge reading	Quarterly visit. At 13:15 ESG = 12.955 m +/- 3 mm PT = 12.957 m Accidentally read Bullers stage so thought PT was out from ESG so cleaned and flushed when wasn't required. At 13:25 ESG = 12.955 m +/- 3 mm PT = 12.971 m At 13:30 ESG = 12.955 m +/- 3 mm PT = 12.970 m At 13:35 ESG = 12.955 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 12.968 m PT is definitely on the bolt. Unsure as to why it is now out. Have not adjusted the offset. At 13:45 ESG = 12.955 m +/- 3 mm PT = 12.967 m
11-Apr-2024	13:25	Staff gauge reading	Quarterly visit. At 13:15 ESG = 12.955 m +/- 3 mm PT = 12.957 m Accidentally read Bullers stage so thought PT was out from ESG so cleaned and flushed when wasn't required. At 13:25 ESG = 12.955 m +/- 3 mm PT = 12.971 m At 13:30 ESG = 12.955 m +/- 3 mm PT = 12.970 m At 13:35 ESG = 12.955 m +/- 3 mm PT = 12.968 m PT is definitely on the bolt. Unsure as to why it is now out. Have not adjusted the offset. At 13:45 ESG = 12.955 m +/- 3 mm PT = 12.967 m
11-Apr-2024	13:30	Staff gauge reading	Quarterly visit. At 13:15 ESG = 12.955 m +/- 3 mm PT = 12.957 m Accidentally read Bullers stage so thought PT was out from ESG so cleaned and flushed when wasn't required. At 13:25 ESG = 12.955 m +/- 3 mm PT = 12.971 m At 13:30 ESG = 12.955 m +/- 3 mm PT = 12.970 m

Visit date	Time	Measurement type	Remark
			At 13:35 ESG = 12.955 m +/- 3 mm PT = 12.968 m PT is definitely on the bolt. Unsure as to why it is now out. Have not adjusted the offset. At 13:45 ESG = 12.955 m +/- 3 mm PT = 12.967 m
11-Apr-2024	13:35	Staff gauge reading	Quarterly visit. At 13:15 ESG = 12.955 m +/- 3 mm PT = 12.957 m Accidentally read Bullers stage so thought PT was out from ESG so cleaned and flushed when wasn't required. At 13:25 ESG = 12.955 m +/- 3 mm PT = 12.971 m At 13:30 ESG = 12.955 m +/- 3 mm PT = 12.970 m At 13:35 ESG = 12.955 m +/- 3 mm PT = 12.968 m PT is definitely on the bolt. Unsure as to why it is now out. Have not adjusted the offset. At 13:45 ESG = 12.955 m +/- 3 mm PT = 12.967 m
11-Apr-2024	13:45	Staff gauge reading	Quarterly visit. At 13:15 ESG = 12.955 m +/- 3 mm PT = 12.957 m Accidentally read Bullers stage so thought PT was out from ESG so cleaned and flushed when wasn't required. At 13:25 ESG = 12.955 m +/- 3 mm PT = 12.971 m At 13:30

Visit date	Time	Measurement type	Remark
			ESG = 12.955 m +/- 3 mm PT = 12.970 m At 13:35 ESG = 12.955 m +/- 3 mm PT = 12.968 m PT is definitely on the bolt. Unsure as to why it is now out. Have not adjusted the offset. At 13:45 ESG = 12.955 m +/- 3 mm PT = 12.967 m
10-Jan-2024	13:55	Staff gauge reading	Quarterly check. Cleaned off bottom of ESG. Replaced desiccant. Everything else good. Grass has been cut enabling us to drive right to the logger box. @ 13:55 ESG = 12.862 m +/- 2 mm PT = 12.864 m

Wairarapa Stream at Rossall St (66654)

Visit date	Time	Measurement type	Remark
15-Oct-2024	13:40	Staff gauge reading	Quarterly site visit. At 13:40 ESG = 17.480 m +/- 3 mm PT = 17.477 m Handrail complete. Could fix pole to handrail to stop wobbling in the wind.
11-Sep-2024	11:35	Staff gauge reading	Visit to finish odds & ends from site relocation. @ 11:35 ESG = 17.411 m +/- 2 mm PT = 17.405 m Lowered logger box to just above handrail, tidied conduit and fixed to pole with hoseclamps. Replaced PT as old one had 15 m cable. New PT is 5m range with 10 m cable, S/N 03214680. Changed sensor SDI-12 address to 0. Adjusted stage offset to set PT to ESG @ 1333, new offset = +17.02 @ 13:35 ESG = 17.411 m +/- 2 mm PT = 17.411 m Applied new offset in scheme back in office and uploaded at 15:05
11-Sep-2024	13:35	Staff gauge reading	Visit to finish odds & ends from site relocation. @ 11:35 ESG = 17.411 m +/- 2 mm PT = 17.405 m Lowered logger box to just above handrail, tidied conduit and fixed to pole with hoseclamps. Replaced PT as old one had 15 m cable. New PT is 5m range with 10 m cable, S/N 03214680. Changed sensor SDI-12 address to 0. Adjusted stage offset to set PT to ESG @ 1333, new offset = +17.02

Visit date	Time	Measurement type	Remark
			@ 13:35 ESG = 17.411 m +/- 2 mm PT = 17.411 m Applied new offset in scheme back in office and uploaded at 15:05
07-Aug-2024	11:05	Staff gauge reading	Moved site back downstream to the Poynder Ave bridge following construction completion. Initial stage obs @ 11:05 ESG = 17.384 m +/- 3 mm PT = 17.380 m Site re-installed to the previous location on the true right upstream abutment face. Holes drilled into concrete to fix ESG post were relatively shallow as 3 of 4 hit re-bar at ~70 mm depth. One hole found good depth (~ 120 mm). Threaded rod anchored into holes with setting mortar compound. ESG levelled in from newly installed benchmark (provided by CCC) beneath loggerbox. BM has RL 18.895 m to Christchurch Drainage Datum (CDD). Levelling had 1 mm close. @ 16:00 ESG = 17.355 m +/- 3 mm, stage offset set to +17.012
			@ 16:20 ESG = 17.355 m +/- 3 mm PT = 17.355 m
07-Aug-2024	16:00	Staff gauge reading	Moved site back downstream to the Poynder Ave bridge following construction completion. Initial stage obs @ 11:05 ESG = 17.384 m +/- 3 mm PT = 17.380 m Site re-installed to the previous location on the true right upstream abutment face. Holes drilled into concrete to fix ESG post were relatively shallow as 3 of 4 hit re-bar at ~70 mm depth. One hole found good depth (~ 120 mm). Threaded rod anchored into holes with setting mortar compound.

Visit date	Time	Measurement type	Remark
			ESG levelled in from newly installed benchmark (provided by CCC) beneath loggerbox. BM has RL 18.895 m to Christchurch Drainage Datum (CDD). Levelling had 1 mm close. @ 16:00 ESG = 17.355 m +/- 3 mm, stage offset set to +17.012 @ 16:20 ESG = 17.355 m +/- 3 mm PT = 17.355 m
07-Aug-2024	16:20	Staff gauge reading	Moved site back downstream to the Poynder Ave bridge following construction completion. Initial stage obs @ 11:05 ESG = 17.384 m +/- 3 mm PT = 17.380 m Site re-installed to the previous location on the true right upstream abutment face. Holes drilled into concrete to fix ESG post were relatively shallow as 3 of 4 hit re-bar at ~70 mm depth. One hole found good depth (~ 120 mm). Threaded rod anchored into holes with setting mortar compound. ESG levelled in from newly installed benchmark (provided by CCC) beneath loggerbox. BM has RL 18.895 m to Christchurch Drainage Datum (CDD). Levelling had 1 mm close. @ 16:00 ESG = 17.355 m +/- 3 mm, stage offset set to +17.012 @ 16:20 ESG = 17.355 m +/- 3 mm PT = 17.355 m
04-Jul-2024	15:45	Staff gauge reading	Quarterly check. At 15:45 ESG = 17.380 m +/- 3 mm Transducer = 17.369 m Cleaned transducer and transducer pipe. At 15:50

Visit date	Time	Measurement type	Remark
			ESG = 17.380 m +/- 5 mm Transducer = 17.384 m
04-Jul-2024	15:55	Staff gauge reading	Quarterly check. At 15:45 ESG = 17.380 m +/- 3 mm Transducer = 17.369 m Cleaned transducer and transducer pipe.
			At 15:50 ESG = 17.380 m +/- 5 mm Transducer = 17.384 m
09-Apr-2024	15:05	Staff gauge reading	Routine visit.
			ESG = 17.406 m +/- 3 mm at 15:05
29-Feb-2024	09:15	Staff gauge reading	Moved site to ~100 m upstream of Poynder Ave Bridge, mounted to concrete stream channel wall on true left, beneath sidewalk adjacent to Rossall Street. Logger box is easily accessed from sidewalk. @ 09:15 ESG = 17.355 m +/- 3 mm Prior to dis-establishing the site, surveyed/ levelled from ESG to establish temporary BM at new site for installation of ESG. An old ESG immediately adjacent to the new site corroborated the final level to within +- 1 mm, but that accuracy of that old (non-NIWA) ESG is unknown. Stage checks after move: @ 14:15 ESG = 17.353 m +/- 3 mm @ 14:30 ESG = 17.351 m +/- 3 mm Raw PT depth = 0.264 m

Visit date	Time	Measurement type	Remark
			Adjusted stage offset, new O/S = + 17.087 m @ 14:40 ESG = 17.351 m +/- 3 mm PT = 17.352 m Raw PT depth = 0.265 m
29-Feb-2024	14:15	Staff gauge reading	Moved site to ~100 m upstream of Poynder Ave Bridge, mounted to concrete stream channel wall on true left, beneath sidewalk adjacent to Rossall Street. Logger box is easily accessed from sidewalk. @ 09:15 ESG = 17.355 m +/- 3 mm Prior to dis-establishing the site, surveyed/ levelled from ESG to establish temporary BM at new site for installation of ESG. An old ESG immediately adjacent to the new site corroborated the final level to within +- 1 mm, but that accuracy of that old (non-NIWA) ESG is unknown. Stage checks after move: @ 14:15 ESG = 17.353 m +/- 3 mm @ 14:30 ESG = 17.351 m +/- 3 mm Raw PT depth = 0.264 m Adjusted stage offset, new O/S = + 17.087 m @ 14:40 ESG = 17.351 m +/- 3 mm PT = 17.352 m Raw PT depth = 0.265 m
29-Feb-2024	14:30	Staff gauge reading	Moved site to ~100 m upstream of Poynder Ave Bridge, mounted to concrete stream channel wall on true left, beneath sidewalk adjacent to Rossall Street. Logger box is easily accessed from sidewalk.

Visit date	Time	Measurement type	Remark
			@ 09:15 ESG = 17.355 m +/- 3 mm Prior to dis-establishing the site, surveyed/ levelled from ESG to establish temporary BM at new site for installation of ESG. An old ESG immediately adjacent to the new site corroborated the final level to within +- 1 mm, but that accuracy of that old (non-NIWA) ESG is unknown. Stage checks after move: @ 14:15 ESG = 17.353 m +/- 3 mm @ 14:30 ESG = 17.351 m +/- 3 mm Raw PT depth = 0.264 m Adjusted stage offset, new O/S = + 17.087 m @ 14:40 ESG = 17.351 m +/- 3 mm PT = 17.352 m Raw PT depth = 0.265 m
29-Feb-2024	14:40	Staff gauge reading	Moved site to ~100 m upstream of Poynder Ave Bridge, mounted to concrete stream channel wall on true left, beneath sidewalk adjacent to Rossall Street. Logger box is easily accessed from sidewalk. @ 09:15 ESG = 17.355 m +/- 3 mm Prior to dis-establishing the site, surveyed/ levelled from ESG to establish temporary BM at new site for installation of ESG. An old ESG immediately adjacent to the new site corroborated the final level to within +- 1 mm, but that accuracy of that old (non-NIWA) ESG is unknown. Stage checks after move:

Visit date	Time	Measurement type	Remark
			@ 14:15 ESG = 17.353 m +/- 3 mm @ 14:30 ESG = 17.351 m +/- 3 mm Raw PT depth = 0.264 m Adjusted stage offset, new O/S = + 17.087 m @ 14:40 ESG = 17.351 m +/- 3 mm PT = 17.352 m Raw PT depth = 0.265 m
26-Jan-2024	10:08	Staff gauge reading	Routine quarterly check. At 10:08 ESG = 17.326 m +/- 3 mm
22-Jan-2024	14:13	Staff gauge reading	Quarterly visit, no issues @ 14:13 ESG = 17.324 m +/- 3 mm PT = 17.323 m

Avon River at Fitzgerald Ave (66670)

Visit date	Time	Measurement type	Remark
16-Oct-2024	12:40	Staff gauge reading	Quarterly site visit. At 12:40 ESG = 9.763 m +/- 3 mm PT = 9.765 m Desiccant fine.
04-Jul-2024	15:15	Staff gauge reading	Quarterly site check Cleared debris from around ESG and exchanged silica. Ant nest in logger box. Sprayed spider ban in an effort to remove nest. At 15:15 ESG = 9.825 m +/- 3 mm Transducer = 9.825 m
11-Apr-2024	15:00	Staff gauge reading	Routine quarterly visit. At 15:00 ESG = 9.905 m +/- 5 mm Cleaned PT and cleared debris away from ESG. At 15:05 ESG = 9.900 m +/- 5 mm
11-Apr-2024	15:05	Staff gauge reading	Routine quarterly visit. At 15:00 ESG = 9.905 m +/- 5 mm Cleaned PT and cleared debris away from ESG. At 15:05 ESG = 9.900 m +/- 5 mm
07-Feb-2024	11:50	Staff gauge reading	Visit to investigate low volts warning. Desiccant fine. At 11:45 Cleared debris from around ESG At 11:50

Visit date	Time	Measurement type	Remark
			ESG = 9.910 m +/- 3 mm (Had to read from true left side ESG as right side ESG does not go low enough.) PT = 9.908 m At 11:48 11.96 V coming into reg from sol panel while cloudy. Bat at reg = 11.93 v Bat = 11.9 v At 11:52 cleaned and flushed PT. Pretty clean already. New battery installed at 11:58 Volts = 12.94 Site initialised fine At 12:00 ESG = 9.910 m +/- 3 mm PT = 9.911 m
07-Feb-2024	12:00	Staff gauge reading	Visit to investigate low volts warning. Desiccant fine. At 11:45 Cleared debris from around ESG At 11:50 ESG = 9.910 m +/- 3 mm (Had to read from true left side ESG as right side ESG does not go low enough.) PT = 9.908 m At 11:48 11.96 V coming into reg from sol panel while cloudy. Bat at reg = 11.93 v Bat = 11.9 v At 11:52 cleaned and flushed PT. Pretty clean already. New battery installed at 11:58 Volts = 12.94 Site initialised fine At 12:00 ESG = 9.910 m +/- 3 mm PT = 9.911 m

Visit date	Time	Measurement type	Remark
12-Jan-2024	10:10	Staff gauge reading	Quarterly check. All good. Falling tide. @ 10:10 ESG = 10.107 m +/- 2 mm PT = 10.106 m Replaced desiccant and added lower saddle bracket to PT housing tube.

Cashmere Stream at Worsleys Reserve (66682)

Visit date	Time	Measurement type	Remark
01-Oct-2024	09:41	Gauging	Quarterly site visit. At 09:15 ESG = 15.938 m +/- 3 mm PT = 15.928 m Cleaned and flushed PT. Desiccant fine. CCC contractors mowing grass around riverbanks - lots of grass debris in the stream. Water temperature = 12.5 At 09:25 ESG = 15.938 m +/- 3 mm PT = 15.938 m Flowtracker 2 gauging ~ 3 m downstream of ESG. Q = 331 l/s. Uncertainty = 3.3% At 09:55 ESG = 15.941 m +/- 3 mm PT = 15.943 m
01-Oct-2024	09:15	Staff gauge reading	Quarterly site visit. At 09:15 ESG = 15.938 m +/- 3 mm PT = 15.928 m Cleaned and flushed PT. Desiccant fine. CCC contractors mowing grass around river banks - lots of grass debris in the stream. Water temperature = 12.5 At 09:25 ESG = 15.938 m +/- 3 mm PT = 15.938 m

Visit date	Time	Measurement type	Remark
01-Oct-2024	09:25	Staff gauge reading	Flowtracker 2 gauging ~ 3 m downstream of ESG. Q = 331 l/s. Uncertainty = 3.3% At 09:55 ESG = 15.941 m +/- 3 mm PT = 15.943 m Quarterly site visit. At 09:15 ESG = 15.938 m +/- 3 mm PT = 15.928 m Cleaned and flushed PT. Desiccant fine. CCC contractors mowing grass around river banks - lots of grass debris in the stream. Water temperature = 12.5 At 09:25 ESG = 15.938 m +/- 3 mm PT = 15.938 m
01-Oct-2024	09:55	Staff gauge reading	Flowtracker 2 gauging ~ 3 m downstream of ESG. Q = 331 l/s. Uncertainty = 3.3% At 09:55 ESG = 15.941 m +/- 3 mm PT = 15.943 m Quarterly site visit. At 09:15 ESG = 15.938 m +/- 3 mm PT = 15.928 m Cleaned and flushed PT. Desiccant fine. CCC contractors mowing grass around river banks - lots of grass debris in the stream. Water temperature = 12.5

Visit date	Time	Measurement type	Remark
01-Oct-2024	09:41	Other field measurement	At 09:25 ESG = 15.938 m +/- 3 mm PT = 15.938 m Flowtracker 2 gauging ~ 3 m downstream of ESG. Q = 331 l/s. Uncertainty = 3.3% At 09:55 ESG = 15.941 m +/- 3 mm PT = 15.943 m Quarterly site visit. At 09:15 ESG = 15.938 m +/- 3 mm PT = 15.928 m Cleaned and flushed PT. Desiccant fine. CCC contractors mowing grass around river banks - lots of grass debris in the stream. Water temperature = 12.5
02-Jul-2024	12:32	Gauging	At 09:25 ESG = 15.938 m +/- 3 mm PT = 15.938 m Flowtracker 2 gauging ~ 3 m downstream of ESG. Q = 331 l/s. Uncertainty = 3.3% At 09:55 ESG = 15.941 m +/- 3 mm PT = 15.943 m Quarterly site visit and gauging. Observations: At 11:55 Staff gauge: 16.009 m ± 3 mm Encoder: 16.007 m

Visit date	Time	Measurement type	Remark
02-Jul-2024	11:55	Staff gauge reading	Gauging comment: Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m below bridge. Results were processed through QRevMS 1.03. Observations: At 12:50 Staff gauge: 15.997 m ± 3 mm Encoder: 15.995 m Site comments: Changed spent pressure transducer desiccant. Quarterly site visit and gauging. Observations: At 11:55 Staff gauge: 16.009 m ± 3 mm Encoder: 16.007 m
02-Jul-2024	12:50	Staff gauge reading	Gauging comment: Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m below bridge. Results were processed through QRevMS 1.03. Observations: At 12:50 Staff gauge: 15.997 m ± 3 mm Encoder: 15.995 m Site comments: Changed spent pressure transducer desiccant. Quarterly site visit and gauging. Observations: At 11:55 Staff gauge: 16.009 m ± 3 mm Encoder: 16.007 m

Visit date	Time	Measurement type	Remark
02-Jul-2024	12:48	Other field measurement	Gauging comment: Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m below bridge. Results were processed through QRevMS 1.03. Observations: At 12:50 Staff gauge: 15.997 m ± 3 mm Encoder: 15.995 m Site comments: Changed spent pressure transducer desiccant. Quarterly site visit and gauging. Observations: At 11:55 Staff gauge: 16.009 m ± 3 mm Encoder: 16.007 m Gauging comment: Gauged using TRDI StreamPro ADCP and Section by Section method deployed off a tagline 5 m below bridge. Results were processed through QRevMS 1.03. Observations: At 12:50 Staff gauge: 15.997 m ± 3 mm Encoder: 15.995 m Site comments: Changed spent pressure transducer desiccant.
09-Apr-2024	11:21	Gauging	Routine visit Observed and Removed a moderate lump of weed on control at 10:40. This was ~ 3m below the PT. At 10:45: ESG = 15.900 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT cleaned and flushed 10:46- 10:51. Quite silted up. Lots of corrosion on outside of PT (from pipe?) Removed final bit of snagged weed off control just before starting gauging. It had gotten stuck ~15 m below the PT on the gravel before it drops off into the silt. At 11:35 ESG: 15.892 mm +/- 3 mm Rating change over warm summer period has been missed between previous gauging and this one where the weed growth has occurred. This has not been back corrected i.e., a retrospective rating was not created as there is no gauging to tie it to.
09-Apr-2024	10:45	Staff gauge reading	Routine visit Observed and Removed a moderate lump of weed on control at 10:40. This was ~ 3m below the PT. At 10:45: ESG = 15.900 m +/- 3 mm PT cleaned and flushed 10:46- 10:51. Quite silted up. Lots of corrosion on outside of PT (from pipe?) Removed final bit of snagged weed off control just before starting gauging. It had gotten stuck ~15 m below the PT on the gravel before it drops off into the silt. At 11:35 ESG: 15.892 mm +/- 3 mm Rating change over warm summer period has been missed between previous gauging and this one where the weed growth has occurred. This has not been back corrected i.e., a retrospective rating was not created as there is no gauging to tie it to.
09-Apr-2024	11:35	Staff gauge reading	Routine visit Observed and Removed a moderate lump of weed on control at 10:40. This was ~ 3m below the PT. At 10:45: ESG = 15.900 m +/- 3 mm PT cleaned and flushed 10:46- 10:51. Quite silted up. Lots of corrosion on outside of PT (from pipe?)

Visit date	Time	Measurement type	Remark
09-Apr-2024	11:21	Other field measurement	Removed final bit of snagged weed off control just before starting gauging. It had gotten stuck ~15 m below the PT on the gravel before it drops off into the silt. At 11:35 ESG = 15.892 mm +/- 3 mm Rating change over warm summer period has been missed between previous gauging and this one where the weed growth has occurred. This has not been back corrected i.e., a retrospective rating was not created as there is no gauging to tie it to. Routine visit Observed and Removed a moderate lump of weed on control at 10:40. This was ~ 3m below the PT. At 10:45: ESG = 15.900 m +/- 3 mm PT cleaned and flushed 10:46- 10:51. Quite silted up. Lots of corrosion on outside of PT (from pipe?)
12-Jan-2024	14:01	Gauging	Removed final bit of snagged weed off control just before starting gauging. It had gotten stuck ~15 m below the PT on the gravel before it drops off into the silt. At 11:35 ESG = 15.892 mm +/- 3 mm Rating change over warm summer period has been missed between previous gauging and this one where the weed growth has occurred. This has not been back corrected i.e., a retrospective rating was not created as there is no gauging to tie it to. Quarterly check. All good. Gauged with Flowtracker2, 2 m downstream of ESG. Replaced desiccant. @ 13:40 ESG = 15.899 m +/- 3 mm PT = 15.896 m @ 14:20 ESG = 15.898 m +/- 3 mm PT = 15.895 m

Visit date	Time	Measurement type	Remark
12-Jan-2024	13:40	Staff gauge reading	Quarterly check. All good. Gauged with Flowtracker2, 2 m downstream of ESG. Replaced desiccant. @ 13:40 ESG = 15.899 m +/- 3 mm PT = 15.896 m @ 14:20 ESG = 15.898 m +/- 3 mm PT = 15.895 m
12-Jan-2024	14:20	Staff gauge reading	Quarterly check. All good. Gauged with Flowtracker2, 2 m downstream of ESG. Replaced desiccant. @ 13:40 ESG = 15.899 m +/- 3 mm PT = 15.896 m @ 14:20 ESG = 15.898 m +/- 3 mm PT = 15.895 m

Hoon Hay Valley Drain at Cashmere Rd (66692)

Visit date	Time	Measurement type	Remark
01-Oct-2024	10:30	Staff gauge reading	Quarterly site visit. At 10:30 ESG = 18.050 m +/- 3 mm PT = 18.047 m 10:31 - 10:35: cleaned ESG plate, cleaned and flushed PT. Water turbid but feel bottom of pipe was above silt layer. Desiccant fine. At 10:40 ESG = 18.050 m +/- 3 mm PT = 18.051 m
01-Oct-2024	10:40	Staff gauge reading	Quarterly site visit. At 10:30 ESG = 18.050 m +/- 3 mm PT = 18.047 m 10:31 - 10:35: cleaned ESG plate, cleaned and flushed PT. Water turbid but feel bottom of pipe was above silt layer. Desiccant fine. At 10:40 ESG = 18.050 m +/- 3 mm PT = 18.051 m
08-Jul-2024	09:10	Staff gauge reading	Routine site check. At 09:30 ESG = 18.170 m +/- 5 mm

Cashmere Valley Drain at Adventure Park (66694)

Visit date	Time	Measurement type	Remark
23-Oct-2024	12:30	Staff gauge reading	Visit to upgrade to new 4G logger & panel. Flume dry. New logger panel installed ok, no solar regulator provided so reused Steca unit from old panel. Updated stage offset in new scheme with same value from previous scheme.
01-Oct-2024	10:10	Staff gauge reading	Quarterly site visit. At 10:10 ESG = 0.000 m (Dry) Lots of photos taken of stream bed reconstruction (on sharepoint). Downstream of site appears to be higher than the flume outlet. Small trickles of water will pass through the rocks but higher flows will likely back up.
02-Jul-2024	10:30	Staff gauge reading	Quarterly site visit. Observations: At 10:30 Staff gauge: 139 mm ± 3 mm Pressure traducer: 152 mm Site comments: Cleaned pressure transducer and stilling pipe. Replaced pressure transducer desiccant. Observations: At 11:20 Staff gauge: 116 mm ± 3 mm Pressure traducer: 126 mm Site comments: Lowered pressure transducer offset from 25mm to 15mm. Observations: At 11:40 Staff gauge: 112 mm ± 3 mm Pressure traducer: 115 mm
02-Jul-2024	11:20	Staff gauge reading	Quarterly site visit.

Visit date	Time	Measurement type	Remark
			Observations: At 10:30 Staff gauge: 139 mm ± 3 mm Pressure traducer: 152 mm Site comments: Cleaned pressure transducer and stilling pipe. Replaced pressure transducer desiccant. Observations: At 11:20 Staff gauge: 116 mm ± 3 mm Pressure traducer: 126 mm Site comments: Lowered pressure transducer offset from 25mm to 15mm.
02-Jul-2024	11:40	Staff gauge reading	Observations: At 11:40 Staff gauge: 112 mm ± 3 mm Pressure traducer: 115 mm Quarterly site visit. Observations: At 10:30 Staff gauge: 139 mm ± 3 mm Pressure traducer: 152 mm Site comments: Cleaned pressure transducer and stilling pipe. Replaced pressure transducer desiccant. Observations: At 11:20 Staff gauge: 116 mm ± 3 mm Pressure traducer: 126 mm

Visit date	Time	Measurement type	Remark
			Site comments: Lowered pressure transducer offset from 25mm to 15mm. Observations: At 11:40 Staff gauge: 112 mm ± 3 mm Pressure traducer: 115 mm

Heathcote River at Bells Pumpstation (66695)

Visit date	Time	Measurement type	Remark
12-Dec-2024	13:45	Staff gauge reading	On site to upgrade the logger from 3G to 4G. Met Blair Johnson from CCC on site to talk about adjusting the Miltronics radar (4-20, but he was unable to do so at the time. At 13:45 esg = 9.915 m +/- 5 mm 13:50 esg = 9.930 m +/- 5 mm 13:55 esg = 9.961 m +/- 5 mm 14:00 esg = 10.013 m +/- 5 mm
12-Dec-2024	13:50	Staff gauge reading	On site to upgrade the logger from 3G to 4G. Met Blair Johnson from CCC on site to talk about adjusting the Miltronics radar (4-20, but he was unable to do so at the time. At 13:45 esg = 9.915 m +/- 5 mm 13:50 esg = 9.930 m +/- 5 mm 13:55 esg = 9.961 m +/- 5 mm 14:00 esg = 10.013 m +/- 5 mm
12-Dec-2024	13:55	Staff gauge reading	On site to upgrade the logger from 3G to 4G. Met Blair Johnson from CCC on site to talk about adjusting the Miltronics radar (4-20, but he was unable to do so at the time. At 13:45 esg = 9.915 m +/- 5 mm 13:50 esg = 9.930 m +/- 5 mm 13:55 esg = 9.961 m +/- 5 mm 14:00 esg = 10.013 m +/- 5 mm
12-Dec-2024	14:00	Staff gauge reading	On site to upgrade the logger from 3G to 4G. Met Blair Johnson from CCC on site to talk about adjusting the Miltronics radar (4-20, but he was unable to do so at the time. At 13:45 esg = 9.915 m +/- 5 mm

Visit date	Time	Measurement type	Remark
			13:50 esg = 9.930 m +/- 5 mm 13:55 esg = 9.961 m +/- 5 mm 14:00 esg = 10.013 m +/- 5 mm
14-Oct-2024	11:40	Staff gauge reading	Quarterly site visit. At 11:40 ESG = 9.239 m +/- 3 mm
04-Jul-2024	10:00	Staff gauge reading	At 10:00 ESG = 9.273 m +/- 5 mm
11-Apr-2024	13:55	Staff gauge reading	Routine quarterly site check. At 13:55: ESG = 9.495 m +/- 5 mm
11-Jan-2024	13:50	Staff gauge reading	Quarterly check. Cleaned base of ESG w/ shovel. Low-incoming tide. @ 13:50 ESG = 9.17 m +/- 5 mm

Sea-level Sumner Head (66699)

Visit date	Time	Measurement type	Remark
21-Oct-2024	13:45	Other field measurement	Quarterly site visit. Comments: Purged site at 13:45. Vaisala reference sensor 1012.96 hPa at 13:45. Solar panel clear of vegetation. Gas: 9500 kPa Flow: 230 kPa Bubble rate: 150/min All OK
04-Jul-2024	10:42	Other field measurement	Quarterly check. Purged gas line 10:39 - 10:41. Bubble rate following purge = 120/min. Gas level = 13000 Kpa (just below full). Vaisala ref pressure = 1024.94 hPa at 10:42.
22-Jan-2024	12:38	Other field measurement	Routine site visit. At 12:38 Baro = 1311 Ref Baro = 996.76 hPa (Vaisala) Purged gas line at 12:38. Bubble rate post-purge = 138 per min -> adjusted slightly. New rate = 115 per min. Gas dial 1 = near empty. Dail 2 - okay (Middle).

Le Bons Bay at Hughes culvert (67101)

Visit date	Time	Measurement type	Remark
17-Oct-2024	10:30	Staff gauge reading	Routine quarterly visit. At 10:30: ESG = 10.370 m +/- 3 mm Amazon = 10.371 m Replaced desiccant - was completely saturated. Only had blue to pink stuff in the truck so had to use that.
10-Jul-2024	12:18	Staff gauge reading	Routine quarterly check. Desiccant needed for Amazon (not swapped today as none in vehicle). At 12:18 ESG = 10.472 m +/- 3 mm Amazon = 10.471 m Battery volts = 13.4 v
16-Apr-2024	10:55	Staff gauge reading	Routine, quarterly check. At 10:55 ESG = 10.186 m +/- 3 mm Amazon = 10.187 m Culvert clear, no flow, looks to be backed up currently.
30-Jan-2024	11:15	Staff gauge reading	At 11:23 Amazon = 10.126 m ESG = 10.124 m +/- 3 mm All ok.

Akaroa Harbour sea level at Yacht Club wharf (67499)

Visit date	Time	Measurement type	Remark
17-Oct-2024	11:50	Other field measurement	Routine quarterly visit. Sea quite calm. Measurements to sea surface from washer pin (all made in quick succession around 11:50): 2.390, 2.390, 2.405, 2.400, 2.395, 2.405, 2.395 (all +/- 15 mm) Mean = 2.397 m Stage at 11:50 = 11.297 - 2.397 = 8.900 m +/- 15 mm Recorded stage = 8.889 Solar panel covered in bird poo. Cleaned off - bird spikes needed on top of panel, and light which sits above the panel.
10-Jul-2024	11:17	Other field measurement	Quarterly check. Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:18	Other field measurement	Quarterly check. Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:19	Other field measurement	Quarterly check. Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:20	Other field measurement	Quarterly check. Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:21	Other field measurement	Quarterly check. Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:22	Other field measurement	Quarterly check.

Visit date	Time	Measurement type	Remark
			Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:23	Other field measurement	Quarterly check.
			Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:24	Other field measurement	Quarterly check.
			Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
10-Jul-2024	11:25	Other field measurement	Quarterly check.
			Multiple readings taken over an 8 minute period. Readings taken at the wharf benchmark (11.297 m).
16-Apr-2024	10:16	Other field measurement	Routine, quarterly check.
			Swell present making observations difficult.
16-Apr-2024	10:22	Other field measurement	Routine, quarterly check.
			Swell present making observations difficult.
30-Jan-2024	09:34	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	09:37	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	09:39	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	09:40	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	09:42	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	09:46	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	10:13	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	10:15	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.
30-Jan-2024	10:17	Other field measurement	Quarterly visit.
			13 manual measurements taken, as it was very calm.

Visit date	Time	Measurement type	Remark
30-Jan-2024	10:19	Other field measurement	Quarterly visit. 13 manual measurements taken, as it was very calm.
30-Jan-2024	10:20	Other field measurement	Quarterly visit. 13 manual measurements taken, as it was very calm.
30-Jan-2024	10:21	Other field measurement	Quarterly visit. 13 manual measurements taken, as it was very calm.
30-Jan-2024	10:22	Other field measurement	Quarterly visit. 13 manual measurements taken, as it was very calm.

Knights Stream at Sabys Road (67806)

Visit date	Time	Measurement type	Remark
16-Oct-2024	10:09	Gauging	Quarterly site visit and 4G upgrade. At 09:30 ESG = 20.019 m +/- 3 mm PT = 20.015 m 09:31 - 09:40 cleared debris off control and around ESG. Cleaned and flushed PT. At 09:50 ESG = 20.012 m +/- 3 mm PT = 20.009 m At 09:55 ESG = 20.012 m +/- 3 mm PT = 20.009 m Flow starting to back up through culvert downstream of site from weed growth. Flowtracker 2 gauging ~ 2 m downstream of ESG. Q = 203.7 l/s. Uncertainty = 3.1%. At 10:20 ESG = 20.012 m +/- 3 mm PT = 20.009 m

Visit date	Time	Measurement type	Remark
			New 4G logger serial number: 48100426. Model: 3004-C000. At 11:25 ESG = 20.012 m +/- 3 mm PT = 20.009 m Site initialised at 11:30
16-Oct-2024	09:30	Staff gauge reading	Quarterly site visit and 4G upgrade. At 09:30 ESG = 20.019 m +/- 3 mm PT = 20.015 m 09:31 - 09:40 cleared debris off control and around ESG. Cleaned and flushed PT. At 09:50 ESG = 20.012 m +/- 3 mm PT = 20.009 m At 09:55 ESG = 20.012 m +/- 3 mm PT = 20.009 m Flow starting to back up through culvert downstream of site from weed growth. Flow tracker 2 gauging ~ 2 m downstream of ESG. Q = 203.7 l/s. Uncertainty = 3.1%. At 10:20 ESG = 20.012 m +/- 3 mm PT = 20.009 m New 4G logger serial number: 48100426. Model: 3004-C000. At 11:25 ESG = 20.012 m +/- 3 mm PT = 20.009 m

Visit date	Time	Measurement type	Remark
16-Oct-2024	09:50	Staff gauge reading	Site initialised at 11:30 Quarterly site visit and 4G upgrade. At 09:30 ESG = 20.019 m +/- 3 mm PT = 20.015 m 09:31 - 09:40 cleared debris off control and around ESG. Cleaned and flushed PT. At 09:50 ESG = 20.012 m +/- 3 mm PT = 20.009 m At 09:55 ESG = 20.012 m +/- 3 mm PT = 20.009 m Flow starting to back up through culvert downstream of site from weed growth. Flow tracker 2 gauging ~ 2 m downstream of ESG. Q = 203.7 l/s. Uncertainty = 3.1%. At 10:20 ESG = 20.012 m +/- 3 mm PT = 20.009 m New 4G logger serial number: 48100426. Model: 3004-C000. At 11:25 ESG = 20.012 m +/- 3 mm PT = 20.009 m
16-Oct-2024	09:55	Staff gauge reading	Site initialised at 11:30 Quarterly site visit and 4G upgrade. At 09:30

Visit date	Time	Measurement type	Remark
			ESG = 20.019 m +/- 3 mm PT = 20.015 m 09:31 - 09:40 cleared debris off control and around ESG. Cleaned and flushed PT. At 09:50 ESG = 20.012 m +/- 3 mm PT = 20.009 m At 09:55 ESG = 20.012 m +/- 3 mm PT = 20.009 m Flow starting to back up through culvert downstream of site from weed growth. Flow tracker 2 gauging ~ 2 m downstream of ESG. Q = 203.7 l/s. Uncertainty = 3.1%. At 10:20 ESG = 20.012 m +/- 3 mm PT = 20.009 m New 4G logger serial number: 48100426. Model: 3004-C000. At 11:25 ESG = 20.012 m +/- 3 mm PT = 20.009 m Site initialised at 11:30
16-Oct-2024	10:20	Staff gauge reading	Quarterly site visit and 4G upgrade. At 09:30 ESG = 20.019 m +/- 3 mm PT = 20.015 m 09:31 - 09:40 cleared debris off control and around ESG. Cleaned and flushed PT.

Visit date	Time	Measurement type	Remark
			At 09:50 ESG = 20.012 m +/- 3 mm PT = 20.009 m At 09:55 ESG = 20.012 m +/- 3 mm PT = 20.009 m Flow starting to back up through culvert downstream of site from weed growth. Flow tracker 2 gauging ~ 2 m downstream of ESG. Q = 203.7 l/s. Uncertainty = 3.1%. At 10:20 ESG = 20.012 m +/- 3 mm PT = 20.009 m New 4G logger serial number: 48100426. Model: 3004-C000. At 11:25 ESG = 20.012 m +/- 3 mm PT = 20.009 m Site initialised at 11:30
16-Oct-2024	11:25	Staff gauge reading	Quarterly site visit and 4G upgrade. At 09:30 ESG = 20.019 m +/- 3 mm PT = 20.015 m 09:31 - 09:40 cleared debris off control and around ESG. Cleaned and flushed PT. At 09:50 ESG = 20.012 m +/- 3 mm PT = 20.009 m At 09:55

Visit date	Time	Measurement type	Remark
			ESG = 20.012 m +/- 3 mm PT = 20.009 m Flow starting to back up through culvert downstream of site from weed growth. Flow tracker 2 gauging ~ 2 m downstream of ESG. Q = 203.7 l/s. Uncertainty = 3.1%. At 10:20 ESG = 20.012 m +/- 3 mm PT = 20.009 m New 4G logger serial number: 48100426. Model: 3004-C000. At 11:25 ESG = 20.012 m +/- 3 mm PT = 20.009 m Site initialised at 11:30
16-Oct-2024	10:09	Other field measurement	Quarterly site visit and 4G upgrade. At 09:30 ESG = 20.019 m +/- 3 mm PT = 20.015 m 09:31 - 09:40 cleared debris off control and around ESG. Cleaned and flushed PT. At 09:50 ESG = 20.012 m +/- 3 mm PT = 20.009 m At 09:55 ESG = 20.012 m +/- 3 mm PT = 20.009 m Flow starting to back up through culvert downstream of site from weed growth.

Visit date	Time	Measurement type	Remark
			Flow tracker 2 gauging ~ 2 m downstream of ESG. Q = 203.7 l/s. Uncertainty = 3.1%. At 10:20 ESG = 20.012 m +/- 3 mm PT = 20.009 m New 4G logger serial number: 48100426. Model: 3004-C000. At 11:25 ESG = 20.012 m +/- 3 mm PT = 20.009 m Site initialised at 11:30
02-Jul-2024	15:06	Gauging	Quarterly site visit and gauging. Observations: At 14:15 Staff gauge: 20.035 m ± 3 mm Pressure Transducer: 20.024 m Site comments: Cleaned staff gauge at pressure transducer. Removed branches and weeds off the control and channel upstream of the staff gauge. Observations: At 14:35 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.019 m Gauging comment: Gauged using YSI SonTek Flowtracker 1 m downstream of the staff gauge. Observations: At 13:50 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.020 m

Visit date	Time	Measurement type	Remark
02-Jul-2024	14:15	Staff gauge reading	Site comments: Pressure transducer desiccant OK. Quarterly site visit and gauging. Observations: At 14:15 Staff gauge: 20.035 m ± 3 mm Pressure Transducer: 20.024 m Site comments: Cleaned staff gauge at pressure transducer. Removed branches and weeds off the control and channel upstream of the staff gauge. Observations: At 14:35 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.019 m Gauging comment: Gauged using YSI SonTek Flowtracker 1 m downstream of the staff gauge. Observations: At 13:50 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.020 m
02-Jul-2024	14:35	Staff gauge reading	Site comments: Pressure transducer desiccant OK. Quarterly site visit and gauging. Observations: At 14:15 Staff gauge: 20.035 m ± 3 mm Pressure Transducer: 20.024 m

Visit date	Time	Measurement type	Remark
			Site comments: Cleaned staff gauge at pressure transducer. Removed branches and weeds off the control and channel upstream of the staff gauge. Observations: At 14:35 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.019 m Gauging comment: Gauged using YSI SonTek Flowtracker 1 m downstream of the staff gauge. Observations: At 13:50 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.020 m
02-Jul-2024	15:25	Staff gauge reading	Site comments: Pressure transducer desiccant OK. Quarterly site visit and gauging. Observations: At 14:15 Staff gauge: 20.035 m ± 3 mm Pressure Transducer: 20.024 m Site comments: Cleaned staff gauge at pressure transducer. Removed branches and weeds off the control and channel upstream of the staff gauge. Observations: At 14:35 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.019 m Gauging comment:

Visit date	Time	Measurement type	Remark
04-Apr-2024	11:48	Gauging	Gauged using YSI SonTek Flowtracker 1 m downstream of the staff gauge. Observations: At 13:50 Staff gauge: 20.017 m ± 3 mm Pressure Transducer: 20.020 m Site comments: Pressure transducer desiccant OK. Quarterly visit. At 11:23 ESG = 20.021 m +/- 3 mm PT = 20.013 m Cleared debris from around ESG/ control. Cleaned and flushed PT 11:20 - 11:30. At 11:30 ESG = 20.010 m +/- 3 mm PT = 20.009 m Flowtracker 2 gauging ~ 1 m downstream of ESG. Q = 198 l/s. uncertainty = 3.3%. Desiccant fine.
04-Apr-2024	11:23	Staff gauge reading	At 12:00 ESG = 20.011 m +/- 3 mm PT = 20.013 m Quarterly visit. At 11:23 ESG = 20.021 m +/- 3 mm PT = 20.013 m Cleared debris from around ESG/ control. Cleaned and flushed PT 11:20 - 11:30.

Visit date	Time	Measurement type	Remark
			At 11:30 ESG = 20.010 m +/- 3 mm PT = 20.009 m Flowtracker 2 gauging ~ 1 m downstream of ESG. Q = 198 l/s. uncertainty = 3.3%. Desiccant fine. At 12:00 ESG = 20.011 m +/- 3 mm PT = 20.013 m
04-Apr-2024	11:30	Staff gauge reading	Quarterly visit. At 11:23 ESG = 20.021 m +/- 3 mm PT = 20.013 m Cleared debris from around ESG/ control. Cleaned and flushed PT 11:20 - 11:30. At 11:30 ESG = 20.010 m +/- 3 mm PT = 20.009 m Flowtracker 2 gauging ~ 1 m downstream of ESG. Q = 198 l/s. uncertainty = 3.3%. Desiccant fine. At 12:00 ESG = 20.011 m +/- 3 mm PT = 20.013 m
04-Apr-2024	12:00	Staff gauge reading	Quarterly visit. At 11:23 ESG = 20.021 m +/- 3 mm PT = 20.013 m

Visit date	Time	Measurement type	Remark
			Cleared debris from around ESG/ control. Cleaned and flushed PT 11:20 - 11:30. At 11:30 ESG = 20.010 m +/- 3 mm PT = 20.009 m Flowtracker 2 gauging ~ 1 m downstream of ESG. Q = 198 l/s. uncertainty = 3.3%. Desiccant fine. At 12:00 ESG = 20.011 m +/- 3 mm PT = 20.013 m
04-Apr-2024	11:48	Other field measurement	Quarterly visit. At 11:23 ESG = 20.021 m +/- 3 mm PT = 20.013 m Cleared debris from around ESG/ control. Cleaned and flushed PT 11:20 - 11:30. At 11:30 ESG = 20.010 m +/- 3 mm PT = 20.009 m Flowtracker 2 gauging ~ 1 m downstream of ESG. Q = 198 l/s. uncertainty = 3.3%. Desiccant fine. At 12:00 ESG = 20.011 m +/- 3 mm PT = 20.013 m
01-Feb-2024	10:50	Gauging	Quarterly site visit. At 10:15 ESG = 20.070 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 20.059 m 10:15 - 10:25 cleared large amount of debris from the ESG and control. Cleaned and flushed the PT. At 10:30 ESG = 20.030 m +/- 3 mm PT = 20.032 m Flowtracker 2 gauging ~ 2 m downstream of ESG. Q = 235 l/s uncertainty = 3 %. At 11:05 ESG = 20.024 m +/- 3 mm PT = 20.026 m Replaced battery and desiccant 11:10 - 11:20. Site initialised fine and values seem good. At 11:30 ESG = 20.022 m +/- 3 mm PT = 20.024 m
01-Feb-2024	10:15	Staff gauge reading	Quarterly site visit. At 10:15 ESG = 20.070 m +/- 3 mm PT = 20.059 m 10:15 - 10:25 cleared large amount of debris from the ESG and control. Cleaned and flushed the PT. At 10:30 ESG = 20.030 m +/- 3 mm PT = 20.032 m Flowtracker 2 gauging ~ 2 m downstream of ESG. Q = 235 l/s uncertainty = 3 %. At 11:05

Visit date	Time	Measurement type	Remark
			ESG = 20.024 m +/- 3 mm PT = 20.026 m Replaced battery and desiccant 11:10 - 11:20. Site initialised fine and values seem good. At 11:30 ESG = 20.022 m +/- 3 mm PT = 20.024 m
01-Feb-2024	10:30	Staff gauge reading	Quarterly site visit. At 10:15 ESG = 20.070 m +/- 3 mm PT = 20.059 m 10:15 - 10:25 cleared large amount of debris from the ESG and control. Cleaned and flushed the PT. At 10:30 ESG = 20.030 m +/- 3 mm PT = 20.032 m Flowtracker 2 gauging ~ 2 m downstream of ESG. Q = 235 l/s uncertainty = 3 %. At 11:05 ESG = 20.024 m +/- 3 mm PT = 20.026 m Replaced battery and desiccant 11:10 - 11:20. Site initialised fine and values seem good. At 11:30 ESG = 20.022 m +/- 3 mm PT = 20.024 m
01-Feb-2024	11:05	Staff gauge reading	Quarterly site visit. At 10:15 ESG = 20.070 m +/- 3 mm

Visit date	Time	Measurement type	Remark
			PT = 20.059 m 10:15 - 10:25 cleared large amount of debris from the ESG and control. Cleaned and flushed the PT. At 10:30 ESG = 20.030 m +/- 3 mm PT = 20.032 m Flowtracker 2 gauging ~ 2 m downstream of ESG. Q = 235 l/s uncertainty = 3 %. At 11:05 ESG = 20.024 m +/- 3 mm PT = 20.026 m Replaced battery and desiccant 11:10 - 11:20. Site initialised fine and values seem good. At 11:30 ESG = 20.022 m +/- 3 mm PT = 20.024 m
01-Feb-2024	11:30	Staff gauge reading	Quarterly site visit. At 10:15 ESG = 20.070 m +/- 3 mm PT = 20.059 m 10:15 - 10:25 cleared large amount of debris from the ESG and control. Cleaned and flushed the PT. At 10:30 ESG = 20.030 m +/- 3 mm PT = 20.032 m Flowtracker 2 gauging ~ 2 m downstream of ESG. Q = 235 l/s uncertainty = 3 %. At 11:05

Visit date	Time	Measurement type	Remark
			ESG = 20.024 m +/- 3 mm PT = 20.026 m Replaced battery and desiccant 11:10 - 11:20. Site initialised fine and values seem good. At 11:30 ESG = 20.022 m +/- 3 mm PT = 20.024 m
01-Feb-2024	09:50	Other field measurement	Quarterly site visit. At 10:15 ESG = 20.070 m +/- 3 mm PT = 20.059 m 10:15 - 10:25 cleared large amount of debris from the ESG and control. Cleaned and flushed the PT. At 10:30 ESG = 20.030 m +/- 3 mm PT = 20.032 m Flowtracker 2 gauging ~ 2 m downstream of ESG. Q = 235 l/s uncertainty = 3 %. At 11:05 ESG = 20.024 m +/- 3 mm PT = 20.026 m Replaced battery and desiccant 11:10 - 11:20. Site initialised fine and values seem good. At 11:30 ESG = 20.022 m +/- 3 mm PT = 20.024 m

Heathcote at Lincoln Road (1066625)

Visit date	Time	Measurement type	Remark
01-Oct-2024	12:00	Staff gauge reading	Quarterly site visit. At 12:00 ESG = 20.485 m +/- 3 mm
08-Jul-2024	14:15	Staff gauge reading	On site to install ESG. Old PT pipe with RL of 21.280 m removed, and ESG installed in its place. At 14:15 ESG = 20.540 m +/- 3 mm
08-Jul-2024	10:05	Staff gauge reading	Quarterly check At 10:05 measured value 21.280 - 0.741 = 20.537 m
04-Apr-2024	12:25	Staff gauge reading	Quarterly visit. At 12:25 distance from top of pipe to water = 782 mm. 21.280 - 0.782 = 20.498 m +/- 3 mm
25-Jan-2024	10:15	Staff gauge reading	Quarterly site visit. At 10:15 Distance down from top of pipe to water = 0.749 m. 21.280 - 0.749 = 20.531 m Potential ESG location best next to metal pipe on true right.

Cashmere Stream at Eastman Wetland (1066632)

Visit date	Time	Measurement type	Remark
01-Oct-2024	11:35	Staff gauge reading	Quarterly site visit. Could not access site from Sparks Rd due to heavy machinery operating at road entry. Accessed site through gate down long drive off cashmere Rd (access to old site). There is a bridge over the stream which allows access almost directly to site. At 11:30 cleared away weeds from around the ESG. At 11:35 ESG = 17.738 m +/- 3 mm
12-Jul-2024	11:30	Staff gauge reading	Onsite to reboot NRL logger following a Vodafone outage. Firmware updated from version 48 to 52. At 11:30 ESG = 17.558 m +/- 3 mm
08-Jul-2024	09:10	Staff gauge reading	Quarterly check. Cleared a large amount of weed from off the ESG. At 09:10 ESG = 17.590 m +/- 3 mm
10-Apr-2024	14:45	Staff gauge reading	Quarterly site check. Removed weed build up from the ESG and end of PT pipe at 14:35 - 14:40. At 14:45 ESG = 17.389 m +/- 5 mm
01-Feb-2024	10:47	Staff gauge reading	On site to fix logger outage. Logger stopped transmitting on the 30th of January at 23:05. Connected to logger and found that it was logging correctly (date, time and data appeared to be ok). Downloaded data and attempted to reinitialise logger. This failed and a message was noted that the modem was unable to communicate with the server. Logger 401001622 exchanged.

Visit date	Time	Measurement type	Remark
			Swapped out logger and was able to initialize new logger (401001771). Removed weed from end of pt pipe. Noted that the stage values were changing and that NEON had updated with current data. At 10:47 ESG = 17.414 m At 11:05 ESG = 17.410 m
01-Feb-2024	11:05	Staff gauge reading	On site to fix logger outage. Logger stopped transmitting on the 30th of January at 23:05. Connected to logger and found that it was logging correctly (date, time and data appeared to be ok). Downloaded data and attempted to reinitialise logger. This failed and a message was noted that the modem was unable to communicate with the server. Logger 401001622 exchanged. Swapped out logger and was able to initialise new logger (401001771). Removed weed from end of pt pipe. Noted that the stage values were changing and that NEON had updated with current data. At 10:47 ESG = 17.414 m At 11:05 ESG = 17.410 m
12-Jan-2024	15:20	Staff gauge reading	Quarterly check. Large mat of grass floating in backwater in front of ESG. Shouldn't be affecting PT but just needs to be pulled back in order to read ESG. @ 15:20 ESG = 17.642 m Didn't check logger as didn't have security code for CCC cabinet.

St Albans Creek at Bishop St (1066635)

Visit date	Time	Measurement type	Remark
14-Oct-2024	12:23	Gauging	Quarterly visit. At 12:10 ESG = 14.116 m +/- 3 mm QSD = 14.116 m Cleared small amount of silt off sensor. Flowtracker 2 gauging ~1 m downstream of QSD. Q = 11.1 l/s. Uncertainty = 4.3%. At 12:30 ESG = 14.116 m +/- 3 mm QSD = 14.118 m
14-Oct-2024	12:10	Staff gauge reading	Quarterly visit. At 12:10 ESG = 14.116 m +/- 3 mm QSD = 14.116 m Cleared small amount of silt off sensor. Flowtracker 2 gauging ~1 m downstream of QSD. Q = 11.1 l/s. Uncertainty = 4.3%. At 12:30 ESG = 14.116 m +/- 3 mm QSD = 14.118 m
14-Oct-2024	12:30	Staff gauge reading	Quarterly visit. At 12:10 ESG = 14.116 m +/- 3 mm QSD = 14.116 m Cleared small amount of silt off sensor.

Visit date	Time	Measurement type	Remark
			Flowtracker 2 gauging ~1 m downstream of QSD. Q = 11.1 l/s. Uncertainty = 4.3%. At 12:30 ESG = 14.116 m +/- 3 mm QSD = 14.118 m
14-Oct-2024	12:23	Other field measurement	Quarterly visit. At 12:10 ESG = 14.116 m +/- 3 mm QSD = 14.116 m Cleared small amount of silt off sensor. Flowtracker 2 gauging ~1 m downstream of QSD. Q = 11.1 l/s. Uncertainty = 4.3%. At 12:30 ESG = 14.116 m +/- 3 mm QSD = 14.118 m
12-Jul-2024	13:05	Staff gauge reading	On site to reboot logger following NEON/telco outage. Logger downloaded, firmware also updated. At 13:05 ESG = 14.110 m +/- 3 mm
04-Jul-2024	14:41	Gauging	Quarterly check. At 14:30 ESG = 14.130 m +/- 3 mm Gauged using Flowtracker 2 At 14:52 ESG = 14.129 m +/- 3 mm
04-Jul-2024	14:30	Staff gauge reading	Quarterly check. At 14:30 ESG = 14.130 m +/- 3 mm Gauged using Flowtracker 2

Visit date	Time	Measurement type	Remark
04-Jul-2024	14:52	Staff gauge reading	At 14:52 ESG = 14.129 m +/- 3 mm Quarterly check. At 14:30 ESG = 14.130 m +/- 3 mm Gauged using Flowtracker 2
04-Jul-2024	14:41	Other field measurement	At 14:52 ESG = 14.129 m +/- 3 mm Quarterly check. At 14:30 ESG = 14.130 m +/- 3 mm Gauged using Flowtracker 2
21-May-2024	12:35	Gauging	At 14:52 ESG = 14.129 m +/- 3 mm High flow gauging. Best suitable section was at/ just upstream of QSD, possibly interrupted QSD readings. SxS gauging with StreamPro (small hull) on tagline, moved by hand. @ 12:25 ESG = 14.549 m +/- 2 mm QSD = 14.542 m @ 12:46 ESG = 15.543 m +/- 2 mm QSD = 26.539 m
21-May-2024	12:25	Staff gauge reading	High flow gauging. Best suitable section was at/ just upstream of QSD, possibly interrupted QSD readings. SxS gauging with StreamPro (small hull) on tagline, moved by hand. @ 12:25 ESG = 14.549 m +/- 2 mm

Visit date	Time	Measurement type	Remark
			QSD = 14.542 m @ 12:46 ESG = 15.543 m +/- 2 mm QSD = 26.539 m
21-May-2024	12:46	Staff gauge reading	High flow gauging. Best suitable section was at/ just upstream of QSD, possibly interrupted QSD readings. SxS gauging with StreamPro (small hull) on tagline, moved by hand. @ 12:25 ESG = 14.549 m +/- 2 mm QSD = 14.542 m @ 12:46 ESG = 15.543 m +/- 2 mm QSD = 26.539 m
16-Apr-2024	12:24	Gauging	Quarterly site visit. At 12:10 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Cleared debris off QSD. At 12:15 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Flowtracker 2 gauging ~ 1 m downstream of QSD. Q = 9.226 L/s. Uncertainty = 4.2%. At 12:30 ESG = 14.109 m +/- 3 mm QSD = 14.110 m
16-Apr-2024	12:10	Staff gauge reading	Quarterly site visit. At 12:10

Visit date	Time	Measurement type	Remark
			ESG = 14.109 m +/- 3 mm QSD = 14.110 m Cleared debris off QSD. At 12:15 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Flowtracker 2 gauging ~ 1 m downstream of QSD. Q = 9.226 L/s. Uncertainty = 4.2%. At 12:30 ESG = 14.109 m +/- 3 mm QSD = 14.110 m
16-Apr-2024	12:15	Staff gauge reading	Quarterly site visit. At 12:10 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Cleared debris off QSD. At 12:15 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Flowtracker 2 gauging ~ 1 m downstream of QSD. Q = 9.226 L/s. Uncertainty = 4.2%. At 12:30 ESG = 14.109 m +/- 3 mm QSD = 14.110 m
16-Apr-2024	12:30	Staff gauge reading	Quarterly site visit. At 12:10 ESG = 14.109 m +/- 3 mm QSD = 14.110 m

Visit date	Time	Measurement type	Remark
			Cleared debris off QSD. At 12:15 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Flowtracker 2 gauging ~ 1 m downstream of QSD. Q = 9.226 L/s. Uncertainty = 4.2%. At 12:30 ESG = 14.109 m +/- 3 mm QSD = 14.110 m
16-Apr-2024	12:24	Other field measurement	Quarterly site visit. At 12:10 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Cleared debris off QSD. At 12:15 ESG = 14.109 m +/- 3 mm QSD = 14.110 m Flowtracker 2 gauging ~ 1 m downstream of QSD. Q = 9.226 L/s. Uncertainty = 4.2%. At 12:30 ESG = 14.109 m +/- 3 mm QSD = 14.110 m
22-Jan-2024	10:45	Staff gauge reading	Routine visit. @ 10:45 ESG = 14.112 m +/- 2 mm Stage on logger only reporting sensor depth (zero stage offset applied). Scheme updated by Jeremy back at office with offset +13.984 m.

Appendix B CCC site logging frequency as at 31 December 2024

Table B-1: Site logging frequency as at 31 December 2024.

Code	Site no.	Location	Parameter	Method	Read int	Comments
SBK	324606	Harbour Rd, Brooklands	Rainfall	Telemetry	5 Min	
SSP	324607	Lower Styx Rd, Brooklands	Rainfall	Telemetry	5 Min	
SBE	324608	PS 62, Tyrone St, Belfast	Rainfall	Telemetry	5 Min	
ABR	324610	Firestone Factory, Papanui	Rainfall	Telemetry	5 Min	
XTE	325403	PS 80, Templeton	Rainfall	Telemetry	5 Min	
ARI	325507	College of Education	Rainfall	Telemetry	5 Min	
HWE	325508	Wigram Retention Pond, Wigram	Rainfall	Telemetry	5 Min	
HHA	325510	Halswell Retention Basin Hals. Jctn.Rd	Rainfall	Telemetry	5 Min	
ABO	325626	Botanic Gardens, Hagley Park	Rainfall	Telemetry	5 Min	
ALA	325617	PS 205, New Brighton Rd	Rainfall	Telemetry	5 Min	
HHN	325618	PS 42, Sparks Rd, Spreydon	Rainfall	Telemetry	5 Min	
HTU	325619	Tunnel Rd Heathcote River	Rainfall	Telemetry	5 Min	
HSI	325621	Bowenvale Flume, Bowenvale Valley	Rainfall	Telemetry	5 Min	
XSU	325711	Van Asch St, Sumner	Rainfall	Telemetry	5 Min	
XCL	325712	Reservoir #4, Clifton	Rainfall	Telemetry	5 Min	
HSK	326616	Upper Bowenvale Valley	Rainfall	Telemetry	5 Min	
SBK	66422	Harbour Rd, Brooklands	Waterlevel	Telemetry	5 Min	
SSP	66423	Lower Styx Rd, Brooklands	Waterlevel	Telemetry	5 Min	
SRF	66425	Radcliffe Rd, Styx River	Waterlevel, Flow	Telemetry	5 Min	ECan shared site
SBL	66440	Tidegates (below), Styx River	Waterlevel	Telemetry	5 Min	
	66443	Kaputone Creek, Guthries Rd	Waterlevel, Flow	Telemetry	5 Min	
	66446	Prestons Subdivision, Lower Styx Rd	Waterlevel, Flow	Telemetry	5 Min	
	66447	Otukaikino Stream, Dickeys Rd	Waterlevel, Flow	Telemetry	5 Min	
AGL	66602	Gloucester St, Avon River	Waterlevel, Flow	Telemetry	5 Min	ECan shared site
HFM	66605	Ferrymead Bridge, Heathcote River	Waterlevel	Telemetry	5 Min	
HFE	66609	Ferniehurst St Bridge, Heathcote River	Waterlevel, Flow	Telemetry	5 Min	

Code	Site no.	Location	Parameter	Method	Read int	Comments
ALA	66611	PS 205, New Brighton Rd	Waterlevel	Telemetry	5 Min	
HBX	66612	Buxton Tce, Heathcote River	Waterlevel, Flow	Telemetry	5 Min	ECan shared site
	66621	Riccarton Drain at Deans Ave	Waterlevel, Flow	Telemetry	5 Min	
	1066625	Heathcote at Lincoln Rd	Waterlevel	Telemetry	5 Min	
AEB	66634	Bridge St, Avon River	Waterlevel	Telemetry	5 Min	
ALB	66635	Horseshoe Lake, New Brighton Rd	Waterlevel	Telemetry	5 Min	
HOP	66638	Opawa Bridge, Heathcote River	Waterlevel	Telemetry	5 Min	
HSI	66639	Bowenvale Flume, Bowenvale Valley	Waterlevel, Flow	Telemetry	5 Min	
HHA	66641	Halswell Retention Basin Hals. Jctn.Rd	Waterlevel	Telemetry	5 Min	
HWE	66642	Wigram Retention Pond, Wigram	Waterlevel	Telemetry	5 Min	
	66695	Heathcote River, Bells Pumpstation	Waterlevel	Telemetry	5 min	
KNI	67806	Knights Stream, Sabys Rd	Waterlevel	Telemetry	5 Min	
CDR	66651	Croziers Drain, Philpotts Rd	Waterlevel	Telemetry	5 Min	
	66654	Wairarapa Stream, Rossall St	Waterlevel	Telemetry	5 Min	
	66670	Avon River, Fitzgerald Ave	Waterlevel	Telemetry	5 Min	
	66682	Cashmere Stream, Worsleys Reserve	Waterlevel, Flow	Telemetry	5 Min	
	66692	Hoonhay Valley drain, Cashmere Rd	Waterlevel	Telemetry	5 Min	
FOR	67603	Lake Forsyth	Waterlevel	Telemetry	5 Min	ECan shared site
AAY	3245014	Roydvale Ave near Wairakei, Bryndwr	Groundwater	Manual	Fortnightly	
SFB	3245015	Fairford St, opp Oldwood, Bishopdale	Groundwater	Manual	Fortnightly	
SBE	3246004	PS62, Tyrone St, Belfast	Groundwater	Manual	Fortnightly	
SDA	3246005	Dartford St, Brooklands	Groundwater	Telemetry	5 min	
SF1	3246006	Lower Styx Rd, Brooklands	Groundwater	Manual	Fortnightly	
BIN	3247004	No 134 Inwoods Rd, Parklands	Groundwater	Manual	Fortnightly	
ARC	3255007	Kirkwood Int. School, Riccarton Rd	Groundwater	Manual	Fortnightly	
ARI	3255008	College of Education, Upper Riccarton	Groundwater	Manual	Fortnightly	
HHA	3255009	PS 67, Halswell Jctn Rd	Groundwater	Telemetry	5 Min	

Code	Site no.	Location	Parameter	Method	Read int	Comments
HSX	3255010	Sparks Rd, Spreydon	Groundwater	Manual	Fortnightly	
HFI	3256014	Fisher Ave/Norwood St, St Martins	Groundwater	Manual	Fortnightly	
HGO	3256016	Gould Crs, Woolston	Groundwater	Manual	Fortnightly	
HHN	3256017	PS 42, Sparks Rd, Spreydon	Groundwater	Manual	Fortnightly	
HLR	3256018	PS 20, Locarno St, St Martins	Groundwater	Manual	Fortnightly	
AWO	3256034	PS 1, Woodham Rd, Aranui	Groundwater	Manual	Fortnightly	
XRU	3257024	Ruru Rd, Bexley	Groundwater	Manual	Fortnightly	
	3257031	Sumner groundwater bore	Groundwater	Telemetry	5 min	
ABO	325626	Botanic Gardens, Hagley Park	Temperature	NIWA	Hourly	Data transfer only
AKA	328905	Akaroa EWS rain, Stanley Reserve	Rainfall	NIWA	10 Min	Data transfer only
XSL	66699	Sumner Head, Sumner	Sea Level	NIWA	5 Min	Data transfer only
	67499	Akaroa Harbour sea level at yacht club	Sea Level	Telemetry	1 Min	
AP2	3246016	Marshland Domain	Groundwater	Manual	Weekly	
AQO	3240618	QEll Drive away from #2 Drain	Groundwater	Manual	Weekly	
HCX	3255011	Cashmere/Kennedys Rd	Groundwater	Manual	Weekly	
HCY	3255012	Cashmere Rd	Groundwater	Manual	Weekly	
HHL	3255013	Halswell Rd PS	Groundwater	Manual	Weekly	
HHM	3255014	Haytons Rd	Groundwater	Manual	Fortnightly	
HHX	3255015	Hendersons Rd	Groundwater	Manual	Weekly	
HSH	3255016	Milns/Sparks Rd	Groundwater	Manual	Weekly	
NDW	3255017	Whincops Rd	Groundwater	Manual	Fortnightly	
NHG	3255018	Hodgens Rd	Groundwater	Manual	Fortnightly	
NK2	3255019	Quarry carpark No 2	Groundwater	Manual	Fortnightly	
XKA	323605	Kaiapoi - 42A Peraki St	Rainfall	Data handling	5 Min	Data transfer only
HAI	325512	Aidenfield, Dunbars Reservoir	Rainfall	Telemetry	5 Min	
4960	327804	4960 CHCH-Akaroa Hwy	Rainfall	Telemetry	5 Min	
	327504	Duvauchelle CWS	Rainfall, temp	Telemetry	10 Min	
HDR	66471	Horners Drain	Waterlevel, Flow	Datalogger	5 Min	
Code	Site no.	Location	Parameter	Method	Read int	Comments
DUD	66639	Dudley Creek, Aylesford St	Waterlevel, Flow	Telemetry	5 Min	
CAP	66694	Cashmere Valley Drain, Christchurch Adventure Park	Waterlevel, Flow	Telemetry	5 Min	

Code	Site no.	Location	Parameter	Method	Read int	Comments
	1066632	Cashmere Stream at Eastman Wetland	Waterlevel	Telemetry	5 Min	
	67002	Opara Stream at Okains Bay	Rainfall	Telemetry	5 Min	

Appendix C CCC hydrometric network asset list field structures and equipment

Table C-1: CCC hydrometric network asset list by site.

CCC Hydrometric network Asset List as at: 31 December 2024			Structures					Instrumentation																				Other equipment							
			Precast shed	Raingauge tower	Stilling well	Stilling well	Instrument housing	Raingauge	Raingauge	Eco-logger	Hydrologger	Neon NRT logger	WL Recorders	Flowmeter	WL Recorders	WL Recorders	WL Recorders	WL Recorders	WL Recorders	WL Recorders	WQ sensor	Soil Moisture sensor	Aerial	Comm's	Battery 12V	Battery Charger	Solar panel 20W	Solar strip 2W	Staff gauge	Alert service	Ground water bore	Mains power	Instrument protective box		Site co-ordinates	Site co-ordinates
Site number	Station site name	Type	concrete		concrete / steel	PVC	Metal	Scott Technical TB3 (0.2mm)	OSK OTA (0.2mm)	NIWA	NIWA	Neon NRT	Waterwatch	Starflow QSD	Vega ultrasonic	PumpPro bubbler	Vented Pressure transducer	PT12 or PT2X	Milltronic ultrasonic probe	Observator Turbidity	Envirpro 80cm	Whip	Harvest modem GPRS			Solar power	Solar power		Rain or Level Alarm		Power supply		Asset Value per Site	Easting (NZMG)	Northing (NZMG)
	Approximate valuation ($ per item)		500	500	500	500	600	1800	1800	1200	1600	1200	1600	3000	2850	3800	2500	2500	2250	2500	1000	150	900	150	150	260	100	150		1000	300	250			
66422	Harbour Rd, Brooklands	water level	1			1	1				1											1	1	1	1			1			1		5000	2485000	5756300
324606	Harbour Rd, Brooklands	rainfall		1				1																									2300	2485000	5756300
66440	Tidegates (below), Styx River	water level				1	1				1				1							1		1				1			1		6300	2485000	5756600
66423	Lower Styx Rd, Spencerville	water level	1									1					1					1		1	1			1			1		5100	2484300	5751400
324607	Lower Styx Rd, Spencerville	rainfall		1				1																									2300	2484300	5751400
66425	Radcliffe Rd, Styx River	water level	1		^1		^1																					^1			1		800	2481700	5749000
66471	Horners drain, Prestons road	water level					1					1					1							1				1				1	4850	2481105	5748030
66605	Ferrymead Bridge, Heathcote River	water level					1					1							1			1		2	1			1			1		5100	2486500	5738700
66609	Ferniehurst St Bridge, Heathcote River	water level	1		1						1											1		2				1			1		3500	2479100	5737200
66611	PS 205, New Brighton Rd	water level			1	1						1			1								1	1	1			1					6400	2484300	5744800
66612	Buxton Tce, Heathcote River	water level			^1		^1																					^1			1		300	2481555	5738475
66621	Riccarton Drain at Deans Ave	water level											1															1					1750	2478689	5741274
325617	PS 205, New Brighton Rd	rainfall						1																									1800	2484200	5744900
66635	Horseshoe Lake, New Brighton Rd	water level			1		1				1	1										1	1	1	1			1					5400	2484200	5744900
66634	Bridge St, Avon River	water level					1					1							1			1		1	1			1			1		4950	2487600	5742400
66636	Dudley Creek, Aylesford St	water level				1	1					1						1						1		1		1	1				5360	2481691	5744943
66638	Opawa Rd Bridge, Heathcote River	water level					1					1				1						1		1	1	1		1	1				6460	2483000	5739000

Table continued on next page.

Table C-2: CCC hydrometric network asset list by site (cont.).

66639	Bowenvale Flume, Bowenvale Valley	water level	1								1											1	1	1	1			1			1		3900	2481500	5736200
325621	Bowenvale Flume, Bowenvale Valley	rainfall		1				1																					1				2300	2481500	5736200
326616	Upper Bowenvale Valley	rainfall					1	1		1											1	1	1	1		1			1			1	6310	2481700	5734100
66641	Halswell Retention Basin, Hals.Jctn.Rd	water level					1					1							1					1	1			1			1		4800	2471800	5738400
325510	Halswell Retention Basin, Hals.Jctn.Rd	rainfall						1																									1800	2471800	5738400
3255009	PS 67, Hals.Jctn.Rd	groundwater															1													1		1	3750	2471800	5738400
66642	Wigram Retention basin (Overflow)	water level	1									1				1								1	1			1			1		6250	2475900	5739200
66625	Wigram Retention basin (Outflow)	water level					1									1								1		1		1					4960	2475900	5739200
66625	Heathcote River at Wigram basin	water level					1					1						1				1		1		1		1				1	5260	2475900	5739200
325508	Wigram Retention Pond, Wigram	rainfall		1				1																								1	2550	2475900	5739200
1066625	Heathcote at Lincoln Rd	water level					1					1			1									1	1			1	1		1		5400	2477266	5739247
1066632	Cashmere Stream at Eastman Wetland	Water level					1					1					1					1		2		1		2					5310	2477122	5735791
324608	PS 62, Tyrone St, Belfast	rainfall						1				1												1	1				1		1		3600	2480700	5751500
3246004	PS 62, Tyrone St, Belfast	groundwater																												1			1000	2480700	5751500
325618	PS 42, Sparks Rd, Spreydon	rainfall						1		1												1	1	1	1				1		1		4650	2477900	5737700
3256017	PS 42, Sparks Rd, Spreydon	groundwater																												1			1000	2477900	5737700
966602	Gloucester Street, Avon River	water level			^1		^1																	^1				^1			1		300	2480478	5741944
325512	Aidenfield, Dunbars reservoir	rainfall						1				1										1		1		1						1	3810	2475200	5736900
323605	Kaiapoi - 42A Peraki St	rainfall(WDC)						^^^1																									3810	2481800	5758000
324610	Firestone Factory, Papanui	rainfall					1	1				1												1		1							4010	2478000	5746100
325403	PS 80 site, Templeton	rainfall						1				1										1		1	1						1		3750	2466700	5740100
325507	College of Ed., Upper Riccarton	rainfall						1														1	1	1	1						1		3450	2474900	5742600
325626	Botanic Gardens, Hagley Park	rainfall					1		1															1								1	2800	2479200	5741900
325619	Tunnel Rd, Heathcote River	rainfall	1	1				1														1	1	1	1			1			1		4600	2485000	5739100
325711	Van Asch St, Sumner	rainfall					1	1				1										1		1			1						4000	2490300	5736300
325712	Reservoir #4, Clifton	rainfall					1	1				1												1	1						1		4200	2489000	5736600

Table continued on next page.

Table C-3: CCC hydrometric network asset list by site (cont.).

327804	4960# CHC - Akaroa Hwy	rainfall					1	1				1									1			1		1			1				5010	2497608	5717460
66651	Croziers Drain, PS219 Philpott's Rd	water level				1	1					1						1						1		1		1	1				5360	2480260	5745858
67603	Lake Forsyth	water level			^1		^1															1					^1					150	2488792	5711922
67806	Knights Stream, Sabys Rd	water level				1	1					1						1						1		1		1					5360	2473707	5734509
66443	Kaputone Creek, Gutheries Rd	water level										1						1						1		1		1				1	4510	2482013	5751752
66446	Prestons subdivision flow	water level					1					1		1								1		1		1		1					5510	2482828	5749655
66447	Otukaikino Stream, Dickeys Rd	water level											1															1					1750	2480431	5752369
66654	Wairarapa Stream, Rossal St	water level										1						1						1		1		1				1	4510	2478549	5743566
66670	Avon River, Fitzgerald Ave	water level										1						1						1		1		1	1			1	4510	2481776	5742292
66682	Cashmere Stream, Worsleys Rd	water level										1						1		1				1		1		1				1	7010	2479000	5736780
66692	Hoon Hay Valley drain, Cashmere Rd	water level										1						1		1				1		1		1				1	7010	2477379	5735520
66695	Heathcote River at Bells Pump Station	water level			1		1					1												1				1					2600	2483950	5740000
328905	Akaroa EWS rain	rainfall					^^1	^^1																^^1		^^1								2507255	5710895
66699	Scarborough, Sumner sea level	sea level	^^1													^^1								^^1		^^1								2491840	5737550
67002	Opara Stream at Okains Bay	rainfall					1		1			1												1	1							3900	2511302	5720425
1066632	Cashmere Stream at Eastman wetland	water level					1					1						1						1		1		1				1	5110	2477121	5736216
67499	Akaroa Harbour sea level	sea level					1					1			1									1		1		1				1	5460	2506554	5710638
3245014	Roydvale Ave near Wairakei, Bryndwr	groundwater																												1			1000	2474800	5746200
3245015	Fairford St, opp Oldwood, Bishopdale	groundwater																												1			1000	2476200	5747100
3246005	Dartford St, Brooklands	groundwater										1						1						1		1				1		1	5360	2485400	5755500
3246006	Lower Styx Track, Burwood Forest	groundwater																												1			1000	2484200	5750400
3246007	Mairehau Rd, near Greenhaven	groundwater																												1			1000	2483900	5747000
3246016	Marshland Domain	groundwater																												1			1000	2483100	5748000
3246018	QE II Drive away from #2 Drain	groundwater																												1			1000	2483300	5746300
3247004	No 134 Inwoods Rd, Parklands	groundwater																												1			1000	2486000	5748100
3255007	Kirkwood Int. School, Riccarton Rd	groundwater																												1			1000	2476400	5741700
3255010	Sparks Rd, Spreydon	groundwater																												1			1000	2476800	5737100
3255011	Cashmere/Kennedys Rd	groundwater																												1			1000	2475400	5734500
3255012	Cashmere Rd	groundwater																												1			1000	2477400	5735400
3255013	Halswell Rd PS	groundwater																												1			1000	2475200	5736800
3255042	Wigram Rd	groundwater																												1			1000	2475021	5739206
3255015	Hendersons Rd	groundwater																												1			1000	2477200	5737000
3255016	Milns/Sparks Rd	groundwater																												1			1000	2476000	5736000
3255017	Whincops Rd	groundwater																												1			1000	2472700	5735600
3255018	Hodgens Rd	groundwater																												1			1000	2471100	5736900
3255019	Quarry carpark No 2	groundwater																												1			1000	2475800	5734200
3256014	Fisher Ave/Norwood St, St Martins	groundwater																												1			1000	2481200	5738500
3256016	Gould Cres, Woolston	groundwater																												1			1000	2484800	5739100
3256018	PS 20, Locarno St, St Martins	groundwater																												1			1000	2482400	5739300
3256034	PS 1, Woodham Rd, Aranui	groundwater																												1			1000	2484300	5742400
3257023	Ruru Rd, Bexley	groundwater																												1			1000	2486100	5741200
3257031	Sumner, Cnr Wakefield & Nayland	groundwater										1					1							1		1				1	1	5360	2490534	5737541

Table continued on next page.

Table C-4: CCC hydrometric network asset list by site (cont.).

Table continued from previous page.

			Structures					Instrumentation																					Other equipment				
			Precast shed	Raingauge tower	Stilling well	Stilling well	Instrument housing	Rain gauge	Rain gauge	Eco-logger	Hydrologger	Neon NRT logger	WL Recorders	Flowmeter	WL records	WL Recorders	WL Recorders	WL Recorders	WL Recorders	WL Recorders	WQ sensor	Soil Moisture sensor	Aerial	Comm's	Battery 12V	Battery Charger	Solar panel 20W	Solar strip 2W	Staff gauge	Alert service	Ground water bore	Mains power	Instrument protective box
Site number	**Station site name**	**Type**	concrete		concrete / steel	PVC	Metal	Scott Technical TB3 (0.2mm)	OSK OTA (0.2mm)	NIWA	NIWA	Neon NRT	Waterwatch	Starflow QSD	Vega ultrasonic	PumpPro bubbler	Greenspan transducers	Aquistar PT2X	Milltronic ultrasonic probe	Observator Turbidity	Envirpro	Whip	Harvest modem GPRS			Solar power	Solar power		Rain or Level Alarm		Power supply	
	Telemetry Base Virtual server	base station																															
TOTALS			**7**	**5**	**4**	**6**	**26**	**17**	**2**	**2**	**5**	**34**	**2**	**1**	**4**	**3**	**5**	**11**	**3**	**2**	**2**	**20**	**8**	**47**	**18**	**21**	**1**	**31**	**10**	**28**	**19**	**16**
	Water level sites	34																															
	Rainfall sites	20																															
	Groundwater sites	28																															
	Event Alarm sites	10																															
	Virtual Base station	1																															
Total value $	Accumulated Value		3500	2500	2000	3000	15600	30600	3600	2400	8000	40800	1600	3000	11400	11400	12500	27500	6750	5000	2000	3000	7200	7050	2700	5460	100	4650	0	28000	5700	4000
	TOTAL ASSET VALUE	**$261,010**																															

notes:

^ property belonging to Ecan identified under 'Site sharing ' agreements and not included in this CCC valuation

^^ property belonging to NIWA under a NIWA/ Ecan / CCC co-funded sites and not included in this CCC valuation

^^^ property belonging to WDC with data sharing. Not included in this CCC valuation

Appendix D CCC alarm list

Table D-1: CCC site alarm list.

Action message alarms

Site Name	Site Number	Alarm Generation	Alarm type	trigger	reset	message	email recipients	SMS Recipients Mobile Phone Numbers
Dudley Creek at Aylesford Street - Water level	66636	NEON	Instantaneous High	12.500	12.450	Dudley Creek at Aylesford St warning level (>12.500m)	iris.brookland@ccc.govt.nz;fieldteam-christchurch@niwa.co.nz;mark.mullen@ccc.govt.nz	+64274362666;+64272093560;+64272941992
			Instantaneous High	12.700	12.500	Dudley Creek at Aylesford St high stage alarm (>12.700m)		
Heathcote River at Opawa Road - Water level	66638	NEON	Instantaneous High	10.600	10.400	Heathcote River at Opawa Road >RL 10.60m Possible Aynsley Tce flooding	fieldteam-christchurch@niwa.co.nz;mark.pinner@ccc.govt.nz;Chris.Keith-Gillon@tfc.govt.nz;incident@tfc.govt.nz;iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz	+64272160925;+64272093560;+640274362666;+64272941992
			Instantaneous High	10.750	10.600	Heathcote River at Opawa Road >RL 10.75m Flooding on Aynsley Tce !		
Croziers Drain at Philpots Road, PS219	66651	NEON	Instantaneous High	13.700	13.500	High Stage. Croziers drain >13.700m	graham.harrington@ccc.govt.nz; iris.brookland@ccc.govt.nz	+64272093560;+64274362666
Avon River at Fitzgerald Ave - Water level	66670	NEON	Instantaneous High	10.840	10.740	WARNING. Avon River level within 200mm of Fitzgerald Ave	fieldteam-christchurch@niwa.co.nz;mark.pinner@ccc.govt.nz;Chris.Keith-Gillon@tfc.govt.nz;incident@tfc.govt.nz;iris.brookland@ccc.govt.nz;graham.harrington@ccc.govt.nz	+64273416112;+64274362666;+64272160925;+64272093560;+64272941992
			Instantaneous High	11.040	10.940	ALERT: Avon River at or above Fitzgerald Ave. Lane closures may be necessary		
Van Asch Rain - 4hr period	325711	NEON	Incremental High	8	5	Rainfall in Sumner > 8 mm, possible flooding in Marriner Street if outfall has not been cleared in previous low tide	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560;+64272941992
Firestone FactoryRain - 24h period	324610	NEON	Incremental High	35	15	Rainfall in Flockton basin > 35mm, may need to deploy pump in Warrington Street	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560;+64272941992
Heathcote at Ferrymead bridge - water level	66605	NEON	Instaneous High	10.700	10.400	Water level at Ferrymead Bridge > 10.7m. Possible road flooding in McCormacks Bay Road	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560;+64272941992
Le Bons Bay - Huges Culvert Rising level alarm	67101	NEON	Instaneous High	11.000	10.900	WARNING: Le Bons Bay Hughes culvert - water level rising.	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272093560;+64272730482
Le Bons Bay - Huges Culvert High level alarm	67101	NEON	Instaneous High	11.200	10.900	Le Bons Bay Hughes culvert high water level - may require clearance or maintenance.	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272093560;+64272730482
Ruru Rd groundwater High	3257024	AQUARIUS multi-parameter alert	High	Rain >20mm (4hr) and Groundwater >13.400m		Rainfall in Maces Road > 20mm, may need pump in Maces Road	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560
Ruru Rd groundwater High (2)	3257024	AQUARIUS multi-parameter alert	High	(24hr) and Groundwater >13.200m		Rainfall in Ebbtide Street > 30mm, may need to deploy pump in Ebbtide Street	iris.brookland@ccc.govt.nz;mark.mullen@ccc.govt.nz;marty.flanagan@niwa.co.nz	+64274362666;+64272941943;+64272093560

12 hour period rain alarms

Botanic Gardens - High Rain 12hr period	325616	NEON	Incremental	25	15	Botanic Gardens >25mm in 12hrs	iris.brookland@ccc.govt.nz;gijs.hovens@ccc.govt.nz;ian.baker@ccc.govt.nz	+64274362666;+64272093560;+64272013186;+64272083236
Upper Cashmere at Worsley Rd - High Rain 12hr period	326617	NEON	Incremental High	10	5	Upper Cashmere @ Worsley Rd Rain >10mm	t.hill@niwa.co.nz;duncan.harvest@ecan.govt.nz;nick.moody@ecan.govt.nz	
Akaroa EWS - High Rain 12hr period	328905	NEON	Incremental High	50	30	Akaroa Rainfall >50mm in 12hrs	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz	+64274362666;+64272730482;+64272093560
Akaroa CHCH Highway (Wairewa) - High Rain 12hr period	327804	NEON	Incremental High	50	30	Wairewa Rainfall >50mm in 12hrs	iris.brookland@ccc.govt.nz;tim.ayers@ccc.govt.nz	+64274362666;+64272730482;+64272093560
PS62 Tyrone St, Belfast - High Rain 12hr period	324608	NEON	Incremental High	10	5	Tyrone St Rain >10mm	brad.paterson@ecan.govt.nz	

Table D-2: CCC site alarm list (cont.).

24 hour period rain alarms								
PS42 Sparks Rd - High Rain 24hr period	325618	NEON	Incremental High	10	6	Sparks Rd Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Sparks Rd Rain >20mm	SlopeSafety@engeo.co.nz	
Bowenvale flume - High Rain 24hr period	325621	NEON	Incremental High	10	6	Bowenvale Flume Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Bowenvale Flume Rain >20mm	SlopeSafety@engeo.co.nz	
Upper Bowenvale - High Rain 24hr period	326616	NEON	Incremental High	10	6	Upper Bowenvale Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Upper Bowenvale Rain >20mm	SlopeSafety@engeo.co.nz	
Kyle Street - High Rain 24hr period	325615	NEON	Incremental High	10	6	Kyle St Rain >10mm	GOddy@Engeo.co.nz;amber.doyle@christchurchadventurepark.com;kevin.manson@niwa.co.nz	
			Incremental High	20	16	Kyle St Rain >20mm	SlopeSafety@engeo.co.nz	
Sumner High Tide Forecast	966699	EcoConnect	High	10.6			Paul.dickson@ccc.govt.nz	+64274959528
CCC Sumner sealevel forecast - Tide Alert		Webportal Tide forecast	High	10.6			Peter.Christensen@ccc.govt.nz	+64223422164
							Incident@tfc.govt.nz	
							~~Keith.Davisen@ccc.govt.nz~~	~~+64272083123~~
							Mark.pinner@ccc.govt.nz	
							Chris.Keith-Gillon@tfc.govt.nz	
							Tom.Parsons@ccc.govt.nz	+64274777828
							Iris.brookland@ccc.govt.nz	+64274362666;+64272093560
							Mark.Mullen@ccc.govt.nz	
							Tom.SimonsSmith@ccc.govt.nz	
CCC Park Ranger - Tide Alert		Webportal Tide forecast	High	10.6		CCC Park Rangers - Beacon Street Alert	Graham.harrington@ccc.govt.nz	+273416442
							kate.dawkins@ccc.govt.nz	
							Robbie.hewson@ccc.govt.nz	+274592891
							Steve.lejataua@ccc.govt.nz	+64272267450
Water Supply Contamination Risk Management Alerts								
Akaroa EWS - High Rain 12hr period	328905	NEON	Incremental High	25	15	Akaroa EWS Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Akaroa CHCH Highway (Wairewa) - High Rain 12hr period	327804	NEON	Incremental High	25	15	Wairewa Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Duvauchelles CWS - High Rain 12hr period	327902	NEON	Incremental High	25	15	Duvauchelles CWS Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Okains Bay at Opara Stream - High Rain 12hr period	67002	NEON	Incremental High	25	15	Okains Bay Rainfall >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Botanic Gardens - High Rain 12hr period	325616	NEON	Incremental High	25	15	Botanic Gardens >25mm in 12hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Akaroa EWS - High Rain 24hr period	328905	NEON	Incremental High	50	30	Akaroa EWS Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Akaroa CHCH Highway (Wairewa) - High Rain 24hr period	327804	NEON	Incremental High	50	30	Wairewa Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Duvauchelles CWS - High Rain 24hr period	327902	NEON	Incremental High	50	30	Duvauchelles CWS Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Okains Bay at Opara Stream - High Rain 24hr period	67002	NEON	Incremental High	50	30	Okains Bay Rainfall >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043
Botanic Gardens - High Rain 24hr period	325616	NEON	Incremental High	50	30	Botanic Gardens >50mm in 24hrs	simon.armstrong@ccc.govt.nz;nicholas.ohs@ccc.govt.nz;lab@ccc.govt.nz;qualityandcompliance@ccc.govt.nz;Tessa.MitchellAnyon@ccc.govt.nz	+64272271984 ;+64272083234;+64272637043

Table D-3: CCC site alarm list (cont.).

Operations							
Heathcote at Lincoln Rd	1066625	NEON	Instaneous High	23.0m	22.5m	Stage exceeded acceptable limit. Check data - CCC Lincoln Rd site	Fieldteam-Christchurch@niwa.co.nz
			Instaneous Low	20.0m	20.5m	Stage exceeded acceptable limit. Check data - CCC Lincoln Rd site	Fieldteam-Christchurch@niwa.co.nz
Heathcote at Ferniehurst St	66609	NEON	Instaneous High	18000mm	17500mm	Stage exceeded acceptable limit. Check data - CCC Ferniehurst site	Fieldteam-Christchurch@niwa.co.nz
			Instaneous Low	15000mm	15500mm	Stage exceeded acceptable limit. Check data - CCC Ferniehurst site	Fieldteam-Christchurch@niwa.co.nz
Wigram Retention basin at Overflow (Pond 1)	66642	NEON	Instaneous High	25.5	25.0	Stage exceeded acceptable limit. Check data - CCC Wigram Overflow Pond1 site	Fieldteam-Christchurch@niwa.co.nz
			Instaneous Low	23.2m	23.5	Stage exceeded acceptable limit. Check data - CCC Wigram Overflow Pond1 site	Fieldteam-Christchurch@niwa.co.nz
Wigram Retention bason at Outflow (Pond 2)	66625	NEON LoRa	Instaneous High	25.5	25.0	Stage exceeded acceptable limit. Check data - CCC Wigram Outfall Pond2 site	Fieldteam-Christchurch@niwa.co.nz
			Instaneous Low	23.3	23.5	Stage exceeded acceptable limit. Check data - CCC Wigram Outfall Pond2 site	Fieldteam-Christchurch@niwa.co.nz
ENGEO							
Bridle Path - Rainfall alerts (WEBPORTAL)		Alert levels based on cumulative duration-periods rainfall at Upper Bowenvale Valley (326616) and Clifton Tce Reservior (325712) Rain data (precip.master)					Refer to AQ webportal alert settings for list of ENGEO recipients

Christchurch City Council
Ōtākaro Avon River Corridor Regeneration

Factual Groundwater Quality Assessment

10-02-2026

3-CHDM3.15-CLM-REP-006 RevA

Document distribution

Christchurch City Council

Ōtākaro Avon River Corridor Regeneration Regeneration

Factual Groundwater Quality Assessment

10-02-2026

3-CHDM3.15-CLM-REP-006 RevA

Prepared for

Christchurch City Council

PO Box 73012, Christchurch Central, 8013

Prepared by

WSP New Zealand Limited
Level 3 The Westhaven100 Beaumont St Auckland 1010
T +64 9 905 3306

Quality control	Name	Date	Signature
Prepared by:	Eilish Kerwin	10-02-2026	
Reviewed by:	Andrew Hart	10-02-2026	
Approved by:	Brent Hamilton	10-02-2026	

Revisions

Rev	Date	Details
A	10-02-2026	Draft for client review

Table of contents

1.	**Introduction**	**5**
1.1	Background	5
1.2	Purpose	6
1.3	Approach to Assessment	7
2.	**Environmental Setting**	**8**
2.1	OARC Project Area	8
2.2	Land Use	9
2.3	Topography	9
2.4	Geology	9
2.5	Hydrogeological Setting	10
2.6	Surface Water	13
3.	**Groundwater Assessment Methodology**	**14**
3.1	Monitoring Well Network	14
3.2	Groundwater Gauging and Sampling	16
3.3	Laboratory Analysis	18
4.	**Groundwater Monitoring**	**19**
4.1	Groundwater Levels	19
4.2	Physio-chemical Parameters	19
4.3	Metals	21
4.4	Organics	22
4.5	Nutrients	23
5.	**Quality Assurance and Quality Control**	**25**
5.1	Overview	25
5.2	Field QA/QC	25
5.3	Laboratory QA/QC	26
5.4	Field Instrumentation Records	27
6.	**Assessment of Groundwater Quality**	**28**
6.1	Potential Sources of Groundwater Contamination	28
6.2	Comparison with Existing Groundwater Quality Data	33
7.	**Summary**	**36**
8.	**Limitations**	**38**

9. References **39**

Table 2.1	Generalised hydro-stratigraphic units comprising the Christchurch Aquifer System	11
Table 3.1	Monitoring well identified for sampling in SAQP.	14
Table 3.2	Summary of groundwater sampling	16
Table 3.3	Groundwater monitoring wells sampled during assessment.	17
Table 3.4	Laboratory analytical schedule	18
Table 4.1	Summary of groundwater gauging data	19
Table 4.2	Summary of physio-chemical parameters in groundwater	20
Table 4.3	Summary of dissolved metals in groundwater	21
Table 4.4	Summary of dissolved metal exceedances	22
Table 4.5	Summary of organic compounds above laboratory LORs.	23
Table 4.6	Summary of nutrient concentrations in groundwater.	24
Table 5.1	Field QA samples	25
Table 5.2	Laboratory QA	27
Table 6.1	Review of potential sources of groundwater contamination	30

Figure 2.1	OARC project area.	8
Figure 2.2	Schematic cross section through Quaternary deposits underlying the greater Christchurch area (after Begg et al 2015).	12
Figure 3.1	Monitoring wells sampled in October and December 2025.	15
Figure 4.1	Groundwater TDS concentrations from west to east.	20
Figure 6.1	Location of Verified HAIL sites from LLUR relative to monitoring wells.	28
Figure 6.2	Location of Verified HAIL sites relative to monitoring wells in western part of OARC.	32
Figure 6.3	Location of Verified HAIL sites relative to monitoring wells in northern part of OARC.	32
Figure 6.4	Location of Verified HAIL sites relative to monitoring wells in eastern part of OARC.	33
Figure 6.5	Comparison of dissolved arsenic, copper, lead and zinc concentrations.	35

Appendix A	Borehole Logs
Appendix B	Tables
Appendix C	Field Sampling Records
Appendix D	Calibration Certificates
Appendix E	Laboratory Certificates of Analysis
Appendix F	Quality Assurance and Quality Control

1. Introduction

1.1 Background

As a result of the Canterbury Earthquakes in 2010 and 2011, approximately 600 hectares (ha) of residential land in east Christchurch along the lower Ōtākaro Avon River was severely damaged through liquefaction and land subsidence. This land was subsequently 'red zoned'. Most properties within this zone were purchased by the Crown, and almost all buildings and above ground structures on these properties were demolished and removed.

The shaking from the earthquakes caused subsidence in excess of 0.5 to 1 m along tidal stretches of the Ōtākaro Avon River, greatly increasing the spatial extent and severity of flood hazards posed by 100-year rainfall events, storm surges, and sea-level rise[1]. Christchurch City Council (the Council) built temporary stopbanks along the Ōtākaro Avon River immediately following the earthquakes to provide interim protection for adjacent land, infrastructure assets and properties in the surrounding suburbs. The earthquakes also resulted in spatial changes to the distribution of various habitats in the lower Ōtākaro Avon River, its tributaries and Ihutai Avon-Heathcote Estuary, for example, inanga spawning and intertidal zones. These changes have implications for riparian margin management and the long-term protection of these habitat areas[2].

The area, previously designated as a red zone and covering 600 ha, is now known as the Ōtākaro Avon River Corridor (OARC). This OARC area now consists of large areas of open green space, with sporadic vegetation from former residential gardens, areas of emerging wetlands and remaining roading -mostly now redundant and degrading. The Ōtākaro Avon River remains managed by temporary stopbanks along most of the corridor.

On behalf of the Crown, Regenerate Christchurch developed the OARC Regeneration Plan which took effect on 30 August 2019. The following are the vision and objectives from the Regeneration Plan that were developed following public, stakeholder and strategic partner feedback:

> *Our Vision is for the river to connect us together with each other, with nature and with new possibilities. Nōku te awa. The river is mine. We all share in the future of this river.*
>
> *The objectives for Christchurch are:*
>
> - *Create a restored native habitat with good quality water so there is an abundant source of mahinga kai, birdlife and native species.*
> - *Support safe, strong and healthy communities that are well-connected with each other and with the wider city.*
> - *Provide opportunities for enhanced community participation, recreation and leisure.*
> - *Create opportunities for sustainable economic activity and connections that enhance our well-being and prosperity now and into the future.*

[1] The Geological Society of America Science Article: 4 Matthew W. Hughes et al. *The sinking city: Earthquakes increase flood hazard in Christchurch, New Zealand*, March/April 2015 | Volume 25, Number 3–4

[2] Orchard, S. & Hickford, M. (2016). *Spatial effects of the Canterbury earthquakes on inanga spawning habitat and implications for waterways management*. Report prepared for IPENZ Rivers Group and Ngāi Tahu Research Centre. Waterways Centre for Freshwater Management and Marine Ecology Research Group. Christchurch: University of Canterbury. 37pp.

In simple terms, it envisaged the return of a wider and restored river delta, with improved flood defences located to the outer edges and stormwater management areas located behind them. This approach would increase resilience to the effects of natural hazards and climate change, reduce the engineering and maintenance costs of the flood defences themselves, whilst providing opportunities to improve riparian habitat and biodiversity.

Almost all the OARC red zoned land was transferred to the Council from the Crown. Council is now implementing the OARC Regeneration Plan to achieve the vision and objectives that were outlined (the Project). The Three Waters and Parks related public infrastructure works elements being developed by Council are:

- Construct approximately 20 km of combined earthen stopbanks and flood walls.
- Install up to 26 pumping stations to direct stormwater to treatment devices and mitigate flood hazards, additional smaller pump stations will be required to control localised groundwater to maintain land and structures.
- Install stormwater treatment devices and attenuation basins and wetlands, and other stormwater. infrastructure to improve stormwater discharge and river water quality and reduce flood risk.
- Implement localised ground improvement and land stabilisation.
- Plant indigenous forests in more elevated land areas for terrestrial biodiversity enhancement.
- Restore and enhance the Ōtākaro Avon River margins and its tributaries and create/restore inland natural wetlands to improve ecological values.
- Create multi-modal transport infrastructure.
- Build and upgrade community facilities and enhance public open spaces.

Several discrete portions of the Regeneration Plan have already been implemented, including four walking and cycling bridges, the City to Sea Pathway, Avon Park redevelopment, stopbank and tidal wetland, Dallington Landing, Goodman Street Wetland and the Waitaki Street area's stopbanks and tidal wetland. Other projects are currently in design phases or are having enabling works undertaken. The total Regeneration Plan will be delivered over 30 years.

Council is submitting an application for resource management, archaeological, wildlife and fisheries approvals under the Fast-track Approvals Act 2024 (FTAA). All approvals needed for development of the OARC area are being sought together because of the inefficiency of taking a piecemeal approach. The approvals sought include all necessary regional resource consents and a Notice of Requirement (NoR) for a new designation in the District Plan, which will enable the Council, as a requiring authority, to do public works as a permitted activity in the District Plan.

1.2 Purpose

Due to the scale of the OARC and history of residential, industrial and commercial activities in the area, a critical component in the delivery of the Regeneration Plan is the effective management of contamination. Historical land use activities have left a legacy of chemical impacts to environmental media. Within the OARC, these impacts are primary associated with residential housing but also include the presence of coal tar residues in the road corridor and a range of typical semi-rural and urban

activities (i.e., former horticultural activities, petroleum service stations, workshops and landfilling). The urbanised nature of the Ōtākaro Avon River and surrounding catchment have also resulted in contamination of surface water and groundwater including associated with untreated stormwater runoff, which contains suspended sediment, metals (especially zinc and copper), nutrients, and faecal contamination (Instream 2026).

As part of assessing contamination risks for the Project, Council commissioned a groundwater quality assessment. The objectives of the groundwater assessment were to:

- Provide an evaluation of groundwater quality across the OARC to provide an understanding of groundwater quality and identify potential spatial variability along the corridor.
- Inform an assessment of effects associated with contaminant discharges.

WSP New Zealand Limited (WSP) has prepared this report to document the groundwater quality assessment. This report has been prepared to summarise the assessment methodology, present the results of groundwater gauging data and laboratory analytical data, and provide a factual comparison of the results with applicable screening criteria outlined in the Canterbury Land and Water Regional Plan (LWRP).

1.3 Approach to Assessment

As noted above, an objective of this assessment was to provide an understanding of groundwater quality across the OARC. In support of this, the groundwater assessment has been based on the collection of groundwater quality data from a network of existing groundwater wells installed across the OARC as part of hydrogeological assessments (Stantec, 2025). The hydrogeological assessments included the installation of 34 new shallow groundwater monitoring wells to support an assessment of groundwater interactions with proposed stormwater basins, and existing and proposed stopbanks.

The network of wells provides spatial coverage across the OARC project area including in areas where dewatering may be required as part of construction of critical Three Waters infrastructure. The well network therefore provides an understanding of the overall groundwater quality across the OARC.

In addition to the data collected from these monitoring wells, the assessment has utilised groundwater quality data from previous investigations across the OARC including at Bexley, Wainoni and Waitaki Street.

2. Environmental Setting

2.1 OARC Project Area

The OARC is located to the east of the Christchurch Central Business District (CBD). The OARC spans an area of 602 ha and extends along the alignment of the Ōtākaro Avon River between Barbadoes Street to the mouth of the Ōtākaro Avon River where is discharges to the Ihutai Avon-Heathcote Estuary (Figure 2.1).

Prior to the 2010 and 2011 Canterbury Earthquake Sequence the OARC was a residential and commercial area with homes, businesses and schools. The Canterbury Earthquakes severely affected the area, and afterwards the area was classified by the government as a red zone.

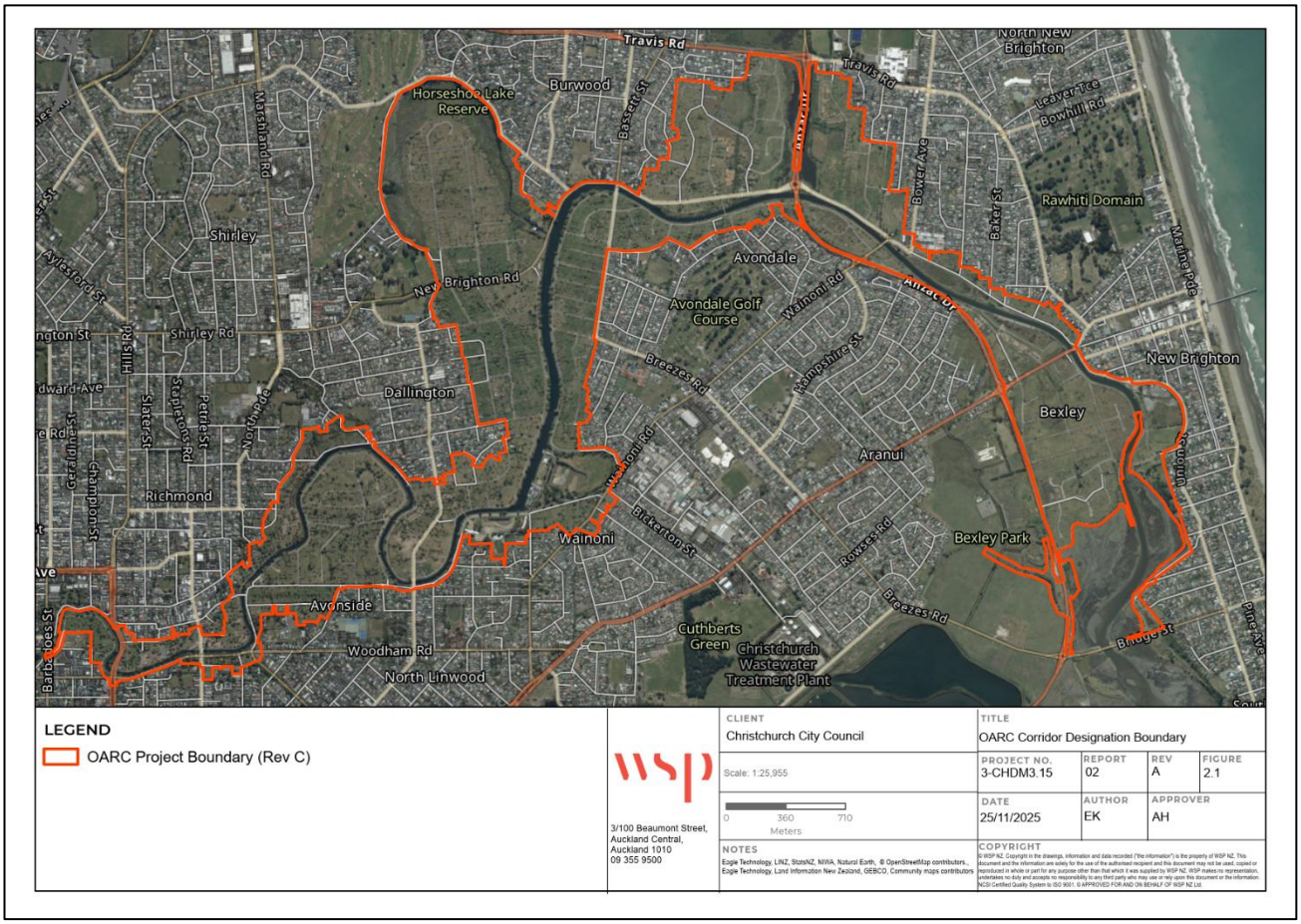


Figure 2.1 OARC project area.

2.2 Land Use

Historically, land use within the OARC comprised homes, businesses and schools, with land use typically being residential and commercial. The land experienced significant damage during the Canterbury Earthquake Sequence (CES). The OARC is now predominantly comprised of vacant grassland with the remnant gardens.

The area is actively being regenerated into a green spine which follows the river and features restored native habitat, trails, paths, community spaces, and near river landings.

2.3 Topography

The land surface within and adjacent to the OARC is flat or gently sloping and influenced by anthropogenic reshaping. The land slopes down towards the coastline and towards surface water features. Approximately 80% of the OARC is at or below 2 m above mean sea level (amsl).

2.4 Geology

Published geological maps document the OARC is underlain by combination of permeable alluvial gravel fans, overlain with less permeable dune and coastal swap deposits of gravel, sand, silt, clay and peat (Heron, 2020; Begg et al., 2015). Geological maps show the presence of Holocene river deposits along the alignment of the Ōtākaro Avon River between Fitzgerald Avenue Bridge and the lower reaches where the river discharges to the Ihutai Avon-Heathcote Estuary. Holocene stable dune deposits are present to the south (true-right bank) in the areas of Avonside, Avondale and Wainoni and the north of the river in the areas of Richmond, Burwood and Brighton. Holocene estuary deposits are mapped in the area of the Anzac Drive Reserve and Bexley Park.

The majority of surface deposits across the OARC are classified as Yaldhurst Swamp (part of the Springston Formation) which is described as a Holocene fluvial swamp basin. Towards the western end of the OARC a Holocene river channel (also part of the Springston Formation) is mapped with soils of Selwyn or Waimakariri-age. Closer to the coast the Christchurch Formation, comprising Holocene coastal dunes from wind-blown beach sand, is more prevalent at surface. Stopbanks and anthropogenic fill areas are mapped along Anzac Drive in Bexley and Bromley.

The stratigraphic sequence underlying the OARC (Begg et al, 2015) comprises the following units described from the surface down:

- The **Springston Formation** – This unit was deposited approximately 6,500 years ago through alluvial process consists of sand, silt, peat, and clayey silt, and exhibits significant lateral and vertical variability. This unit is absent near the coast and in areas away from the Ōtākaro Avon River, where the Christchurch Formation is exposed at the surface. The base of the Springston Formation generally lies close to present-day sea level.
- The **Christchurch Formation** – This unit was deposited in an onshore coastal and estuarine environment over the past 9,000 years. It is primarily composed of sand and silt, with common shell fragments, minor peat layers, and occasional thin lenses of sandy gravel. The top of the unit typically lies close to present-day sea level, while its base can extend to depths of approximately 35 m below sea level near the coast.

- The **Christchurch Formation** (Avonside Member) – Deposited within the past 9,000 years, formed in a low-energy coastal and estuarine environment. It is composed predominantly of silt and clayey silt, with minor thin lenses of sandy gravel and frequent shell material. This unit is relatively thin compared to the overlying and underlying formations, with its base reaching approximately 40 m below sea level near the coast.
- The **Riccarton Gravel** – Within the OARC, the top of the Riccarton Gravel typically lies between 20 and 40 m below ground level and is ≈15 m thick. This unit was deposited between 12,000 and 71,000 years ago as coalesced glacial outwash from braided river systems originating in the Southern Alps. It consists of well-graded brown or blue gravels, reflecting high-energy depositional conditions typical of glacial meltwater streams.
- The **Bromley Formation** – Deposited 130,000 to 71,000 years ago in a low-lying coastal plain and estuarine environment. It is composed of a heterogeneous mix of sand, silt, clay, shelly clay, peat, and some interbedded gravel layers, reflecting variable depositional conditions. The unit is relatively thick (≈15 m below the OARC), with its upper surface typically found between 30 and 50 m below ground level.

A number of deeper units including the Linwood Gravel, Heathcote Formation, Burwood Gravel, Shirly Formation, Wainoni Gravel and the underlying Undifferentiated Middle Quaternary deposits, are present below the OARC.

2.5 Hydrogeological Setting

Regional geology on the Canterbury Plains comprises alluvial gravels deposited from large alpine rivers, interbedded with marine and estuarine silts, sands and clays that formed during interglacial periods where sea levels rose, and the shoreline migrated inland.

Silts, clays and clay-bound gravels form low permeability strata in between the high permeable gravel layers. No clearly distinguishable aquifers can be defined inland (west) of Christchurch up the Canterbury Plains. However, within the coastal confined zone that covers most of Christchurch, distinct layers of high and low permeability material were formed due to ever-changing depositional environments along the coast. Within the coastal confined zone the alluvial gravels typically form aquifers where near coastal marine, estuarine and swamp deposits form clear confining layers.

As such, the Christchurch groundwater system can be characterised as a confined multi-aquifer system (Figure 2.2). The general sequence forming the Christchurch Artesian Aquifer System[3] is outlined in Table 2.1.

[3] The hydro-stratigraphic unit descriptions are largely based on Begg et al (2015).

Table 2.1 Generalised hydro-stratigraphic units comprising the Christchurch Aquifer System

Hydro-Stratigraphic Unit	Type	Description
Christchurch Formation	Aquitard	The Christchurch Formation is prevalent throughout Christchurch and is often interbedded with the Springston Formation. It consists of estuarine and marine deposits of mainly sand and silt with shells, minor peat and thin sandy gravel lenses. These are generally low permeability layers that together form a semi-confining layer above the Riccarton Gravel Aquifer.
Springston Formation	Aquifer/ Aquitard	The Springston Formation consists of sandy gravel, gravelly sand, sand, silt, peat, clayey silt, laterally and vertically variable. This formation is absent where Riccarton Gravel lies at the surface and absent in the east where the Christchurch Formation is present at the surface (Begg et al 2015). In general, the top of the Springston Formation is of lower permeability (mainly silts and clayey silts), where the middle and bottom of this formation is more permeable.
Avonside Member	Aquitard	The Avonside Member within the Christchurch Formation comprises a wedge-shaped silty, commonly organic-rich, unit that lies directly upon Riccarton Gravel across much of the Christchurch area (Begg et al 2015). It predominantly consists of silts and clayey silts formed by fluvial, swamp and estuarine deposits.
Riccarton Gravels	Aquifer 1	Consist of high permeable gravels. Top of unit is typically found between 20-40 m bgl beneath the OARC with a thickness of around 15 m. Typically flowing artesian.
Bromley Formation	Aquitard	Low permeability marine gravel, sand, silt peats and clay. 15 – 25 m thick.
Linwood Gravels	Aquifer 2	Consist of high permeable gravels forming a flowing artesian aquifer. Typically found between 60 m and 100 m.
Heathcote Formation	Aquitard	Low permeability predominantly blue-grey marine sand silt and clay interbedded with peat and shelly layers.
Burwood Gravels	Aquifer 3	Flowing artesian gravel aquifer, with the top at approximately 100 m bgl. Maximum thickness of 20 m.
Shirley Formation	Aquitard	Low permeability sand, silt and clay with interbedded peat and wood deposits. Typically 120-150 m depth.
Wainoni Gravels	Aquifer 4	Flowing artesian gravel aquifer, typically encountered between 140-150 m in the eastern suburbs of Christchurch. Indicative thickness of 10-15 m beneath Christchurch.

Groundwater flows from the Southern Alps towards the coast in a south-easterly direction, adjacent to the Waimakariri River flow. The main source of groundwater in the Christchurch aquifer system is the Waimakariri River (Figure 2.2) which has headwaters in the Southern Alps and infiltrates to groundwater as it enters the Canterbury Plains. In addition, rainfall recharge replenishes the groundwater system, and feeds some of the spring-fed streams and rivers in Christchurch, such as the Avon River and Heathcote River. Groundwater in the Christchurch Aquifer system generally flows towards the coast in east and southeast direction, where it discharges into the Ihutai Avon-Heathcote Estuary and into the sea.

Groundwater levels within the city are typically shallow, sitting within the shallow Christchurch Formation and Springston Formation. The water table beneath Central Christchurch can often be found at less than 2 m bgl, and less than 1 m bgl in the eastern suburbs. Groundwater levels in the deeper gravel aquifers are generally above ground level and are thus flowing artesian beneath the city, meaning that wells screened in these aquifers will flow out at the surface.

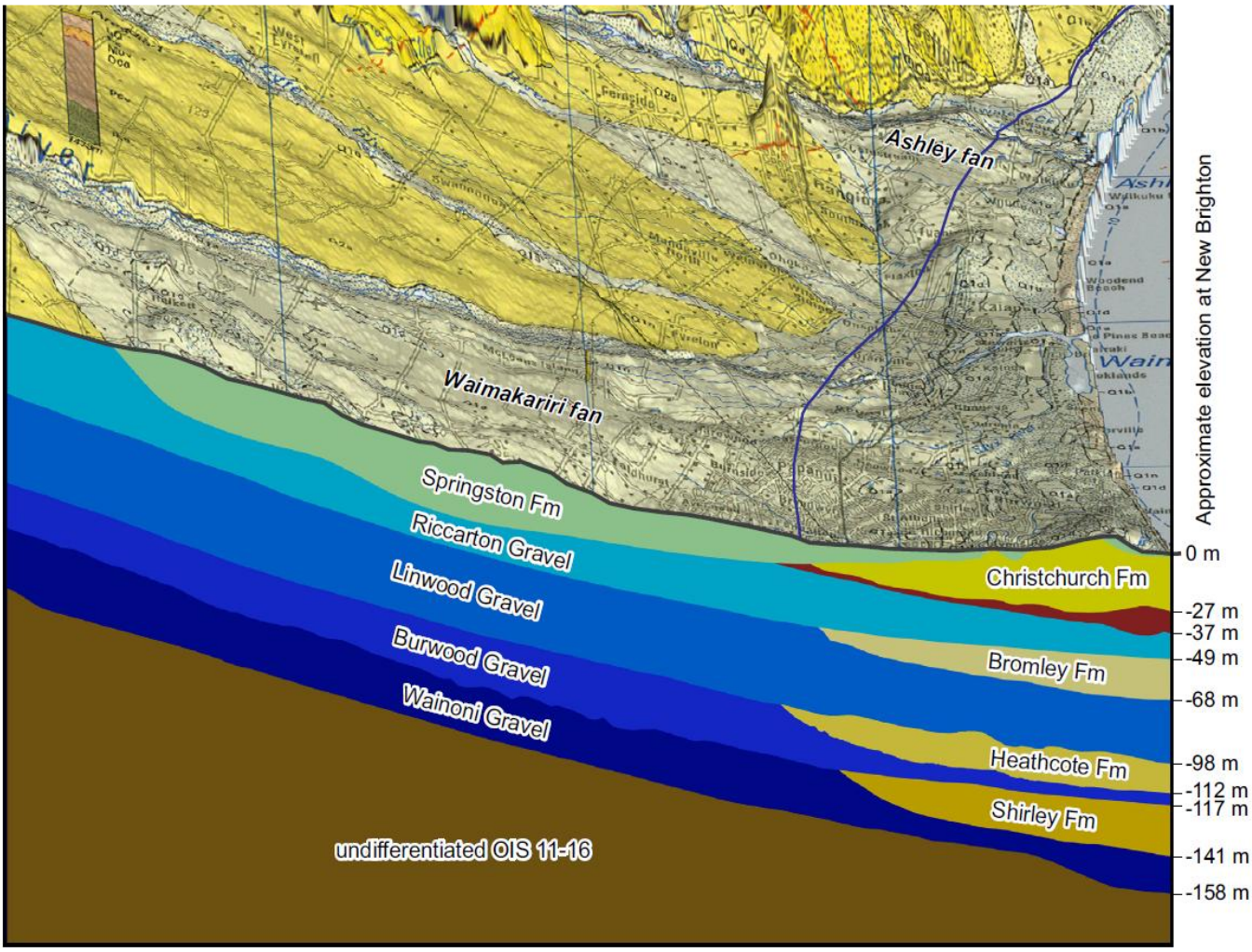


Figure 2.2 Schematic cross section through Quaternary deposits underlying the greater Christchurch area (after Begg et al 2015).

Groundwater resources across the Canterbury Plains and in Christchurch are heavily used for public water supply, industrial and irrigation use and there are many water supply wells in various aquifers across the city, which influences groundwater flows and levels in the aquifers. The Christchurch aquifers are also used for ground-source heat pump systems, whereby groundwater is abstracted from depth (mostly Linwood and Burwood gravel aquifers) and pumped back into a shallower aquifer such as the Riccarton Gravels aquifer after the natural heat or cold has been abstracted. The number of ground-source heat pump systems within the central city has been growing over time since 2010 and may result in groundwater mounding within the shallow Springston Formation and of the shallow groundwater table.

Low-lying parts of Christchurch used to be swamps and wetlands pre-European development and have since been drained, with many subsurface drains and open land drains present throughout the city. Underground sewage and stormwater networks are often leaking and will drain shallow groundwater. These processes have effects on local shallow groundwater tables and flows.

The depth to groundwater in the vicinity of the OARC is generally less than 2 m (Stantec 2025). Groundwater flow direction in the unconfined aquifer is generally towards the coast but strongly influenced by surface water which it generally flows towards and discharges into. Groundwater follows topography and is shallowest near surface water features.

Groundwater levels in the unconfined aquifer are responsive to rainfall events and highest during prolonged wet periods (i.e., winter) (Stantec, 2025). In low lying areas discharges (gravity springs) may form where groundwater rises above the ground surface. The subsequent runoff from discharges maintains groundwater levels below ground at higher elevations.

2.6 Surface Water

Ōtākaro Avon River

The Ōtākaro Avon River is the primary surface water body within the OARC. The Ōtākaro is a spring-fed river that flows through the centre of urban Christchurch. Adjacent landuse comprises a mix of residential and commercial properties, and urban parkland. Water quality, hydrology, and habitat are all affected by the urban landuse. Median flow at Gloucester Street Bridge is estimated to be 1.69 m^3/s and mean flow 1.86m^3/s[4].

Surface water quality in the Ōtākaro Avon River is influenced by the quality of the springs and tributaries that feed into the river and the quality of stormwater runoff. The Ōtākaro Avon River flows out into the Ihutai Avon-Heathcote Estuary in the east of Christchurch. Therefore, the lower tidal reaches of these water courses rivers are also influenced by the water quality in the estuary. In general, the upstream reaches of the Ōtākaro Avon River are fed by nitrate-enriched shallow groundwater which has been impacted by agricultural activities upgradient. However, the river water quality in the upper reaches is otherwise of good quality and becomes degraded with distance downstream where it is influenced by urban pollutants including metals, nutrients and sediments.

Based on the median water quality index (WQI) for all water quality monitoring sites, the Ōtākaro Avon River recorded 'fair' water quality in the 2020 and 2023 annual surface water quality reports (CCC 2021, 2024). The 2023 monitoring indicated an overall improvement in the water quality of the Ōtākaro Avon River compared to previous monitoring events. Lower water quality was recorded in downstream monitoring locations including at Dudley Creek and Pages Bridge. Contaminants of concern within the Ōtākaro Avon River include copper, zinc, dissolved reactive phosphorus and *Escherichia coli* (E. coli).

Ihutai Avon-Heathcote Estuary

The Ihutai Avon-Heathcote Estuary, located in the south-east of Christchurch, receives inputs from the Pacific Ocean, the Ōtākaro Avon and Heathcote Rivers, and four drains (Charlesworth Drain, Lovett's Drain, City Outfall Drain, and Estuary Drain) that discharge into its western end, as well as stormwater networks that drain directly into the estuary.

The water quality within the Avon-Heathcote Estuary varies by location, with locations closest to the river mouths tending to be of poorer quality in terms of human health risk and those closest to the mouth improving in quality but higher in salinity and other characteristics of the ocean water. Nutrient loads to the estuary in terms of dissolved inorganic nitrogen (DIN) are in the order of 200 tonnes/year (NIWA, 2020) contributing to its eutrophic state. Overall, most monitored sites within the estuary and its catchment are described as having poor to very poor ecological health (Pauling et al. 2012), although this has improved within the last couple of decades with the diversion of the wastewater treatment plant discharge in 2010, improved stormwater infrastructure and riparian planting efforts within the catchment.

[4] https://www.lawa.org.nz/explore-data/canterbury-region/water-quantity/monitoring-sites/avon-river-gloucester-street-bridge/

3. Groundwater Assessment Methodology

3.1 Monitoring Well Network

A network of existing groundwater monitoring wells installed across the OARC was selected for sampling. The monitoring well network comprises 34 existing monitoring wells installed as part of hydrogeological investigations completed for the project (Stantec, 2025). The 20 wells identified for groundwater sampling as per the sampling and analysis quality plan (SAQP) (WSP 2025) are listed in Table 3.1 and are shown on Figure 3.1. Borehole logs for the wells sampled as part of the assessment are provided in Appendix A.

WSP notes that the wells installed by Stantec (2025) were targeted to assess the interaction between the groundwater system and the proposed stormwater basins, and existing and proposed stopbanks. As such, the well network does not provide full coverage across the project footprint. However, collection of groundwater quality data from these wells, alongside the use of existing data collected from wells installed in the Wainoni, Waitaki Street and Bexley areas, provide coverage across the project footprint including on the true-left and true-right banks of the Ōtākaro Avon River.

Table 3.1 Monitoring well identified for sampling in SAQP.

Well ID	Easting (NZTM)	Northing (NZTM)	Bore Depth (m)	Top of Screen (m bTOC)	Base of Screen (m bTOC)
LY-BH01	1572365.1	5180744.4	3.0	1.20	2.70
AVO-BH01	1572882.6	5181246.4	3.0	2.00	2.45
AVO-BH02	1573312.6	5181301.9	3.0	1.50	2.90
AVO-BH04	1573333.1	5181716.3	3.0	1.00	2.50
RIV-BH04	1572713.5	5181592.6	2.5	1.50	2.40
DUD-BH02	1573106.1	5182067.0	1.8	1.06	1.66
BRI-BH02	1574599.9	5181642.3	3.8	1.55	2.55
LOC-BH02	1574224.1	5182482.9	3.0	1.50	3.00
BRE-BH01	1574543.8	5182628.5	3.0	1.25	2.75
PS-BH01	1574170.8	5182873.4	3.0	1.25	2.75
HS-BH01	1573940.0	5183430.5	2.4	1.50	2.00
AVD-BH01	1574819.5	5183390.7	3.0	1.05	2.45
BRO-BH01	1575405.7	5183644.3	3.0	2.00	3.00
BRO-BH02	1575365.1	5183773.4	3.0	1.60	2.60
BRM-BH01	1575624.2	5183414.9	3.0	1.50	2.50
LKS-BH01	1576004.2	5183542.8	1.0	3.00	1.80

Well ID	Easting (NZTM)	Northing (NZTM)	Bore Depth (m)	Top of Screen (m bTOC)	Base of Screen (m bTOC)
WAN-BH01	1576101.5	5183214.6	2.1	1.20	2.10
BOW-BH01	1576581.7	5183182.2	2.4	1.90	2.30
BOW-BH08	1577434.9	5182774.4	2.1	1.40	1.80
EVA-BH01	1577996.6	5181950.1	2.4	1.50	2.05

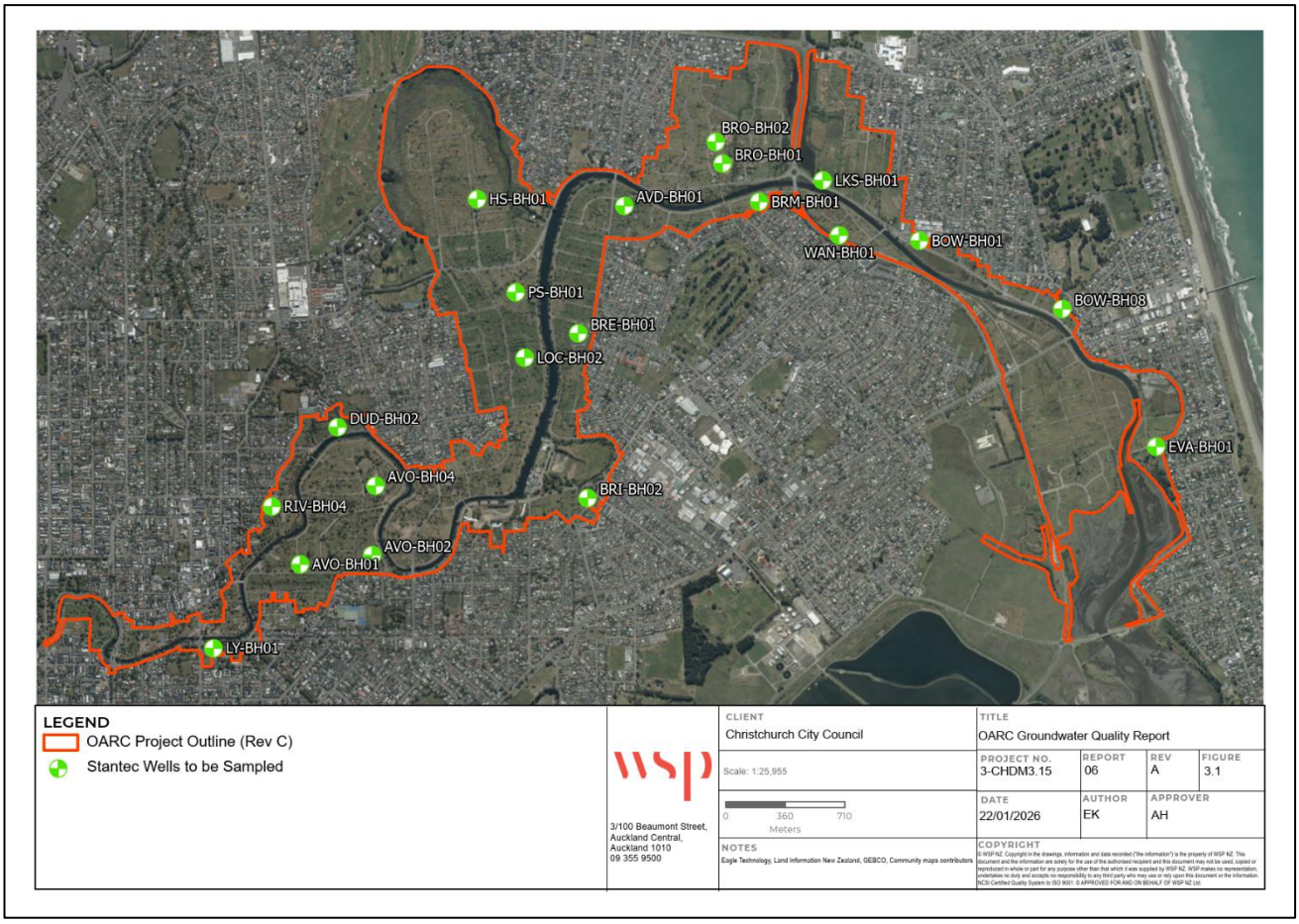


Figure 3.1 Monitoring wells sampled in October and December 2025.

3.2 Groundwater Gauging and Sampling

The groundwater gauging and sampling methodology for the assessment was outlined in a sampling and analysis quality plan (SAQP) (WSP 2025). A summary of the field activities undertaken to support this assessment is provided in Table 3.2.

The groundwater monitoring was undertaken by Stantec on behalf of Council.

Table 3.2 Summary of groundwater sampling

Activity	Details
Date of Field Works	Two rounds of groundwater gauging and sampling were undertaken between the following dates: ■ 7 to 10 October 2025. ■ 9 to 12 December 2025
Groundwater Gauging	Standing water levels (SWLs) were measured prior to purging and sampling using an interface probe. Observations were made to assess the potential presence and if present, thickness of LNAPL. Groundwater gauging data is presented in Table T1 (Appendix B).
Well Purging	Low-flow sampling was undertaken using a peristaltic pump. Field parameters and visual/olfactory observations were recorded during purging. Physico-chemical parameters including pH, electrical conductivity (EC), redox potential, dissolved oxygen (DO) and temperature, were measured ex-situ using a water quality meter and flow cell attachment. Field parameters recorded immediately prior to sampling are presented in Appendix C. Calibration certificates for the sampling equipment used are presented in Appendix D.
Groundwater Sampling	Groundwater samples were collected utilising low flow techniques comprising a peristaltic pump and dedicated tubing. Field sampling records are presented in Appendix C.
Decontamination Procedure	Reusable sampling equipment (e.g., interface probe, flow cell) was washed in Decon 90 solution and rinsed with potable water and deionised (DI) water between wells. Dedicated tubing was used for each well.
Sample Preservation and Handling	Groundwater samples were placed directly into containers with preservatives prepared and supplied by the laboratory appropriate for the required analysis. Samples were stored on ice in coolers whilst on-site and in transit to the laboratory under chain of custody (CoC) procedures. A copy of the CoCs are included in Appendix E.
Groundwater Analysis	The analytical suite was defined in Table 2.2 of the SAQP and is presented in Section 3.3. The laboratory certificates are presented in Appendix E.
QA/QC of Laboratory Results	Quality Assurance/Quality Control samples (QA/QC) samples were collected and a rate of one primary duplicate and one secondary duplicate from every 20 primary samples. Rinsate samples were collected at a rate of one per set of sampling equipment per day and trip blank samples at one per day. Results of the data QA/QC are presented in Appendix F. A summary of RPD results and field blank samples is presented in Table F1 and Table F2 respectively.

The SAQP outlined a network of 20 shallow groundwater monitoring wells to be sampled as part of this assessment. The field programme was generally consistent with the SAQP noting that while 20 wells were sampled across each round, there were alternative wells sampled in Avonside Basin, Locksley Basin and Avondale Basin, on the second round, which means a total 23 wells were sampled but this resulted in six wells only being sampled once (Table 3.3).

Table 3.3 Groundwater monitoring wells sampled during assessment.

Area	Well	Gauged and Sampled	
		October	December
Lychgate Basin	LY-BH01	✓	✓
Avonside Basin	AVO-BH01	✓	✓
	AVO-BH02	×	✓
	AVO-BH04	✓	✓
Riverside Basin	RIV-BH04	✓	✓
Dudley Basin	DUD-BH02	✓	✓
Brittans Basin	BRI-BH02	✓	✓
Locksley Basin	LOC-BH01	✓	×
	LOC-BH02	×	✓
Breezes Basin	BRE-BH01	✓	✓
Pratt Street Basin	PS-BH01	✓	✓
Horseshoe Lake	HS-BH01	✓	✓
Avondale Basin	AVD-BH01	✓	✓
	AVD-BH02	✓	×
Brooker Basin	BRO-BH01	✓	✓
	BRO-BH02	✓	✓
Briarmont Basin	BRM-BH01	✓	✓
Lake Kate Sheppard	LKS-BH01	✓	✓
Wainoni Basin	WAN-BH01	✓	✓
Bower Basin	BOW-BH01	✓	✓
	BOW-BH08	✓	✓
Evans Basin	EVA-BH01	✓	✓

3.3 Laboratory Analysis

Groundwater samples collected during the monitoring were analysed for a broad range of potential contaminants of interest including metals, petroleum hydrocarbons, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), nutrients and a suite of physio-chemical parameters (Table 3.4).

The laboratory analysis was undertaken by R J Hill Laboratories Limited (Hills). Hills holds IANZ accreditation for the analysis undertaken.

Table 3.4 Laboratory analytical schedule

Analyte	Parameters
Field Parameters	pH, EC (µS/cm), Redox (mV), Dissolved oxygen (mg/L), temperature (°C)
Metals (total and dissolved (field filtered)	Arsenic, Boron, Cadmium, Chromium, Copper, Lead, Nickel, Mercury, Zinc
TPH	Total Petroleum Hydrocarbons – C_7-C_9, C_{10}-C_{14} and C_{15}-C_{36} fractions
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene
PAHs	Polycyclic Aromatic Hydrocarbons
VOCs	Volatile Organic Compounds (trace level)
SVOCs	Semi-volatile Organic Compounds (screen level)
Nutrients	Total Ammoniacal-N, Dissolved Inorganic Nitrogen, Total Kjeldahl Nitrogen, Nitrate-N, Nitrite-N, Dissolved Reactive Phosphorus
Physio-chemical parameters	Sum of Anions, Sum of Cations, pH, EC, Alkalinity (bicarbonate, carbonate and hydroxide alkalinities), Chloride, Sulfate, Sodium, Potassium, Calcium, Manganese, Iron, Total Dissolved Solids (TDS), Hardness

4. Groundwater Monitoring

4.1 Groundwater Levels

Groundwater gauging data is presented in Table T1. Table 4.1 presents a summary of the groundwater gauging data across each of the two monitoring rounds.

Table 4.1 Summary of groundwater gauging data

Monitoring Rounds	Depth to Water (m bTOC)			Groundwater Elevation (m RL)		
	Minimum	Maximum	Mean	Minimum	Maximum	Mean
October	0.10	1.92	0.95	-0.47	1.78	0.65
December	0.35	1.63	1.11	0.01	0.93	0.45

4.2 Physio-chemical Parameters

Groundwater samples collected from both monitoring rounds were analysed for a broad suite of physio-chemical parameters. The groundwater analytical results are presented in Table T2 and summarised in Table 4.2. Key observations with respect to these parameters in the groundwater samples is summarised as follows:

- Groundwater pH ranged between 6.5 and 7.6 across both monitoring rounds. Groundwater pH was consistent across the two monitoring rounds and spatially across the well network.
- Groundwater TDS, which provides a measure of salinity, was generally higher in wells in the eastern part of the OARC downstream of Avondale (Figure 4.1).
- Sulfate was below 100 mg/L across the well network and both monitoring rounds. The exception to this was well BOW-BH01 in the area of Bower Basin which recorded sulfate concentrations greater than 400 mg/L during both monitoring rounds.
- Total alkalinity was generally higher in wells in the eastern part of the OARC downstream of Avondale.

Table 4.2 Summary of physio-chemical parameters in groundwater

Monitoring Round		pH (pH units)	EC (uS/cm)	TDS (mg/L)	Total Anions (meq/L)	Total Cations (meq/L)	Sulphate (as SO4) (mg/L)	Hardness (as CaCO3) (mg/L)	Total Alkalinity (as CaCO3) (mg/L)
October	No. Results	20	20	20	20	20	20	20	20
	No. Detects	20	20	20	20	20	19	20	20
	Minimum	6.5	152	94	1.46	1.5	<0.5	33	64
	Maximum	7.4	1,656	1,060	18.4	19.3	420	590	730
	Mean	7.1	716	471	7.3	7.8	52	259	240
	Median	7.1	625	390	6.1	6.5	29	203	177
December	No. Results	20	20	20	20	20	20	20	20
	No. Detects	20	20	20	20	20	17	20	20
	Minimum	6.6	158	99	1.5	1.64	<0.5	35	62
	Maximum	7.6	1,569	1,010	17.5	17.4	480	560	670
	Mean	7.1	644	426	6.6	7.1	48	226	217
	Median	6.95	530	335	4.85	5.05	27	183	151

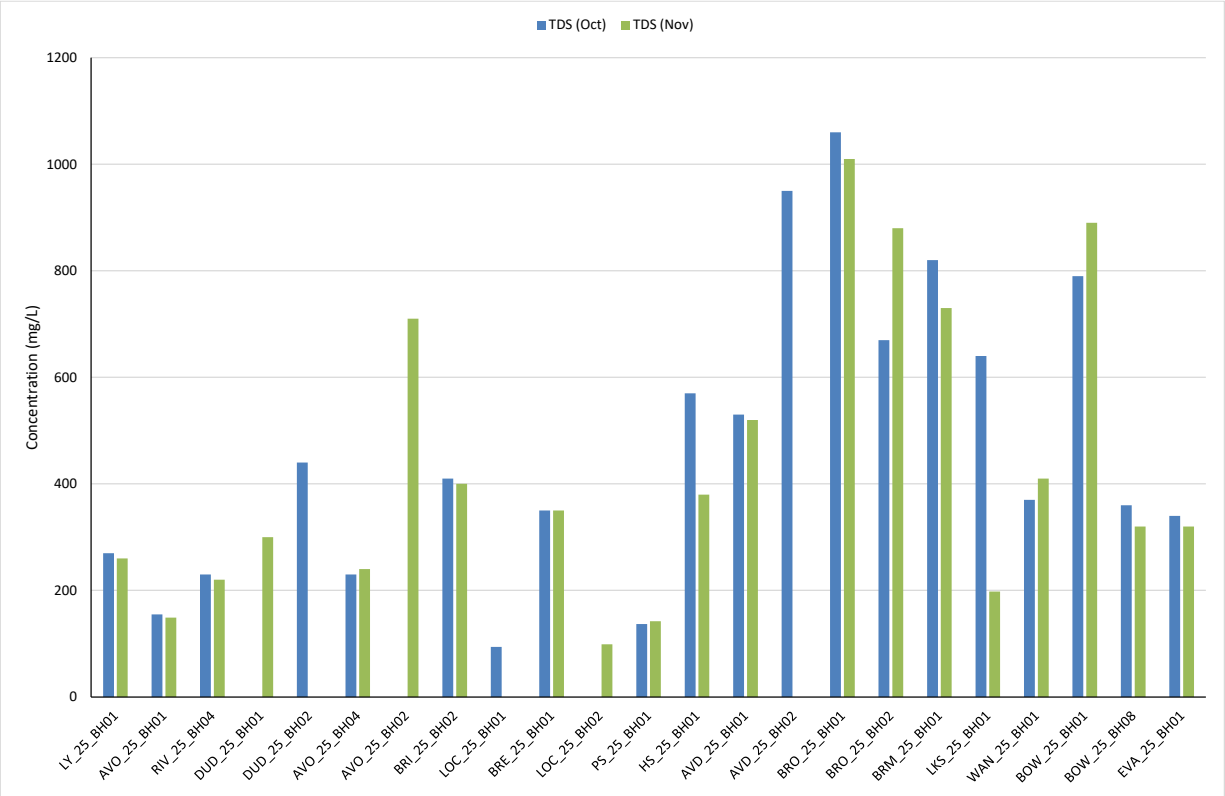


Figure 4.1 Groundwater TDS concentrations from west to east.

4.3 Metals

Twenty primary samples were analysed for a suite of total and dissolved metals including arsenic, boron, cadmium, chromium, copper, lead, nickel, mercury, zinc. The analytical results are presented in full in Table T2 with the laboratory certificates of analysis provided in Appendix E. The dissolved metal concentrations are summarised in Table 4.3.

Individual metals, with the exception of mercury were detected in each of the 20 samples collected across both sampling rounds. Across both rounds, the predominant metals detected were arsenic, copper, lead nickel and zinc (Table 4.3). Across both monitoring rounds, copper, nickel and zinc were the predominant metals on a concentration basis with zinc generally detected at concentrations one order of magnitude higher than the other metals. Maximum concentrations of copper, lead, nickel and zinc exceeded the adopted assessment criteria in the October 2025 round. Maximum concentrations of copper, nickel and zin exceeded the adopted assessment criteria in the December 2025 round. Mean concentrations of copper and zinc in October 2025 and zinc in December 2025 were above the assessment criteria.

Table 4.3 Summary of dissolved metals in groundwater

Monitoring Round	Statistic	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc
ANZG (2018) 90% DGV[1]			**0.0004**		**0.0018**	**0.0056**	**0.0019**	**0.013**	**0.015**
LWRP Schedule 5		0.094	0.0004	-	0.0018	0.0056	0.0019	0.013	0.015
October	No. Results	20	20	20	20	20	20	20	20
	No. Detects	14	1	5	14	13	0	18	20
	Minimum	<0.001	<0.00005	<0.0005	0.0005	<0.0001	<0.0001	<0.0005	0.0018
	Maximum	0.067	0.00031	0.0033	**0.0159**	**0.0067**	<0.000105	**0.021**	**2.1**
	Mean	0.0076	0.000039	0.00064	**0.0028**	0.0014	0.00005	0.0027	**0.46**
	Median	0.0026	0.000025	0.00025	0.001	0.00046	0.00005	0.0012	**0.21**
December	No. Results	20	20	20	20	20	20	20	20
	No. Detects	16	1	6	11	11	0	16	17
	Minimum	<0.001	<0.00005	0.0005	<0.0005	0.0001	<0.0001	<0.0005	<0.001
	Maximum	0.071	0.0003	0.0022	**0.0144**	0.00083	<0.0001	**0.022**	**1.42**
	Mean	0.011	0.000039	0.00054	0.0018	0.00019	0.00005	0.0025	**0.24**
	Median	0.0039	0.000025	0.00025	0.00075	0.00012	0.00005	0.0011	**0.053**

Notes: Concentrations expressed in mg/L unless stated. Mean and median values reported to 2 significant figures (s.f.). Bold denotes exceedance of ANZG (2018) DGV. Underline denotes exceedance of LWRP Schedule 5.

1. ANZG (2018) 95% Freshwater DGV adopted for screening purposes.

As outlined in Table 4.1, concentrations of copper and zinc, and to a lesser degree nickel and lead exceeded the adopted assessment criteria in samples collected across the two monitoring rounds. A summary of the dissolved metal exceedances across the well network is presented in Table 4.4.

Table 4.4 Summary of dissolved metal exceedances

Area	Wells	Dissolved Metal (Maximum Concentration)
Avondale Basin	AVD-BH01	Copper (0.0123 mg/L), Manganese (2.5 mg/L), Nickel (0.022 mg/L), Zinc (1.2 mg/L)
Avonside Basin	AVO-BH01, AVO-BH02, AVO-BH04	Zinc (2.1 mg/L)
Bower Basin	BOW-BH08	Copper (0.0061 mg/L)
Breezes Basin	BRE-BH01	Copper (0.0159 mg/L), Zinc (0.021 mg/L)
Briarmont Basin	BRM-BH01	Manganese (2.7 mg/L)
Brittans Basin	BRI-BH02	Zinc (2.1 mg/L)
Brooker Basin	BRO-BH01, BRO-BH02	Manganese (5.9 mg/L)
Dudley Basin	DUD-BH01, DUD-BH02	Copper (0.0069 mg/L) Zinc (0.8 mg/L)
Evans Basin	EVA-BH01	Copper (0.0024 mg/L)
Lake Kate Sheppard	LKS-BH01	Manganese, Zinc
Locksley Basin	LOC-BH01, LOC-BH02	Zinc (1.05 mg/L)
Lychgate Basin	LY0BH01	Zinc
Pratt Street Basin	PS-BH01	Copper (0.0025 mg/L), Zinc (0.24 mg/L)
Riverside Basin	RIV-BH04	Zinc (0.6 mg/L

4.4 Organics

Groundwater samples were analysed for a broad suite of organic compounds including TPH, BTEX, PAH, VOCs and SVOCs. Samples collected during the October 2025 and December 2025 monitoring rounds were reported with concentrations below the laboratory LORs for the vast majority of individual compounds across all the wells samples.

The monitoring did identify the presence of low concentrations of individual organic compounds including C_7-C_9 TPH, toluene, chloroform, acenaphthene and fluoranthene (Table 4.5).

Table 4.5 Summary of organic compounds above laboratory LORs.

Area	Well	Compound	Concentration (mg/L)	Monitoring Round
Avondale Basin	AVD-BH01	Toluene	0.004	October
			0.003	December
Avonside Basin	AVO-BH01	C_7-C_9 TPH	0.23	October
			0.12	December
		Toluene	0.146	October
			0.073	December
Brittans Basin	BRI-BH02	Toluene	0.006	October
		Chloroform	0.004	
Brooker Basin	BRO-BH01	Acenaphthene	0.00019	December
		Fluoranthene	0.00016	
Lake Kate Sheppard	LKS-BH01	Toluene	0.006	December
Lychgate	LY-BH01	Toluene	0.0011	December

4.5 Nutrients

Nitrogen species were detected in samples collected from across the well network (Table 4.6). Dissolved inorganic nitrogen (DIN) was detected in the majority (37 out of 40) of samples collected with concentrations ranging between 0.014 mg/L and 4.8 mg/L. DIN concentrations above the LWRP Schedule 5 criterion (0.016 mg/L) were detected in 15 of the 40 samples. These exceedances were identified in samples collected from Brooker Basin, Lake Kate Sheppard, Wainoni Basin and Bower Basin. The highest concentrations were detected in the two samples collected from Wainoni Basin.

Dissolved reactive phosphorus (DRP) was detected above the laboratory LOR (0.004 mg/L) in 22 of the 40 primary samples analysed across the two monitoring rounds (Table 4.6). Concentrations ranged between 0.007 mg/kg and 0.81 mg/kg with a mean concentration of 0.07 mg/L across the two rounds. Concentrations of DRP above the LWRP Schedule 5 criterion were in 18 samples across the two rounds. Exceedances above the LWRP Schedule 5 criterion were detected in wells along the OARC between Riverside Basin in the west and Bower Basin in the east. Higher concentrations (above 0.1 mg/L) were detected in samples collected from Avondale Basin (0.104 mg/L), Bower Basin (0.107 mg/L), Brittans Basin (0.14 mg/L), Breezes Basin (0.36 mg/L), Lake Kate Sheppard (0.81 mg/L) and Wainoni Basin (0.41 mg/L).

Table 4.6 Summary of nutrient concentrations in groundwater.

	Nitrite (as N)	Nitrate + Nitrite (as N)	Ammonium Ion (as N)	TKN (as N)	Nitrogen (Inorganic)	DRP
LWRP Schedule 5	-	-	-	-	1.5	0.016
No. Results	40	40	40	40	40	40
No. Detects	16	19	34	40	37	22
Minimum	0.002	0.002	<0.01	0.15	<0.011	<0.004
Minimum Detect	0.002	0.002	0.012	0.15	0.014	0.007
Maximum	0.22	2.1	4.8	6.6	**4.8**	**0.81**
Mean	0.015	0.14	0.63	1.7	0.77	**0.07**
Median	0.002	0.009	0.138	1.195	0.445	0.0075

5. Quality Assurance and Quality Control

5.1 Overview

The SAQP (WSP, 2025) outlined a Quality Assurance/Quality Control (QA/QC) programme to be implemented for the groundwater quality assessment to ensure that data generated was scientifically valid, defensible and of known precision and accuracy. The QA/QC programme included the collection of QC samples (i.e., duplicates, trip and rinsate blanks) during sampling, decontamination procedures for field sampling equipment and documentation protocols (i.e., field sampling records and chain of custody records).

This section provides an overall assessment of the data quality with respect to the QA/QC programme outlined in the SAQP.

5.2 Field QA/QC

Quality control samples including replicate samples (blind duplicates), field blanks, trip blanks and rinsate blanks were recovered during the groundwater sampling works. A summary of the sampling program is provided in Table 5.1.

Table 5.1 Field QA samples

Sample Data	Media	Primary Sample	Blind/Split Sample	Rinsate Blank
October Monitoring Round				
07/10/2025	Groundwater	-	NC	R1-BH01
08/10/25	Groundwater	-	NC	R2
09/10/25	Groundwater	HS_BH01	DUP1	R3
09/10/25	Groundwater	-	NC	R4
10/10/25	Groundwater	AVD_BH01	DUP2	NC
December Monitoring Round				
09/12/2025	Groundwater	AVO-BH02	DUPE1	NC
09/12/2025	Groundwater	RIV-BH04	DUP2	NC
08/12/2025	Groundwater	-	NC	RIN-01
09/12/2025	Groundwater	-	NC	RIN-02
11/12/2025	Groundwater	-	NC	RIN-03, RINS 3

***Notes**: NC – Not collected*

Primary and duplicate samples were analysed by Hills. An assessment of accuracy and precision of the primary laboratory analytical data was undertaken by calculating the relative percentage difference (RPD) between the primary and duplicate results. Australian Standard AS4482.1-2005 indicates that acceptably precise results are indicated by a RPD of better than 30 to 50 % but notes that the variation can be expected to be higher for organic analytes than inorganic analytes, and higher where there are low concentrations of analytes. To account for this, tiered acceptance criteria have been adopted for assessment of RPDs.

As outlined in Table 5.1, four duplicate pairs were collected and analysed across the two monitoring rounds (Table F1, Appendix F). Calculated RPDs were within the target range for TPH, BTEX, PAHs and the majority of metals in each of the duplicate pairs. Calculated RPDs outside of the target range were identified for samples from wells HS-BH01 (dissolved arsenic (189%) and dissolved lead (130 %)) and AVD-BH01 (total arsenic (64%), total lead (101%) and dissolved lead (88%)) during the October sampling round. Given the limited number of individual metals that exhibited elevated RPDs, these results are not indicative errors associated with the sampling methodology or laboratory analysis. Rather the results may be reflective of variability in the sample matrix including the presence of sediment. The variability indicated by the RPDs should be considered where the data is used for interpretative use.

Three trip blank samples were collected during the October monitoring round and analysed for TPH, BTEXN and VOCs. Concentrations of individual compounds were below the laboratory LORs in each of the three trip blank samples (Table F2, Appendix F).

Eight rinsate blank samples were collected across the two monitoring rounds (i.e., four samples per monitoring round). Analysis of the rinsate blank samples detected the presence of dissolved zinc in each of the eight samples with concentrations ranging between 0.0011 mg/L and 0.0079 mg/L (Table F2, Appendix F). Total zinc was detected in seven of the eight samples. Copper (total and dissolved) and lead (total and dissolved) were also detected above the laboratory LORs (0.0005 mg/L and 0.0001 mg/L respectively) in two samples collected from each monitoring round.

The SAQP recommended that the rinsate blank samples be collected from reusable sampling equipment (i.e., interface probe) to assess the adequacy of the decontamination procedures between sampling locations. Following a query on the sampling methodology, Stantec advised that the rinsate samples were collected by pumping deionised water through the pumping setup using new polyethylene tubing following cleaning of the sampling equipment. The presence of total and dissolved metals in the rinsate samples indicates that the decontamination process may not have been sufficient to clean the sampling equipment. However, the reported concentrations are of the same order of magnitude as the laboratory LORs and typically two orders of magnitude lower than detected in the primary samples.

5.3 Laboratory QA/QC

The analytical results provided by the laboratories are deemed reliable and complete based on:

- IANZ certification;
- The results of field and laboratory QC samples demonstrated levels of precision and accuracy with sufficient repeatability and completeness in accordance with specified RPDs;
- The laboratory detection limits are less than the assessment criteria; and
- All testing undertaken within recommended holding times.

Table 5.2 summarises conformance to specific laboratory QA/QC procedures. Overall, the number of laboratory quality indicators reported outside of the data assessment criteria represents a small fraction of the total number of laboratory QA/QC tests undertaken and the laboratory data is considered suitable for the current assessment.

Table 5.2 Laboratory QA

Quality Assurance	Conformed	Comment
October GME		
Laboratory Duplicates	Yes	Within laboratory acceptable limits.
Laboratory Control Spikes	Yes	Within laboratory acceptable limits.
Matrix Spikes	Yes	Within laboratory acceptable limits.
Methods Blanks	Yes	Within laboratory acceptable limits.
December GME		
Laboratory Duplicates	Yes	Within laboratory acceptable limits.
Laboratory Control Spikes	Yes	Within laboratory acceptable limits.
Matrix Spikes	Yes	Within laboratory acceptable limits.
Methods Blanks	Yes	Within laboratory acceptable limits.

The laboratory analytical results do note a number of comments in relation to the analysis and reporting of the groundwater quality results. Full details are documented on the laboratory certificates of analysis (Appendix E) with key items summarised as follows:

- Elevated TDS concentrations (>500 mg/L) affecting the quality of the carbonate and bicarbonate results.
- Matrix interferences were encountered for some nitrogen analyses ($NOx/NO_2/NO_3$), requiring sample dilution and resulting in higher detection/reporting limits than normally achieved.
- Anion/cation balance checks did not meet expected agreement, which the lab attributes largely to high dissolved iron and precipitation occurring in unpreserved containers, potentially altering ion concentrations and alkalinity after sampling.

The relative importance of these laboratory comments should be considered where the data is used for interpretative purposes.

5.4 Field Instrumentation Records

Field instruments that were able to be calibrated at least once per day with documentation of calibration outcomes provided to WSP. All documentation provided to WSP demonstrated that calibration checks had confirmed that equipment was within the required parameters that data collected could be considered representative.

6. Assessment of Groundwater Quality

6.1 Potential Sources of Groundwater Contamination

As discussed in Section 1.3, as assessment of groundwater quality has been undertaken based on a network of shallow monitoring wells installed to support hydrogeological investigations to support an assessment of groundwater interactions with proposed stormwater basins, and existing and proposed stopbanks. As such, the network of wells was not installed to target specific land use activities that may represent a source of potential groundwater contamination.

As part of evaluating the groundwater quality results, a review of land use activities within and adjacent to the OARC has been undertaken to evaluate the representativeness of the well network for assessing the presence of groundwater contamination. The review included identifying land use parcels tagged as Verified Hazardous Activities and Industries List (HAIL) sites on Environment Canterbury's Listed Land Use Register (LLUR) located within and adjacent to the OARC project area (Figure 6.1 to Figure 6.4). For the purpose of this assessment, the review has considered 'Verified HAIL' sites (as tagged on the LLUR) within 150 m of each of the individual wells samples including off-OARC Verified HAIL sites within 50 m of the OARC project boundary.

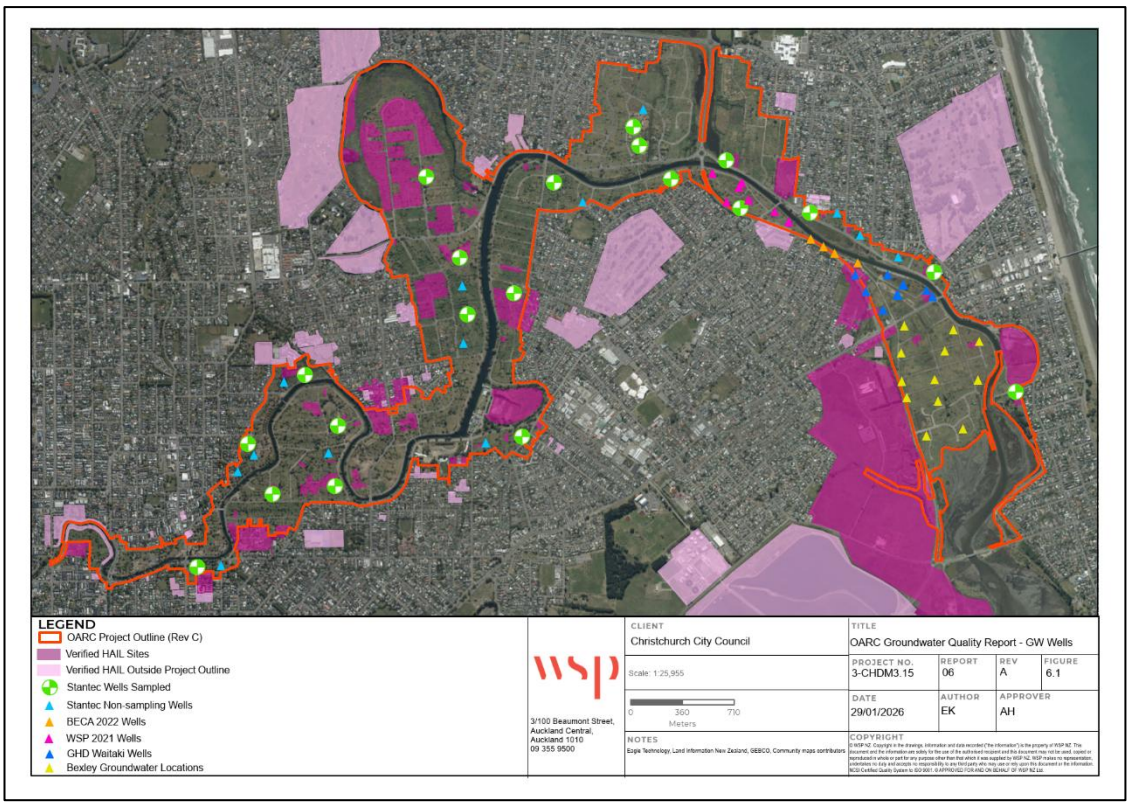


Figure 6.1 Location of Verified HAIL sites from LLUR relative to monitoring wells.

Twenty-eight (28) HAIL sites both within and outside of the OARC project area were identified within 150 m of groundwater monitoring wells sampled (Table 6.1). The most common HAIL activities included motor vehicle workshops, historical orchard/glasshouse activities and the presence of underground storage tanks (UST). It is noted that while these land parcels may be tagged on the LLUR, this does not imply the presence of contamination but rather that the land use has the potential to result in contamination of environmental media. Further it is noted that the majority of these land parcels are tagged as Verified HAIL sites with LLUR records indicating that no site-specific investigations have been undertaken to confirm the presence of contamination.

For each of the identified Verified HAILs, a risk ranking has been assigned based on the potential risk to groundwater associated with the activity. The risk ranking has been based on the type of activity, the types of contaminants associated with the activity and the chemical properties of the contaminants (i.e., higher solubility and/or volatility). The risk ranking is based on an assessment of the potential for groundwater contamination and does not indicate the presence, extent or severity of actual groundwater contamination.

Comparison of contaminants with interest (COIs) associated with each HAIL activity to the groundwater quality data collected from the OARC well network note an overall absence of contaminants that would be indicative of contamination from the HAIL site within groundwater. For example, there was no evidence of groundwater contamination in wells (e.g., AVO-BH04, BOW-BH01, BOW-BH08 and LY-BH01) that are located within 150 m of land use activities that represent a higher risk of groundwater contamination (e.g., service stations, and dry cleaners).

Table 6.1 Review of potential sources of groundwater contamination

Well Name	Verified HAIL Activities within 150 m / HAIL Activity Classification	Activity Summary	Distance (m) / Direction	Potential Contaminants of Interest	Potential Risk to Groundwater
AVD-BH01	1146 Avonside Drive – A17	Residential lot with historical underground storage tank leak	145 m NW	Metals, Asbestos, TPH, BTEX,	Medium
AVO-BH01	16 Bracken Street – I	Residential dwelling with waste storage including batteries and vehicles	40 m N	Metals, TPH, BTEX	Medium
AVO-BH02	Halley place & Dallington Terrace – A10	Historical glasshouses	25 m N and 125 m E	Metals, Asbestos, Pesticides	Low
AVO-BH04	394 Avonside Drive & 21-25 Galbraith Avenue – A5, A16 and A17	Historical wool scourer at 394 Avonside Drive from early 1900's. Dry cleaning facility present from late 1950's at 21 Galbraith - used for illegal storage of tallow in 1983/1984. Car grooming late 1980's. Demolition after earthquake, dwellings had asbestos.	130 m NE	Metals, Asbestos, TPH, PAH, BTEX, Solvents, VOC	High
	4 Aclald Avenue – G4	Historical scrap yard area	40 m N		High
	502 & 2/502A Avonside Avenue – F4	Historical motor vehicle workshop	100 m W		Medium
BOW-BH01	500 New Brighton Road – F7, F3	Historical Mobil New Brighton	< 10 m W	Metals, Asbestos, TPH, PAH, BTEX, Solvents, VOC	High
	509D New Brighton Road – F4	Historical spray painting activities	80 m E		Medium
	Bower Avenue – A17, F4	Historical UST and motor vehicle workshop	65 m N		High
BOW-BH08	555 New Brighton Road – F4, G6	Vehicle repair and rubbish disposal	< 10 m W	Metals, Asbestos, TPH, PAH, BTEX, Solvents, VOC, Chlorinated Phenols, Pesticides, Dioxins	Medium
	556 New Brighton Road – E5	Coal and firewood storage yard	25 m W		Medium
	655 Pages Road – A18	Former timber mill	140 m S		Medium
BRE-BH01	51 & 55 Cardrona Street + Nevis/Horton Place – A10	Historical glasshouses	< 10 m S	Metals, Asbestos, Pesticides, TPH, PAH	Low
	Cardrona Street & Niven Street – I	Coal tar road	140 m N		Low
BRI-BH02	876 Avonside Drive – A10	Historical glasshouses	95 m W	Metals, Asbestos, Pesticides, TPH, PAH	Low
	Kerrs Road/Avonside Drive - Porritt Park – A10	Sports field	115 m N		Low
	78 Wainoni Drive – F7, F4	Former Shell Wainoni/Avonside Auto Services	115 m NE		High
BRM-BH01	No HAIL activities within 150 m	N/A			
BRO-BH01	No HAIL activities within 150 m	N/A			
BRO-BH02	No HAIL activities within 150 m	N/A			
DUD-BH02	Banks / River Road – A17	Historical glasshouses	< 10 m S	Metals, Asbestos, Pesticides	Low
	Matata Place – E1	Asbestos in soil confirmed at concentrations below high-density residential criteria	130 m NW and NE		Low
EVA-BH01	Admirals Way – A10	Historical bowls green	35 m S	Metals, Asbestos, Pesticides	Low
	Owles Terrace – G3	Historical landfill	35 m N	Metals, Asbestos, PAH, Pesticides, Nutrients	High
HS-BH01	Kingsford St, Irene St, Queensbury St, Liggins St, Ching Gardens, Parish St, Goodman St – A10	Historical glasshouses	Immediately adjacent to north, east and south	Metals, Asbestos, Pesticides	Low
LKS-BH01	10 Barkers Road – A10	Historical glasshouses	Directly surrounding well	Metals, Asbestos, Pesticides	Low
LOC-BH02	No HAIL activities within 150 m	N/A			
LY-BH01	168 Stanmore Road / 122 Avonside Drive – G1, A10	Holy trinity church, original demolished after earthquake	35 m S	Metals, Asbestos, TPH, PAH	
	23 Trent Street – A17	Historical UST	125 m S		Medium

Well Name	Verified HAIL Activities within 150 m / HAIL Activity Classification	Activity Summary	Distance (m) / Direction	Potential Contaminants of Interest	Potential Risk to Groundwater
PS-BH01	Stiles Place – A10	Market gardens	Directly surrounding well	Metals, Pesticides	Low
RIV-BH04	No HAIL activities within 150 m	N/A			
WAN-BH01	15 Hulverstone Drive – D3	Historical spray-painting activity	75 m NE	Metals, Pesticides	Medium
	ANZAC Drive / Poipoi Place – A10	Sports field	150 m SE		Low

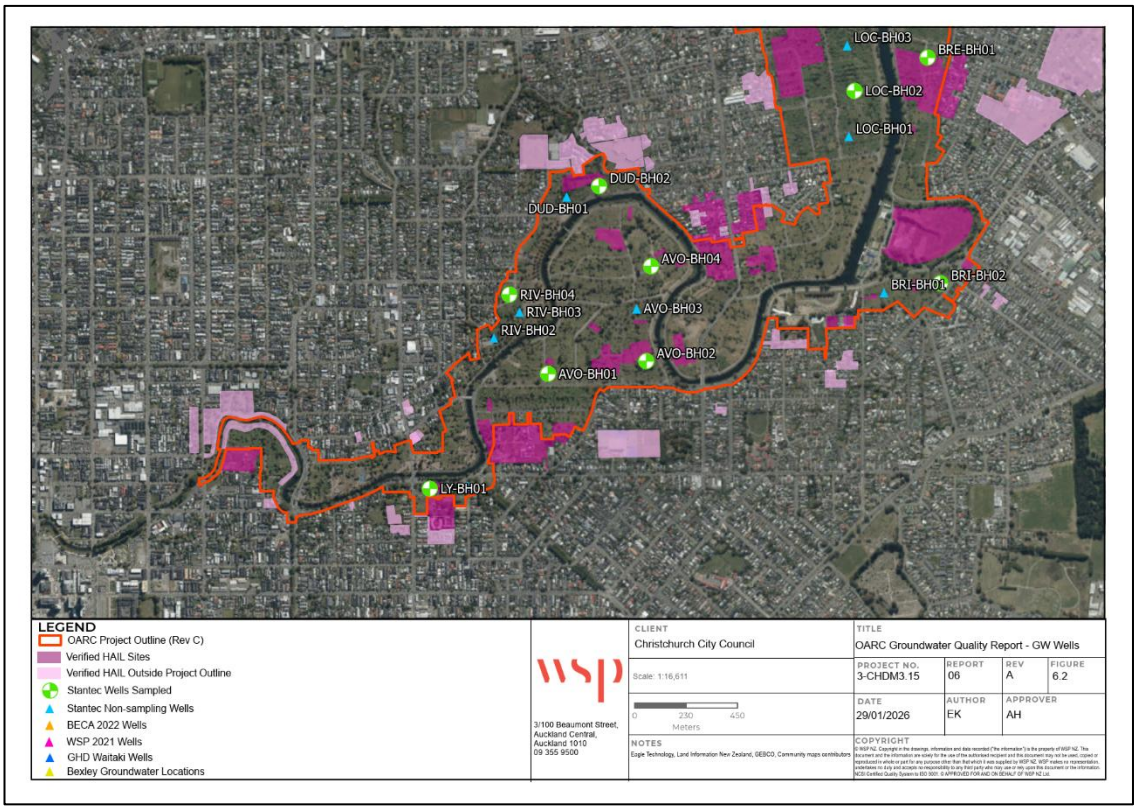


Figure 6.2 Location of Verified HAIL sites relative to monitoring wells in western part of OARC.

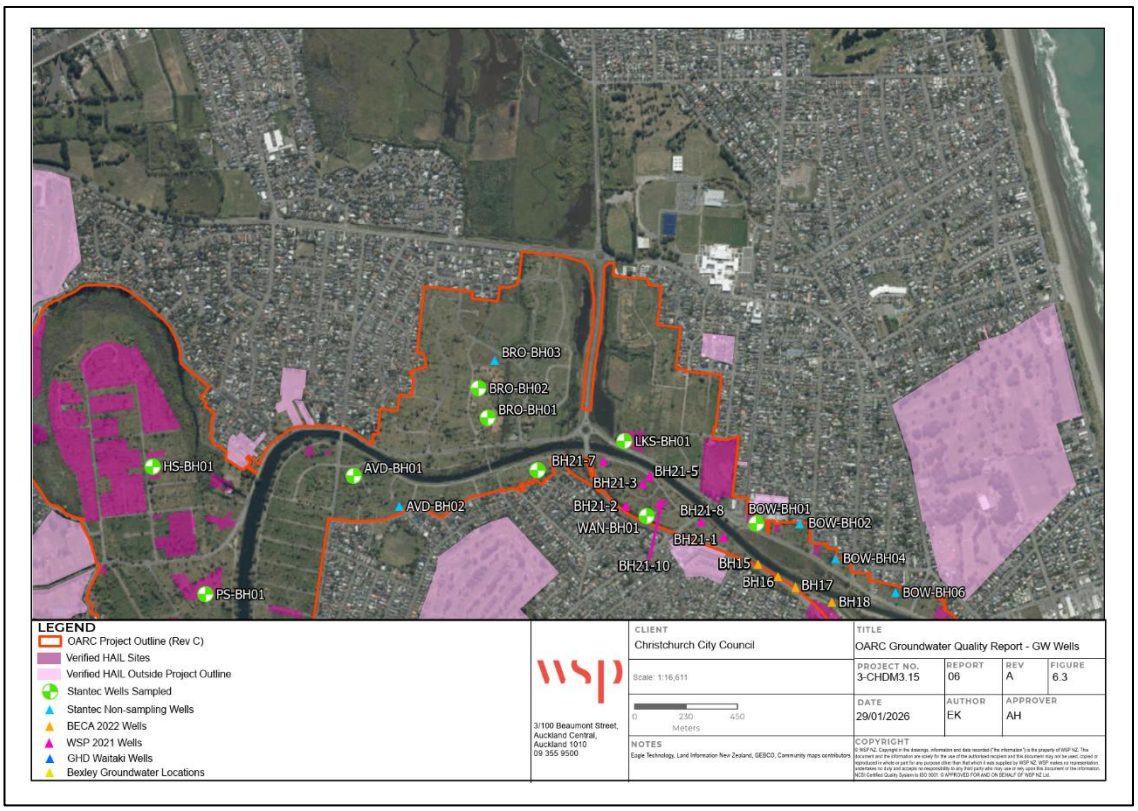


Figure 6.3 Location of Verified HAIL sites relative to monitoring wells in northern part of OARC.

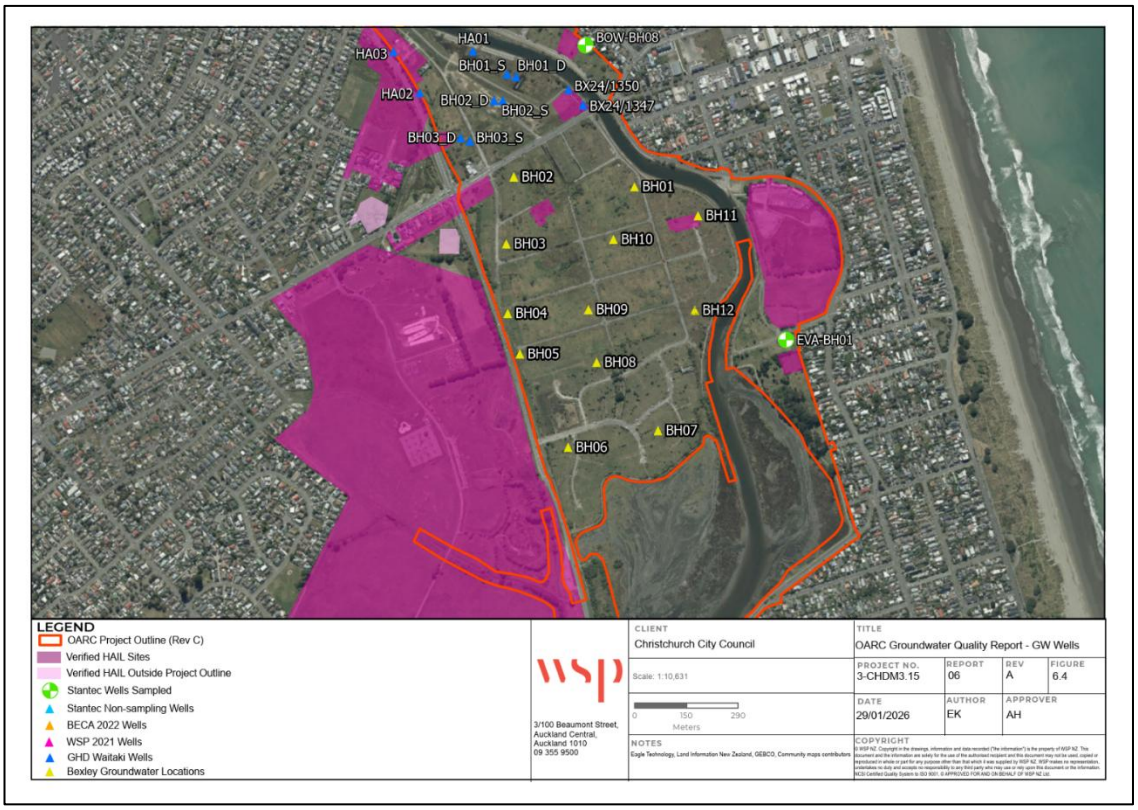


Figure 6.4 Location of Verified HAIL sites relative to monitoring wells in eastern part of OARC.

6.2 Comparison with Existing Groundwater Quality Data

Groundwater quality data has also been collected during previous investigations as part of individual projects across the OARC including in the areas of Wainoni (WSP 2022; Beca 2023a), Waitaki (GHD 2022, 2023) and Bexley (Beca 2023b). Groundwater quality data from these investigations has been compiled to provide a wider assessment of groundwater quality across the OARC including in areas not considered as part of the Stantec (2025) hydrogeological assessment. The results from these previous investigations are presented in Table T3 (Appendix B) with the well locations shown on Figure 6.2 to Figure 6.4.

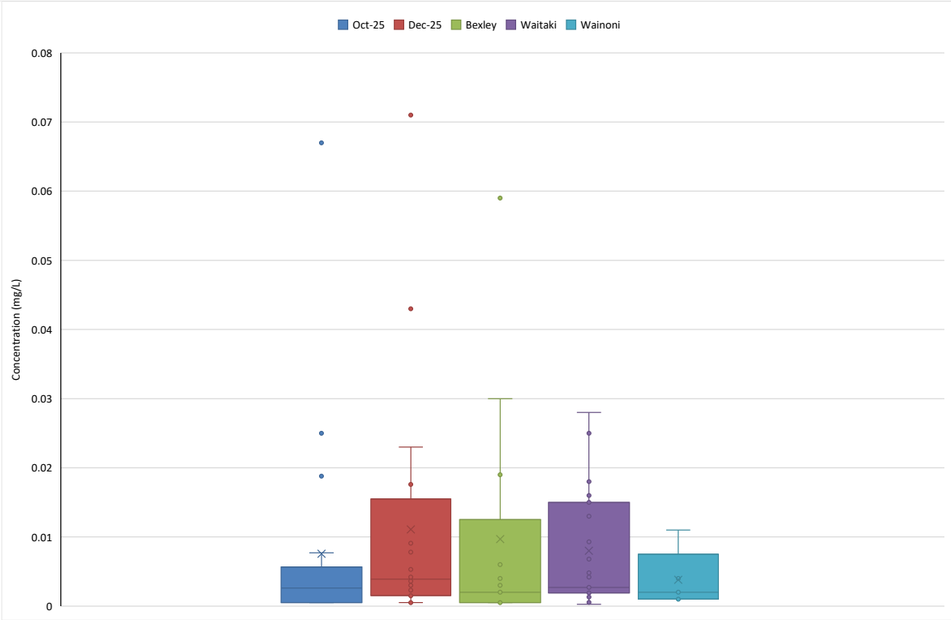
Overall, the groundwater quality data collected during the October and December 2025 monitoring rounds was similar to data reported from previous investigations. Across the wider data set, the primary groundwater COIs comprised dissolved metals (copper, lead, nickel and zinc) and nutrients including nitrogen species and DRP. Similar to the results from the 2025 groundwater sampling, the previous investigations did not detect the widespread presence of organic compounds (i.e., TPH, BTEX, PAH and VOCs) above laboratory LORs. Consistent with the 2025 groundwater sampling, low level concentrations of select individual compounds were detected in a small number of individual wells.

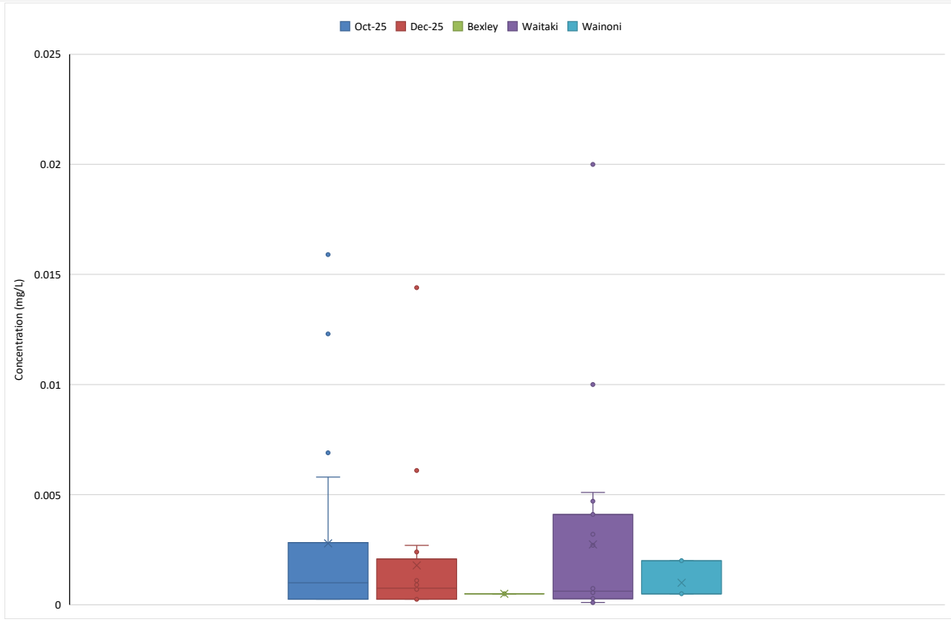
The previous investigations did detect the presence of low concentrations of individual OCPs including endosulfan and endrin Wainoni. Sampling of wells in the Bexley area also detected the presence of low concentrations of DDT, aldrin and various isomers of BHC. It is noted that previous sampling results

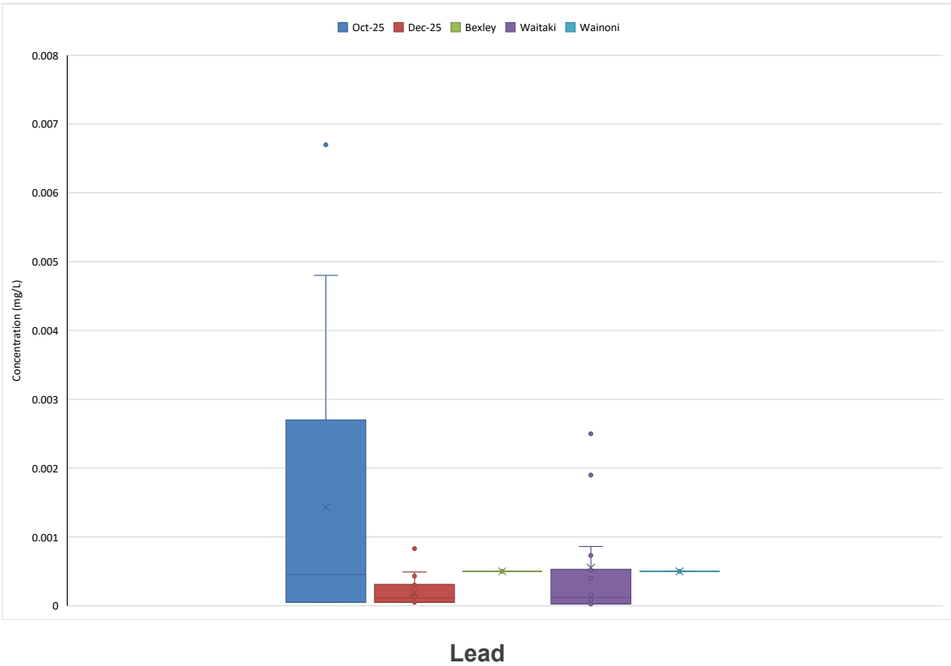
were reported based on a lower laboratory LOR compared to the 2025 groundwater monitoring. Notwithstanding this, it is noted that concentrations reported during the previous sampling were similar (same order of magnitude) as the lower laboratory LOR. This indicates a low overall risk associated with these compounds.

As noted above, the 2025 groundwater sampling identified that dissolved metals were the primary COI across the well network with concentrations of copper and zinc exceeding the adopted assessment criteria. The 2025 groundwater monitoring also reported relatively higher concentrations of copper, lead and zinc in select monitoring wells (e.g., PS-BH01, LKS-BH01 and BRI-BH02). The concentrations in these wells was higher than would be typically associated with urban stormwater run-off. The well locations were also not identified to be associated with specific land uses that may be a cause of elevated dissolved (and total) metal concentrations. Therefore, the results of the 2025 monitoring have been compared to the previous monitoring to assess whether these potentially represent outliers or are reflective of variability across the OARC.

Dissolved arsenic and copper concentrations reported during 2025 were similar to the range of concentrations reported from investigations at Bexley, Waitaki Street and Wainoni (Figure 6.5). Lead concentrations were higher in the October 2025 monitoring round compared to the wider data set although concentrations during the December 2025 round were similar to previous data. Higher concentrations of zinc were detected during the 2025 monitoring compared to previous data.







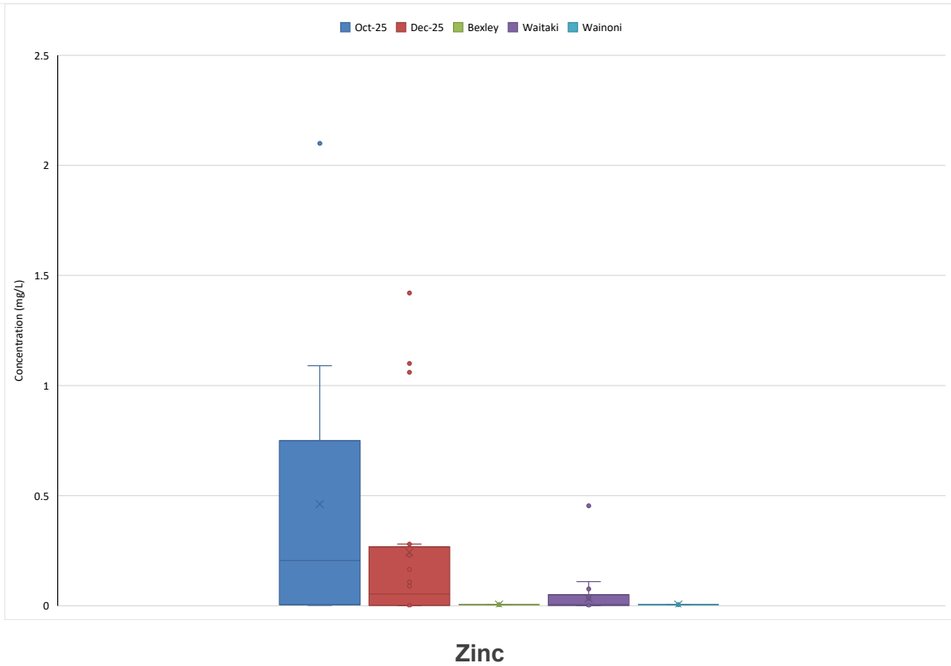


Figure 6.5 Comparison of dissolved arsenic, copper, lead and zinc concentrations.

7. Summary

As part of assessing contamination risks for the Project, Council commissioned a groundwater quality assessment. The objectives of the groundwater assessment were to:

- Provide an evaluation of groundwater quality across the OARC to provide an understanding of groundwater quality and identify potential spatial variability along the corridor.
- Inform an assessment of effects associated with contaminant discharges.

The assessment was based on the collection of groundwater quality data across a network of 20 shallow groundwater monitoring wells installed to support hydrogeological assessments for the Project. The network of wells were located in areas of proposed stormwater basins along the alignment of the Project.

The network of wells provides spatial coverage across the OARC project area including in areas where dewatering may be required as part of construction of critical Three Waters infrastructure. The well network therefore provides an understanding of the overall groundwater quality across the OARC.

In addition to the data collected from these monitoring wells, the assessment has utilised groundwater quality data from previous investigations across the OARC including at Bexley, Wainoni and Waitaki Street.

Key findings from the groundwater assessment are outlined as follows:

- Groundwater levels ranged between 0.1 m and 1.92 m bTOC across the well network with an average depth to groundwater of 1.0 m bgl across the two monitoring rounds. Groundwater elevations ranged between 1.78 m RL and -0.47 m RL with an average of 0.65 m RL in October 2025 and 0.45 m RL in December 2025.
- Groundwater salinity, as measured by TDS, was generally higher in wells in the eastern part of the OARC downstream of Avondale.
- Groundwater contamination was primarily characterised by the presence of elevated metals (copper, lead, nickel and zinc), nitrogen species and DRP.
- Across both monitoring rounds, copper, nickel and zinc were the predominant metals identified in groundwater with zinc generally detected at concentrations one order of magnitude higher than the other metals. Maximum concentrations of copper, lead, nickel and zinc exceeded the adopted assessment criteria in the October 2025 round. Maximum concentrations of copper, nickel and zin exceeded the adopted assessment criteria in the December 2025 round. Mean concentrations of copper and zinc in October 2025 and zinc in December 2025 were above the assessment criteria.
- Dissolved inorganic nitrogen (DIN) was detected in the majority (37 out of 40) of samples collected with concentrations ranging between 0.014 mg/L and 4.8 mg/L. DIN concentrations above the LWRP Schedule 5 criterion (0.016 mg/L) were detected in samples collected from Brooker Basin, Lake Kate Sheppard, Wainoni Basin and Bower Basin.
- Dissolved reactive phosphorus (DRP) was detected above the laboratory LOR (0.004 mg/L) in 22 of the 40 primary samples with concentrations ranging between 0.007 mg/kg and 0.81 mg/kg with a

mean concentration of 0.07 mg/L across the two rounds. Concentrations of DRP above the LWRP Schedule 5 criterion were in 18 samples across the two rounds. Exceedances above the LWRP Schedule 5 criterion were detected in wells along the OARC between Riverside Basin in the west and Bower Basin in the east.

- Groundwater samples were analysed for a broad suite of organic compounds including TPH, BTEX, PAH, VOCs and SVOCs. Concentrations of these compounds were below the laboratory LORs in the majority of samples collected. Low concentrations of C_7-C_9 TPH, toluene, individual PAHs and chloroform were detected in samples collected from wells in the areas of Avondale Basin, Brittans Basin, Brooker Basin, Lake Kate Sheppard and Lychgate. A review of land use activities surrounding the wells did not identify specific sources of this low level contamination.

8. Limitations

This report ('Report') has been prepared by WSP exclusively for Christchurch City Council ('Client') in relation to a Ōtākaro Avon River Corridor Contaminated Land Assessment to Support the FTAA Substantive Application] ('Purpose') and in accordance with the 3 Waters HDM Consultancy Services PANELAGREEMENT (PAN082) 20/03/2024 and Statement of Works (SoW) with the Client dated 15 August 2025. The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

In preparing this Report, WSP has relied upon data, surveys, analyses, designs, plans and other information ('Client Data') provided by or on behalf of the Client. Except as otherwise stated in this Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable for any incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

9. References

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

Beca (2023). HDM SW ŌARC Stage 1 – Bexley Detailed Site Investigation (Contamination). Report prepared by Beca Limited for Christchurch City Council, 2 October 2023.

Begg, J.G.; Jones, K.E.; Barrell, D.J.A. (compilers) 2015. Geology and geomorphology of urban Christchurch and eastern Canterbury. GNS Science geological map 3. GNS Science, Lower Hutt, N.Z.

CCC (2021). Christchurch City Surface Water Quality Annual Report 2020. Prepared to meet the Requirements of CRC214226. Report prepared by Christchurch City Council, June 2021.

CCC (2024). Christchurch City Surface Water Quality Annual Report 2023. Prepared to meet the Requirements of CRC231955. Report prepared by Christchurch City Council, August 2024.

GHD (2022) Waitaki Street Stopbank and Stormwater Basin Detailed Site Investigation: Stopbank, Tidal Wetland and Stormwater Basin - Additional Sampling. Report prepared by GHD Limited for Christchurch City Council, 12 May 2022.

GHD (2023) Waitaki Street Stormwater and Treatment Facility: Groundwater and Surface Water Monitoring Event - November 2022. Report prepared by GHD Limited for Christchurch City Council, 11 March 2023.

Manaaki Whenua/NIWA (2022). Peer review of ecotoxicity assessment for proposed Waitaki tidal wetland. Memorandum prepared by Manaaki Whenua Landcare Research and NIWA for Environment Canterbury, 22 December 2022.

Pauling, C., Lenihan, T., Rupene, M., Tirikatene-Nash, N., Couch, R. (2012). State of the Takiwā. Te Ahutanga o Te Ihutai. Cultural health assessment of the Avon-Heathcote Estuary and its catchment, Christchurch, New Zealand. Report by Te Rūnanga o Ngāi Tahu. 72 pp.

Stantec (2025) Hydrogeological Report and Modelling Plan - Ōtākaro Avon River. Report prepared by Stantec New Zealand for Christchurch City Council, 25 July 2025.

WSP (2022). Otakaro Avon River Corridor - Waitaki to Anzac Preliminary and Detailed Site Investigation. Report prepared by WSP New Zealand Limited for Christchurch City Council, 16 February 2022.

WSP (2025). Ōtākaro Avon River Corridor FTAA Application - Groundwater Quality Sampling and Analysis Quality Plan. Reprt prepared by WSP New Zealand Limited for Christchurch City Council, 11 September 2025.

Appendix A

Borehole Logs

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **AVD-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1574820 E 5183391 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council		Elevation:	1.35 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Avondale Basin		Date:	28/02/2025 Start, 28/02/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	1	0.5	FILL	Silty fine to coarse GRAVEL, minor sand, trace refuse; brownish grey. Tightly packed, dry to moist, well graded; gravel subrounded to rounded; sand fine to coarse; refuse is rusted iron. (0.30)		TP	D - M			0m Concrete collar		
					Fine to medium SAND, trace silt; greyish brown. Tightly packed, dry to moist, poorly graded. *- 0.50m - Soil becomes with trace gravel (ash), brown, and moist.* (1.00)						0.3m Bentonite backfill		
		0	1.0	Springston Fm	Fine to coarse SAND, trace silt; grey. Loosely packed, moist to wet, poorly graded. (1.20)		LP	M - W			1m Sand backfill 1.05m to 2.45m - Screen - 50mm ID PVC - slot size 1mm	28-02-2025	
			1.5		SILT, minor sand; grey with orange mottling. Stiff, low plasticity, moist to wet; sand fine. (1.80)		St						
		-1	2.0	Christchurch Fm	Silty fine to medium SAND; grey. Tightly packed, wet to saturated, well graded. (2.40)		LP	W - S					
			2.5		Fine to medium SAND, minor silt; grey. Loosely packed, saturated, poorly graded. (3.00)			S			2.55m Hole collapse		
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

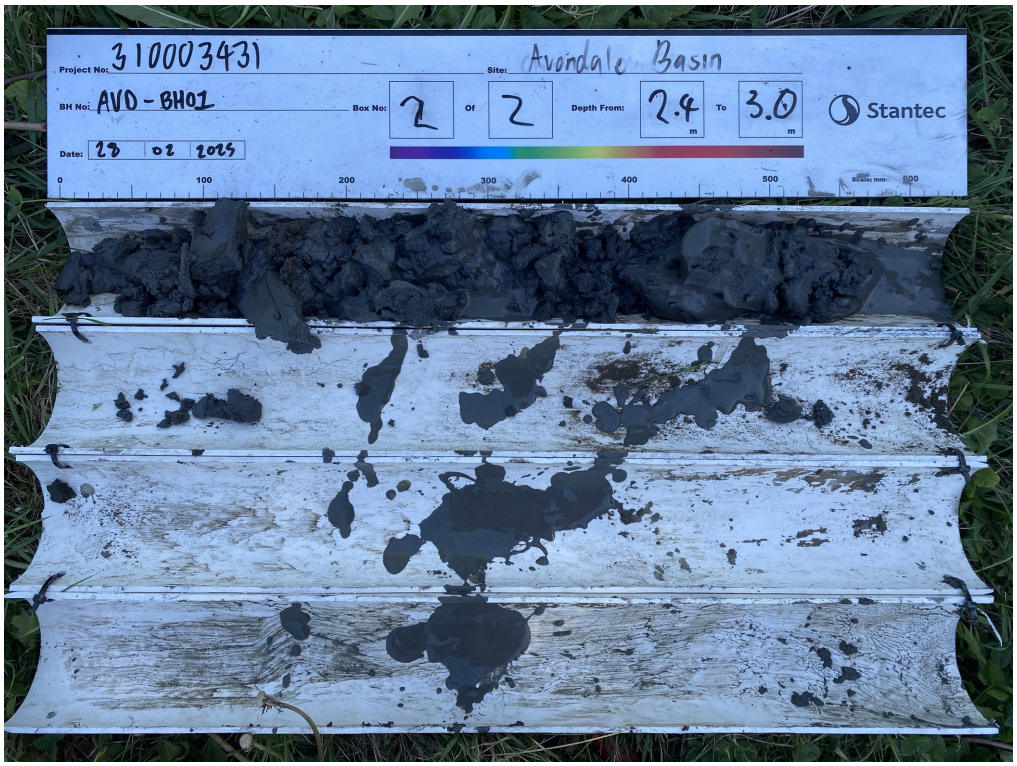
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: AVD-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Avondale Basin

PROJECT NO.: 310003431
DATE: 28/02/2025
COORDINATES: 1574820 E 5183391 N (NZTM)

AVD-BH01 0.0-2.4



AVD-BH01 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **AVD-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1575024 E 5183259 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.45 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Avondale Basin	Date: 21/02/2025 Start 21/02/2025 End	Checked By: EC

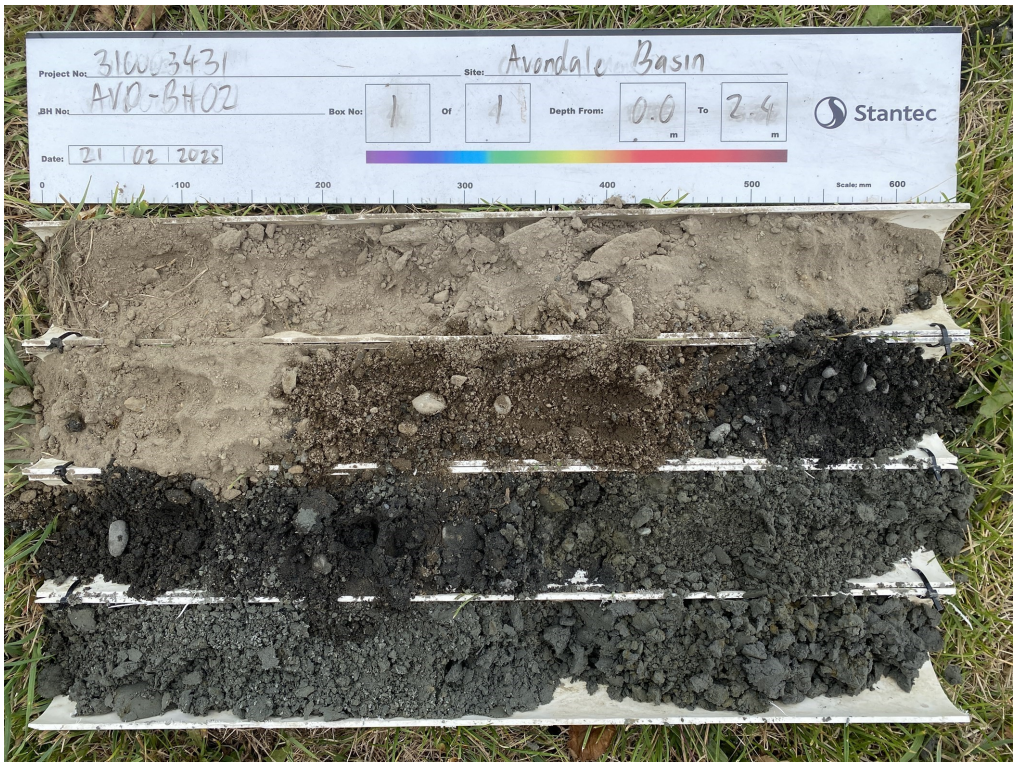
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Sandy silt loam. Moist (0.15)			M			0m Topsoil backfill 0.1m Concrete collar		
				FILL	Gravelly sandy SILT; greyish light brown. Very stiff, dry, low to non plastic; gravel fine to medium, subrounded to subangular; sand fine. (0.45)		VSt	D			0.3m Cuttings backfill		
		1	0.5		Silty fine SAND; light grey. Tightly packed, dry, poorly graded. (0.75)		TP				0.6m Bentonite backfill		
			1.0		Fine to coarse SAND, some silt, some gravel; brown. Tightly packed, moist, well graded; gravel fine to medium, subrounded. (1.05)			M					
		0	1.5		Silty fine to coarse SAND, some gravel; very dark grey. Tightly packed, moist, well graded; gravel fine to medium, sub rounded. Strong hydrocarbon odour. (1.55)						1.2m Sand backfill	28-02-2025	
			2.0	Christchurch Fm	Sandy SILT; grey with orange mottling. Firm, moist, low to non plastic; sand fine.		F				1.9m to 2.9m - Screen - 50mm ID PVC - slot size 1 mm	21-02-2025	
		-1	2.5		*- 2.40m - Soil becomes saturated.* (3.00)								
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

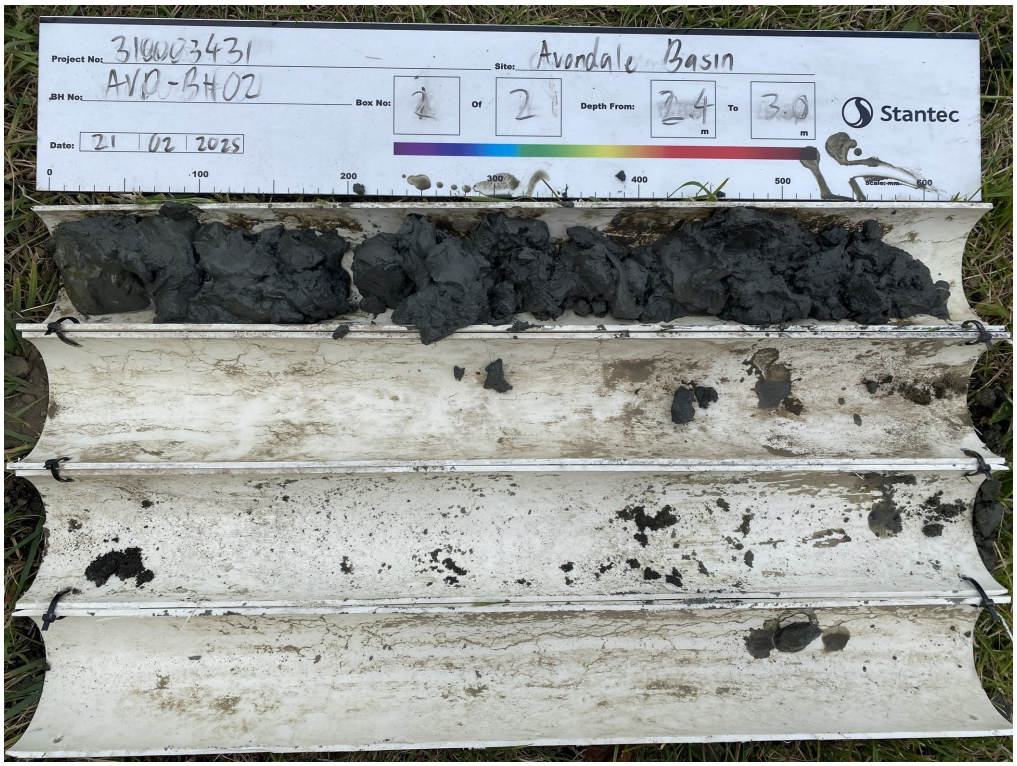
BOREHOLE PHOTOGRAPHS: AVD-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Avondale Basin

PROJECT NO.: 310003431
DATE: 21/02/2025
COORDINATES: 1575024 E 5183259 N (NZTM)



AVD-BH02 0.0-2.4



AVD-BH02 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **AVO-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1572883 E 5181246 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.88 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Avonside Basin	Date: 11/03/2025 Start 11/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
			0.5	FILL	Organic gravelly SILT, minor refuse; brown. Firm, moist, low plasticity; gravel fine to coarse, rounded to angular; refuse is brick. (0.55)		F	M			0m Concrete collar 0.3m Bentonite backfill		
		1	1.0	Christchurch Fm	SILT; minor sand; greyish brown with orange mottling. Stiff, moist, low plasticity; sand fine. *- 1.00m - Soil becomes grey and wet* *- 1.20m - 3.00m - Soil becomes saturated with some sand*		St	W - S			1m Sand backfill 1.8m Hole collapse 2m to 2.45m - Screen - 50mmID PVC - slot size 1mm	11-03-2025	
		0	1.5										
			2.0										
			2.5										
		-1	3.0		(3.00)								
					Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
			4.5										
		-3											

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: AVO-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Avonside Basin

PROJECT NO.: 310003431
DATE: 11/03/2025
COORDINATES: 1572883 E 5181246 N (NZTM)

AVO-BH01 0.0-2.4

AVO-BH01 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **AVO-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1573313 E 5181302 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council		Elevation:	1.45 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Avonside Basin		Date:	03/03/2025 Start 03/03/2025 End	Checked By: EC

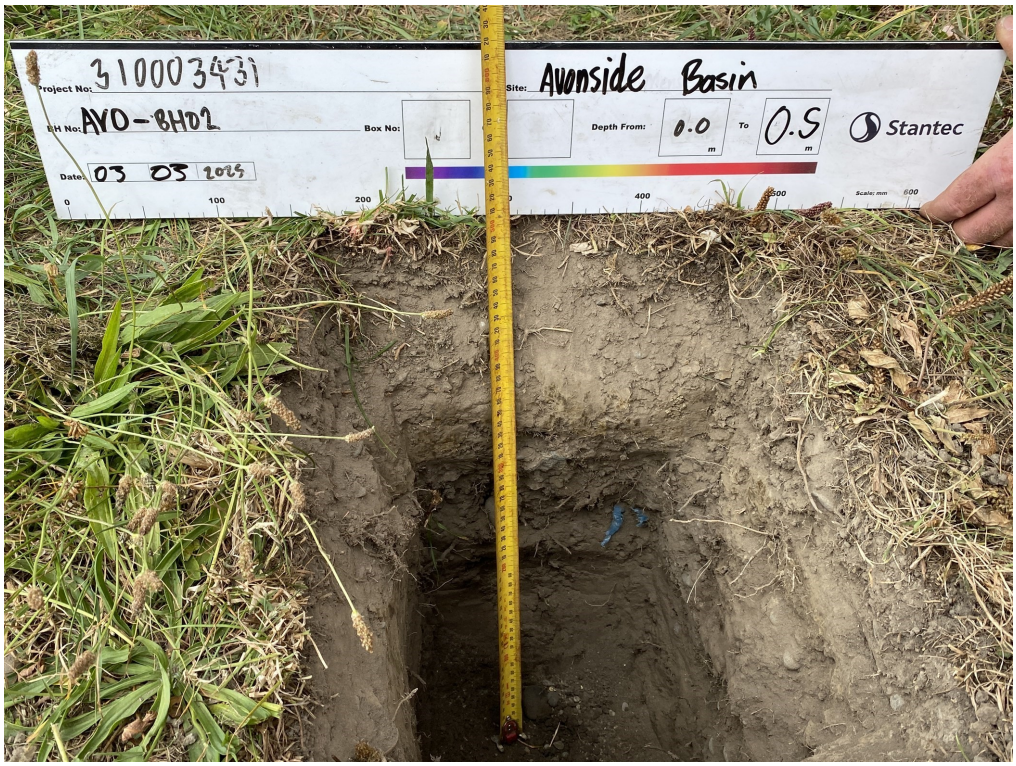
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	1	0.5	FILL	Silty fine to coarse GRAVEL, minor sand, trace refuse; brown. Tightly packed, moist, well graded; gravel rounded to subrounded; sand fine to coarse; refuse is plastic, brick and glass. (0.50)		TP	M			0m Concrete collar 0.3m Bentonite backfill		
					Gravelly SILT, some sand; dark brown. Firm, non to low plasticity, moist; gravel fine to coarse, irregular; sand fine to coarse; fragments of red brick. (0.85)		F						
			1.0	Christchurch Fm	SILT, minor sand, trace roots; brownish grey with orange mottling. Soft to firm, moist, low plasticity; sand fine. (1.45)		S				1m Sand backfill	03-03-2025	
		0	1.5		Silty fine SAND; grey. Loosely packed, wet becoming saturated, poorly graded. *- 2.00m - Hole begins squeezing* (3.00)		LP	W - S			1.5m Hole collapse 1.5m to 2.9m - Screen - 50mm ID PVC - slot size 1mm		
		-1	2.5										
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

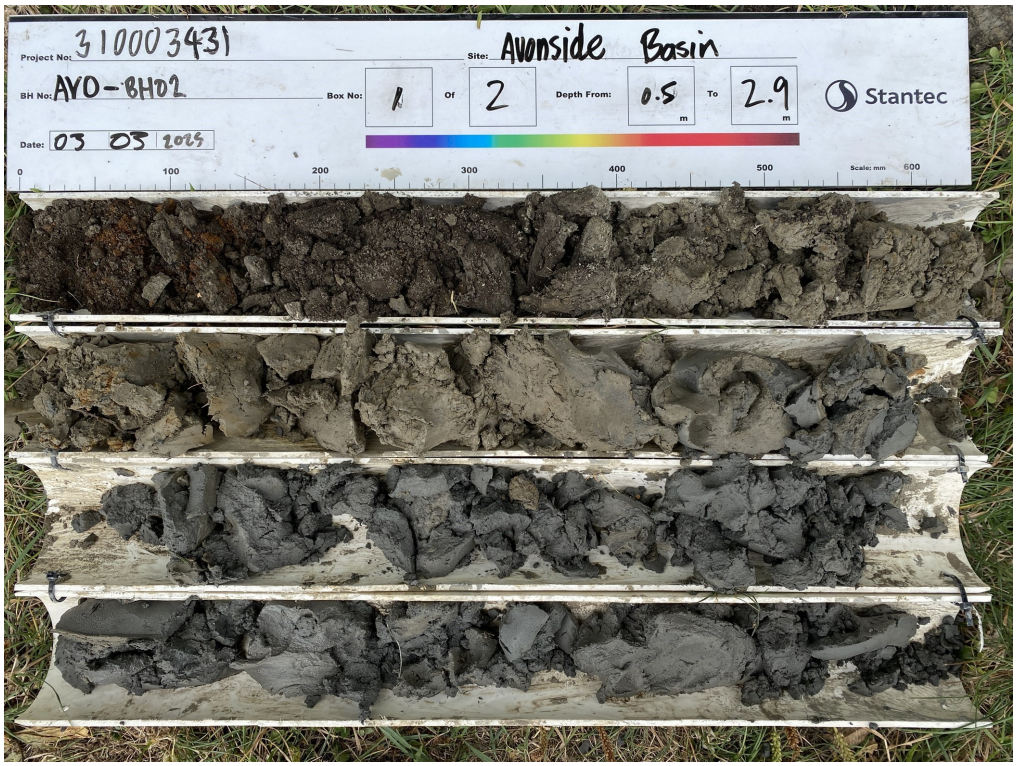
BOREHOLE PHOTOGRAPHS: AVO-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Avonside Basin

PROJECT NO.: 310003431
DATE: 03/03/2025
COORDINATES: 1573313 E 5181302 N (NZTM)



AVO-BH02 0.0-0.5

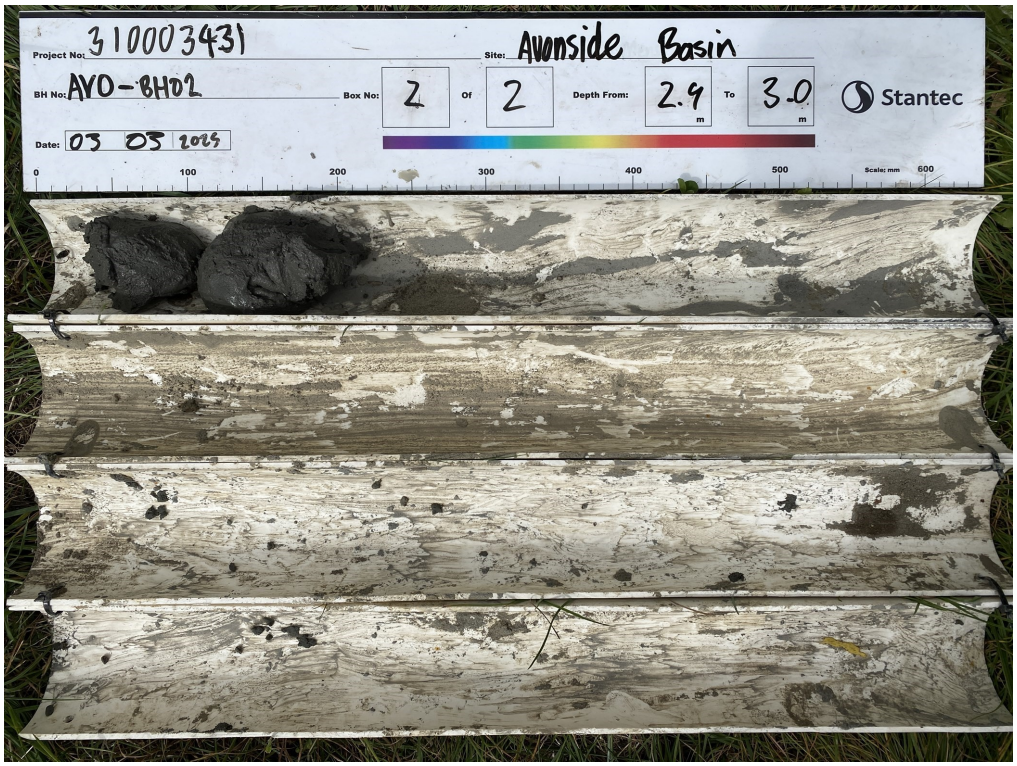


AVO-BH02 0.5-2.9

BOREHOLE PHOTOGRAPHS: AVO-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Avonside Basin

PROJECT NO.: 310003431
DATE: 03/03/2025
COORDINATES: 1573313 E 5181302 N (NZTM)



AVO-BH02 2.9-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **AVO-BH03** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1573275 E 5181532 N (NZTM)	Total Depth: 2.40m
Client:	Christchurch City Council		Elevation:	1.86 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Avonside Basin		Date:	03/03/2025 Start — 03/03/2025 End	Checked By: EC

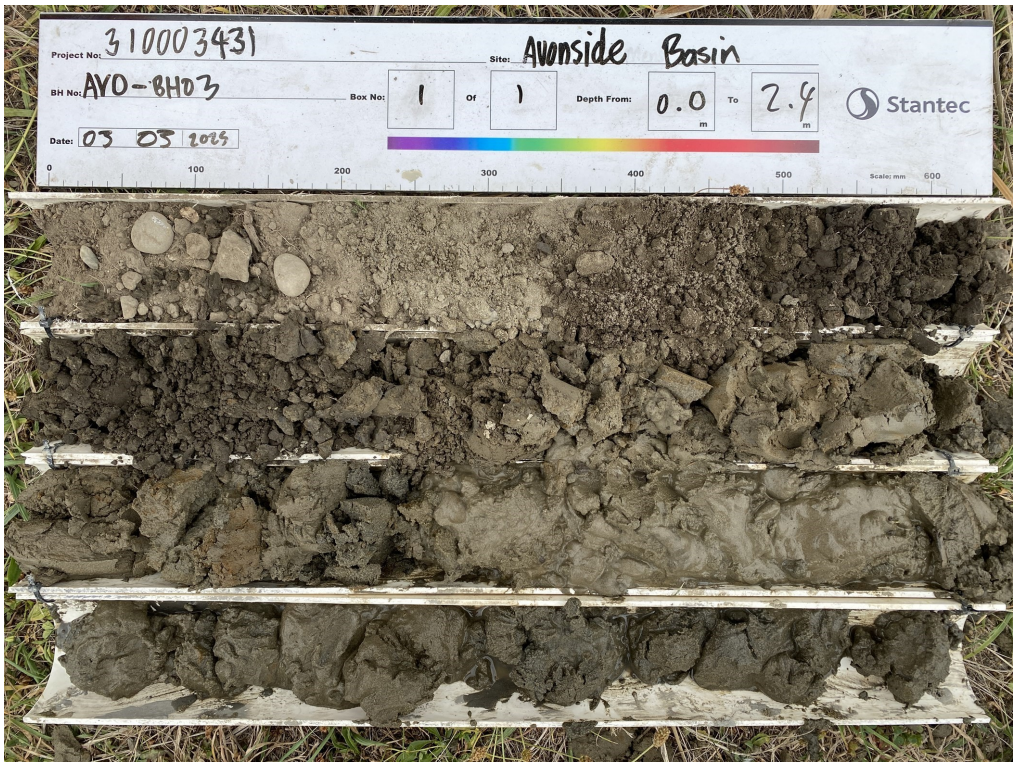
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	1	0.5	FILL	Silty fine to coarse GRAVEL, minor sand; brownish grey. Tightly packed, dry to moist, well graded; sand fine to coarse; gravel rounded to subangular. (0.50)		TP	D - M			0m Concrete collar; 0.3m Bentonite backfill		
			1.0	Buried topsoil	Organic SILT; dark brown. Firm, moist, low plasticity; organics amorphus. (0.80)		F	M					
		0	1.5	Christchurch Fm	Silty fine SAND; brownish grey with orange mottling. Loosely packed, moist, poorly graded. (1.40)		LP				1m Sand backfill; 1.3m to 2.2m - Screen - 50mm ID PVC - slot size 1mm; 1.4m Hole collapse	03-03-2025	
			2.0		Fine to medium SAND, trace silt; brownish grey. Loosely packed, saturated, poorly graded. (2.40)			S					
		-1	2.5		Borehole terminated at 2.40m BGL due to Collapse								
		-2	3.0										
		-3	3.5										
			4.0										
			4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: AVO-BH03

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Avonside Basin

PROJECT NO.: 310003431
DATE: 03/03/2025
COORDINATES: 1573275 E 5181532 N (NZTM)



AVO-BH03 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **AVO-BH04** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1573333 E 5181716 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.87 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Avonside Basin	Date: 11/03/2025 Start 11/03/2025 End	Checked By: EC

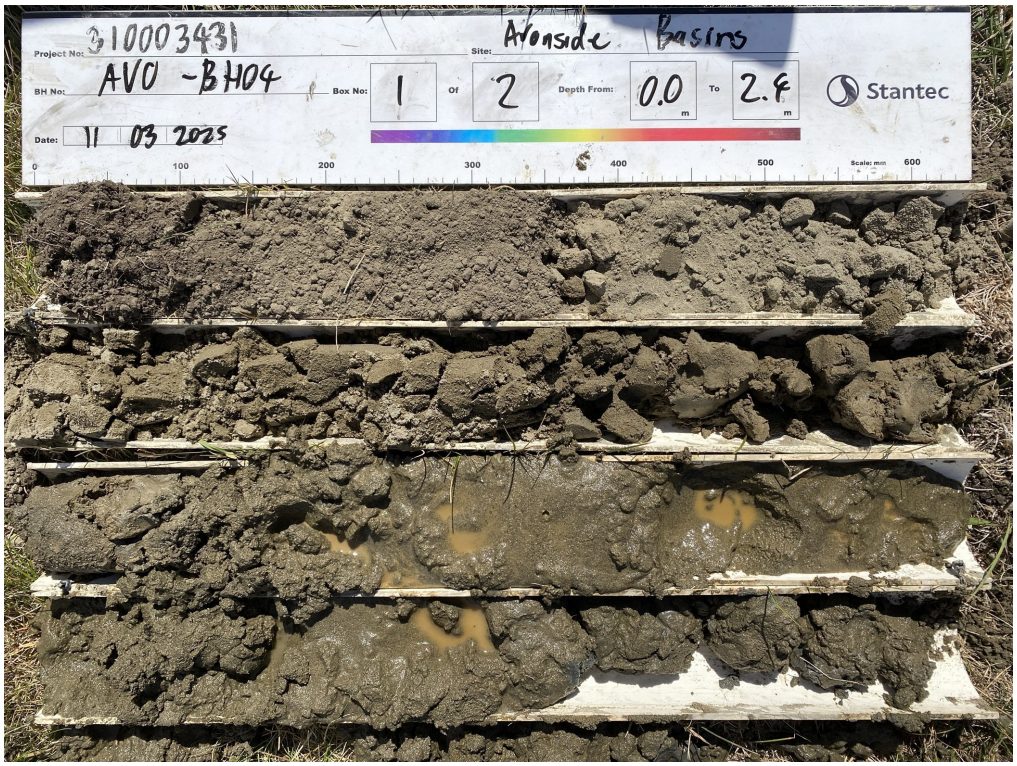
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Organic sandy SILT, brown. Firm, low plasticity, moist; sand fine to coarse; organics amorphus. (0.35)		F	M			0m Concrete collar 0.3m Bentonite backfill		
		1	0.5	Springston Fm	Fine to medium SAND, trace silt; light brown. Loosely packed, moist, poorly graded. (1.00)		LP						
			1.0		SILT, some sand; grey with orange mottling. Firm, moist to wet, low plasticity; sand fine. (1.30)		F	M - W			1m Sand backfill 1m to 2.5m - Screen - 50mm ID PVC - slot size 1mm	11-03-2025	
		0	1.5	Christchurch Fm	Fine to coarse SAND, minor gravel; brownish grey. Loosely packed, saturated, poorly graded; gravel fine to medium, rounded to subangular. *- 1.80m - Gravel becomes absent.* (3.00)		LP	S			1.4m Hole collapse		
		-1	2.0										
			2.5										
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: AVO-BH04

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Avonside Basin

PROJECT NO.: 310003431
DATE: 11/03/2025
COORDINATES: 1573333 E 5181716 N (NZTM)



AVO-BH04 0.0-2.4

AVO-BH04 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BOW-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1576582 E 5183182 N (NZTM)	Total Depth: 2.40m
Client:	Christchurch City Council	Elevation: 1.81 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Bower Basin	Date: 10/03/2025 Start 10/03/2025 End	Checked By: EC

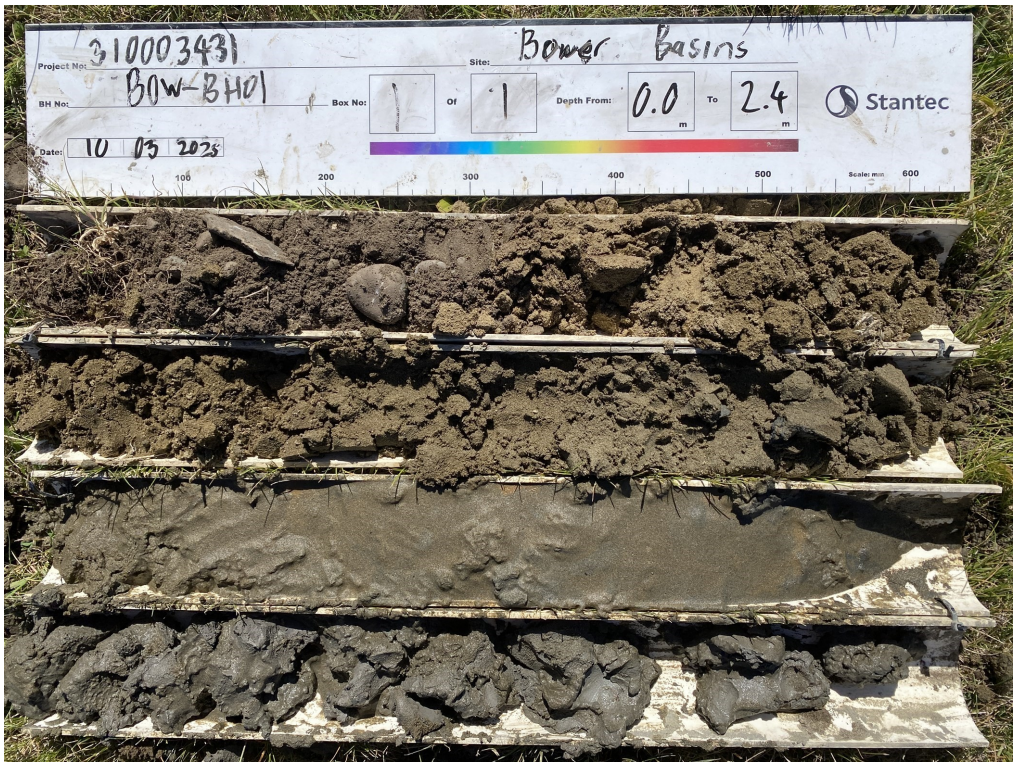
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
				FILL	Sandy fine to coarse GRAVEL, some silt; brown. Tightly packed, moist, well graded; sand fine to coarse; gravel rounded-angular. (0.30)		TP	M			0m Concrete collar		
		1	0.5	Christchurch Fm	Fine to coarse SAND, trace silt; brown. Loosely packed, moist, poorly graded.		LP	W - S			0.3m Bentonite backfill		
			1.0		*- 0.90m - Soil becomes grey and wet.*						1m Cuttings backfill	10-03-2025	
					- 1.20m - Soil becomes saturated.						1.4m Hole collapse		
		0	1.5		(1.90)								
			2.0		SILT, some sand; grey. Firm, wet, low plasticity; sand fine. (2.40)		F	W			1.9m to 2.3m - Screen - 50mm ID PVC - slot size 1mm		
			2.5		Borehole terminated at 2.40m BGL due to Collapse								
		-1	3.0										
			3.5										
		-2	4.0										
			4.5										
		-3											

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BOW-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Bower Basin

PROJECT NO.: 310003431
DATE: 10/03/2025
COORDINATES: 1576582 E 5183182 N (NZTM)



BOW-BH01 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BOW-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1576776 E 5183183 N (NZTM)	Total Depth: 2.40m
Client:	Christchurch City Council		Elevation:	1.76 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Bower Basin		Date:	12/03/2025 Start — 12/03/2025 End	Checked By: EC

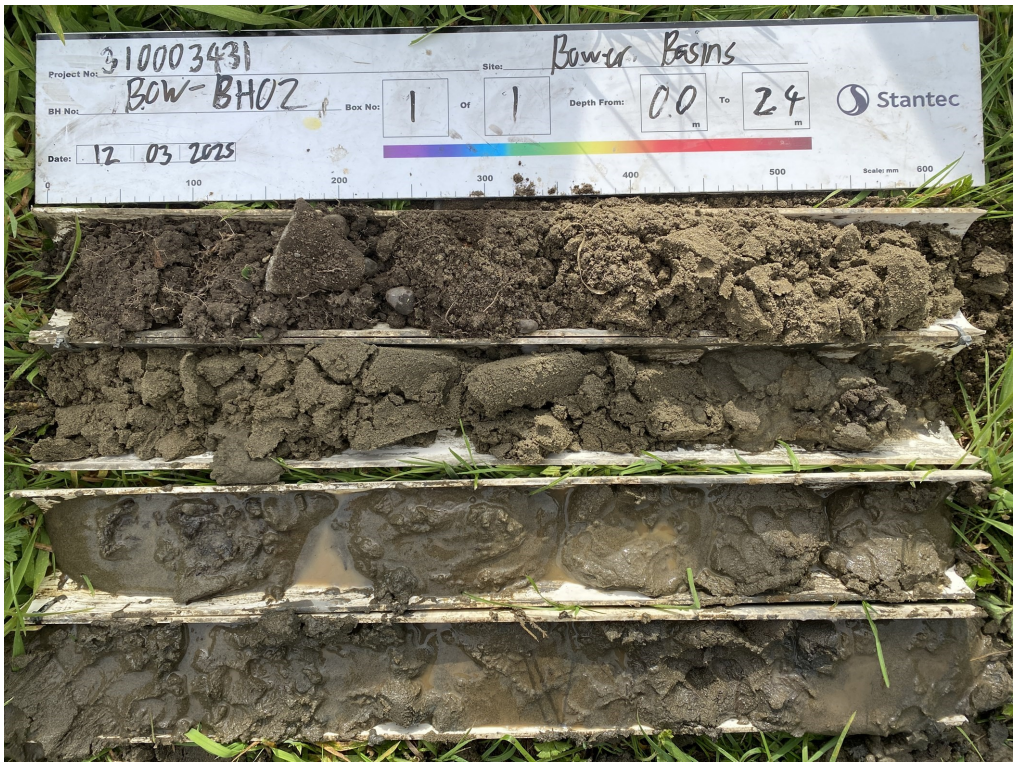
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
				FILL	Gravelly organic SILT, some sand, minor refuse; brown. Firm, moist, low plasticity; gravel fine to coarse, rounded to subangular; sand fine to coarse; refuse brick & concrete. (0.35)		F				0m Concrete collar 0.3m Bentonite backfill		
		1 0 -1 -2 -3	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5	Christchurch Fm	Fine to medium SAND, trace silt; greyish brown. Loosely packed, moist, poorly graded. *- 0.60m - Wet* *- 1.00m - Saturated* *- 1.20m - Trace amorphs organics* *- 1.80m - Sand fine-coarse* (2.40)		LP	M			1m Sand backfill 1.2m Cuttings backfill 1.6m to 2m - Screen - 50mm ID PVC - slot size 1mm	12-03-2025	
					Borehole terminated at 2.40m BGL due to Collapse								

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BOW-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Bower Basin

PROJECT NO.: 310003431
DATE: 12/03/2025
COORDINATES: 1576776 E 5183183 N (NZTM)



BOW-BH02 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BOW-BH04** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1576933 E 5183030 N (NZTM)	Total Depth: 3.20m
Client:	Christchurch City Council	Elevation: 1.81 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Bower Basin	Date: 12/03/2025 Start 12/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silty loam (0.20)						0m Concrete collar		
		1	0.5	Christchurch Fm	Fine to medium SAND, trace silt; light brown. Loosely packed, moist, poorly graded. (1.50)		LP	M			0.3m Bentonite backfill; 1m Sand backfill		
		0	1.5		SILT, minor sand; grey. Soft, wet, low to moderate plasticity; sand fine. *- 2.30m - Soil becomes saturated.* (2.90)		S	W			1.8m Hole collapse; 2.5m to 3m - Screen - 50mm ID PVC - slot size 1mm	12-03-2025	
		-1	2.5		Silty fine to medium SAND; grey. Loosely packed, saturated, well graded. (3.20)		LP	S					
		-2	3.0		Borehole terminated at 3.20m BGL due to Target depth								
		-3	3.5										
			4.0										
			4.5										

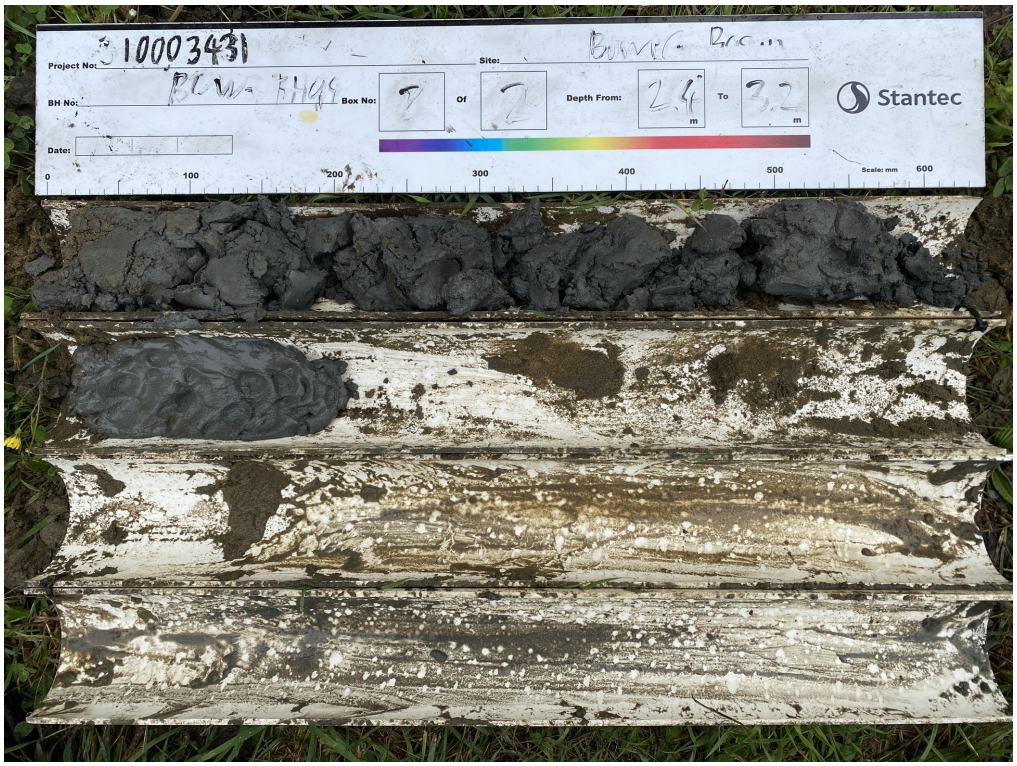
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BOW-BH04

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Bower Basin

PROJECT NO.: 310003431
DATE: 12/03/2025
COORDINATES: 1576933 E 5183030 N (NZTM)

BOW-BH04 0.0-2.4



BOW-BH04 2.4-3.2

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BOW-BH06** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1577195 E 5182881 N (NZTM)	Total Depth: 2.40m
Client:	Christchurch City Council	Elevation: 0.93 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Bower Basin	Date: 10/03/2025 Start 10/03/2025 End	Checked By: EC

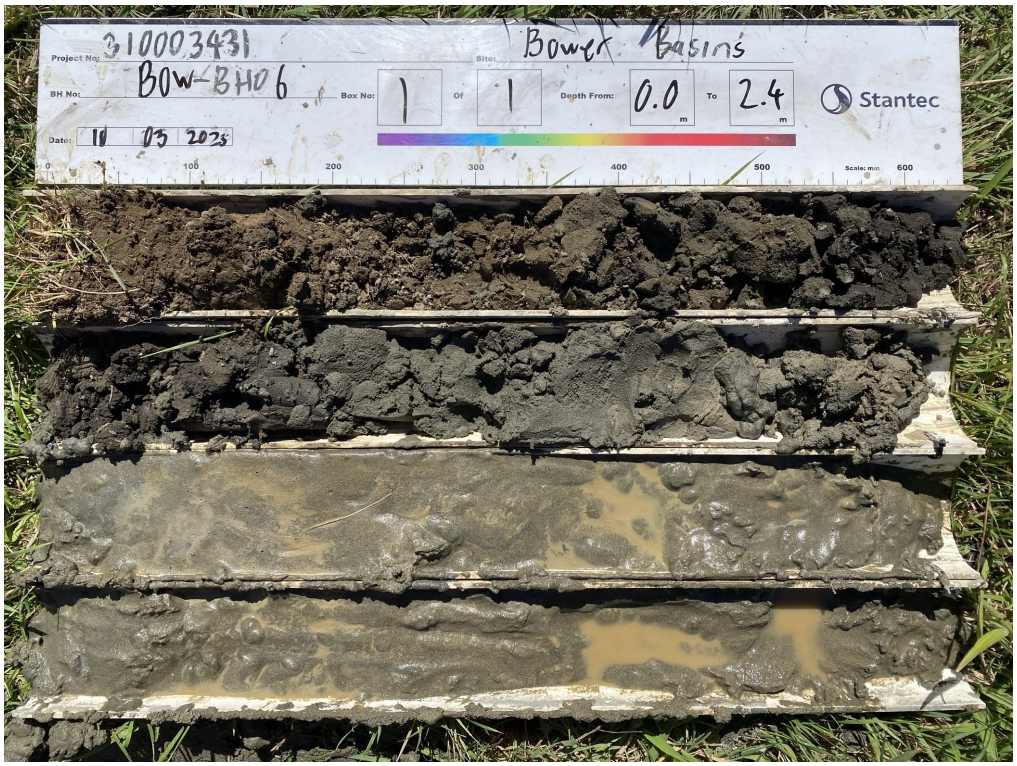
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silt loam, trace gravel (0.25)						0m Concrete collar		
			0.5	Christchurch Fm	Fine to medium SAND, trace silt; brown with orange mottling. Loosely packed, moist, poorly graded. (0.50)		LP	M			0.3m Bentonite backfill		
					Organic fine to medium SAND, trace silt; dark grey, loosely packed, moist, poorly graded; organics amorphus. (0.75)							10-03-2025	
		0	1.0		Fine to medium SAND, trace silt; grey with cream mottling. Loosely packed, wet, poorly graded. *- 0.95m - Soil becomes saturated.*			W - S			1m Hole collapse		
			1.5								1.65m to 2.15m - Screen - 50mm ID PVC - slot size 1mm		
		-1	2.0		(2.40)								
			2.5		Borehole terminated at 2.40m BGL due to Collapse								
		-2	3.0										
			3.5										
		-3	4.0										
			4.5										
		-4											

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BOW-BH06

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Bower Basin

PROJECT NO.: 310003431
DATE: 10/03/2025
COORDINATES: 1577195 E 5182881 N (NZTM)



BOW-BH06 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BOW-BH08** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1577435 E 5182774 N (NZTM)	Total Depth: 2.10m
Client:	Christchurch City Council		Elevation:	0.95 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Bower Basin		Date:	12/03/2025 Start — 12/03/2025 End	Checked By: EC

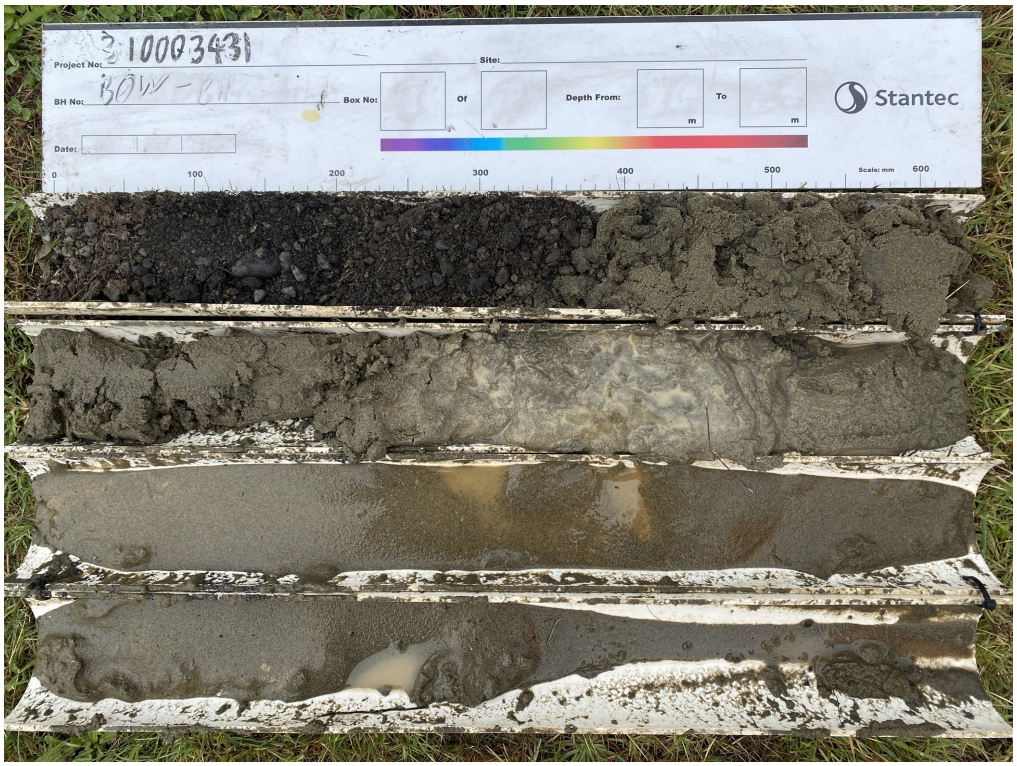
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
				ASPHALT	Bituminous, sandy fine to coarse GRAVEL; black. Tightly packed, dry to moist, well graded. (0.40)		TP	D - M			0m Concrete collar 0.3m Bentonite backfill		
		0 -1	0.5 1.0 1.5 2.0	Christchurch Fm	Fine to medium SAND; light brown. Loosely packed, moist, poorly graded. *- 0.60m - Soil becomes wet.* *- 0.80m - Soil becomes saturated.* (2.10)		LP	W - S			1m Sand backfill 1.2m Hole collapse 1.4m to 1.8m - Screen - 50mm ID PVC - slot size 1mm	12-03-2025	
		-2 -3 -4	2.5 3.0 3.5 4.0 4.5		Borehole terminated at 2.10m BGL due to Collapse								

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BOW-BH08

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Bower Basin

PROJECT NO.: 310003431
DATE: 12/03/2025
COORDINATES: 1577435 E 5182774 N (NZTM)



BOW-BH08 0.0-2.1

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BRE-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1574544 E 5182629 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council		Elevation:	1.37 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Breezes Basin		Date:	05/03/2025 Start — 05/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	1	0.5	Christchurch Fm	Silt loam (0.30)						0m Concrete collar		
					Fine to medium SAND; brown. Loosely packed, moist, poorly graded. (0.80)		LP				0.3m Bentonite backfill		
		0	1.0		SILT, trace sand; brownish grey with orange mottling. Stiff, moist, low plasticity.		St	M			1m Sand backfill		
			1.5		*- 1.40m - Soil becomes highly mottled.* (1.70)						1.25m Hole collapse 1.25m to 2.75m - Screen - 50mm ID PVC - slot size 1mm	05-03-2025	
		-1	2.0		Fine to medium SAND, trace silt; grey. Loosely packed, saturated, poorly graded.		LP	S					
			2.5		*- 2.20m - Soil becomes with some silt.* *- 2.40m - Soil becomes with minor silt.* (3.00)								
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

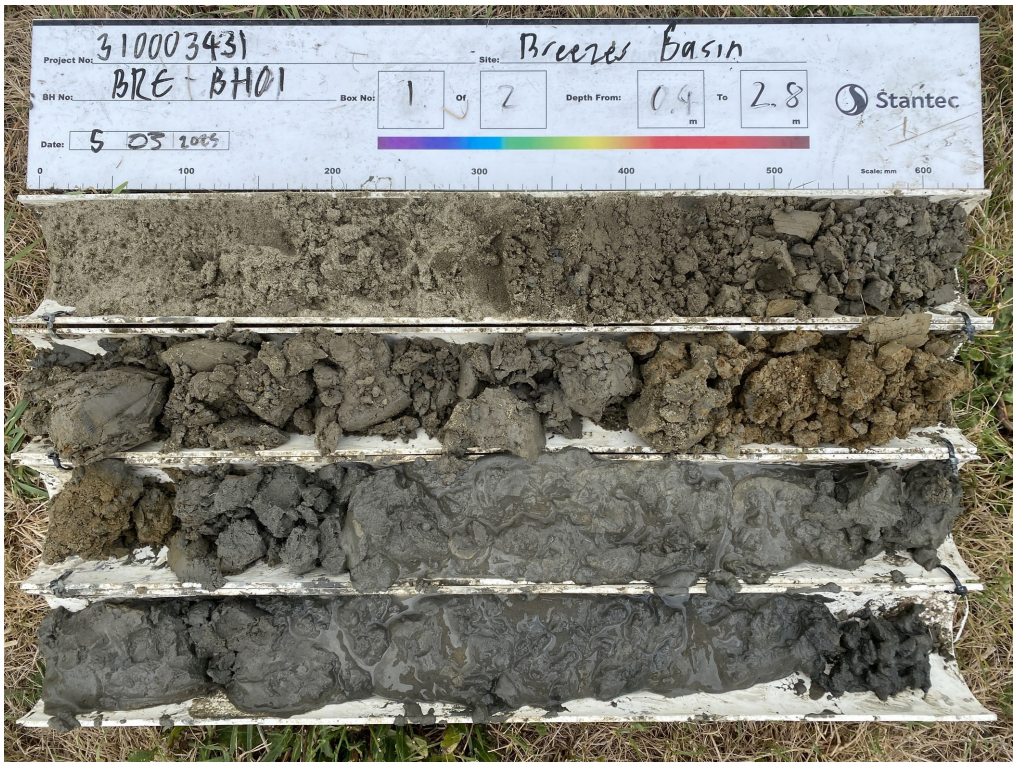
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BRE-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Breezes Basin

PROJECT NO.: 310003431
DATE: 05/03/2025
COORDINATES: 1574544 E 5182629 N (NZTM)

BRE-BH01 0.0-0.4



BRE-BH01 0.4-2.8

BOREHOLE PHOTOGRAPHS: BRE-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Breezes Basin

PROJECT NO.: 310003431
DATE: 05/03/2025
COORDINATES: 1574544 E 5182629 N (NZTM)

BRE-BH01 2.8-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BRI-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1574358 E 5181602 N (NZTM)	Total Depth: 2.40m
Client:	Christchurch City Council	Elevation: 1.05 mRL (NZVD2016)	Logged By: EWH
Description:	Proposed Brittans Basin	Date: 26/03/2025 Start 26/03/2025 End	Checked By: EC

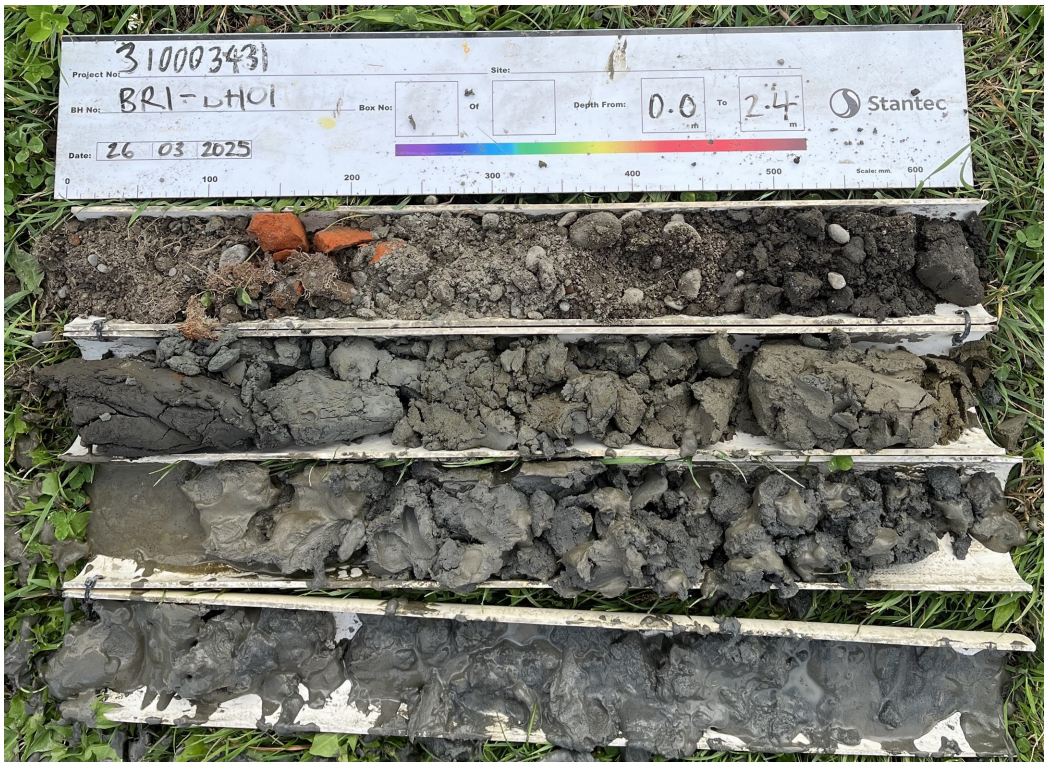
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
		1		FILL	SILT, some gravel, some refuse, trace rootlets; grey. Firm, dry, low plasticity; gravel fine; refuse is brick and concrete. (Estimated K=0.1m/day) (0.20)		F	D			0m Concrete collar		
				FILL	Fine to coarse SAND, trace gravel; grey. Tightly packed, dry, well graded; sand fine; gravel fine to medium. (Estimated K=1m/day) (0.50)		TP				0.4m Bentonite backfill		
			0.5	Estuarine	Sandy SILT; grey with orange mottling. Firm, moist, low plasticity; sand fine. (Estimated K=0.5m/day) *- 0.70m - Soil becomes wet.* (1.40)		F	M - W			1m Sand backfill	26-03-2025	
		0	1.0										
			1.5	Estuarine	SILT trace sand; grey. Firm, wet, low to medium plasticity. (Estimated K=0.5m/day) *- 1.50m - Soil becomes with trace rootlets.* (2.40)			W			1.45m Hole collapse 1.45m to 2.4m - Screen - 50mm ID PVC - slot size 1mm		
		-1	2.0										
			2.5		Borehole terminated at 2.40m BGL due to Target depth								
		-2	3.0										
			3.5										
		-3	4.0										
			4.5										

Contractor:	Inclination:	Remarks:
Stantec	90°	Initial proposed location moved due to presence of asbestos construction materials within fill. Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BRI-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Brittans Basin

PROJECT NO.: 310003431
DATE: 26/03/2025
COORDINATES: 1574358 E 5181602 N (NZTM)



BRI-BH01 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BRI-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1574600 E 5181642 N (NZTM)	Total Depth: 3.80m
Client:	Christchurch City Council		Elevation:	2.08 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Brittans Basin		Date:	26/03/2025 Start 26/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
		2			SILT, trace gravel and rootlets; greyish brown. Dry. (0.30)						0m Concrete collar 0.24m Bentonite backfill		
			0.5	FILL	SILT, trace sand; pale brown. Stiff, dry, low plasticity. (0.80)			D				26-03-2025	
		1	1.0	Christchurch Fm	SILT, minor sand; grey with orange mottling. Firm to stiff, dry, low plasticity; sand fine. *- 1.20m - Soil becomes moist and orange.* *- 1.60m - Soil becomes grey with orange mottling.* *- 1.80m - Soil becomes wet and orange mottling absent.* (3.80)		St	M - W			1m Sand backfill 1.5m Hole collapse 1.55m to 2.55m - Screen - 50mm ID PVC -slot size 1mm		
		0	1.5										
			2.0										
			2.5										
		-1	3.0										
			3.5										
		-2	4.0		Borehole terminated at 3.80m BGL due to Machine Limit								
			4.5										

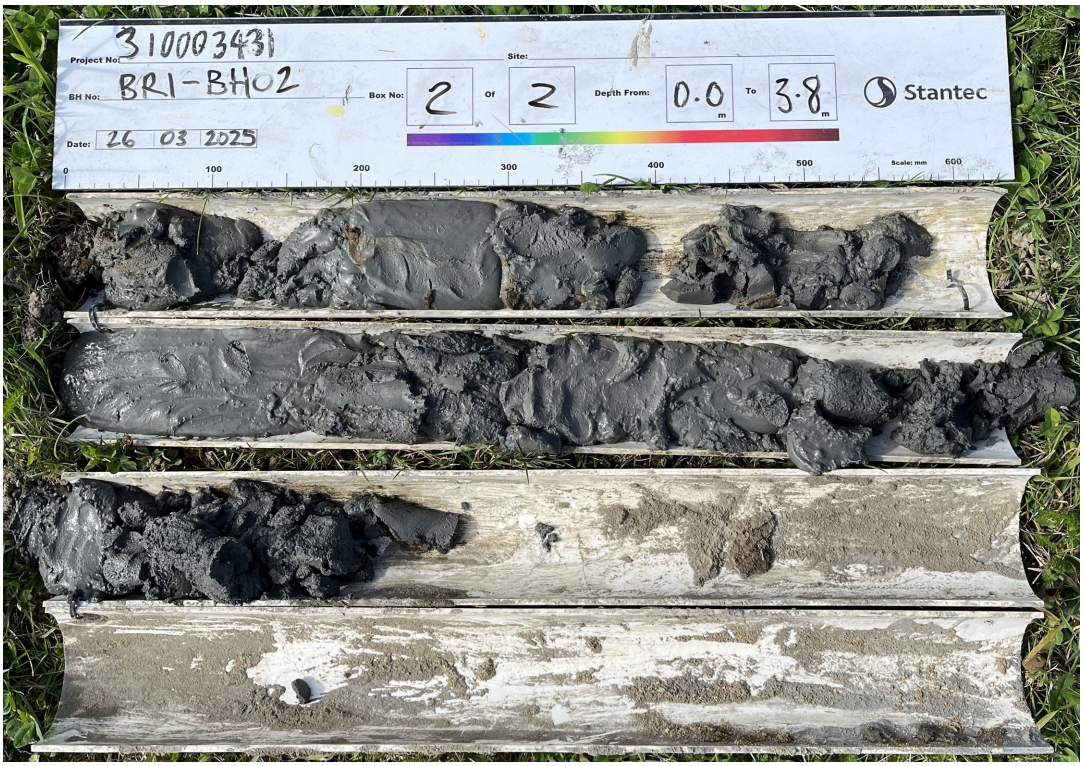
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BRI-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Brittans Basin

PROJECT NO.: 310003431
DATE: 26/03/2025
COORDINATES: 1574600 E 5181642 N (NZTM)

BRI-BH02 0.0-2.4



BRI-BH02 2.4-3.8

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BRM-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1575624 E 5183415 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.38 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Briarmont Basin	Date: 05/03/2025 Start 05/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	1			Silt loam (0.10)						0m Concrete collar	05-03-2025	
				FILL	Silty fine to coarse GRAVEL, some sand, minor refuse; greyish brown. Tightly packed, dry to moist, well graded; gravel rounded to angular; sand fine to coarse; refuse is cloth, brick, and plastic. (0.40)		TP	D - M			0.3m Bentonite backfill		
			0.5		Fine to medium SAND, minor roots, trace silt, trace refuse; brownish grey. Loosely packed, dry, poorly graded; refuse is cloth and tape. (0.60)		LP	D					
				Buried topsoil	Organic SILT, minor sand; brown. Firm, low plasticity, moist; organics amorphus; sand fine. (0.80)		F	M					
			1.0	Springston Fm	Silty fine SAND; greyish brown. Loosely packed, moist, poorly graded. (1.10)		LP				1m Sand backfill		
		0	1.5	Christchurch Fm	Sandy SILT; grey. Firm, wet to saturated, low plasticity; sand fine. (2.80)		F	W - S			1.5m Hole collapse 1.5m to 2.5m - Screen - 50mm ID PVC - slot size 1mm		
		-1	2.0										
			2.5										
			3.0		Fine to medium SAND, trace silt; grey. Loosely packed, saturated, poorly graded. (3.00)		LP	S					
		-2	3.5		Borehole terminated at 3.00m BGL due to Target depth								
			4.0										
		-3	4.5										

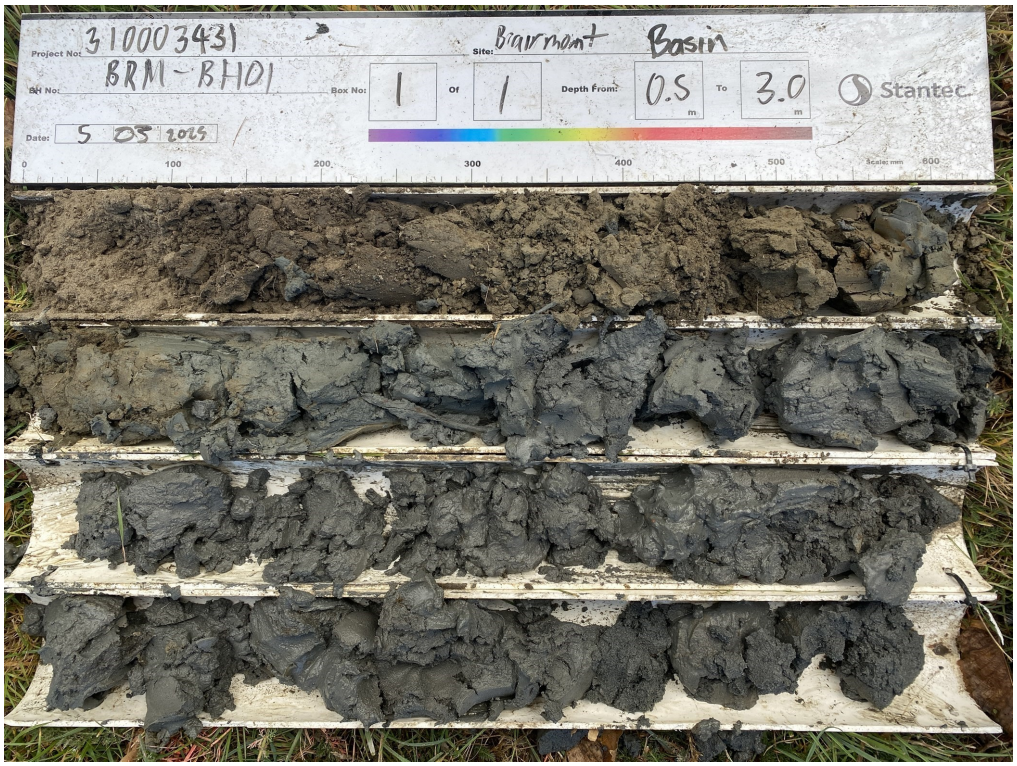
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BRM-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Briarmont Basin

PROJECT NO.: 310003431
DATE: 05/03/2025
COORDINATES: 1575624 E 5183415 N (NZTM)

BRM-BH01 0.0-0.5



BRM-BH01 0.5-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BRO-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1575406 E 5183644 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council		Elevation:	1.53 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Brooker Basin		Date:	07/03/2025 Start — 07/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silt loam (0.10)						0m Concrete collar		
		1	0.5	FILL	Sandy fine to coarse GRAVEL; minor silt; greyish brown. Tightly packed, dry to moist, well graded; gravel rounded to angular; sand fine to coarse. (0.90)		TP	D - M			0.3m Bentonite backfill		
		0	1.0 / 1.5	Springston Fm	SILT, trace sand; blueish grey. Firm, moist to wet, low plasticity; sand fine. (1.65)		F	M - W			1m Sand backfill; 1.5m Hole collapse; 1.5m to 3m - Screen - 50mm ID PVC - slot size 1mm		
			2.0	Christchurch Fm	Gravelly fine to coarse SAND; dark grey. Loosely packed, moist to wet, well graded; gravel fine to coarse, rounded-subrounded. Faint hydrocarbon smell. (2.20)		LP					07-03-2025	
		-1	2.5		Silty fine to medium SAND; blueish grey. Loosely packed, wet, poorly graded. (2.50)			W					
			3.0		Fine to medium SAND, minor silt; grey. Loosely packed, wet, poorly graded. *- 2.70m - Soil becomes saturated.* (3.00)								
		-2	3.5		Borehole terminated at 3.00m BGL due to Target depth								
			4.0										
		-3	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BRO-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Brooker Basin

PROJECT NO.: 310003431
DATE: 07/03/2025
COORDINATES: 1575406 E 5183644 N (NZTM)

BRO-BH01 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BRO-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1575365 E 5183773 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.92 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Brooker Basin	Date: 07/03/2025 Start 07/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silt loam (0.10)						0m Concrete collar		
				FILL	Fine to coarse GRAVEL, minor silt, sand, and refuse; brownish grey. Loosely packed, dry to moist, poorly graded, sand fine to coarse; refuse wood, plastic, and iron. (0.40)		LP	D - M			0.3m Bentonite backfill		
			0.5	FILL	Sandy SILT; light brown. Very stiff, dry-moist, non plastic; sand fine. (0.85)		VSt						
		1	1.0	Springston Fm	Sandy SILT; grey. Stiff, moist to wet, low plasticity; sand fine. (1.60)		St	M - W			1m Sand backfill		
			1.5								1.5m Hole collapse		
		0	2.0	Christchurch Fm	Fine to coarse SAND; grey. Loosely packed, wet, poorly graded. *- 1.90m - Soil becomes saturated.* (2.30)		LP	W			1.6m to 3m - Screen - 50mm ID PVC - slot size 1mm	07-03-2025	
				Christchurch Fm	Sandy SILT; grey. Stiff, moist to wet, low plasticity; sand fine. (2.45)		St	M - W					
		-1	2.5	Christchurch Fm	Fine to medium SAND, trace silt; grey. Loosely packed, saturated, poorly graded. (3.00)		LP	S					
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
			4.5										
		-3											

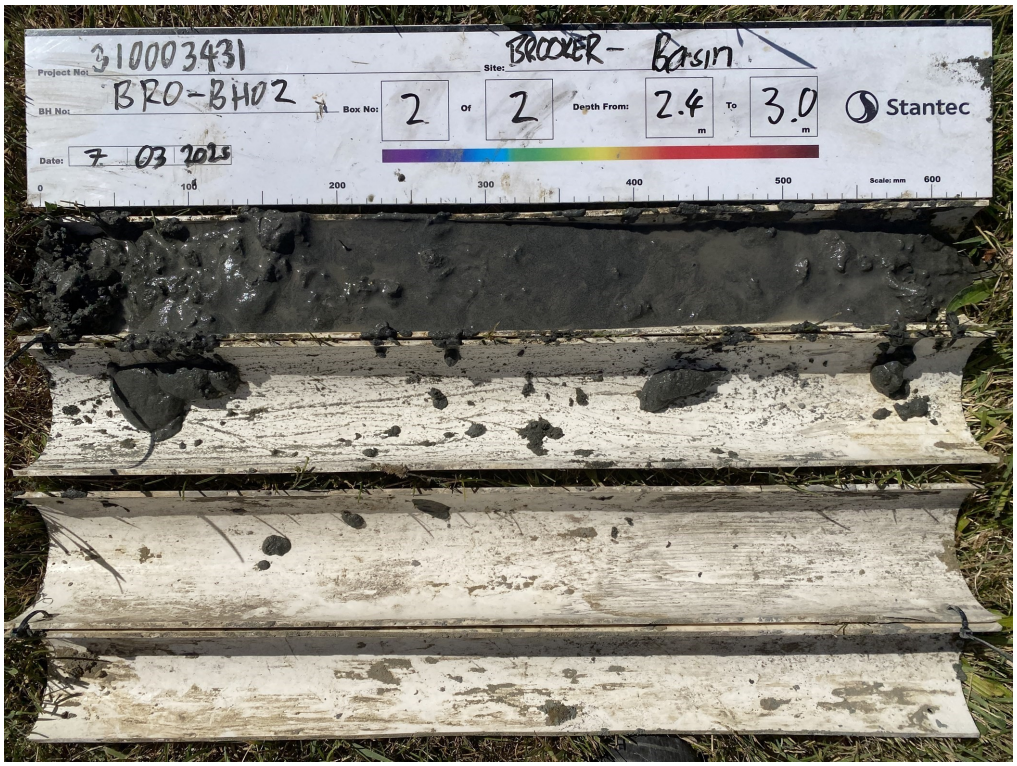
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: BRO-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Brooker Basin

PROJECT NO.: 310003431
DATE: 07/03/2025
COORDINATES: 1575365 E 5183773 N (NZTM)

BRO-BH01 0.0-2.4



BRO-BH02 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **BRO-BH03** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1575441 E 5183896 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.73 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Brooker Basin	Date: 07/03/2025 Start 07/03/2025 End	Checked By: EC

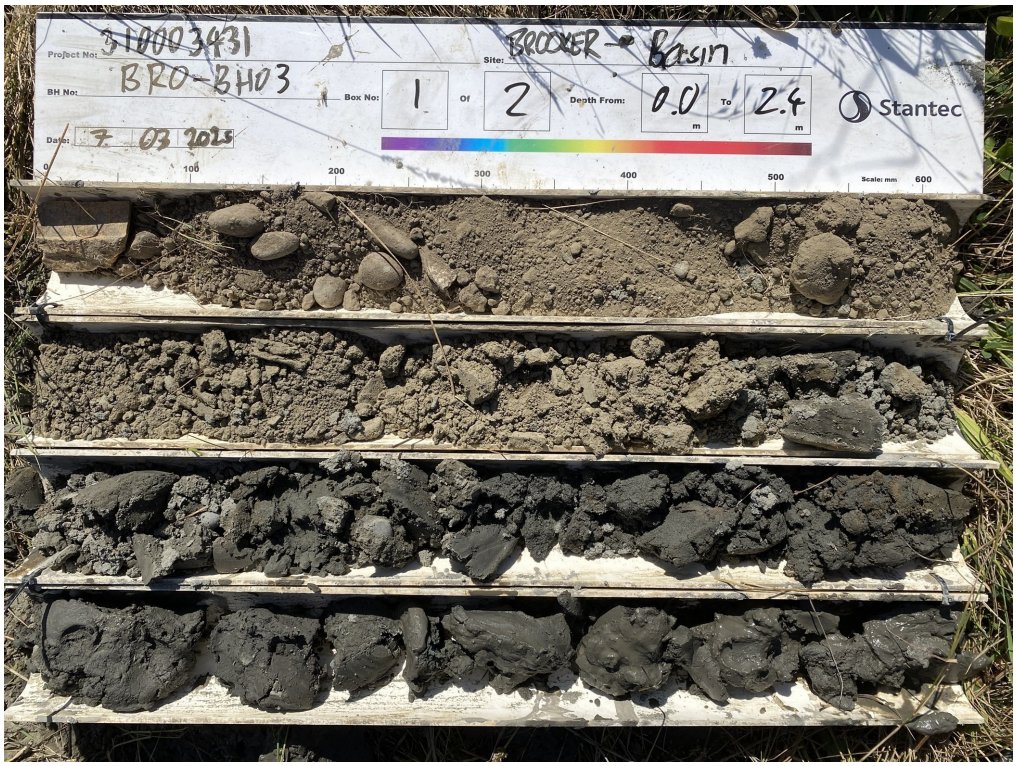
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
		1	0.5	FILL	Silty fine to coarse GRAVEL, minor refuse, minor sand; light brown. Tightly packed, dry to moist, well graded; refuse is construction waste; gravel angular to rounded; sand fine to coarse. (1.00)		TP	D - M			0m Concrete collar 0.3m Bentonite backfill		
			1.0	Springston Fm	Silty fine SAND; grey. Loosely packed, moist, poorly graded. *- 1.20m - Soil becomes wet.* (1.70)			M			1m Sand backfill 1.5m to 3m - Screen - 50mm ID PVC - slot size 1mm		
		0	1.5	Christchurch Fm	Fine to medium SAND, minor silt; grey. Loosely packed, wet, poorly graded. *- 1.80m - Large piece of decaying wood.* (1.90)		LP	W			2m Hole collapse	07-03-2025	
		-1	2.0		Sandy SILT, minor organics, grey. Firm, wet, low plasticity; organics amorphus; sand fine. (3.00)								
		-2	3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-3	3.5										
			4.0										
			4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

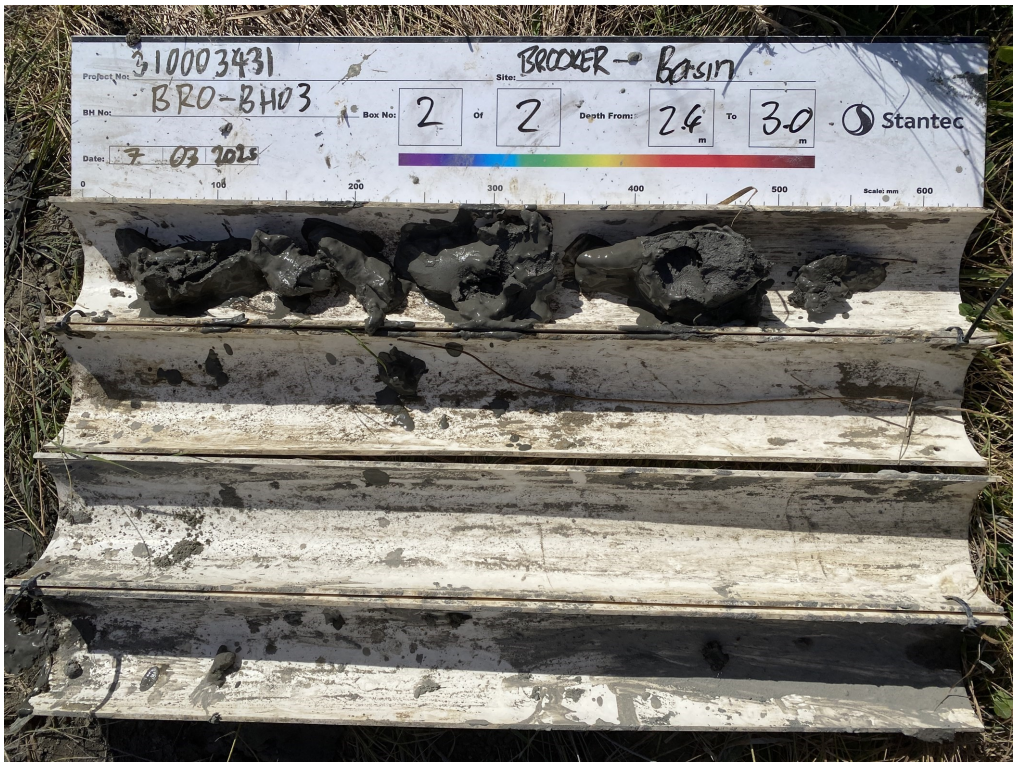
BOREHOLE PHOTOGRAPHS: BRO-BH03

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Brooker Basin

PROJECT NO.: 310003431
DATE: 07/03/2025
COORDINATES: 1575441 E 5183896 N (NZTM)



BRO-BH03 0.0-2.4



BRO-BH03 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **DUD-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1572969 E 5182021 N (NZTM)	Total Depth: 2.20m
Client:	Christchurch City Council		Elevation:	1.98 mRL (NZGD2016)	Logged By: MAS
Description:	Proposed Dudley Basin		Date:	28/02/2025 Start — 28/02/2025 End	Checked By: EC

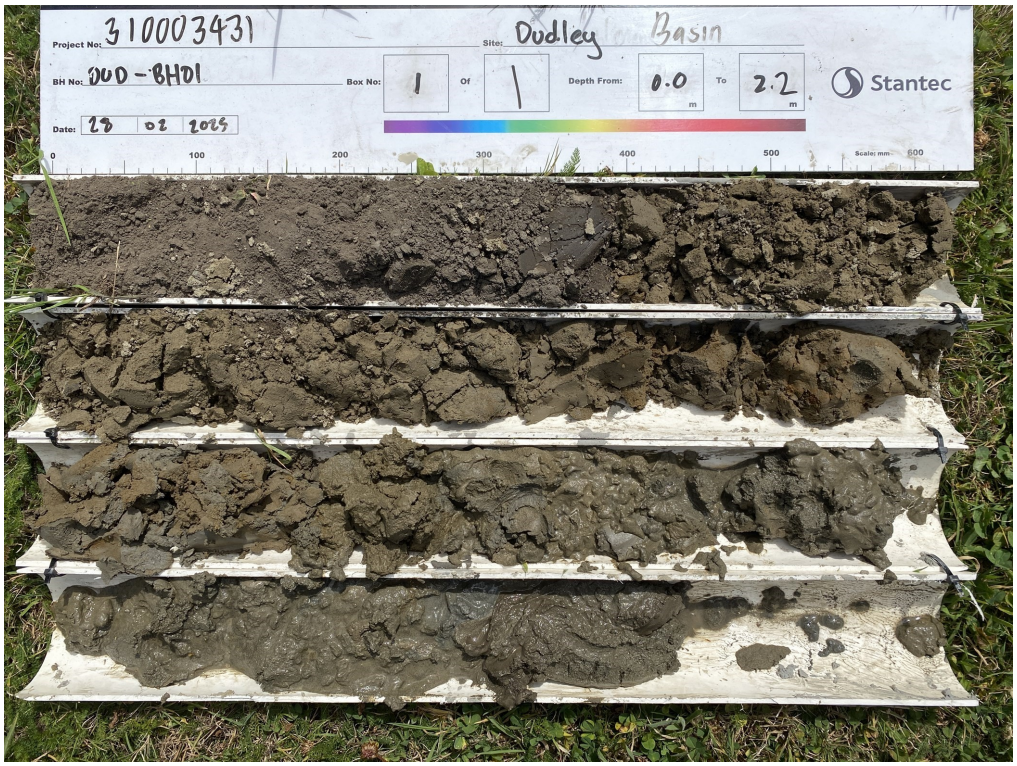
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100				Silt loam. (0.35)		S				0m Concrete collar 0.3m Bentonite backfill		
		1	0.5	Springston Fm	Fine SAND, minor silt; greyish brown. Loosely packed, moist, poorly graded. *- 0.90m - Soil becomes mottled orange with some silt.* *- 1.30m - Soil becomes wet.* (1.40)		LP	M			1m Hole collapse 1.35m to 1.85m - Screen - 50mm ID PVC - slot size 1mm	28-02-2025	
		0	1.0 1.5 2.0	Christchurch Fm	Fine to medium SAND, trace silt; grey. Loosely packed, saturated, poorly graded. (2.20)			S					
		-1	2.5 3.0		Borehole terminated at 2.20m BGL due to Collapse								
		-2	3.5 4.0 4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: DUD-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Dudley Basin

PROJECT NO.: 310003431
DATE: 28/02/2025
COORDINATES: 1572969 E 5182021 N (NZTM)



DUD-BH01 0.0-2.2

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **DUD-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1573106 E 5182067 N (NZTM)	Total Depth: 1.80m
Client:	Christchurch City Council	Elevation: 1.63 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Dudley Basin	Date: 28/02/2025 Start 28/02/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	1	0.5	FILL	Silty fine to coarse GRAVEL, some sand; light brownish grey. Tightly packed, dry, well graded; gravel rounded to angular, some lime chip; sand fine to coarse. (0.30)		TP	D			0m Concrete collar		
				Buried topsoil	Organic SILT, trace sand; brown. Stiff, moist, low plasticity; sand fine. (0.60)		St	M			0.3m Bentonite backfill		
			1.0	Christchurch Fm	SILT, some sand; grey with orange mottling. Stiff, moist, low plasticity; sand fine. *- 0.90m - Soil becomes wet.* (1.20)						0.8m Hole collapse	28-02-2025	
		0	1.5		Fine to medium SAND, trace silt; grey. Loosely packed, saturated, poorly graded. (1.80)		LP	S			1.06m to 1.66m - Screen - 50mm ID PVC - slot size 1mm		
		-1	2.0		Borehole terminated at 1.80m BGL due to Refusal								
		-2	2.5										
		-3	3.0										
			3.5										
			4.0										
			4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Hole was collapsing however, refusal was due to gravel. Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: DUD-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Dudley Basin

PROJECT NO.: 310003431
DATE: 28/02/2025
COORDINATES: 1573106 E 5182067 N (NZTM)

DUD-BH02 0.0-1.8

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **EVA-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1577997 E 5181950 N (NZTM)	Total Depth: 2.40m
Client:	Christchurch City Council		Elevation:	1.11 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Evans Basin		Date:	11/03/2025 Start — 11/03/2025 End	Checked By: EC

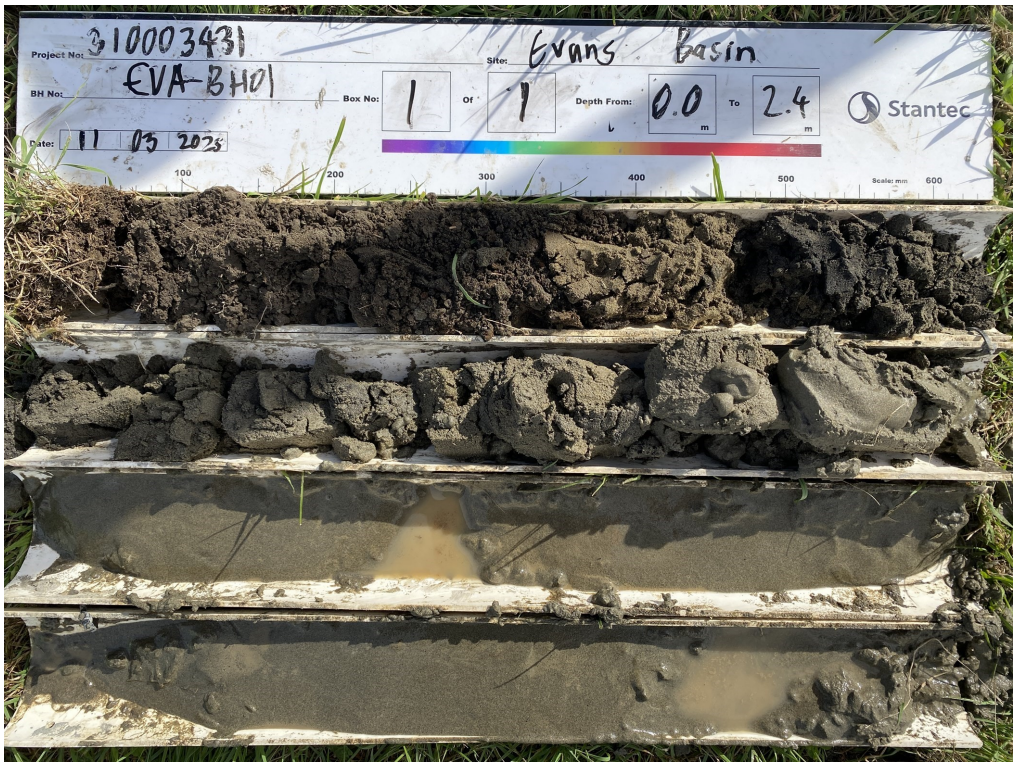
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
		1		FILL	Gravelly organic SILT, trace refuse; brown. Firm, moist, low plasticity; gravel fine to coarse, rounded to subangular; refuse is brick and nail. (0.30)		F	M			0m Concrete collar		
			0.5	Christchurch Fm	Fine to medium SAND; trace silt; brown. Loosely packed, moist, poorly graded. *- 0.50m - Soil becomes dark grey and with minor organics.* (0.60)		LP				0.3m Bentonite backfill		
		0	1.0		Fine to medium SAND, trace silt; grey. Loosely packed, wet, poorly graded. *- 1.00m - Soil becomes saturated.*			W - S			1m Sand backfill; 1.2m Hole collapse; 1.5m to 2.05m - Screen - 50mm ID PVC - slot size 1mm	11-03-2025	
			1.5										
		-1	2.0		(2.40)								
			2.5		Borehole terminated at 2.40m BGL due to Collapse								
		-2	3.0										
			3.5										
		-3	4.0										
			4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: EVA-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Evans Basin

PROJECT NO.: 310003431
DATE: 11/03/2025
COORDINATES: 1577997 E 5181950 N (NZTM)



EVA-BH01 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **HS-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1573940 E 5183430 N (NZTM)	Total Depth: 2.40m
Client:	Christchurch City Council		Elevation:	0.99 mRL (NZVD2016)	Logged By: MAS
Description:	Horseshoe Lake		Date:	11/03/2025 Start — 11/03/2025 End	Checked By: EC

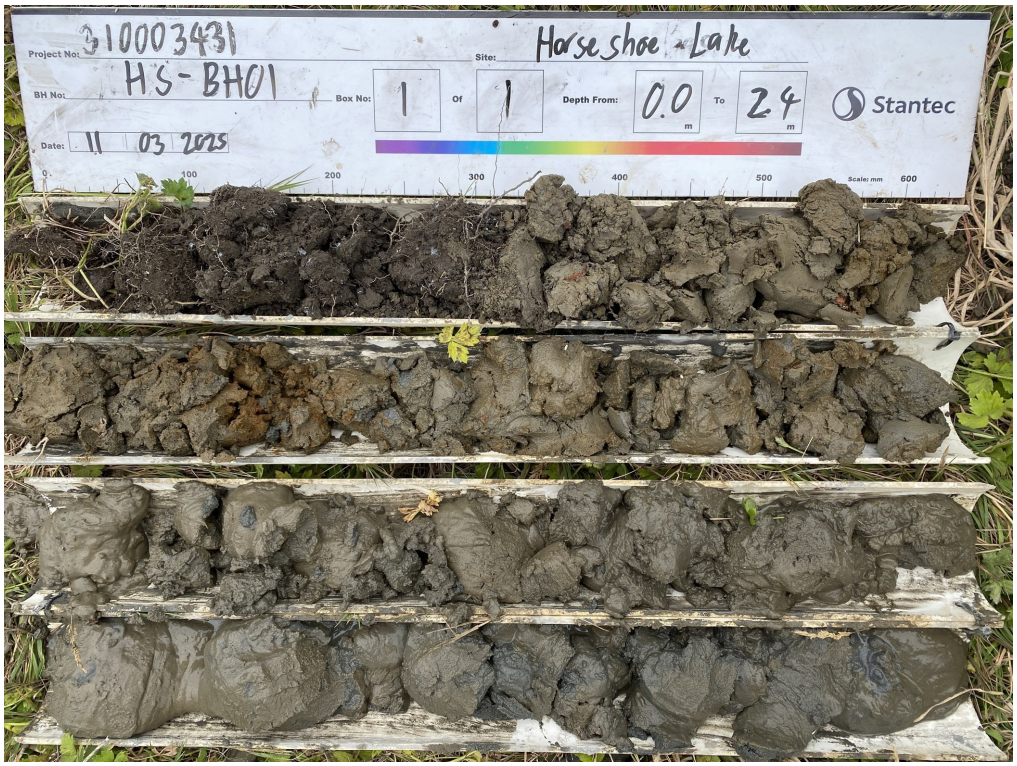
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100			FILL	Organics SILT, some gravel; brown. Firm, moist, low plasticity; gravel fine to coarse, angular to subrounded; organic amorphus. (0.30)		F	M			0m Concrete collar		
			0.5	Christchurch Fm	Sandy SILT, grey with orange mottling. Firm, moist to wet, low plasticity; sand fine. (0.80)			M - W			0.3m Bentonite backfill	11-03-2025	
		0	1.0		Silty fine to medium SAND; grey with orange mottling. Loosely packed, saturated, poorly graded. *- 1.20m - Soil mottling becomes absent.*		LP	S			1m Sand backfill		
			1.5								1.5m to 2m - Screen - 50mm ID PVC - slot size 1mm 1.6m Hole collapse		
		-1	2.0		(2.40)								
			2.5		Borehole terminated at 2.40m BGL due to Collapse								
		-2	3.0										
			3.5										
		-3	4.0										
			4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: HS-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Horseshoe Lake

PROJECT NO.: 310003431
DATE: 11/03/2025
COORDINATES: 1573940 E 5183430 N (NZTM)



HS-BH01 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **LKS-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1576004 E 5183543 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.00 mRL (NZVD2016)	Logged By: MAS
Description:	Lake Kate Sheppard	Date: 09/05/2025 Start 09/05/2025 End	Checked By: EC

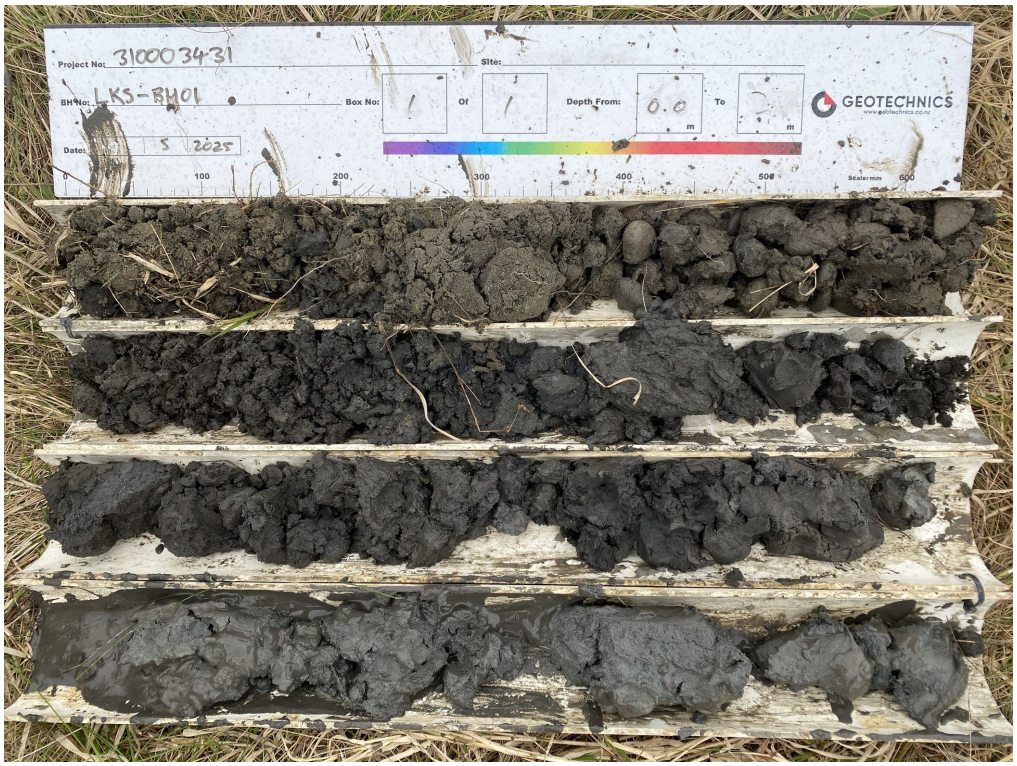
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Sand loam (0.10)						0m Concrete collar		
				FILL	Gravelly fine to coarse SAND, trace refuse; brownish grey. Loosely packed, wet, poorly graded; refuse is demolition waste. (0.30)		LP	W					
			0.5	FILL	Fine to coarse GRAVEL; some sand, minor refuse; grey. Loosely packed, wet to saturated, poorly graded; gravel rounded to subrounded; sand fine to coarse; refuse is demolition waste. (0.60)		LP	W - S			0.3m Bentonite backfill	09-05-2025	
				Springston Fm	Silty sandy PEAT; dark grey. Spongy, saturated; sand fine to coarse. (0.90)		VS	S					
		0	1.0	Christchurch Fm	Fine to medium SAND, minor organics; off grey. Loosely packed, saturated, poorly graded; organics are amorphus. (1.20)		LP				1m Cuttings backfill		
			1.5	Christchurch Fm	Silty PEAT, some sand; dark brown. Firm, wet, low plasticity; sand fine to medium. (1.70)		F	W			1.5m Sand backfill		
				Christchurch Fm	Silty CLAY; greenish grey. Firm, moist to wet, moderate plasticity. (1.90)		F	M - W			1.8m to 2.8m - Screen - 50mm ID PVC - slot size 1mm		
		-1	2.0	Christchurch Fm	Silty fine to medium SAND; grey. Loosely packed, saturated, well graded. (2.40)		LP	S					
			2.5	Christchurch Fm	Fine to medium SAND, trace silt; grey. Loosely packed, saturated, poorly graded. (3.00)		LP	S			2.5m Hole collapse		
		-2	3.0		Borehole terminated at 3.00m BGL due to Target depth								
			3.5										
		-3	4.0										
			4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

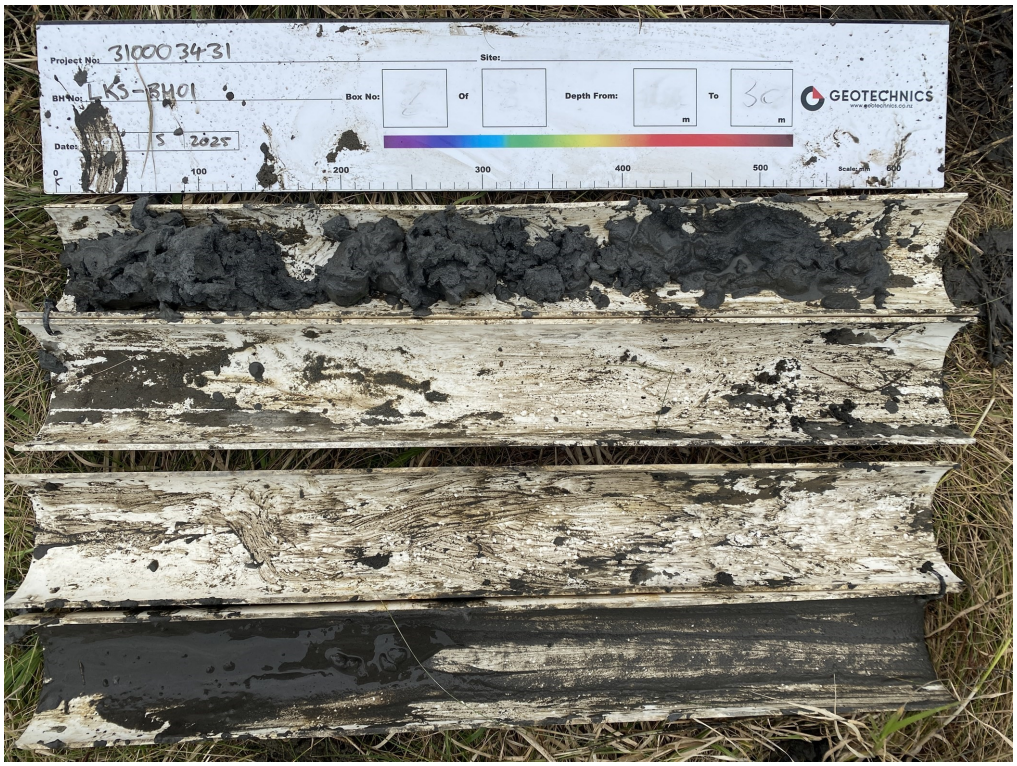
BOREHOLE PHOTOGRAPHS: LKS-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Lake Kate Sheppard

PROJECT NO.: 310003431
DATE: 09/05/2025
COORDINATES: 1576004 E 5183543 N (NZTM)



LKS-BH01 0.0-2.4



LKS-BH01 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **LOC-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1574204 E 5182285 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.91 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Locksley Basin	Date: 06/03/2025 Start 06/03/2025 End	Checked By: EC

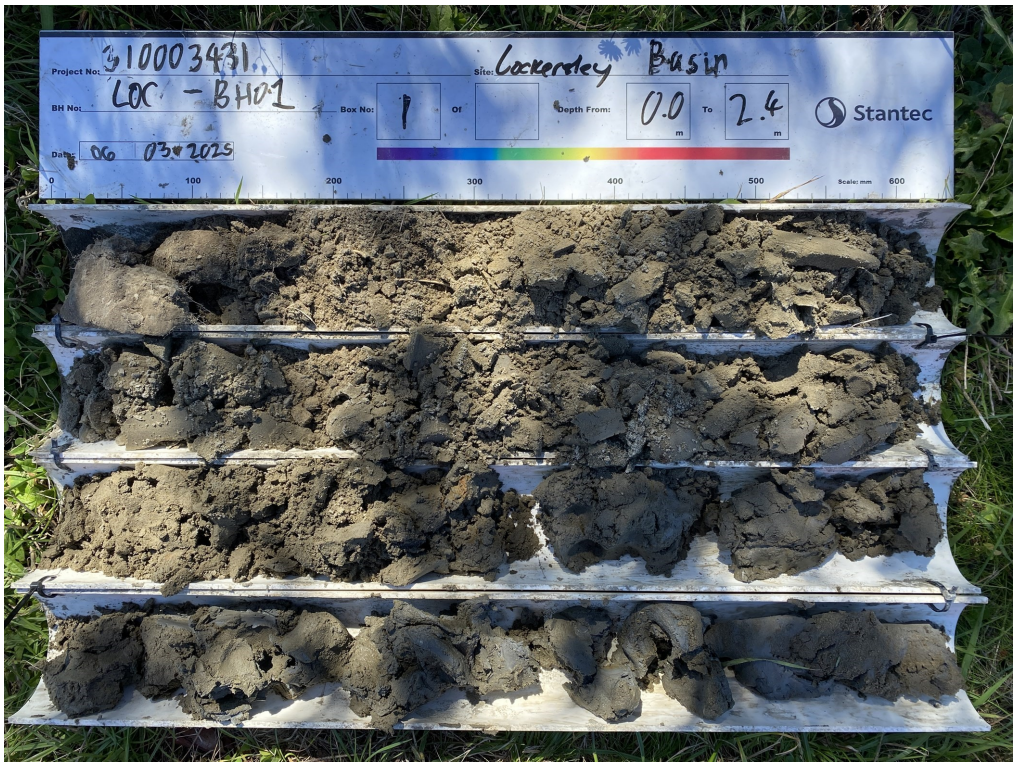
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silt loam. (0.15)						0m Concrete collar		
			0.5	Springston Fm	Fine SAND, trace silt; brownish grey. Loosely packed, moist, poorly graded.		LP	M			0.3m Bentonite backfill		
		1	1.0								1m Sand backfill		
					- 1.30m - Soil becomes wet. (1.40)						1.2m to 2.8m - Screen - 50mm ID PVC - slot size 1mm		
			1.5		Sandy SILT, grey with orange mottling. Soft, wet, low plasticity; sand fine.		S	W			1.4m Hole collapse	06-03-2025	
		0	2.0										
					(2.40)								
			2.5		CLAY, minor sand, minor wood; grey. Very soft, wet, moderate plasticity; sand fine; wood decomposing. (2.70)		VS						
		-1	3.0		Fine to coarse SAND, trace silt; grey. Tightly packed, saturated, poorly graded. (3.00)		TP	S					
					Borehole terminated at 3.00m BGL due to Target depth								
			3.5										
		-2	4.0										
			4.5										
		-3											

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

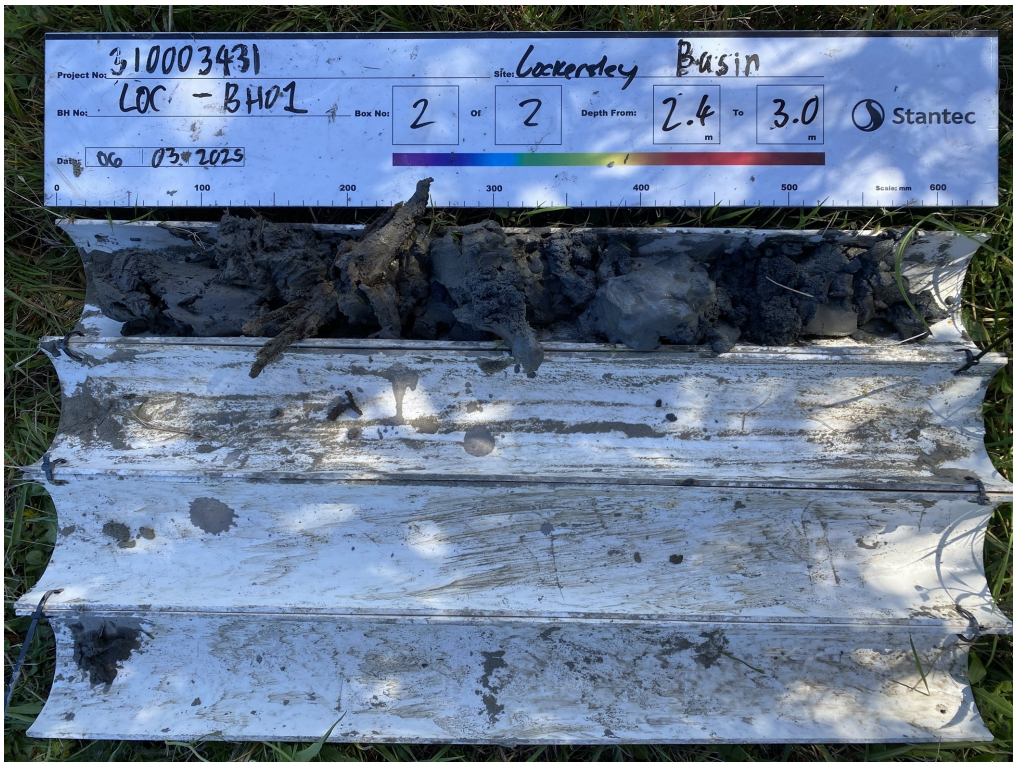
BOREHOLE PHOTOGRAPHS: LOC-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Locksley Basin

PROJECT NO.: 310003431
DATE: 06/03/2025
COORDINATES: 1574204 E 5182285 N (NZTM)



LOC-BH01 0.0-2.4



LOC-BH01 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **LOC-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1574224 E 5182483 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council		Elevation:	1.78 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Locksley Basin		Date:	06/03/2025 Start 06/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
				Fill	Gravelly SILT, with sand; brown. Very stiff, dry to moist, low plasticity; gravel fine to coarse, rounded to subangular; sand fine to coarse. (0.40)		VSt	D - M			0m Concrete collar 0.3m Bentonite backfill		
			0.5	Springston Fm	Silty fine SAND; light brown. Loosely packed, moist, poorly graded. (0.80)		LP	M					
		1	1.0		Fine SAND, trace silt; brown. Loosely packed, moist, poorly graded. *- 1.20m - Soil becomes wet.* *- 1.40m - Soil becomes saturated and mottled orange.*			W - S			1m Sand backfill 1.4m Hole collapse 1.5m to 3m - Screen - 50mm ID PVC - slot size 1mm	06-03-2025	
		0	1.5										
			2.0		*- 2.20m - Soil mottling absent.* (3.00)								
		-1	2.5										
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: LOC-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Locksley Basin

PROJECT NO.: 310003431
DATE: 06/03/2025
COORDINATES: 1574224 E 5182483 N (NZTM)

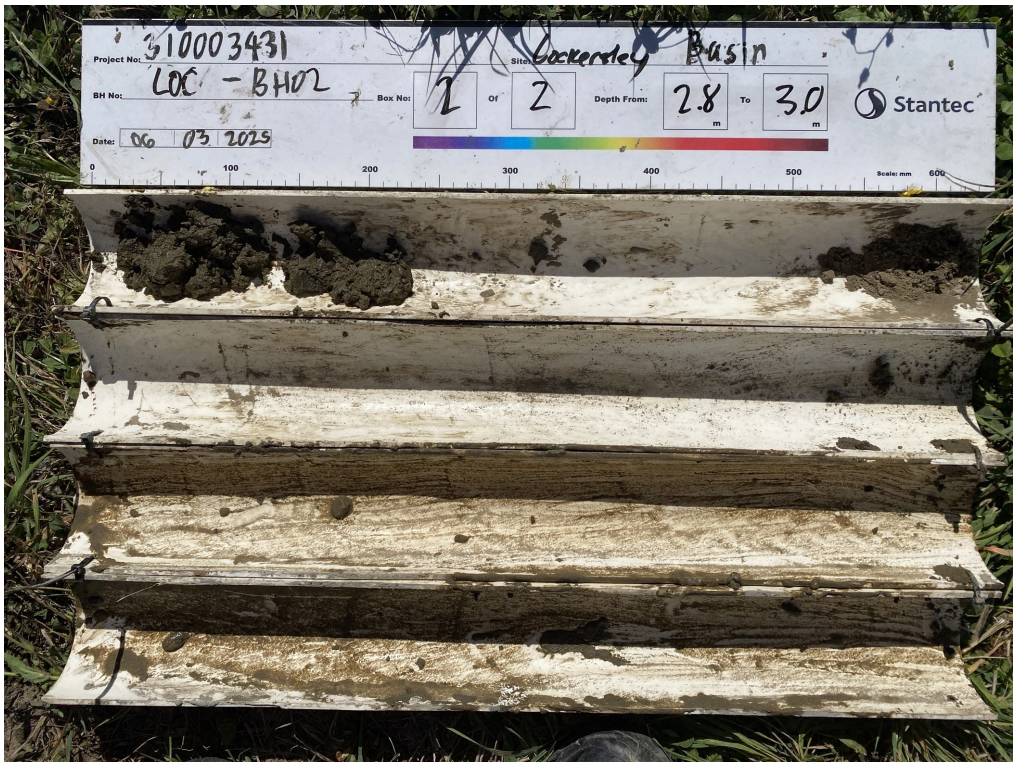
LOC-BH02 0.0-0.4

LOC-BH02 0.4-2.4

BOREHOLE PHOTOGRAPHS: LOC-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Locksley Basin

PROJECT NO.: 310003431
DATE: 06/03/2025
COORDINATES: 1574224 E 5182483 N (NZTM)



LOC-BH02 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **LOC-BH03** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1574196 E 5182682 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.44 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Locksley Basin	Date: 06/03/2025 Start 06/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silt loam (0.20)						0m Concrete collar		
		1	0.5	Springston Fm	SILT, some sand; brown. Stiff, moist, low plasticity; sand fine to medium. (0.50)		LP	M			0.3m Bentonite backfill		
					SILT, minor sand; greyish brown. Firm, moist, non plastic; sand fine. (0.90)		F						
			1.0		Fine SAND, some silt; brownish grey. Loosely packed, moist, poorly graded. (1.10)		LP				1m Sand backfill	06-03-2025	
		0	1.5		Fine to medium SAND, trace silt; grey. Loosely packed, wet to saturated, poorly graded. *- 1.80m - Large decomposing wood fragments present in soil.* (3.00)			W - S			1.25m to 2.75m - Screen - 50mm ID PVC - slot size 1mm 1.4m Hole collapse		
		-1	2.0										
			2.5										
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: LOC-BH03

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Locksley Basin

PROJECT NO.: 310003431
DATE: 06/03/2025
COORDINATES: 1574196 E 5182682 N (NZTM)

LOC-BH03 0.0-2.4

LOC-BH03 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **LY-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1572365 E 5180744 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 2.40 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Lychgate Basin	Date: 10/03/2025 Start 10/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silt loam (0.10)						0m Concrete collar		
		2	0.5	FILL	Silty fine to coarse GRAVEL, some sand, some refuse; greyish brown. Tightly packed, dry to moist, well graded; sand fine coarse; refuse is asphalt and brick. (0.65)		TP	D - M			0.3m Bentonite backfill		
				Springston Fm	Organic SILT, minor sand; brown. Firm, moist, low plasticity; organics amorphus; sand, fine medium. (0.90)		F	M					
		1	1.0 1.5	Springston Fm	Silty fine to medium SAND; greyish brown. Loosely packed, moist, poorly graded. *- 1.00m - Soil becomes wet and mottled orange.* *- 1.30m - Soil becomes saturated.* *- 1.50m - Soil mottling absent.* (1.90)		LP	W - S			1m Sand backfill 1.2m Hole collapse 1.2m to 2.7m - Screen - 50mm ID PVC - slot size 1mm	10-03-2025	
		0	2.0 2.5	Springston Fm	Fine to medium SAND, minor silt; grey. Loosely packed, saturated, poorly graded. (2.50)			S					
				Christchurch Fm	Gravelly fine to coarse SAND; grey with orange staining. Loosely packed, saturated, poorly graded; gravel fine to medium, rounded. (3.00)								
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-1	3.5										
			4.0										
		-2	4.5										

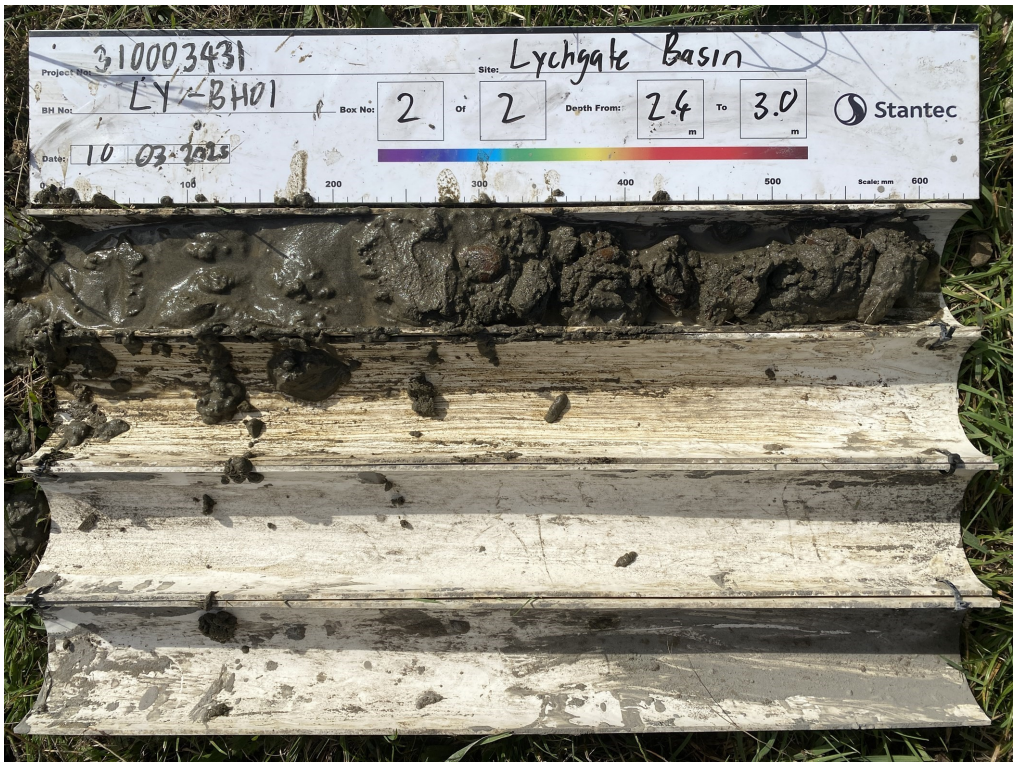
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: LY-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Lychgate Basin

PROJECT NO.: 310003431
DATE: 10/03/2025
COORDINATES: 1572365 E 5180744 N (NZTM)

LY-BH01 0.0-2.4



LY-BH01 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **LY-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1572535 E 5180757 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 2.32 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Lychgate Basin	Date: 10/03/2025 Start, 10/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	2	0.5	FILL	Silt loam. (0.10)						0m Concrete collar	10-03-2025	
					Sandy fine to coarse GRAVEL, minor refuse, minor silt; greyish brown. Tightly packed, dry to moist, poorly graded; sand fine to coarse; gravel rounded to angular; refuse is wood and brick. (0.30)		TP	D - M			0.3m Bentonite backfill		
					Fine to medium SAND, trace silt; yellow brown. Loosely packed, moist, poorly graded. (0.95)		LP	M					
			1.0	Buried topsoil	Organic SILT; trace sand; brown. Firm, moist, low to moderate plasticity; organics amorphus; sand fine. (1.15)		F				1m Sand backfill		
		1	1.5	Springston Fm	SILT, minor sand; grey with orange mottling. Firm to stiff, moist, low plasticity. *- 1.40m - Soil becomes wet and grey with orange mottling, and some sand.* *- 1.80m - Soil becomes saturated.* (2.15)			W - S			1.5m Hole collapse 1.7m to 2.7m - Screen - 50mm ID PVC - slot size 1mm		
		0	2.5	Christchurch Fm	Fine to medium SAND, minor silt; grey. Loosely packed, saturated, poorly graded. *- 2.40m - Silt becomes absent.* (3.00)		LP	S					
		-1	3.5		Borehole terminated at 3.00m BGL due to Target depth								
		-2	4.5										

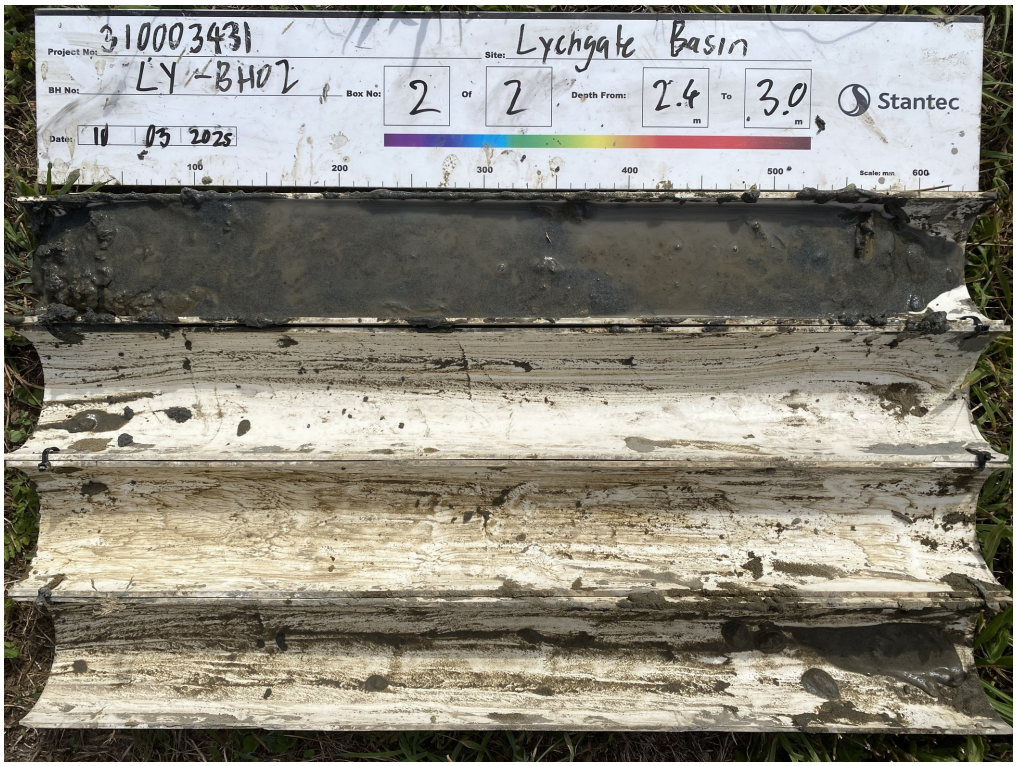
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: LY-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Lychgate Basin

PROJECT NO.: 310003431
DATE: 10/03/2025
COORDINATES: 1572535 E 5180757 N (NZTM)

LY-BH02 0.0-2.4



LY-BH02 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **PS-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1574171 E 5182873 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council	Elevation: 1.29 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed PS 210 Basin	Date: 06/03/2025 Start 06/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
		1	0.5	FILL	Silty fine to coarse SAND, minor gravel, some refuse; brown. Tightly packed, moist, well graded; gravel fine to coarse, rounded to angular; refuse building waste. (0.50)		TP	M			0m Concrete collar 0.3m Bentonite backfill		
		0	1.0	Springston Fm	Fine to medium SAND, trace silt; greyish brown. Loosely packed, moist, poorly graded. *- 0.90m - Soil becomes wet and grey.* (1.30)		LP	M - W			1m Sand backfill		
			1.5	Springston Fm	Silty fine SAND; brownish grey. Loosely packed, saturated, poorly graded. (1.80)		LP	S			1.25m to 2.75m - Screen - 50mm ID PVC - slot size 1mm 1.3m Hole collapse	06-03-2025	
		-1	2.0	Christchurch Fm	Fine to medium SAND, trace silt; brownish grey. Loosely packed, saturated, poorly graded. (3.00)		LP	S					
			2.5										
			3.0		Borehole terminated at 3.00m BGL due to Target depth								
		-2	3.5										
			4.0										
		-3	4.5										

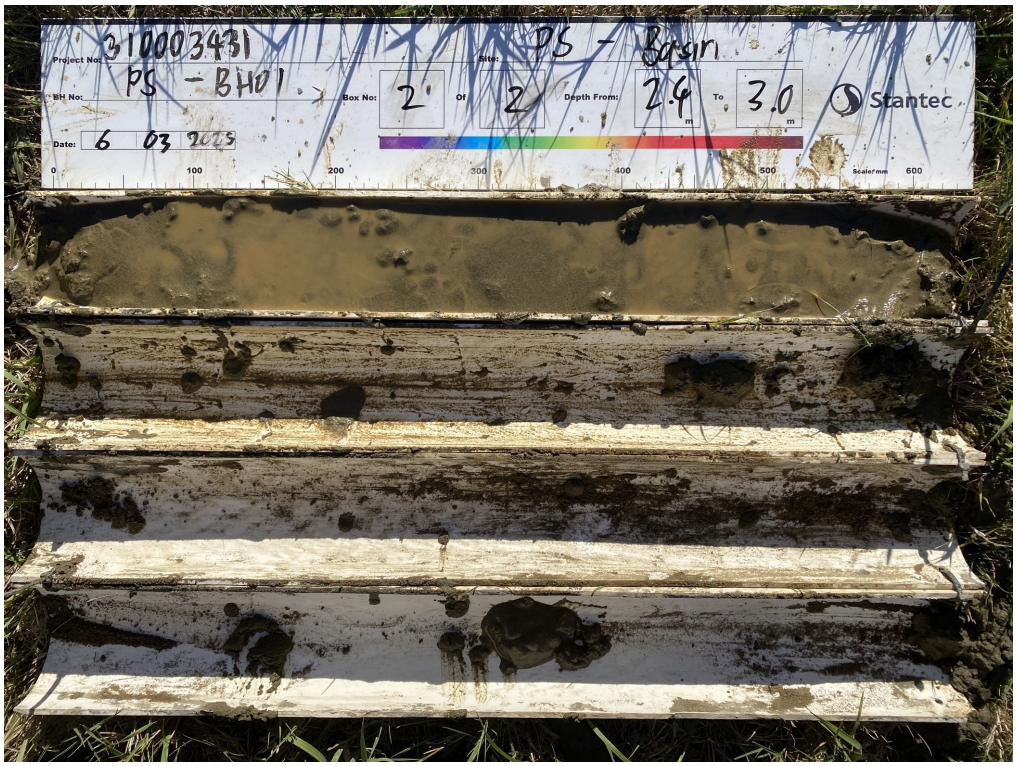
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: PS-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed PS 210 Basin

PROJECT NO.: 310003431
DATE: 06/03/2025
COORDINATES: 1574171 E 5182873 N (NZTM)

PS-BH01 0.0-2.4



PS-BH01 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **RIV-BH02** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1572650 E 5181404 N (NZTM)	Total Depth: 3.20m
Client:	Christchurch City Council		Elevation:	3.40 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Riverside Basin		Date:	06/03/2025 Start — 06/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
				FILL	Fine GRAVEL, some silt, some sand; brown. Loosely packed, moist, well graded; sand fine to coarse; gravel rounded to subangular. (0.25)						0m Concrete collar		
		3		Buried topsoil	Organic SILT, minor sand; brown. Stiff, moist, low plasticity; sand fine. (0.50)						0.3m Bentonite backfill		
			0.5	Christchurch Fm	SILT, some sand; greyish brown. Stiff, moist, low plasticity; sand fine.		LP	M					
			1.0								1.1m Sand backfill		
		2	1.5		*- 1.60m - Soil becomes mottled orange.* (1.80)								
			2.0		Fine to medium SAND, minor silt; grey with orange mottling. Loosely packed, wet, poorly graded. *- 2.20m - Soil becomes with trace silt.* (2.50)			W			2m Hole collapse; 2.1m to 3.1m - Screen - 50mm ID PVC - slot size 1mm		
		1	2.5		Sandy SILT; grey. Firm, moist, low plasticity; sand fine. (3.10)		F	M				06-03-2025	
			3.0		Fine to medium SAND, minor silt; grey. Loosely packed, saturated, poorly graded. (3.20)		LP	S					
		0	3.5		Borehole terminated at 3.20m BGL due to Target depth								
			4.0										
		-1	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: RIV-BH02

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Riverside Basin

PROJECT NO.: 310003431
DATE: 06/03/2025
COORDINATES: 1572650 E 5181404 N (NZTM)

RIV-BH02 0.0-2.4

RIV-BH02 2.4-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **RIV-BH03** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates:	1572763 E 5181517 N (NZTM)	Total Depth: 3.00m
Client:	Christchurch City Council		Elevation:	2.86 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Riverside Basin		Date:	05/03/2025 Start — 05/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
HA	100	2	0.5	Christchurch Fm	Silt loam. (0.35)						0m Concrete collar 0.3m Bentonite backfill		
			1.0		Fine SAND, minor silt; greyish brown. Loosely packed, dry to moist, poorly graded. *- 0.45m - Soil becomes with trace silt.* *- 0.60m - Silt absent.* *- 0.95m - Soil becomes moist.*		LP	D - M			1m Sand backfill 1.25m to 2.75m - Screen - 50mm ID PVC - slot size 1mm 1.4m Hole collapse	05-03-2025	
		1	1.5		*- 1.55m - Soil becomes wet.*								
			2.0		*- 2.15m - Soil becomes saturated.*								
		0	2.5										
			3.0		(3.00)								
		-1	3.5		Borehole terminated at 3.00m BGL due to Target depth								
			4.0										
		-2	4.5										

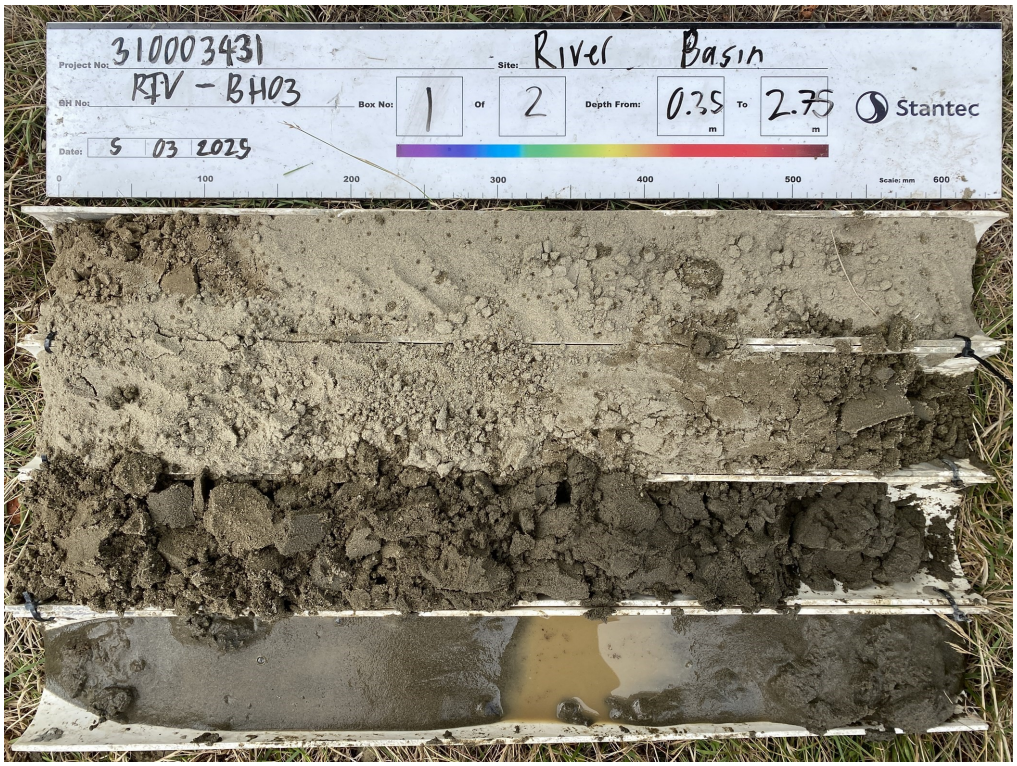
Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: RIV-BH03

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Riverside Basin

PROJECT NO.: 310003431
DATE: 05/03/2025
COORDINATES: 1572763 E 5181517 N (NZTM)

RIV-BH03 0.0-0.35

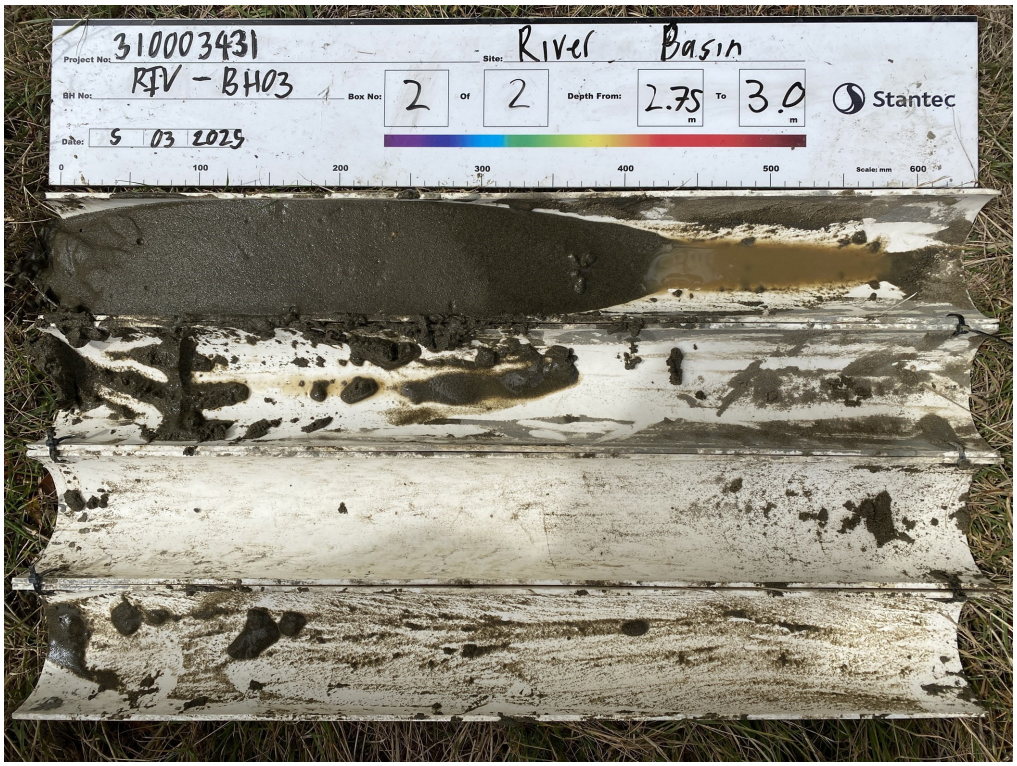


RIV-BH03 0.35-2.75

BOREHOLE PHOTOGRAPHS: RIV-BH03

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Riverside Basin

PROJECT NO.: 310003431
DATE: 05/03/2025
COORDINATES: 1572763 E 5181517 N (NZTM)



RIV-BH03 2.75-3.0

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **RIV-BH04** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1572714 E 5181593 N (NZTM)	Total Depth: 2.50m
Client:	Christchurch City Council	Elevation: 2.24 mRL (NZVD2016)	Logged By: MAS
Description:	Proposed Riverside Basin	Date: 06/03/2025 Start 06/03/2025 End	Checked By: EC

Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
		2			Silt loam. (0.30)						0m Concrete collar		
			0.5	Christchurch Fm	Fine to medium SAND, trace silt; brownish grey with orange mottling. Loosely packed, moist, poorly graded.		LP	M			0.3m Bentonite backfill		
			1.0								1m Sand backfill	06-03-2025	
		1			*- 1.10m - Soil becomes wet and mottles absent.* *- 1.20m - Soil becomes saturated.*								
			1.5								1.4m Hole collapse; 1.5m to 2.4m - Screen - 50mm ID PVC - slot size 1mm		
			2.0										
		0			*- 2.30m - Soil becomes grey.* (2.50)								
			2.5		Borehole terminated at 2.50m BGL due to Collapse								
			3.0										
		-1											
			3.5										
			4.0										
		-2											
			4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: RIV-BH04

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Riverside Basin

PROJECT NO.: 310003431
DATE: 06/03/2025
COORDINATES: 1572714 E 5181593 N (NZTM)

RIV-BH04 0.0-2.4

Stantec	Level 2, 2 Hazeldean Road Addington, Christchurch, New Zealand, 8024	**BOREHOLE LOG**	Borehole ID **WAN-BH01** Sheet 1 of 1

Project Name:	OARC Hydrogeological Investigations	Project No. 310003431	Coordinates: 1576101 E 5183215 N (NZTM)	Total Depth: 2.50m
Client:	Christchurch City Council	Elevation: 1.67 mRL (NZVD2016)	Logged By: EWH
Description:	Proposed Wainoni Basin	Date: 26/03/2025 Start 26/03/2025 End	Checked By: EC

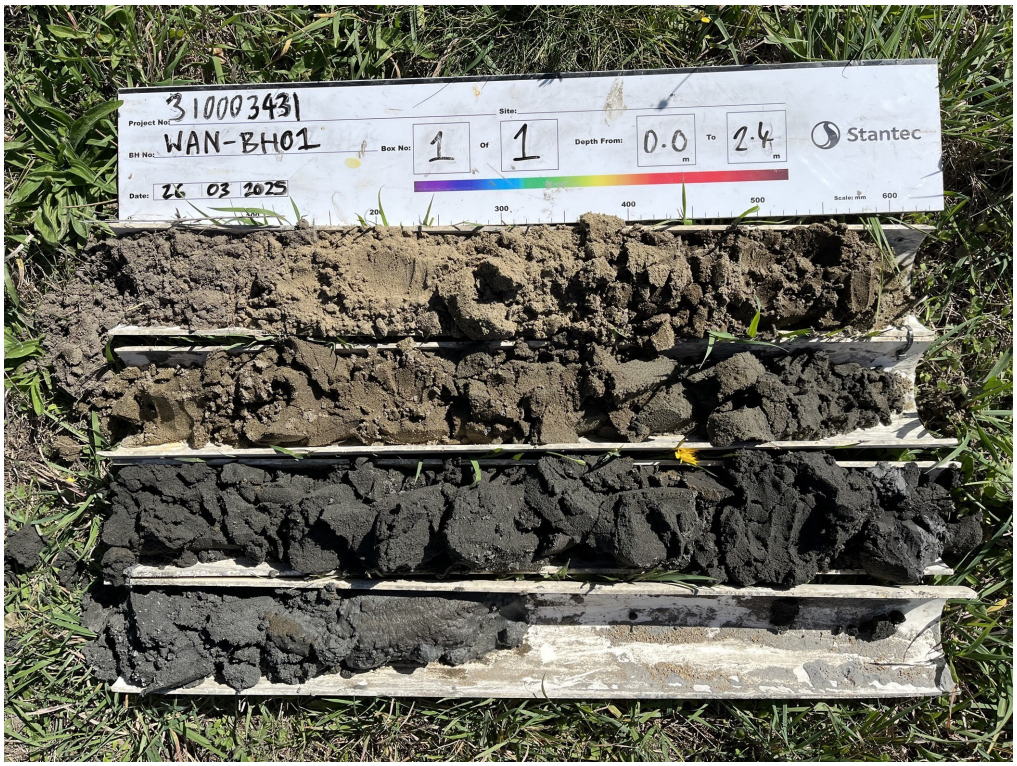
Method	Core Recovery (%)	Elevation (m)	Depth (m)	Geologic Unit	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes, New Zealand Geotechnical Society, 2005)	Legend	Consistency/ Relative Density	Moisture Condition	Sample and In Situ Testing: Type	Sample and In Situ Testing: Results	Other Observations	Groundwater	Installation/Backfill
					Silt loam. (0.10)			D			0m Concrete collar		
				Christchurch Fm	Fine to medium SAND, trace silt; pale brown. Loosely packed, dry, poorly graded.		LP	D - M			0.3m Bentonite backfill	26-03-2025	
		1	0.5		*- 0.40m - Soil becomes moist and brown.*								
			1.0		*- 1.00m - Soil becomes grey.*						1m Sand backfill		
		0	1.5		(1.80)						1.6m Hole collapse 1.6m to 2.5m - Screen - 50mm ID PVC - slot size 1mm		
					SILT; grey. Firm, moist, low to medium plasticity. (1.90)		F	M					
			2.0		Fine to medium SAND, trace silt; grey. Loosely packed, wet to saturated, poorly graded.			W - S					
					- 2.10m - Soil becomes saturated. (2.50)								
			2.5		Borehole terminated at 2.50m BGL due to Target depth								
		-1	3.0										
		-2	3.5										
			4.0										
		-3	4.5										

Contractor: Stantec	**Inclination:** 90°	**Remarks:** Well head covered with 180mm flush metal toby. Coordinates from survey using benchmark BM 3485.
Method: HA	**Direction:** -	
Plant: Hand tools	**Barrel Type:** Uncased	

BOREHOLE PHOTOGRAPHS: WAN-BH01

PROJECT: OARC Hydrogeological Investigations
CLIENT: Christchurch City Council
DESCRIPTION: Proposed Wainoni Basin

PROJECT NO.: 310003431
DATE: 26/03/2025
COORDINATES: 1576101 E 5183215 N (NZTM)



WAN-BH01 0.0-2.4

Appendix B

Tables

Area	Well ID	Date	Coordinates (NZTM)		Ground Surface	Top of Casing Elevation	Borehole Depth	Top of Screen	Bottom of Screen	Top of Screen	Bottom of Screen	Depth to Water	Groundwater Elevation
			Easting	Northing	m RL	m RL	m	m bgl	m bgl	m RL	m RL	m bTOC	m RL
Avondale Basin	AVD_25_BH01	10/10/25	1574820.000	5183390.000	1.35	1.35	3.0	1.05	2.45	0.3	-1.1	1.02	0.33
		08/12/25										1.23	0.12
Avonside Basin	AVO_25_BH01	06/10/25	1572882.600	5181246.400	1.88	1.88	3.0	2.0	2.45	-0.12	-0.57	0.10	1.78
		10/12/25										1.14	0.24
	AVO_25_BH02	10/10/25	1573312.600	5181301.900	1.45	1.45	3.0	1.5	2.9	-0.05	-1.45	0.30	1.15
		08/12/25										1.00	0.45
	AVO_25_BH04	06/10/25	1573333.100	5181716.300	1.87	1.87	3.0	1	2.5	0.87	-0.63	1.10	0.77
		08/12/25										1.35	0.52
Bower Basin	BOW_25_BH01	08/10/25	1576581.700	5183182.200	1.81	1.81	2.4	1.9	2.3	-0.09	-0.49	0.95	0.86
		11/12/25										1.00	0.81
	BOW_25_BH08	08/10/25	1577434.900	5182774.400	0.95	0.95	2.1	1.4	1.8	-0.45	-0.85	0.58	0.37
		11/12/25										0.82	0.13
Breezes Basin	BRE_25_BH01	07/10/25	1574543.800	5182628.500	1.37	1.37	3.0	1.25	2.75	0.12	-1.38	0.87	0.50
		11/12/25										1.19	0.19
Brittans Basin	BRI_25_BH02	09/10/25	1574599.900	5181642.300	2.08	2.08	3.8	1.55	2.55	0.53	-0.47	0.92	1.16
		09/12/25										1.26	0.82
Briarmont Basin	BRM_25_BH01	07/10/25	1575624.200	5183414.900	1.38	1.38	3.00	1.5	2.5	-0.12	-1.12	1.33	0.05
		10/12/25										1.07	0.31
Brooker Basin	BRO_25_BH01	07/10/25	1575405.700	5183644.300	1.53	1.53	3.00	2	3	-0.47	-1.47	1.10	0.43
		10/12/25										1.19	0.34
	BRO_25_BH02	07/10/25	1575365.100	5183773.400	1.92	1.92	3.00	1.6	2.6	0.32	-0.68	1.37	0.55
		10/12/25										1.63	0.29
Dudley Basin	DUD_25_BH02	10/10/25	1573106.100	5182067.000	1.63	1.63	1.8	1.06	1.66	0.57	-0.03	0.70	0.93
		09/12/25										0.89	0.74
Evans Basin	EVA_25_BH01	08/10/25	1577996.600	5181950.100	1.11	1.11	2.4	1.5	2.05	-0.39	-0.94	0.59	0.52
		11/12/25										0.87	0.24
Horeshoe Lake	HS_25_BH01	09/10/25	1573940.000	5183430.500	0.99	0.99	2.4	1.5	2	-0.51	-1.01	0.20	0.79
		12/12/25										0.98	0.01
Lake Kate Sheppard	LKS_25_BH01	09/10/25	1576004.200	5183542.800	1.15	1.15	3.00	3	1.8	-1.85	-0.65	1.62	-0.47
		11/12/25										0.35	0.80
Locksley Basin	LOC_25_BH02	08/10/25	1574224.100	5182482.900	1.78	1.78	3.00	1.5	3	0.28	-1.22	1.92	-0.14
		09/12/25										1.55	0.23
Lychgate Basin	LY_25_BH01	09/10/25	1572365.100	5180744.400	2.4	2.4	3.00	1.2	2.7	1.2	-0.3	1.24	1.16
		12/12/25										1.47	0.93
Pratt Street Basin	PS_25_BH01	10/10/25	1574170.800	5182873.400	1.29	1.29	3.00	1.25	2.75	0.04	-1.46	0.94	0.35
		09/12/25										0.92	0.37
Riverside Basin	RIV_25_BH04	09/10/25	1572713.500	5181592.600	2.24	2.24	2.5	1.5	2.4	0.74	-0.16	1.16	1.08
		09/12/25										1.37	0.88
Wainoni Basin	WAN_25_BH01	08/10/25	1576101.500	5183214.600	1.67	1.67	2.5	1.2	2.1	0.47	-0.43	0.91	0.76
		10/12/25										1.01	0.66

							Physical	Sample Quality Parameters															Inorganics	
							pH (Lab)	CO2 (Free)	Total Alkalinity (as CaCO3)	Bicarbonate Alkalinity as (HCO3)	Carbonate Alkalinity (as CO3)	Hardness (as CaCO3)	Total Cations (filtered)	Total Anions	Nitrate (as N)	Nitrate (as N) (filtered)	Nitrite (as N) (filtered)	Nitrate + Nitrite (as N) (filtered)	Ammonium Ion (as N) (filtered)	Total Kjeldahl Nitrogen (as N)	Nitrogen (Inorganic)	Sulphate (as SO4) (filtered)	Electrical Conductivity @ 25°C	Total Dissolved Solids @180°C
							pH_Units	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L
EQL							0.1	1	1	1	1	1	0.05	0.05	0.001	0.001	0.002	0.002	0.01	0.1	0.005	0.5	1	10
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)																								
ECan LWRP Schedule 5 Spring-fed Urban							6.5-8.5														1.5			
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																		
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																		
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	6.5	145	250	300	<1.0	260	7.5	7.3	0.026		0.015	0.041	0.98	2.9	1.02	26	738	530
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	6.6	135	240	290	<1	280	8	7.1	<0.02		<0.02	<0.02	0.56	2.6	0.56	25	707	520
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	6.8	119	410	500	<1.0	560	14.7	14.3	<0.002		0.002	0.003	<0.010	1.41	<0.011	67	1,405	950
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	7.0	22	99	121	<1.0	49	2.7	2.2	<0.02	<0.05	<0.02	<0.02	0.94	1.41	0.96	<0.5	215	155
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	6.9	23	86	105	<1	49	2.7	1.92	<0.02		<0.02	<0.02	1.19	1.49	1.19	<0.5	189	149
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	7	64	290	350	<1	460	12	10.5	<0.002		<0.002	<0.002	0.183	1.27	0.184	38	1,073	710
			DUP-01	**4054559**	**4054559_11**	**Field_D**																		
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	7.4	10.0	126	153	<1.0	144	4.0	3.8	0.010	<0.05	<0.002	0.011	0.066	0.17	0.077	37	387	230
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	7.6	6	126	153	<1	161	4.3	4	<0.002		<0.002	<0.002	<0.01	0.15	<0.011	42	397	240
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	6.8	27	94	115	<1.0	510	11.3	11.1	<0.02		<0.02	<0.02	0.50	0.89	0.50	420	1,007	790
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	6.9	25	99	121	<1	560	12.7	12.5	0.011		<0.002	0.012	0.77	1	0.78	480	1,111	890
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	7.0	30	164	199	<1.0	104	5.6	5.5	1.06		0.100	1.16	<0.010	0.85	1.16	34	583	360
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	7	30	148	180	<1	88	5.1	4.9	1.91		0.22	2.1	<0.01	0.84	2.1	31	531	320
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	7.2	22	153	187	<1.0	182	4.9	4.5	<0.002	<0.05	0.004	0.003	<0.010	2.3	<0.011	16.7	472	350
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	6.9	37	153	186	<1	177	4.8	4.7	<0.002		0.002	<0.002	0.012	2.2	0.014	22	489	350
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	6.9	127	500	610	<1.0	430	14.6	13.4	<0.02	<0.05	<0.02	<0.02	0.48	3.1	0.48	23	1,269	820
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	6.8	150	520	630	<1	410	13.4	12	<0.02		<0.02	<0.02	0.59	2.6	0.59	<0.5	1,109	730
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	7.4	17.5	210	260	<1.0	220	7.2	6.6	<0.002		<0.002	0.002	0.058	0.84	0.061	18.4	667	410
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	7.6	9.4	193	230	<1	210	7.1	6.5	<0.002		<0.002	<0.002	0.083	0.92	0.084	19.3	668	400
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	7.0	146	730	890	<1.0	590	19.3	18.4	<0.002	<0.05	<0.002	<0.002	0.62	2.8	0.62	53	1,656	1,060
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	6.9	172	670	810	<1	500	17.4	17.5	<0.002		0.014	0.013	0.67	2.6	0.68	64	1,569	1,010
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	7.1	65	450	550	<1.0	420	15.3	11.1	<0.002	<0.05	0.005	0.006	1.63	5.2	1.64	16.7	1,053	670
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	6.9	142	580	700	<1	420	16	14.5	<0.002		<0.002	<0.002	2.2	5	2.2	29	1,356	880
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	7.4	12.3	162	196	<1	189	5	4.7	0.184		0.007	0.191	0.138	0.48	0.33	35	480	300
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	7.2	33	250	310	<1.0	270	7.1	7.2	0.080		<0.002	0.082	0.054	1.21	0.136	48	706	440
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	7.1	17.2	101	123	<1.0	165	5.4	4.9	0.24		0.039	0.28	0.026	0.61	0.31	32	548	340
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	7	24	107	130	<1	153	5	4.8	0.27		0.071	0.34	<0.01	0.72	0.35	33	528	320
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																		
			HS-BH01	**4005975**	**4005975_6**	**Normal**	6.9	49	189	230	<1.0	340	8.1	8.2	<0.002		<0.002	<0.002	0.065	0.4	0.066	132	817	570
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	6.8	58	166	200	<1	220	5.7	6	<0.002		0.002	0.003	0.063	0.33	0.066	78	592	380
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	7.3	42	440	540	<1.0	390	10.4	10.6	<0.002		<0.002	<0.002	1.84	3.6	1.84	39	977	640
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	7.5	8.7	129	157	<1	98	2.9	3	<0.002		<0.002	<0.002	1.02	1.46	1.02	1	291	198
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	6.9	36	143	174	<1	143	4.4	4.4	<0.002		<0.002	<0.002	0.043	0.24	0.043	34	443	260
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	6.9	15.3	64	77	<1.0	33	1.50	1.46	<0.002		<0.002	<0.002	0.138	1.18	0.138	1.2	152	94
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	7	12.1	62	76	<1	35	1.64	1.5	0.008		0.003	0.01	0.121	0.24	0.131	2.8	158	99
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	7.1	25	149	181	<1.0	150	4.6	4.6	0.008		<0.002	0.008	0.025	0.21	0.033	34	460	270
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	7.3	6.3	66	81	<1.0	71	2.2	2.3	0.59		0.013	0.60	0.30	1.55	0.91	15.8	249	137
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	7.2	8.9	63	77	<1	70	2.3	2.1	0.79		0.019	0.81	0.103	0.8	0.91	10.2	225	142
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	7.4	10.3	127	154	<1.0	102	4.0	3.7	<0.002		<0.002	<0.002	0.41	0.80	0.41	21	386	230
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																		
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	7.5	8.6	134	163	<1	99	3.8	3.7	<0.002		<0.002	<0.002	0.098	0.2	0.099	18.3	365	220
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	6.8	79	220	270	<1.0	186	5.9	5.6	<0.002		0.002	<0.002	4.3	5.8	4.3	5.2	574	370
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	6.7	94	260	320	<1	196	7	6.1	<0.02		<0.02	<0.02	4.8	6.6	4.8	<0.5	589	410

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Nutrients
							Dissolved Reactive Phosphorus (filtered)
							g/m3
EQL							0.004
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							
ECan LWRP Schedule 5 Spring-fed Urban							0.016
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**	
Avondale Basin	AVD_25_BH01	09-10-2025	DUP2	4005975	4005975_13	Field_D	
		10-10-2025	AVD-BH01	4005975	4005975_7	Normal	<0.004
		10-12-2025	AVD-BH01	4054559	4054559_2	Normal	0.104
	AVD_25_BH02	10-10-2025	AVO-BH02	4005975	4005975_8	Normal	0.063
Avonside Basin	AVO_25_BH01	07-10-2025	AVO-BH01	4002959	4002959_6	Normal	0.016
		08-12-2025	AVO-BH01	4054559	4054559_9	Normal	0.007
	AVO_25_BH02	08-12-2025	AVO-BH02	4054559	4054559_8	Normal	<0.004
			DUP-01	4054559	4054559_11	Field_D	
	AVO_25_BH04	07-10-2025	AVO-Bh04	4002959	4002959_7	Normal	<0.004
		08-12-2025	AVO-BH04	4054559	4054559_10	Normal	<0.004
Bower Basin	BOW_25_BH01	08-10-2025	BOW-BH01	4005542	4005542_3	Normal	0.021
		11-12-2025	BOW-BH01	4055927	4055927_1	Normal	<0.004
	BOW_25_BH08	08-10-2025	BOW-BH08	4005542	4005542_4	Normal	0.089
		11-12-2025	BOW-BH08	4055927	4055927_2	Normal	0.107
Breezes Basin	BRE_25_BH01	07-10-2025	BRE-BH01	4002959	4002959_2	Normal	0.36
		11-12-2025	BRE-BH01	4057235	4057235_3	Normal	0.32
Briarmont Basin	BRM_25_BH01	07-10-2025	BRM-BH01	4002959	4002959_5	Normal	<0.004
		10-12-2025	BRM-BH01	4054559	4054559_1	Normal	0.02
Brittans Basin	BRI_25_BH02	09-10-2025	BR1-BH02	4005975	4005975_3	Normal	0.030
		09-12-2025	BRI-BH02	4054559	4054559_3	Normal	0.14
Brooker Basin	BRO_25_BH01	07-10-2025	BRO-BH01	4002959	4002959_3	Normal	<0.004
		11-12-2025	BRO-BH01	4057235	4057235_4	Normal	0.022
	BRO_25_BH02	07-10-2025	BRO-BH02	4002959	4002959_4	Normal	<0.004
		11-12-2025	BRO-BH02	4057235	4057235_6	Normal	<0.004
Dudley Basin	DUD_25_BH01	09-12-2025	DUD-BH01	4054559	4054559_6	Normal	0.008
	DUD_25_BH02	10-10-2025	DUD-BH02	4005975	4005975_9	Normal	<0.004
Evans Basin	EVA_25_BH01	08-10-2025	EVA-BH01	4005542	4005542_2	Normal	0.007
		11-12-2025	EVA-BH01	4055927	4055927_3	Normal	<0.004
Horseshoe Lake	HS_25_BH01	09-10-2025	DUP1	4005975	4005975_11	Field_D	
			HS-BH01	4005975	4005975_6	Normal	<0.004
		12-12-2025	HS-BH01	4057235	4057235_2	Normal	<0.004
Lake Kate Sheppard	LKS_25_BH01	09-10-2025	LKS-BH01	4005975	4005975_5	Normal	0.041
		11-12-2025	LKS-BH01	4055927	4055927_4	Normal	0.81
		12-12-2025	LX-BH01	4057235	4057235_1	Normal	<0.004
Locksley Basin	LOC_25_BH01	08-10-2025	LOC-BH01	4005542	4005542_6	Normal	<0.004
	LOC_25_BH02	09-12-2025	LOC-BH02	4054559	4054559_5	Normal	0.033
Lychgate Basin	LY_25_BH01	09-10-2025	LY-BH01	4005975	4005975_4	Normal	<0.004
Pratt Street Basin	PS_25_BH01	10-10-2025	PS-BH01	4005975	4005975_10	Normal	<0.004
		09-12-2025	PS-BH01	4054559	4054559_4	Normal	<0.004
Riverside Basin	RIV_25_BH04	09-10-2025	R1V-BH04	4005975	4005975_2	Normal	0.035
		09-12-2025	DUP-02	4054559	4054559_12	Field_D	
			RIV-BH04	4054559	4054559_7	Normal	0.021
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	0.114
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	0.41

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Major Ions					Heavy Metals												
							Sodium (filtered)	Potassium (filtered)	Calcium (filtered)	Magnesium (filtered)	Chloride (filtered)	Arsenic	Arsenic (filtered)	Boron	Boron (filtered)	Cadmium	Cadmium (filtered)	Chromium	Chromium (filtered)	Copper	Copper (filtered)	Iron (filtered)	Lead	Lead (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.02	0.05	0.05	0.02	0.5	0.001	0.001	0.05	0.05	0.00005	0.00005	0.0005	0.0005	0.0005	0.0005	0.02	0.0001	0.0001
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)														1.5	1.5	0.0004	0.0004			0.0018	0.0018		0.0056	0.0056
ECan LWRP Schedule 5 Spring-fed Urban												0.094	0.094	0.68	0.68	0.0004	0.0004			0.0018	0.0018		0.0056	0.0056
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																		
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**						0.031	0.030			0.00039	0.00036	0.0044	0.0037	0.0055	0.0040		0.0143	0.0080
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	42	2.1	76	15.8	64	0.0159	0.0188	0.47	0.42	0.00031	0.00031	0.0036	0.0033	0.0036	0.0031	9.6	0.0047	0.0031
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	45	2.5	84	16.7	61	0.04	0.043	0.41	0.45	0.00033	0.0003	0.0032	0.0022	0.0029	0.0009	7.3	0.002	0.00049
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	78	1.71	198	17.2	168	0.0055	0.0031	0.25	0.25	0.000191	<0.00005	0.00198	<0.0005	0.023	0.0123	<0.02	0.053	0.0067
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	17.4	3.4	16.1	2.3	7.3	0.028	0.025	<0.053	<0.05	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	20	0.0031	0.00026
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	17.2	3.5	15.7	2.4	6.7	0.027	0.023	<0.053	<0.05	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	18.6	0.00057	0.00013
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	61	3.4	157	15.8	142	0.0115	0.0078	0.2	0.23	<0.000053	<0.00005	0.00159	<0.0005	0.005	<0.0005	2.6	0.0057	0.00031
			DUP-01	**4054559**	**4054559_11**	**Field_D**						0.0127	0.0079			<0.000053	<0.00005	0.00157	<0.0005	0.0045	<0.0005		0.0054	0.00029
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	24	1.85	42	9.6	18.8	<0.0011	<0.0010	0.086	0.08	<0.000053	<0.00005	<0.00053	<0.0005	0.00139	0.0011	0.04	0.00042	0.00020
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	23	2.4	45	11.7	21	<0.0011	<0.001	0.082	0.09	<0.000053	<0.00005	<0.00053	<0.0005	0.00111	0.0011	0.08	0.0002	0.00017
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	13.8	15.9	176	17.6	15.8	0.0037	<0.0010	0.110	0.11	<0.000053	<0.00005	0.00100	<0.0005	0.00118	<0.0005	<0.02	0.0050	<0.00010
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	14	18.1	192	19.1	17.4	0.0054	0.003	0.116	0.13	<0.000053	<0.00005	0.0037	<0.0005	0.0033	<0.0005	10	0.0085	<0.0001
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	69	22	30	6.9	50	0.0037	0.0035	0.165	0.16	<0.000053	<0.00005	0.00053	<0.0005	0.0060	0.0058	0.05	0.00041	<0.00010
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	63	25	26	5.4	41	0.0026	0.0023	0.154	0.18	<0.000053	<0.00005	<0.00053	<0.0005	0.0061	0.0061	0.03	0.00023	<0.0001
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	27	3.1	57	9.7	38	0.0075	0.0077	0.140	0.15	<0.000053	<0.00005	0.00068	<0.0005	0.0172	0.0159	0.15	0.00062	0.00057
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	28	3.3	55	9.5	42	0.0094	0.0091	0.154	0.15	<0.000053	<0.00005	0.00167	<0.0005	0.0154	0.0144	0.34	0.0028	0.00018
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	115	5.1	98	45	100	0.0027	0.0030	0.128	0.12	<0.000053	<0.00005	0.00152	0.0013	<0.00053	<0.0005	23	0.00058	0.00034
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	101	7.6	89	46	59	0.0063	0.0053	0.084	0.09	<0.000053	<0.00005	0.0015	0.0011	<0.00053	<0.0005	13.4	0.00102	<0.0001
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	58	1.95	55	21	73	0.0073	0.0059	0.24	0.24	<0.000053	<0.00005	0.00080	<0.0005	0.00162	0.0012	2.4	0.0039	0.00077
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	65	2.4	53	18.9	79	0.0048	0.0032	0.23	0.27	<0.000053	<0.00005	0.0031	<0.0005	0.0034	0.001	0.67	0.0117	0.00043
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	144	4.2	130	66	94	0.0057	0.0049	0.28	0.29	<0.000053	<0.00005	0.00106	0.0009	0.00080	<0.0005	22	0.00013	<0.00010
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	144	17.5	124	47	97	0.005	0.0058	0.28	0.27	<0.000053	<0.00005	0.00083	0.0008	0.00097	0.0008	13.4	0.00034	0.00014
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	115	10.5	106	37	62	0.068	0.067	0.22	0.22	<0.000053	<0.00005	0.00121	0.0011	0.00068	0.0005	40	<0.00011	<0.00010
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	131	10	107	37	85	0.079	0.071	0.25	0.25	<0.000053	<0.00005	0.00103	0.001	<0.00053	<0.0005	39	<0.00011	<0.0001
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	22	9.3	63	7.5	26	0.0045	0.0036	0.09	0.1	0.00008	<0.00005	0.0046	<0.0005	0.0086	0.0027	0.84	0.04	0.00083
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	30	9.2	91	10.9	41	0.0058	0.0031	0.093	0.10	0.000118	<0.00005	0.0093	<0.0005	0.0175	0.0069	0.54	0.085	0.0033
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	43	8.2	48	11.0	79	0.0013	<0.0010	0.062	0.07	<0.000053	<0.00005	<0.00053	<0.0005	0.0021	0.0020	0.05	0.00018	<0.00010
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	40	8	46	9.1	70	0.0021	0.0015	0.071	0.08	<0.000053	<0.00005	0.00102	<0.0005	0.0033	0.0024	0.53	0.0093	0.0001
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**						0.033	0.035			<0.000053	<0.00005	<0.00053	<0.0005	0.00066	0.0005		0.00052	0.00047
			HS-BH01	**4005975**	**4005975_6**	**Normal**	25	7.6	101	21	59	0.035	<0.0010	<0.053	<0.05	<0.000053	<0.00005	0.00064	<0.0005	0.00064	<0.0005	0.65	0.00062	<0.00010
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	18.7	6.9	66	14.2	38	0.0185	0.0177	<0.053	<0.05	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	7.4	0.00015	<0.0001
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	35	18.4	129	17.5	33	0.0025	0.0022	0.134	0.120	<0.000053	<0.000053	0.0023	0.0025	0.00118	0.00114	7.5	0.0058	0.0048
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	13.6	9.4	32	4.3	9.8	0.0017	0.0016	0.075	0.08	<0.000053	<0.00005	0.00072	0.0005	<0.00053	<0.0005	1.43	0.0018	<0.0001
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	32	3.3	42	9.1	30	<0.0011	<0.001	0.126	0.13	<0.000053	<0.00005	<0.00053	<0.0005	0.00069	0.0007	0.58	0.00028	0.0003
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	10.1	13.4	6.5	4.1	5.9	0.022	0.0011	<0.053	<0.05	0.00029	<0.00005	0.0095	<0.0005	0.0152	0.0008	0.09	0.46	0.00146
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	10.6	14.4	6.4	4.6	7.1	0.0061	0.0042	<0.053	0.05	<0.000053	<0.00005	<0.00053	<0.0005	0.00141	0.0009	2.5	0.00094	0.00033
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	34	4.4	42	10.7	31	<0.0011	<0.0010	0.131	0.13	<0.000053	<0.00005	<0.00053	<0.0005	0.00111	0.0009	0.21	0.00186	0.00176
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	14.5	4.8	22	4.0	20	0.042	<0.0010	0.196	0.17	0.00138	<0.00005	0.157	<0.0005	0.122	0.0017	0.17	7.2	0.0021
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	16.4	4.7	22	3.9	19.1	<0.0011	<0.001	0.155	0.18	<0.000053	<0.00005	<0.00053	<0.0005	0.0026	0.0025	0.71	0.00087	<0.0001
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	40	6.1	21	11.9	27	0.0020	0.0018	0.116	0.12	<0.000053	<0.00005	<0.00053	<0.0005	0.00072	0.0009	0.58	0.0028	0.0029
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**						<0.0011	0.0011			<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005		<0.00011	<0.0001
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	40	3	22	10.9	23	<0.0011	<0.001	0.116	0.13	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	0.36	<0.00011	<0.0001
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	30	13.5	42	19.5	38	0.0067	0.0012	0.079	0.08	<0.000053	<0.00005	0.00114	<0.0005	<0.00053	<0.0005	3.0	0.00045	<0.00010
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	34	15.5	45	21	30	0.0188	0.0176	0.078	0.08	<0.000053	<0.00005	0.00156	0.0016	<0.00053	<0.0005	24	<0.00011	<0.0001

Environmental Standards

ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

Monitoring Zone	Location Code	Date	Field ID	Lab Report Number	Sample Code	Sample Type	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Zinc	Zinc (Filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0005	0.0001	0.0001	0.0005 - 0.001	0.0005 - 0.001	0.001	0.001
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							2.5	0.0019	0.0019	0.013	0.013	0.015	0.015
ECan LWRP Schedule 5 Spring-fed Urban							2.5	0.0019	0.0019	0.013	0.013	0.015	0.015
Avondale Basin	AVD_25_BH01	09-10-2025	DUP2	4005975	4005975_13	Field_D				0.022	0.021	1.20	1.14
		10-10-2025	AVD-BH01	4005975	4005975_7	Normal	2.5	<0.00011	<0.000105	0.021	0.021	1.09	1.09
		10-12-2025	AVD-BH01	4054559	4054559_2	Normal	2.1	<0.00011	<0.0001	0.022	0.022	1.32	1.42
	AVD_25_BH02	10-10-2025	AVO-BH02	4005975	4005975_8	Normal	0.064	0.00016	<0.00010	0.0060	0.0049	0.29	0.36
Avonside Basin	AVO_25_BH01	07-10-2025	AVO-BH01	4002959	4002959_6	Normal	1.38	<0.00011	<0.00010	0.00053	<0.0005	3.5	2.1
		08-12-2025	AVO-BH01	4054559	4054559_9	Normal	1.23	<0.00011	<0.0001	0.00064	0.0007	1.16	1.1
	AVO_25_BH02	08-12-2025	AVO-BH02	4054559	4054559_8	Normal	0.25	<0.00011	<0.0001	0.0035	0.0019	0.148	0.089
			DUP-01	4054559	4054559_11	Field_D				0.0035	0.002	0.16	0.081
	AVO_25_BH04	07-10-2025	AVO-Bh04	4002959	4002959_7	Normal	0.034	<0.00011	<0.00010	0.00073	0.0006	0.161	0.171
		08-12-2025	AVO-BH04	4054559	4054559_10	Normal	0.022	<0.00011	<0.0001	0.00079	0.0008	0.107	0.108
Bower Basin	BOW_25_BH01	08-10-2025	BOW-BH01	4005542	4005542_3	Normal	0.50	<0.00011	<0.00010	0.0022	0.0012	0.028	0.0036
		11-12-2025	BOW-BH01	4055927	4055927_1	Normal	0.55	<0.00011	<0.0001	0.0041	0.0011	0.025	0.0015
	BOW_25_BH08	08-10-2025	BOW-BH08	4005542	4005542_4	Normal	0.087	<0.00011	<0.00010	0.0034	0.0035	0.0058	0.0063
		11-12-2025	BOW-BH08	4055927	4055927_2	Normal	0.097	<0.00011	<0.0001	0.0033	0.0034	0.0027	0.0025
Breezes Basin	BRE_25_BH01	07-10-2025	BRE-BH01	4002959	4002959_2	Normal	0.0165	<0.00011	<0.00010	0.0104	0.0103	0.0197	0.021
		11-12-2025	BRE-BH01	4057235	4057235_3	Normal	0.092	<0.00011	<0.0001	0.0098	0.0102	0.04	0.017
Briarmont Basin	BRM_25_BH01	07-10-2025	BRM-BH01	4002959	4002959_5	Normal	2.7	<0.00011	<0.00010	0.00091	0.0006	0.0092	0.0063
		10-12-2025	BRM-BH01	4054559	4054559_1	Normal	2.4	<0.00011	<0.0001	0.00068	<0.0005	0.0121	0.0013
Brittans Basin	BRI_25_BH02	09-10-2025	BR1-BH02	4005975	4005975_3	Normal	0.40	<0.00011	<0.00010	0.00102	0.0008	2.8	2.1
		09-12-2025	BRI-BH02	4054559	4054559_3	Normal	0.3	<0.00011	<0.0001	0.0028	0.0007	3.2	1.06
Brooker Basin	BRO_25_BH01	07-10-2025	BRO-BH01	4002959	4002959_3	Normal	5.9	<0.00011	<0.00010	0.00151	0.0013	0.0027	0.0018
		11-12-2025	BRO-BH01	4057235	4057235_4	Normal	3	<0.00011	<0.0001	0.00133	0.0013	0.0034	0.0027
	BRO_25_BH02	07-10-2025	BRO-BH02	4002959	4002959_4	Normal	3.4	<0.00011	<0.00010	0.00091	0.0008	0.0050	0.0040
		11-12-2025	BRO-BH02	4057235	4057235_6	Normal	3.4	<0.00011	<0.0001	0.00063	0.0007	<0.0011	<0.001
Dudley Basin	DUD_25_BH01	09-12-2025	DUD-BH01	4054559	4054559_6	Normal	0.24	<0.00011	<0.0001	0.0046	0.0012	0.32	0.23
	DUD_25_BH02	10-10-2025	DUD-BH02	4005975	4005975_9	Normal	0.23	<0.00011	<0.00010	0.0089	0.0013	1.08	0.80
Evans Basin	EVA_25_BH01	08-10-2025	EVA-BH01	4005542	4005542_2	Normal	0.22	<0.00011	<0.00010	0.00115	0.0011	0.0026	0.0024
		11-12-2025	EVA-BH01	4055927	4055927_3	Normal	0.28	<0.00011	<0.0001	0.0022	0.0015	0.0101	<0.001
Horseshoe Lake	HS_25_BH01	09-10-2025	DUP1	4005975	4005975_11	Field_D				0.00175	0.0014	0.0088	0.0078
			HS-BH01	4005975	4005975_6	Normal	0.95	<0.00011	<0.00010	0.00176	0.0014	0.0085	0.0087
		12-12-2025	HS-BH01	4057235	4057235_2	Normal	0.64	<0.00011	<0.0001	0.00095	0.0011	0.0021	0.0029
Lake Kate Sheppard	LKS_25_BH01	09-10-2025	LKS-BH01	4005975	4005975_5	Normal	3.3	<0.00011	<0.000105	0.00153	0.00143	0.41	0.34
		11-12-2025	LKS-BH01	4055927	4055927_4	Normal	0.76	<0.00011	<0.0001	<0.00053	<0.0005	0.085	0.0037
		12-12-2025	LX-BH01	4057235	4057235_1	Normal	0.17	<0.00011	<0.0001	0.00097	0.001	0.08	0.091
Locksley Basin	LOC_25_BH01	08-10-2025	LOC-BH01	4005542	4005542_6	Normal	0.31	<0.00011	<0.00010	0.0092	0.0007	2.8	1.05
	LOC_25_BH02	09-12-2025	LOC-BH02	4054559	4054559_5	Normal	0.28	<0.00011	<0.0001	<0.00053	0.0006	0.24	0.28
Lychgate Basin	LY_25_BH01	09-10-2025	LY-BH01	4005975	4005975_4	Normal	0.123	<0.00011	<0.00010	0.00110	0.0012	0.32	0.32
Pratt Street Basin	PS_25_BH01	10-10-2025	PS-BH01	4005975	4005975_10	Normal	0.154	0.00024	<0.00010	0.0159	0.0010	7.1	0.24
		09-12-2025	PS-BH01	4054559	4054559_4	Normal	0.135	<0.00011	<0.0001	0.00124	0.0012	0.146	0.165
Riverside Basin	RIV_25_BH04	09-10-2025	R1V-BH04	4005975	4005975_2	Normal	0.29	<0.00011	<0.00010	<0.00053	0.0008	0.56	0.60
		09-12-2025	DUP-02	4054559	4054559_12	Field_D				<0.00053	<0.0005	0.28	0.29
			RIV-BH04	4054559	4054559_7	Normal	0.182	<0.00011	<0.0001	<0.00053	<0.0005	0.27	0.28
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	1.78	<0.00011	<0.00010	<0.00053	<0.0005	0.0047	0.0030
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	1.67	<0.00011	<0.0001	<0.00053	<0.0005	<0.0011	<0.001

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Total Petroleum Hydrocarbons				Polycyclic aromatic hydrocarbons													
							TPH C7 - C9 Fraction	TPH C10 - C14 Fraction	TPH C15 - C36 Fraction	TPH C7 - C36 Fraction	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)&(j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.1	0.2	0.4	0.7	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0004
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)													0.0015		0.0004						0.0017			0.004
ECan LWRP Schedule 5 Spring-fed Urban																								
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																		
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**	<0.10	<0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	0.23	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	0.12	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.1	<0.2	<0.4	<0.7	0.00019	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00016	<0.0002	<0.0001	<0.0004
											<0.003										<0.003			
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**	<0.10	<0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

										Monocyclic Aromatic Hydrocarbons								
							Pyrene	2-Methylnaphthalene	Chloronaphthalenes (1- + 2-)	1,2,4-trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0002	0.003	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.003 - 0.005	0.005	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)												0.04						
ECan LWRP Schedule 5 Spring-fed Urban																		
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**												
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**	<0.0002											
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**	<0.0002											
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.0002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.0002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.0002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**	<0.0002											
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.0002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.0002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**	<0.0002											
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.0002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							BTEXN																
							Naphthalene	Benzene	Toluene	Ethylbenzene	Xylenes (m & p)	Xylene (o)	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,2,3-Trichloropropane	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-dichloroethene
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0005	0.001	0.001	0.001	0.002	0.001	0.003	0.003	0.003	0.003	0.003 - 0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							0.037	1.3	0.23	0.11		0.47		0.5	0.4	7.3					2.6	0.9		
ECan LWRP Schedule 5 Spring-fed Urban							0.037	1.3				0.47				7.3								
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																		
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**	<0.0005	<0.0010	0.0053	<0.0010	<0.002	<0.0010												
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.003	<0.003	0.004	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.003	<0.001	0.0029	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
									0.003															
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.003	<0.003	0.146	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.003	<0.001	0.061	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
									0.073															
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001												
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.003	<0.003	0.006	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**	<0.0005	<0.0010	<0.0010	<0.0010	<0.002	<0.0010												
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.003	<0.001	0.0059	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
									0.006															
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.0005	<0.001	0.0011	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
									<0.003															
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001												
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Volatile Organic Compounds													
							1,2-Dichloropropane	1,3-Dichloropropane	1,1-Dichloropropene	cis-1,3-Dichloropropene	trans-1,3-dichloropropene	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.003	0.003	0.003	0.003 - 0.005	0.003 - 0.005	0.003	0.003	0.003	0.005	0.003	0.003	0.003	0.003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							1.2	1.4								0.32			1.1	
ECan LWRP Schedule 5 Spring-fed Urban																				
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**														
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**														
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**														
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	0.004	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**														
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**														
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

													SVOCs								
							Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Hexachlorobutadiene	Hexachloroethane	Trrichloroethene	Tetrachloroethene	Trichlorofluoromethane	Vinyl chloride	Freon 113	4-Bromophenyl phenyl ether	4-Chlorophenyl phenyl ether	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl) ether	Bis(2-chloroisopropyl) ether	Di(2-ethylhexyl) adipate	Dibenzofuran
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.003	0.003	0.1	0.003	0.01	0.003	0.003	0.003	0.003	3	0.005	0.005	0.05	0.005	0.005	0.005	0.005	0.005
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)									5		0.42	0.4	0.1		0.14									
ECan LWRP Schedule 5 Spring-fed Urban											0.42													
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																		
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																		
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
			DUP-01	**4054559**	**4054559_11**	**Field_D**																		
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																		
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																		
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Phthalates						Organochlori							
							Bis(2-ethylhexyl) phthalate	Butylbenzyl phthalate	Diethyl phthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	p,p-DDE	a-BHC	Aldrin	b-BHC	d-BHC	DDD	DDT	Dieldrin
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.03	0.01	0.01	0.01	0.01	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.01	0.005
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)									1.1	4.3	0.04								0.00002	
ECan LWRP Schedule 5 Spring-fed Urban									1.1	4.3	0.04								0.00002	
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**														
Avondale Basin	AVD_25_BH01	09-10-2025	DUP2	4005975	4005975_13	Field_D														
		10-10-2025	AVD-BH01	4005975	4005975_7	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		10-12-2025	AVD-BH01	4054559	4054559_2	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	AVD_25_BH02	10-10-2025	AVO-BH02	4005975	4005975_8	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
Avonside Basin	AVO_25_BH01	07-10-2025	AVO-BH01	4002959	4002959_6	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		08-12-2025	AVO-BH01	4054559	4054559_9	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	AVO_25_BH02	08-12-2025	AVO-BH02	4054559	4054559_8	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
			DUP-01	4054559	4054559_11	Field_D														
	AVO_25_BH04	07-10-2025	AVO-Bh04	4002959	4002959_7	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		08-12-2025	AVO-BH04	4054559	4054559_10	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Bower Basin	BOW_25_BH01	08-10-2025	BOW-BH01	4005542	4005542_3	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	BOW-BH01	4055927	4055927_1	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BOW_25_BH08	08-10-2025	BOW-BH08	4005542	4005542_4	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	BOW-BH08	4055927	4055927_2	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Breezes Basin	BRE_25_BH01	07-10-2025	BRE-BH01	4002959	4002959_2	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	BRE-BH01	4057235	4057235_3	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Briarmont Basin	BRM_25_BH01	07-10-2025	BRM-BH01	4002959	4002959_5	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		10-12-2025	BRM-BH01	4054559	4054559_1	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Brittans Basin	BRI_25_BH02	09-10-2025	BR1-BH02	4005975	4005975_3	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		09-12-2025	BRI-BH02	4054559	4054559_3	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Brooker Basin	BRO_25_BH01	07-10-2025	BRO-BH01	4002959	4002959_3	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	BRO-BH01	4057235	4057235_4	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	BRO_25_BH02	07-10-2025	BRO-BH02	4002959	4002959_4	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	BRO-BH02	4057235	4057235_6	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Dudley Basin	DUD_25_BH01	09-12-2025	DUD-BH01	4054559	4054559_6	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
	DUD_25_BH02	10-10-2025	DUD-BH02	4005975	4005975_9	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
Evans Basin	EVA_25_BH01	08-10-2025	EVA-BH01	4005542	4005542_2	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	EVA-BH01	4055927	4055927_3	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Horseshoe Lake	HS_25_BH01	09-10-2025	DUP1	4005975	4005975_11	Field_D														
			HS-BH01	4005975	4005975_6	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		12-12-2025	HS-BH01	4057235	4057235_2	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Lake Kate Sheppard	LKS_25_BH01	09-10-2025	LKS-BH01	4005975	4005975_5	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	LKS-BH01	4055927	4055927_4	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
		12-12-2025	LX-BH01	4057235	4057235_1	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Locksley Basin	LOC_25_BH01	08-10-2025	LOC-BH01	4005542	4005542_6	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
	LOC_25_BH02	09-12-2025	LOC-BH02	4054559	4054559_5	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Lychgate Basin	LY_25_BH01	09-10-2025	LY-BH01	4005975	4005975_4	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
Pratt Street Basin	PS_25_BH01	10-10-2025	PS-BH01	4005975	4005975_10	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		09-12-2025	PS-BH01	4054559	4054559_4	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Riverside Basin	RIV_25_BH04	09-10-2025	R1V-BH04	4005975	4005975_2	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		09-12-2025	DUP-02	4054559	4054559_12	Field_D														
			RIV-BH04	4054559	4054559_7	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	<0.03	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							ne Pesticides								Halogenated Benzenes									
							Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin ketone	g-BHC	Heptachlor	Heptachlor epoxide	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3,5-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chlorotoluene	4-Chlorotoluene	Bromobenzene	Chlorobenzene
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.01	0.01	0.01	0.01	0.01	0.005	0.005	0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)										0.00004		0.0004	0.00025		0.016	0.22	0.2	0.02	0.35	0.075				0.1
ECan LWRP Schedule 5 Spring-fed Urban										0.00004		0.0004	0.00025		0.016	0.22	0.2		0.35	0.075				
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																		
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																		
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**																		
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Dudley Basin	**DUD_25_BH01**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	DUD_25_BH02	**10-10-2025**	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																		
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																		
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

								Pesticides	Amino Aliphatics	Phenolics					Amino Aromatics
							Hexachlorobenzene	Carbazole	N-Nitrosodi-n-propylamine	2,4-Dimethylphenol	2-Methylphenol	2-Nitrophenol	3- & 4- Methylphenol	Phenol	n-Nitrosodiphenylamine & Diphenylamine
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.005	0.005	0.01	0.005	0.005	0.01	0.01	0.01	0.01
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							0.0002							0.6	
ECan LWRP Schedule 5 Spring-fed Urban														0.6	
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**									
Avondale Basin	AVD_25_BH01	09-10-2025	DUP2	4005975	4005975_13	Field_D									
		10-10-2025	AVD-BH01	4005975	4005975_7	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		10-12-2025	AVD-BH01	4054559	4054559_2	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
	AVD_25_BH02	10-10-2025	AVO-BH02	4005975	4005975_8	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
Avonside Basin	AVO_25_BH01	07-10-2025	AVO-BH01	4002959	4002959_6	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		08-12-2025	AVO-BH01	4054559	4054559_9	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
	AVO_25_BH02	08-12-2025	AVO-BH02	4054559	4054559_8	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
			DUP-01	4054559	4054559_11	Field_D									
	AVO_25_BH04	07-10-2025	AVO-Bh04	4002959	4002959_7	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		08-12-2025	AVO-BH04	4054559	4054559_10	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Bower Basin	BOW_25_BH01	08-10-2025	BOW-BH01	4005542	4005542_3	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	BOW-BH01	4055927	4055927_1	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
	BOW_25_BH08	08-10-2025	BOW-BH08	4005542	4005542_4	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	BOW-BH08	4055927	4055927_2	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Breezes Basin	BRE_25_BH01	07-10-2025	BRE-BH01	4002959	4002959_2	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	BRE-BH01	4057235	4057235_3	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Briarmont Basin	BRM_25_BH01	07-10-2025	BRM-BH01	4002959	4002959_5	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		10-12-2025	BRM-BH01	4054559	4054559_1	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Brittans Basin	BRI_25_BH02	09-10-2025	BR1-BH02	4005975	4005975_3	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		09-12-2025	BRI-BH02	4054559	4054559_3	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Brooker Basin	BRO_25_BH01	07-10-2025	BRO-BH01	4002959	4002959_3	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	BRO-BH01	4057235	4057235_4	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
	BRO_25_BH02	07-10-2025	BRO-BH02	4002959	4002959_4	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	BRO-BH02	4057235	4057235_6	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Dudley Basin	DUD_25_BH01	09-12-2025	DUD-BH01	4054559	4054559_6	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
	DUD_25_BH02	10-10-2025	DUD-BH02	4005975	4005975_9	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
Evans Basin	EVA_25_BH01	08-10-2025	EVA-BH01	4005542	4005542_2	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	EVA-BH01	4055927	4055927_3	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Horseshoe Lake	HS_25_BH01	09-10-2025	DUP1	4005975	4005975_11	Field_D									
			HS-BH01	4005975	4005975_6	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		12-12-2025	HS-BH01	4057235	4057235_2	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Lake Kate Sheppard	LKS_25_BH01	09-10-2025	LKS-BH01	4005975	4005975_5	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	LKS-BH01	4055927	4055927_4	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
		12-12-2025	LX-BH01	4057235	4057235_1	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Locksley Basin	LOC_25_BH01	08-10-2025	LOC-BH01	4005542	4005542_6	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
	LOC_25_BH02	09-12-2025	LOC-BH02	4054559	4054559_5	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Lychgate Basin	LY_25_BH01	09-10-2025	LY-BH01	4005975	4005975_4	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
Pratt Street Basin	PS_25_BH01	10-10-2025	PS-BH01	4005975	4005975_10	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		09-12-2025	PS-BH01	4054559	4054559_4	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Riverside Basin	RIV_25_BH04	09-10-2025	R1V-BH04	4005975	4005975_2	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		09-12-2025	DUP-02	4054559	4054559_12	Field_D									
			RIV-BH04	4054559	4054559_7	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	<0.005	<0.005	<0.010	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	<0.005	<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Phenolics-Halogenated						E-Nitrobenzenes	Explosives		Solvents				
							2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2-Chlorophenol	4-Chloro-3-methylphenol	Pentachlorophenol	Nitrobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	Methyl Ethyl Ketone	Methyl iso-butyl ketone	Acetone	Isophorone	Methyl-t-butyl ether
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.01	0.01	0.005	0.005	0.01	0.1	0.005	0.01	0.01	0.5	0.1	0.5	0.005	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)								0.04	0.2	0.63		0.017	0.82	0.13						
ECan LWRP Schedule 5 Spring-fed Urban								0.04	0.2	0.63		0.017	0.82	0.13						
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**														
Avondale Basin	AVD_25_BH01	09-10-2025	DUP2	4005975	4005975_13	Field_D														
		10-10-2025	AVD-BH01	4005975	4005975_7	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		10-12-2025	AVD-BH01	4054559	4054559_2	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	AVD_25_BH02	10-10-2025	AVO-BH02	4005975	4005975_8	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
Avonside Basin	AVO_25_BH01	07-10-2025	AVO-BH01	4002959	4002959_6	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		08-12-2025	AVO-BH01	4054559	4054559_9	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	AVO_25_BH02	08-12-2025	AVO-BH02	4054559	4054559_8	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
			DUP-01	4054559	4054559_11	Field_D														
	AVO_25_BH04	07-10-2025	AVO-Bh04	4002959	4002959_7	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		08-12-2025	AVO-BH04	4054559	4054559_10	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Bower Basin	BOW_25_BH01	08-10-2025	BOW-BH01	4005542	4005542_3	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	BOW-BH01	4055927	4055927_1	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	BOW_25_BH08	08-10-2025	BOW-BH08	4005542	4005542_4	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	BOW-BH08	4055927	4055927_2	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Breezes Basin	BRE_25_BH01	07-10-2025	BRE-BH01	4002959	4002959_2	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	BRE-BH01	4057235	4057235_3	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Briarmont Basin	BRM_25_BH01	07-10-2025	BRM-BH01	4002959	4002959_5	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		10-12-2025	BRM-BH01	4054559	4054559_1	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Brittans Basin	BRI_25_BH02	09-10-2025	BR1-BH02	4005975	4005975_3	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		09-12-2025	BRI-BH02	4054559	4054559_3	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Brooker Basin	BRO_25_BH01	07-10-2025	BRO-BH01	4002959	4002959_3	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	BRO-BH01	4057235	4057235_4	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	BRO_25_BH02	07-10-2025	BRO-BH02	4002959	4002959_4	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	BRO-BH02	4057235	4057235_6	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Dudley Basin	DUD_25_BH01	09-12-2025	DUD-BH01	4054559	4054559_6	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	DUD_25_BH02	10-10-2025	DUD-BH02	4005975	4005975_9	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
Evans Basin	EVA_25_BH01	08-10-2025	EVA-BH01	4005542	4005542_2	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	EVA-BH01	4055927	4055927_3	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Horseshoe Lake	HS_25_BH01	09-10-2025	DUP1	4005975	4005975_11	Field_D														
			HS-BH01	4005975	4005975_6	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		12-12-2025	HS-BH01	4057235	4057235_2	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Lake Kate Sheppard	LKS_25_BH01	09-10-2025	LKS-BH01	4005975	4005975_5	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	LKS-BH01	4055927	4055927_4	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
		12-12-2025	LX-BH01	4057235	4057235_1	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Locksley Basin	LOC_25_BH01	08-10-2025	LOC-BH01	4005542	4005542_6	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
	LOC_25_BH02	09-12-2025	LOC-BH02	4054559	4054559_5	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Lychgate Basin	LY_25_BH01	09-10-2025	LY-BH01	4005975	4005975_4	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
Pratt Street Basin	PS_25_BH01	10-10-2025	PS-BH01	4005975	4005975_10	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		09-12-2025	PS-BH01	4054559	4054559_4	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Riverside Basin	RIV_25_BH04	09-10-2025	R1V-BH04	4005975	4005975_2	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		09-12-2025	DUP-02	4054559	4054559_12	Field_D														
			RIV-BH04	4054559	4054559_7	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	<0.010	<0.010	<0.005	<0.005	<0.010	<0.10	<0.005	<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	<0.01	<0.01	<0.005	<0.005	<0.01	<0.1	<0.005	<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Physical	Sample Quality Parameters																				
							pH (Lab)	CO2 (Free)	Total Alkalinity (as CaCO3)	Bicarbonate Alkalinity as (HCO3)	Bicarbonate Alkalinity (as CaCO3)	Carbonate Alkalinity (as CO3)	Carbonate Alkalinity (as CaCO3)	Chemical Oxygen Demand	Hardness (as CaCO3)	Total Cations	Total Anions	Total Suspended Solids	Nitrate (as N)	Nitrate (as N) (filtered)	Nitrite (as N)	Nitrite (as N) (filtered)	Nitrate (as NO3-) (filtered)	Nitrate + Nitrite (as N)	Nitrate + Nitrite (as N) (filtered)	Nitrite (as NO2-) (filtered)	Ammonium Ion (as N) (filtered)	Total Kjeldahl Nitrogen (as N)
							pH_Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.1	1	1	1	20	1	20	25	1	0.05	0.05	5	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.01	0.1
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)																												
ECan LWRP Schedule 5 Spring-fed Urban							6.5-8.5																3.4					
Monitoring Zone	Location Code	Date	Field ID	Lab Report Number	Sample Code	Sample Type																						
Avondale Basin	AVD_25_BH01	09-10-2025	DUP2	4005975	4005975_13	Field_D																						
		10-10-2025	AVD-BH01	4005975	4005975_7	Normal	6.5	145	250	300		<1.0			260	7.5	7.3		0.026			0.015			0.041		0.98	2.9
		10-12-2025	AVD-BH01	4054559	4054559_2	Normal	6.6	135	240	290		<1			280	8	7.1		<0.02			<0.02			<0.02		0.56	2.6
	AVD_25_BH02	10-10-2025	AVO-BH02	4005975	4005975_8	Normal	6.8	119	410	500		<1.0			560	14.7	14.3		<0.002			0.002			0.003		<0.010	1.41
Avonside Basin	AVO_25_BH01	07-10-2025	AVO-BH01	4002959	4002959_6	Normal	7.0	22	99	121		<1.0			49	2.7	2.2		<0.02	<0.05		<0.02			<0.02		0.94	1.41
		08-12-2025	AVO-BH01	4054559	4054559_9	Normal	6.9	23	86	105		<1			49	2.7	1.92		<0.02			<0.02			<0.02		1.19	1.49
	AVO_25_BH02	08-12-2025	AVO-BH02	4054559	4054559_8	Normal	7	64	290	350		<1			460	12	10.5		<0.002			<0.002			<0.002		0.183	1.27
			DUP-01	4054559	4054559_11	Field_D																						
	AVO_25_BH04	07-10-2025	AVO-Bh04	4002959	4002959_7	Normal	7.4	10.0	126	153		<1.0			144	4.0	3.8		0.010	<0.05		<0.002			0.011		0.066	0.17
		08-12-2025	AVO-BH04	4054559	4054559_10	Normal	7.6	6	126	153		<1			161	4.3	4		<0.002			<0.002			<0.002		<0.01	0.15
Bexley	BEX_22_BH01	26-01-2023	BH01	958926-W	Z23-Ja0043734	Normal	7.8		160	195.2 [#1]	160	12 [#1]	<20	66				5.6	<0.02									
	BEX_22_BH02	26-01-2023	BH02	958926-W	Z23-Ja0043735	Normal	8.4		270	329.4 [#1]	270	12 [#1]	<20	<25				7.3	0.07									
	BEX_22_BH03	26-01-2023	BH03	958926-W	Z23-Ja0043740	Normal	8.1		980	1,195.6 [#1]	980	12 [#1]	<20	66				6.6	<0.25									
	BEX_22_BH04	30-01-2023	BH04	959169-W	Z23-Ja0045580	Normal			1,000	1,220 [#1]	1,000	12 [#1]	<20					<5	<0.02		<0.02			<0.05				12
	BEX_22_BH05	26-01-2023	BH05	958926-W	Z23-Ja0043737	Normal	8.2		810	988.2 [#1]	810	12 [#1]	<20	64				<5	<0.5									
	BEX_22_BH06	26-01-2023	BH06	958919-W	Z23-Ja0043544	Normal	7.6		690	841.8 [#1]	690	12 [#1]	<20	76				<5	<0.02		<0.02			<0.05				<0.2
		30-01-2023	BH06	959169-W	Z23-Ja0045581	Normal			910	1,110.2 [#1]	910	12 [#1]	<20	59				<5	<0.02		<0.02			<0.05				15
	BEX_22_BH07	26-01-2023	BH07	958919-W	Z23-Ja0043545	Normal	7.2		990	1,207.8 [#1]	990	12 [#1]	<20	96				9.2	<0.02		<0.02			<0.05				1.5
	BEX_22_BH08	26-01-2023	BH08	958919-W	Z23-Ja0043547	Normal	7.7		89	108.58 [#1]	89	12 [#1]	<20	<25				<5	<0.02		<0.02			<0.05				<0.2
	BEX_22_BH09	26-01-2023	BH09	958926-W	Z23-Ja0043739	Normal	8.5		1,200	1,464 [#1]	1,200	12 [#1]	<20	66				<5	<0.02									
	BEX_22_BH10	26-01-2023	BH10	958926-W	Z23-Ja0043738	Normal	7.9		95	115.9 [#1]	95	12 [#1]	<20	<25				<5	<0.02									
	BEX_22_BH11	26-01-2023	BH11	958919-W	Z23-Ja0043546	Normal	7.1		400	488 [#1]	400	12 [#1]	<20	71				83	0.04		<0.02			<0.05				3.5
	BEX_22_BH12	26-01-2023	BH12	958926-W	Z23-Ja0043736	Normal	7.8		150	183 [#1]	150	12 [#1]	<20	120					<0.02		<0.02			<0.05				1.5
Bower Basin	BOW_25_BH01	08-10-2025	BOW-BH01	4005542	4005542_3	Normal	6.8	27	94	115		<1.0			510	11.3	11.1		<0.02			<0.02			<0.02		0.50	0.89
		11-12-2025	BOW-BH01	4055927	4055927_1	Normal	6.9	25	99	121		<1			560	12.7	12.5		0.011			<0.002			0.012		0.77	1
	BOW_25_BH08	08-10-2025	BOW-BH08	4005542	4005542_4	Normal	7.0	30	164	199		<1.0			104	5.6	5.5		1.06			0.100			1.16		<0.010	0.85
		11-12-2025	BOW-BH08	4055927	4055927_2	Normal	7	30	148	180		<1			88	5.1	4.9		1.91			0.22			2.1		<0.01	0.84
Breezes Basin	BRE_25_BH01	07-10-2025	BRE-BH01	4002959	4002959_2	Normal	7.2	22	153	187		<1.0			182	4.9	4.5		<0.002	<0.05		0.004			0.003		<0.010	2.3
		11-12-2025	BRE-BH01	4057235	4057235_3	Normal	6.9	37	153	186		<1			177	4.8	4.7		<0.002			0.002			<0.002		0.012	2.2
Briarmont Basin	BRM_25_BH01	07-10-2025	BRM-BH01	4002959	4002959_5	Normal	6.9	127	500	610		<1.0			430	14.6	13.4		<0.02	<0.05		<0.02			<0.02		0.48	3.1
		10-12-2025	BRM-BH01	4054559	4054559_1	Normal	6.8	150	520	630		<1			410	13.4	12		<0.02			<0.02			<0.02		0.59	2.6
Brittans Basin	BRI_25_BH02	09-10-2025	BR1-BH02	4005975	4005975_3	Normal	7.4	17.5	210	260		<1.0			220	7.2	6.6		<0.002			<0.002			0.002		0.058	0.84
		09-12-2025	BRI-BH02	4054559	4054559_3	Normal	7.6	9.4	193	230		<1			210	7.1	6.5		<0.002			<0.002			<0.002		0.083	0.92
Brooker Basin	BRO_25_BH01	07-10-2025	BRO-BH01	4002959	4002959_3	Normal	7.0	146	730	890		<1.0			590	19.3	18.4		<0.002	<0.05		<0.002			<0.002		0.62	2.8
		11-12-2025	BRO-BH01	4057235	4057235_4	Normal	6.9	172	670	810		<1			500	17.4	17.5		<0.002			0.014			0.013		0.67	2.6
	BRO_25_BH02	07-10-2025	BRO-BH02	4002959	4002959_4	Normal	7.1	65	450	550		<1.0			420	15.3	11.1		<0.002	<0.05		0.005			0.006		1.63	5.2
		11-12-2025	BRO-BH02	4057235	4057235_6	Normal	6.9	142	580	700		<1			420	16	14.5		<0.002			<0.002			<0.002		2.2	5
Dudley Basin	DUD_25_BH02	09-12-2025	DUD-BH01	4054559	4054559_6	Normal	7.4	12.3	162	196		<1			189	5	4.7		0.184			0.007			0.191		0.138	0.48
		10-10-2025	DUD-BH02	4005975	4005975_9	Normal	7.2	33	250	310		<1.0			270	7.1	7.2		0.080			<0.002			0.082		0.054	1.21
Evans Basin	EVA_25_BH01	08-10-2025	EVA-BH01	4005542	4005542_2	Normal	7.1	17.2	101	123		<1.0			165	5.4	4.9		0.24			0.039			0.28		0.026	0.61
		11-12-2025	EVA-BH01	4055927	4055927_3	Normal	7	24	107	130		<1			153	5	4.8		0.27			0.071			0.34		<0.01	0.72
Horseshoe Lake	HS_25_BH01	09-10-2025	DUP1	4005975	4005975_11	Field_D																						
			HS-BH01	4005975	4005975_6	Normal	6.9	49	189	230		<1.0			340	8.1	8.2		<0.002			<0.002			<0.002		0.065	0.4
		12-12-2025	HS-BH01	4057235	4057235_2	Normal	6.8	58	166	200		<1			220	5.7	6		<0.002			0.002			0.003		0.063	0.33
Lake Kate Sheppard	LKS_25_BH01	09-10-2025	LKS-BH01	4005975	4005975_5	Normal	7.3	42	440	540		<1.0			390	10.4	10.6		<0.002			<0.002			<0.002		1.84	3.6
		11-12-2025	LKS-BH01	4055927	4055927_4	Normal	7.5	8.7	129	157		<1			98	2.9	3		<0.002			<0.002			<0.002		1.02	1.46
Locksley Basin	LOC_25_BH01	08-10-2025	LOC-BH01	4005542	4005542_6	Normal	6.9	15.3	64	77		<1.0			33	1.50	1.46		<0.002			<0.002			<0.002		0.138	1.18
	LOC_25_BH02	09-12-2025	LOC-BH02	4054559	4054559_5	Normal	7	12.1	62	76		<1			35	1.64	1.5		0.008			0.003			0.01		0.121	0.24
Lychgate Basin	LY_25_BH01	09-10-2025	LY-BH01	4005975	4005975_4	Normal	7.1	25	149	181		<1.0			150	4.6	4.6		0.008			<0.002			0.008		0.025	0.21
		12-12-2025	LX-BH01	4057235	4057235_1	Normal	6.9	36	143	174		<1			143	4.4	4.4		<0.002			<0.002			<0.002		0.043	0.24
Pratt Street Basin	PS_25_BH01	10-10-2025	PS-BH01	4005975	4005975_10	Normal	7.3	6.3	66	81		<1.0			71	2.2	2.3		0.59			0.013			0.60		0.30	1.55
		09-12-2025	PS-BH01	4054559	4054559_4	Normal	7.2	8.9	63	77		<1			70	2.3	2.1		0.79			0.019			0.81		0.103	0.8
Riverside Basin	RIV_25_BH04	09-10-2025	R1V-BH04	4005975	4005975_2	Normal	7.4	10.3	127	154		<1.0			102	4.0	3.7		<0.002			<0.002			<0.002		0.41	0.80
		09-12-2025	DUP-02	4054559	4054559_12	Field_D																						
			RIV-BH04	4054559	4054559_7	Normal	7.5	8.6	134	163		<1			99	3.8	3.7		<0.002			<0.002			<0.002		0.098	0.2

							Physical	Sample Quality Parameters																				
							pH (Lab)	CO2 (Free)	Total Alkalinity (as CaCO3)	Bicarbonate Alkalinity (as HCO3)	Bicarbonate Alkalinity (as CaCO3)	Carbonate Alkalinity (as CO3)	Carbonate Alkalinity (as CaCO3)	Chemical Oxygen Demand	Hardness (as CaCO3)	Total Cations	Total Anions	Total Suspended Solids	Nitrate (as N)	Nitrate (as N) (filtered)	Nitrite (as N)	Nitrite (as N) (filtered)	Nitrate (as NO3-) (filtered)	Nitrate + Nitrite (as N)	Nitrate + Nitrite (as N) (filtered)	Nitrite (as NO2-) (filtered)	Ammonium Ion (as N) (filtered)	Total Kjeldahl Nitrogen (as N)
							pH_Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	meq/L	meq/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.1	1	1	1	20	1	20	25	1	0.05	0.05	5	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.01	0.1
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)																												
ECan LWRP Schedule 5 Spring-fed Urban							6.5-8.5																3.4					
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**	8.1		133	160					87	4.3	4.1		<0.002			<0.002			<0.002		0.56	0.84
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**	7.6		740	902.8 [#1]	740	12 [#1]	<20	200				<5	<0.02		<0.02			<0.05				9.3
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**	7.4		89	108					90	3.4	3.5		<0.002			<0.002			<0.002		0.85	0.96
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**	7.1		154	188					129	4.4	4.2		<0.002			0.003			<0.002		1.28	2.1
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**	9		43	48					37	1.23	1.18		<0.002			0.002			0.003		0.108	0.72
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**	7.3		110	134.2 [#1]	110	12 [#1]	<20	<25				<5	<0.02									
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**	6.7		240	290					350	14.5	15.1		<0.02			<0.02			<0.02		6.5	9.2
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**	7.4		1,200	1,464 [#1]	1,200	12 [#1]	<20	49				<5	<0.02		<0.02			<0.05				0.2
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**	7.4		133	161					103	3.3	3.1		<0.002			<0.002			<0.002		0.68	0.82
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**	7.4		400	480					320	9.2	9.2		<0.02			<0.02			<0.02		10.6	10.8
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**	7.7		270	320					710	18.8	20		0.053			0.014			0.067		1.36	2.4
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**	7.4		520	634.4 [#1]	520	12 [#1]	<20	98				<5	1		<0.02			1				0.6
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**	7.5		260	310					177	6.9	6.7		<0.02			<0.02			<0.02		3.8	5.5
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**												930										
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**												480										
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**												1,240										
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**			290	353.8 [#1]	290	12 [#1]	<20	66				<5	<0.02		<0.02			<0.05				4.6
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	6.8	79	220	270		<1.0			186	5.9	5.6		<0.002			0.002			<0.002		4.3	5.8
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	6.7	94	260	320		<1			196	7	6.1		<0.02			<0.02			<0.02		4.8	6.6
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**			83.4							111.60	106.79											
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**																						
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**			109							88.73	81.76						0.0163			0.0138		
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**			111							79.93	83.07									0.0280		
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**			120							100.05	97.82											
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**																						
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**			95.3							158.77	139.56											
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**			73.7							140.88	140.84											
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**			124							131.96	120.25						<0.0020			0.0319		
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**			95.3							124.70	140.09									0.0190		
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**			94.0							126.91	114.45											
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**			99.6							137.19	138.21											
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**			340							13.33	13.24						0.0112			<0.0010		
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**			264							16.65	15.92											
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**																						
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**			265							22.94	20.73											
				22-44765	**22-44765-1**	**Normal**																						
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**																						
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**			87.4							142.56	146.57						<0.0020			0.0282		
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**			57.9							143.23	163.73									0.00700		
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**			46.0							147.86	141.99											
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**																						
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**			183							92.86	97.61						0.0773			0.0615		
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**			99.0							80.36	86.54									0.0120		
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**			53.7							81.08	71.90											
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**																						
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**			746							158.90	151.54						0.0278			0.00631		
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**			441							168.18	192.55									0.0120		
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**			373							172.41	162.87											
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**			291							94.22	94.36											
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**			408							13.56	13.81									0.00700		
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**			509							19.96	18.70											
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**																						
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**			620							31.60	34.60									<0.0010		
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**			539							35.21	31.99											
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**																						

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

										NA		Inorganics			Nutrients											
							Nitrogen (Inorganic)	Nitrogen (Organic)	Nitrogen (Total)	Sulphate (as SO4)	Sulphate (as SO4) (filtered)	EC/10* (EC/10)	Nitrate-N (NO3-N) (filtered)	Total Phosphorus (Organic Phosphate)	Electrical Conductivity @ 25°C	Total Dissolved Solids @180°C	Dissolved Reactive Phosphorus (filtered)	Ammonia (as N) (filtered)	Sodium (filtered)	Potassium (filtered)	Calcium (filtered)	Magnesium (filtered)	Chloride (filtered)	Arsenic	Arsenic (filtered)	Beryllium	Beryllium (filtered)	Boron
							mg/L	mg/L	mg/L	mg/L	mg/L	(mS/m)/10	g/m3	mg/L	uS/cm	mg/L	g/m3	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.005	0.2	0.2	0.15	0.15	0.002	0.002 - 0.2		0.2	10	0.002	0.005	0.01	0.05	0.05	0.01	0.5	0.0005	0.0005	0.00001	0.00001	0.005
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)																		1.43										1.5
ECan LWRP Schedule 5 Spring-fed Urban							1.5										0.016	1.43						0.094	0.094			0.68
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																		0.031	0.030			
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	1.02				26				738	530	<0.004		42	2.1	76	15.8	64	0.0159	0.0188			0.47
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	0.56				25				707	520	0.104		45	2.5	84	16.7	61	0.04	0.043			0.41
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.011				67				1,405	950	0.063		78	1.71	198	17.2	168	0.0055	0.0031			0.25
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	0.96				<0.5				215	155	0.016		17.4	3.4	16.1	2.3	7.3	0.028	0.025			<0.053
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	1.19				<0.5				189	149	0.007		17.2	3.5	15.7	2.4	6.7	0.027	0.023			<0.053
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	0.184				38				1,073	710	<0.004		61	3.4	157	15.8	142	0.0115	0.0078			0.2
			DUP-01	**4054559**	**4054559_11**	**Field_D**																		0.0127	0.0079			
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	0.077				37				387	230	<0.004		24	1.85	42	9.6	18.8	<0.0011	<0.0010			0.086
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.011				42				397	240	<0.004		23	2.4	45	11.7	21	<0.0011	<0.001			0.082
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**				500					8,500		0.07	0.62	1,900	76	85	230	3,900	0.005	0.006			
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**				310					360		0.28	2	89	10	54	23	2,100	<0.001	<0.001			0.45
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**				8.9					1,900		0.37	15	230	40	120	76	200		0.003			
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**		2.8	12	6.9							0.05	9.2	170	32	100	96	110	<0.001	<0.001			5
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**				150					2,000		0.03	28	210	46	88	71	1,400	<0.001	<0.001			3.9
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**			<0.2	12					1,100		0.03	0.9	98	20	48	55	78	0.001	<0.001			0.71
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**		<0.2	15	<5							<0.01	15	240	42	130	82	200	0.002	<0.001			4.8
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**		0.67	1.5	70					2,200		0.22	0.83	350	33	27	66	440	0.005	0.004			0.6
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**			<0.2	<5					190		0.27	1.1	14	1.9	9.6	2.5	9.5	0.028	0.03			<0.05
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**				5.4					2,400		0.04	0.68	390	22	46	55	530	0.002	<0.001			1.3
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**				<5					260		0.45	1.8	25	2.5	9.4	3.2	70	0.063	0.059			0.08
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**			3.5	310					6,100		0.03	4.5	1,100	74	140	250	2,600	0.021	0.019			0.51
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**		<0.2	1.5	240					7,800		0.35	1.4	1,600	69	100	160	1,500	0.004	0.002			0.8
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	0.50				420				1,007	790	0.021		13.8	15.9	176	17.6	15.8	0.0037	<0.0010			0.110
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	0.78				480				1,111	890	<0.004		14	18.1	192	19.1	17.4	0.0054	0.003			0.116
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	1.16				34				583	360	0.089		69	22	30	6.9	50	0.0037	0.0035			0.165
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	2.1				31				531	320	0.107		63	25	26	5.4	41	0.0026	0.0023			0.154
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.011				16.7				472	350	0.36		27	3.1	57	9.7	38	0.0075	0.0077			0.140
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	0.014				22				489	350	0.32		28	3.3	55	9.5	42	0.0094	0.0091			0.154
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	0.48				23				1,269	820	<0.004		115	5.1	98	45	100	0.0027	0.0030			0.128
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	0.59				<0.5				1,109	730	0.02		101	7.6	89	46	59	0.0063	0.0053			0.084
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	0.061				18.4				667	410	0.030		58	1.95	55	21	73	0.0073	0.0059			0.24
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	0.084				19.3				668	400	0.14		65	2.4	53	18.9	79	0.0048	0.0032			0.23
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	0.62				53				1,656	1,060	<0.004		144	4.2	130	66	94	0.0057	0.0049			0.28
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	0.68				64				1,569	1,010	0.022		144	17.5	124	47	97	0.005	0.0058			0.28
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	1.64				16.7				1,053	670	<0.004		115	10.5	106	37	62	0.068	0.067			0.22
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	2.2				29				1,356	880	<0.004		131	10	107	37	85	0.079	0.071			0.25
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	0.33				35				480	300	0.008		22	9.3	63	7.5	26	0.0045	0.0036			0.09
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	0.136				48				706	440	<0.004		30	9.2	91	10.9	41	0.0058	0.0031			0.093
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	0.31				32				548	340	0.007		43	8.2	48	11.0	79	0.0013	<0.0010			0.062
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	0.35				33				528	320	<0.004		40	8	46	9.1	70	0.0021	0.0015			0.071
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																		0.033	0.035			
			HS-BH01	**4005975**	**4005975_6**	**Normal**	0.066				132				817	570	<0.004		25	7.6	101	21	59	0.035	<0.0010			<0.053
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	0.066				78				592	380	<0.004		18.7	6.9	66	14.2	38	0.0185	0.0177			<0.053
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	1.84				39				977	640	0.041		35	18.4	129	17.5	33	0.0025	0.0022			0.134
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	1.02				1				291	198	0.81		13.6	9.4	32	4.3	9.8	0.0017	0.0016			0.075
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	0.138				1.2				152	94	<0.004		10.1	13.4	6.5	4.1	5.9	0.022	0.0011			<0.053
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	0.131				2.8				158	99	0.033		10.6	14.4	6.4	4.6	7.1	0.0061	0.0042			<0.053
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	0.033				34				460	270	<0.004		34	4.4	42	10.7	31	<0.0011	<0.0010			0.131
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	0.043				34				443	260	<0.004		32	3.3	42	9.1	30	<0.0011	<0.001			0.126
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	0.91				15.8				249	137	<0.004		14.5	4.8	22	4.0	20	0.042	<0.0010			0.196
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	0.91				10.2				225	142	<0.004		16.4	4.7	22	3.9	19.1	<0.0011	<0.001			0.155
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	0.41				21				386	230	0.035		40	6.1	21	11.9	27	0.0020	0.0018			0.116
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																		<0.0011	0.0011			
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	0.099				18.3				365	220	0.021		40	3	22	10.9	23	<0.0011	<0.001			0.116

										NA		Inorganics			Nutrients											
							Nitrogen (Inorganic)	Nitrogen (Organic)	Nitrogen (Total)	Sulphate (as SO4)	Sulphate (as SO4) (filtered)	EC/10* (EC/10)	Nitrate-N (NO3-N) (filtered)	Total Phosphorus (Organic Phosphate)	Electrical Conductivity @ 25°C	Total Dissolved Solids @180°C	Dissolved Reactive Phosphorus (filtered)	Ammonia (as N) (filtered)	Sodium (filtered)	Potassium (filtered)	Calcium (filtered)	Magnesium (filtered)	Chloride (filtered)	Arsenic	Arsenic (filtered)	Beryllium	Beryllium (filtered)	Boron
							mg/L	mg/L	mg/L	mg/L	mg/L	(mS/m)/10	g/m3	mg/L	uS/cm	mg/L	g/m3	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.005	0.2	0.2	0.15	0.15	0.002	0.002 - 0.2		0.2	10	0.002	0.005	0.01	0.05	0.05	0.01	0.5	0.0005	0.0005	0.00001	0.00001	0.005
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)																		1.43										1.5
ECan LWRP Schedule 5 Spring-fed Urban							1.5										0.016	1.43						0.094	0.094			0.68
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	WAI_21_BH21-1	13-01-2022	BH21-1	2826885	2826885_2	Normal			0.84		17.9			0.79	434	260	0.68		53	7.8	26	5.5	37	0.0039				
	WAI_21_BH21-2	30-01-2023	BH21-2	958917-W	Z23-Ja0043538	Normal		<0.2	9.3	<5					1,400		0.03	9.2	120	8.2	130	49	89	0.009	0.011			0.12
	WAI_21_BH21-3	12-01-2022	BH21-3	2825572	2825572_1	Normal			0.97		1.9			0.42	386	250	0.33		35	2.8	24	7.5	60	0.0143				
	WAI_21_BH21-4	12-01-2022	BH21-4	2825572	2825572_2	Normal			2.1		<0.5			1.82	426	310	0.054		36	6.7	31	12.3	40	0.0061				
	WAI_21_BH21-5	12-01-2022	BH21-5	2825572	2825572_3	Normal			0.72		1			0.45	124	81	0.41		7.2	6.7	13.1	1.03	9.2	0.0013				
		30-01-2023	BH21-5	958917-W	Z23-Ja0043539	Normal				<5					130		0.17	0.17	9.3	2.8	8.2	2.7	6.5	0.004	0.004			<0.05
	WAI_21_BH21-6	12-01-2022	BH21-6	2825572	2825572_4	Normal			9.2		<0.5			1.66	1,641	1,050	<0.004		155	10.1	95	27	370	0.0029				
		30-01-2023	BH21-6	958917-W	Z23-Ja0043540	Normal			0.2	<50					1,400		0.04	8.2	170	11	52	33	470	0.002	0.002			0.11
	WAI_21_BH21-7	12-01-2022	BH21-7	2825572	2825572_5	Normal			0.82		<0.5			0.43	313	210	0.24		24	5.2	28	7.9	16.1	0.0023				
	WAI_21_BH21-8	13-01-2022	BH21-8	2826885	2826885_3	Normal			10.8		5.8			1.98	895	500	<0.004		35	21	86	25	40	<0.0011				
	WAI_21_BH21-9	13-01-2022	BH21-9	2826885	2826885_1	Normal			2.5		560			0.034	1,780	1,370	<0.004		92	15.2	250	23	123	0.0033				
		30-01-2023	BH21-9	958917-W	Z23-Ja0043541	Normal			1.6	400					1,300		0.04	1.7	34	12	200	23	61	0.002	0.001			0.16
	WAI_21_BH21-10	13-01-2022	BH21-10	2826885	2826885_4	Normal			5.5		0.9			0.96	682	490	0.61		60	18.0	45	15.9	53	0.0014				
	WAI_22_BH15	15-12-2022	BH15	957762-W	K23-Ja0032706	Normal																		0.031				
	WAI_22_BH16	14-12-2022	BH16	957762-W	K23-Ja0032704	Normal																		0.041				
	WAI_22_BH17	13-12-2022	BH17	957762-W	K23-Ja0032705	Normal																		0.017				
	WAI_22_BH18	30-01-2023	BH18	959169-W	Z23-Ja0045582	Normal		2.3	4.6	230							0.12	2.3	1,100	45	140	140	2,100	<0.001	0.001			0.12
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	4.3				5.2				574	370	0.114		30	13.5	42	19.5	38	0.0067	0.0012			0.079
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	4.8				<0.5				589	410	0.41		34	15.5	45	21	30	0.0188	0.0176			0.078
Waitaki Street	WTS_20_BH01_D	09-11-2022	BH01D	22-41656	22-41656-12	Normal					394	106.80	0.0419		10,680.00		<0.002	1.32	2,060	59.7	77.4	194	3,440	<0.00050	<0.00050			0.798
		01-12-2023	BH1-D	23-36476	23-36476-8	Normal					400												2,990	0.0030	0.0028	0.000011	<0.000010	0.633
	WTS_20_BH01_S	12-11-2020	WS_BH01_S	20-43178	20-43178-1	Normal					243	87.52			8,750		0.014	6.07	1,670	37.4	73.9	132	2,640		<0.050			
		20-10-2021	WS_BH01_S	21-44353	21-44353-4	Normal					242	85.76	0.291		8,580		0.076	5.04	1,500	37.7	74.1	119	2,690		0.0013			
		09-11-2022	BH01S	22-41656	22-41656-11	Normal					288	95.69	0.0280		9,570		0.018	6.28	1,840	40.1	82.7	172	3,170	0.0014	0.00088			0.625
		01-12-2023	BH1-5	23-36476	23-36476-7	Normal					112												1,360	0.0054	0.0050	0.000047	0.000053	0.24
	WTS_20_BH02_D	08-11-2022	BH02D	22-41656	22-41656-2	Normal					521	146.80	0.0240		14,680.00		<0.002	3.34	2,760	43.4	317	247	4,500	0.017	0.016			0.42
		07-12-2023	BH02 D	23-36995	23-36995-2	Normal					630	143.27	<0.200		14,327.00		<0.002	3.38	2,470	42.2	214	252	4,480	0.0049	0.0042	0.000024	0.000012	0.699
	WTS_20_BH02_S	12-11-2020	WS_BH02_S	20-43178	20-43178-2	Normal					447	121.10			12,110.00		0.036	1.82	2,010	57.6	453	242	3,850		<0.050			
		20-10-2021	WS_BH02_S	21-44353	21-44353-5	Normal					525	130.60	<0.0020		13,060.00		<0.002	1.46	2,100	44.9	333	184	4,510		0.00055			
		08-11-2022	BH02S	22-41656	22-41656-1	Normal					435	121.00	0.103		12,100.00		0.003	1.72	2,200	36.4	276	193	3,670	0.0028	0.00077			0.47
		07-12-2023	BH02 S	23-36995	23-36995-1	Normal					579	139.40	24.1		13,940.00		0.036	4.82	2,380	46.3	278	215	4,340	0.0037	0.0019	0.000065	0.000053	0.653
	WTS_20_BH03_S	12-11-2020	WS_BH03_S	20-43178	20-43178-3	Normal					144	12.05			1,210		<0.002	1.28	112	8.86	107	32.6	121		0.0021			
		17-11-2022	BH03s	22-42252	22-42252-1	Normal					12.7	16.67	0.0340		1,670		0.023	1.22	227	11.3	60.1	38.9	367	0.0035	0.0019			0.34
		01-12-2023	BH3S	23-36476	23-36476-2	Normal					37.4												409	0.0035	0.0024	0.000054	0.000043	0.25
	WTS_20_BH03D	17-11-2022	BH03d	22-42252	22-42252-2	Normal					<0.15	24.07	<0.0020		2,410		0.830	0.63	425	11.8	41.4	22.3	545	0.0060	0.0048			0.773
				22-44765	22-44765-1	Normal																						
		01-12-2023	BH3D	23-36476	23-36476-3	Normal					20.4												908	0.0024	0.0023	0.000012	0.000015	0.634
	WTS_20_BX24/1347	12-11-2020	WS_BX24/1347	20-43178	20-43178-6	Normal					503	149.10			14,910.00		0.014	1.64	2,510	76.8	145	288	4,760		<0.050			
		20-10-2021	WS_BX24/1347	21-44353	21-44353-7	Normal					530	157.10	0.0213		15,710.00		<0.002	1.63	2,550	73.8	171	262	5,370		0.00089			
		08-11-2022	BX24/1347	22-41656	22-41656-9	Normal					517	141.30	0.0202		14,130.00		<0.002	1.38	2,640	67.6	153	280	4,620	0.030	0.0093			0.744
		01-12-2023	BX24/1347	23-36476	23-36476-5	Normal					187												2,650	0.122	0.028	0.00010	0.000032	0.38
	WTS_20_BX24/1350	12-11-2020	WS_BX24/1350	20-43178	20-43178-5	Normal					130	99.51			9,950		0.088	6.09	1,500	45.2	162	207	3,230		<0.050			
		20-10-2021	WS_BX24/1350	21-44353	21-44353-6	Normal					142	89.16	0.0784		8,920		<0.002	3.93	1,350	37.7	146	156	2,890		0.00078			
		08-11-2022	BX24/1350	22-41656	22-41656-8	Normal					172	79.47	0.0697		7,950		<0.002	2.81	1,340	30.0	135	173	2,380	0.0055	0.0027			0.46
		01-12-2023	BX24/1350	23-36476	23-36476-6	Normal					202												2,540	0.0028	0.0015	0.00052	0.00030	0.41
	WTS_20_HA01	12-11-2020	WS_HA01	20-43178	20-43178-4	Normal					204	152.20			15,220.00		0.004	7.76	2,690	59.6	357	259	4,690		<0.050			
		20-10-2021	WS_HA01	21-44353	21-44353-1	Normal					354	179.20	0.183		17,920.00		0.020	4.62	2,770	65.0	437	288	6,250		0.0021			
		09-11-2022	HA01	22-41656	22-41656-13	Normal					318	160.00	0.397		16,000.00		0.011	3.05	2,970	64.8	326	301	5,270	0.037	0.0029			0.586
		07-12-2023	HA0 1	23-36995	23-36995-3	Normal					235	81.10	0.450		8,110		0.027	1.52	1,610	41.1	186	162	2,960	0.0816	0.013	0.00096	0.000050	0.43
	WTS_20_HA02	20-10-2021	WS_HA02	21-44353	21-44353-2	Normal					113	14.61	0.0461		1,460		0.009	0.34	111	32.4	85.4	43.7	115		0.0068			
		09-11-2022	HA02	22-41656	22-41656-10	Normal					157	17.21	0.0338		1,720		0.079	0.26	191	41.2	131	48.2	184	0.019	0.018			0.44
		01-12-2023	HA02	23-36476	23-36476-4	Normal					129												102	0.016	0.015	0.000031	0.000020	0.37
	WTS_20_HA03	20-10-2021	WS_HA03	21-44353	21-44353-3	Normal					534	31.09	0.106		3,110		0.026	0.04	266	7.01	233	99.9	391		0.0024			
		08-11-2022	HA03	22-41656	22-41656-3	Normal					312	31.66	<0.0020		3,170		0.019	0.04	373	11.2	253	73.4	519	0.0025	0.0022			0.969
		01-12-2023	HA03	23-36476	23-36476-1	Normal					585												731	0.0024	0.0020	0.000021	0.000024	0.636

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Heavy Metals																
							Boron (filtered)	Cadmium	Cadmium (filtered)	Chromium	Chromium (filtered)	Copper	Copper (filtered)	Iron (filtered)	Lead	Lead (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Silver	Zinc	Zinc (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.005	0.00002	0.00002	0.0002	0.0002	0.0002	0.0002	0.005	0.00005	0.00005	0.0005	0.0005	0.00008	0.00008	0.0002	0.0002	0.005	0.001	0.001
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							1.5	0.0004	0.0004			0.0018	0.0018		0.0056	0.0056	2.5	2.5	0.0019	0.0019	0.013	0.013	0.0001	0.015	0.015
ECan LWRP Schedule 5 Spring-fed Urban							0.68	0.0004	0.0004			0.0018	0.0018		0.0056	0.0056	2.5	2.5	0.0019	0.0019	0.013	0.013	0.0001	0.015	0.015
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																			
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**		0.00039	0.00036	0.0044	0.0037	0.0055	0.0040		0.0143	0.0080					0.022	0.021		1.20	1.14
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	0.42	0.00031	0.00031	0.0036	0.0033	0.0036	0.0031	9.6	0.0047	0.0031		2.5	<0.00011	<0.000105	0.021	0.021		1.09	1.09
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	0.45	0.00033	0.0003	0.0032	0.0022	0.0029	0.0009	7.3	0.002	0.00049		2.1	<0.00011	<0.0001	0.022	0.022		1.32	1.42
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	0.25	0.000191	<0.00005	0.00198	<0.0005	0.023	0.0123	<0.02	0.053	0.0067		0.064	0.00016	<0.00010	0.0060	0.0049		0.29	0.36
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.05	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	20	0.0031	0.00026		1.38	<0.00011	<0.00010	0.00053	<0.0005		3.5	2.1
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.05	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	18.6	0.00057	0.00013		1.23	<0.00011	<0.0001	0.00064	0.0007		1.16	1.1
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	0.23	<0.000053	<0.00005	0.00159	<0.0005	0.005	<0.0005	2.6	0.0057	0.00031		0.25	<0.00011	<0.0001	0.0035	0.0019		0.148	0.089
			DUP-01	**4054559**	**4054559_11**	**Field_D**		<0.000053	<0.00005	0.00157	<0.0005	0.0045	<0.0005		0.0054	0.00029					0.0035	0.002		0.16	0.081
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	0.08	<0.000053	<0.00005	<0.00053	<0.0005	0.00139	0.0011	0.04	0.00042	0.00020		0.034	<0.00011	<0.00010	0.00073	0.0006		0.161	0.171
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	0.09	<0.000053	<0.00005	<0.00053	<0.0005	0.00111	0.0011	0.08	0.0002	0.00017		0.022	<0.00011	<0.0001	0.00079	0.0008		0.107	0.108
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**	0.59	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	<0.001	<0.001	<0.005	<0.005	<0.005
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**	0.27	<0.0002	<0.0002	0.002	<0.001	0.001	<0.001		0.002	<0.001			<0.0001	<0.0001	0.002	<0.001		<0.005	<0.005
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**	2.9		<0.0002		<0.001		<0.001			<0.001				<0.0001		0.001			<0.005
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**		<0.0002	<0.0002	0.002	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	0.001	<0.001		0.006	<0.005
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**	2.3	<0.0002	<0.0002	0.001	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	<0.001	<0.001		<0.005	<0.005
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**	0.47	<0.0002	<0.0002	0.001	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	0.008	0.006		<0.005	<0.005
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**		<0.0002	<0.0002	0.002	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	0.002	<0.001		<0.005	<0.005
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**	0.42	<0.0002	<0.0002	0.004	0.002	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	0.001	<0.001		<0.005	<0.005
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**	0.05	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	0.0001	<0.001	<0.001		<0.005	<0.005
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**	0.76	<0.0002	<0.0002	0.002	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	0.002	<0.001		<0.005	<0.005
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**	<0.05	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	<0.001	<0.001		<0.005	<0.005
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**	0.32	<0.0002	<0.0002	0.002	0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	<0.001	<0.001		<0.005	<0.005
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**	0.51	<0.0002	<0.0002	0.003	0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	<0.001	<0.001		<0.005	<0.005
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	0.11	<0.000053	<0.00005	0.00100	<0.0005	0.00118	<0.0005	<0.02	0.0050	<0.00010		0.50	<0.00011	<0.00010	0.0022	0.0012		0.028	0.0036
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	0.13	<0.000053	<0.00005	0.0037	<0.0005	0.0033	<0.0005	10	0.0085	<0.0001		0.55	<0.00011	<0.0001	0.0041	0.0011		0.025	0.0015
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	0.16	<0.000053	<0.00005	0.00053	<0.0005	0.0060	0.0058	0.05	0.00041	<0.00010		0.087	<0.00011	<0.00010	0.0034	0.0035		0.0058	0.0063
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	0.18	<0.000053	<0.00005	<0.00053	<0.0005	0.0061	0.0061	0.03	0.00023	<0.0001		0.097	<0.00011	<0.0001	0.0033	0.0034		0.0027	0.0025
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	0.15	<0.000053	<0.00005	0.00068	<0.0005	0.0172	0.0159	0.15	0.00062	0.00057		0.0165	<0.00011	<0.00010	0.0104	0.0103		0.0197	0.021
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	0.15	<0.000053	<0.00005	0.00167	<0.0005	0.0154	0.0144	0.34	0.0028	0.00018		0.092	<0.00011	<0.0001	0.0098	0.0102		0.04	0.017
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	0.12	<0.000053	<0.00005	0.00152	0.0013	<0.00053	<0.0005	23	0.00058	0.00034		2.7	<0.00011	<0.00010	0.00091	0.0006		0.0092	0.0063
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	0.09	<0.000053	<0.00005	0.0015	0.0011	<0.00053	<0.0005	13.4	0.00102	<0.0001		2.4	<0.00011	<0.0001	0.00068	<0.0005		0.0121	0.0013
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	0.24	<0.000053	<0.00005	0.00080	<0.0005	0.00162	0.0012	2.4	0.0039	0.00077		0.40	<0.00011	<0.00010	0.00102	0.0008		2.8	2.1
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	0.27	<0.000053	<0.00005	0.0031	<0.0005	0.0034	0.001	0.67	0.0117	0.00043		0.3	<0.00011	<0.0001	0.0028	0.0007		3.2	1.06
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	0.29	<0.000053	<0.00005	0.00106	0.0009	0.00080	<0.0005	22	0.00013	<0.00010		5.9	<0.00011	<0.00010	0.00151	0.0013		0.0027	0.0018
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	0.27	<0.000053	<0.00005	0.00083	0.0008	0.00097	0.0008	13.4	0.00034	0.00014		3	<0.00011	<0.0001	0.00133	0.0013		0.0034	0.0027
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	0.22	<0.000053	<0.00005	0.00121	0.0011	0.00068	0.0005	40	<0.00011	<0.00010		3.4	<0.00011	<0.00010	0.00091	0.0008		0.0050	0.0040
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	0.25	<0.000053	<0.00005	0.00103	0.001	<0.00053	<0.0005	39	<0.00011	<0.0001		3.4	<0.00011	<0.0001	0.00063	0.0007		<0.0011	<0.001
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	0.1	0.00008	<0.00005	0.0046	<0.0005	0.0086	0.0027	0.84	0.04	0.00083		0.24	<0.00011	<0.0001	0.0046	0.0012		0.32	0.23
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	0.10	0.000118	<0.00005	0.0093	<0.0005	0.0175	0.0069	0.54	0.085	0.0033		0.23	<0.00011	<0.00010	0.0089	0.0013		1.08	0.80
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	0.07	<0.000053	<0.00005	<0.00053	<0.0005	0.0021	0.0020	0.05	0.00018	<0.00010		0.22	<0.00011	<0.00010	0.00115	0.0011		0.0026	0.0024
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	0.08	<0.000053	<0.00005	0.00102	<0.0005	0.0033	0.0024	0.53	0.0093	0.0001		0.28	<0.00011	<0.0001	0.0022	0.0015		0.0101	<0.001
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**		<0.000053	<0.00005	<0.00053	<0.0005	0.00066	0.0005		0.00052	0.00047					0.00175	0.0014		0.0088	0.0078
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.05	<0.000053	<0.00005	0.00064	<0.0005	0.00064	<0.0005	0.65	0.00062	<0.00010		0.95	<0.00011	<0.00010	0.00176	0.0014		0.0085	0.0087
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.05	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	7.4	0.00015	<0.0001		0.64	<0.00011	<0.0001	0.00095	0.0011		0.0021	0.0029
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	0.120	<0.000053	<0.000053	0.0023	0.0025	0.00118	0.00114	7.5	0.0058	0.0048		3.3	<0.00011	<0.000105	0.00153	0.00143		0.41	0.34
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	0.08	<0.000053	<0.00005	0.00072	0.0005	<0.00053	<0.0005	1.43	0.0018	<0.0001		0.76	<0.00011	<0.0001	<0.00053	<0.0005		0.085	0.0037
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.05	0.00029	<0.00005	0.0095	<0.0005	0.0152	0.0008	0.09	0.46	0.00146		0.31	<0.00011	<0.00010	0.0092	0.0007		2.8	1.05
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	0.05	<0.000053	<0.00005	<0.00053	<0.0005	0.00141	0.0009	2.5	0.00094	0.00033		0.28	<0.00011	<0.0001	<0.00053	0.0006		0.24	0.28
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	0.13	<0.000053	<0.00005	<0.00053	<0.0005	0.00111	0.0009	0.21	0.00186	0.00176		0.123	<0.00011	<0.00010	0.00110	0.0012		0.32	0.32
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	0.13	<0.000053	<0.00005	<0.00053	<0.0005	0.00069	0.0007	0.58	0.00028	0.0003		0.17	<0.00011	<0.0001	0.00097	0.001		0.08	0.091
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	0.17	0.00138	<0.00005	0.157	<0.0005	0.122	0.0017	0.17	7.2	0.0021		0.154	0.00024	<0.00010	0.0159	0.0010		7.1	0.24
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	0.18	<0.000053	<0.00005	<0.00053	<0.0005	0.0026	0.0025	0.71	0.00087	<0.0001		0.135	<0.00011	<0.0001	0.00124	0.0012		0.146	0.165
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	0.12	<0.000053	<0.00005	<0.00053	<0.0005	0.00072	0.0009	0.58	0.0028	0.0029		0.29	<0.00011	<0.00010	<0.00053	0.0008		0.56	0.60
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**		<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005		<0.00011	<0.0001					<0.00053	<0.0005		0.28	0.29
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	0.13	<0.000053	<0.00005	<0.00053	<0.0005	<0.00053	<0.0005	0.36	<0.00011	<0.0001		0.182	<0.00011	<0.0001	<0.00053	<0.0005		0.27	0.28

							Heavy Metals																
							Boron (filtered)	Cadmium	Cadmium (filtered)	Chromium	Chromium (filtered)	Copper	Copper (filtered)	Iron (filtered)	Lead	Lead (filtered)	Manganese	Manganese (filtered)	Mercury	Mercury (filtered)	Nickel	Nickel (filtered)	Silver	Zinc	Zinc (filtered)
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.005	0.00002	0.00002	0.0002	0.0002	0.0002	0.0002	0.005	0.00005	0.00005	0.0005	0.0005	0.00008	0.00008	0.0002	0.0002	0.005	0.001	0.001
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							1.5	0.0004	0.0004			0.0018	0.0018		0.0056	0.0056	2.5	2.5	0.0019	0.0019	0.013	0.013	0.0001	0.015	0.015
ECan LWRP Schedule 5 Spring-fed Urban							0.68	0.0004	0.0004			0.0018	0.0018		0.0056	0.0056	2.5	2.5	0.0019	0.0019	0.013	0.013	0.0001	0.015	0.015
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																			
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**		<0.000053		<0.00053		<0.00053			0.00024				<0.00008		<0.00053			0.0022	
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**	0.09	<0.0002	<0.0002	0.005	0.004	0.006	0.002		<0.001	<0.001			<0.0001	<0.0001	0.005	0.003		<0.005	<0.005
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**		<0.000053		<0.00053		<0.00053			0.00033				<0.00008		0.00067			0.0012	
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**		<0.000053		0.0022		<0.00053			0.00021				<0.00008		<0.00053			<0.0011	
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**		<0.000053		0.00155		0.0057			0.00139				<0.00008		0.0011			0.0096	
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**	<0.05	<0.0002	<0.0002	<0.001	<0.001	0.002	<0.001		<0.001	<0.001			<0.0001	0.0002	<0.001	<0.001		<0.005	<0.005
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**		<0.000053		0.006		<0.00053			<0.00011				<0.00008		0.00074			<0.0011	
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**	0.09	<0.0002	<0.0002	0.002	0.002	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	<0.001	<0.001		0.006	<0.005
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**		<0.000053		0.00124		<0.00053			0.0003				<0.00008		<0.00053			<0.0011	
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**		<0.000053		0.0026		<0.00053			0.00031				<0.00008		<0.00053			<0.0011	
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**		<0.000053		0.00125		0.00166			<0.00011				<0.00008		0.0062			0.0045	
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**	0.12	<0.0002	<0.0002	0.003	0.002	0.003	0.002		<0.001	<0.001			<0.0001	<0.0001	0.004	0.003		0.007	0.006
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**		<0.000053		0.0034		<0.00053			0.00014				<0.00008		0.00072			<0.0011	
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**		0.0003		0.041		0.055			0.12				<0.0001		0.029			0.19	
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**		<0.0002		0.011		0.016			0.021				<0.0001		0.01			0.038	
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**		<0.0002		0.069		0.05			0.07				0.0001		0.053			0.14	
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**	0.43	<0.0002	<0.0002	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001			<0.0001	<0.0001	<0.001	<0.001		<0.005	<0.005
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	0.08	<0.000053	<0.00005	0.00114	<0.0005	<0.00053	<0.0005	3.0	0.00045	<0.00010		1.78	<0.00011	<0.00010	<0.00053	<0.0005		0.0047	0.0030
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	0.08	<0.000053	<0.00005	0.00156	0.0016	<0.00053	<0.0005	24	<0.00011	<0.0001		1.67	<0.00011	<0.0001	<0.00053	<0.0005		<0.0011	<0.001
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**	0.767	0.000061	<0.000020	0.00066	0.00060	0.00020	0.00074	7.55	0.00015	0.00053	0.528	0.545	<0.00010	<0.000080	<0.00020	0.00038		<0.0030	0.013
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**	0.654	<0.000020	<0.000020	0.0034	0.0030	0.00061	<0.00020		0.00026	<0.000050			<0.00010	<0.000080	0.00039	0.00026		<0.0030	<0.0010
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**			<0.00200		<0.020		<0.020	2.07		<0.0050		1.92		<0.0080		<0.020			<0.10
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**			<0.000020		0.00079		0.00076	0.46		<0.000050		1.62		<0.000080		0.00045			0.0010
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**	0.593	<0.000020	<0.000020	0.0018	0.0012	0.00025	0.00020	8.80	0.00019	0.000098	2.01	2.00	<0.00010	<0.000080	0.00025	0.00024		<0.0030	0.0028
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**	0.23	<0.000020	<0.000020	0.0019	0.0015	0.00076	0.00041		0.0011	0.00014			<0.00010	<0.000080	0.0014	0.0012		0.0037	0.0032
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**	0.39	0.000043	0.000047	0.0025	0.0019	0.00075	<0.00020	36.9	0.0018	0.000086	2.26	2.27	<0.00010	<0.000080	0.0011	0.00040		0.0054	0.0018
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**	0.787	<0.000020	<0.000020	0.0021	0.0012	0.00074	<0.00020	20.9	0.0014	<0.000050	1.57	1.46	<0.00010	<0.000080	0.00064	<0.00020		0.0032	<0.0010
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**			<0.00200		<0.020		<0.020	7.31		<0.0050		3.72		<0.0080		<0.020			<0.10
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**			<0.000020		0.00025		<0.00020	5.19		<0.000050		2.96		<0.000080		0.00043			<0.0010
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**	0.44	<0.000020	<0.000020	0.0011	0.00027	0.00032	0.00032	12.7	0.00040	0.00040	2.48	2.49	<0.00010	<0.000080	0.00041	0.00027		<0.0030	0.0052
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**	0.728	<0.000020	<0.000020	0.0030	0.0012	0.0035	0.00062	10.2	0.0026	0.00011	2.38	2.33	<0.00010	<0.000080	0.0019	0.00091		0.0077	0.0032
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**			<0.000020		0.00058		<0.00020	1.31		<0.000050		1.63		<0.000080		0.00048			<0.0010
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**	0.31	<0.000020	<0.000020	0.0016	0.00087	0.0014	<0.00020	3.77	0.00052	<0.000050	1.22	1.24	<0.00010	<0.000080	0.00079	<0.00020		<0.0030	0.0026
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**	0.25	<0.000020	<0.000020	0.0017	0.00077	0.0022	0.00022		0.0010	<0.000050			<0.00010	<0.000080	0.00076	0.00044		<0.0030	0.0031
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**	0.701	<0.000020	<0.000020	0.0014	0.00096	0.0043	0.00033	5.30	0.00067	0.00014	0.279	0.285	<0.00010	<0.000080	0.00054	0.00025		0.0057	0.0058
				22-44765	**22-44765-1**	**Normal**																			
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**	0.651	<0.000020	<0.000020	0.0015	0.00073	0.0012	0.00044		0.00017	0.00014			<0.00010	<0.000080	0.00028	0.00030		<0.0030	0.0057
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**			<0.00200		<0.020		<0.020	8.11		<0.0050		1.62		<0.0080		<0.020			<0.10
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**			<0.000020		0.00074		0.00031	2.80		<0.000050		2.23		<0.000080		0.0042			0.012
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**	0.684	0.000035	0.000060	0.0022	0.0016	0.0012	0.00055	7.34	0.0034	0.00052	1.83	1.85	<0.00010	<0.000080	0.0060	0.0058		0.079	0.082
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**	0.40	0.000030	0.000021	0.0047	0.0024	0.0020	0.00062		0.0011	0.00013			<0.00010	<0.000080	0.0014	0.00073		0.022	0.0092
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**			<0.00200		<0.020		<0.020	21.2		<0.0050		3.69		<0.0080		<0.020			0.110
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**			<0.000020		0.00063		0.00028	4.22		<0.000050		3.14		<0.000080		0.012			0.082
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**	0.43	0.00026	0.00027	0.0040	0.0023	0.0024	0.00044	21.4	0.0021	0.000074	2.65	2.68	<0.00010	<0.000080	0.0298	0.0277		0.498	0.454
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**	0.40	0.000088	0.000039	0.0016	0.0011	0.0012	0.00027		0.00096	0.00012			<0.00010	<0.000080	0.013	0.011		0.107	0.076
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**			<0.00200		<0.020		<0.020	7.40		<0.0050		11.3		<0.0080		<0.020			<0.10
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**			<0.00020		0.00086		0.0041	0.14		<0.000050		6.26		<0.000080		0.0064			0.0029
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**	0.531	0.000051	0.000075	0.0028	0.0011	0.0032	0.0032	5.09	0.0043	0.0019	4.44	4.34	<0.00010	<0.000080	0.0058	0.0047		0.028	0.033
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**	0.530	0.00027	<0.000020	0.0512	0.0037	0.115	0.0027	7.23	0.0258	0.00016	2.37	2.44	0.00014	<0.000080	0.0686	0.0485		0.211	0.0087
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**			<0.000020		<0.00020		0.00091	0.098		0.000063		0.159		<0.000080		0.0026			<0.0010
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**	0.42	0.000055	0.000027	0.0013	0.0012	0.0053	0.0042	2.05	0.0016	0.00073	0.0657	0.0698	<0.00010	<0.000080	0.0041	0.0042		0.0065	0.014
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**	0.34	0.000036	<0.000020	0.00061	0.00051	0.0021	0.00072		0.00091	0.00016			<0.00010	<0.000080	0.0030	0.0025		<0.0030	0.0015
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**			0.000055		0.00033		0.0047	0.046		0.000073		0.293		<0.000080		0.0021			0.0019
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**	0.975	0.000047	0.000022	0.00074	0.00051	0.0052	0.0051	0.25	0.00041	0.000090	0.184	0.181	<0.00010	<0.000080	0.0033	0.0030		<0.0030	0.0012
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**	0.681	0.000067	0.00013	0.00057	0.00036	0.0036	0.0032		0.00090	0.00086			<0.00010	<0.000080	0.0033	0.0033		0.0042	0.012

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Total Petroleum Hydrocarbons				Polycyclic aromatic hydrocarbons																		
							TPH C7 - C9 Fraction	TPH C10 - C14 Fraction	TPH C15 - C36 Fraction	TPH C7 - C36 Fraction	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)&(j)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	1-Chloronaphthalene	1-Methylnaphthalene
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.1	0.2	0.3	0.5	0.00002	0.00002	0.00002	0.00003	0.00002	0.00002	0.0005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00003	0.00003	0.00002	0.005	0.00006
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)													0.0015		0.0004							0.0017			0.004			
ECan LWRP Schedule 5 Spring-fed Urban																												
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																							
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**	<0.10	<0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004	<0.0002		
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	0.23	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	0.12	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
			DUP-01	**4054559**	**4054559_11**	**Field_D**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**																						
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**																						
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**																						
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**																						
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**																						
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**																						
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**																						
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.1	<0.2	<0.4	<0.7	0.00019	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.00016	<0.0002	<0.0001	<0.0004	<0.0002		
											<0.003											<0.003						
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**	<0.10	<0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004	<0.0002		
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		

							Total Petroleum Hydrocarbons				Polycyclic aromatic hydrocarbons																		
							TPH C7 - C9 Fraction	TPH C10 - C14 Fraction	TPH C15 - C36 Fraction	TPH C7 - C36 Fraction	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)&(j)fluoranthene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Pyrene	1-Chloronaphthalene	1-Methylnaphthalene
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.1	0.2	0.3	0.5	0.00002	0.00002	0.00002	0.00003	0.00002	0.00002	0.0005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00003	0.00003	0.00002	0.005	0.00006
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)													0.0015		0.0004							0.0017			0.004			
ECan LWRP Schedule 5 Spring-fed Urban																												
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																							
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**	<0.10	0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004	<0.0002		
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004	<0.0002		
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004	<0.0002		
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**					<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		
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**	0.10	<0.2	<0.4	<0.7	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.0002	<0.00010	<0.0004	<0.0002		
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**	<0.1	<0.2	<0.4	<0.7																		
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**	<0.1	<0.2	<0.4	<0.7																		
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**	<0.1	<0.2	<0.4	<0.7																		
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**					<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.10	<0.2	<0.4	<0.7	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003		
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.1	<0.2	<0.4	<0.7	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0004	<0.0002		
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**					<0.00002	<0.00002	<0.00002	<0.00003	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00003	<0.00003	<0.00002		<0.00006
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**																						
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**					<0.00002	<0.00002	<0.00002	<0.00003	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00003	<0.00003	<0.00002		<0.00006
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**																						
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**					<0.00002	<0.00002	<0.00002	<0.00003	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00003	<0.00003	<0.00002		<0.00006
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**					<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
				22-44765	**22-44765-1**	**Normal**	<0.2	<0.2	<0.3	<0.5																		
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**					<0.00002	<0.00002	<0.00002	<0.00003	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00003	<0.00003	<0.00002		<0.00006
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**																						
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**					0.00007	<0.00002	<0.00002	<0.00003	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.00004	<0.00003	<0.00003	<0.00002		<0.00006
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**																						
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**					<0.00002	<0.00002	<0.00002	<0.00003	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00003	<0.00003	<0.00002		<0.00006
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**																						
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**																						
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**																						
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**	<0.2	<0.2	<0.3	<0.5	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		<0.00050	<0.00030	<0.00050	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030		

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

												Monocyclic Aromatic Hydrocarbons									BTEXN							
							2-Chloronaphthalene	2-Methylnaphthalene	3-Methylcholanthrene	7,12-Dimethylbenz(a)anthracene	Chloronaphthalenes (1- + 2-)	1,2,4-trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Naphthalene	Benzene	Toluene	Ethylbenzene	Xylenes (m & p)	Xylene (o)	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0003	0.00006	0.005	0.005	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.003 - 0.005	0.005	0.003	0.00006	0.001	0.001	0.001	0.002	0.001	0.003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)														0.04							0.037	1.3	0.23	0.11		0.47		0.5
ECan LWRP Schedule 5 Spring-fed Urban																					0.037	1.3				0.47		
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**															<0.0005	<0.0010	0.0053	<0.0010	<0.002	<0.0010		
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	0.004	<0.005	<0.005	<0.003	<0.003	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	0.0029	<0.001	<0.002	<0.001	<0.003	<0.003
																							0.003					
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	0.146	<0.005	<0.005	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	0.061	<0.001	<0.002	<0.001	<0.003	<0.003
																							0.073					
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**															<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001		
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**																						
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**																						
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**																						
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**																						
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**																						
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**																						
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**																						
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	0.006	<0.005	<0.005	<0.003	<0.003	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**															<0.0005	<0.0010	<0.0010	<0.0010	<0.002	<0.0010		
			HS-BH01	**4005975**	**4005975_6**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	0.0059	<0.001	<0.002	<0.001	<0.003	<0.003
																							0.006					
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.001	0.0011	<0.001	<0.002	<0.001	<0.003	<0.003
																							<0.003					
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**															<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001		
			RIV-BH04	**4054559**	**4054559_7**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003

												Monocyclic Aromatic Hydrocarbons								BTEXN							
							2-Chloronaphthalene	2-Methylnaphthalene	3-Methylcholanthrene	7,12-Dimethylbenz(a)anthracene	Chloronaphthalenes (1- + 2-)	1,2,4-trimethylbenzene	1,3,5-Trimethylbenzene	Isopropylbenzene	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Naphthalene	Benzene	Toluene	Ethylbenzene	Xylenes (m & p)	Xylene (o)	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0003	0.00006	0.005	0.005	0.003	0.003	0.003	0.003	0.005	0.005	0.005	0.003 - 0.005	0.005	0.003	0.00006	0.001	0.001	0.001	0.002	0.001	0.003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)														0.04							0.037	1.3	0.23	0.11		0.47		0.5
ECan LWRP Schedule 5 Spring-fed Urban																					0.037	1.3				0.47		
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**															<0.001							
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.003	0.115	<0.005	<0.005	<0.003	<0.003	<0.003
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**																						
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**																						
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**																						
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**	<0.005	<0.005	<0.005	<0.005											<0.001							
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**		<0.003			<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.003	<0.005	<0.003	<0.0005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	<0.003
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**	<0.00030	<0.00030													<0.00030							
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**		<0.00006													<0.00006							
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**																						
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**	<0.00030	<0.00030													<0.00030							
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**	<0.00030	<0.00030													<0.00030							
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**		<0.00006													0.00006							
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**																						
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**	<0.00030	<0.00030													<0.00030							
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**		<0.00006													<0.00006							
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**	<0.00030	<0.00030													<0.00030							
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**	<0.00030	<0.00030													<0.00030							
				22-44765	**22-44765-1**	**Normal**																						
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**		<0.00006													0.00006							
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**																						
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**	<0.00030	<0.00030													<0.00030							
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**		<0.00006													<0.00006							
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**																						
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**	<0.00030	<0.00030													<0.00030							
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**		<0.00006													<0.00006							
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**																						
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**	<0.00030	<0.00030													<0.00030							
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**																						
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**	<0.00030	<0.00030													<0.00030							
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**	<0.00030	<0.00030													<0.00030							
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**																						
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**	<0.00030	<0.00030													<0.00030							
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**	<0.00030	<0.00030													<0.00030							

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Volatile Organic Compounds																		
							1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,2,3-Trichloropropane	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	1,1-Dichloropropene	cis-1,3-Dichloropropene	trans-1,3-dichloropropene	Benzyl chloride	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorodibromomethane
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.003	0.003	0.003 - 0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003 - 0.005	0.003 - 0.005	0.005	0.003	0.003	0.003	0.005	0.003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							0.4	7.3					2.6	0.9			1.2	1.4									0.32	
ECan LWRP Schedule 5 Spring-fed Urban								7.3																				
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																						
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**																						
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**																						
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**																<0.005						
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**																<0.005						
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**																<0.005						
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**																<0.005						
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**																						
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**																<0.005						
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**																						
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**																						
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**																						
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**																						
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**																<0.005						
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**																						
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																						
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																						
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003

							Volatile Organic Compounds																			
							1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,2,3-Trichloropropane	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	1,1-Dichloropropene	cis-1,3-Dichloropropene	trans-1,3-dichloropropene	Benzyl chloride	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorodibromomethane
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.003	0.003	0.003 - 0.005	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003 - 0.005	0.003 - 0.005	0.005	0.003	0.003	0.003	0.005	0.003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)							0.4	7.3					2.6	0.9			1.2	1.4									0.32	
ECan LWRP Schedule 5 Spring-fed Urban								7.3																				
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**																<0.005						
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**																<0.005						
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**																<0.005						
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**																						
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**																						
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**																						
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**																						
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**																<0.005						
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005		<0.003	<0.003	<0.003	<0.005	<0.003	<0.003
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**																						
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**																						
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**																						
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**																						
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**																						
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**																						
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**																						
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**																						
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**																						
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**																						
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**																						
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**																						
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**																						
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**																						
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**																						
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**																						
				22-44765	**22-44765-1**	**Normal**																						
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**																						
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**																						
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**																						
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**																						
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**																						
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**																						
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**																						
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**																						
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**																						
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**																						
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**																						
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**																						
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**																						
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**																						
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**																						
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**																						
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**																						
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**																						
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**																						

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

Monitoring Zone	Location Code	Date	Field ID	Lab Report Number	Sample Code	Sample Type	Chloroethane	Chloroform	Chloromethane	Dibenz(a,j)acridine	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Hexachlorobutadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	Trichlorofluoromethane	Vinyl chloride	Freon 113	2-Phenylphenol	2-Picoline	3,3-Dichlorobenzidine	4-(Dimethylamino) azobenzene	4-Aminobiphenyl	4-Bromophenyl phenyl ether	4-Chlorophenyl phenyl ether	Acetophenone
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.003	0.003	0.003	0.005	0.003	0.003	0.1	0.0003	0.0003	0.003	0.003	0.003	0.003	3	0.005	0.005	0.0005	0.005	0.005	0.0003	0.0003	0.005
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)								1.1					5		0.42	0.4	0.1		0.14									
ECan LWRP Schedule 5 Spring-fed Urban															0.42													
Avondale Basin	AVD_25_BH01	09-10-2025	DUP2	4005975	4005975_13	Field_D																						
		10-10-2025	AVD-BH01	4005975	4005975_7	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		10-12-2025	AVD-BH01	4054559	4054559_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	AVD_25_BH02	10-10-2025	AVO-BH02	4005975	4005975_8	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Avonside Basin	AVO_25_BH01	07-10-2025	AVO-BH01	4002959	4002959_6	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		08-12-2025	AVO-BH01	4054559	4054559_9	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	AVO_25_BH02	08-12-2025	AVO-BH02	4054559	4054559_8	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
			DUP-01	4054559	4054559_11	Field_D																						
	AVO_25_BH04	07-10-2025	AVO-Bh04	4002959	4002959_7	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		08-12-2025	AVO-BH04	4054559	4054559_10	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Bexley	BEX_22_BH01	26-01-2023	BH01	958926-W	Z23-Ja0043734	Normal																						
	BEX_22_BH02	26-01-2023	BH02	958926-W	Z23-Ja0043735	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BEX_22_BH03	26-01-2023	BH03	958926-W	Z23-Ja0043740	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BEX_22_BH04	30-01-2023	BH04	959169-W	Z23-Ja0045580	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BEX_22_BH05	26-01-2023	BH05	958926-W	Z23-Ja0043737	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BEX_22_BH06	26-01-2023	BH06	958919-W	Z23-Ja0043544	Normal																						
		30-01-2023	BH06	959169-W	Z23-Ja0045581	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BEX_22_BH07	26-01-2023	BH07	958919-W	Z23-Ja0043545	Normal																						
	BEX_22_BH08	26-01-2023	BH08	958919-W	Z23-Ja0043547	Normal																						
	BEX_22_BH09	26-01-2023	BH09	958926-W	Z23-Ja0043739	Normal																						
	BEX_22_BH10	26-01-2023	BH10	958926-W	Z23-Ja0043738	Normal																						
	BEX_22_BH11	26-01-2023	BH11	958919-W	Z23-Ja0043546	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	BEX_22_BH12	26-01-2023	BH12	958926-W	Z23-Ja0043736	Normal																						
Bower Basin	BOW_25_BH01	08-10-2025	BOW-BH01	4005542	4005542_3	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	BOW-BH01	4055927	4055927_1	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	BOW_25_BH08	08-10-2025	BOW-BH08	4005542	4005542_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	BOW-BH08	4055927	4055927_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Breezes Basin	BRE_25_BH01	07-10-2025	BRE-BH01	4002959	4002959_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	BRE-BH01	4057235	4057235_3	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Briarmont Basin	BRM_25_BH01	07-10-2025	BRM-BH01	4002959	4002959_5	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		10-12-2025	BRM-BH01	4054559	4054559_1	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Brittans Basin	BRI_25_BH02	09-10-2025	BR1-BH02	4005975	4005975_3	Normal	<0.003	0.004	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		09-12-2025	BRI-BH02	4054559	4054559_3	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Brooker Basin	BRO_25_BH01	07-10-2025	BRO-BH01	4002959	4002959_3	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	BRO-BH01	4057235	4057235_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	BRO_25_BH02	07-10-2025	BRO-BH02	4002959	4002959_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	BRO-BH02	4057235	4057235_6	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Dudley Basin	DUD_25_BH02	09-12-2025	DUD-BH01	4054559	4054559_6	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		10-10-2025	DUD-BH02	4005975	4005975_9	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Evans Basin	EVA_25_BH01	08-10-2025	EVA-BH01	4005542	4005542_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	EVA-BH01	4055927	4055927_3	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Horseshoe Lake	HS_25_BH01	09-10-2025	DUP1	4005975	4005975_11	Field_D																						
			HS-BH01	4005975	4005975_6	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		12-12-2025	HS-BH01	4057235	4057235_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Lake Kate Sheppard	LKS_25_BH01	09-10-2025	LKS-BH01	4005975	4005975_5	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	LKS-BH01	4055927	4055927_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Locksley Basin	LOC_25_BH01	08-10-2025	LOC-BH01	4005542	4005542_6	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	LOC_25_BH02	09-12-2025	LOC-BH02	4054559	4054559_5	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Lychgate Basin	LY_25_BH01	09-10-2025	LY-BH01	4005975	4005975_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		12-12-2025	LX-BH01	4057235	4057235_1	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Pratt Street Basin	PS_25_BH01	10-10-2025	PS-BH01	4005975	4005975_10	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		09-12-2025	PS-BH01	4054559	4054559_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Riverside Basin	RIV_25_BH04	09-10-2025	R1V-BH04	4005975	4005975_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		09-12-2025	DUP-02	4054559	4054559_12	Field_D																						
			RIV-BH04	4054559	4054559_7	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	

Monitoring Zone	Location Code	Date	Field ID	Lab Report Number	Sample Code	Sample Type	Chloroethane	Chloroform	Chloromethane	Dibenz(a,j)acridine	Dibromomethane	Dichlorodifluoromethane	Dichloromethane	Hexachlorobutadiene	Hexachloroethane	Trichloroethene	Tetrachloroethene	Trichlorofluoromethane	Vinyl chloride	Freon 113	2-Phenylphenol	2-Picoline	3,3-Dichlorobenzidine	4-(Dimethylamino) azobenzene	4-Aminobiphenyl	4-Bromophenyl phenyl ether	4-Chlorophenyl phenyl ether	Acetophenone
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.003	0.003	0.003	0.005	0.003	0.003	0.1	0.0003	0.0003	0.003	0.003	0.003	0.003	3	0.005	0.005	0.0005	0.005	0.005	0.0003	0.0003	0.005
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)								1.1					5		0.42	0.4	0.1		0.14									
ECan LWRP Schedule 5 Spring-fed Urban															0.42													
Wainoni	WAI_21_BH21-1	13-01-2022	BH21-1	2826885	2826885_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.005	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	WAI_21_BH21-2	30-01-2023	BH21-2	958917-W	Z23-Ja0043538	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	WAI_21_BH21-3	12-01-2022	BH21-3	2825572	2825572_1	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	WAI_21_BH21-4	12-01-2022	BH21-4	2825572	2825572_2	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	WAI_21_BH21-5	12-01-2022	BH21-5	2825572	2825572_3	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		30-01-2023	BH21-5	958917-W	Z23-Ja0043539	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	WAI_21_BH21-6	12-01-2022	BH21-6	2825572	2825572_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		30-01-2023	BH21-6	958917-W	Z23-Ja0043540	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	WAI_21_BH21-7	12-01-2022	BH21-7	2825572	2825572_5	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	WAI_21_BH21-8	13-01-2022	BH21-8	2826885	2826885_3	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.005	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	WAI_21_BH21-9	13-01-2022	BH21-9	2826885	2826885_1	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.005	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		30-01-2023	BH21-9	958917-W	Z23-Ja0043541	Normal																						
	WAI_21_BH21-10	13-01-2022	BH21-10	2826885	2826885_4	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.005	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
	WAI_22_BH15	15-12-2022	BH15	957762-W	K23-Ja0032706	Normal																						
	WAI_22_BH16	14-12-2022	BH16	957762-W	K23-Ja0032704	Normal																						
	WAI_22_BH17	13-12-2022	BH17	957762-W	K23-Ja0032705	Normal																						
	WAI_22_BH18	30-01-2023	BH18	959169-W	Z23-Ja0045582	Normal				<0.005				<0.005	<0.005							<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.10	<0.003	<0.010	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	<0.003	<0.003	<0.003		<0.003	<0.003	<0.1	<0.003	<0.01	<0.003	<0.003	<0.003	<0.003	<3						<0.005	<0.005	
Waitaki Street	WTS_20_BH01_D	09-11-2022	BH01D	22-41656	22-41656-12	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		01-12-2023	BH1-D	23-36476	23-36476-8	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_BH01_S	12-11-2020	WS_BH01_S	20-43178	20-43178-1	Normal																						
		20-10-2021	WS_BH01_S	21-44353	21-44353-4	Normal																						
		09-11-2022	BH01S	22-41656	22-41656-11	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		01-12-2023	BH1-5	23-36476	23-36476-7	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_BH02_D	08-11-2022	BH02D	22-41656	22-41656-2	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		07-12-2023	BH02 D	23-36995	23-36995-2	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_BH02_S	12-11-2020	WS_BH02_S	20-43178	20-43178-2	Normal																						
		20-10-2021	WS_BH02_S	21-44353	21-44353-5	Normal																						
		08-11-2022	BH02S	22-41656	22-41656-1	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		07-12-2023	BH02 S	23-36995	23-36995-1	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_BH03_S	12-11-2020	WS_BH03_S	20-43178	20-43178-3	Normal																						
		17-11-2022	BH03s	22-42252	22-42252-1	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		01-12-2023	BH3S	23-36476	23-36476-2	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_BH03D	17-11-2022	BH03d	22-42252	22-42252-2	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
				22-44765	22-44765-1	Normal																						
		01-12-2023	BH3D	23-36476	23-36476-3	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_BX24/1347	12-11-2020	WS_BX24/1347	20-43178	20-43178-6	Normal																						
		20-10-2021	WS_BX24/1347	21-44353	21-44353-7	Normal																						
		08-11-2022	BX24/1347	22-41656	22-41656-9	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		01-12-2023	BX24/1347	23-36476	23-36476-5	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_BX24/1350	12-11-2020	WS_BX24/1350	20-43178	20-43178-5	Normal																						
		20-10-2021	WS_BX24/1350	21-44353	21-44353-6	Normal																						
		08-11-2022	BX24/1350	22-41656	22-41656-8	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		01-12-2023	BX24/1350	23-36476	23-36476-6	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_HA01	12-11-2020	WS_HA01	20-43178	20-43178-4	Normal																						
		20-10-2021	WS_HA01	21-44353	21-44353-1	Normal																						
		09-11-2022	HA01	22-41656	22-41656-13	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		07-12-2023	HA0 1	23-36995	23-36995-3	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_HA02	20-10-2021	WS_HA02	21-44353	21-44353-2	Normal																						
		09-11-2022	HA02	22-41656	22-41656-10	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		01-12-2023	HA02	23-36476	23-36476-4	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
	WTS_20_HA03	20-10-2021	WS_HA03	21-44353	21-44353-3	Normal																						
		08-11-2022	HA03	22-41656	22-41656-3	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	
		01-12-2023	HA03	23-36476	23-36476-1	Normal								<0.00030	<0.00030						<0.0050		<0.00050			<0.00030	<0.00030	

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							SVOCs											Phthalates						Herbicides				
							Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl) ether	Bis(2-chloroisopropyl) ether	Di(2-ethylhexyl) adipate	Dibenzofuran	Ethylmethanesulfonate	Hexachlorocyclopentadiene	Methyl methanesulfonate	N-Nitrosopiperidine	Bis(2-ethylhexyl) phthalate	Butylbenzyl phthalate	Diethyl phthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Pronamide	Trifluralin	delta-BHC	p,p-DDE	2,4-DDT
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL							0.0003	0.0003	0.0003	0.0003	0.0003	0.005	0.0003	0.01	0.0003	0.0003	0.005	0.005	0.001	0.002	0.0003	0.005	0.0005	0.005	0.005	0.1	0.0003	
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)																				1.1	4.3	0.04			0.006			
ECan LWRP Schedule 5 Spring-fed Urban																				1.1	4.3	0.04			0.006			
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																						
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
			DUP-01	**4054559**	**4054559_11**	**Field_D**																						
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**																						
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**			<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	<0.1		
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**			<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	<0.1		
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**			<0.005		<0.005		<0.005		<0.005		<0.005	**0.007**	<0.005	<0.005	<0.005	<0.005	**0.009**	<0.005	<0.005	<0.1		
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**			<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	<0.1		
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**																						
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**			<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	**0.1**		
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**																						
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**																						
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**																						
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**																						
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**			<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	<0.1		
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**																						
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																						
			HS-BH01	**4005975**	**4005975_6**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																						
			RIV-BH04	**4054559**	**4054559_7**	**Normal**		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	

							SVOCs											Phthalates						Herbicides				
							Azobenzene	Benzyl alcohol	Bis(2-chloroethoxy) methane	Bis(2-chloroethyl) ether	Bis(2-chloroisopropyl) ether	Di(2-ethylhexyl) adipate	Dibenzofuran	Ethylmethanesulfonate	Hexachlorocyclopentadiene	Methyl methanesulfonate	N-Nitrosopiperidine	Bis(2-ethylhexyl) phthalate	Butylbenzyl phthalate	Diethyl phthalate	Dimethyl phthalate	Di-n-butyl phthalate	Di-n-octyl phthalate	Pronamide	Trifluralin	delta-BHC	p,p-DDE	2,4-DDT
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL							0.0003	0.0003	0.0003	0.0003	0.0003	0.005	0.0003	0.01	0.0003	0.0003	0.005	0.005	0.001	0.002	0.0003	0.005	0.0005	0.005	0.005	0.1	0.0003	
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)																				1.1	4.3	0.04			0.006			
ECan LWRP Schedule 5 Spring-fed Urban																				1.1	4.3	0.04			0.006			
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	WAI_21_BH21-1	13-01-2022	BH21-1	2826885	2826885_2	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.0002	<0.0002
	WAI_21_BH21-2	30-01-2023	BH21-2	958917-W	Z23-Ja0043538	Normal			<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	<0.1		
	WAI_21_BH21-3	12-01-2022	BH21-3	2825572	2825572_1	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.0002	<0.0002
	WAI_21_BH21-4	12-01-2022	BH21-4	2825572	2825572_2	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.0002	<0.0002
	WAI_21_BH21-5	12-01-2022	BH21-5	2825572	2825572_3	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.0002	<0.0002
		30-01-2023	BH21-5	958917-W	Z23-Ja0043539	Normal			<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	<0.1		
	WAI_21_BH21-6	12-01-2022	BH21-6	2825572	2825572_4	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.0002	<0.0002
		30-01-2023	BH21-6	958917-W	Z23-Ja0043540	Normal			<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	<0.1		
	WAI_21_BH21-7	12-01-2022	BH21-7	2825572	2825572_5	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.0002	<0.0002
	WAI_21_BH21-8	13-01-2022	BH21-8	2826885	2826885_3	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.0002	<0.0002
	WAI_21_BH21-9	13-01-2022	BH21-9	2826885	2826885_1	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.0002	<0.0002
		30-01-2023	BH21-9	958917-W	Z23-Ja0043541	Normal																						
	WAI_21_BH21-10	13-01-2022	BH21-10	2826885	2826885_4	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.0002	<0.0002
	WAI_22_BH15	15-12-2022	BH15	957762-W	K23-Ja0032706	Normal																						
	WAI_22_BH16	14-12-2022	BH16	957762-W	K23-Ja0032704	Normal																						
	WAI_22_BH17	13-12-2022	BH17	957762-W	K23-Ja0032705	Normal																						
	WAI_22_BH18	30-01-2023	BH18	959169-W	Z23-Ja0045582	Normal			<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	<0.1		
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.010	<0.010	<0.010	<0.010	<0.010				<0.005	
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal		<0.05	<0.005	<0.005	<0.005	<0.005	<0.005					<0.03	<0.01	<0.01	<0.01	<0.01	<0.01				<0.005	
Waitaki Street	WTS_20_BH01_D	09-11-2022	BH01D	22-41656	22-41656-12	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	0.0040	<0.00030	<0.010	<0.00050				<0.00030	
		01-12-2023	BH1-D	23-36476	23-36476-8	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	0.0027	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_BH01_S	12-11-2020	WS_BH01_S	20-43178	20-43178-1	Normal																						
		20-10-2021	WS_BH01_S	21-44353	21-44353-4	Normal																						
		09-11-2022	BH01S	22-41656	22-41656-11	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
		01-12-2023	BH1-5	23-36476	23-36476-7	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_BH02_D	08-11-2022	BH02D	22-41656	22-41656-2	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	0.0023	<0.00030	<0.010	<0.00050				<0.00030	
		07-12-2023	BH02 D	23-36995	23-36995-2	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_BH02_S	12-11-2020	WS_BH02_S	20-43178	20-43178-2	Normal																						
		20-10-2021	WS_BH02_S	21-44353	21-44353-5	Normal																						
		08-11-2022	BH02S	22-41656	22-41656-1	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
		07-12-2023	BH02 S	23-36995	23-36995-1	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_BH03_S	12-11-2020	WS_BH03_S	20-43178	20-43178-3	Normal																						
		17-11-2022	BH03s	22-42252	22-42252-1	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
		01-12-2023	BH3S	23-36476	23-36476-2	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_BH03D	17-11-2022	BH03d	22-42252	22-42252-2	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
				22-44765	22-44765-1	Normal																						
		01-12-2023	BH3D	23-36476	23-36476-3	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_BX24/1347	12-11-2020	WS_BX24/1347	20-43178	20-43178-6	Normal																						
		20-10-2021	WS_BX24/1347	21-44353	21-44353-7	Normal																						
		08-11-2022	BX24/1347	22-41656	22-41656-9	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
		01-12-2023	BX24/1347	23-36476	23-36476-5	Normal	<0.00030	0.00041	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	0.0069	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_BX24/1350	12-11-2020	WS_BX24/1350	20-43178	20-43178-5	Normal																						
		20-10-2021	WS_BX24/1350	21-44353	21-44353-6	Normal																						
		08-11-2022	BX24/1350	22-41656	22-41656-8	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
		01-12-2023	BX24/1350	23-36476	23-36476-6	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	0.0045	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_HA01	12-11-2020	WS_HA01	20-43178	20-43178-4	Normal																						
		20-10-2021	WS_HA01	21-44353	21-44353-1	Normal																						
		09-11-2022	HA01	22-41656	22-41656-13	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	0.015	<0.00030	<0.010	<0.00050				<0.00030	
		07-12-2023	HA0 1	23-36995	23-36995-3	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_HA02	20-10-2021	WS_HA02	21-44353	21-44353-2	Normal																						
		09-11-2022	HA02	22-41656	22-41656-10	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
		01-12-2023	HA02	23-36476	23-36476-4	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
	WTS_20_HA03	20-10-2021	WS_HA03	21-44353	21-44353-3	Normal																						
		08-11-2022	HA03	22-41656	22-41656-3	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	
		01-12-2023	HA03	23-36476	23-36476-1	Normal	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.0050	<0.00030	<0.010	<0.00030	<0.00030		<0.0063	<0.0010	<0.0020	<0.00030	<0.010	<0.00050				<0.00030	

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Organochlorine Pesticides																				
							a-BHC	Aldrin	b-BHC	cis-Chlordane	trans-Chlordane	d-BHC	DDD	DDE	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC	g-HCH	Heptachlor	Heptachlor epoxide	Methoxychlor	o,p-DDD
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0001	0.0001	0.0001	0.0003	0.0005	0.0003	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.0001	0.0001	
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)															0.00002					0.00004			0.0004		0.00025			
ECan LWRP Schedule 5 Spring-fed Urban															0.00002					0.00004			0.0004		0.00025			
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																						
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
			DUP-01	**4054559**	**4054559_11**	**Field_D**																						
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**																						
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**	<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	<0.0001	
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**	<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	<0.0001	
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**	<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	<0.0001	
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**	<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	<0.0001	
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**																						
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**	0.0001	0.0002	0.0001				<0.0001	0.0002	<0.0001	0.0002	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001		<0.0001	<0.0001	0.0002	<0.0001	
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**																						
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**																						
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**																						
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**																						
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**	<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	<0.0001	
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**																						
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																						
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																						
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		

							Organochlorine Pesticides																				
							a-BHC	Aldrin	b-BHC	cis-Chlordane	trans-Chlordane	d-BHC	DDD	DDE	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	g-BHC	g-HCH	Heptachlor	Heptachlor epoxide	Methoxychlor	o,p-DDD
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0001	0.0001	0.0001	0.0003	0.0005	0.0003	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0001	0.0001	0.0001	0.0001	
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)															0.00002					0.00004			0.0004		0.00025			
ECan LWRP Schedule 5 Spring-fed Urban															0.00002					0.00004			0.0004		0.00025			
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**	<0.0002	<0.00010	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.0002	<0.00010	<0.0002	<0.0002	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.00010	<0.00010	<0.00010	<0.0002
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**	<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	<0.0001	
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0001	<0.0001	<0.0001	<0.0002
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0001	<0.0001	<0.0001	<0.0002
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0001	<0.0001	<0.0001	<0.0002
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**	<0.0001	<0.0001	<0.0001				<0.0001	<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	
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0001	<0.0001	<0.0001	<0.0002
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**	<0.0001	<0.0001	<0.0001				<0.0001	<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	
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**	<0.0002	<0.0001	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002		<0.0001	<0.0001	<0.0001	<0.0002
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**	<0.0002	<0.00010	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.0002	<0.00010	<0.0002	<0.0002	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.00010	<0.00010	<0.00010	<0.0002
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**	<0.0002	<0.00010	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.0002	<0.00010	<0.0002	<0.0002	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.00010	<0.00010	<0.00010	<0.0002
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**																						
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**	<0.0002	<0.00010	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.0002	<0.00010	<0.0002	<0.0002	<0.0002	<0.00010	<0.00010	<0.0002	<0.0002		<0.00010	<0.00010	<0.00010	<0.0002
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**																						
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**																						
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**																						
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**	<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	<0.0001	
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.010	<0.005	<0.010	<0.010	<0.010	<0.010		<0.010	<0.005		<0.005	<0.005		
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.005	<0.005	<0.005			<0.005	<0.005		<0.01	<0.005	<0.01	<0.01	<0.01	<0.01		<0.01	<0.005		<0.005	<0.005		
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**																						
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**																						
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**																						
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**																						
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**																						
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
				22-44765	**22-44765-1**	**Normal**																						
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**																						
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**																						
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**																						
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**																						
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**																						
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**																						
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**																						
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**																						
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**	<0.00030	<0.00050	<0.00030	<0.00030	<0.00050	<0.00030	<0.00050		<0.0010	<0.00050	<0.0010	<0.0010	<0.00050	<0.0010	<0.00030	<0.00030	<0.00030		<0.00030	<0.00030	<0.00030	

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

								Halogenated Benzenes															Pesticides	Amino Aliphatics				
							o,p-DDE	1,2,3,4-Tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,3-Trichlorobenzene	1,2,4,5-Tetrachlorobenzene	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3,5-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chlorotoluene	4-Chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	Carbazole	N-Nitrosodi-n-butylamine	N-Nitrosodi-n-propylamine	2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methylphenol
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL								0.005	0.005	0.003	0.005	0.003	0.0003	0.003	0.0003	0.0003	0.003	0.003	0.003	0.003	0.0003	0.005	0.005	0.005	0.0003	0.001	0.03	0.0003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)								0.006	0.007	0.016	0.008	0.22	0.2	0.02	0.35	0.075				0.1	0.0002	0.0025					0.08	
ECan LWRP Schedule 5 Spring-fed Urban										0.016		0.22	0.2		0.35	0.075											0.08	
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																						
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
			DUP-01	**4054559**	**4054559_11**	**Field_D**																						
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**																						
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**																						
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**																						
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**																						
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**																						
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**																						
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**																						
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																						
			HS-BH01	**4005975**	**4005975_6**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																						
			RIV-BH04	**4054559**	**4054559_7**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005

								Halogenated Benzenes															Pesticides	Amino Aliphatics				
							o,p-DDE	1,2,3,4-Tetrachlorobenzene	1,2,3,5-Tetrachlorobenzene	1,2,3-Trichlorobenzene	1,2,4,5-Tetrachlorobenzene	1,2,4-Trichlorobenzene	1,2-Dichlorobenzene	1,3,5-Trichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	2-Chlorotoluene	4-Chlorotoluene	Bromobenzene	Chlorobenzene	Hexachlorobenzene	Pentachlorobenzene	Carbazole	N-Nitrosodi-n-butylamine	N-Nitrosodi-n-propylamine	2,4-Dimethylphenol	2,4-Dinitrophenol	2-Methylphenol
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL								0.005	0.005	0.003	0.005	0.003	0.0003	0.003	0.0003	0.0003	0.003	0.003	0.003	0.003	0.0003	0.005	0.005	0.005	0.0003	0.001	0.03	0.0003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)								0.006	0.007	0.016	0.008	0.22	0.2	0.02	0.35	0.075				0.1	0.0002	0.0025					0.08	
ECan LWRP Schedule 5 Spring-fed Urban										0.016		0.22	0.2		0.35	0.075											0.08	
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.010	<0.005		<0.005
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.01	<0.005		<0.005
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.01	<0.005		<0.005
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.01	<0.005		<0.005
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.01	<0.005		<0.005
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.01	<0.005		<0.005
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.010	<0.005		<0.005
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.010	<0.005		<0.005
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**																						
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**	<0.0002			<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0008		<0.005		<0.010	<0.005		<0.005
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**																						
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**																						
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**																						
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005					<0.0005	<0.005		<0.005	<0.005	<0.003	<0.03	<0.003
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.010	<0.005		<0.005
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**				<0.003		<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005		<0.005		<0.01	<0.005		<0.005
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**																						
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**																						
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**																						
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**																						
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**																						
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
				22-44765	**22-44765-1**	**Normal**																						
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**																						
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**																						
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**																						
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**																						
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**																						
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**																						
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**																						
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**																						
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**							<0.00030		<0.00030	<0.00030					<0.00030				<0.00030	<0.0010		<0.00030

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

							Phenolics						Amino Aromatics					Anilines				Phenolics-Halogenated						
							2-Nitrophenol	3- & 4- Methylphenol	4,6-Dinitro-2-methylphenol	4-Methylphenol	4-Nitrophenol	Phenol	1-Naphthylamine	2-Naphthylamine	Diphenylamine	n-Nitrosodiphenylamine & Diphenylamine	n-Nitrosodiphenylamine	2-Nitroaniline	3-Nitroaniline	4-Chloroaniline	Aniline	2,3,4,6-Tetrachlorophenol	2,3,5,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2-Chlorophenol
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0005	0.006	0.03	0.0003	0.001	0.002	0.005	0.005	0.005	0.01	0.0003	0.0005	0.0003	0.0005	0.005	0.0003	0.0003	0.0005	0.0005	0.0003	0.0003	0.0003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)												0.6									1.1	0.025			0.04	0.2		0.63
ECan LWRP Schedule 5 Spring-fed Urban												0.6									1.1	0.025			0.04	0.2		0.63
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**																						
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
			DUP-01	**4054559**	**4054559_11**	**Field_D**																						
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**																						
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**																						
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**																						
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**																						
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**																						
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**																						
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**																						
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**																						
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**																						
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005

							Phenolics						Amino Aromatics					Anilines				Phenolics-Halogenated						
							2-Nitrophenol	3- & 4- Methylphenol	4,6-Dinitro-2-methylphenol	4-Methylphenol	4-Nitrophenol	Phenol	1-Naphthylamine	2-Naphthylamine	Diphenylamine	n-Nitrosodiphenylamine & Diphenylamine	n-Nitrosodiphenylamine	2-Nitroaniline	3-Nitroaniline	4-Chloroaniline	Aniline	2,3,4,6-Tetrachlorophenol	2,3,5,6-Tetrachlorophenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dichlorophenol	2,6-Dichlorophenol	2-Chlorophenol
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0005	0.006	0.03	0.0003	0.001	0.002	0.005	0.005	0.005	0.01	0.0003	0.0005	0.0003	0.0005	0.005	0.0003	0.0003	0.0005	0.0005	0.0003	0.0003	0.0003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)												0.6									1.1	0.025			0.04	0.2		0.63
ECan LWRP Schedule 5 Spring-fed Urban												0.6									1.1	0.025			0.04	0.2		0.63
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**																						
Wainoni	**WAI_21_BH21-1**	**13-01-2022**	**BH21-1**	**2826885**	**2826885_2**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
	WAI_21_BH21-2	**30-01-2023**	**BH21-2**	**958917-W**	**Z23-Ja0043538**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	WAI_21_BH21-3	**12-01-2022**	**BH21-3**	**2825572**	**2825572_1**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
	WAI_21_BH21-4	**12-01-2022**	**BH21-4**	**2825572**	**2825572_2**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
	WAI_21_BH21-5	**12-01-2022**	**BH21-5**	**2825572**	**2825572_3**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
		30-01-2023	**BH21-5**	**958917-W**	**Z23-Ja0043539**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	WAI_21_BH21-6	**12-01-2022**	**BH21-6**	**2825572**	**2825572_4**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
		30-01-2023	**BH21-6**	**958917-W**	**Z23-Ja0043540**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
	WAI_21_BH21-7	**12-01-2022**	**BH21-7**	**2825572**	**2825572_5**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
	WAI_21_BH21-8	**13-01-2022**	**BH21-8**	**2826885**	**2826885_3**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
	WAI_21_BH21-9	**13-01-2022**	**BH21-9**	**2826885**	**2826885_1**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		30-01-2023	**BH21-9**	**958917-W**	**Z23-Ja0043541**	**Normal**																						
	WAI_21_BH21-10	**13-01-2022**	**BH21-10**	**2826885**	**2826885_4**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
	WAI_22_BH15	**15-12-2022**	**BH15**	**957762-W**	**K23-Ja0032706**	**Normal**																						
	WAI_22_BH16	**14-12-2022**	**BH16**	**957762-W**	**K23-Ja0032704**	**Normal**																						
	WAI_22_BH17	**13-12-2022**	**BH17**	**957762-W**	**K23-Ja0032705**	**Normal**																						
	WAI_22_BH18	**30-01-2023**	**BH18**	**959169-W**	**Z23-Ja0045582**	**Normal**	<0.01	<0.006	<0.03		<0.03	<0.003	<0.005	<0.005	<0.005			<0.005			<0.005	<0.01		<0.01	<0.01	<0.003	<0.003	<0.003
Wainoni Basin	**WAN_25_BH01**	**08-10-2025**	**WAN-BH01**	**4005542**	**4005542_5**	**Normal**	<0.010	<0.010				<0.010				<0.010								<0.010	<0.010	<0.005		<0.005
		11-12-2025	**WAN-BH01**	**4057235**	**4057235_5**	**Normal**	<0.01	<0.01				<0.01				<0.01								<0.01	<0.01	<0.005		<0.005
Waitaki Street	**WTS_20_BH01_D**	**09-11-2022**	**BH01D**	**22-41656**	**22-41656-12**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		01-12-2023	**BH1-D**	**23-36476**	**23-36476-8**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000066
	WTS_20_BH01_S	**12-11-2020**	**WS_BH01_S**	**20-43178**	**20-43178-1**	**Normal**																						
		20-10-2021	**WS_BH01_S**	**21-44353**	**21-44353-4**	**Normal**																						
		09-11-2022	**BH01S**	**22-41656**	**22-41656-11**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		01-12-2023	**BH1-5**	**23-36476**	**23-36476-7**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000067
	WTS_20_BH02_D	**08-11-2022**	**BH02D**	**22-41656**	**22-41656-2**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		07-12-2023	**BH02 D**	**23-36995**	**23-36995-2**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000068
	WTS_20_BH02_S	**12-11-2020**	**WS_BH02_S**	**20-43178**	**20-43178-2**	**Normal**																						
		20-10-2021	**WS_BH02_S**	**21-44353**	**21-44353-5**	**Normal**																						
		08-11-2022	**BH02S**	**22-41656**	**22-41656-1**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		07-12-2023	**BH02 S**	**23-36995**	**23-36995-1**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000064
	WTS_20_BH03_S	**12-11-2020**	**WS_BH03_S**	**20-43178**	**20-43178-3**	**Normal**																						
		17-11-2022	**BH03s**	**22-42252**	**22-42252-1**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		01-12-2023	**BH3S**	**23-36476**	**23-36476-2**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000068
	WTS_20_BH03D	**17-11-2022**	**BH03d**	**22-42252**	**22-42252-2**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
				22-44765	**22-44765-1**	**Normal**																						
		01-12-2023	**BH3D**	**23-36476**	**23-36476-3**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000071
	WTS_20_BX24/1347	**12-11-2020**	**WS_BX24/1347**	**20-43178**	**20-43178-6**	**Normal**																						
		20-10-2021	**WS_BX24/1347**	**21-44353**	**21-44353-7**	**Normal**																						
		08-11-2022	**BX24/1347**	**22-41656**	**22-41656-9**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		01-12-2023	**BX24/1347**	**23-36476**	**23-36476-5**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000069
	WTS_20_BX24/1350	**12-11-2020**	**WS_BX24/1350**	**20-43178**	**20-43178-5**	**Normal**																						
		20-10-2021	**WS_BX24/1350**	**21-44353**	**21-44353-6**	**Normal**																						
		08-11-2022	**BX24/1350**	**22-41656**	**22-41656-8**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		01-12-2023	**BX24/1350**	**23-36476**	**23-36476-6**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000065
	WTS_20_HA01	**12-11-2020**	**WS_HA01**	**20-43178**	**20-43178-4**	**Normal**																						
		20-10-2021	**WS_HA01**	**21-44353**	**21-44353-1**	**Normal**																						
		09-11-2022	**HA01**	**22-41656**	**22-41656-13**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		07-12-2023	**HA0 1**	**23-36995**	**23-36995-3**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000066
	WTS_20_HA02	**20-10-2021**	**WS_HA02**	**21-44353**	**21-44353-2**	**Normal**																						
		09-11-2022	**HA02**	**22-41656**	**22-41656-10**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		01-12-2023	**HA02**	**23-36476**	**23-36476-4**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000065
	WTS_20_HA03	**20-10-2021**	**WS_HA03**	**21-44353**	**21-44353-3**	**Normal**																						
		08-11-2022	**HA03**	**22-41656**	**22-41656-3**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.00030
		01-12-2023	**HA03**	**23-36476**	**23-36476-1**	**Normal**	<0.00050			<0.00030	<0.0010	<0.0020					<0.00030	<0.00050	<0.00030	<0.00050			<0.00030	<0.00050	<0.00050	<0.00030	<0.00030	<0.000064

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

									E-Nitrobenzenes		Explosives		Solvents				
							4-Chloro-3-methylphenol	Pentachlorophenol	Nitrobenzene	Pentachloronitrobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	Methyl Ethyl Ketone	Methyl iso-butyl ketone	Acetone	Isophorone	Methyl-t-butyl ether
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0003	0.01	0.0003	0.005	0.001	0.001	0.5	0.1	0.5	0.0003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)								0.017	0.82		0.13						
ECan LWRP Schedule 5 Spring-fed Urban								0.017	0.82		0.13						
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**											
Avondale Basin	**AVD_25_BH01**	**09-10-2025**	**DUP2**	**4005975**	**4005975_13**	**Field_D**											
		10-10-2025	**AVD-BH01**	**4005975**	**4005975_7**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		10-12-2025	**AVD-BH01**	**4054559**	**4054559_2**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	AVD_25_BH02	**10-10-2025**	**AVO-BH02**	**4005975**	**4005975_8**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
Avonside Basin	**AVO_25_BH01**	**07-10-2025**	**AVO-BH01**	**4002959**	**4002959_6**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		08-12-2025	**AVO-BH01**	**4054559**	**4054559_9**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	AVO_25_BH02	**08-12-2025**	**AVO-BH02**	**4054559**	**4054559_8**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
			DUP-01	**4054559**	**4054559_11**	**Field_D**											
	AVO_25_BH04	**07-10-2025**	**AVO-Bh04**	**4002959**	**4002959_7**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		08-12-2025	**AVO-BH04**	**4054559**	**4054559_10**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Bexley	**BEX_22_BH01**	**26-01-2023**	**BH01**	**958926-W**	**Z23-Ja0043734**	**Normal**											
	BEX_22_BH02	**26-01-2023**	**BH02**	**958926-W**	**Z23-Ja0043735**	**Normal**	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	BEX_22_BH03	**26-01-2023**	**BH03**	**958926-W**	**Z23-Ja0043740**	**Normal**	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	BEX_22_BH04	**30-01-2023**	**BH04**	**959169-W**	**Z23-Ja0045580**	**Normal**	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	BEX_22_BH05	**26-01-2023**	**BH05**	**958926-W**	**Z23-Ja0043737**	**Normal**	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	BEX_22_BH06	**26-01-2023**	**BH06**	**958919-W**	**Z23-Ja0043544**	**Normal**											
		30-01-2023	**BH06**	**959169-W**	**Z23-Ja0045581**	**Normal**	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	BEX_22_BH07	**26-01-2023**	**BH07**	**958919-W**	**Z23-Ja0043545**	**Normal**											
	BEX_22_BH08	**26-01-2023**	**BH08**	**958919-W**	**Z23-Ja0043547**	**Normal**											
	BEX_22_BH09	**26-01-2023**	**BH09**	**958926-W**	**Z23-Ja0043739**	**Normal**											
	BEX_22_BH10	**26-01-2023**	**BH10**	**958926-W**	**Z23-Ja0043738**	**Normal**											
	BEX_22_BH11	**26-01-2023**	**BH11**	**958919-W**	**Z23-Ja0043546**	**Normal**	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	BEX_22_BH12	**26-01-2023**	**BH12**	**958926-W**	**Z23-Ja0043736**	**Normal**											
Bower Basin	**BOW_25_BH01**	**08-10-2025**	**BOW-BH01**	**4005542**	**4005542_3**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	**BOW-BH01**	**4055927**	**4055927_1**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	BOW_25_BH08	**08-10-2025**	**BOW-BH08**	**4005542**	**4005542_4**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	**BOW-BH08**	**4055927**	**4055927_2**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Breezes Basin	**BRE_25_BH01**	**07-10-2025**	**BRE-BH01**	**4002959**	**4002959_2**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	**BRE-BH01**	**4057235**	**4057235_3**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Briarmont Basin	**BRM_25_BH01**	**07-10-2025**	**BRM-BH01**	**4002959**	**4002959_5**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		10-12-2025	**BRM-BH01**	**4054559**	**4054559_1**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Brittans Basin	**BRI_25_BH02**	**09-10-2025**	**BR1-BH02**	**4005975**	**4005975_3**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		09-12-2025	**BRI-BH02**	**4054559**	**4054559_3**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Brooker Basin	**BRO_25_BH01**	**07-10-2025**	**BRO-BH01**	**4002959**	**4002959_3**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	**BRO-BH01**	**4057235**	**4057235_4**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	BRO_25_BH02	**07-10-2025**	**BRO-BH02**	**4002959**	**4002959_4**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	**BRO-BH02**	**4057235**	**4057235_6**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Dudley Basin	**DUD_25_BH02**	**09-12-2025**	**DUD-BH01**	**4054559**	**4054559_6**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
		10-10-2025	**DUD-BH02**	**4005975**	**4005975_9**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
Evans Basin	**EVA_25_BH01**	**08-10-2025**	**EVA-BH01**	**4005542**	**4005542_2**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	**EVA-BH01**	**4055927**	**4055927_3**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Horseshoe Lake	**HS_25_BH01**	**09-10-2025**	**DUP1**	**4005975**	**4005975_11**	**Field_D**											
			HS-BH01	**4005975**	**4005975_6**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		12-12-2025	**HS-BH01**	**4057235**	**4057235_2**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Lake Kate Sheppard	**LKS_25_BH01**	**09-10-2025**	**LKS-BH01**	**4005975**	**4005975_5**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	**LKS-BH01**	**4055927**	**4055927_4**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Locksley Basin	**LOC_25_BH01**	**08-10-2025**	**LOC-BH01**	**4005542**	**4005542_6**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
	LOC_25_BH02	**09-12-2025**	**LOC-BH02**	**4054559**	**4054559_5**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Lychgate Basin	**LY_25_BH01**	**09-10-2025**	**LY-BH01**	**4005975**	**4005975_4**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		12-12-2025	**LX-BH01**	**4057235**	**4057235_1**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Pratt Street Basin	**PS_25_BH01**	**10-10-2025**	**PS-BH01**	**4005975**	**4005975_10**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		09-12-2025	**PS-BH01**	**4054559**	**4054559_4**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Riverside Basin	**RIV_25_BH04**	**09-10-2025**	**R1V-BH04**	**4005975**	**4005975_2**	**Normal**	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		09-12-2025	**DUP-02**	**4054559**	**4054559_12**	**Field_D**											
			RIV-BH04	**4054559**	**4054559_7**	**Normal**	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003

									E-Nitrobenzenes		Explosives		Solvents				
							4-Chloro-3-methylphenol	Pentachlorophenol	Nitrobenzene	Pentachloronitrobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	Methyl Ethyl Ketone	Methyl iso-butyl ketone	Acetone	Isophorone	Methyl-t-butyl ether
							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL							0.0003	0.01	0.0003	0.005	0.001	0.001	0.5	0.1	0.5	0.0003	0.003
ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)								0.017	0.82		0.13						
ECan LWRP Schedule 5 Spring-fed Urban								0.017	0.82		0.13						
Monitoring Zone	**Location Code**	**Date**	**Field ID**	**Lab Report Number**	**Sample Code**	**Sample Type**											
Wainoni	WAI_21_BH21-1	13-01-2022	BH21-1	2826885	2826885_2	Normal	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
	WAI_21_BH21-2	30-01-2023	BH21-2	958917-W	Z23-Ja0043538	Normal	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	WAI_21_BH21-3	12-01-2022	BH21-3	2825572	2825572_1	Normal	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	WAI_21_BH21-4	12-01-2022	BH21-4	2825572	2825572_2	Normal	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	WAI_21_BH21-5	12-01-2022	BH21-5	2825572	2825572_3	Normal	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
		30-01-2023	BH21-5	958917-W	Z23-Ja0043539	Normal	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	WAI_21_BH21-6	12-01-2022	BH21-6	2825572	2825572_4	Normal	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
		30-01-2023	BH21-6	958917-W	Z23-Ja0043540	Normal	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
	WAI_21_BH21-7	12-01-2022	BH21-7	2825572	2825572_5	Normal	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
	WAI_21_BH21-8	13-01-2022	BH21-8	2826885	2826885_3	Normal	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
	WAI_21_BH21-9	13-01-2022	BH21-9	2826885	2826885_1	Normal	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		30-01-2023	BH21-9	958917-W	Z23-Ja0043541	Normal											
	WAI_21_BH21-10	13-01-2022	BH21-10	2826885	2826885_4	Normal	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
	WAI_22_BH15	15-12-2022	BH15	957762-W	K23-Ja0032706	Normal											
	WAI_22_BH16	14-12-2022	BH16	957762-W	K23-Ja0032704	Normal											
	WAI_22_BH17	13-12-2022	BH17	957762-W	K23-Ja0032705	Normal											
	WAI_22_BH18	30-01-2023	BH18	959169-W	Z23-Ja0045582	Normal	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005					
Wainoni Basin	WAN_25_BH01	08-10-2025	WAN-BH01	4005542	4005542_5	Normal	<0.010	<0.10	<0.005		<0.010	<0.010	<0.5	<0.10	<0.5	<0.005	<0.003
		11-12-2025	WAN-BH01	4057235	4057235_5	Normal	<0.01	<0.1	<0.005		<0.01	<0.01	<0.5	<0.1	<0.5	<0.005	<0.003
Waitaki Street	WTS_20_BH01_D	09-11-2022	BH01D	22-41656	22-41656-12	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		01-12-2023	BH1-D	23-36476	23-36476-8	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_BH01_S	12-11-2020	WS_BH01_S	20-43178	20-43178-1	Normal											
		20-10-2021	WS_BH01_S	21-44353	21-44353-4	Normal											
		09-11-2022	BH01S	22-41656	22-41656-11	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		01-12-2023	BH1-5	23-36476	23-36476-7	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_BH02_D	08-11-2022	BH02D	22-41656	22-41656-2	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		07-12-2023	BH02 D	23-36995	23-36995-2	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_BH02_S	12-11-2020	WS_BH02_S	20-43178	20-43178-2	Normal											
		20-10-2021	WS_BH02_S	21-44353	21-44353-5	Normal											
		08-11-2022	BH02S	22-41656	22-41656-1	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		07-12-2023	BH02 S	23-36995	23-36995-1	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_BH03_S	12-11-2020	WS_BH03_S	20-43178	20-43178-3	Normal											
		17-11-2022	BH03s	22-42252	22-42252-1	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		01-12-2023	BH3S	23-36476	23-36476-2	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_BH03D	17-11-2022	BH03d	22-42252	22-42252-2	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
				22-44765	22-44765-1	Normal											
		01-12-2023	BH3D	23-36476	23-36476-3	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_BX24/1347	12-11-2020	WS_BX24/1347	20-43178	20-43178-6	Normal											
		20-10-2021	WS_BX24/1347	21-44353	21-44353-7	Normal											
		08-11-2022	BX24/1347	22-41656	22-41656-9	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		01-12-2023	BX24/1347	23-36476	23-36476-5	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_BX24/1350	12-11-2020	WS_BX24/1350	20-43178	20-43178-5	Normal											
		20-10-2021	WS_BX24/1350	21-44353	21-44353-6	Normal											
		08-11-2022	BX24/1350	22-41656	22-41656-8	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		01-12-2023	BX24/1350	23-36476	23-36476-6	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_HA01	12-11-2020	WS_HA01	20-43178	20-43178-4	Normal											
		20-10-2021	WS_HA01	21-44353	21-44353-1	Normal											
		09-11-2022	HA01	22-41656	22-41656-13	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		07-12-2023	HA0 1	23-36995	23-36995-3	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_HA02	20-10-2021	WS_HA02	21-44353	21-44353-2	Normal											
		09-11-2022	HA02	22-41656	22-41656-10	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		01-12-2023	HA02	23-36476	23-36476-4	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
	WTS_20_HA03	20-10-2021	WS_HA03	21-44353	21-44353-3	Normal											
		08-11-2022	HA03	22-41656	22-41656-3	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	
		01-12-2023	HA03	23-36476	23-36476-1	Normal	<0.00030		<0.00030		<0.0010	<0.0010				<0.00030	

Comments
#1 ESDAT Calculated

Environmental Standards
ANZG, July 2023, ANZG Freshwater Toxicant DGVs LOSP 90% (July 2023)

Appendix C

Field Sampling Records

October GME - Data provided by Stantec

BOREID	DATE	START TIME	WL (mbgl)	END TIME	WL (mbgl)	Temp	DO	SPC	pH	ORP	LNAPL?	Observations
AVO-BH04	10/06/2025	11:30	1.098	1:30	1.09	11.80	0.47	138.90	6.79	386.40	N	Clear water, no odour
AVO-BH01	10/06/2025	1:40	0.10	3:50	2.145	12.10	0.43	264.00	6.61	93.50	N	Water slightly discoloured orange, with pieces of iron aloe suspended within
BRM-BH01	10/07/2025	9:40	1.33	10:42	1.28	12.10	10.56	17.80	6.41	325.70	N	Water discoloured slightly orange, plastic shavings on top, bailed once. Slight odour when sampling
BRO-BH01	10/07/2025	11:35	1.1	12:38	1.19	15.70	8.23	2.80	5.35	162.20	N	Water is clear, no odour, sediment visible
BRO-BH02	10/07/2025	12:55	1.37	2:15	3.43	15.80	7.80	5.30	5.49	155.20	N	Clear water, no odour
BRE-BH01	10/07/2025	2:35	0.87			13.20	6.36	0.30	5.15	79.10	N	Clear water, no odour
EVA-BH01	10/08/2025	8:30	0.59	9:30	0.60	14.30	9.49	22.50	6.27	234.10	N	Clear water, sheen on top of water in the bore, no odour
BOW-BH08	10/08/2025	10:08	0.58	11:21	0.61	15.40	6.51	18.10	5.94	510.20	N	Clear water, no odour
BOW-BH01	10/08/2025	11:48	0.95	2:04	2.29	16.30	9.29	3.10	6.23	519.20	N	Plastic shavings in bore, water clear aside from plastic, no odour, some sediment visible. Bore ran out of water, waited for recharge
WAN-BH01	10/08/2025	2:25	0.91			14.30	8.96	1.80	6.04	239.80	N	Water discoloured brown/orange.
LOC-BH02	10/08/2025	3:55	1.92	5:02	1.27	15.20	9.16	1.10	6.08	128.90	N	Water discoloured brown/orange, black sediment and orange aloe present, no odour.
BRI-BH02	10/09/2025	8:20	0.92	10:50	2.54	13.00	1.21	216.30	4.45	119.20	N	Clear water, no odour.
RIV-BH04	10/09/2025	11:15	1.16	12:30	1.16	12.50	7.63	1.10	6.10	-68.50	N	Clear water, no odour.
LY-BH04	10/09/2025	12:58	1.24	2:14	1.28	12.50	7.38	0.20	5.99	-412.80	N	Water discoloured brown/orange, layer of orange film in bore at top (pictured)
LKS-BH01	10/09/2025	3:00	1.62	3:58	1.73	15.80	10.60	2.00	5.61	-314.20	N	Water discoloured brown/orange, no odour
HS-BH01	10/09/2025	4:15	0.2			16.60	10.22	1.90	5.51	312.90	N	Water discoloured orange, no odour
AVD-BH01	10/10/2025	7:51	1.02	9:15	1.34	13.40	9.81	5.70	5.34	208.60	N	Water discoloured orange, no odour
PS-BH01	10/10/2025	9:45	0.94	10:31	0.94	16.10	7.62	1.80	5.37	167.40	N	Water discoloured orange, no odour. Half way through sampling, water turned bright red/orange (pictured)
DUD-BH02	10/10/2025	11:00	0.7			15.90	9.66	1.90	5.61	196.90	N	Water discoloured orange/brown, sediment and orange aloe present, no odour.
AVO-BH02	10/10/2025	12:23	0.3	1:15	0.42	14.50	11.60	2.10	5.47	84.80	N	Clear water, some sediment present, no odour.

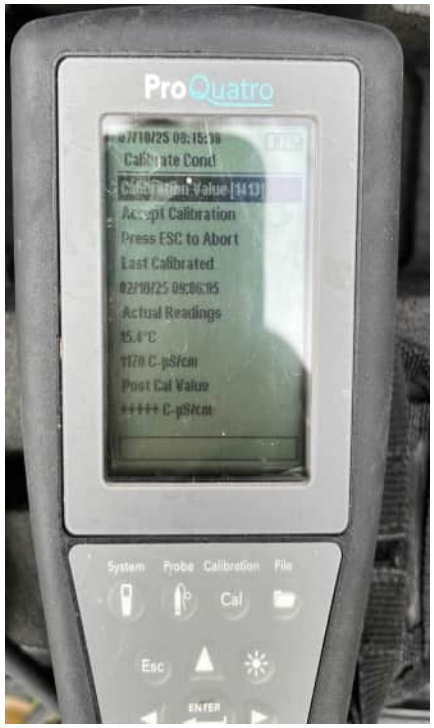
December GME - Data provided by Stantec

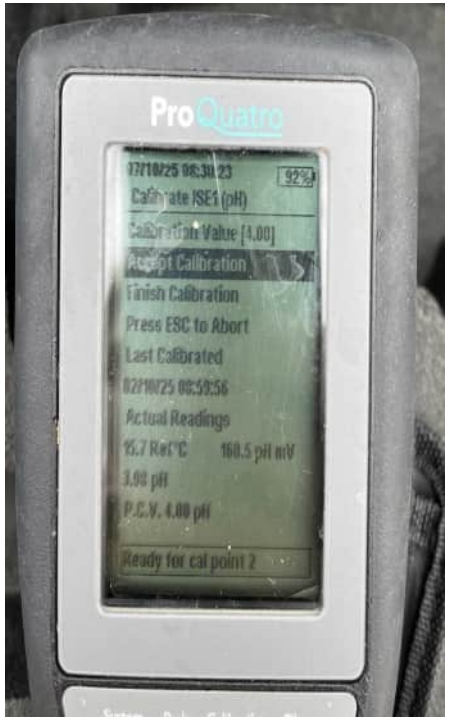
BOREID	DATE	START TIME	WL (mbgl)	END TIME - Fi	END TIME - L:	Temp	DO	SPC	pH	ORP	LNAPL?	Observations	DUPLICATES
AVO-BH04	12/08/2025	10:31	1.347	11:11	11:00	14.00	0.32	388.10	6.82	49.70	N	Clear water, no odour	
AVO-BH01	12/08/2025	11:59	1.114	0.54	1:30	21.30	9.19	0.30	6.56	32.80	N	Clear water, no odour, sediment visible. Bore ran out of water, waited for recharge.	
BRM-BH01	12/10/2025	9:52	1.071	10:02	10:30	17.70	7.65	1.10	4.13	7.65	N	Water discoloured yellow, dirty, organic odour. Bore ran out of water, waited for recharge.	
BRO-BH01	12/10/2025	11:49	1.193	12:14	12:20	14.20	0.18	1592.00	6.30	-86.50	N	Water is clear, dirty odour, sediment visible	
BRO-BH02	12/10/2025	12:35	1.631	1:25	1:30	20.70	5.24	4.80	6.77	-122.80	N	Slight yellow colour, no odour.	
BRE-BH01	12/11/2025	3:44	1.185	4:14	4:45	19.60	8.01	1.70	7.05	483.60	N	Clear water, no odour	
EVA-BH01	12/11/2025	8:36	0.871	9:11	9:15	16.50	6.38	1.20	7.56	320.90	N	Water black at first pump, cleared slightly, strong dirty odour.	
BOW-BH08	12/11/2025	9:38	0.822	10:03	10:05	17.90	6.56	2.10	7.48	333.70	N	Grey water, no odour.	
BOW-BH01	12/11/2025	10:30	0.996	10:35	11:40	19.40	8.03	2.50	6.77	432.00	N	Lots of sediment at first pump, cleared slightly but sediment remained, dirty odour.Bore ran out of water, waited for recharge.	
WAN-BH01	12/10/2025	2:08	1.009	3:08	3:10	18.80	4.59	0.60	6.68	-48.90	N	Clear water, no odour	
LOC-BH02	12/09/2025	12:20	1.548	1:05	12:45	19.40	8.38	1.70	6.16	489.10	N	Clear water, no odour	
BRI-BH02	12/09/2025	2:40	1.260	2:40	4:10	16.10	19.71	214.00	5.78	380.10	N	Clear water, no odour. Bore ran out of water, waited for recharge.	
RIV-BH04	12/09/2025	9:26	1.365	10:26	10:00	14.20	5.72	40.50	6.40	87.20	N	Clear water, no odour.	DUPE2
LY-BH01	12/12/2025	12:08	1.474	12:24	12:30	15.00	0.75	2.60	6.32	-182.00	N	Clear water, no odour.	
LKS-BH01	12/11/2025	12:57	0.353	1:27	2:10	16.40	9.60	3.80	7.30	187.40	N	Clear water, no odour. Bore ran out of water, waited for recharge.	
HS-BH01	12/12/2025	10:04	0.978	11:19	11:00	13.70	7.25	2.40	6.51	218.00	N	Orange sheen during initial purging, organic odour. ORP wouldn't stabilise.	
AVD-BH01	12/10/2025	9:00	1.226	9:05	9:30	16.60	8.97	0.30	4.36	-132.20	N	Water discoloured yellow, dirty, organic odour. Bore ran out of water, waited for recharge.	
PS-BH01	12/09/2025	1:25	0.918	1:55	2:10	21.00	8.00	0.80	5.96	434.60	N	Clear water, no odour.	
DUD-BH02	12/09/2025	10:55	0.889	10:55	11:30	19.80	6.63	1.40	6.35	589.90	N	Water discoloured orange/brown, no odour. Bore ran out of water, waited for recharge. Incorrectly labelled on lab results as DUD-BH01.	
AVO-BH02	12/08/2025	3:19	1.000	3:54	3:40	14.90	0.82	277.10	6.60	171.10	N	Clear water, some sediment present, no odour. Bore ran out of water, waited for recharge.	DUPE1

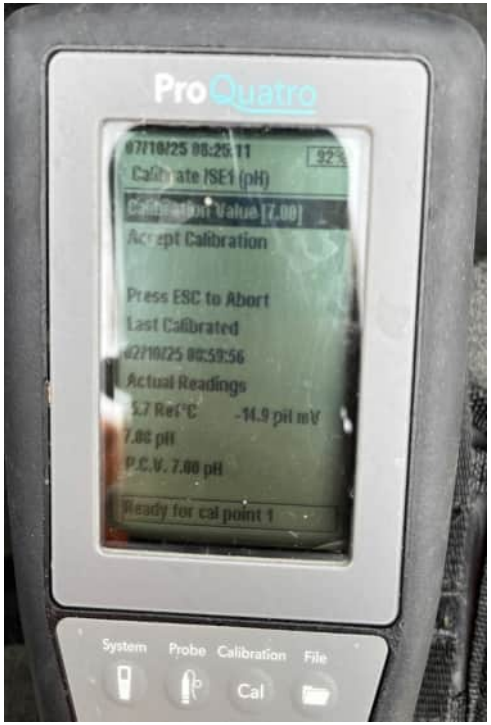
Appendix D

Calibration Certificates

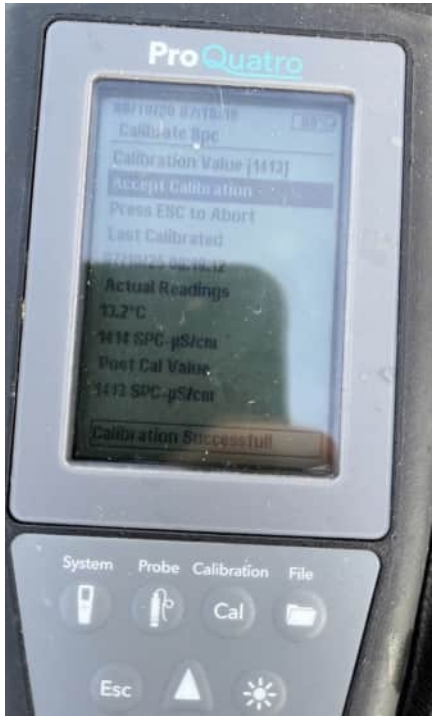
07 October 2025

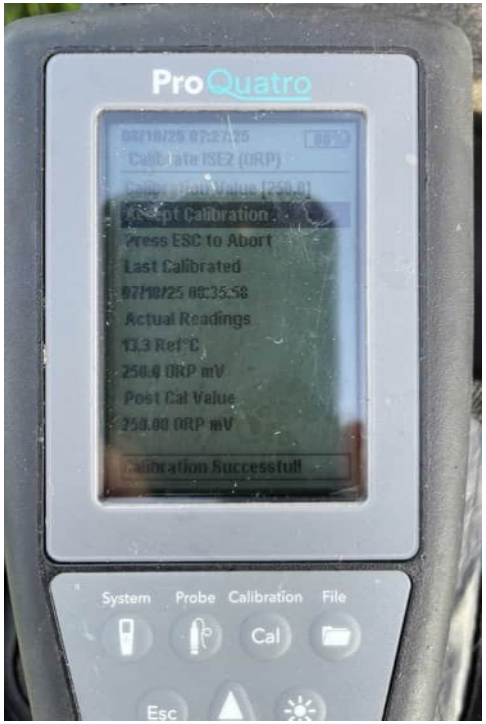




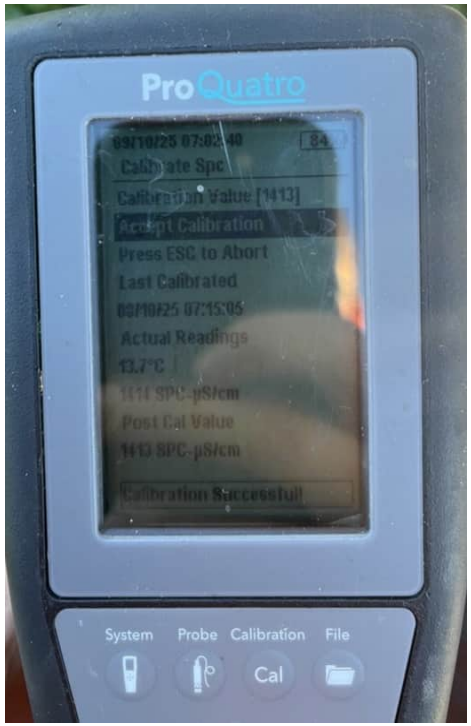


08 October 2025

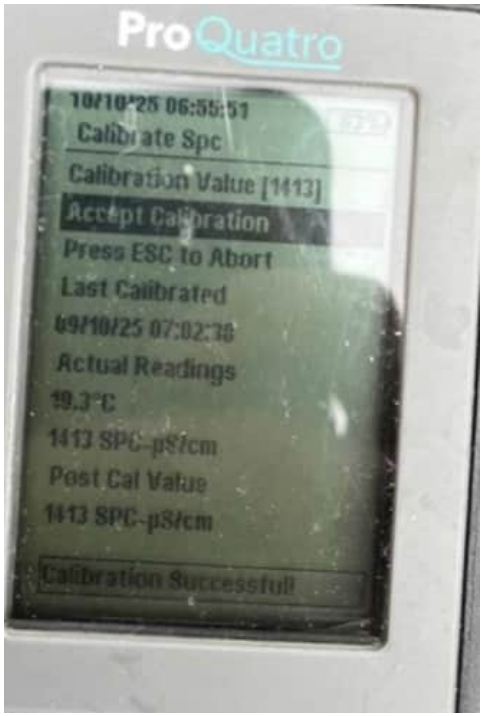


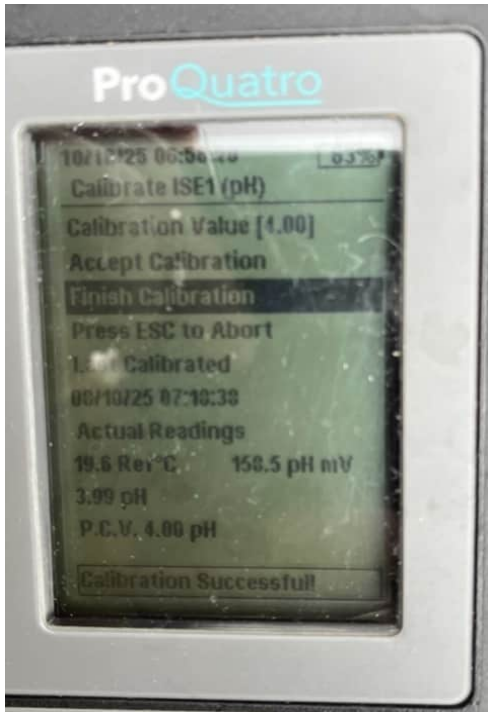


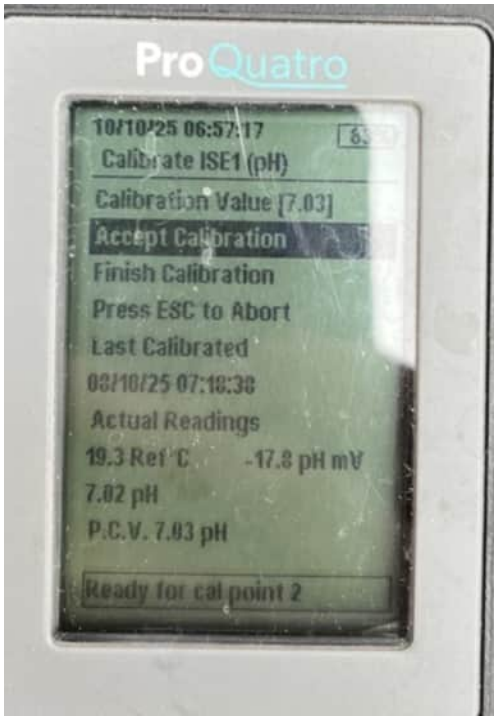
09 October 2025



10 October 2025







Appendix E

Laboratory Certificates of Analysis

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Stantec New Zealand	**Lab No:**	4002959 SPv1
Contact:	Ellen Wilson-Hill C/- Stantec New Zealand PO Box 13249 Christchurch 8141	**Date Received:**	07-Oct-2025
		Date Reported:	20-Oct-2025
		Quote No:	140553
		Order No:	
		Client Reference:	310003431
		Submitted By:	Ellen Wilson-Hill

Sample Type: Aqueous

Sample Name:		R1-BH01 07-Oct-2025 2:35 pm	BRE-BH01 07-Oct-2025 3:30 pm	BRO-BH01 07-Oct-2025 12:00 pm	BRO-BH02 07-Oct-2025 1:20 pm	BRM-BH01 07-Oct-2025 10:00 am
Lab Number:		4002959.1	4002959.2	4002959.3	4002959.4	4002959.5
Individual Tests						
Sum of Anions	meq/L	-	4.5	18.4	11.1 #4	13.4
Sum of Cations	meq/L	-	4.9	19.3	15.3 #4	14.6
pH	pH Units	-	7.2	7.0	7.1	6.9
Total Alkalinity	g/m³ as $CaCO_3$	-	153	730	450	500
Carbonate	g/m³ at 25°C	-	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	g/m³ at 25°C	-	187	890 #3	550 #3	610 #3
Free Carbon Dioxide	g/m³ at 25°C	-	22	146	65	127
Total Hardness	g/m³ as $CaCO_3$	-	182	590	420	430
Electrical Conductivity (EC)	mS/m	-	47.2	165.6	105.3 #4	126.9
Total Dissolved Solids (TDS)	g/m³	-	350	1,060 #3	670 #3	820 #3
Dissolved Boron	g/m³	-	0.15 #1	0.29 #1	0.22	0.12
Total Boron	g/m³	-	0.140 #1	0.28 #1	0.22	0.128
Dissolved Calcium	g/m³	-	57	130	106	98
Dissolved Iron	g/m³	-	0.15	22	40	23
Dissolved Magnesium	g/m³	-	9.7	66	37	45
Dissolved Manganese	g/m³	-	0.0165	5.9	3.4	2.7
Dissolved Mercury	g/m³	-	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Total Mercury	g/m³	-	< 0.00011	< 0.00011	< 0.00011	< 0.00011
Dissolved Potassium	g/m³	-	3.1	4.2	10.5	5.1
Dissolved Sodium	g/m³	-	27	144	115	115
Chloride	g/m³	-	38	94	62	100
Dissolved Inorganic Nitrogen*	g/m³	-	< 0.011	0.62	1.64	0.48
Total Ammoniacal-N	g/m³	-	< 0.010	0.62	1.63	0.48
Nitrite-N	g/m³	-	0.004 #2	< 0.002	0.005	< 0.02 #5
Nitrate-N	g/m³	-	< 0.05	< 0.05	< 0.05	< 0.05
Nitrate-N + Nitrite-N	g/m³	-	0.003 #2	< 0.002	0.006	< 0.02 #5
Total Kjeldahl Nitrogen (TKN)	g/m³	-	2.3	2.8	5.2	3.1
Dissolved Reactive Phosphorus	g/m³	-	0.36	< 0.004	< 0.004	< 0.004
Sulphate	g/m³	-	16.7	53	16.7	23
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m³	< 0.0010	0.0077 #1	0.0049	0.067	0.0030 #1
Dissolved Cadmium	g/m³	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m³	< 0.0005	< 0.0005	0.0009	0.0011	0.0013
Dissolved Copper	g/m³	< 0.0005	0.0159	< 0.0005	0.0005	< 0.0005
Dissolved Lead	g/m³	< 0.00010	0.00057	< 0.00010	< 0.00010	0.00034
Dissolved Nickel	g/m³	< 0.0005	0.0103	0.0013	0.0008	0.0006
Dissolved Zinc	g/m³	0.0014 #1	0.021 #1	0.0018	0.0040	0.0063

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Aqueous						
Sample Name:		R1-BH01 07-Oct-2025 2:35 pm	BRE-BH01 07-Oct-2025 3:30 pm	BRO-BH01 07-Oct-2025 12:00 pm	BRO-BH02 07-Oct-2025 1:20 pm	BRM-BH01 07-Oct-2025 10:00 am
Lab Number:		4002959.1	4002959.2	4002959.3	4002959.4	4002959.5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	< 0.0011	0.0075 #1	0.0057	0.068	0.0027 #1
Total Cadmium	g/m³	< 0.000053	< 0.000053	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	< 0.00053	0.00068	0.00106	0.00121	0.00152
Total Copper	g/m³	< 0.00053	0.0172	0.00080	0.00068	< 0.00053
Total Lead	g/m³	< 0.00011	0.00062	0.00013	< 0.00011	0.00058
Total Nickel	g/m³	< 0.00053	0.0104	0.00151	0.00091	0.00091
Total Zinc	g/m³	< 0.0011 #1	0.0197 #1	0.0027	0.0050	0.0092
BTEX in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	-	-	-	-
Toluene	g/m³	0.0013	-	-	-	-
Ethylbenzene	g/m³	< 0.0010	-	-	-	-
m&p-Xylene	g/m³	< 0.002	-	-	-	-
o-Xylene	g/m³	< 0.0010	-	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Acenaphthene	g/m³	< 0.00010	-	-	-	-
Acenaphthylene	g/m³	< 0.00010	-	-	-	-
Anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	-	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	-	-	-	-
Benzo[g,h,i]perylene	g/m³	< 0.00010	-	-	-	-
Benzo[k]fluoranthene	g/m³	< 0.00010	-	-	-	-
Chrysene	g/m³	< 0.00010	-	-	-	-
Dibenzo[a,h]anthracene	g/m³	< 0.00010	-	-	-	-
Fluoranthene	g/m³	< 0.00010	-	-	-	-
Fluorene	g/m³	< 0.0002	-	-	-	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	-	-	-	-
Naphthalene	g/m³	< 0.0005	-	-	-	-
Phenanthrene	g/m³	< 0.0004	-	-	-	-
Pyrene	g/m³	< 0.0002	-	-	-	-
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Nitrobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
alpha-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
beta-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
delta-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDD	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Dieldrin	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005

Sample Type: Aqueous						
Sample Name:		R1-BH01 07-Oct-2025 2:35 pm	BRE-BH01 07-Oct-2025 3:30 pm	BRO-BH01 07-Oct-2025 12:00 pm	BRO-BH02 07-Oct-2025 1:20 pm	BRM-BH01 07-Oct-2025 10:00 am
Lab Number:		4002959.1	4002959.2	4002959.3	4002959.4	4002959.5
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Endosulfan I	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Acenaphthylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1&2-Chloronaphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chrysene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Fluorene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Naphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Phenanthrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Pyrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2-Chlorophenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	-	< 0.03	< 0.03	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Diethylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Dimethylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Hexachloroethane	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010

Sample Type: Aqueous						
Sample Name:		R1-BH01 07-Oct-2025 2:35 pm	BRE-BH01 07-Oct-2025 3:30 pm	BRO-BH01 07-Oct-2025 12:00 pm	BRO-BH02 07-Oct-2025 1:20 pm	BRM-BH01 07-Oct-2025 10:00 am
Lab Number:		4002959.1	4002959.2	4002959.3	4002959.4	4002959.5
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2,4-Trichlorobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	-	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Isophorone	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Ethylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
m&p-Xylene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Carbon tetrachloride	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibromomethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Vinyl chloride	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
2-Chlorotoluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		R1-BH01 07-Oct-2025 2:35 pm	BRE-BH01 07-Oct-2025 3:30 pm	BRO-BH01 07-Oct-2025 12:00 pm	BRO-BH02 07-Oct-2025 1:20 pm	BRM-BH01 07-Oct-2025 10:00 am
Lab Number:		4002959.1	4002959.2	4002959.3	4002959.4	4002959.5
Haloaromatics in VOC Water by Headspace GC-MS						
1,3-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Chlorotoluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
tert-Butylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
n-Propylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
sec-Butylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Styrene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	-	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	-	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibromochloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005

Sample Name:		AVO-BH01 07-Oct-2025 2:00 pm	AVO-Bh04 07-Oct-2025 1:00 pm
Lab Number:		4002959.6	4002959.7
Individual Tests			
Sum of Anions	meq/L	2.2 #4	3.8
Sum of Cations	meq/L	2.7 #4	4.0
pH	pH Units	7.0	7.4
Total Alkalinity	g/m³ as $CaCO_3$	99	126
Carbonate	g/m³ at 25°C	< 1.0	< 1.0
Bicarbonate	g/m³ at 25°C	121	153
Free Carbon Dioxide	g/m³ at 25°C	22	10.0
Total Hardness	g/m³ as $CaCO_3$	49	144
Electrical Conductivity (EC)	mS/m	21.5 #4	38.7
Total Dissolved Solids (TDS)	g/m³	155	230
Dissolved Boron	g/m³	< 0.05	0.08
Total Boron	g/m³	< 0.053	0.086
Dissolved Calcium	g/m³	16.1	42
Dissolved Iron	g/m³	20	0.04
Dissolved Magnesium	g/m³	2.3	9.6
Dissolved Manganese	g/m³	1.38	0.034
Dissolved Mercury	g/m³	< 0.00010	< 0.00010
Total Mercury	g/m³	< 0.00011	< 0.00011
Dissolved Potassium	g/m³	3.4	1.85
Dissolved Sodium	g/m³	17.4	24
Chloride	g/m³	7.3	18.8

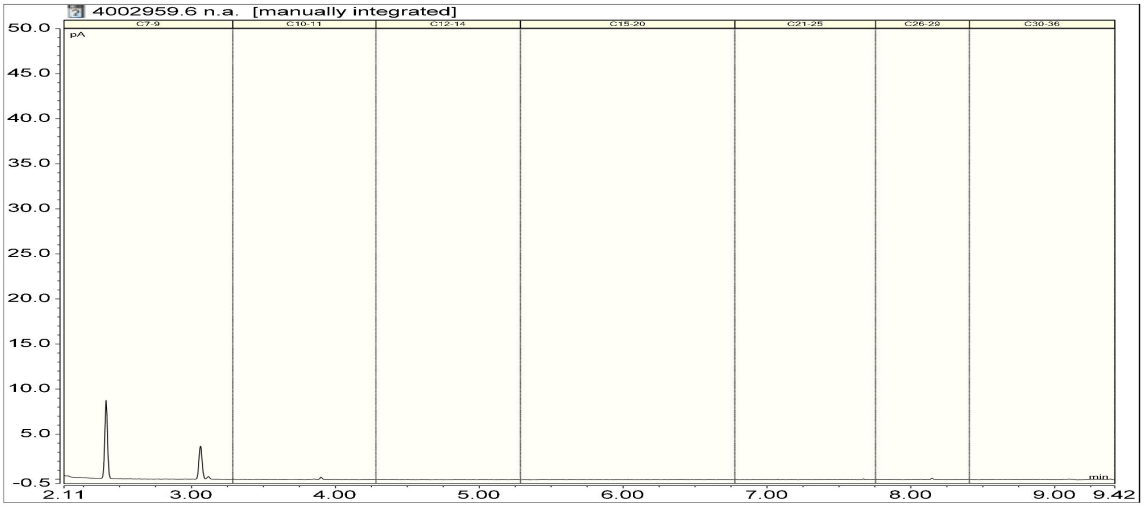
Sample Type: Aqueous			
Sample Name:		AVO-BH01 07-Oct-2025 2:00 pm	AVO-Bh04 07-Oct-2025 1:00 pm
Lab Number:		4002959.6	4002959.7
Individual Tests			
Dissolved Inorganic Nitrogen*	g/m³	0.96	0.077
Total Ammoniacal-N	g/m³	0.94	0.066
Nitrite-N	g/m³	< 0.02 #5	< 0.002
Nitrate-N	g/m³	< 0.05	< 0.05
Nitrate-N + Nitrite-N	g/m³	< 0.02 #5	0.011
Total Kjeldahl Nitrogen (TKN)	g/m³	1.41	0.17
Dissolved Reactive Phosphorus	g/m³	0.016	< 0.004
Sulphate	g/m³	< 0.5	37
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn			
Dissolved Arsenic	g/m³	0.025	< 0.0010
Dissolved Cadmium	g/m³	< 0.00005	< 0.00005
Dissolved Chromium	g/m³	< 0.0005	< 0.0005
Dissolved Copper	g/m³	< 0.0005	0.0011
Dissolved Lead	g/m³	0.00026	0.00020
Dissolved Nickel	g/m³	< 0.0005	0.0006
Dissolved Zinc	g/m³	2.1	0.171 #1
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn			
Total Arsenic	g/m³	0.028	< 0.0011
Total Cadmium	g/m³	< 0.000053	< 0.000053
Total Chromium	g/m³	< 0.00053	< 0.00053
Total Copper	g/m³	< 0.00053	0.00139
Total Lead	g/m³	0.0031	0.00042
Total Nickel	g/m³	0.00053	0.00073
Total Zinc	g/m³	3.5	0.161 #1
Haloethers in SVOC Water Samples by GC-MS			
Bis(2-chloroethoxy) methane	g/m³	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*			
2,4-Dinitrotoluene	g/m³	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	< 0.010	< 0.010
Nitrobenzene	g/m³	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS			
Aldrin	g/m³	< 0.005	< 0.005
alpha-BHC	g/m³	< 0.005	< 0.005
beta-BHC	g/m³	< 0.005	< 0.005
delta-BHC	g/m³	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	< 0.005	< 0.005
4,4'-DDD	g/m³	< 0.005	< 0.005
4,4'-DDE	g/m³	< 0.005	< 0.005
4,4'-DDT	g/m³	< 0.010	< 0.010
Dieldrin	g/m³	< 0.005	< 0.005
Endosulfan I	g/m³	< 0.010	< 0.010
Endosulfan II	g/m³	< 0.010	< 0.010
Endosulfan sulphate	g/m³	< 0.010	< 0.010
Endrin	g/m³	< 0.010	< 0.010
Endrin ketone	g/m³	< 0.010	< 0.010
Heptachlor	g/m³	< 0.005	< 0.005
Heptachlor epoxide	g/m³	< 0.005	< 0.005
Hexachlorobenzene	g/m³	< 0.005	< 0.005

Sample Type: Aqueous			
Sample Name:		AVO-BH01 07-Oct-2025 2:00 pm	AVO-Bh04 07-Oct-2025 1:00 pm
Lab Number:		4002959.6	4002959.7
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS			
Acenaphthene	g/m³	< 0.003	< 0.003
Acenaphthylene	g/m³	< 0.003	< 0.003
Anthracene	g/m³	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	< 0.003	< 0.003
1&2-Chloronaphthalene	g/m³	< 0.003	< 0.003
Chrysene	g/m³	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	< 0.003	< 0.003
Fluoranthene	g/m³	< 0.003	< 0.003
Fluorene	g/m³	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	< 0.003	< 0.003
Naphthalene	g/m³	< 0.003	< 0.003
Phenanthrene	g/m³	< 0.003	< 0.003
Pyrene	g/m³	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS			
4-Chloro-3-methylphenol	g/m³	< 0.010	< 0.010
2-Chlorophenol	g/m³	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	< 0.005	< 0.005
2-Nitrophenol	g/m³	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	< 0.10	< 0.10
Phenol	g/m³	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS			
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	< 0.005	< 0.005
Diethylphthalate	g/m³	< 0.010	< 0.010
Dimethylphthalate	g/m³	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS			
1,2-Dichlorobenzene	g/m³	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	< 0.010	< 0.010
Hexachloroethane	g/m³	< 0.010	< 0.010
1,2,4-Trichlorobenzene	g/m³	< 0.005	< 0.005
Other compounds in SVOC Water Samples by GC-MS			
Benzyl alcohol	g/m³	< 0.05	< 0.05
Carbazole	g/m³	< 0.005	< 0.005
Dibenzofuran	g/m³	< 0.005	< 0.005
Isophorone	g/m³	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water			
C7 - C9	g/m³	0.23	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4

Sample Type: Aqueous			
Sample Name:		AVO-BH01 07-Oct-2025 2:00 pm	AVO-Bh04 07-Oct-2025 1:00 pm
Lab Number:		4002959.6	4002959.7
Total Petroleum Hydrocarbons in Water			
Total hydrocarbons (C7 - C36)	g/m^3	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS			
Benzene	g/m^3	< 0.003	< 0.003
Ethylbenzene	g/m^3	< 0.005	< 0.005
Toluene	g/m^3	0.146	< 0.003
m&p-Xylene	g/m^3	< 0.005	< 0.005
o-Xylene	g/m^3	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS			
Bromomethane (Methyl Bromide)	g/m^3	< 0.003	< 0.003
Carbon tetrachloride	g/m^3	< 0.003	< 0.003
Chloroethane	g/m^3	< 0.003	< 0.003
Chloromethane	g/m^3	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m^3	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m^3	< 0.003	< 0.003
Dibromomethane	g/m^3	< 0.003	< 0.003
Dichlorodifluoromethane	g/m^3	< 0.003	< 0.003
1,1-Dichloroethane	g/m^3	< 0.003	< 0.003
1,2-Dichloroethane	g/m^3	< 0.003	< 0.003
1,1-Dichloroethene	g/m^3	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m^3	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m^3	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m^3	< 0.10	< 0.10
1,2-Dichloropropane	g/m^3	< 0.003	< 0.003
1,3-Dichloropropane	g/m^3	< 0.003	< 0.003
1,1-Dichloropropene	g/m^3	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m^3	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m^3	< 0.005	< 0.005
Hexachlorobutadiene	g/m^3	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m^3	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m^3	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m^3	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m^3	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m^3	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m^3	< 0.003	< 0.003
Trichlorofluoromethane	g/m^3	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m^3	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m^3	< 0.003	< 0.003
Vinyl chloride	g/m^3	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS			
Bromobenzene	g/m^3	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m^3	< 0.003	< 0.003
2-Chlorotoluene	g/m^3	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m^3	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m^3	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m^3	< 0.003	< 0.003
4-Chlorotoluene	g/m^3	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m^3	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m^3	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m^3	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS			
n-Butylbenzene	g/m^3	< 0.005	< 0.005
tert-Butylbenzene	g/m^3	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m^3	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m^3	< 0.003	< 0.003

Sample Type: Aqueous			
Sample Name:		AVO-BH01 07-Oct-2025 2:00 pm	AVO-Bh04 07-Oct-2025 1:00 pm
Lab Number:		4002959.6	4002959.7
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS			
n-Propylbenzene	g/m³	< 0.005	< 0.005
sec-Butylbenzene	g/m³	< 0.003	< 0.003
Styrene	g/m³	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS			
Acetone	g/m³	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS			
Bromodichloromethane	g/m³	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	< 0.003	< 0.003
Dibromochloromethane	g/m³	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS			
Carbon disulphide	g/m³	< 0.005	< 0.005
Naphthalene	g/m³	< 0.005	< 0.005

4002959.6
AVO-BH01 07-Oct-2025 2:00 pm
Client Chromatogram for TPH by FID



Analyst's Comments

#1 It has been noted that the result for the dissolved fraction was greater than that for the total fraction, but within analytical variation of the methods.

#2 It has been noted that the result for Nitrite-N was greater than that for Nitrate-N + Nitrite-N, but within the analytical variation of these methods.

#3 Please note that the calculation used to determine the carbonate and bicarbonate content is only valid when the total dissolved solids (TDS) content is <500mg/L. It was observed that the TDS content of this sample is >500mg/L, therefore these results should be treated as indicative only.

#4 It was noted that some of the anion / cation balances did not agree to within expected limits. This was largely attributed to the high levels of dissolved iron. We have included dissolved iron in the cation balance equations. However, the precipitation of large amounts of iron in the unpreserved containers (soon after sampling) will result in the loss of ions from solution and consumption of alkalinity. This may well result in the lower anions relative to the cations, being reported. The loss of soluble iron in the unpreserved container does not affect the cation balance, as the dissolved iron is sampled into an acid preserved container, stabilising the iron in solution.

#5 Severe matrix interferences required that a dilution be performed prior to analysis, resulting in a detection limit higher than that normally achieved for the NOxN /NO2N analysis.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	2-7
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-7
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	2-7
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	2-7
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	2-7
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	2-7
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	2-7
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-7
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-7
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-7
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	2-7
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	2-7
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	2-7
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	2-7
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	2-7
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	2-7
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	2-7
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	2-7
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m^3	2-7
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m^3	2-7
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m^3	2-7

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m³	2-7
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m³	2-7
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	2-7
Dissolved Inorganic Nitrogen*	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m³	2-7
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m³	2-7
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	2-7
Nitrate-N	Filtered (if required) sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.05 g/m³	2-7
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m³	2-7
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	2-7
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m³	2-7
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m³	2-7
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	2-7
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m³	1-7
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m³	1-7
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m³	1
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m³	1
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m³	2-7
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m³	2-7
Dissolved Inorganic Nitrogen*		0.002 - 0.010 g/m³	2-7
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m³	1-7
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m³	1-7
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m³	1-7
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m³	1-7

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 08-Oct-2025 and 20-Oct-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Quality Assurance Report

Client:	Stantec New Zealand	**Lab No:**	4005542	QCPv1
Contact:	Ellen Wilson-Hill	**Date Received:**	10-Oct-2025	
	C/- Stantec New Zealand	**Date Reported:**	24-Oct-2025	
	PO Box 13249	**Quote No:**	140553	
	Christchurch 8141	**Order No:**	310003431	
		Client Reference:	310003431	
		Submitted By:	Ellen Wilson-Hill	

Sample Specific QCs

BTEX in Water by Headspace GC-MS

		4005542.1	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	103	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq

		4005542.1	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	124	40 – 130	No
Benzo[a]pyrene-d12	%	132	40 – 130	**Yes** #1
Fluoranthene-d10	%	113	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS

		4005542.2	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	74	40 – 120	No
2-fluorophenol	%	51	40 – 120	No
Nitrobenzene-d5	%	74	40 – 120	No
Phenol-d5	%	45	40 – 120	No
Terphenyl-d14	%	40	40 – 120	No
2,4,6-Tribromophenol	%	69	40 – 120	No

System monitoring Compounds for VOC - % Recovery

		4005542.2	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	94	80 – 120	No
Dibromofluoromethane	%	100	80 – 120	No
Toluene-d8	%	95	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS

		4005542.3	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	78	40 – 120	No
2-fluorophenol	%	67	40 – 120	No
Nitrobenzene-d5	%	78	40 – 120	No
Phenol-d5	%	63	40 – 120	No
Terphenyl-d14	%	43	40 – 120	No
2,4,6-Tribromophenol	%	77	40 – 120	No

System monitoring Compounds for VOC - % Recovery

		4005542.3	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	93	80 – 120	No
Dibromofluoromethane	%	100	80 – 120	No
Toluene-d8	%	95	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005542.4	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	75	40 – 120	No
2-fluorophenol	%	59	40 – 120	No
Nitrobenzene-d5	%	75	40 – 120	No
Phenol-d5	%	50	40 – 120	No
Terphenyl-d14	%	37	40 – 120	**Yes**
2,4,6-Tribromophenol	%	70	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005542.4	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	102	80 – 120	No
Toluene-d8	%	95	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005542.5	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	80	40 – 120	No
2-fluorophenol	%	60	40 – 120	No
Nitrobenzene-d5	%	81	40 – 120	No
Phenol-d5	%	52	40 – 120	No
Terphenyl-d14	%	37	40 – 120	**Yes**
2,4,6-Tribromophenol	%	76	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005542.5	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	104	80 – 120	No
Toluene-d8	%	95	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005542.6	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	71	40 – 120	No
2-fluorophenol	%	59	40 – 120	No
Nitrobenzene-d5	%	68	40 – 120	No
Phenol-d5	%	54	40 – 120	No
Terphenyl-d14	%	71	40 – 120	No
2,4,6-Tribromophenol	%	79	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005542.6	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	97	80 – 120	No
Toluene-d8	%	96	80 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005542.7	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	98	80 – 120	No
Toluene-d8	%	96	80 – 120	No

Blank QCs

Filt Blk 1 PrepWS FiltMGchch - L4C by FIA Worksheet: 12449.69

		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 2 PrepWS FiltMGchch - L4C by FIA Worksheet: 12449.91

		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 1 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13073.58

		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 2 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13073.83

		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.13

		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.14

		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00073	-0.0021 – 0.0021	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.15

		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00037	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00037	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00075	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 373.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 373.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 373.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 373.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

5x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.006 ± 0.00074	-0.0052 – 0.0052	No
Total Boron	g/m³	< 0.27 ± 0.035	-0.26 – 0.26	No
Total Cadmium	g/m³	< 0.0003 ± 0.000036	-0.00026 – 0.00026	No
Total Chromium	g/m³	< 0.003 ± 0.00036	-0.0026 – 0.0026	No
Total Copper	g/m³	< 0.003 ± 0.00035	-0.0026 – 0.0026	No
Total Lead	g/m³	< 0.0006 ± 0.000074	-0.00052 – 0.00052	No
Total Nickel	g/m³	< 0.003 ± 0.00035	-0.0026 – 0.0026	No
Total Zinc	g/m³	< 0.006 ± 0.00074	-0.0052 – 0.0052	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00037	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00076	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.21				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Vol. Dilution Digest Blank PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.22				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No

10x Vol. Dilution Digest Blank PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.22				
		Results	Control Limits	Outside Limit (Yes/No)
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 374.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 374.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 374.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 374.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00073	-0.0021 – 0.0021	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00075	-0.0105 – 0.0105	No

5x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.006 ± 0.00074	-0.0052 – 0.0052	No
Total Boron	g/m³	< 0.27 ± 0.035	-0.26 – 0.26	No
Total Cadmium	g/m³	< 0.0003 ± 0.000036	-0.00026 – 0.00026	No
Total Chromium	g/m³	< 0.003 ± 0.00036	-0.0026 – 0.0026	No
Total Copper	g/m³	< 0.003 ± 0.00035	-0.0026 – 0.0026	No
Total Lead	g/m³	< 0.0006 ± 0.000074	-0.00052 – 0.00052	No
Total Nickel	g/m³	< 0.003 ± 0.00035	-0.0026 – 0.0026	No
Total Zinc	g/m³	< 0.006 ± 0.00073	-0.0052 – 0.0052	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00082	-0.021 – 0.021	No

10x Prep Dilution, 10x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.11 ± 0.00074	-0.105 – 0.105	No
Total Boron	g/m³	< 5.3 ± 0.035	-5.2 – 5.2	No
Total Cadmium	g/m³	< 0.0053 ± 0.000039	-0.0052 – 0.0052	No
Total Chromium	g/m³	< 0.053 ± 0.00039	-0.052 – 0.052	No
Total Copper	g/m³	< 0.053 ± 0.00052	-0.052 – 0.052	No
Total Lead	g/m³	< 0.011 ± 0.000076	-0.0105 – 0.0105	No
Total Nickel	g/m³	< 0.053 ± 0.00047	-0.052 – 0.052	No
Total Zinc	g/m³	< 0.11 ± 0.0013	-0.105 – 0.105	No

10x Prep Dilution, 2x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.21				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00042	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.0012	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

water blank PrepWS apHSVw - BTEX by Headspace Water Analysis: 5012.2				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	g/m³	< 0.0010 ± 0.00015	0.0 – 0.00100	No
Toluene	g/m³	< 0.0010 ± 0.00018	0.0 – 0.00100	No
Ethylbenzene	g/m³	< 0.0010 ± 0.00021	0.0 – 0.00100	No
m&p-Xylene	g/m³	< 0.002 ± 0.00031	0.0 – 0.0020	No
o-Xylene	g/m³	< 0.0010 ± 0.00016	0.0 – 0.00100	No

Blank PrepWS TCLPzhe PrepWS apHSVw - BTEX by Headspace Water Analysis: 5012.39				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	g/m³	< 0.010 ± 0.00015	0.0 – 0.0100	No
Toluene	g/m³	< 0.010 ± 0.00018	0.0 – 0.0100	No
Ethylbenzene	g/m³	< 0.010 ± 0.00021	0.0 – 0.0100	No
m&p-Xylene	g/m³	< 0.02 ± 0.00031	0.0 – 0.020	No
o-Xylene	g/m³	< 0.010 ± 0.00016	0.0 – 0.0100	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22684.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22684.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22684.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22684.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22684.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

Blank 1 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

20x Dilution PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.002 ± 0.000074	-0.0021 – 0.0021	No

Blank 2 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

Fluid 3 Blank (plastic) PrepWS SPLP PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.0021 – 0.0021	No

Blank PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9271.2				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.060	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No

Blank PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9271.2				
		Results	Control Limits	Outside Limit (Yes/No)
C15 - C20	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C21 - C25	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

Blank 2 PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9271.24				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.060	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C15 - C20	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C21 - C25	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22695.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22695.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

20x Dilution FBlank PrepWS DissPrep - WS: Environmental Waters by ICP-MS (EW): 22695.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.02 ± 0.00067	-0.020 – 0.020	No
Dissolved Boron	g/m³	< 1.0 ± 0.064	-1.00 – 1.00	No
Dissolved Chromium	g/m³	< 0.010 ± 0.00040	-0.0100 – 0.0100	No
Dissolved Copper	g/m³	< 0.010 ± 0.00034	-0.0100 – 0.0100	No
Dissolved Iron	g/m³	< 0.4 ± 0.014	-0.40 – 0.40	No
Dissolved Manganese	g/m³	< 0.010 ± 0.00034	-0.0100 – 0.0100	No
Dissolved Nickel	g/m³	< 0.010 ± 0.00034	-0.0100 – 0.0100	No
Dissolved Potassium	g/m³	< 1.0 ± 0.035	-1.00 – 1.00	No
Dissolved Sodium	g/m³	< 0.4 ± 0.014	-0.40 – 0.40	No
Dissolved Zinc	g/m³	< 0.02 ± 0.00067	-0.020 – 0.020	No

FBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 141.14				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

FBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 141.15				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22698.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22698.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22698.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.4				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	g/m³	< 0.5 ± 0.30	0.0 – 0.050	No
Benzene	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Bromobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Bromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromodichloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromoform (tribromomethane)	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
Bromomethane (Methyl Bromide)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
2-Butanone (MEK)	g/m³	< 0.5 ± 0.030	0.0 – 0.050	No
n-Butylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
tert-Butylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Carbon disulphide	g/m³	< 0.005 ± 0.031	0.0 – 0.00025	No
Carbon tetrachloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloroethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Chloroform (Trichloromethane)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloromethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
2-Chlorotoluene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,2-Dibromo-3-chloropropane	g/m³	< 0.003 ± 0.0023	0.0 – 0.00025	No
Dibromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Dibromomethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,3-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,4-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Dichlorodifluoromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,2-Dichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethene	g/m³	< 0.003 ± 0.0032	0.0 – 0.00025	No
cis-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
trans-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Dichloromethane (methylene chloride)	g/m³	< 0.10 ± 0.060	0.0 – 0.00025	No
1,2-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,3-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1-Dichloropropene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
cis-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
trans-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Ethylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Isopropylbenzene (Cumene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.4				
		Results	Control Limits	Outside Limit (Yes/No)
4-Chlorotoluene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Methyl tert-butylether (MTBE)	g/m³	< 0.003 ± 0.031	0.0 – 0.00025	No
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10 ± 0.029	0.0 – 0.050	No
Naphthalene	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
n-Propylbenzene	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
sec-Butylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Styrene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,1,1,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Toluene	g/m³	< 0.003 ± 0.0059	0.0 – 0.00025	No
1,2,3-Trichlorobenzene	g/m³	< 0.003 ± 0.0027	0.0 – 0.00025	No
1,2,4-Trichlorobenzene	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
1,3,5-Trichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1,1-Trichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2-Trichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichloroethene (trichloroethylene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichlorofluoromethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,2,3-Trichloropropane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003 ± 0.024	0.0 – 0.00025	No
1,2,4-Trimethylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,3,5-Trimethylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Vinyl chloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
m&p-Xylene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00050	No
o-Xylene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22707.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22707.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22709.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22709.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22709.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 146.46				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

FBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 146.47				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

ARBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 146.48				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

ARBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 146.49				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.1				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Acenaphthylene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Aldrin	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]pyrene (BAP)	g/m³	< 0.003 ± 0.00092	0.0 – 0.00025	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	g/m³	< 0.003 ± 0.0013	0.0 – 0.00025	No
Benzo[g,h,i]perylene	g/m³	< 0.003 ± 0.00099	0.0 – 0.00025	No
Benzo[k]fluoranthene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Benzyl alcohol	g/m³	< 0.05 ± 0.017	0.0 – 0.0025	No
alpha-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
beta-BHC	g/m³	< 0.005 ± 0.0031	0.0 – 0.00025	No
delta-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.1				
		Results	Control Limits	Outside Limit (Yes/No)
gamma-BHC (Lindane)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Bis(2-chloroethoxy) methane	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroethyl)ether	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroisopropyl)ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03 ± 0.015	0.0 – 0.00100	No
4-Bromophenyl phenyl ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Butylbenzylphthalate	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
Carbazole	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
4-Chloro-3-methylphenol	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
1&2-Chloronaphthalene	g/m³	< 0.003 ± 0.00088	0.0 – 0.00050	No
2-Chlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
4-Chlorophenyl phenyl ether	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Chrysene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
4,4'-DDD	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
4,4'-DDE	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
4,4'-DDT	g/m³	< 0.010 ± 0.0048	0.0 – 0.00050	No
Di(2-ethylhexyl)adipate	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Dibenzo[a,h]anthracene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Dibenzofuran	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
1,3-Dichlorobenzene	g/m³	< 0.010 ± 0.0052	0.0 – 0.00050	No
1,4-Dichlorobenzene	g/m³	< 0.010 ± 0.0046	0.0 – 0.00050	No
2,4-Dichlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
Dieldrin	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Diethylphthalate	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
2,4-Dimethylphenol	g/m³	< 0.005 ± 0.0014	0.0 – 0.00025	No
Dimethylphthalate	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-butylphthalate	g/m³	< 0.010 ± 0.0056	0.0 – 0.00100	No
2,4-Dinitrotoluene	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
2,6-Dinitrotoluene	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-octylphthalate	g/m³	< 0.010 ± 0.0031	0.0 – 0.00050	No
Endosulfan I	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endosulfan II	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
Endosulfan sulphate	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endrin	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Endrin ketone	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
Fluoranthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Fluorene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Heptachlor	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Heptachlor epoxide	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
Hexachloroethane	g/m³	< 0.010 ± 0.0041	0.0 – 0.00050	No
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003 ± 0.00074	0.0 – 0.00025	No
Isophorone	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.1				
		Results	Control Limits	Outside Limit (Yes/No)
2-Methylnaphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010 ± 0.0043	0.0 – 0.00050	No
2-Methylphenol (o-Cresol)	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
Naphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
Nitrobenzene	g/m³	< 0.005 ± 0.0026	0.0 – 0.00025	No
2-Nitrophenol	g/m³	< 0.010 ± 0.0051	0.0 – 0.00050	No
N-Nitrosodi-n-propylamine	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
N-Nitrosodiphenylamine + Diphenylamine	g/m³	< 0.010 ± 0.0028	0.0 – 0.00050	No
Pentachlorophenol (PCP)	g/m³	< 0.10 ± 0.048	0.0 – 0.0050	No
Phenanthrene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Phenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Pyrene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
1,2,4-Trichlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2,4,5-Trichlorophenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
2,4,6-Trichlorophenol	g/m³	< 0.010 ± 0.0045	0.0 – 0.00050	No

QC Spike QCs

water LCS PrepWS apHSVw - BTEX by Headspace Water Analysis: 5012.3				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	%	102 ± 12	88 – 111	No
Toluene	%	105.0 ± 7.0	95 – 110	No
Ethylbenzene	%	108.0 ± 7.2	95 – 114	No
m&p-Xylene	%	108.0 ± 8.3	93 – 114	No
o-Xylene	%	110.0 ± 8.2	92 – 115	No

LCS PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9271.3				
		Results	Control Limits	Outside Limit (Yes/No)
Total hydrocarbons (C7 - C36)	%	103 ± 31	80 – 137	No

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6022.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	117 ± 59	70 – 130	No
Acenaphthylene	%	105 ± 57	70 – 130	No
Anthracene	%	112 ± 41	70 – 130	No
Benzo[a]anthracene	%	110 ± 36	70 – 130	No
Benzo[a]pyrene (BAP)	%	126 ± 61	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	122 ± 59	70 – 130	No
Benzo[g,h,i]perylene	%	111 ± 58	70 – 130	No
Benzo[k]fluoranthene	%	135 ± 60	70 – 130	**Yes** [#2]
Chrysene	%	115 ± 42	70 – 130	No
Dibenzo[a,h]anthracene	%	119 ± 62	70 – 130	No
Fluoranthene	%	106 ± 28	70 – 130	No
Fluorene	%	107 ± 48	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	108 ± 57	70 – 130	No
Naphthalene	%	101 ± 67	70 – 130	No
Phenanthrene	%	115 ± 35	70 – 130	No
Pyrene	%	121 ± 49	70 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.3				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	87 ± 26	70 – 130	No
Benzene	%	99 ± 25	70 – 130	No
Bromobenzene	%	99 ± 30	70 – 130	No
Bromochloromethane	%	98 ± 34	70 – 130	No
Bromodichloromethane	%	99 ± 34	70 – 130	No
Bromoform (tribromomethane)	%	101 ± 38	70 – 130	No
Bromomethane (Methyl Bromide)	%	102 ± 34	70 – 130	No
2-Butanone (MEK)	%	93 ± 28	70 – 130	No
n-Butylbenzene	%	95 ± 29	70 – 130	No
tert-Butylbenzene	%	97 ± 29	70 – 130	No
Carbon disulphide	%	92 ± 24	70 – 130	No
Carbon tetrachloride	%	101 ± 37	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	101 ± 34	70 – 130	No
Chloroethane	%	81 ± 24	70 – 130	No
Chloroform (Trichloromethane)	%	98 ± 34	70 – 130	No
Chloromethane	%	104 ± 33	70 – 130	No
2-Chlorotoluene	%	103 ± 33	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	97 ± 31	70 – 130	No
1,2-Dibromo-3-chloropropane	%	102 ± 50	70 – 130	No
Dibromochloromethane	%	98 ± 34	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	101 ± 35	70 – 130	No
Dibromomethane	%	99 ± 34	70 – 130	No
1,2-Dichlorobenzene	%	102 ± 31	70 – 130	No
1,3-Dichlorobenzene	%	102 ± 31	70 – 130	No
1,4-Dichlorobenzene	%	101 ± 31	70 – 130	No
Dichlorodifluoromethane	%	117 ± 41	70 – 130	No
1,1-Dichloroethane	%	102 ± 33	70 – 130	No
1,2-Dichloroethane	%	100 ± 35	70 – 130	No
1,1-Dichloroethene	%	107 ± 27	70 – 130	No
cis-1,2-Dichloroethene	%	103 ± 35	70 – 130	No
trans-1,2-Dichloroethene	%	102 ± 37	70 – 130	No
Dichloromethane (methylene chloride)	%	96 ± 29	70 – 130	No
1,2-Dichloropropane	%	103 ± 34	70 – 130	No
1,3-Dichloropropane	%	98 ± 32	70 – 130	No
1,1-Dichloropropene	%	107 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	107 ± 38	70 – 130	No
trans-1,3-Dichloropropene	%	113 ± 41	70 – 130	No
Ethylbenzene	%	103 ± 32	70 – 130	No
Hexachlorobutadiene	%	101 ± 35	70 – 130	No
Isopropylbenzene (Cumene)	%	101 ± 33	70 – 130	No
4-Chlorotoluene	%	103 ± 34	70 – 130	No
Methyl tert-butylether (MTBE)	%	97 ± 28	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	97 ± 34	70 – 130	No
Naphthalene	%	101 ± 53	70 – 130	No
n-Propylbenzene	%	99 ± 38	70 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.3				
		Results	Control Limits	Outside Limit (Yes/No)
sec-Butylbenzene	%	101 ± 34	70 – 130	No
Styrene	%	96 ± 31	70 – 130	No
1,1,1,2-Tetrachloroethane	%	103 ± 35	70 – 130	No
1,1,2,2-Tetrachloroethane	%	94 ± 28	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	104 ± 29	70 – 130	No
Toluene	%	100 ± 32	70 – 130	No
1,2,3-Trichlorobenzene	%	106 ± 44	70 – 130	No
1,2,4-Trichlorobenzene	%	107 ± 42	70 – 130	No
1,3,5-Trichlorobenzene	%	109 ± 35	70 – 130	No
1,1,1-Trichloroethane	%	103 ± 35	70 – 130	No
1,1,2-Trichloroethane	%	105 ± 35	70 – 130	No
Trichloroethene (trichloroethylene)	%	111 ± 36	70 – 130	No
Trichlorofluoromethane	%	101 ± 29	70 – 130	No
1,2,3-Trichloropropane	%	98 ± 29	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	105 ± 51	70 – 130	No
1,2,4-Trimethylbenzene	%	96 ± 32	70 – 130	No
1,3,5-Trimethylbenzene	%	97 ± 32	70 – 130	No
Vinyl chloride	%	111 ± 38	70 – 130	No
m&p-Xylene	%	96 ± 31	70 – 130	No
o-Xylene	%	98 ± 29	70 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	107 ± 39	40 – 130	No
Acenaphthylene	%	97 ± 37	40 – 130	No
Aldrin	%	100 ± 37	40 – 130	No
Anthracene	%	113 ± 42	40 – 130	No
Benzo[a]anthracene	%	112 ± 42	40 – 130	No
Benzo[a]pyrene (BAP)	%	94 ± 56	40 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	98 ± 52	40 – 130	No
Benzo[g,h,i]perylene	%	106 ± 62	40 – 130	No
Benzo[k]fluoranthene	%	104 ± 58	40 – 130	No
Benzyl alcohol	%	76 ± 45	40 – 130	No
alpha-BHC	%	98 ± 32	40 – 130	No
beta-BHC	%	100 ± 28	40 – 130	No
delta-BHC	%	105 ± 32	40 – 130	No
gamma-BHC (Lindane)	%	94 ± 29	40 – 130	No
Bis(2-chloroethoxy) methane	%	100 ± 46	40 – 130	No
Bis(2-chloroethyl)ether	%	81 ± 38	40 – 130	No
Bis(2-chloroisopropyl)ether	%	80 ± 32	40 – 130	No
Bis(2-ethylhexyl)phthalate	%	116 ± 55	40 – 130	No
4-Bromophenyl phenyl ether	%	95 ± 38	40 – 130	No
Butylbenzylphthalate	%	119 ± 48	40 – 130	No
Carbazole	%	120 ± 42	40 – 130	No
4-Chloro-3-methylphenol	%	94 ± 36	40 – 130	No
2-Chlorophenol	%	80 ± 30	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.2				
		Results	Control Limits	Outside Limit (Yes/No)
4-Chlorophenyl phenyl ether	%	110 ± 39	40 – 130	No
Chrysene	%	116 ± 45	40 – 130	No
4,4'-DDD	%	134 ± 62	40 – 130	**Yes** #3
4,4'-DDE	%	121 ± 49	40 – 130	No
4,4'-DDT	%	119 ± 57	40 – 130	No
Dibenzo[a,h]anthracene	%	105 ± 58	40 – 130	No
Dibenzofuran	%	111 ± 37	40 – 130	No
1,2-Dichlorobenzene	%	79 ± 32	40 – 130	No
1,3-Dichlorobenzene	%	77 ± 33	40 – 130	No
1,4-Dichlorobenzene	%	77 ± 38	40 – 130	No
2,4-Dichlorophenol	%	88 ± 34	40 – 130	No
Dieldrin	%	121 ± 50	40 – 130	No
Diethylphthalate	%	106 ± 44	40 – 130	No
2,4-Dimethylphenol	%	70 ± 43	40 – 130	No
Dimethylphthalate	%	105 ± 41	40 – 130	No
Di-n-butylphthalate	%	102 ± 38	40 – 130	No
2,4-Dinitrotoluene	%	111 ± 39	40 – 130	No
2,6-Dinitrotoluene	%	112 ± 43	40 – 130	No
Di-n-octylphthalate	%	106 ± 63	40 – 130	No
Endosulfan I	%	126 ± 59	40 – 130	No
Endosulfan II	%	120 ± 44	40 – 130	No
Endosulfan sulphate	%	132 ± 60	40 – 130	**Yes** #3
Endrin	%	128 ± 57	40 – 130	No
Endrin ketone	%	121 ± 50	40 – 130	No
Fluoranthene	%	102 ± 37	40 – 130	No
Fluorene	%	108 ± 40	40 – 130	No
Heptachlor	%	103 ± 43	40 – 130	No
Heptachlor epoxide	%	113 ± 40	40 – 130	No
Hexachlorobenzene	%	99 ± 36	40 – 130	No
Hexachlorobutadiene	%	99 ± 38	40 – 130	No
Hexachloroethane	%	78 ± 42	40 – 130	No
Indeno(1,2,3-c,d)pyrene	%	104 ± 65	40 – 130	No
Isophorone	%	84 ± 30	40 – 130	No
2-Methylnaphthalene	%	104 ± 43	40 – 130	No
3 & 4-Methylphenol (m- + p-cresol)	%	80 ± 42	40 – 130	No
2-Methylphenol (o-Cresol)	%	76 ± 40	40 – 130	No
Naphthalene	%	97 ± 42	40 – 130	No
Nitrobenzene	%	102 ± 44	40 – 130	No
2-Nitrophenol	%	89 ± 39	40 – 130	No
N-Nitrosodi-n-propylamine	%	83 ± 33	40 – 130	No
N-Nitrosodiphenylamine + Diphenylamine	%	83 ± 51	40 – 130	No
Phenanthrene	%	99 ± 36	40 – 130	No
Phenol	%	72 ± 33	40 – 130	No
Pyrene	%	117 ± 49	40 – 130	No
1,2,4-Trichlorobenzene	%	99 ± 36	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.2				
		Results	Control Limits	Outside Limit (Yes/No)
2,4,5-Trichlorophenol	%	100 ± 45	40 – 130	No
2,4,6-Trichlorophenol	%	106 ± 53	40 – 130	No

Sample Spike QCs

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.43				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	101.0 ± 6.1	80 – 120	No
Total Boron	%	102 ± 15	80 – 120	No
Total Cadmium	%	102.0 ± 8.2	80 – 120	No
Total Chromium	%	100.0 ± 8.1	80 – 120	No
Total Copper	%	100 ± 11	80 – 120	No
Total Lead	%	104.0 ± 6.3	80 – 120	No
Total Nickel	%	101 ± 13	80 – 120	No
Total Zinc	%	100.0 ± 8.1	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.55				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	101.0 ± 6.1	80 – 120	No
Total Boron	%	100 ± 15	80 – 120	No
Total Cadmium	%	101.0 ± 8.1	80 – 120	No
Total Chromium	%	95.0 ± 7.7	80 – 120	No
Total Copper	%	99 ± 10	80 – 120	No
Total Lead	%	100.0 ± 6.1	80 – 120	No
Total Nickel	%	99 ± 12	80 – 120	No
Total Zinc	%	101.0 ± 8.1	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.54				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	106.0 ± 6.4	80 – 120	No
Total Boron	%	98 ± 14	80 – 120	No
Total Cadmium	%	104.0 ± 8.4	80 – 120	No
Total Chromium	%	103.0 ± 8.3	80 – 120	No
Total Copper	%	98.0 ± 9.9	80 – 120	No
Total Lead	%	101.0 ± 6.1	80 – 120	No
Total Nickel	%	99 ± 12	80 – 120	No
Total Zinc	%	100.0 ± 8.1	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.61				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	105.0 ± 6.4	80 – 120	No
Total Boron	%	97 ± 14	80 – 120	No
Total Cadmium	%	103.0 ± 8.3	80 – 120	No
Total Chromium	%	99.0 ± 8.0	80 – 120	No
Total Copper	%	99 ± 10	80 – 120	No
Total Lead	%	103.0 ± 6.2	80 – 120	No
Total Nickel	%	102 ± 13	80 – 120	No
Total Zinc	%	101.0 ± 8.1	80 – 120	No

water sample spike PrepWS apHSVw - BTEX by Headspace Water Analysis: 5012.9				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	%	107 ± 12	81 – 125	No
Toluene	%	105.0 ± 7.0	93 – 112	No
Ethylbenzene	%	107.0 ± 7.1	90 – 117	No
m&p-Xylene	%	107.0 ± 8.2	86 – 118	No
o-Xylene	%	109.0 ± 8.1	86 – 120	No

water sample spike PrepWS apHSVw - BTEX by Headspace Water Analysis: 5012.33				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	%	106 ± 12	81 – 125	No
Toluene	%	105.0 ± 7.0	93 – 112	No
Ethylbenzene	%	107.0 ± 7.1	90 – 117	No
m&p-Xylene	%	108.0 ± 8.3	86 – 118	No
o-Xylene	%	110.0 ± 8.2	86 – 120	No

sample spike PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9271.22				
		Results	Control Limits	Outside Limit (Yes/No)
Total hydrocarbons (C7 - C36)	%	102 ± 31	83 – 140	No

Sample Spike PAH PrepWS xwllPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6022.10				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	122 ± 62	70 – 130	No
Acenaphthylene	%	109 ± 59	70 – 130	No
Anthracene	%	114 ± 42	70 – 130	No
Benzo[a]anthracene	%	110 ± 36	70 – 130	No
Benzo[a]pyrene (BAP)	%	127 ± 61	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	119 ± 58	70 – 130	No
Benzo[g,h,i]perylene	%	107 ± 56	70 – 130	No
Benzo[k]fluoranthene	%	136 ± 60	70 – 130	**Yes** #4
Chrysene	%	117 ± 43	70 – 130	No
Dibenzo[a,h]anthracene	%	116 ± 61	70 – 130	No
Fluoranthene	%	106 ± 28	70 – 130	No
Fluorene	%	109 ± 48	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	108 ± 57	70 – 130	No
Naphthalene	%	115 ± 76	70 – 130	No
Phenanthrene	%	117 ± 36	70 – 130	No
Pyrene	%	121 ± 49	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.22				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	98 ± 30	70 – 130	No
Benzene	%	101 ± 26	70 – 130	No
Bromobenzene	%	102 ± 31	70 – 130	No
Bromochloromethane	%	102 ± 35	70 – 130	No
Bromodichloromethane	%	101 ± 35	70 – 130	No
Bromoform (tribromomethane)	%	103 ± 38	70 – 130	No
Bromomethane (Methyl Bromide)	%	104 ± 35	70 – 130	No
2-Butanone (MEK)	%	102 ± 31	70 – 130	No
n-Butylbenzene	%	101 ± 31	70 – 130	No
tert-Butylbenzene	%	102 ± 31	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.22				
		Results	Control Limits	Outside Limit (Yes/No)
Carbon disulphide	%	93 ± 24	70 – 130	No
Carbon tetrachloride	%	103 ± 38	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	103 ± 35	70 – 130	No
Chloroethane	%	83 ± 25	70 – 130	No
Chloroform (Trichloromethane)	%	103 ± 35	70 – 130	No
Chloromethane	%	104 ± 33	70 – 130	No
2-Chlorotoluene	%	106 ± 34	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	102 ± 33	70 – 130	No
1,2-Dibromo-3-chloropropane	%	106 ± 52	70 – 130	No
Dibromochloromethane	%	100 ± 34	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	104 ± 36	70 – 130	No
Dibromomethane	%	103 ± 35	70 – 130	No
1,2-Dichlorobenzene	%	106 ± 33	70 – 130	No
1,3-Dichlorobenzene	%	104 ± 31	70 – 130	No
1,4-Dichlorobenzene	%	104 ± 32	70 – 130	No
Dichlorodifluoromethane	%	121 ± 43	70 – 130	No
1,1-Dichloroethane	%	106 ± 34	70 – 130	No
1,2-Dichloroethane	%	105 ± 36	70 – 130	No
1,1-Dichloroethene	%	108 ± 27	70 – 130	No
cis-1,2-Dichloroethene	%	106 ± 36	70 – 130	No
trans-1,2-Dichloroethene	%	104 ± 38	70 – 130	No
Dichloromethane (methylene chloride)	%	100 ± 31	70 – 130	No
1,2-Dichloropropane	%	106 ± 35	70 – 130	No
1,3-Dichloropropane	%	101 ± 33	70 – 130	No
1,1-Dichloropropene	%	106 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	104 ± 37	70 – 130	No
trans-1,3-Dichloropropene	%	109 ± 39	70 – 130	No
Ethylbenzene	%	105 ± 33	70 – 130	No
Hexachlorobutadiene	%	122 ± 43	70 – 130	No
Isopropylbenzene (Cumene)	%	104 ± 34	70 – 130	No
4-Chlorotoluene	%	105 ± 35	70 – 130	No
Methyl tert-butylether (MTBE)	%	102 ± 30	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	99 ± 35	70 – 130	No
Naphthalene	%	102 ± 54	70 – 130	No
n-Propylbenzene	%	102 ± 39	70 – 130	No
sec-Butylbenzene	%	107 ± 36	70 – 130	No
Styrene	%	97 ± 31	70 – 130	No
1,1,1,2-Tetrachloroethane	%	107 ± 36	70 – 130	No
1,1,2,2-Tetrachloroethane	%	111 ± 33	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	105 ± 30	70 – 130	No
Toluene	%	102 ± 32	70 – 130	No
1,2,3-Trichlorobenzene	%	108 ± 45	70 – 130	No
1,2,4-Trichlorobenzene	%	107 ± 42	70 – 130	No
1,3,5-Trichlorobenzene	%	113 ± 37	70 – 130	No
1,1,1-Trichloroethane	%	106 ± 36	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.22				
		Results	Control Limits	Outside Limit (Yes/No)
1,1,2-Trichloroethane	%	109 ± 36	70 – 130	No
Trichloroethene (trichloroethylene)	%	104 ± 34	70 – 130	No
Trichlorofluoromethane	%	104 ± 29	70 – 130	No
1,2,3-Trichloropropane	%	102 ± 30	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	109 ± 53	70 – 130	No
1,2,4-Trimethylbenzene	%	98 ± 33	70 – 130	No
1,3,5-Trimethylbenzene	%	100 ± 33	70 – 130	No
Vinyl chloride	%	111 ± 38	70 – 130	No
m&p-Xylene	%	98 ± 32	70 – 130	No
o-Xylene	%	101 ± 30	70 – 130	No

20 ug/L Sample Spike - WS: Environmental Waters by ICP-MS (EW): 22709.67				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	%	103.0 ± 5.8	80 – 120	No
Dissolved Boron	%	101 ± 13	80 – 120	No
Dissolved Cadmium	%	102 ± 15	80 – 120	No
Dissolved Calcium	%	102.0 ± 6.4	80 – 120	No
Dissolved Chromium	%	103.0 ± 8.0	80 – 120	No
Dissolved Copper	%	104.0 ± 9.5	80 – 120	No
Dissolved Iron	%	103.0 ± 7.1	80 – 120	No
Dissolved Lead	%	103.0 ± 7.1	80 – 120	No
Dissolved Magnesium	%	105.0 ± 7.1	80 – 120	No
Dissolved Manganese	%	98.0 ± 8.5	80 – 120	No
Dissolved Nickel	%	102.0 ± 3.6	80 – 120	No
Dissolved Potassium	%	105.0 ± 7.7	80 – 120	No
Dissolved Sodium	%	101 ± 11	80 – 120	No
Dissolved Zinc	%	106.0 ± 9.9	80 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.7				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	105 ± 39	40 – 120	No
Acenaphthylene	%	94 ± 36	40 – 120	No
Aldrin	%	99 ± 36	40 – 120	No
Anthracene	%	107 ± 40	40 – 120	No
Benzo[a]anthracene	%	108 ± 40	40 – 120	No
Benzo[a]pyrene (BAP)	%	88 ± 53	40 – 120	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	92 ± 49	40 – 120	No
Benzo[g,h,i]perylene	%	99 ± 58	40 – 120	No
Benzo[k]fluoranthene	%	96 ± 53	40 – 120	No
Benzyl alcohol	%	86 ± 50	40 – 120	No
alpha-BHC	%	94 ± 31	40 – 120	No
beta-BHC	%	95 ± 27	40 – 120	No
delta-BHC	%	97 ± 30	40 – 120	No
gamma-BHC (Lindane)	%	91 ± 29	40 – 120	No
Bis(2-chloroethoxy) methane	%	102 ± 47	40 – 120	No
Bis(2-chloroethyl)ether	%	91 ± 42	40 – 120	No
Bis(2-chloroisopropyl)ether	%	90 ± 36	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.7				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Bis(2-ethylhexyl)phthalate	%	113 ± 53	40 – 120	No
4-Bromophenyl phenyl ether	%	92 ± 37	40 – 120	No
Butylbenzylphthalate	%	119 ± 48	40 – 120	No
Carbazole	%	112 ± 39	40 – 120	No
4-Chloro-3-methylphenol	%	94 ± 36	40 – 120	No
2-Chlorophenol	%	91 ± 34	40 – 120	No
4-Chlorophenyl phenyl ether	%	106 ± 37	40 – 120	No
Chrysene	%	110 ± 42	40 – 120	No
4,4'-DDD	%	127 ± 58	40 – 120	**Yes** #4
4,4'-DDE	%	115 ± 47	40 – 120	No
4,4'-DDT	%	114 ± 54	40 – 120	No
Dibenzo[a,h]anthracene	%	98 ± 54	40 – 120	No
Dibenzofuran	%	107 ± 36	40 – 120	No
1,2-Dichlorobenzene	%	88 ± 36	40 – 120	No
1,3-Dichlorobenzene	%	84 ± 36	40 – 120	No
1,4-Dichlorobenzene	%	86 ± 42	40 – 120	No
2,4-Dichlorophenol	%	95 ± 37	40 – 120	No
Dieldrin	%	118 ± 49	40 – 120	No
Diethylphthalate	%	102 ± 42	40 – 120	No
2,4-Dimethylphenol	%	61 ± 38	40 – 120	No
Dimethylphthalate	%	103 ± 40	40 – 120	No
Di-n-butylphthalate	%	98 ± 36	40 – 120	No
2,4-Dinitrotoluene	%	107 ± 38	40 – 120	No
2,6-Dinitrotoluene	%	109 ± 42	40 – 120	No
Di-n-octylphthalate	%	106 ± 63	40 – 120	No
Endosulfan I	%	120 ± 56	40 – 120	No
Endosulfan II	%	112 ± 41	40 – 120	No
Endosulfan sulphate	%	126 ± 58	40 – 120	**Yes** #4
Endrin	%	123 ± 55	40 – 120	**Yes** #4
Endrin ketone	%	114 ± 47	40 – 120	No
Fluoranthene	%	96 ± 35	40 – 120	No
Fluorene	%	106 ± 39	40 – 120	No
Heptachlor	%	101 ± 42	40 – 120	No
Heptachlor epoxide	%	105 ± 37	40 – 120	No
Hexachlorobenzene	%	94 ± 34	40 – 120	No
Hexachlorobutadiene	%	105 ± 40	40 – 120	No
Hexachloroethane	%	86 ± 46	40 – 120	No
Indeno(1,2,3-c,d)pyrene	%	99 ± 62	40 – 120	No
Isophorone	%	86 ± 31	40 – 120	No
2-Methylnaphthalene	%	104 ± 43	40 – 120	No
3 & 4-Methylphenol (m- + p-cresol)	%	86 ± 45	40 – 120	No
2-Methylphenol (o-Cresol)	%	83 ± 44	40 – 120	No
Naphthalene	%	101 ± 43	40 – 120	No
Nitrobenzene	%	105 ± 45	40 – 120	No
2-Nitrophenol	%	95 ± 42	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.7				
		Results	Control Limits	Outside Limit (Yes/No)
N-Nitrosodi-n-propylamine	%	89 ± 35	40 – 120	No
N-Nitrosodiphenylamine + Diphenylamine	%	80 ± 49	40 – 120	No
Phenanthrene	%	94 ± 34	40 – 120	No
Phenol	%	84 ± 38	40 – 120	No
Pyrene	%	110 ± 46	40 – 120	No
1,2,4-Trichlorobenzene	%	105 ± 38	40 – 120	No
2,4,5-Trichlorophenol	%	105 ± 47	40 – 120	No
2,4,6-Trichlorophenol	%	103 ± 51	40 – 120	No

Reference Material QCs

QC 1 AutoT - Autotitrator - Christchurch: 1488.2				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	7.6 ± 0.2	7.4 – 7.8	No
Total Alkalinity	g/m^3 as $CaCO_3$	147.2 ± 6.0	145 – 159	No
Electrical Conductivity (EC)	mS/m	64.0 ± 1.3	63.6 – 69.6	No

Low EC AQC 1 - Autotitrator - Christchurch: 1488.3				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	4.1 ± 0.2	3.6 – 4.2	No
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #5
Electrical Conductivity (EC)	mS/m	4.0 ± 0.2	2.4 – 5.1	No

Saline QC 1 - Autotitrator - Christchurch: 1488.4				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	5.1 ± 0.2	Undefined	N/A #5
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #5
Electrical Conductivity (EC)	mS/m	5,110 ± 110	5,000 – 5,310	No

pH 10 Buffer - Autotitrator - Christchurch: 1488.5				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	10.0 ± 0.2	9.9 – 10.1	No
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #5
Electrical Conductivity (EC)	mS/m	331.9 ± 6.7	Undefined	N/A #5

NO2N QC - L4C by FIA Worksheet: 12449.7				
		Results	Control Limits	Outside Limit (Yes/No)
Nitrite-N	g/m^3	0.519 ± 0.073	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m^3	0.515 ± 0.062	0.42 – 0.58	No
Dissolved Reactive Phosphorus	g/m^3	< 0.004 ± 0.0027	Undefined	N/A #5

Filt MA QC PrepWS FiltMGchch - L4C by FIA Worksheet: 12449.70				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m^3	0.476 ± 0.043	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m^3	0.96 ± 0.12	0.85 – 1.15	No
Dissolved Reactive Phosphorus	g/m^3	0.984 ± 0.051	0.85 – 1.15	No

Low QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13073.9				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m^3	10.21 ± 0.60	9.2 – 11.1	No
Sulphate	g/m^3	10.96 ± 0.81	8.9 – 11.2	No

High QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13073.10				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Chloride	g/m³	99.8 ± 4.8	90 – 110	No
Sulphate	g/m³	101.8 ± 6.8	90 – 110	No

Filt MA QC PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13073.59				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Chloride	g/m³	9.46 ± 0.57	8.4 – 10.8	No
Sulphate	g/m³	9.06 ± 0.69	8.3 – 10.5	No

Solids QC - Total Dissolved Solids - Chch: 2097.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Dissolved Solids (TDS)	g/m³	980 ± 160	800 – 1,200	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23450.18				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Arsenic	g/m³	0.0479 ± 0.0030	0.045 – 0.055	No
Total Boron	g/m³	0.096 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0493 ± 0.0040	0.045 – 0.055	No
Total Chromium	g/m³	0.0500 ± 0.0041	0.045 – 0.055	No
Total Copper	g/m³	0.0505 ± 0.0051	0.045 – 0.055	No
Total Lead	g/m³	0.0490 ± 0.0030	0.045 – 0.055	No
Total Nickel	g/m³	0.0488 ± 0.0059	0.045 – 0.055	No
Total Zinc	g/m³	0.471 ± 0.038	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23452.23				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Arsenic	g/m³	0.0511 ± 0.0032	0.045 – 0.055	No
Total Boron	g/m³	0.099 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0493 ± 0.0040	0.045 – 0.055	No
Total Chromium	g/m³	0.0486 ± 0.0040	0.045 – 0.055	No
Total Copper	g/m³	0.0495 ± 0.0050	0.045 – 0.055	No
Total Lead	g/m³	0.0506 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m³	0.0498 ± 0.0060	0.045 – 0.055	No
Total Zinc	g/m³	0.495 ± 0.040	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23456.22				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Arsenic	g/m³	0.0496 ± 0.0031	0.045 – 0.055	No
Total Boron	g/m³	0.098 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0483 ± 0.0039	0.045 – 0.055	No
Total Chromium	g/m³	0.0504 ± 0.0041	0.045 – 0.055	No
Total Copper	g/m³	0.0479 ± 0.0049	0.045 – 0.055	No
Total Lead	g/m³	0.0509 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m³	0.0483 ± 0.0059	0.045 – 0.055	No
Total Zinc	g/m³	0.481 ± 0.039	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.18				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Arsenic	g/m³	0.0505 ± 0.0032	0.045 – 0.055	No
Total Boron	g/m³	0.099 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0486 ± 0.0039	0.045 – 0.055	No
Total Chromium	g/m³	0.0485 ± 0.0039	0.045 – 0.055	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.18				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Copper	g/m^3	0.0497 ± 0.0050	0.045 – 0.055	No
Total Lead	g/m^3	0.0500 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m^3	0.0505 ± 0.0061	0.045 – 0.055	No
Total Zinc	g/m^3	0.484 ± 0.039	0.45 – 0.55	No

NO2N QC - L4C by FIA Worksheet: 12462.7				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Nitrite-N	g/m^3	0.505 ± 0.071	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m^3	0.523 ± 0.063	0.42 – 0.58	No

Replicates

WS: Env. Waters Totals by ICP-MS (EWT): 23456.53				
		Replicate 1	**Replicate 2**	**Pass/Fail**
Total Arsenic	g/m^3	0.00369 ± 0.00077	0.00374 ± 0.00077	Pass
Total Cadmium	g/m^3	< 0.000053 ± 0.000036	< 0.00006 ± 0.000036	Pass
Total Chromium	g/m^3	0.00100 ± 0.00036	0.00087 ± 0.00036	Pass
Total Copper	g/m^3	0.00118 ± 0.00037	0.00106 ± 0.00037	Pass
Total Nickel	g/m^3	0.00219 ± 0.00044	0.00190 ± 0.00042	Pass
Total Lead	g/m^3	0.00499 ± 0.00031	0.00494 ± 0.00031	Pass
Total Zinc	g/m^3	0.0285 ± 0.0024	0.0268 ± 0.0023	Pass
Total Boron	g/m^3	0.110 ± 0.038	0.112 ± 0.038	Pass

Analyst's Comments

#1 The System Monitoring Compound (SMC) recovery was above the acceptable recovery range. The sample results were accepted as there were no target compounds detected.

#2 The Laboratory Control Sample (LCS) spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the sample.

#3 The Laboratory Control spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the samples.

#4 The sample spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the sample.

#5 Control limits have not been established for this analyte.

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Stantec New Zealand	**Lab No:**	4005542 SPv2
Contact:	Ellen Wilson-Hill C/- Stantec New Zealand PO Box 13249 Christchurch 8141	**Date Received:**	10-Oct-2025
		Date Reported:	24-Oct-2025
		Quote No:	140553
		Order No:	310003431
		Client Reference:	310003431
		Submitted By:	Ellen Wilson-Hill

Sample Type: Aqueous

Sample Name:		R2 08-Oct-2025	EVA-BH01 08-Oct-2025	BOW-BH01 08-Oct-2025	BOW-BH08 08-Oct-2025	WAN-BH01 08-Oct-2025
Lab Number:		4005542.1	4005542.2	4005542.3	4005542.4	4005542.5
Individual Tests						
Sum of Anions	meq/L	-	4.9	11.1	5.5	5.6
Sum of Cations	meq/L	-	5.4	11.3	5.6	5.9
pH	pH Units	-	7.1	6.8	7.0	6.8
Total Alkalinity	g/m³ as $CaCO_3$	-	101	94	164	220
Carbonate	g/m³ at 25°C	-	< 1.0	< 1.0 #2	< 1.0	< 1.0
Bicarbonate	g/m³ at 25°C	-	123	115 #2	199	270
Free Carbon Dioxide	g/m³ at 25°C	-	17.2	27 #2	30	79
Total Hardness	g/m³ as $CaCO_3$	-	165	510	104	186
Electrical Conductivity (EC)	mS/m	-	54.8	100.7	58.3	57.4
Total Dissolved Solids (TDS)	g/m³	-	340	790 #2	360	370
Dissolved Boron	g/m³	-	0.07 #1	0.11 #1	0.16	0.08 #1
Total Boron	g/m³	-	0.062 #1	0.110 #1	0.165	0.079 #1
Dissolved Calcium	g/m³	-	48	176	30	42
Dissolved Iron	g/m³	-	0.05	< 0.02	0.05	3.0
Dissolved Magnesium	g/m³	-	11.0	17.6	6.9	19.5
Dissolved Manganese	g/m³	-	0.22	0.50	0.087	1.78
Dissolved Mercury	g/m³	-	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Total Mercury	g/m³	-	< 0.00011	< 0.00011	< 0.00011	< 0.00011
Dissolved Potassium	g/m³	-	8.2	15.9	22	13.5
Dissolved Sodium	g/m³	-	43	13.8	69	30
Chloride	g/m³	-	79	15.8	50	38
Dissolved Inorganic Nitrogen*	g/m³	-	0.31	0.50	1.16	4.3
Total Ammoniacal-N	g/m³	-	0.026	0.50	< 0.010	4.3
Nitrite-N	g/m³	-	0.039	< 0.02 #3	0.100	0.002 #4
Nitrate-N	g/m³	-	0.24	< 0.02	1.06	< 0.002
Nitrate-N + Nitrite-N	g/m³	-	0.28	< 0.02 #3	1.16	< 0.002 #4
Total Kjeldahl Nitrogen (TKN)	g/m³	-	0.61	0.89	0.85	5.8
Dissolved Reactive Phosphorus	g/m³	-	0.007	0.021	0.089	0.114
Sulphate	g/m³	-	32	420	34	5.2
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m³	< 0.0010	< 0.0010	< 0.0010	0.0035	0.0012
Dissolved Cadmium	g/m³	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Dissolved Copper	g/m³	< 0.0005	0.0020	< 0.0005	0.0058	< 0.0005
Dissolved Lead	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Dissolved Nickel	g/m³	< 0.0005	0.0011	0.0012	0.0035 #1	< 0.0005
Dissolved Zinc	g/m³	0.0011	0.0024	0.0036	0.0063 #1	0.0030

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Aqueous						
Sample Name:		R2 08-Oct-2025	EVA-BH01 08-Oct-2025	BOW-BH01 08-Oct-2025	BOW-BH08 08-Oct-2025	WAN-BH01 08-Oct-2025
Lab Number:		4005542.1	4005542.2	4005542.3	4005542.4	4005542.5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	< 0.0011	0.0013	0.0037	0.0037	0.0067
Total Cadmium	g/m³	< 0.000053	< 0.000053	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	< 0.00053	< 0.00053	0.00100	0.00053	0.00114
Total Copper	g/m³	< 0.00053	0.0021	0.00118	0.0060	< 0.00053
Total Lead	g/m³	< 0.00011	0.00018	0.0050	0.00041	0.00045
Total Nickel	g/m³	< 0.00053	0.00115	0.0022	0.0034 #1	< 0.00053
Total Zinc	g/m³	0.0017	0.0026	0.028	0.0058 #1	0.0047
BTEX in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	-	-	-	-
Toluene	g/m³	< 0.0010	-	-	-	-
Ethylbenzene	g/m³	< 0.0010	-	-	-	-
m&p-Xylene	g/m³	< 0.002	-	-	-	-
o-Xylene	g/m³	< 0.0010	-	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Acenaphthene	g/m³	< 0.00010	-	-	-	-
Acenaphthylene	g/m³	< 0.00010	-	-	-	-
Anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	-	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	-	-	-	-
Benzo[g,h,i]perylene	g/m³	< 0.00010	-	-	-	-
Benzo[k]fluoranthene	g/m³	< 0.00010	-	-	-	-
Chrysene	g/m³	< 0.00010	-	-	-	-
Dibenzo[a,h]anthracene	g/m³	< 0.00010	-	-	-	-
Fluoranthene	g/m³	< 0.00010	-	-	-	-
Fluorene	g/m³	< 0.0002	-	-	-	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	-	-	-	-
Naphthalene	g/m³	< 0.0005	-	-	-	-
Phenanthrene	g/m³	< 0.0004	-	-	-	-
Pyrene	g/m³	< 0.0002	-	-	-	-
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Nitrobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
alpha-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
beta-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
delta-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDD	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Dieldrin	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010

Sample Type: Aqueous						
Sample Name:		R2 08-Oct-2025	EVA-BH01 08-Oct-2025	BOW-BH01 08-Oct-2025	BOW-BH08 08-Oct-2025	WAN-BH01 08-Oct-2025
Lab Number:		4005542.1	4005542.2	4005542.3	4005542.4	4005542.5
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Endosulfan II	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Acenaphthylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1&2-Chloronaphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chrysene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Fluorene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Naphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Phenanthrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Pyrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2-Chlorophenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	-	< 0.03	< 0.03	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Diethylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Dimethylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Hexachloroethane	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,2,4-Trichlorobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005

Sample Type: Aqueous						
Sample Name:		R2 08-Oct-2025	EVA-BH01 08-Oct-2025	BOW-BH01 08-Oct-2025	BOW-BH08 08-Oct-2025	WAN-BH01 08-Oct-2025
Lab Number:		4005542.1	4005542.2	4005542.3	4005542.4	4005542.5
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	-	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Isophorone	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Ethylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
m&p-Xylene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Carbon tetrachloride	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibromomethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Vinyl chloride	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
2-Chlorotoluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Chlorotoluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		R2 08-Oct-2025	EVA-BH01 08-Oct-2025	BOW-BH01 08-Oct-2025	BOW-BH08 08-Oct-2025	WAN-BH01 08-Oct-2025
Lab Number:		4005542.1	4005542.2	4005542.3	4005542.4	4005542.5
Haloaromatics in VOC Water by Headspace GC-MS						
1,2,3-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
tert-Butylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
n-Propylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
sec-Butylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Styrene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	-	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	-	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibromochloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005

Sample Name:		LOC-BH01 08-Oct-2025	Trip Blank
Lab Number:		4005542.6	4005542.7
Individual Tests			
Sum of Anions	meq/L	1.46	-
Sum of Cations	meq/L	1.50	-
pH	pH Units	6.9	-
Total Alkalinity	g/m³ as $CaCO_3$	64	-
Carbonate	g/m³ at 25°C	< 1.0	-
Bicarbonate	g/m³ at 25°C	77	-
Free Carbon Dioxide	g/m³ at 25°C	15.3	-
Total Hardness	g/m³ as $CaCO_3$	33	-
Electrical Conductivity (EC)	mS/m	15.2	-
Total Dissolved Solids (TDS)	g/m³	94	-
Dissolved Boron	g/m³	< 0.05	-
Total Boron	g/m³	< 0.053	-
Dissolved Calcium	g/m³	6.5	-
Dissolved Iron	g/m³	0.09	-
Dissolved Magnesium	g/m³	4.1	-
Dissolved Manganese	g/m³	0.31	-
Dissolved Mercury	g/m³	< 0.00010	-
Total Mercury	g/m³	< 0.00011	-
Dissolved Potassium	g/m³	13.4	-
Dissolved Sodium	g/m³	10.1	-
Chloride	g/m³	5.9	-
Dissolved Inorganic Nitrogen*	g/m³	0.138	-
Total Ammoniacal-N	g/m³	0.138	-
Nitrite-N	g/m³	< 0.002	-
Nitrate-N	g/m³	< 0.002	-

Sample Type: Aqueous			
Sample Name:		LOC-BH01 08-Oct-2025	Trip Blank
Lab Number:		4005542.6	4005542.7
Individual Tests			
Nitrate-N + Nitrite-N	g/m³	< 0.002	-
Total Kjeldahl Nitrogen (TKN)	g/m³	1.18	-
Dissolved Reactive Phosphorus	g/m³	< 0.004	-
Sulphate	g/m³	1.2	-
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn			
Dissolved Arsenic	g/m³	0.0011	-
Dissolved Cadmium	g/m³	< 0.00005	-
Dissolved Chromium	g/m³	< 0.0005	-
Dissolved Copper	g/m³	0.0008	-
Dissolved Lead	g/m³	0.00146	-
Dissolved Nickel	g/m³	0.0007	-
Dissolved Zinc	g/m³	1.05	-
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn			
Total Arsenic	g/m³	0.022	-
Total Cadmium	g/m³	0.00029	-
Total Chromium	g/m³	0.0095	-
Total Copper	g/m³	0.0152	-
Total Lead	g/m³	0.46	-
Total Nickel	g/m³	0.0092	-
Total Zinc	g/m³	2.8	-
Haloethers in SVOC Water Samples by GC-MS			
Bis(2-chloroethoxy) methane	g/m³	< 0.005	-
Bis(2-chloroethyl)ether	g/m³	< 0.005	-
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	-
4-Bromophenyl phenyl ether	g/m³	< 0.005	-
4-Chlorophenyl phenyl ether	g/m³	< 0.005	-
Nitrogen containing compounds in SVOC Water Samples by GC-MS*			
2,4-Dinitrotoluene	g/m³	< 0.010	-
2,6-Dinitrotoluene	g/m³	< 0.010	-
Nitrobenzene	g/m³	< 0.005	-
N-Nitrosodi-n-propylamine	g/m³	< 0.010	-
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	-
Organochlorine Pesticides in SVOC Water Samples by GC-MS			
Aldrin	g/m³	< 0.005	-
alpha-BHC	g/m³	< 0.005	-
beta-BHC	g/m³	< 0.005	-
delta-BHC	g/m³	< 0.005	-
gamma-BHC (Lindane)	g/m³	< 0.005	-
4,4'-DDD	g/m³	< 0.005	-
4,4'-DDE	g/m³	< 0.005	-
4,4'-DDT	g/m³	< 0.010	-
Dieldrin	g/m³	< 0.005	-
Endosulfan I	g/m³	< 0.010	-
Endosulfan II	g/m³	< 0.010	-
Endosulfan sulphate	g/m³	< 0.010	-
Endrin	g/m³	< 0.010	-
Endrin ketone	g/m³	< 0.010	-
Heptachlor	g/m³	< 0.005	-
Heptachlor epoxide	g/m³	< 0.005	-
Hexachlorobenzene	g/m³	< 0.005	-
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS			
Acenaphthene	g/m³	< 0.003	-
Acenaphthylene	g/m³	< 0.003	-
Anthracene	g/m³	< 0.003	-

Sample Type: Aqueous			
Sample Name:		LOC-BH01 08-Oct-2025	Trip Blank
Lab Number:		4005542.6	4005542.7
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS			
Benzo[a]anthracene	g/m³	< 0.003	-
Benzo[a]pyrene (BAP)	g/m³	< 0.003	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	-
Benzo[g,h,i]perylene	g/m³	< 0.003	-
Benzo[k]fluoranthene	g/m³	< 0.003	-
1&2-Chloronaphthalene	g/m³	< 0.003	-
Chrysene	g/m³	< 0.003	-
Dibenzo[a,h]anthracene	g/m³	< 0.003	-
Fluoranthene	g/m³	< 0.003	-
Fluorene	g/m³	< 0.003	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	-
2-Methylnaphthalene	g/m³	< 0.003	-
Naphthalene	g/m³	< 0.003	-
Phenanthrene	g/m³	< 0.003	-
Pyrene	g/m³	< 0.003	-
Phenols in SVOC Water Samples by GC-MS			
4-Chloro-3-methylphenol	g/m³	< 0.010	-
2-Chlorophenol	g/m³	< 0.005	-
2,4-Dichlorophenol	g/m³	< 0.005	-
2,4-Dimethylphenol	g/m³	< 0.005	-
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	-
2-Methylphenol (o-Cresol)	g/m³	< 0.005	-
2-Nitrophenol	g/m³	< 0.010	-
Pentachlorophenol (PCP)	g/m³	< 0.10	-
Phenol	g/m³	< 0.010	-
2,4,5-Trichlorophenol	g/m³	< 0.010	-
2,4,6-Trichlorophenol	g/m³	< 0.010	-
Plasticisers in SVOC Water Samples by GC-MS			
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	-
Butylbenzylphthalate	g/m³	< 0.010	-
Di(2-ethylhexyl)adipate	g/m³	< 0.005	-
Diethylphthalate	g/m³	< 0.010	-
Dimethylphthalate	g/m³	< 0.010	-
Di-n-butylphthalate	g/m³	< 0.010	-
Di-n-octylphthalate	g/m³	< 0.010	-
Other Halogenated compounds in SVOC Water Samples by GC-MS			
1,2-Dichlorobenzene	g/m³	< 0.010	-
1,3-Dichlorobenzene	g/m³	< 0.010	-
1,4-Dichlorobenzene	g/m³	< 0.010	-
Hexachlorobutadiene	g/m³	< 0.010	-
Hexachloroethane	g/m³	< 0.010	-
1,2,4-Trichlorobenzene	g/m³	< 0.005	-
Other compounds in SVOC Water Samples by GC-MS			
Benzyl alcohol	g/m³	< 0.05	-
Carbazole	g/m³	< 0.005	-
Dibenzofuran	g/m³	< 0.005	-
Isophorone	g/m³	< 0.005	-
Total Petroleum Hydrocarbons in Water			
C7 - C9	g/m³	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7

Sample Type: Aqueous			
Sample Name:		LOC-BH01 08-Oct-2025	Trip Blank
Lab Number:		4005542.6	4005542.7
BTEX in VOC Water by Headspace GC-MS			
Benzene	g/m³	< 0.003	< 0.003
Ethylbenzene	g/m³	< 0.005	< 0.005
Toluene	g/m³	< 0.003	< 0.003
m&p-Xylene	g/m³	< 0.005	< 0.005
o-Xylene	g/m³	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS			
Bromomethane (Methyl Bromide)	g/m³	< 0.003	< 0.003
Carbon tetrachloride	g/m³	< 0.003	< 0.003
Chloroethane	g/m³	< 0.003	< 0.003
Chloromethane	g/m³	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003	< 0.003
Dibromomethane	g/m³	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003	< 0.003
Vinyl chloride	g/m³	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS			
Bromobenzene	g/m³	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003	< 0.003
2-Chlorotoluene	g/m³	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	< 0.003	< 0.003
4-Chlorotoluene	g/m³	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m³	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS			
n-Butylbenzene	g/m³	< 0.005	< 0.005
tert-Butylbenzene	g/m³	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	< 0.003	< 0.003
n-Propylbenzene	g/m³	< 0.005	< 0.005
sec-Butylbenzene	g/m³	< 0.003	< 0.003

Sample Type: Aqueous			
Sample Name:		LOC-BH01 08-Oct-2025	Trip Blank
Lab Number:		4005542.6	4005542.7
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS			
Styrene	g/m³	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS			
Acetone	g/m³	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS			
Bromodichloromethane	g/m³	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	< 0.003	< 0.003
Dibromochloromethane	g/m³	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS			
Carbon disulphide	g/m³	< 0.005	< 0.005
Naphthalene	g/m³	< 0.005	< 0.005

Analyst's Comments

#1 It has been noted that the result for the dissolved fraction was greater than that for the total fraction, but within analytical variation of the methods.

#2 Please note that the calculation used to determine the carbonate and bicarbonate content is only valid when the total dissolved solids (TDS) content is <500mg/L. It was observed that the TDS content of this sample is >500mg/L, therefore these results should be treated as indicative only.

#3 Severe matrix interferences required that a dilution be performed prior to analysis, resulting in a detection limit higher than that normally achieved for the NO2N, NO3N and NOxN analysis.

#4 It has been noted that the result for Nitrite-N was greater than that for Nitrate-N + Nitrite-N, but within the analytical variation of these methods.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	2-6
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-6
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	2-6
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	2-6
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	2-6
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	2-6

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	2-6
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-6
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-6
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-6
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	2-6
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	2-6
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	2-6
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B : Online Edition.	-	2-6
Filtration for dissolved metals analysis - HCl	Sample filtration through 0.45µm membrane filter and preservation with nitric and hydrochloric acid. APHA 3030 B : Online Edition.	-	2-6
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	2-6
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	2-6
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	2-6
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	2-6
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	2-6
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m^3	2-6
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m^3	2-6
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m^3	2-6
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	2-6
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	2-6
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	2-6
Dissolved Inorganic Nitrogen*	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m^3	2-6
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m^3	2-6
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	2-6
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m^3	2-6
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	2-6
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m^3	2-6
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m^3	2-6

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	2-6
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m³	1-6
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m³	1-6
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m³	1
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m³	1
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m³	2-6
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m³	2-7
Dissolved Inorganic Nitrogen*		0.002 - 0.010 g/m³	2-6
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m³	1-7
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m³	1-7
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m³	1-7
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m³	1-7

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 10-Oct-2025 and 24-Oct-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Kim Harrison MSc
Client Services Manager - Environmental

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Stantec New Zealand	**Lab No:**	4005975 SPv2
Contact:	Ellen Wilson-Hill C/- Stantec New Zealand PO Box 13249 Christchurch 8141	**Date Received:**	10-Oct-2025
		Date Reported:	28-Oct-2025
		Quote No:	140553
		Order No:	
		Client Reference:	310003431
		Submitted By:	Ellen Wilson-Hill

Sample Type: Aqueous

Sample Name:		R3 09-Oct-2025	R1V-BH04 09-Oct-2025	BR1-BH02 09-Oct-2025	LY-BH01 09-Oct-2025	LKS-BH01 09-Oct-2025
Lab Number:		4005975.1	4005975.2	4005975.3	4005975.4	4005975.5
Individual Tests						
Sum of Anions	meq/L	-	3.7	6.6	4.6	10.6
Sum of Cations	meq/L	-	4.0	7.2	4.6	10.4
pH	pH Units	-	7.4	7.4	7.1	7.3
Total Alkalinity	g/m^3 as $CaCO_3$	-	127	210	149	440
Carbonate	g/m^3 at 25°C	-	< 1.0	< 1.0	< 1.0	< 1.0 #2
Bicarbonate	g/m^3 at 25°C	-	154	260	181	540 #2
Free Carbon Dioxide	g/m^3 at 25°C	-	10.3	17.5	25	42 #2
Total Hardness	g/m^3 as $CaCO_3$	-	102	220	150	390
Electrical Conductivity (EC)	mS/m	-	38.6	66.7	46.0	97.7
Total Dissolved Solids (TDS)	g/m^3	-	230	410	270	640 #2
Dissolved Boron	g/m^3	-	0.12 #1	0.24 #1	0.13	0.120
Total Boron	g/m^3	-	0.116 #1	0.24 #1	0.131	0.134
Dissolved Calcium	g/m^3	-	21	55	42	129
Dissolved Iron	g/m^3	-	0.58	2.4	0.21	7.5
Dissolved Magnesium	g/m^3	-	11.9	21	10.7	17.5
Dissolved Manganese	g/m^3	-	0.29	0.40	0.123	3.3
Dissolved Mercury	g/m^3	-	< 0.00010	< 0.00010	< 0.00010	< 0.000105
Total Mercury	g/m^3	-	< 0.00011	< 0.00011	< 0.00011	< 0.00011
Dissolved Potassium	g/m^3	-	6.1	1.95	4.4	18.4
Dissolved Sodium	g/m^3	-	40	58	34	35
Chloride	g/m^3	-	27	73	31	33
Dissolved Inorganic Nitrogen*	g/m^3	-	0.41	0.061	0.033	1.84
Total Ammoniacal-N	g/m^3	-	0.41	0.058	0.025	1.84
Nitrite-N	g/m^3	-	< 0.002	< 0.002	< 0.002	< 0.002
Nitrate-N	g/m^3	-	< 0.002	< 0.002	0.008	< 0.002
Nitrate-N + Nitrite-N	g/m^3	-	< 0.002	0.002	0.008	< 0.002
Total Kjeldahl Nitrogen (TKN)	g/m^3	-	0.80	0.84	0.21	3.6
Dissolved Reactive Phosphorus	g/m^3	-	0.035	0.030	< 0.004	0.041
Sulphate	g/m^3	-	21	18.4	34	39
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m^3	< 0.0010	0.0018	0.0059	< 0.0010	0.0022
Dissolved Cadmium	g/m^3	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.000053
Dissolved Chromium	g/m^3	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0025 #1
Dissolved Copper	g/m^3	0.0006	0.0009 #1	0.0012	0.0009	0.00114
Dissolved Lead	g/m^3	0.00012	0.0029 #1	0.00077	0.00176	0.0048
Dissolved Nickel	g/m^3	< 0.0005	0.0008 #1	0.0008	0.0012 #1	0.00143
Dissolved Zinc	g/m^3	0.0059	0.60 #1	2.1	0.32	0.34

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Aqueous						
Sample Name:		R3 09-Oct-2025	R1V-BH04 09-Oct-2025	BR1-BH02 09-Oct-2025	LY-BH01 09-Oct-2025	LKS-BH01 09-Oct-2025
Lab Number:		4005975.1	4005975.2	4005975.3	4005975.4	4005975.5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	< 0.0011	0.0020	0.0073	< 0.0011	0.0025
Total Cadmium	g/m³	< 0.000053	< 0.000053	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	< 0.00053	< 0.00053	0.00080	< 0.00053	0.0023 #1
Total Copper	g/m³	0.00076	0.00072 #1	0.00162	0.00111	0.00118
Total Lead	g/m³	0.00020	0.0028 #1	0.0039	0.00186	0.0058
Total Nickel	g/m³	< 0.00053	< 0.00053 #1	0.00102	0.00110 #1	0.00153
Total Zinc	g/m³	0.0073	0.56 #1	2.8	0.32	0.41
BTEX in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	-	-	-	-
Toluene	g/m³	< 0.0010	-	-	-	-
Ethylbenzene	g/m³	< 0.0010	-	-	-	-
m&p-Xylene	g/m³	< 0.002	-	-	-	-
o-Xylene	g/m³	< 0.0010	-	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Acenaphthene	g/m³	< 0.00010	-	-	-	-
Acenaphthylene	g/m³	< 0.00010	-	-	-	-
Anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	-	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	-	-	-	-
Benzo[g,h,i]perylene	g/m³	< 0.00010	-	-	-	-
Benzo[k]fluoranthene	g/m³	< 0.00010	-	-	-	-
Chrysene	g/m³	< 0.00010	-	-	-	-
Dibenzo[a,h]anthracene	g/m³	< 0.00010	-	-	-	-
Fluoranthene	g/m³	< 0.00010	-	-	-	-
Fluorene	g/m³	< 0.0002	-	-	-	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	-	-	-	-
Naphthalene	g/m³	< 0.0005	-	-	-	-
Phenanthrene	g/m³	< 0.0004	-	-	-	-
Pyrene	g/m³	< 0.0002	-	-	-	-
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Nitrobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
alpha-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
beta-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
delta-BHC	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDD	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Dieldrin	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010

Sample Type: Aqueous						
Sample Name:		R3 09-Oct-2025	R1V-BH04 09-Oct-2025	BR1-BH02 09-Oct-2025	LY-BH01 09-Oct-2025	LKS-BH01 09-Oct-2025
Lab Number:		4005975.1	4005975.2	4005975.3	4005975.4	4005975.5
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Endosulfan II	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Acenaphthylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1&2-Chloronaphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chrysene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Fluoranthene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Fluorene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Naphthalene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Phenanthrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Pyrene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2-Chlorophenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	-	< 0.03	< 0.03	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Diethylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Dimethylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
Hexachloroethane	g/m³	-	< 0.010	< 0.010	< 0.010	< 0.010
1,2,4-Trichlorobenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005

Sample Type: Aqueous						
Sample Name:		R3 09-Oct-2025	R1V-BH04 09-Oct-2025	BR1-BH02 09-Oct-2025	LY-BH01 09-Oct-2025	LKS-BH01 09-Oct-2025
Lab Number:		4005975.1	4005975.2	4005975.3	4005975.4	4005975.5
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	-	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Isophorone	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Ethylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	g/m³	-	< 0.003	0.006	< 0.003	< 0.003
m&p-Xylene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Carbon tetrachloride	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dibromomethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Vinyl chloride	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
2-Chlorotoluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Chlorotoluene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		R3 09-Oct-2025	R1V-BH04 09-Oct-2025	BR1-BH02 09-Oct-2025	LY-BH01 09-Oct-2025	LKS-BH01 09-Oct-2025
Lab Number:		4005975.1	4005975.2	4005975.3	4005975.4	4005975.5
Haloaromatics in VOC Water by Headspace GC-MS						
1,2,3-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
tert-Butylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
n-Propylbenzene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
sec-Butylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Styrene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	-	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	-	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	-	< 0.10	< 0.10	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	-	< 0.003	0.004	< 0.003	< 0.003
Dibromochloromethane	g/m³	-	< 0.003	< 0.003	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	g/m³	-	< 0.005	< 0.005	< 0.005	< 0.005

Sample Name:		HS-BH01 09-Oct-2025	AVD-BH01 10-Oct-2025	AVO-BH02 10-Oct-2025	DUD-BH02 10-Oct-2025	PS-BH01 10-Oct-2025
Lab Number:		4005975.6	4005975.7	4005975.8	4005975.9	4005975.10
Individual Tests						
Sum of Anions	meq/L	8.2	7.3	14.3	7.2	2.3
Sum of Cations	meq/L	8.1	7.5	14.7	7.1	2.2
pH	pH Units	6.9	6.5	6.8	7.2	7.3
Total Alkalinity	g/m³ as $CaCO_3$	189	250	410	250	66
Carbonate	g/m³ at 25°C	< 1.0 #2	< 1.0 #2	< 1.0 #2	< 1.0	< 1.0
Bicarbonate	g/m³ at 25°C	230 #2	300 #2	500 #2	310	81
Free Carbon Dioxide	g/m³ at 25°C	49 #2	145 #2	119 #2	33	6.3
Total Hardness	g/m³ as $CaCO_3$	340	260	560	270	71
Electrical Conductivity (EC)	mS/m	81.7	73.8	140.5	70.6	24.9
Total Dissolved Solids (TDS)	g/m³	570 #2	530 #2	950 #2	440	137
Dissolved Boron	g/m³	< 0.05	0.42	0.25 #1	0.10 #1	0.17
Total Boron	g/m³	< 0.053	0.47	0.25 #1	0.093 #1	0.196
Dissolved Calcium	g/m³	101	76	198	91	22
Dissolved Iron	g/m³	0.65	9.6	< 0.02	0.54	0.17
Dissolved Magnesium	g/m³	21	15.8	17.2	10.9	4.0
Dissolved Manganese	g/m³	0.95	2.5	0.064	0.23	0.154
Dissolved Mercury	g/m³	< 0.00010	< 0.000105	< 0.00010	< 0.00010	< 0.00010
Total Mercury	g/m³	< 0.00011	< 0.00011	0.00016	< 0.00011	0.00024
Dissolved Potassium	g/m³	7.6	2.1	1.71	9.2	4.8
Dissolved Sodium	g/m³	25	42	78	30	14.5
Chloride	g/m³	59	64	168	41	20
Dissolved Inorganic Nitrogen*	g/m³	0.066	1.02	< 0.011	0.136	0.91
Total Ammoniacal-N	g/m³	0.065	0.98	< 0.010	0.054	0.30
Nitrite-N	g/m³	< 0.002	0.015	0.002	< 0.002	0.013

Sample Type: Aqueous						
Sample Name:		HS-BH01 09-Oct-2025	AVD-BH01 10-Oct-2025	AVO-BH02 10-Oct-2025	DUD-BH02 10-Oct-2025	PS-BH01 10-Oct-2025
Lab Number:		4005975.6	4005975.7	4005975.8	4005975.9	4005975.10
Individual Tests						
Nitrate-N	g/m³	< 0.002	0.026	< 0.002	0.080	0.59
Nitrate-N + Nitrite-N	g/m³	< 0.002	0.041	0.003	0.082	0.60
Total Kjeldahl Nitrogen (TKN)	g/m³	0.4	2.9	1.41	1.21	1.55
Dissolved Reactive Phosphorus	g/m³	< 0.004	< 0.004	0.063	< 0.004	< 0.004
Sulphate	g/m³	132	26	67	48	15.8
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m³	< 0.0010	0.0188 #1	0.0031	0.0031	< 0.0010
Dissolved Cadmium	g/m³	< 0.00005	0.00031	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m³	< 0.0005	0.0033	< 0.0005	< 0.0005	< 0.0005
Dissolved Copper	g/m³	< 0.0005	0.0031	0.0123	0.0069	0.0017
Dissolved Lead	g/m³	< 0.00010	0.0031	0.0067	0.0033	0.0021
Dissolved Nickel	g/m³	0.0014	0.021	0.0049	0.0013	0.0010
Dissolved Zinc	g/m³	0.0087 #1	1.09 #1	0.36 #1	0.80	0.24
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	0.035	0.0159 #1	0.0055	0.0058	0.042
Total Cadmium	g/m³	< 0.000053	0.00031	0.000191	0.000118	0.00138
Total Chromium	g/m³	0.00064	0.0036	0.00198	0.0093	0.157
Total Copper	g/m³	0.00064	0.0036	0.023	0.0175	0.122
Total Lead	g/m³	0.00062	0.0047	0.053	0.085	7.2
Total Nickel	g/m³	0.00176	0.021	0.0060	0.0089	0.0159
Total Zinc	g/m³	0.0085 #1	1.09 #1	0.29 #1	1.08	7.1
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
alpha-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
beta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
delta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDD	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dieldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		HS-BH01 09-Oct-2025	AVD-BH01 10-Oct-2025	AVO-BH02 10-Oct-2025	DUD-BH02 10-Oct-2025	PS-BH01 10-Oct-2025
Lab Number:		4005975.6	4005975.7	4005975.8	4005975.9	4005975.10
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1&2-Chloronaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chrysene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluorene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Naphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenanthrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Chlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Diethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dimethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachloroethane	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,2,4-Trichlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isophorone	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7

Sample Type: Aqueous						
Sample Name:		HS-BH01 09-Oct-2025	AVD-BH01 10-Oct-2025	AVO-BH02 10-Oct-2025	DUD-BH02 10-Oct-2025	PS-BH01 10-Oct-2025
Lab Number:		4005975.6	4005975.7	4005975.8	4005975.9	4005975.10
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Ethylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	g/m³	< 0.003	0.004	< 0.003	< 0.003	< 0.003
m&p-Xylene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Carbon tetrachloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromomethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Vinyl chloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tert-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
n-Propylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
sec-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		HS-BH01 09-Oct-2025	AVD-BH01 10-Oct-2025	AVO-BH02 10-Oct-2025	DUD-BH02 10-Oct-2025	PS-BH01 10-Oct-2025
Lab Number:		4005975.6	4005975.7	4005975.8	4005975.9	4005975.10
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
Styrene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromochloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Sample Name:		DUP1 09-Oct-2025	R4 09-Oct-2025	DUP2 09-Oct-2025	Trip Blank 2	Trip Blank 3
Lab Number:		4005975.11	4005975.12	4005975.13	4005975.14	4005975.15
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m³	0.035 #1	< 0.0010	0.030	-	-
Dissolved Cadmium	g/m³	< 0.00005	< 0.00005	0.00036	-	-
Dissolved Chromium	g/m³	< 0.0005	< 0.0005	0.0037	-	-
Dissolved Copper	g/m³	0.0005	0.0006	0.0040	-	-
Dissolved Lead	g/m³	0.00047	0.00017	0.0080	-	-
Dissolved Nickel	g/m³	0.0014	< 0.0005	0.021	-	-
Dissolved Zinc	g/m³	0.0078	0.0079	1.14	-	-
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	0.033 #1	< 0.0011	0.031	-	-
Total Cadmium	g/m³	< 0.000053	< 0.000053	0.00039	-	-
Total Chromium	g/m³	< 0.00053	< 0.00053	0.0044	-	-
Total Copper	g/m³	0.00066	0.00062	0.0055	-	-
Total Lead	g/m³	0.00052	0.00027	0.0143	-	-
Total Nickel	g/m³	0.00175	< 0.00053	0.022	-	-
Total Zinc	g/m³	0.0088	0.0081	1.20	-	-
BTEX in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	< 0.0010	< 0.0010	-	-
Toluene	g/m³	< 0.0010	< 0.0010	0.0053	-	-
Ethylbenzene	g/m³	< 0.0010	< 0.0010	< 0.0010	-	-
m&p-Xylene	g/m³	< 0.002	< 0.002	< 0.002	-	-
o-Xylene	g/m³	< 0.0010	< 0.0010	< 0.0010	-	-
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Acenaphthene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Acenaphthylene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Benzo[a]anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Benzo[g,h,i]perylene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Benzo[k]fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Chrysene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Dibenzo[a,h]anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-

Sample Type: Aqueous						
Sample Name:		DUP1 09-Oct-2025	R4 09-Oct-2025	DUP2 09-Oct-2025	Trip Blank 2	Trip Blank 3
Lab Number:		4005975.11	4005975.12	4005975.13	4005975.14	4005975.15
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Fluorene	g/m³	< 0.0002	< 0.0002	< 0.0002	-	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	< 0.00010	< 0.00010	-	-
Naphthalene	g/m³	< 0.0005	< 0.0005	< 0.0005	-	-
Phenanthrene	g/m³	< 0.0004	< 0.0004	< 0.0004	-	-
Pyrene	g/m³	< 0.0002	< 0.0002	< 0.0002	-	-
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	-	-	-	< 0.003	< 0.003
Ethylbenzene	g/m³	-	-	-	< 0.005	< 0.005
Toluene	g/m³	-	-	-	< 0.003	< 0.003
m&p-Xylene	g/m³	-	-	-	< 0.005	< 0.005
o-Xylene	g/m³	-	-	-	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	-	-	-	< 0.003	< 0.003
Carbon tetrachloride	g/m³	-	-	-	< 0.003	< 0.003
Chloroethane	g/m³	-	-	-	< 0.003	< 0.003
Chloromethane	g/m³	-	-	-	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	-	-	-	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	-	-	-	< 0.003	< 0.003
Dibromomethane	g/m³	-	-	-	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	-	-	-	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	-	-	-	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	-	-	-	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	-	-	-	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	-	-	-	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	-	-	-	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	-	-	-	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	-	-	-	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	-	-	-	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	-	-	-	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	-	-	-	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	-	-	-	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	-	-	-	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	-	-	-	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	-	-	-	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	-	-	-	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	-	-	-	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	-	-	-	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	-	-	-	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	-	-	-	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	-	-	-	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	-	-	-	< 0.003	< 0.003
Vinyl chloride	g/m³	-	-	-	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	-	-	-	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	-	-	-	< 0.003	< 0.003
2-Chlorotoluene	g/m³	-	-	-	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	-	-	-	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	-	-	-	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	-	-	-	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		DUP1 09-Oct-2025	R4 09-Oct-2025	DUP2 09-Oct-2025	Trip Blank 2	Trip Blank 3
Lab Number:		4005975.11	4005975.12	4005975.13	4005975.14	4005975.15
Haloaromatics in VOC Water by Headspace GC-MS						
4-Chlorotoluene	g/m³	-	-	-	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m³	-	-	-	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	-	-	-	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	-	-	-	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	-	-	-	< 0.005	< 0.005
tert-Butylbenzene	g/m³	-	-	-	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	-	-	-	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	-	-	-	< 0.003	< 0.003
n-Propylbenzene	g/m³	-	-	-	< 0.005	< 0.005
sec-Butylbenzene	g/m³	-	-	-	< 0.003	< 0.003
Styrene	g/m³	-	-	-	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	-	-	-	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	-	-	-	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	-	-	-	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	-	-	-	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	-	-	-	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	-	-	-	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	-	-	-	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	-	-	-	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	-	-	-	< 0.003	< 0.003
Dibromochloromethane	g/m³	-	-	-	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	-	-	-	< 0.005	< 0.005
Naphthalene	g/m³	-	-	-	< 0.005	< 0.005

Analyst's Comments

It should be noted that a precipitate was observed in the filtered nitric preserved fraction of sample 5(LKS-BH01), sample 7(AVD-BH01) and sample 13(DUP2). In order to analyse these samples for dissolved metals, an additional digestion step was required on the filtrate to re-dissolve the precipitate prior to analysis.

It has been noted that some of the System Monitoring Compounds in the SVOC analysis on sample 4005975.10 had lower than expected recoveries, whereby 2-fluorophenol and Phenol-d5 was 38%. Therefore the phenolic compounds may be underestimated.

#1 It has been noted that the result for the dissolved fraction was greater than that for the total fraction, but within analytical variation of the methods.

#2 Please note that the calculation used to determine the carbonate and bicarbonate content is only valid when the total dissolved solids (TDS) content is <500mg/L. It was observed that the TDS content of this sample is >500mg/L, therefore these results should be treated as indicative only.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	2-10
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-13
Total Digestion after Filtration	Sample filtration through 0.45µm membrane filter followed by nitric acid digestion. Required for samples which precipitate after filtration. APHA 3030 E (modified) : Online Edition.	-	5, 7, 13

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	2-10
Total Digestion with HCl after Filtration	Sample filtration through 0.45µm membrane filter followed by nitric/hydrochloric acid digestion. Required for samples which precipitate after filtration. APHA 3030 E (modified) : Online Edition.	-	5, 7
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	2-10
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	2-10
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	2-10
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	2-10
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-10
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-10
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	2-10
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	2-10
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	2-10
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	2-10
Filtration for dissolved metals analysis	Sample filtration through 0.45µm membrane filter and preservation with nitric acid. APHA 3030 B : Online Edition.	-	6, 8
Filtration for dissolved metals analysis - HCl	Sample filtration through 0.45µm membrane filter and preservation with nitric and hydrochloric acid. APHA 3030 B : Online Edition.	-	6, 8
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	2-4, 6, 8-10
Dissolved Boron	Filtered sample, nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	5, 7
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	2-10
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	2-4, 6, 8-10
Dissolved Calcium	Filtered sample, nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	5, 7
Dissolved Iron	Filtered sample, nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	5, 7
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	2-4, 6, 8-10
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	2-4, 6, 8-10
Dissolved Magnesium	Filtered sample, nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m^3	5, 7

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Dissolved Manganese	Filtered sample, nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m³	5, 7
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m³	2-4, 6, 8-10
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m³	2-4, 6, 8-10
Dissolved Mercury	Filtered sample, nitric/hydrochloric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000105 g/m³	5, 7
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m³	2-10
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m³	2-4, 6, 8-10
Dissolved Potassium	Filtered sample, nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m³	5, 7
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m³	2-4, 6, 8-10
Dissolved Sodium	Filtered sample, nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m³	5, 7
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	2-10
Dissolved Inorganic Nitrogen*	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m³	2-10
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m³	2-10
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	2-10
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m³	2-10
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	2-10
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m³	2-10
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m³	2-10
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	2-10
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0011 g/m³	5, 7, 13
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m³	1-4, 6, 8-12
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m³	1-13
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m³	1, 11-13
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m³	1, 11-13
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m³	2-10
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m³	2-10, 14-15
Dissolved Inorganic Nitrogen*		0.002 - 0.010 g/m³	2-10
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m³	1-15
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m³	1-15
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m³	1-15
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m³	1-15

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 11-Oct-2025 and 28-Oct-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Quality Assurance Report

Client:	Stantec New Zealand	**Lab No:**	4005975	QCPv1
Contact:	Ellen Wilson-Hill	**Date Received:**	10-Oct-2025	
	C/- Stantec New Zealand	**Date Reported:**	28-Oct-2025	
	PO Box 13249	**Quote No:**	140553	
	Christchurch 8141	**Order No:**		
		Client Reference:	310003431	
		Submitted By:	Ellen Wilson-Hill	

Sample Specific QCs

BTEX in Water by Headspace GC-MS

		4005975.1	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	102	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq

		4005975.1	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	123	40 – 130	No
Benzo[a]pyrene-d12	%	135	40 – 130	**Yes** #1
Fluoranthene-d10	%	112	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS

		4005975.2	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	79	40 – 120	No
2-fluorophenol	%	60	40 – 120	No
Nitrobenzene-d5	%	78	40 – 120	No
Phenol-d5	%	50	40 – 120	No
Terphenyl-d14	%	48	40 – 120	No
2,4,6-Tribromophenol	%	84	40 – 120	No

System monitoring Compounds for VOC - % Recovery

		4005975.2	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	93	80 – 120	No
Dibromofluoromethane	%	97	80 – 120	No
Toluene-d8	%	96	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS

		4005975.3	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	70	40 – 120	No
2-fluorophenol	%	52	40 – 120	No
Nitrobenzene-d5	%	69	40 – 120	No
Phenol-d5	%	46	40 – 120	No
Terphenyl-d14	%	40	40 – 120	No
2,4,6-Tribromophenol	%	74	40 – 120	No

System monitoring Compounds for VOC - % Recovery

		4005975.3	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	94	80 – 120	No
Dibromofluoromethane	%	98	80 – 120	No
Toluene-d8	%	96	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005975.4	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	75	40 – 120	No
2-fluorophenol	%	56	40 – 120	No
Nitrobenzene-d5	%	73	40 – 120	No
Phenol-d5	%	47	40 – 120	No
Terphenyl-d14	%	48	40 – 120	No
2,4,6-Tribromophenol	%	79	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.4	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	93	80 – 120	No
Dibromofluoromethane	%	100	80 – 120	No
Toluene-d8	%	95	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005975.5	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	79	40 – 120	No
2-fluorophenol	%	68	40 – 120	No
Nitrobenzene-d5	%	79	40 – 120	No
Phenol-d5	%	62	40 – 120	No
Terphenyl-d14	%	36	40 – 120	**Yes**
2,4,6-Tribromophenol	%	72	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.5	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	93	80 – 120	No
Dibromofluoromethane	%	98	80 – 120	No
Toluene-d8	%	96	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005975.6	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	79	40 – 120	No
2-fluorophenol	%	66	40 – 120	No
Nitrobenzene-d5	%	77	40 – 120	No
Phenol-d5	%	57	40 – 120	No
Terphenyl-d14	%	52	40 – 120	No
2,4,6-Tribromophenol	%	83	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.6	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	93	80 – 120	No
Dibromofluoromethane	%	112	80 – 120	No
Toluene-d8	%	92	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005975.7	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	78	40 – 120	No
2-fluorophenol	%	59	40 – 120	No
Nitrobenzene-d5	%	74	40 – 120	No
Phenol-d5	%	55	40 – 120	No
Terphenyl-d14	%	29	40 – 120	**Yes**
2,4,6-Tribromophenol	%	78	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.7	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	93	80 – 120	No
Dibromofluoromethane	%	99	80 – 120	No
Toluene-d8	%	95	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005975.8	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	70	40 – 120	No
2-fluorophenol	%	51	40 – 120	No
Nitrobenzene-d5	%	69	40 – 120	No
Phenol-d5	%	46	40 – 120	No
Terphenyl-d14	%	35	40 – 120	**Yes**
2,4,6-Tribromophenol	%	68	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.8	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	99	80 – 120	No
Toluene-d8	%	95	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005975.9	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	88	40 – 120	No
2-fluorophenol	%	68	40 – 120	No
Nitrobenzene-d5	%	91	40 – 120	No
Phenol-d5	%	62	40 – 120	No
Terphenyl-d14	%	130	40 – 120	**Yes**
2,4,6-Tribromophenol	%	89	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.9	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	98	80 – 120	No
Toluene-d8	%	96	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4005975.10	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	56	40 – 120	No
2-fluorophenol	%	38	40 – 120	**Yes**
Nitrobenzene-d5	%	55	40 – 120	No
Phenol-d5	%	38	40 – 120	**Yes**
Terphenyl-d14	%	40	40 – 120	No
2,4,6-Tribromophenol	%	55	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.10	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	99	80 – 120	No
Toluene-d8	%	96	80 – 120	No

BTEX in Water by Headspace GC-MS				
		4005975.11	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	102	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4005975.11	**Control Limits**	**Outside Limit (Yes/No)**
1-methylnaphthalene-d10	%	123	40 – 130	No
Benzo[a]pyrene-d12	%	147	40 – 130	**Yes** #1
Fluoranthene-d10	%	109	40 – 130	No

BTEX in Water by Headspace GC-MS				
		4005975.12	**Control Limits**	**Outside Limit (Yes/No)**
Benzene-d6	%	101	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4005975.12	**Control Limits**	**Outside Limit (Yes/No)**
1-methylnaphthalene-d10	%	123	40 – 130	No
Benzo[a]pyrene-d12	%	133	40 – 130	**Yes** #1
Fluoranthene-d10	%	113	40 – 130	No

BTEX in Water by Headspace GC-MS				
		4005975.13	**Control Limits**	**Outside Limit (Yes/No)**
Benzene-d6	%	91	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4005975.13	**Control Limits**	**Outside Limit (Yes/No)**
1-methylnaphthalene-d10	%	116	40 – 130	No
Benzo[a]pyrene-d12	%	133	40 – 130	**Yes**
Fluoranthene-d10	%	110	40 – 130	No

System monitoring Compounds for VOC - % Recovery				
		4005975.14	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	99	80 – 120	No
Toluene-d8	%	95	80 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4005975.15	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	92	80 – 120	No
Dibromofluoromethane	%	100	80 – 120	No
Toluene-d8	%	96	80 – 120	No

Blank QCs

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22675.16				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Arsenic	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m^3	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m^3	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m^3	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22675.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22675.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

5x Dilution ARBlank PrepWS DissPrep - WS: Environmental Waters by ICP-MS (EW): 22675.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.005 ± 0.00067	-0.0050 – 0.0050	No
Dissolved Boron	g/m³	< 0.3 ± 0.033	-0.25 – 0.25	No
Dissolved Cadmium	g/m³	< 0.0003 ± 0.000033	-0.00025 – 0.00025	No
Dissolved Calcium	g/m³	< 0.3 ± 0.034	-0.25 – 0.25	No
Dissolved Chromium	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Copper	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Iron	g/m³	< 0.10 ± 0.014	-0.100 – 0.100	No
Dissolved Lead	g/m³	< 0.0005 ± 0.000067	-0.00050 – 0.00050	No
Dissolved Magnesium	g/m³	< 0.10 ± 0.014	-0.100 – 0.100	No
Dissolved Manganese	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Nickel	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Potassium	g/m³	< 0.3 ± 0.034	-0.25 – 0.25	No
Dissolved Sodium	g/m³	< 0.10 ± 0.014	-0.100 – 0.100	No
Dissolved Zinc	g/m³	< 0.005 ± 0.00067	-0.0050 – 0.0050	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22676.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22676.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22676.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22676.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22676.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22676.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 374.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 374.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 374.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 374.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23454.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23454.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000037	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23454.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23454.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23454.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

5x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.006 ± 0.00074	-0.0052 – 0.0052	No
Total Boron	g/m³	< 0.27 ± 0.035	-0.26 – 0.26	No
Total Cadmium	g/m³	< 0.0003 ± 0.000036	-0.00026 – 0.00026	No

5x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Chromium	g/m³	< 0.003 ± 0.00036	-0.0026 – 0.0026	No
Total Copper	g/m³	< 0.003 ± 0.00036	-0.0026 – 0.0026	No
Total Lead	g/m³	< 0.0006 ± 0.000074	-0.00052 – 0.00052	No
Total Nickel	g/m³	< 0.003 ± 0.00036	-0.0026 – 0.0026	No
Total Zinc	g/m³	< 0.006 ± 0.00076	-0.0052 – 0.0052	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00040	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00041	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.0012	-0.021 – 0.021	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 375.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 375.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 375.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 375.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	0.00059 ± 0.00036	-0.00052 – 0.00052	**Yes**
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00073	-0.0021 – 0.0021	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00073	-0.0105 – 0.0105	No

10x Prep Dilution, 2x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No

10x Prep Dilution, 2x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.021 ± 0.00078	-0.021 – 0.021	No

10x Vol. Dilution Digest Blank PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.0012	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Filt Blk 1 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.80				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 2 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.93				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 1 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.94				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 2 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.118				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 1 PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.35				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 2 PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.46				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 1 PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 2 PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.71				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 1 PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.109				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 2 PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.126				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 1 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13077.29				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 2 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13077.32				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00073	-0.0021 – 0.0021	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Prep Dilution, 2x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00037	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00073	-0.021 – 0.021	No

100x Vol. Dilution Digest Blank PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.11 ± 0.00074	-0.105 – 0.105	No
Total Boron	g/m³	< 5.3 ± 0.035	-5.2 – 5.2	No
Total Cadmium	g/m³	< 0.0053 ± 0.000039	-0.0052 – 0.0052	No
Total Chromium	g/m³	< 0.053 ± 0.00036	-0.052 – 0.052	No
Total Copper	g/m³	< 0.053 ± 0.00038	-0.052 – 0.052	No
Total Lead	g/m³	< 0.011 ± 0.000074	-0.0105 – 0.0105	No
Total Nickel	g/m³	< 0.053 ± 0.00087	-0.052 – 0.052	No
Total Zinc	g/m³	< 0.11 ± 0.0020	-0.105 – 0.105	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 377.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 377.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 377.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 377.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.13				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Dissolved Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Dissolved Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Dissolved Calcium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Dissolved Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Iron	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Dissolved Magnesium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Manganese	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Potassium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Sodium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.14				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Dissolved Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Dissolved Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Dissolved Calcium	g/m³	< 0.6 ± 0.036	-0.52 – 0.52	No
Dissolved Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Dissolved Copper	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Dissolved Iron	g/m³	< 0.3 ± 0.014	-0.21 – 0.21	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.14				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Dissolved Magnesium	g/m³	< 0.3 ± 0.014	-0.21 – 0.21	No
Dissolved Manganese	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Dissolved Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Dissolved Potassium	g/m³	< 0.6 ± 0.036	-0.52 – 0.52	No
Dissolved Sodium	g/m³	< 0.3 ± 0.015	-0.21 – 0.21	No
Dissolved Zinc	g/m³	< 0.011 ± 0.00073	-0.0105 – 0.0105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.15				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Dissolved Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Dissolved Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Dissolved Calcium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Dissolved Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Iron	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Dissolved Magnesium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Manganese	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Potassium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Sodium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Dissolved Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Dissolved Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Dissolved Calcium	g/m³	< 1.1 ± 0.037	-1.05 – 1.05	No
Dissolved Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Dissolved Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Dissolved Iron	g/m³	< 0.42 ± 0.014	-0.42 – 0.42	No
Dissolved Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Dissolved Magnesium	g/m³	< 0.42 ± 0.014	-0.42 – 0.42	No
Dissolved Manganese	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Dissolved Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Dissolved Potassium	g/m³	< 1.1 ± 0.036	-1.05 – 1.05	No
Dissolved Sodium	g/m³	< 0.42 ± 0.015	-0.42 – 0.42	No
Dissolved Zinc	g/m³	< 0.021 ± 0.00073	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Dissolved Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Dissolved Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Dissolved Calcium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Dissolved Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Iron	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Dissolved Magnesium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Manganese	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Potassium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Sodium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Vol. Dilution Digest Blank PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Dissolved Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Dissolved Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Dissolved Calcium	g/m³	< 0.6 ± 0.036	-0.52 – 0.52	No
Dissolved Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Dissolved Copper	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Dissolved Iron	g/m³	< 0.3 ± 0.014	-0.21 – 0.21	No
Dissolved Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Dissolved Magnesium	g/m³	< 0.3 ± 0.014	-0.21 – 0.21	No
Dissolved Manganese	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Dissolved Nickel	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Dissolved Potassium	g/m³	< 0.6 ± 0.036	-0.52 – 0.52	No
Dissolved Sodium	g/m³	< 0.3 ± 0.015	-0.21 – 0.21	No
Dissolved Zinc	g/m³	< 0.011 ± 0.00080	-0.0105 – 0.0105	No

Blank 1 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

20x Dilution PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.002 ± 0.000074	-0.0021 – 0.0021	No

Blank 2 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

Fluid 3 Blank (plastic) PrepWS SPLP PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 135.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.0021 – 0.0021	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 384.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 384.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 384.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m^3	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 384.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m^3	< 0.10 ± 0.061	-0.100 – 0.100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22689.34				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Copper	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Lead	g/m^3	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Nickel	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Zinc	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22689.35				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Copper	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Lead	g/m^3	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Nickel	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Zinc	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 138.14				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

FBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 138.15				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

ARBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 138.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

ARBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 138.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

Blank 1 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 138.38				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00011 ± 0.000068	-0.000106 – 0.000106	No

Blank 2 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 138.39				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00011 ± 0.000068	-0.000106 – 0.000106	No

20x Dilution PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 138.40				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.002 ± 0.000070	-0.0021 – 0.0021	No

Blank PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9272.2				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m^3	< 0.10 ± 0.060	0.0 – 0.075	No
C10 - C11	g/m^3	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m^3	< 0.10 ± 0.060	0.0 – 0.100	No
C15 - C20	g/m^3	< 0.10 ± 0.060	0.0 – 0.100	No
C21 - C25	g/m^3	< 0.10 ± 0.060	0.0 – 0.100	No

Blank PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9272.2				
		Results	Control Limits	Outside Limit (Yes/No)
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

Blank PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9273.2				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.060	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C15 - C20	g/m³	< 0.10 ± 0.061	0.0 – 0.100	No
C21 - C25	g/m³	< 0.10 ± 0.061	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.061	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

Blank 2 PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9273.23				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.062	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C15 - C20	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C21 - C25	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

FBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 141.14				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

FBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 141.15				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22698.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22698.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22698.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No

water blank PrepWS apHSVw - BTEX by Headspace Water Analysis: 5013.2				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	g/m³	< 0.0010 ± 0.00015	0.0 – 0.00100	No
Ethylbenzene	g/m³	< 0.0010 ± 0.00021	0.0 – 0.00100	No
m&p-Xylene	g/m³	< 0.002 ± 0.00031	0.0 – 0.0020	No
o-Xylene	g/m³	< 0.0010 ± 0.00016	0.0 – 0.00100	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.4				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	g/m³	< 0.5 ± 0.30	0.0 – 0.050	No
Benzene	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Bromobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Bromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromodichloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromoform (tribromomethane)	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
Bromomethane (Methyl Bromide)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
2-Butanone (MEK)	g/m³	< 0.5 ± 0.030	0.0 – 0.050	No
n-Butylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
tert-Butylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Carbon disulphide	g/m³	< 0.005 ± 0.031	0.0 – 0.00025	No
Carbon tetrachloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloroethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Chloroform (Trichloromethane)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloromethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
2-Chlorotoluene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,2-Dibromo-3-chloropropane	g/m³	< 0.003 ± 0.0023	0.0 – 0.00025	No
Dibromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Dibromomethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,3-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.4				
		Results	Control Limits	Outside Limit (Yes/No)
1,4-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Dichlorodifluoromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,2-Dichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethene	g/m³	< 0.003 ± 0.0032	0.0 – 0.00025	No
cis-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
trans-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Dichloromethane (methylene chloride)	g/m³	< 0.10 ± 0.060	0.0 – 0.00025	No
1,2-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,3-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1-Dichloropropene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
cis-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
trans-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Ethylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Isopropylbenzene (Cumene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
4-Chlorotoluene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Methyl tert-butylether (MTBE)	g/m³	< 0.003 ± 0.031	0.0 – 0.00025	No
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10 ± 0.029	0.0 – 0.050	No
Naphthalene	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
n-Propylbenzene	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
sec-Butylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Styrene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,1,1,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Toluene	g/m³	< 0.003 ± 0.0059	0.0 – 0.00025	No
1,2,3-Trichlorobenzene	g/m³	< 0.003 ± 0.0027	0.0 – 0.00025	No
1,2,4-Trichlorobenzene	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
1,3,5-Trichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1,1-Trichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2-Trichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichloroethene (trichloroethylene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichlorofluoromethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,2,3-Trichloropropane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003 ± 0.024	0.0 – 0.00025	No
1,2,4-Trimethylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,3,5-Trimethylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Vinyl chloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
m&p-Xylene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00050	No
o-Xylene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 400.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 400.8				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m^3	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 400.47				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m^3	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 400.48				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m^3	< 0.10 ± 0.061	-0.100 – 0.100	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22707.16				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Iron	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22707.17				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Iron	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

Blank 1 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 145.14				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Mercury	g/m^3	< 0.00011 ± 0.000068	-0.000106 – 0.000106	No

20x Dilution PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 145.15				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Mercury	g/m^3	< 0.002 ± 0.000069	-0.0021 – 0.0021	No

Blank 2 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 145.16				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Mercury	g/m^3	< 0.00011 ± 0.000068	-0.000106 – 0.000106	No

water blank PrepWS apHSVw - BTEX by Headspace Water Analysis: 5014.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Benzene	g/m^3	< 0.0010 ± 0.00015	0.0 – 0.00100	No
Toluene	g/m^3	< 0.0010 ± 0.00018	0.0 – 0.00100	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.13				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Arsenic	g/m^3	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Dissolved Boron	g/m^3	< 0.06 ± 0.035	-0.052 – 0.052	No
Dissolved Cadmium	g/m^3	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Dissolved Calcium	g/m^3	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Chromium	g/m^3	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Dissolved Copper	g/m^3	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Iron	g/m^3	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Lead	g/m^3	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Dissolved Magnesium	g/m^3	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Manganese	g/m^3	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Nickel	g/m^3	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Potassium	g/m^3	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Sodium	g/m^3	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Zinc	g/m^3	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.14				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Dissolved Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Dissolved Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Dissolved Calcium	g/m³	< 0.11 ± 0.036	-0.105 – 0.105	No
Dissolved Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Dissolved Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Dissolved Iron	g/m³	< 0.05 ± 0.014	-0.042 – 0.042	No
Dissolved Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Dissolved Magnesium	g/m³	< 0.05 ± 0.014	-0.042 – 0.042	No
Dissolved Manganese	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Dissolved Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Dissolved Potassium	g/m³	< 0.11 ± 0.036	-0.105 – 0.105	No
Dissolved Sodium	g/m³	< 0.05 ± 0.014	-0.042 – 0.042	No
Dissolved Zinc	g/m³	< 0.003 ± 0.00073	-0.0021 – 0.0021	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.15				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Dissolved Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Dissolved Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Dissolved Calcium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Dissolved Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Iron	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Dissolved Magnesium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Manganese	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Potassium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Sodium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Dissolved Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Dissolved Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Dissolved Calcium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Dissolved Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Iron	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Dissolved Magnesium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No
Dissolved Manganese	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Dissolved Potassium	g/m³	< 0.06 ± 0.036	-0.052 – 0.052	No
Dissolved Sodium	g/m³	< 0.03 ± 0.014	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Vol. Dilution Digest Blank PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Dissolved Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Dissolved Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Dissolved Calcium	g/m³	< 0.6 ± 0.036	-0.52 – 0.52	No
Dissolved Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Dissolved Copper	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Dissolved Iron	g/m³	< 0.3 ± 0.014	-0.21 – 0.21	No
Dissolved Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Dissolved Magnesium	g/m³	< 0.3 ± 0.014	-0.21 – 0.21	No
Dissolved Manganese	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Dissolved Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Dissolved Potassium	g/m³	< 0.6 ± 0.036	-0.52 – 0.52	No
Dissolved Sodium	g/m³	< 0.3 ± 0.014	-0.21 – 0.21	No
Dissolved Zinc	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No

100x Vol. Dilution Digest Blank PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.11 ± 0.00074	-0.105 – 0.105	No
Dissolved Boron	g/m³	< 5.3 ± 0.035	-5.2 – 5.2	No
Dissolved Cadmium	g/m³	< 0.0053 ± 0.000037	-0.0052 – 0.0052	No
Dissolved Calcium	g/m³	< 5.3 ± 0.036	-5.2 – 5.2	No
Dissolved Chromium	g/m³	< 0.053 ± 0.00036	-0.052 – 0.052	No
Dissolved Copper	g/m³	< 0.053 ± 0.00049	-0.052 – 0.052	No
Dissolved Iron	g/m³	< 2.1 ± 0.027	-2.1 – 2.1	No
Dissolved Lead	g/m³	< 0.011 ± 0.000074	-0.0105 – 0.0105	No
Dissolved Magnesium	g/m³	< 2.1 ± 0.015	-2.1 – 2.1	No
Dissolved Manganese	g/m³	< 0.053 ± 0.00040	-0.052 – 0.052	No
Dissolved Nickel	g/m³	< 0.053 ± 0.00037	-0.052 – 0.052	No
Dissolved Potassium	g/m³	< 5.3 ± 0.036	-5.2 – 5.2	No
Dissolved Sodium	g/m³	< 2.1 ± 0.018	-2.1 – 2.1	No
Dissolved Zinc	g/m³	< 0.11 ± 0.00074	-0.105 – 0.105	No

10x Prep Dilution, 2x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Dissolved Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Dissolved Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Dissolved Calcium	g/m³	< 1.1 ± 0.036	-1.05 – 1.05	No
Dissolved Chromium	g/m³	< 0.011 ± 0.00037	-0.0105 – 0.0105	No
Dissolved Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Dissolved Iron	g/m³	< 0.42 ± 0.014	-0.42 – 0.42	No
Dissolved Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Dissolved Magnesium	g/m³	< 0.42 ± 0.014	-0.42 – 0.42	No
Dissolved Manganese	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No

10x Prep Dilution, 2x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Nickel	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Dissolved Potassium	g/m³	< 1.1 ± 0.036	-1.05 – 1.05	No
Dissolved Sodium	g/m³	< 0.42 ± 0.015	-0.42 – 0.42	No
Dissolved Zinc	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

5x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.006 ± 0.00073	-0.0052 – 0.0052	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

100x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.11 ± 0.0021	-0.105 – 0.105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.021 ± 0.00075	-0.021 – 0.021	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.1				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Acenaphthylene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Aldrin	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]pyrene (BAP)	g/m³	< 0.003 ± 0.00092	0.0 – 0.00025	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	g/m³	< 0.003 ± 0.0013	0.0 – 0.00025	No
Benzo[g,h,i]perylene	g/m³	< 0.003 ± 0.00099	0.0 – 0.00025	No
Benzo[k]fluoranthene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Benzyl alcohol	g/m³	< 0.05 ± 0.017	0.0 – 0.0025	No
alpha-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
beta-BHC	g/m³	< 0.005 ± 0.0031	0.0 – 0.00025	No
delta-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
gamma-BHC (Lindane)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Bis(2-chloroethoxy) methane	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroethyl)ether	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroisopropyl)ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03 ± 0.015	0.0 – 0.00100	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.1				
		Results	Control Limits	Outside Limit (Yes/No)
4-Bromophenyl phenyl ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Butylbenzylphthalate	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
Carbazole	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
4-Chloro-3-methylphenol	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
1&2-Chloronaphthalene	g/m³	< 0.003 ± 0.00088	0.0 – 0.00050	No
2-Chlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
4-Chlorophenyl phenyl ether	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Chrysene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
4,4'-DDD	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
4,4'-DDE	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
4,4'-DDT	g/m³	< 0.010 ± 0.0048	0.0 – 0.00050	No
Di(2-ethylhexyl)adipate	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Dibenzo[a,h]anthracene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Dibenzofuran	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
1,3-Dichlorobenzene	g/m³	< 0.010 ± 0.0052	0.0 – 0.00050	No
1,4-Dichlorobenzene	g/m³	< 0.010 ± 0.0046	0.0 – 0.00050	No
2,4-Dichlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
Dieldrin	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Diethylphthalate	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
2,4-Dimethylphenol	g/m³	< 0.005 ± 0.0014	0.0 – 0.00025	No
Dimethylphthalate	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-butylphthalate	g/m³	< 0.010 ± 0.0056	0.0 – 0.00100	No
2,4-Dinitrotoluene	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
2,6-Dinitrotoluene	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-octylphthalate	g/m³	< 0.010 ± 0.0031	0.0 – 0.00050	No
Endosulfan I	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endosulfan II	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
Endosulfan sulphate	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endrin	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Endrin ketone	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
Fluoranthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Fluorene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Heptachlor	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Heptachlor epoxide	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
Hexachloroethane	g/m³	< 0.010 ± 0.0041	0.0 – 0.00050	No
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003 ± 0.00074	0.0 – 0.00025	No
Isophorone	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2-Methylnaphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010 ± 0.0043	0.0 – 0.00050	No
2-Methylphenol (o-Cresol)	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
Naphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
Nitrobenzene	g/m³	< 0.005 ± 0.0026	0.0 – 0.00025	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.1				
		Results	Control Limits	Outside Limit (Yes/No)
2-Nitrophenol	g/m³	< 0.010 ± 0.0051	0.0 – 0.00050	No
N-Nitrosodi-n-propylamine	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
N-Nitrosodiphenylamine + Diphenylamine	g/m³	< 0.010 ± 0.0028	0.0 – 0.00050	No
Pentachlorophenol (PCP)	g/m³	< 0.10 ± 0.048	0.0 – 0.0050	No
Phenanthrene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Phenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Pyrene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
1,2,4-Trichlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2,4,5-Trichlorophenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
2,4,6-Trichlorophenol	g/m³	< 0.010 ± 0.0045	0.0 – 0.00050	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5210.1				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Acenaphthylene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Aldrin	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]pyrene (BAP)	g/m³	< 0.003 ± 0.00092	0.0 – 0.00025	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	g/m³	< 0.003 ± 0.0013	0.0 – 0.00025	No
Benzo[g,h,i]perylene	g/m³	< 0.003 ± 0.00099	0.0 – 0.00025	No
Benzo[k]fluoranthene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Benzyl alcohol	g/m³	< 0.05 ± 0.017	0.0 – 0.0025	No
alpha-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
beta-BHC	g/m³	< 0.005 ± 0.0031	0.0 – 0.00025	No
delta-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
gamma-BHC (Lindane)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Bis(2-chloroethoxy) methane	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroethyl)ether	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroisopropyl)ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03 ± 0.015	0.0 – 0.00100	No
4-Bromophenyl phenyl ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Butylbenzylphthalate	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
Carbazole	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
4-Chloro-3-methylphenol	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
1&2-Chloronaphthalene	g/m³	< 0.003 ± 0.00088	0.0 – 0.00050	No
2-Chlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
4-Chlorophenyl phenyl ether	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Chrysene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
4,4'-DDD	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
4,4'-DDE	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
4,4'-DDT	g/m³	< 0.010 ± 0.0048	0.0 – 0.00050	No
Di(2-ethylhexyl)adipate	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Dibenzo[a,h]anthracene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Dibenzofuran	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5210.1				
		Results	Control Limits	Outside Limit (Yes/No)
1,3-Dichlorobenzene	g/m³	< 0.010 ± 0.0052	0.0 – 0.00050	No
1,4-Dichlorobenzene	g/m³	< 0.010 ± 0.0046	0.0 – 0.00050	No
2,4-Dichlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
Dieldrin	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Diethylphthalate	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
2,4-Dimethylphenol	g/m³	< 0.005 ± 0.0014	0.0 – 0.00025	No
Dimethylphthalate	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-butylphthalate	g/m³	< 0.010 ± 0.0056	0.0 – 0.00100	No
2,4-Dinitrotoluene	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
2,6-Dinitrotoluene	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-octylphthalate	g/m³	< 0.010 ± 0.0031	0.0 – 0.00050	No
Endosulfan I	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endosulfan II	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
Endosulfan sulphate	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endrin	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Endrin ketone	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
Fluoranthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Fluorene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Heptachlor	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Heptachlor epoxide	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
Hexachloroethane	g/m³	< 0.010 ± 0.0041	0.0 – 0.00050	No
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003 ± 0.00074	0.0 – 0.00025	No
Isophorone	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2-Methylnaphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010 ± 0.0043	0.0 – 0.00050	No
2-Methylphenol (o-Cresol)	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
Naphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
Nitrobenzene	g/m³	< 0.005 ± 0.0026	0.0 – 0.00025	No
2-Nitrophenol	g/m³	< 0.010 ± 0.0051	0.0 – 0.00050	No
N-Nitrosodi-n-propylamine	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
N-Nitrosodiphenylamine + Diphenylamine	g/m³	< 0.010 ± 0.0028	0.0 – 0.00050	No
Pentachlorophenol (PCP)	g/m³	< 0.10 ± 0.048	0.0 – 0.0050	No
Phenanthrene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Phenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Pyrene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
1,2,4-Trichlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2,4,5-Trichlorophenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
2,4,6-Trichlorophenol	g/m³	< 0.010 ± 0.0045	0.0 – 0.00050	No

QC Spike QCs

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6022.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	117 ± 59	70 – 130	No
Acenaphthylene	%	105 ± 57	70 – 130	No

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6022.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Anthracene	%	112 ± 41	70 – 130	No
Benzo[a]anthracene	%	110 ± 36	70 – 130	No
Benzo[a]pyrene (BAP)	%	126 ± 61	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	122 ± 59	70 – 130	No
Benzo[g,h,i]perylene	%	111 ± 58	70 – 130	No
Benzo[k]fluoranthene	%	135 ± 60	70 – 130	**Yes** #2
Chrysene	%	115 ± 42	70 – 130	No
Dibenzo[a,h]anthracene	%	119 ± 62	70 – 130	No
Fluoranthene	%	106 ± 28	70 – 130	No
Fluorene	%	107 ± 48	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	108 ± 57	70 – 130	No
Naphthalene	%	101 ± 67	70 – 130	No
Phenanthrene	%	115 ± 35	70 – 130	No
Pyrene	%	121 ± 49	70 – 130	No

LCS PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9272.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total hydrocarbons (C7 - C36)	%	102 ± 31	80 – 137	No

LCS PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9273.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total hydrocarbons (C7 - C36)	%	105 ± 32	80 – 137	No

water LCS PrepWS apHSVw - BTEX by Headspace Water Analysis: 5013.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Benzene	%	104 ± 12	88 – 111	No
Ethylbenzene	%	111.0 ± 7.4	95 – 114	No
m&p-Xylene	%	110.0 ± 8.4	93 – 114	No
o-Xylene	%	110.0 ± 8.2	92 – 115	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acetone	%	87 ± 26	70 – 130	No
Benzene	%	99 ± 25	70 – 130	No
Bromobenzene	%	99 ± 30	70 – 130	No
Bromochloromethane	%	98 ± 34	70 – 130	No
Bromodichloromethane	%	99 ± 34	70 – 130	No
Bromoform (tribromomethane)	%	101 ± 38	70 – 130	No
Bromomethane (Methyl Bromide)	%	102 ± 34	70 – 130	No
2-Butanone (MEK)	%	93 ± 28	70 – 130	No
n-Butylbenzene	%	95 ± 29	70 – 130	No
tert-Butylbenzene	%	97 ± 29	70 – 130	No
Carbon disulphide	%	92 ± 24	70 – 130	No
Carbon tetrachloride	%	101 ± 37	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	101 ± 34	70 – 130	No
Chloroethane	%	81 ± 24	70 – 130	No
Chloroform (Trichloromethane)	%	98 ± 34	70 – 130	No
Chloromethane	%	104 ± 33	70 – 130	No
2-Chlorotoluene	%	103 ± 33	70 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.3				
		Results	Control Limits	Outside Limit (Yes/No)
4-Isopropyltoluene (p-Cymene)	%	97 ± 31	70 – 130	No
1,2-Dibromo-3-chloropropane	%	102 ± 50	70 – 130	No
Dibromochloromethane	%	98 ± 34	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	101 ± 35	70 – 130	No
Dibromomethane	%	99 ± 34	70 – 130	No
1,2-Dichlorobenzene	%	102 ± 31	70 – 130	No
1,3-Dichlorobenzene	%	102 ± 31	70 – 130	No
1,4-Dichlorobenzene	%	101 ± 31	70 – 130	No
Dichlorodifluoromethane	%	117 ± 41	70 – 130	No
1,1-Dichloroethane	%	102 ± 33	70 – 130	No
1,2-Dichloroethane	%	100 ± 35	70 – 130	No
1,1-Dichloroethene	%	107 ± 27	70 – 130	No
cis-1,2-Dichloroethene	%	103 ± 35	70 – 130	No
trans-1,2-Dichloroethene	%	102 ± 37	70 – 130	No
Dichloromethane (methylene chloride)	%	96 ± 29	70 – 130	No
1,2-Dichloropropane	%	103 ± 34	70 – 130	No
1,3-Dichloropropane	%	98 ± 32	70 – 130	No
1,1-Dichloropropene	%	107 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	107 ± 38	70 – 130	No
trans-1,3-Dichloropropene	%	113 ± 41	70 – 130	No
Ethylbenzene	%	103 ± 32	70 – 130	No
Hexachlorobutadiene	%	101 ± 35	70 – 130	No
Isopropylbenzene (Cumene)	%	101 ± 33	70 – 130	No
4-Chlorotoluene	%	103 ± 34	70 – 130	No
Methyl tert-butylether (MTBE)	%	97 ± 28	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	97 ± 34	70 – 130	No
Naphthalene	%	101 ± 53	70 – 130	No
n-Propylbenzene	%	99 ± 38	70 – 130	No
sec-Butylbenzene	%	101 ± 34	70 – 130	No
Styrene	%	96 ± 31	70 – 130	No
1,1,1,2-Tetrachloroethane	%	103 ± 35	70 – 130	No
1,1,2,2-Tetrachloroethane	%	94 ± 28	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	104 ± 29	70 – 130	No
Toluene	%	100 ± 32	70 – 130	No
1,2,3-Trichlorobenzene	%	106 ± 44	70 – 130	No
1,2,4-Trichlorobenzene	%	107 ± 42	70 – 130	No
1,3,5-Trichlorobenzene	%	109 ± 35	70 – 130	No
1,1,1-Trichloroethane	%	103 ± 35	70 – 130	No
1,1,2-Trichloroethane	%	105 ± 35	70 – 130	No
Trichloroethene (trichloroethylene)	%	111 ± 36	70 – 130	No
Trichlorofluoromethane	%	101 ± 29	70 – 130	No
1,2,3-Trichloropropane	%	98 ± 29	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	105 ± 51	70 – 130	No
1,2,4-Trimethylbenzene	%	96 ± 32	70 – 130	No
1,3,5-Trimethylbenzene	%	97 ± 32	70 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Vinyl chloride	%	111 ± 38	70 – 130	No
m&p-Xylene	%	96 ± 31	70 – 130	No
o-Xylene	%	98 ± 29	70 – 130	No

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6023.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	115 ± 58	70 – 130	No
Acenaphthylene	%	108 ± 59	70 – 130	No
Anthracene	%	110 ± 40	70 – 130	No
Benzo[a]anthracene	%	119 ± 39	70 – 130	No
Benzo[a]pyrene (BAP)	%	124 ± 60	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	120 ± 58	70 – 130	No
Benzo[g,h,i]perylene	%	114 ± 60	70 – 130	No
Benzo[k]fluoranthene	%	126 ± 56	70 – 130	No
Chrysene	%	117 ± 43	70 – 130	No
Dibenzo[a,h]anthracene	%	116 ± 61	70 – 130	No
Fluoranthene	%	116 ± 31	70 – 130	No
Fluorene	%	114 ± 51	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	111 ± 58	70 – 130	No
Naphthalene	%	103 ± 68	70 – 130	No
Phenanthrene	%	119 ± 36	70 – 130	No
Pyrene	%	125 ± 51	70 – 130	No

water LCS PrepWS apHSVw - BTEX by Headspace Water Analysis: 5014.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Benzene	%	80.0 ± 8.9	88 – 111	**Yes** [#3]
Toluene	%	110.0 ± 7.3	95 – 110	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	107 ± 39	40 – 130	No
Acenaphthylene	%	97 ± 37	40 – 130	No
Aldrin	%	100 ± 37	40 – 130	No
Anthracene	%	113 ± 42	40 – 130	No
Benzo[a]anthracene	%	112 ± 42	40 – 130	No
Benzo[a]pyrene (BAP)	%	94 ± 56	40 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	98 ± 52	40 – 130	No
Benzo[g,h,i]perylene	%	106 ± 62	40 – 130	No
Benzo[k]fluoranthene	%	104 ± 58	40 – 130	No
Benzyl alcohol	%	76 ± 45	40 – 130	No
alpha-BHC	%	98 ± 32	40 – 130	No
beta-BHC	%	100 ± 28	40 – 130	No
delta-BHC	%	105 ± 32	40 – 130	No
gamma-BHC (Lindane)	%	94 ± 29	40 – 130	No
Bis(2-chloroethoxy) methane	%	100 ± 46	40 – 130	No
Bis(2-chloroethyl)ether	%	81 ± 38	40 – 130	No
Bis(2-chloroisopropyl)ether	%	80 ± 32	40 – 130	No
Bis(2-ethylhexyl)phthalate	%	116 ± 55	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.2				
		Results	Control Limits	Outside Limit (Yes/No)
4-Bromophenyl phenyl ether	%	95 ± 38	40 – 130	No
Butylbenzylphthalate	%	119 ± 48	40 – 130	No
Carbazole	%	120 ± 42	40 – 130	No
4-Chloro-3-methylphenol	%	94 ± 36	40 – 130	No
2-Chlorophenol	%	80 ± 30	40 – 130	No
4-Chlorophenyl phenyl ether	%	110 ± 39	40 – 130	No
Chrysene	%	116 ± 45	40 – 130	No
4,4'-DDD	%	134 ± 62	40 – 130	**Yes** [#4]
4,4'-DDE	%	121 ± 49	40 – 130	No
4,4'-DDT	%	119 ± 57	40 – 130	No
Dibenzo[a,h]anthracene	%	105 ± 58	40 – 130	No
Dibenzofuran	%	111 ± 37	40 – 130	No
1,2-Dichlorobenzene	%	79 ± 32	40 – 130	No
1,3-Dichlorobenzene	%	77 ± 33	40 – 130	No
1,4-Dichlorobenzene	%	77 ± 38	40 – 130	No
2,4-Dichlorophenol	%	88 ± 34	40 – 130	No
Dieldrin	%	121 ± 50	40 – 130	No
Diethylphthalate	%	106 ± 44	40 – 130	No
2,4-Dimethylphenol	%	70 ± 43	40 – 130	No
Dimethylphthalate	%	105 ± 41	40 – 130	No
Di-n-butylphthalate	%	102 ± 38	40 – 130	No
2,4-Dinitrotoluene	%	111 ± 39	40 – 130	No
2,6-Dinitrotoluene	%	112 ± 43	40 – 130	No
Di-n-octylphthalate	%	106 ± 63	40 – 130	No
Endosulfan I	%	126 ± 59	40 – 130	No
Endosulfan II	%	120 ± 44	40 – 130	No
Endosulfan sulphate	%	132 ± 60	40 – 130	**Yes** [#4]
Endrin	%	128 ± 57	40 – 130	No
Endrin ketone	%	121 ± 50	40 – 130	No
Fluoranthene	%	102 ± 37	40 – 130	No
Fluorene	%	108 ± 40	40 – 130	No
Heptachlor	%	103 ± 43	40 – 130	No
Heptachlor epoxide	%	113 ± 40	40 – 130	No
Hexachlorobenzene	%	99 ± 36	40 – 130	No
Hexachlorobutadiene	%	99 ± 38	40 – 130	No
Hexachloroethane	%	78 ± 42	40 – 130	No
Indeno(1,2,3-c,d)pyrene	%	104 ± 65	40 – 130	No
Isophorone	%	84 ± 30	40 – 130	No
2-Methylnaphthalene	%	104 ± 43	40 – 130	No
3 & 4-Methylphenol (m- + p-cresol)	%	80 ± 42	40 – 130	No
2-Methylphenol (o-Cresol)	%	76 ± 40	40 – 130	No
Naphthalene	%	97 ± 42	40 – 130	No
Nitrobenzene	%	102 ± 44	40 – 130	No
2-Nitrophenol	%	89 ± 39	40 – 130	No
N-Nitrosodi-n-propylamine	%	83 ± 33	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.2				
		Results	Control Limits	Outside Limit (Yes/No)
N-Nitrosodiphenylamine + Diphenylamine	%	83 ± 51	40 – 130	No
Phenanthrene	%	99 ± 36	40 – 130	No
Phenol	%	72 ± 33	40 – 130	No
Pyrene	%	117 ± 49	40 – 130	No
1,2,4-Trichlorobenzene	%	99 ± 36	40 – 130	No
2,4,5-Trichlorophenol	%	100 ± 45	40 – 130	No
2,4,6-Trichlorophenol	%	106 ± 53	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5210.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	99 ± 37	40 – 130	No
Acenaphthylene	%	90 ± 34	40 – 130	No
Aldrin	%	97 ± 35	40 – 130	No
Anthracene	%	108 ± 40	40 – 130	No
Benzo[a]anthracene	%	105 ± 39	40 – 130	No
Benzo[a]pyrene (BAP)	%	80 ± 48	40 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	95 ± 50	40 – 130	No
Benzo[g,h,i]perylene	%	111 ± 65	40 – 130	No
Benzo[k]fluoranthene	%	97 ± 54	40 – 130	No
Benzyl alcohol	%	68 ± 40	40 – 130	No
alpha-BHC	%	92 ± 30	40 – 130	No
beta-BHC	%	91 ± 26	40 – 130	No
delta-BHC	%	94 ± 29	40 – 130	No
gamma-BHC (Lindane)	%	90 ± 28	40 – 130	No
Bis(2-chloroethoxy) methane	%	96 ± 44	40 – 130	No
Bis(2-chloroethyl)ether	%	85 ± 39	40 – 130	No
Bis(2-chloroisopropyl)ether	%	80 ± 32	40 – 130	No
Bis(2-ethylhexyl)phthalate	%	112 ± 53	40 – 130	No
4-Bromophenyl phenyl ether	%	89 ± 36	40 – 130	No
Butylbenzylphthalate	%	111 ± 45	40 – 130	No
Carbazole	%	101 ± 35	40 – 130	No
4-Chloro-3-methylphenol	%	105 ± 40	40 – 130	No
2-Chlorophenol	%	82 ± 31	40 – 130	No
4-Chlorophenyl phenyl ether	%	103 ± 36	40 – 130	No
Chrysene	%	110 ± 42	40 – 130	No
4,4'-DDD	%	121 ± 56	40 – 130	No
4,4'-DDE	%	110 ± 45	40 – 130	No
4,4'-DDT	%	118 ± 56	40 – 130	No
Dibenzo[a,h]anthracene	%	108 ± 60	40 – 130	No
Dibenzofuran	%	104 ± 35	40 – 130	No
1,2-Dichlorobenzene	%	79 ± 32	40 – 130	No
1,3-Dichlorobenzene	%	77 ± 33	40 – 130	No
1,4-Dichlorobenzene	%	77 ± 38	40 – 130	No
2,4-Dichlorophenol	%	86 ± 33	40 – 130	No
Dieldrin	%	115 ± 48	40 – 130	No
Diethylphthalate	%	97 ± 40	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5210.2				
		Results	Control Limits	Outside Limit (Yes/No)
2,4-Dimethylphenol	%	74 ± 45	40 – 130	No
Dimethylphthalate	%	99 ± 39	40 – 130	No
Di-n-butylphthalate	%	94 ± 35	40 – 130	No
2,4-Dinitrotoluene	%	97 ± 34	40 – 130	No
2,6-Dinitrotoluene	%	100 ± 38	40 – 130	No
Di-n-octylphthalate	%	101 ± 60	40 – 130	No
Endosulfan I	%	111 ± 52	40 – 130	No
Endosulfan II	%	115 ± 42	40 – 130	No
Endosulfan sulphate	%	123 ± 56	40 – 130	No
Endrin	%	123 ± 55	40 – 130	No
Endrin ketone	%	108 ± 45	40 – 130	No
Fluoranthene	%	94 ± 34	40 – 130	No
Fluorene	%	101 ± 37	40 – 130	No
Heptachlor	%	98 ± 41	40 – 130	No
Heptachlor epoxide	%	101 ± 36	40 – 130	No
Hexachlorobenzene	%	89 ± 32	40 – 130	No
Hexachlorobutadiene	%	98 ± 37	40 – 130	No
Hexachloroethane	%	79 ± 42	40 – 130	No
Indeno(1,2,3-c,d)pyrene	%	107 ± 67	40 – 130	No
Isophorone	%	80 ± 29	40 – 130	No
2-Methylnaphthalene	%	100 ± 42	40 – 130	No
3 & 4-Methylphenol (m- + p-cresol)	%	76 ± 40	40 – 130	No
2-Methylphenol (o-Cresol)	%	76 ± 40	40 – 130	No
Naphthalene	%	96 ± 41	40 – 130	No
Nitrobenzene	%	98 ± 42	40 – 130	No
2-Nitrophenol	%	85 ± 38	40 – 130	No
N-Nitrosodi-n-propylamine	%	80 ± 31	40 – 130	No
N-Nitrosodiphenylamine + Diphenylamine	%	79 ± 48	40 – 130	No
Phenanthrene	%	91 ± 33	40 – 130	No
Phenol	%	73 ± 33	40 – 130	No
Pyrene	%	108 ± 45	40 – 130	No
1,2,4-Trichlorobenzene	%	100 ± 36	40 – 130	No
2,4,5-Trichlorophenol	%	90 ± 40	40 – 130	No
2,4,6-Trichlorophenol	%	100 ± 50	40 – 130	No

Sample Spike QCs

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23454.56				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	100.0 ± 6.1	80 – 120	No
Total Boron	%	102 ± 15	80 – 120	No
Total Cadmium	%	102.0 ± 8.2	80 – 120	No
Total Chromium	%	101.0 ± 8.1	80 – 120	No
Total Copper	%	102 ± 11	80 – 120	No
Total Lead	%	100.0 ± 6.1	80 – 120	No
Total Nickel	%	103 ± 13	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.26				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	99.0 ± 6.0	80 – 120	No
Total Boron	%	102 ± 15	80 – 120	No
Total Cadmium	%	104.0 ± 8.4	80 – 120	No
Total Chromium	%	98.0 ± 7.9	80 – 120	No
Total Copper	%	98.0 ± 9.9	80 – 120	No
Total Lead	%	102.0 ± 6.2	80 – 120	No
Total Nickel	%	99 ± 12	80 – 120	No
Total Zinc	%	99.0 ± 8.0	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.37				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	100.0 ± 6.1	80 – 120	No
Total Cadmium	%	106.0 ± 8.5	80 – 120	No
Total Chromium	%	103.0 ± 8.3	80 – 120	No
Total Copper	%	101 ± 11	80 – 120	No
Total Lead	%	104.0 ± 6.3	80 – 120	No
Total Nickel	%	100 ± 13	80 – 120	No
Total Zinc	%	101.0 ± 8.1	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.61				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	105.0 ± 6.4	80 – 120	No
Total Boron	%	97 ± 14	80 – 120	No
Total Cadmium	%	103.0 ± 8.3	80 – 120	No
Total Chromium	%	99.0 ± 8.0	80 – 120	No
Total Copper	%	99 ± 10	80 – 120	No
Total Lead	%	103.0 ± 6.2	80 – 120	No
Total Nickel	%	102 ± 13	80 – 120	No
Total Zinc	%	101.0 ± 8.1	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.49				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	104.0 ± 6.3	80 – 120	No
Total Boron	%	104 ± 15	80 – 120	No
Total Cadmium	%	102.0 ± 8.2	80 – 120	No
Total Chromium	%	102.0 ± 8.2	80 – 120	No
Total Copper	%	101 ± 11	80 – 120	No
Total Lead	%	104.0 ± 6.3	80 – 120	No
Total Nickel	%	101 ± 13	80 – 120	No
Total Zinc	%	102.0 ± 8.2	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.39				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	%	102.0 ± 6.2	80 – 120	No
Dissolved Boron	%	96 ± 14	80 – 120	No
Dissolved Cadmium	%	101.0 ± 8.1	80 – 120	No
Dissolved Calcium	%	97.0 ± 3.9	80 – 120	No
Dissolved Chromium	%	102.0 ± 8.2	80 – 120	No
Dissolved Copper	%	101 ± 11	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.39				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Dissolved Iron	%	104 ± 15	80 – 120	No
Dissolved Lead	%	99.0 ± 6.0	80 – 120	No
Dissolved Magnesium	%	90.0 ± 7.3	80 – 120	No
Dissolved Manganese	%	102 ± 11	80 – 120	No
Dissolved Nickel	%	103 ± 13	80 – 120	No
Dissolved Potassium	%	101.0 ± 6.1	80 – 120	No
Dissolved Sodium	%	102.0 ± 6.2	80 – 120	No
Dissolved Zinc	%	101.0 ± 8.1	80 – 120	No

Sample Spike PAH PrepWS xwllPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6022.10				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	122 ± 62	70 – 130	No
Acenaphthylene	%	109 ± 59	70 – 130	No
Anthracene	%	114 ± 42	70 – 130	No
Benzo[a]anthracene	%	110 ± 36	70 – 130	No
Benzo[a]pyrene (BAP)	%	127 ± 61	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	119 ± 58	70 – 130	No
Benzo[g,h,i]perylene	%	107 ± 56	70 – 130	No
Benzo[k]fluoranthene	%	136 ± 60	70 – 130	**Yes** [#5]
Chrysene	%	117 ± 43	70 – 130	No
Dibenzo[a,h]anthracene	%	116 ± 61	70 – 130	No
Fluoranthene	%	106 ± 28	70 – 130	No
Fluorene	%	109 ± 48	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	108 ± 57	70 – 130	No
Naphthalene	%	115 ± 76	70 – 130	No
Phenanthrene	%	117 ± 36	70 – 130	No
Pyrene	%	121 ± 49	70 – 130	No

sample spike PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9272.18				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total hydrocarbons (C7 - C36)	%	120 ± 37	83 – 140	No

sample spike PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9273.22				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total hydrocarbons (C7 - C36)	%	110 ± 34	83 – 140	No

water sample spike PrepWS apHSVw - BTEX by Headspace Water Analysis: 5013.13				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Benzene	%	100 ± 12	81 – 125	No
Ethylbenzene	%	109.0 ± 7.2	90 – 117	No
m&p-Xylene	%	106.0 ± 8.1	86 – 118	No
o-Xylene	%	107.0 ± 8.0	86 – 120	No

water sample spike PrepWS apHSVw - BTEX by Headspace Water Analysis: 5013.31				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Benzene	%	90 ± 10	81 – 125	No
Ethylbenzene	%	116.0 ± 7.7	90 – 117	No
m&p-Xylene	%	111.0 ± 8.5	86 – 118	No
o-Xylene	%	113.0 ± 8.4	86 – 120	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.22				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	98 ± 30	70 – 130	No
Benzene	%	101 ± 26	70 – 130	No
Bromobenzene	%	102 ± 31	70 – 130	No
Bromochloromethane	%	102 ± 35	70 – 130	No
Bromodichloromethane	%	101 ± 35	70 – 130	No
Bromoform (tribromomethane)	%	103 ± 38	70 – 130	No
Bromomethane (Methyl Bromide)	%	104 ± 35	70 – 130	No
2-Butanone (MEK)	%	102 ± 31	70 – 130	No
n-Butylbenzene	%	101 ± 31	70 – 130	No
tert-Butylbenzene	%	102 ± 31	70 – 130	No
Carbon disulphide	%	93 ± 24	70 – 130	No
Carbon tetrachloride	%	103 ± 38	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	103 ± 35	70 – 130	No
Chloroethane	%	83 ± 25	70 – 130	No
Chloroform (Trichloromethane)	%	103 ± 35	70 – 130	No
Chloromethane	%	104 ± 33	70 – 130	No
2-Chlorotoluene	%	106 ± 34	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	102 ± 33	70 – 130	No
1,2-Dibromo-3-chloropropane	%	106 ± 52	70 – 130	No
Dibromochloromethane	%	100 ± 34	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	104 ± 36	70 – 130	No
Dibromomethane	%	103 ± 35	70 – 130	No
1,2-Dichlorobenzene	%	106 ± 33	70 – 130	No
1,3-Dichlorobenzene	%	104 ± 31	70 – 130	No
1,4-Dichlorobenzene	%	104 ± 32	70 – 130	No
Dichlorodifluoromethane	%	121 ± 43	70 – 130	No
1,1-Dichloroethane	%	106 ± 34	70 – 130	No
1,2-Dichloroethane	%	105 ± 36	70 – 130	No
1,1-Dichloroethene	%	108 ± 27	70 – 130	No
cis-1,2-Dichloroethene	%	106 ± 36	70 – 130	No
trans-1,2-Dichloroethene	%	104 ± 38	70 – 130	No
Dichloromethane (methylene chloride)	%	100 ± 31	70 – 130	No
1,2-Dichloropropane	%	106 ± 35	70 – 130	No
1,3-Dichloropropane	%	101 ± 33	70 – 130	No
1,1-Dichloropropene	%	106 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	104 ± 37	70 – 130	No
trans-1,3-Dichloropropene	%	109 ± 39	70 – 130	No
Ethylbenzene	%	105 ± 33	70 – 130	No
Hexachlorobutadiene	%	122 ± 43	70 – 130	No
Isopropylbenzene (Cumene)	%	104 ± 34	70 – 130	No
4-Chlorotoluene	%	105 ± 35	70 – 130	No
Methyl tert-butylether (MTBE)	%	102 ± 30	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	99 ± 35	70 – 130	No
Naphthalene	%	102 ± 54	70 – 130	No
n-Propylbenzene	%	102 ± 39	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2299.22				
		Results	Control Limits	Outside Limit (Yes/No)
sec-Butylbenzene	%	107 ± 36	70 – 130	No
Styrene	%	97 ± 31	70 – 130	No
1,1,1,2-Tetrachloroethane	%	107 ± 36	70 – 130	No
1,1,2,2-Tetrachloroethane	%	111 ± 33	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	105 ± 30	70 – 130	No
Toluene	%	102 ± 32	70 – 130	No
1,2,3-Trichlorobenzene	%	108 ± 45	70 – 130	No
1,2,4-Trichlorobenzene	%	107 ± 42	70 – 130	No
1,3,5-Trichlorobenzene	%	113 ± 37	70 – 130	No
1,1,1-Trichloroethane	%	106 ± 36	70 – 130	No
1,1,2-Trichloroethane	%	109 ± 36	70 – 130	No
Trichloroethene (trichloroethylene)	%	104 ± 34	70 – 130	No
Trichlorofluoromethane	%	104 ± 29	70 – 130	No
1,2,3-Trichloropropane	%	102 ± 30	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	109 ± 53	70 – 130	No
1,2,4-Trimethylbenzene	%	98 ± 33	70 – 130	No
1,3,5-Trimethylbenzene	%	100 ± 33	70 – 130	No
Vinyl chloride	%	111 ± 38	70 – 130	No
m&p-Xylene	%	98 ± 32	70 – 130	No
o-Xylene	%	101 ± 30	70 – 130	No

Sample Spike PAH PrepWS xwllPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6023.10				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	113 ± 57	70 – 130	No
Acenaphthylene	%	103 ± 56	70 – 130	No
Anthracene	%	112 ± 41	70 – 130	No
Benzo[a]anthracene	%	120 ± 39	70 – 130	No
Benzo[a]pyrene (BAP)	%	128 ± 62	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	123 ± 60	70 – 130	No
Benzo[g,h,i]perylene	%	111 ± 58	70 – 130	No
Benzo[k]fluoranthene	%	130 ± 58	70 – 130	No
Chrysene	%	118 ± 43	70 – 130	No
Dibenzo[a,h]anthracene	%	116 ± 61	70 – 130	No
Fluoranthene	%	116 ± 31	70 – 130	No
Fluorene	%	112 ± 50	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	111 ± 58	70 – 130	No
Naphthalene	%	91 ± 61	70 – 130	No
Phenanthrene	%	122 ± 37	70 – 130	No
Pyrene	%	127 ± 51	70 – 130	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.52				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	%	104.0 ± 6.3	80 – 120	No
Dissolved Boron	%	97 ± 14	80 – 120	No
Dissolved Cadmium	%	99.0 ± 8.0	80 – 120	No
Dissolved Calcium	%	98.0 ± 4.0	80 – 120	No
Dissolved Chromium	%	101.0 ± 8.1	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.52				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Copper	%	102 ± 11	80 – 120	No
Dissolved Iron	%	104 ± 15	80 – 120	No
Dissolved Lead	%	97.0 ± 5.9	80 – 120	No
Dissolved Magnesium	%	97.0 ± 7.8	80 – 120	No
Dissolved Manganese	%	101 ± 11	80 – 120	No
Dissolved Nickel	%	104 ± 13	80 – 120	No
Dissolved Potassium	%	100.0 ± 6.1	80 – 120	No
Dissolved Sodium	%	95.0 ± 5.8	80 – 120	No
Dissolved Zinc	%	102.0 ± 8.2	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.39				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	%	105.0 ± 8.5	80 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.7				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	105 ± 39	40 – 120	No
Acenaphthylene	%	94 ± 36	40 – 120	No
Aldrin	%	99 ± 36	40 – 120	No
Anthracene	%	107 ± 40	40 – 120	No
Benzo[a]anthracene	%	108 ± 40	40 – 120	No
Benzo[a]pyrene (BAP)	%	88 ± 53	40 – 120	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	92 ± 49	40 – 120	No
Benzo[g,h,i]perylene	%	99 ± 58	40 – 120	No
Benzo[k]fluoranthene	%	96 ± 53	40 – 120	No
Benzyl alcohol	%	86 ± 50	40 – 120	No
alpha-BHC	%	94 ± 31	40 – 120	No
beta-BHC	%	95 ± 27	40 – 120	No
delta-BHC	%	97 ± 30	40 – 120	No
gamma-BHC (Lindane)	%	91 ± 29	40 – 120	No
Bis(2-chloroethoxy) methane	%	102 ± 47	40 – 120	No
Bis(2-chloroethyl)ether	%	91 ± 42	40 – 120	No
Bis(2-chloroisopropyl)ether	%	90 ± 36	40 – 120	No
Bis(2-ethylhexyl)phthalate	%	113 ± 53	40 – 120	No
4-Bromophenyl phenyl ether	%	92 ± 37	40 – 120	No
Butylbenzylphthalate	%	119 ± 48	40 – 120	No
Carbazole	%	112 ± 39	40 – 120	No
4-Chloro-3-methylphenol	%	94 ± 36	40 – 120	No
2-Chlorophenol	%	91 ± 34	40 – 120	No
4-Chlorophenyl phenyl ether	%	106 ± 37	40 – 120	No
Chrysene	%	110 ± 42	40 – 120	No
4,4'-DDD	%	127 ± 58	40 – 120	**Yes** [#5]
4,4'-DDE	%	115 ± 47	40 – 120	No
4,4'-DDT	%	114 ± 54	40 – 120	No
Dibenzo[a,h]anthracene	%	98 ± 54	40 – 120	No
Dibenzofuran	%	107 ± 36	40 – 120	No
1,2-Dichlorobenzene	%	88 ± 36	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5209.7				
		Results	Control Limits	Outside Limit (Yes/No)
1,3-Dichlorobenzene	%	84 ± 36	40 – 120	No
1,4-Dichlorobenzene	%	86 ± 42	40 – 120	No
2,4-Dichlorophenol	%	95 ± 37	40 – 120	No
Dieldrin	%	118 ± 49	40 – 120	No
Diethylphthalate	%	102 ± 42	40 – 120	No
2,4-Dimethylphenol	%	61 ± 38	40 – 120	No
Dimethylphthalate	%	103 ± 40	40 – 120	No
Di-n-butylphthalate	%	98 ± 36	40 – 120	No
2,4-Dinitrotoluene	%	107 ± 38	40 – 120	No
2,6-Dinitrotoluene	%	109 ± 42	40 – 120	No
Di-n-octylphthalate	%	106 ± 63	40 – 120	No
Endosulfan I	%	120 ± 56	40 – 120	No
Endosulfan II	%	112 ± 41	40 – 120	No
Endosulfan sulphate	%	126 ± 58	40 – 120	**Yes** #5
Endrin	%	123 ± 55	40 – 120	**Yes** #5
Endrin ketone	%	114 ± 47	40 – 120	No
Fluoranthene	%	96 ± 35	40 – 120	No
Fluorene	%	106 ± 39	40 – 120	No
Heptachlor	%	101 ± 42	40 – 120	No
Heptachlor epoxide	%	105 ± 37	40 – 120	No
Hexachlorobenzene	%	94 ± 34	40 – 120	No
Hexachlorobutadiene	%	105 ± 40	40 – 120	No
Hexachloroethane	%	86 ± 46	40 – 120	No
Indeno(1,2,3-c,d)pyrene	%	99 ± 62	40 – 120	No
Isophorone	%	86 ± 31	40 – 120	No
2-Methylnaphthalene	%	104 ± 43	40 – 120	No
3 & 4-Methylphenol (m- + p-cresol)	%	86 ± 45	40 – 120	No
2-Methylphenol (o-Cresol)	%	83 ± 44	40 – 120	No
Naphthalene	%	101 ± 43	40 – 120	No
Nitrobenzene	%	105 ± 45	40 – 120	No
2-Nitrophenol	%	95 ± 42	40 – 120	No
N-Nitrosodi-n-propylamine	%	89 ± 35	40 – 120	No
N-Nitrosodiphenylamine + Diphenylamine	%	80 ± 49	40 – 120	No
Phenanthrene	%	94 ± 34	40 – 120	No
Phenol	%	84 ± 38	40 – 120	No
Pyrene	%	110 ± 46	40 – 120	No
1,2,4-Trichlorobenzene	%	105 ± 38	40 – 120	No
2,4,5-Trichlorophenol	%	105 ± 47	40 – 120	No
2,4,6-Trichlorophenol	%	103 ± 51	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5210.9				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	111 ± 41	40 – 120	No
Acenaphthylene	%	99 ± 38	40 – 120	No
Aldrin	%	100 ± 37	40 – 120	No
Anthracene	%	113 ± 42	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5210.9				
		Results	Control Limits	Outside Limit (Yes/No)
Benzo[a]anthracene	%	113 ± 42	40 – 120	No
Benzo[a]pyrene (BAP)	%	92 ± 55	40 – 120	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	102 ± 54	40 – 120	No
Benzo[g,h,i]perylene	%	109 ± 64	40 – 120	No
Benzo[k]fluoranthene	%	100 ± 55	40 – 120	No
Benzyl alcohol	%	74 ± 43	40 – 120	No
alpha-BHC	%	102 ± 33	40 – 120	No
beta-BHC	%	102 ± 29	40 – 120	No
delta-BHC	%	105 ± 32	40 – 120	No
gamma-BHC (Lindane)	%	99 ± 31	40 – 120	No
Bis(2-chloroethoxy) methane	%	106 ± 49	40 – 120	No
Bis(2-chloroethyl)ether	%	91 ± 42	40 – 120	No
Bis(2-chloroisopropyl)ether	%	88 ± 35	40 – 120	No
Bis(2-ethylhexyl)phthalate	%	123 ± 58	40 – 120	**Yes**
4-Bromophenyl phenyl ether	%	97 ± 39	40 – 120	No
Butylbenzylphthalate	%	117 ± 47	40 – 120	No
Carbazole	%	107 ± 38	40 – 120	No
4-Chloro-3-methylphenol	%	113 ± 43	40 – 120	No
2-Chlorophenol	%	90 ± 34	40 – 120	No
4-Chlorophenyl phenyl ether	%	113 ± 40	40 – 120	No
Chrysene	%	118 ± 45	40 – 120	No
4,4'-DDD	%	130 ± 60	40 – 120	**Yes**
4,4'-DDE	%	119 ± 49	40 – 120	No
4,4'-DDT	%	127 ± 60	40 – 120	**Yes**
Dibenzo[a,h]anthracene	%	107 ± 59	40 – 120	No
Dibenzofuran	%	115 ± 39	40 – 120	No
1,2-Dichlorobenzene	%	89 ± 36	40 – 120	No
1,3-Dichlorobenzene	%	88 ± 37	40 – 120	No
1,4-Dichlorobenzene	%	87 ± 43	40 – 120	No
2,4-Dichlorophenol	%	90 ± 35	40 – 120	No
Dieldrin	%	118 ± 49	40 – 120	No
Diethylphthalate	%	107 ± 44	40 – 120	No
2,4-Dimethylphenol	%	71 ± 44	40 – 120	No
Dimethylphthalate	%	110 ± 43	40 – 120	No
Di-n-butylphthalate	%	103 ± 38	40 – 120	No
2,4-Dinitrotoluene	%	108 ± 38	40 – 120	No
2,6-Dinitrotoluene	%	110 ± 42	40 – 120	No
Di-n-octylphthalate	%	106 ± 63	40 – 120	No
Endosulfan I	%	116 ± 54	40 – 120	No
Endosulfan II	%	123 ± 45	40 – 120	**Yes**
Endosulfan sulphate	%	132 ± 60	40 – 120	**Yes**
Endrin	%	130 ± 58	40 – 120	**Yes**
Endrin ketone	%	118 ± 49	40 – 120	No
Fluoranthene	%	99 ± 36	40 – 120	No
Fluorene	%	112 ± 41	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5210.9				
		Results	Control Limits	Outside Limit (Yes/No)
Heptachlor	%	103 ± 43	40 – 120	No
Heptachlor epoxide	%	109 ± 39	40 – 120	No
Hexachlorobenzene	%	99 ± 36	40 – 120	No
Hexachlorobutadiene	%	111 ± 42	40 – 120	No
Hexachloroethane	%	90 ± 48	40 – 120	No
Indeno(1,2,3-c,d)pyrene	%	106 ± 66	40 – 120	No
Isophorone	%	88 ± 32	40 – 120	No
2-Methylnaphthalene	%	108 ± 45	40 – 120	No
3 & 4-Methylphenol (m- + p-cresol)	%	82 ± 43	40 – 120	No
2-Methylphenol (o-Cresol)	%	78 ± 41	40 – 120	No
Naphthalene	%	108 ± 46	40 – 120	No
Nitrobenzene	%	109 ± 47	40 – 120	No
2-Nitrophenol	%	92 ± 41	40 – 120	No
N-Nitrosodi-n-propylamine	%	87 ± 34	40 – 120	No
N-Nitrosodiphenylamine + Diphenylamine	%	87 ± 53	40 – 120	No
Phenanthrene	%	99 ± 36	40 – 120	No
Phenol	%	79 ± 36	40 – 120	No
Pyrene	%	114 ± 47	40 – 120	No
1,2,4-Trichlorobenzene	%	113 ± 40	40 – 120	No
2,4,5-Trichlorophenol	%	99 ± 44	40 – 120	No
2,4,6-Trichlorophenol	%	110 ± 55	40 – 120	No

Reference Material QCs

Solids QC - Total Dissolved Solids - Chch: 2097.3				
		Results	Control Limits	Outside Limit (Yes/No)
Total Dissolved Solids (TDS)	g/m^3	980 ± 160	800 – 1,200	No

QC 1 AutoT - Autotitrator - Christchurch: 1491.2				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	7.6 ± 0.2	7.4 – 7.8	No
Total Alkalinity	g/m^3 as $CaCO_3$	150.0 ± 6.1	145 – 159	No
Electrical Conductivity (EC)	mS/m	65.5 ± 1.4	63.6 – 69.6	No

Low EC AQC 1 - Autotitrator - Christchurch: 1491.3				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	4.1 ± 0.2	3.6 – 4.2	No
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #6
Electrical Conductivity (EC)	mS/m	4.0 ± 0.2	2.4 – 5.1	No

Saline QC 1 - Autotitrator - Christchurch: 1491.4				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	5.1 ± 0.2	Undefined	N/A #6
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #6
Electrical Conductivity (EC)	mS/m	5,170 ± 110	5,000 – 5,310	No

pH 10 Buffer - Autotitrator - Christchurch: 1491.5				
		Results	Control Limits	Outside Limit (Yes/No)
pH	pH Units	10.0 ± 0.2	9.9 – 10.1	No
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #6
Electrical Conductivity (EC)	mS/m	337.9 ± 6.8	Undefined	N/A #6

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23454.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	0.0500 ± 0.0031	0.045 – 0.055	No
Total Boron	g/m³	0.101 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0496 ± 0.0040	0.045 – 0.055	No
Total Chromium	g/m³	0.0498 ± 0.0040	0.045 – 0.055	No
Total Copper	g/m³	0.0501 ± 0.0051	0.045 – 0.055	No
Total Lead	g/m³	0.0495 ± 0.0030	0.045 – 0.055	No
Total Nickel	g/m³	0.0497 ± 0.0060	0.045 – 0.055	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23455.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	0.0495 ± 0.0031	0.045 – 0.055	No
Total Boron	g/m³	0.103 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0493 ± 0.0040	0.045 – 0.055	No
Total Chromium	g/m³	0.0490 ± 0.0040	0.045 – 0.055	No
Total Copper	g/m³	0.0484 ± 0.0049	0.045 – 0.055	No
Total Lead	g/m³	0.0508 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m³	0.0496 ± 0.0060	0.045 – 0.055	No
Total Zinc	g/m³	0.486 ± 0.039	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23457.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	0.0493 ± 0.0031	0.045 – 0.055	No
Total Cadmium	g/m³	0.0495 ± 0.0040	0.045 – 0.055	No
Total Chromium	g/m³	0.0503 ± 0.0041	0.045 – 0.055	No
Total Copper	g/m³	0.0487 ± 0.0049	0.045 – 0.055	No
Total Lead	g/m³	0.0489 ± 0.0030	0.045 – 0.055	No
Total Nickel	g/m³	0.0483 ± 0.0059	0.045 – 0.055	No
Total Zinc	g/m³	0.480 ± 0.039	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23458.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	0.0505 ± 0.0032	0.045 – 0.055	No
Total Boron	g/m³	0.099 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0486 ± 0.0039	0.045 – 0.055	No
Total Chromium	g/m³	0.0485 ± 0.0039	0.045 – 0.055	No
Total Copper	g/m³	0.0497 ± 0.0050	0.045 – 0.055	No
Total Lead	g/m³	0.0500 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m³	0.0505 ± 0.0061	0.045 – 0.055	No
Total Zinc	g/m³	0.484 ± 0.039	0.45 – 0.55	No

Low QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.9				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	9.86 ± 0.58	9.2 – 11.1	No
Sulphate	g/m³	9.74 ± 0.73	8.9 – 11.2	No

High QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.10				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	99.5 ± 4.8	90 – 110	No
Sulphate	g/m³	100.8 ± 6.8	90 – 110	No

Filt MA QC PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.81				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	9.58 ± 0.57	8.4 – 10.8	No
Sulphate	g/m³	9.30 ± 0.71	8.3 – 10.5	No

Filt MA QC PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.95				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	9.62 ± 0.57	8.4 – 10.8	No
Sulphate	g/m³	9.30 ± 0.71	8.3 – 10.5	No

NO2N QC - L4C by FIA Worksheet: 12458.7				
		Results	Control Limits	Outside Limit (Yes/No)
Nitrite-N	g/m³	0.523 ± 0.074	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.525 ± 0.064	0.42 – 0.58	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	Undefined	N/A #6

Filt MA QC PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.36				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	0.481 ± 0.043	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.98 ± 0.12	0.85 – 1.15	No
Dissolved Reactive Phosphorus	g/m³	0.990 ± 0.051	0.85 – 1.15	No

Filt MA QC PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	0.467 ± 0.042	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.97 ± 0.12	0.85 – 1.15	No
Dissolved Reactive Phosphorus	g/m³	0.979 ± 0.050	0.85 – 1.15	No

Filt MA QC PrepWS FiltMGchch - L4C by FIA Worksheet: 12458.110				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	0.478 ± 0.043	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.98 ± 0.12	0.85 – 1.15	No
Dissolved Reactive Phosphorus	g/m³	0.991 ± 0.051	0.85 – 1.15	No

Low QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13077.9				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	10.00 ± 0.59	9.2 – 11.1	No
Sulphate	g/m³	9.88 ± 0.74	8.9 – 11.2	No

High QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13077.10				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	99.5 ± 4.8	90 – 110	No
Sulphate	g/m³	100.8 ± 6.8	90 – 110	No

Filt MA QC PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13077.30				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	9.30 ± 0.56	8.4 – 10.8	No
Sulphate	g/m³	8.86 ± 0.68	8.3 – 10.5	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	0.0497 ± 0.0031	0.045 – 0.055	No
Total Boron	g/m³	0.100 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0490 ± 0.0040	0.045 – 0.055	No
Total Chromium	g/m³	0.0505 ± 0.0041	0.045 – 0.055	No
Total Copper	g/m³	0.0503 ± 0.0051	0.045 – 0.055	No
Total Lead	g/m³	0.0499 ± 0.0030	0.045 – 0.055	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23460.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Nickel	g/m³	0.0494 ± 0.0060	0.045 – 0.055	No
Total Zinc	g/m³	0.481 ± 0.039	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23464.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	0.0491 ± 0.0031	0.045 – 0.055	No
Dissolved Boron	g/m³	0.094 ± 0.037	0.090 – 0.110	No
Dissolved Cadmium	g/m³	0.0479 ± 0.0039	0.045 – 0.055	No
Dissolved Calcium	g/m³	4.77 ± 0.20	4.5 – 5.5	No
Dissolved Chromium	g/m³	0.0490 ± 0.0040	0.045 – 0.055	No
Dissolved Copper	g/m³	0.0484 ± 0.0049	0.045 – 0.055	No
Dissolved Iron	g/m³	0.486 ± 0.070	0.45 – 0.55	No
Dissolved Lead	g/m³	0.0483 ± 0.0029	0.045 – 0.055	No
Dissolved Magnesium	g/m³	0.481 ± 0.041	0.45 – 0.55	No
Dissolved Manganese	g/m³	0.0477 ± 0.0048	0.045 – 0.055	No
Dissolved Nickel	g/m³	0.0481 ± 0.0058	0.045 – 0.055	No
Dissolved Potassium	g/m³	4.85 ± 0.30	4.5 – 5.5	No
Dissolved Sodium	g/m³	4.81 ± 0.29	4.5 – 5.5	No
Dissolved Zinc	g/m³	0.483 ± 0.039	0.45 – 0.55	No

Solids QC - Total Dissolved Solids - Chch: 2099.3				
		Results	Control Limits	Outside Limit (Yes/No)
Total Dissolved Solids (TDS)	g/m³	970 ± 160	800 – 1,200	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23494.20				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	0.0506 ± 0.0032	0.045 – 0.055	No
Dissolved Boron	g/m³	0.098 ± 0.038	0.090 – 0.110	No
Dissolved Cadmium	g/m³	0.0481 ± 0.0039	0.045 – 0.055	No
Dissolved Calcium	g/m³	4.85 ± 0.20	4.5 – 5.5	No
Dissolved Chromium	g/m³	0.0490 ± 0.0040	0.045 – 0.055	No
Dissolved Copper	g/m³	0.0504 ± 0.0051	0.045 – 0.055	No
Dissolved Iron	g/m³	0.488 ± 0.070	0.45 – 0.55	No
Dissolved Lead	g/m³	0.0479 ± 0.0029	0.045 – 0.055	No
Dissolved Magnesium	g/m³	0.489 ± 0.042	0.45 – 0.55	No
Dissolved Manganese	g/m³	0.0488 ± 0.0049	0.045 – 0.055	No
Dissolved Nickel	g/m³	0.0505 ± 0.0061	0.045 – 0.055	No
Dissolved Potassium	g/m³	4.95 ± 0.30	4.5 – 5.5	No
Dissolved Sodium	g/m³	4.82 ± 0.29	4.5 – 5.5	No
Dissolved Zinc	g/m³	0.483 ± 0.039	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23501.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	0.498 ± 0.040	0.45 – 0.55	No

Replicates

Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.100				
		Replicate 1	Replicate 2	Pass/Fail
Chloride	g/m³	73.1 ± 3.6	73.8 ± 3.6	Pass

Autotitrator - Christchurch: 1491.14				
		Replicate 1	**Replicate 2**	**Pass/Fail**
Electrical Conductivity (EC)	mS/m	66.7 ± 1.4	66.5 ± 1.4	Pass

L4C by FIA Worksheet: 12458.52				
		Replicate 1	**Replicate 2**	**Pass/Fail**
Nitrate-N + Nitrite-N	g/m^3	0.0022 ± 0.0014	< 0.002 ± 0.0014	Pass
Nitrite-N	g/m^3	< 0.002 ± 0.0014	< 0.002 ± 0.0014	Pass

Autotitrator - Christchurch: 1491.14				
		Replicate 1	**Replicate 2**	**Pass/Fail**
pH	pH Units	7.4 ± 0.2	7.4 ± 0.2	Pass

Ion Chromatography General Anion Worksheet - Dionex DX 120: 13076.100				
		Replicate 1	**Replicate 2**	**Pass/Fail**
Sulphate	g/m^3	18.4 ± 1.3	18.6 ± 1.3	Pass

Autotitrator - Christchurch: 1491.14				
		Replicate 1	**Replicate 2**	**Pass/Fail**
Total Alkalinity	g/m^3 as $CaCO_3$	210.0 ± 8.5	211.2 ± 8.5	Pass

L4C by FIA Worksheet: 12458.52				
		Replicate 1	**Replicate 2**	**Pass/Fail**
Dissolved Reactive Phosphorus	g/m^3	0.0305 ± 0.0031	0.0308 ± 0.0031	Pass
Total Ammoniacal-N	g/m^3	0.0584 ± 0.0084	0.0601 ± 0.0085	Pass

Analyst's Comments

#1 The System Monitoring Compound (SMC) recovery was above the acceptable recovery range. The sample results were accepted as there were no target compounds detected.

#2 The Laboratory Control Sample (LCS) spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the sample.

#3 LCS performs within generic limits of 80-130, results are confirmed by reanalysis techniques and are suitable for use.

#4 The Laboratory Control spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the samples.

#5 The sample spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the sample.

#6 Control limits have not been established for this analyte.

HillLabs

ANALYSIS REQUEST

Job No: 405 4559
Date Recv: 10-Dec-25 14:12

R J Hill Laboratories Limited
1/17 Print Place
Middleton
Christchurch 8042, New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Received by: Courtney Boulton

3140545595

Quote No 140553
Primary Contact Mark Scaife
Submitted By Mark Scaife
Client Name Stantec
Address Level 3/2 Hazeldean road addington *Postcode* 8024
Phone 0272388069 *Mobile* 0272388069
Email mark.scaife@stantec.com

Charge To
Client Reference 310003431
Order No 310003431

Results To *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*

- [x] *Email Primary Contact*
- [ ] *Email Submitter*
- [ ] *Email Client*
- [ ] *Email Other*
- [ ] *Other*

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories
Date & Time:
Name:
Signature:
- [ ] *Tick if you require COC to be emailed back*

Received at Hill Laboratories *(Refer to Lab created Job No above)*
Date & Time:
Name:
Signature:

Condition
- [ ] *Room Temp*
- [ ] *Chilled*
- [ ] *Frozen*

Temp: 12 °C

ADDITIONAL INFORMATION / KNOWN HAZARDS

Priority
- [ ] **Low**
- [x] **Normal**
- [x] **High**
- [ ] **Urgent** (ASAP, extra charge applies, please contact lab first)

Requested Reporting Date:

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	BRM-BH01	10/12/25	10:30	water	Total metals, Dissolved metals TPH, BTEXN, PAHs, VOCs, SVOCs, Nutrients, Physio chemical parameters (as per quote)
2	AVO-BH01	10/12/25	9:30	water	
3	BRI-BH02	9/12/25	4:10	water	
4	PS-BH01	9/12/25	2:10	water	"
5	LOC-BH02	9/12/25	12:45	water	"
6	DUD-BH02	9/12/25	11:30	water	"
7	RIV-BH04	9/12/25	10:00	water	"
8	AVO-BH02	8/12/25	3:40	water	"
9	AVO-BH01	8/12/25	1:30	water	"
10	AVO-BH04	8/12/25	11:00	water	"
11	DUP-01	8/12/25		water	Total & Dissolved metals TPH, BTEXN, PAHs
12	DUP-02	9/12/25		water	"
	RIN-01	8/12/25	12:30	water	"
	RIN-02	9/12/25	12:[illegible]	water	"

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Job Information Summary

Client:	Stantec New Zealand	**Lab No:**	4054559
Contact:	Ellen Wilson-Hill	**Date Registered:**	10-Dec-2025 2:47 pm
	C/- Stantec New Zealand	**Priority:**	High
	PO Box 13249	**Quote No:**	140553
	Christchurch 8141	**Order No:**	310003431
		Client Reference:	310003431
		Add. Client Ref:	
		Submitted By:	Mark Scaife
		Charge To:	Stantec New Zealand
		Target Date:	17-Dec-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BRM-BH01 10-Dec-2025 10:30 am	Ground Water	UP1L, TPH250, VOC40, VOC40, N100, FN100, S100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
2	AVD-BH01 10-Dec-2025 9:30 am	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, S100, FN100, N100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
3	BRI-BH02 09-Dec-2025 4:10 pm	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, N100, S100, FN100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
4	PS-BH01 09-Dec-2025 2:10 pm	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, S100, N100, FN100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
5	LOC-BH02 09-Dec-2025 12:45 pm	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, FN100, N100, S100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
6	DUD-BH01 09-Dec-2025 11:30 am	Ground Water	UP1L, TPH250, VOC40, VOC40, S100, FN100, N100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
7	RIV-BH04 09-Dec-2025 10:00 am	Ground Water	UP1L, TPH250, VOC40, VOC40, N100, FN100, S100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
8	AVO-BH02 08-Dec-2025 3:40 pm	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, S100, FN100, N100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
9	AVO-BH01 08-Dec-2025 1:30 pm	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, FN100, S100, N100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
10	AVO-BH04 08-Dec-2025 11:00 am	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, N100, FN100, S100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
11	DUP-01 08-Dec-2025	Ground Water	UP1L, TPH250, VOC40, VOC40, N100, FN100, S100	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq, TPH + BTEX profile, Water

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
12	DUP-02 09-Dec-2025	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, N100, FN100, S100	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq, TPH + BTEX profile, Water
13	RIN-01 08-Dec-2025 12:30 pm	Ground Water	UP1L, Org500, TPH250, VOC40, VOC40, N100, S100, FN100	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq, TPH + BTEX profile, Water
14	RIN-02 09-Dec-2025 12:12 pm	Ground Water	Org500, TPH250, VOC40, VOC40, FN100, N100	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq, TPH + BTEX profile, Water

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1-10
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-14
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-10
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	1-10
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	1-10
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-10
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-10
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-10
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-10
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-10
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-10
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	1-10

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	1-10
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-10
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1-10
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-10
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-10
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-10
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m^3	1-10
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m^3	1-10
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1-10
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-10
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-10
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	1-10
Dissolved Inorganic Nitrogen	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m^3	1-10
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m^3	1-10
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-10
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m^3	1-10
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-10
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m^3	1-10
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m^3	1-10
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	1-10
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m^3	1-14
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m^3	1-14
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m^3	1-14
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m^3	11-14
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m^3	1-10
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m^3	1-10
Dissolved Inorganic Nitrogen		0.002 - 0.010 g/m^3	1-10
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m^3	1-14
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m^3	1-14
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m^3	1-14

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m^3	1-14

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Stantec New Zealand	**Lab No:**	4054559	SPv1
Contact:	Ellen Wilson-Hill	**Date Received:**	10-Dec-2025	
	C/- Stantec New Zealand	**Date Reported:**	19-Dec-2025	
	PO Box 13249	**Quote No:**	140553	
	Christchurch 8141	**Order No:**	310003431	
		Client Reference:	310003431	
		Submitted By:	Mark Scaife	

Sample Type: Aqueous

Sample Name:		BRM-BH01 10-Dec-2025 10:30 am	AVD-BH01 10-Dec-2025 9:30 am	BRI-BH02 09-Dec-2025 4:10 pm	PS-BH01 09-Dec-2025 2:10 pm	LOC-BH02 09-Dec-2025 12:45 pm
Lab Number:		4054559.1	4054559.2	4054559.3	4054559.4	4054559.5
Individual Tests						
Sum of Anions	meq/L	12.0	7.1	6.5	2.1	1.50
Sum of Cations	meq/L	13.4	8.0	7.1	2.3	1.64
pH	pH Units	6.8	6.6	7.6	7.2	7.0
Total Alkalinity	g/m^3 as $CaCO_3$	520	240	193	63	62
Carbonate	g/m^3 at 25°C	< 1.0 #2	< 1.0 #2	< 1.0	< 1.0	< 1.0
Bicarbonate	g/m^3 at 25°C	630 #2	290 #2	230	77	76
Free Carbon Dioxide	g/m^3 at 25°C	150 #2	135 #2	9.4	8.9	12.1
Total Hardness	g/m^3 as $CaCO_3$	410	280	210	70	35
Electrical Conductivity (EC)	mS/m	110.9	70.7	66.8	22.5	15.8
Total Dissolved Solids (TDS)	g/m^3	730 #2	520 #2	400	142	99
Dissolved Boron	g/m^3	0.09 #1	0.45 #1	0.27 #1	0.18 #1	0.05 #1
Total Boron	g/m^3	0.084 #1	0.41 #1	0.23 #1	0.155 #1	< 0.053 #1
Dissolved Calcium	g/m^3	89	84	53	22	6.4
Dissolved Iron	g/m^3	13.4	7.3	0.67	0.71	2.5
Dissolved Magnesium	g/m^3	46	16.7	18.9	3.9	4.6
Dissolved Manganese	g/m^3	2.4	2.1	0.30	0.135	0.28
Dissolved Mercury	g/m^3	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Total Mercury	g/m^3	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011
Dissolved Potassium	g/m^3	7.6	2.5	2.4	4.7	14.4
Dissolved Sodium	g/m^3	101	45	65	16.4	10.6
Chloride	g/m^3	59	61	79	19.1	7.1
Dissolved Inorganic Nitrogen*	g/m^3	0.59	0.56	0.084	0.91	0.131
Total Ammoniacal-N	g/m^3	0.59	0.56	0.083	0.103	0.121
Nitrite-N	g/m^3	< 0.02 #3	< 0.02 #3	< 0.002	0.019	0.003
Nitrate-N	g/m^3	< 0.02	< 0.02	< 0.002	0.79	0.008
Nitrate-N + Nitrite-N	g/m^3	< 0.02 #3	< 0.02 #3	< 0.002	0.81	0.010
Total Kjeldahl Nitrogen (TKN)	g/m^3	2.6	2.6	0.92	0.80	0.24
Dissolved Reactive Phosphorus	g/m^3	0.020	0.104	0.140	< 0.004	0.033
Sulphate	g/m^3	< 0.5	25	19.3	10.2	2.8
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m^3	0.0053	0.043 #1	0.0032	< 0.0010	0.0042
Dissolved Cadmium	g/m^3	< 0.00005	0.00030	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m^3	0.0011	0.0022	< 0.0005	< 0.0005	< 0.0005
Dissolved Copper	g/m^3	< 0.0005	0.0009	0.0010	0.0025	0.0009
Dissolved Lead	g/m^3	< 0.00010	0.00049	0.00043	< 0.00010	0.00033
Dissolved Nickel	g/m^3	< 0.0005	0.022 #1	0.0007	0.0012	0.0006 #1
Dissolved Zinc	g/m^3	0.0013	1.42 #1	1.06	0.165 #1	0.28 #1

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Aqueous						
Sample Name:		BRM-BH01 10-Dec-2025 10:30 am	AVD-BH01 10-Dec-2025 9:30 am	BRI-BH02 09-Dec-2025 4:10 pm	PS-BH01 09-Dec-2025 2:10 pm	LOC-BH02 09-Dec-2025 12:45 pm
Lab Number:		4054559.1	4054559.2	4054559.3	4054559.4	4054559.5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	0.0063	0.040 #1	0.0048	< 0.0011	0.0061
Total Cadmium	g/m³	< 0.000053	0.00033	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	0.00150	0.0032	0.0031	< 0.00053	< 0.00053
Total Copper	g/m³	< 0.00053	0.0029	0.0034	0.0026	0.00141
Total Lead	g/m³	0.00102	0.0020	0.0117	0.00087	0.00094
Total Nickel	g/m³	0.00068	0.022 #1	0.0028	0.00124	< 0.00053 #1
Total Zinc	g/m³	0.0121	1.32 #1	3.2	0.146 #1	0.24 #1
BTEX in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	g/m³	< 0.0010	0.0029	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m&p-Xylene	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
alpha-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
beta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
delta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDD	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dieldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Acenaphthylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		BRM-BH01 10-Dec-2025 10:30 am	AVD-BH01 10-Dec-2025 9:30 am	BRI-BH02 09-Dec-2025 4:10 pm	PS-BH01 09-Dec-2025 2:10 pm	LOC-BH02 09-Dec-2025 12:45 pm
Lab Number:		4054559.1	4054559.2	4054559.3	4054559.4	4054559.5
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
1&2-Chloronaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chrysene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluorene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Naphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenanthrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Chlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Diethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dimethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachloroethane	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,2,4-Trichlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isophorone	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Ethylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	g/m³	< 0.003	0.003	< 0.003	< 0.003	< 0.003
m&p-Xylene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		BRM-BH01 10-Dec-2025 10:30 am	AVD-BH01 10-Dec-2025 9:30 am	BRI-BH02 09-Dec-2025 4:10 pm	PS-BH01 09-Dec-2025 2:10 pm	LOC-BH02 09-Dec-2025 12:45 pm
Lab Number:		4054559.1	4054559.2	4054559.3	4054559.4	4054559.5
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Carbon tetrachloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromomethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Vinyl chloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tert-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
n-Propylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
sec-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Styrene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		BRM-BH01 10-Dec-2025 10:30 am	AVD-BH01 10-Dec-2025 9:30 am	BRI-BH02 09-Dec-2025 4:10 pm	PS-BH01 09-Dec-2025 2:10 pm	LOC-BH02 09-Dec-2025 12:45 pm
Lab Number:		4054559.1	4054559.2	4054559.3	4054559.4	4054559.5
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromochloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Sample Name:		DUD-BH01 09-Dec-2025 11:30 am	RIV-BH04 09-Dec-2025 10:00 am	AVO-BH02 08-Dec-2025 3:40 pm	AVO-BH01 08-Dec-2025 1:30 pm	AVO-BH04 08-Dec-2025 11:00 am
Lab Number:		4054559.6	4054559.7	4054559.8	4054559.9	4054559.10
Individual Tests						
Sum of Anions	meq/L	4.7	3.7	10.5	1.92	4.0
Sum of Cations	meq/L	5.0	3.8	12.0	2.7	4.3
pH	pH Units	7.4	7.5	7.0	6.9	7.6
Total Alkalinity	g/m³ as $CaCO_3$	162	134	290	86	126
Carbonate	g/m³ at 25°C	< 1.0	< 1.0	< 1.0 #2	< 1.0	< 1.0
Bicarbonate	g/m³ at 25°C	196	163	350 #2	105	153
Free Carbon Dioxide	g/m³ at 25°C	12.3	8.6	64 #2	23	6.0
Total Hardness	g/m³ as $CaCO_3$	189	99	460	49	161
Electrical Conductivity (EC)	mS/m	48.0	36.5	107.3	18.9	39.7
Total Dissolved Solids (TDS)	g/m³	300	220	710 #2	149	240
Dissolved Boron	g/m³	0.10 #1	0.13 #1	0.23 #1	< 0.05	0.09 #1
Total Boron	g/m³	0.090 #1	0.116 #1	0.20 #1	< 0.053	0.082 #1
Dissolved Calcium	g/m³	63	22	157	15.7	45
Dissolved Iron	g/m³	0.84	0.36	2.6	18.6	0.08
Dissolved Magnesium	g/m³	7.5	10.9	15.8	2.4	11.7
Dissolved Manganese	g/m³	0.24	0.182	0.25	1.23	0.022
Dissolved Mercury	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Total Mercury	g/m³	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011
Dissolved Potassium	g/m³	9.3	3.0	3.4	3.5	2.4
Dissolved Sodium	g/m³	22	40	61	17.2	23
Chloride	g/m³	26	23	142	6.7	21
Dissolved Inorganic Nitrogen*	g/m³	0.33	0.099	0.184	1.19	< 0.011
Total Ammoniacal-N	g/m³	0.138	0.098	0.183	1.19	< 0.010
Nitrite-N	g/m³	0.007	< 0.002	< 0.002	< 0.02 #3	< 0.002
Nitrate-N	g/m³	0.184	< 0.002	< 0.002	< 0.02	< 0.002
Nitrate-N + Nitrite-N	g/m³	0.191	< 0.002	< 0.002	< 0.02 #3	< 0.002
Total Kjeldahl Nitrogen (TKN)	g/m³	0.48	0.20	1.27	1.49	0.15
Dissolved Reactive Phosphorus	g/m³	0.008	0.021	< 0.004	0.007	< 0.004
Sulphate	g/m³	35	18.3	38	< 0.5	42
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m³	0.0036	< 0.0010	0.0078	0.023	< 0.0010
Dissolved Cadmium	g/m³	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Dissolved Copper	g/m³	0.0027	< 0.0005	< 0.0005	< 0.0005	0.0011
Dissolved Lead	g/m³	0.00083	< 0.00010	0.00031	0.00013	0.00017
Dissolved Nickel	g/m³	0.0012	< 0.0005	0.0019	0.0007 #1	0.0008
Dissolved Zinc	g/m³	0.23	0.28 #1	0.089	1.10	0.108 #1

Sample Type: Aqueous						
Sample Name:		DUD-BH01 09-Dec-2025 11:30 am	RIV-BH04 09-Dec-2025 10:00 am	AVO-BH02 08-Dec-2025 3:40 pm	AVO-BH01 08-Dec-2025 1:30 pm	AVO-BH04 08-Dec-2025 11:00 am
Lab Number:		4054559.6	4054559.7	4054559.8	4054559.9	4054559.10
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	0.0045	< 0.0011	0.0115	0.027	< 0.0011
Total Cadmium	g/m³	0.000080	< 0.000053	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	0.0046	< 0.00053	0.00159	< 0.00053	< 0.00053
Total Copper	g/m³	0.0086	< 0.00053	0.0050	< 0.00053	0.00111
Total Lead	g/m³	0.040	< 0.00011	0.0057	0.00057	0.00020
Total Nickel	g/m³	0.0046	< 0.00053	0.0035	0.00064 #1	0.00079
Total Zinc	g/m³	0.32	0.27 #1	0.148	1.16	0.107 #1
BTEX in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	g/m³	< 0.0010	< 0.0010	< 0.0010	0.073	< 0.0010
Ethylbenzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m&p-Xylene	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
alpha-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
beta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
delta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDD	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dieldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Acenaphthylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		DUD-BH01 09-Dec-2025 11:30 am	RIV-BH04 09-Dec-2025 10:00 am	AVO-BH02 08-Dec-2025 3:40 pm	AVO-BH01 08-Dec-2025 1:30 pm	AVO-BH04 08-Dec-2025 11:00 am
Lab Number:		4054559.6	4054559.7	4054559.8	4054559.9	4054559.10
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
1&2-Chloronaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chrysene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluorene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Naphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenanthrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Chlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Diethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dimethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachloroethane	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,2,4-Trichlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isophorone	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	0.12	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Ethylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	g/m³	< 0.003	< 0.003	< 0.003	0.061	< 0.003
m&p-Xylene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

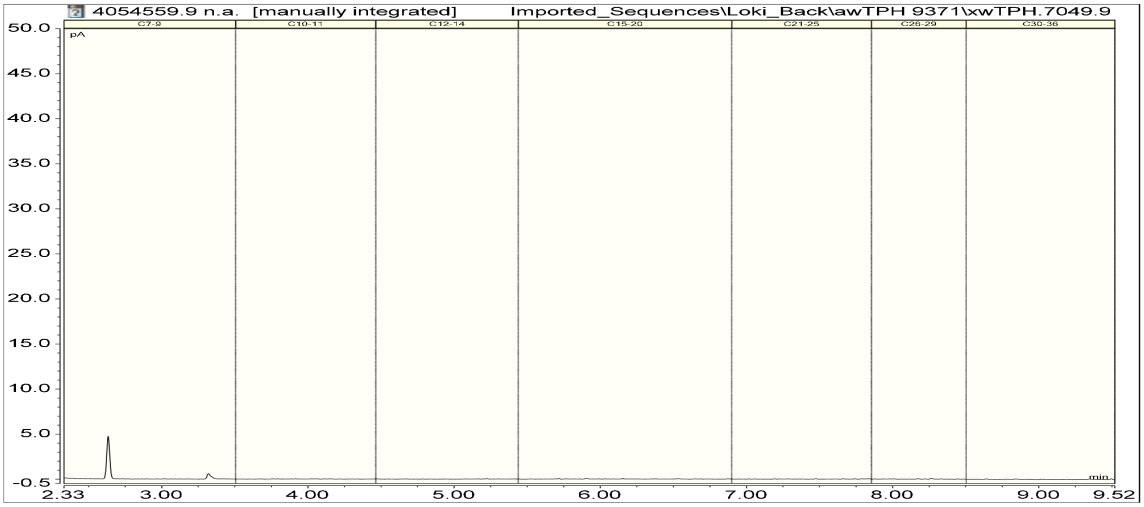
Sample Type: Aqueous						
Sample Name:		DUD-BH01 09-Dec-2025 11:30 am	RIV-BH04 09-Dec-2025 10:00 am	AVO-BH02 08-Dec-2025 3:40 pm	AVO-BH01 08-Dec-2025 1:30 pm	AVO-BH04 08-Dec-2025 11:00 am
Lab Number:		4054559.6	4054559.7	4054559.8	4054559.9	4054559.10
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Carbon tetrachloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromomethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Vinyl chloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tert-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
n-Propylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
sec-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Styrene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		DUD-BH01 09-Dec-2025 11:30 am	RIV-BH04 09-Dec-2025 10:00 am	AVO-BH02 08-Dec-2025 3:40 pm	AVO-BH01 08-Dec-2025 1:30 pm	AVO-BH04 08-Dec-2025 11:00 am
Lab Number:		4054559.6	4054559.7	4054559.8	4054559.9	4054559.10
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromochloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Sample Name:		DUP-01 08-Dec-2025	DUP-02 09-Dec-2025	RIN-01 08-Dec-2025 12:30 pm	RIN-02 09-Dec-2025 12:12 pm
Lab Number:		4054559.11	4054559.12	4054559.13	4054559.14
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn					
Dissolved Arsenic	g/m³	0.0079	0.0011 #1	< 0.0010	< 0.0010
Dissolved Cadmium	g/m³	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Dissolved Copper	g/m³	< 0.0005	< 0.0005	< 0.0005	0.0006
Dissolved Lead	g/m³	0.00029	< 0.00010	< 0.00010	< 0.00010
Dissolved Nickel	g/m³	0.0020	< 0.0005	< 0.0005	< 0.0005
Dissolved Zinc	g/m³	0.081	0.29 #1	0.0030 #1	0.0069
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn					
Total Arsenic	g/m³	0.0127	< 0.0011 #1	< 0.0011	< 0.0011
Total Cadmium	g/m³	< 0.000053	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	0.00157	< 0.00053	< 0.00053	< 0.00053
Total Copper	g/m³	0.0045	< 0.00053	< 0.00053	0.00091
Total Lead	g/m³	0.0054	< 0.00011	< 0.00011	0.00025
Total Nickel	g/m³	0.0035	< 0.00053	< 0.00053	< 0.00053
Total Zinc	g/m³	0.160	0.28 #1	0.0029 #1	0.0095
BTEX in Water by Headspace GC-MS					
Benzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m&p-Xylene	g/m³	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq					
Acenaphthene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Acenaphthylene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[a]anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[g,h,i]perylene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[k]fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Chrysene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Dibenzo[a,h]anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Fluorene	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Naphthalene	g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Phenanthrene	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004

Sample Type: Aqueous					
Sample Name:		DUP-01 08-Dec-2025	DUP-02 09-Dec-2025	RIN-01 08-Dec-2025 12:30 pm	RIN-02 09-Dec-2025 12:12 pm
Lab Number:		4054559.11	4054559.12	4054559.13	4054559.14
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq					
Pyrene	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Total Petroleum Hydrocarbons in Water					
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7

4054559.9
AVO-BH01 08-Dec-2025 1:30 pm
Client Chromatogram for TPH by FID



Analyst's Comments

#1 It has been noted that the result for the dissolved fraction was greater than that for the total fraction, but within analytical variation of the methods.

#2 Please note that the calculation used to determine the carbonate and bicarbonate content is only valid when the total dissolved solids (TDS) content is <500mg/L. It was observed that the TDS content of this sample is >500mg/L, therefore these results should be treated as indicative only.

#3 Severe matrix interferences required that a dilution be performed prior to analysis, resulting in a detection limit higher than that normally achieved for the NOxN /NO2N analysis.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1-10
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-14
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-10
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	1-10

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	1-10
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-10
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-10
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-10
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-10
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-10
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-10
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	1-10
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	1-10
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-10
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1-10
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-10
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-10
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-10
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m^3	1-10
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m^3	1-10
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1-10
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-10
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-10
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	1-10
Dissolved Inorganic Nitrogen*	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m^3	1-10
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m^3	1-10
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-10
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m^3	1-10
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-10

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m³	1-10
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m³	1-10
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1-10
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m³	1-14
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m³	1-14
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m³	1-14
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m³	11-14
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m³	1-10
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m³	1-10
Dissolved Inorganic Nitrogen*		0.002 - 0.010 g/m³	1-10
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m³	1-14
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m³	1-14
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m³	1-14
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m³	1-14

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 11-Dec-2025 and 19-Dec-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

HiLL Labs

ANALYSIS REQUEST

R J Hill Laboratories Limited
1/17 Print Place
Middleton
Christchurch 8042, New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Job No: **405 5927**

Date Recv: 11-Dec-25 15:05

Received by: Brianna McLachlan

3140559277

Quote No 1403553

Primary Contact Mark Scaife

Submitted By Rose Kum

Client Name Stantec

Address 2 Hazeldean Road, Addington Level 3

Postcode 8024

Phone

Mobile 027 238 8064

Email Mark.scaife@stantec.com

Charge To

Client Reference

Order No

Results To Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.

- [x] Email Primary Contact
- [ ] Email Submitter
- [ ] Email Client
- [ ] Email Other
- [ ] Other

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories

Date & Time:

Name:

Signature:

- [ ] Tick if you require COC to be emailed back

Received at Hill Laboratories (Refer to Lab created Job No above)

Date & Time:

Name:

Signature:

Condition

- [ ] Room Temp
- [ ] Chilled
- [ ] Frozen

Temp: 18.0

ADDITIONAL INFORMATION / KNOWN HAZARDS

Priority

- [ ] Low
- [x] Normal
- [ ] High
- [ ] Urgent (ASAP, extra charge applies, please contact lab first)

Requested Reporting Date:

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	BOW-BH01	11/12/25	11.40	GW	Total and dissolved metals, TPH, BTEXN, PAHs, VOCs, SVOCs, nutrients, physiochemical parameters,
2	BOW-BH05	↓	10.05	↓	
3	EVA-BH01		9:15		
4	LKS-BH01		10:10		
5	RINS3		10:10		Total and dissolved metals, TPH, BTEXN, PAH
6					
7					
8					
9					
10					
11					
12					

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Job Information Summary

Client:	Stantec New Zealand	**Lab No:**	4055927
Contact:	Mark Scaife	**Date Registered:**	11-Dec-2025 3:22 pm
	C/- Stantec New Zealand	**Priority:**	High
	PO Box 13052	**Quote No:**	140553
	Armagh	**Order No:**	
	Christchurch 8141	**Client Reference:**	
		Add. Client Ref:	
		Submitted By:	Mark Scaife
		Charge To:	Stantec New Zealand
		Target Date:	18-Dec-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BOW-BH01 11-Dec-2025 11:40 am	Ground Water	UP1L, Org500, TPH250, N100, VOC40, VOC40, S100, FN100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
2	BOW-BH08 11-Dec-2025 10:05 am	Ground Water	UP1L, TPH250, N100, VOC40, VOC40, S100, FN100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
3	EVA-BH01 11-Dec-2025 9:15 am	Ground Water	UP1L, Org500, TPH250, N100, VOC40, VOC40, S100, FN100	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
4	LKS-BH01 11-Dec-2025 2:10 pm	Ground Water	UP1L, TPH250, N100, VOC40, VOC40, S100, FN100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEX profile, Water
5	RINS 3 11-Dec-2025 10:10 am	Ground Water	Org500, TPH250, VOC40, VOC40, N100, FN100	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq, TPH + BTEX profile, Water

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1-4
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-5
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-4
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	1-4
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	1-4
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-4
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-4
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-4
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-4
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-4
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-4
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	1-4
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	1-4
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-4
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1-4
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-4
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-4
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-4
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m^3	1-4
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m^3	1-4

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1-4
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-4
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-4
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	1-4
Dissolved Inorganic Nitrogen	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m^3	1-4
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m^3	1-4
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-4
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m^3	1-4
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-4
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m^3	1-4
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m^3	1-4
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	1-4
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m^3	1-5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m^3	1-5
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m^3	1-5
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m^3	5
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m^3	1-4
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m^3	1-4
Dissolved Inorganic Nitrogen		0.002 - 0.010 g/m^3	1-4
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m^3	1-5
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m^3	1-5
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m^3	1-5
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m^3	1-5

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Stantec New Zealand	**Lab No:**	4055927	SPv1
Contact:	Mark Scaife	**Date Received:**	11-Dec-2025	
	C/- Stantec New Zealand	**Date Reported:**	19-Dec-2025	
	PO Box 13052	**Quote No:**	140553	
	Armagh	**Order No:**		
	Christchurch 8141	**Client Reference:**		
		Submitted By:	Mark Scaife	

Sample Type: Aqueous

Sample Name:		BOW-BH01 11-Dec-2025 11:40 am	BOW-BH08 11-Dec-2025 10:05 am	EVA-BH01 11-Dec-2025 9:15 am	LKS-BH01 11-Dec-2025 2:10 pm	RINS 3 11-Dec-2025 10:10 am
Lab Number:		4055927.1	4055927.2	4055927.3	4055927.4	4055927.5
Individual Tests						
Sum of Anions	meq/L	12.5	4.9	4.8	3.0	-
Sum of Cations	meq/L	12.7	5.1	5.0	2.9	-
pH	pH Units	6.9	7.0	7.0	7.5	-
Total Alkalinity	g/m^3 as $CaCO_3$	99	148	107	129	-
Carbonate	g/m^3 at 25°C	< 1.0 #2	< 1.0	< 1.0	< 1.0	-
Bicarbonate	g/m^3 at 25°C	121 #2	180	130	157	-
Free Carbon Dioxide	g/m^3 at 25°C	25 #2	30	24	8.7	-
Total Hardness	g/m^3 as $CaCO_3$	560	88	153	98	-
Electrical Conductivity (EC)	mS/m	111.1	53.1	52.8	29.1	-
Total Dissolved Solids (TDS)	g/m^3	890 #2	320	320	198	-
Dissolved Boron	g/m^3	0.13 #1	0.18 #1	0.08 #1	0.08 #1	-
Total Boron	g/m^3	0.116 #1	0.154 #1	0.071 #1	0.075 #1	-
Dissolved Calcium	g/m^3	192	26	46	32	-
Dissolved Iron	g/m^3	10.0	0.03	0.53	1.43	-
Dissolved Magnesium	g/m^3	19.1	5.4	9.1	4.3	-
Dissolved Manganese	g/m^3	0.55	0.097	0.28	0.76	-
Dissolved Mercury	g/m^3	< 0.00010	< 0.00010	< 0.00010	< 0.00010	-
Total Mercury	g/m^3	< 0.00011	< 0.00011	< 0.00011	< 0.00011	-
Dissolved Potassium	g/m^3	18.1	25	8.0	9.4	-
Dissolved Sodium	g/m^3	14.0	63	40	13.6	-
Chloride	g/m^3	17.4	41	70	9.8	-
Dissolved Inorganic Nitrogen*	g/m^3	0.78	2.1	0.35	1.02	-
Total Ammoniacal-N	g/m^3	0.77	< 0.010	< 0.010	1.02	-
Nitrite-N	g/m^3	< 0.002	0.22	0.071	< 0.002	-
Nitrate-N	g/m^3	0.011	1.91	0.27	< 0.002	-
Nitrate-N + Nitrite-N	g/m^3	0.012	2.1	0.34	< 0.002	-
Total Kjeldahl Nitrogen (TKN)	g/m^3	1.00	0.84	0.72	1.46	-
Dissolved Reactive Phosphorus	g/m^3	< 0.004	0.107	< 0.004	0.81	-
Sulphate	g/m^3	480	31	33	1.0	-
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m^3	0.0030	0.0023	0.0015	0.0016	< 0.0010
Dissolved Cadmium	g/m^3	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m^3	< 0.0005	< 0.0005	< 0.0005	0.0005	< 0.0005
Dissolved Copper	g/m^3	< 0.0005	0.0061	0.0024	< 0.0005	< 0.0005
Dissolved Lead	g/m^3	< 0.00010	< 0.00010	0.00010	< 0.00010	< 0.00010
Dissolved Nickel	g/m^3	0.0011	0.0034 #1	0.0015	< 0.0005	< 0.0005
Dissolved Zinc	g/m^3	0.0015	0.0025	< 0.0010	0.0037	0.0029 #1

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Aqueous						
Sample Name:		BOW-BH01 11-Dec-2025 11:40 am	BOW-BH08 11-Dec-2025 10:05 am	EVA-BH01 11-Dec-2025 9:15 am	LKS-BH01 11-Dec-2025 2:10 pm	RINS 3 11-Dec-2025 10:10 am
Lab Number:		4055927.1	4055927.2	4055927.3	4055927.4	4055927.5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	0.0054	0.0026	0.0021	0.0017	< 0.0011
Total Cadmium	g/m³	< 0.000053	< 0.000053	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	0.0037	< 0.00053	0.00102	0.00072	< 0.00053
Total Copper	g/m³	0.0033	0.0061	0.0033	< 0.00053	< 0.00053
Total Lead	g/m³	0.0085	0.00023	0.0093	0.00180	< 0.00011
Total Nickel	g/m³	0.0041	0.0033 #1	0.0022	< 0.00053	< 0.00053
Total Zinc	g/m³	0.025	0.0027	0.0101	0.085	0.0027 #1
BTEX in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	g/m³	< 0.0010	< 0.0010	< 0.0010	0.0059	< 0.0010
Ethylbenzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m&p-Xylene	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Acenaphthene	g/m³	-	-	-	-	< 0.00010
Acenaphthylene	g/m³	-	-	-	-	< 0.00010
Anthracene	g/m³	-	-	-	-	< 0.00010
Benzo[a]anthracene	g/m³	-	-	-	-	< 0.00010
Benzo[a]pyrene (BAP)	g/m³	-	-	-	-	< 0.00010
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	-	-	-	-	< 0.00010
Benzo[g,h,i]perylene	g/m³	-	-	-	-	< 0.00010
Benzo[k]fluoranthene	g/m³	-	-	-	-	< 0.00010
Chrysene	g/m³	-	-	-	-	< 0.00010
Dibenzo[a,h]anthracene	g/m³	-	-	-	-	< 0.00010
Fluoranthene	g/m³	-	-	-	-	< 0.00010
Fluorene	g/m³	-	-	-	-	< 0.0002
Indeno(1,2,3-c,d)pyrene	g/m³	-	-	-	-	< 0.00010
Naphthalene	g/m³	-	-	-	-	< 0.0005
Phenanthrene	g/m³	-	-	-	-	< 0.0004
Pyrene	g/m³	-	-	-	-	< 0.0002
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Bis(2-chloroethyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
4-Bromophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
4-Chlorophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
2,6-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Nitrobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
N-Nitrosodi-n-propylamine	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
alpha-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
beta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
delta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
gamma-BHC (Lindane)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
4,4'-DDD	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
4,4'-DDE	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
4,4'-DDT	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Dieldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-

Sample Type: Aqueous						
Sample Name:		BOW-BH01 11-Dec-2025 11:40 am	BOW-BH08 11-Dec-2025 10:05 am	EVA-BH01 11-Dec-2025 9:15 am	LKS-BH01 11-Dec-2025 2:10 pm	RINS 3 11-Dec-2025 10:10 am
Lab Number:		4055927.1	4055927.2	4055927.3	4055927.4	4055927.5
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Endosulfan I	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Endosulfan II	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Endosulfan sulphate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Endrin	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Endrin ketone	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Heptachlor	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Heptachlor epoxide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Hexachlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Acenaphthylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Benzo[a]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Benzo[a]pyrene (BAP)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Benzo[g,h,i]perylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Benzo[k]fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1&2-Chloronaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Chrysene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Dibenzo[a,h]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Fluorene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
2-Methylnaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Naphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Phenanthrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
2-Chlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
2,4-Dichlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
2,4-Dimethylphenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
2-Methylphenol (o-Cresol)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
2-Nitrophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Pentachlorophenol (PCP)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	-
Phenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
2,4,5-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
2,4,6-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	< 0.03	< 0.03	< 0.03	-
Butylbenzylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Di(2-ethylhexyl)adipate	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Diethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Dimethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Di-n-butylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Di-n-octylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
1,3-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
1,4-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Hexachlorobutadiene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-
Hexachloroethane	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	-

Sample Type: Aqueous						
Sample Name:		BOW-BH01 11-Dec-2025 11:40 am	BOW-BH08 11-Dec-2025 10:05 am	EVA-BH01 11-Dec-2025 9:15 am	LKS-BH01 11-Dec-2025 2:10 pm	RINS 3 11-Dec-2025 10:10 am
Lab Number:		4055927.1	4055927.2	4055927.3	4055927.4	4055927.5
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2,4-Trichlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	< 0.05	< 0.05	< 0.05	< 0.05	-
Carbazole	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Dibenzofuran	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Isophorone	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Ethylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Toluene	g/m³	< 0.003	< 0.003	< 0.003	0.006	-
m&p-Xylene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
o-Xylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Carbon tetrachloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Chloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Chloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,2-Dibromo-3-chloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Dibromomethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Dichlorodifluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,2-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
cis-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
trans-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Dichloromethane (methylene chloride)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	-
1,2-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,3-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1-Dichloropropene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
cis-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
trans-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Hexachlorobutadiene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1,1,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1,2,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1,1-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1,2-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Trichloroethene (trichloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Trichlorofluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,2,3-Trichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Vinyl chloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
2-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,2-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-

Sample Type: Aqueous						
Sample Name:		BOW-BH01 11-Dec-2025 11:40 am	BOW-BH08 11-Dec-2025 10:05 am	EVA-BH01 11-Dec-2025 9:15 am	LKS-BH01 11-Dec-2025 2:10 pm	RINS 3 11-Dec-2025 10:10 am
Lab Number:		4055927.1	4055927.2	4055927.3	4055927.4	4055927.5
Haloaromatics in VOC Water by Headspace GC-MS						
1,3-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,4-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
4-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,2,3-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,2,4-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,3,5-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
tert-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Isopropylbenzene (Cumene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
n-Propylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
sec-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Styrene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
1,2,4-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
1,3,5-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	-
2-Butanone (MEK)	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	-
Methyl tert-butylether (MTBE)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	-
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Bromoform (tribromomethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Chloroform (Trichloromethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Dibromochloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	-
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-
Naphthalene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	-

Analyst's Comments

#1 It has been noted that the result for the dissolved fraction was greater than that for the total fraction, but within analytical variation of the methods.

#2 Please note that the calculation used to determine the carbonate and bicarbonate content is only valid when the total dissolved solids (TDS) content is <500mg/L. It was observed that the TDS content of this sample is >500mg/L, therefore these results should be treated as indicative only.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1-4
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-5
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-4
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	1-4

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	1-4
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-4
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m³ as $CaCO_3$	1-4
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m³ at 25°C	1-4
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m³ at 25°C	1-4
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m³ at 25°C	1-4
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m³ as $CaCO_3$	1-4
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	1-4
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m³	1-4
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m³	1-4
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m³	1-4
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m³	1-4
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m³	1-4
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m³	1-4
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m³	1-4
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m³	1-4
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m³	1-4
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m³	1-4
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m³	1-4
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1-4
Dissolved Inorganic Nitrogen*	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m³	1-4
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m³	1-4
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	1-4
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m³	1-4
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	1-4

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m³	1-4
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m³	1-4
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1-4
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m³	1-5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m³	1-5
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m³	1-5
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m³	5
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m³	1-4
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m³	1-4
Dissolved Inorganic Nitrogen*		0.002 - 0.010 g/m³	1-4
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m³	1-5
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m³	1-5
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m³	1-5
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m³	1-5

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 12-Dec-2025 and 19-Dec-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Quality Assurance Report

Client:	Stantec New Zealand	**Lab No:**	4055927	QCPv1
Contact:	Mark Scaife C/- Stantec New Zealand PO Box 13052 Armagh Christchurch 8141	**Date Received:**	11-Dec-2025	
		Date Reported:	19-Dec-2025	
		Quote No:	140553	
		Order No:		
		Client Reference:		
		Submitted By:	Mark Scaife	

Sample Specific QCs

BTEX in Water by Headspace GC-MS

		4055927.1	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	108	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS

		4055927.1	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	90	40 – 120	No
2-fluorophenol	%	62	40 – 120	No
Nitrobenzene-d5	%	86	40 – 120	No
Phenol-d5	%	59	40 – 120	No
Terphenyl-d14	%	40	40 – 120	No
2,4,6-Tribromophenol	%	79	40 – 120	No

System monitoring Compounds for VOC - % Recovery

		4055927.1	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	99	80 – 120	No
Dibromofluoromethane	%	109	80 – 120	No
Toluene-d8	%	99	80 – 120	No

BTEX in Water by Headspace GC-MS

		4055927.2	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	105	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS

		4055927.2	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	67	40 – 120	No
2-fluorophenol	%	56	40 – 120	No
Nitrobenzene-d5	%	84	40 – 120	No
Phenol-d5	%	62	40 – 120	No
Terphenyl-d14	%	129	40 – 120	**Yes** #1
2,4,6-Tribromophenol	%	79	40 – 120	No

System monitoring Compounds for VOC - % Recovery

		4055927.2	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	100	80 – 120	No
Dibromofluoromethane	%	107	80 – 120	No
Toluene-d8	%	101	80 – 120	No

BTEX in Water by Headspace GC-MS

		4055927.3	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	105	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4055927.3	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	86	40 – 120	No
2-fluorophenol	%	52	40 – 120	No
Nitrobenzene-d5	%	81	40 – 120	No
Phenol-d5	%	60	40 – 120	No
Terphenyl-d14	%	40	40 – 120	No
2,4,6-Tribromophenol	%	74	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4055927.3	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	101	80 – 120	No
Dibromofluoromethane	%	114	80 – 120	No
Toluene-d8	%	100	80 – 120	No

BTEX in Water by Headspace GC-MS				
		4055927.4	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	106	80 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4055927.4	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	90	40 – 120	No
2-fluorophenol	%	61	40 – 120	No
Nitrobenzene-d5	%	84	40 – 120	No
Phenol-d5	%	62	40 – 120	No
Terphenyl-d14	%	58	40 – 120	No
2,4,6-Tribromophenol	%	77	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4055927.4	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	101	80 – 120	No
Dibromofluoromethane	%	114	80 – 120	No
Toluene-d8	%	101	80 – 120	No

BTEX in Water by Headspace GC-MS				
		4055927.5	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	105	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4055927.5	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	107	40 – 130	No
Benzo[a]pyrene-d12	%	112	40 – 130	No
Fluoranthene-d10	%	104	40 – 130	No

Blank QCs

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22922.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m^3	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m^3	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22922.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22922.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 629.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 629.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 629.46				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 629.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 629.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23805.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23805.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23805.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23805.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23806.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23806.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23806.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23806.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

2x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.003 ± 0.00074	-0.0021 – 0.0021	No
Total Boron	g/m³	< 0.11 ± 0.035	-0.105 – 0.105	No
Total Cadmium	g/m³	< 0.00011 ± 0.000036	-0.000105 – 0.000105	No
Total Chromium	g/m³	< 0.0011 ± 0.00036	-0.00105 – 0.00105	No
Total Copper	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Lead	g/m³	< 0.0003 ± 0.000074	-0.00021 – 0.00021	No
Total Nickel	g/m³	< 0.0011 ± 0.00035	-0.00105 – 0.00105	No
Total Zinc	g/m³	< 0.003 ± 0.00073	-0.0021 – 0.0021	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00077	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

5x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.006 ± 0.00074	-0.0052 – 0.0052	No
Total Boron	g/m³	< 0.27 ± 0.035	-0.26 – 0.26	No
Total Cadmium	g/m³	< 0.0003 ± 0.000036	-0.00026 – 0.00026	No
Total Chromium	g/m³	< 0.003 ± 0.00036	-0.0026 – 0.0026	No
Total Copper	g/m³	< 0.003 ± 0.00035	-0.0026 – 0.0026	No
Total Lead	g/m³	< 0.0006 ± 0.000074	-0.00052 – 0.00052	No
Total Nickel	g/m³	< 0.003 ± 0.00035	-0.0026 – 0.0026	No
Total Zinc	g/m³	< 0.006 ± 0.00073	-0.0052 – 0.0052	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.15				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00037	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00036	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00079	-0.021 – 0.021	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00073	-0.0105 – 0.0105	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Prep Dilution, 10x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.11 ± 0.00074	-0.105 – 0.105	No
Total Boron	g/m³	< 5.3 ± 0.035	-5.2 – 5.2	No
Total Cadmium	g/m³	< 0.0053 ± 0.000039	-0.0052 – 0.0052	No
Total Chromium	g/m³	< 0.053 ± 0.00094	-0.052 – 0.052	No
Total Copper	g/m³	< 0.053 ± 0.00036	-0.052 – 0.052	No

10x Prep Dilution, 10x Inst Diln TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.19				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Lead	g/m³	< 0.011 ± 0.00013	-0.0105 – 0.0105	No
Total Nickel	g/m³	< 0.053 ± 0.00043	-0.052 – 0.052	No
Total Zinc	g/m³	< 0.11 ± 0.00074	-0.105 – 0.105	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 630.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 630.8				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 630.46				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 630.47				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 630.48				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 632.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 632.8				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 632.47				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 632.48				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Filt Blk 1 PrepWS FiltMGchch - L4C by FIA Worksheet: 12588.62				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 2 PrepWS FiltMGchch - L4C by FIA Worksheet: 12588.75				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 1 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13206.58				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Chloride	g/m³	0.22 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 2 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13206.76				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

water blank PrepWS apHSVw - BTEX by Headspace Water Analysis: 5035.2				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	g/m³	< 0.0010 ± 0.00015	0.0 – 0.00100	No
Toluene	g/m³	< 0.0010 ± 0.00018	0.0 – 0.00100	No
Ethylbenzene	g/m³	< 0.0010 ± 0.00021	0.0 – 0.00100	No
m&p-Xylene	g/m³	< 0.002 ± 0.00031	0.0 – 0.0020	No
o-Xylene	g/m³	< 0.0010 ± 0.00016	0.0 – 0.00100	No

Blank 1 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 218.25				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

Blank 2 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 218.26				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

20x Dilution PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 218.27				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.002 ± 0.000072	-0.0021 – 0.0021	No

Blank PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9374.2				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.060	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C15 - C20	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C21 - C25	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

Blank 2 PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9374.24				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.061	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C15 - C20	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C21 - C25	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.1				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Acenaphthylene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Aldrin	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]pyrene (BAP)	g/m³	< 0.003 ± 0.00092	0.0 – 0.00025	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	g/m³	< 0.003 ± 0.0013	0.0 – 0.00025	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.1				
		Results	Control Limits	Outside Limit (Yes/No)
Benzo[g,h,i]perylene	g/m³	< 0.003 ± 0.00099	0.0 – 0.00025	No
Benzo[k]fluoranthene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Benzyl alcohol	g/m³	< 0.05 ± 0.017	0.0 – 0.0025	No
alpha-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
beta-BHC	g/m³	< 0.005 ± 0.0031	0.0 – 0.00025	No
delta-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
gamma-BHC (Lindane)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Bis(2-chloroethoxy) methane	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroethyl)ether	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroisopropyl)ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03 ± 0.015	0.0 – 0.00100	No
4-Bromophenyl phenyl ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Butylbenzylphthalate	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
Carbazole	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
4-Chloro-3-methylphenol	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
1&2-Chloronaphthalene	g/m³	< 0.003 ± 0.00088	0.0 – 0.00050	No
2-Chlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
4-Chlorophenyl phenyl ether	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Chrysene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
4,4'-DDD	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
4,4'-DDE	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
4,4'-DDT	g/m³	< 0.010 ± 0.0048	0.0 – 0.00050	No
Di(2-ethylhexyl)adipate	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Dibenzo[a,h]anthracene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Dibenzofuran	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
1,3-Dichlorobenzene	g/m³	< 0.010 ± 0.0052	0.0 – 0.00050	No
1,4-Dichlorobenzene	g/m³	< 0.010 ± 0.0046	0.0 – 0.00050	No
2,4-Dichlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
Dieldrin	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Diethylphthalate	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
2,4-Dimethylphenol	g/m³	< 0.005 ± 0.0014	0.0 – 0.00025	No
Dimethylphthalate	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-butylphthalate	g/m³	< 0.010 ± 0.0056	0.0 – 0.00100	No
2,4-Dinitrotoluene	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
2,6-Dinitrotoluene	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-octylphthalate	g/m³	< 0.010 ± 0.0031	0.0 – 0.00050	No
Endosulfan I	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endosulfan II	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
Endosulfan sulphate	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endrin	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Endrin ketone	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
Fluoranthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Fluorene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Heptachlor	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.1				
		Results	Control Limits	Outside Limit (Yes/No)
Heptachlor epoxide	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
Hexachloroethane	g/m³	< 0.010 ± 0.0041	0.0 – 0.00050	No
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003 ± 0.00074	0.0 – 0.00025	No
Isophorone	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2-Methylnaphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010 ± 0.0043	0.0 – 0.00050	No
2-Methylphenol (o-Cresol)	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
Naphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
Nitrobenzene	g/m³	< 0.005 ± 0.0026	0.0 – 0.00025	No
2-Nitrophenol	g/m³	< 0.010 ± 0.0051	0.0 – 0.00050	No
N-Nitrosodi-n-propylamine	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
N-Nitrosodiphenylamine + Diphenylamine	g/m³	< 0.010 ± 0.0028	0.0 – 0.00050	No
Pentachlorophenol (PCP)	g/m³	< 0.10 ± 0.048	0.0 – 0.0050	No
Phenanthrene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Phenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Pyrene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
1,2,4-Trichlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2,4,5-Trichlorophenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
2,4,6-Trichlorophenol	g/m³	< 0.010 ± 0.0045	0.0 – 0.00050	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.4				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	g/m³	< 0.5 ± 0.30	0.0 – 0.050	No
Benzene	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Bromobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Bromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromodichloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromoform (tribromomethane)	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
Bromomethane (Methyl Bromide)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
2-Butanone (MEK)	g/m³	< 0.5 ± 0.030	0.0 – 0.050	No
n-Butylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
tert-Butylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Carbon disulphide	g/m³	< 0.005 ± 0.031	0.0 – 0.00025	No
Carbon tetrachloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloroethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Chloroform (Trichloromethane)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloromethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
2-Chlorotoluene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,2-Dibromo-3-chloropropane	g/m³	< 0.003 ± 0.0023	0.0 – 0.00025	No
Dibromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.4				
		Results	Control Limits	Outside Limit (Yes/No)
Dibromomethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,3-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,4-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Dichlorodifluoromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,2-Dichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethene	g/m³	< 0.003 ± 0.0032	0.0 – 0.00025	No
cis-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
trans-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Dichloromethane (methylene chloride)	g/m³	< 0.10 ± 0.060	0.0 – 0.00025	No
1,2-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,3-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1-Dichloropropene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
cis-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
trans-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Ethylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Isopropylbenzene (Cumene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
4-Chlorotoluene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Methyl tert-butylether (MTBE)	g/m³	< 0.003 ± 0.031	0.0 – 0.00025	No
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10 ± 0.029	0.0 – 0.050	No
Naphthalene	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
n-Propylbenzene	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
sec-Butylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Styrene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,1,1,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Toluene	g/m³	< 0.003 ± 0.0059	0.0 – 0.00025	No
1,2,3-Trichlorobenzene	g/m³	< 0.003 ± 0.0027	0.0 – 0.00025	No
1,2,4-Trichlorobenzene	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
1,3,5-Trichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1,1-Trichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2-Trichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichloroethene (trichloroethylene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichlorofluoromethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,2,3-Trichloropropane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003 ± 0.024	0.0 – 0.00025	No
1,2,4-Trimethylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,3,5-Trimethylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Vinyl chloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
m&p-Xylene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00050	No
o-Xylene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No

ARBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 220.51				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

ARBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 220.52				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m^3	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

QC Spike QCs

water LCS PrepWS apHSVw - BTEX by Headspace Water Analysis: 5035.3				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	%	102 ± 12	88 – 111	No
Toluene	%	103.0 ± 6.8	95 – 110	No
Ethylbenzene	%	100.0 ± 6.7	95 – 114	No
m&p-Xylene	%	103.0 ± 7.9	93 – 114	No
o-Xylene	%	104.0 ± 7.7	92 – 115	No

LCS PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9374.3				
		Results	Control Limits	Outside Limit (Yes/No)
Total hydrocarbons (C7 - C36)	%	124 ± 38	80 – 137	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	97 ± 36	40 – 130	No
Acenaphthylene	%	86 ± 33	40 – 130	No
Aldrin	%	94 ± 34	40 – 130	No
Anthracene	%	113 ± 42	40 – 130	No
Benzo[a]anthracene	%	107 ± 40	40 – 130	No
Benzo[a]pyrene (BAP)	%	88 ± 53	40 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	91 ± 48	40 – 130	No
Benzo[g,h,i]perylene	%	96 ± 56	40 – 130	No
Benzo[k]fluoranthene	%	98 ± 54	40 – 130	No
Benzyl alcohol	%	76 ± 45	40 – 130	No
alpha-BHC	%	91 ± 30	40 – 130	No
beta-BHC	%	91 ± 26	40 – 130	No
delta-BHC	%	97 ± 30	40 – 130	No
gamma-BHC (Lindane)	%	88 ± 28	40 – 130	No
Bis(2-chloroethoxy) methane	%	93 ± 43	40 – 130	No
Bis(2-chloroethyl)ether	%	87 ± 40	40 – 130	No
Bis(2-chloroisopropyl)ether	%	82 ± 33	40 – 130	No
Bis(2-ethylhexyl)phthalate	%	114 ± 54	40 – 130	No
4-Bromophenyl phenyl ether	%	89 ± 36	40 – 130	No
Butylbenzylphthalate	%	114 ± 46	40 – 130	No
Carbazole	%	101 ± 35	40 – 130	No
4-Chloro-3-methylphenol	%	95 ± 36	40 – 130	No
2-Chlorophenol	%	81 ± 30	40 – 130	No
4-Chlorophenyl phenyl ether	%	101 ± 35	40 – 130	No
Chrysene	%	114 ± 44	40 – 130	No
4,4'-DDD	%	122 ± 56	40 – 130	No
4,4'-DDE	%	111 ± 45	40 – 130	No
4,4'-DDT	%	110 ± 52	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.2				
		Results	Control Limits	Outside Limit (Yes/No)
Dibenzo[a,h]anthracene	%	93 ± 52	40 – 130	No
Dibenzofuran	%	98 ± 33	40 – 130	No
1,2-Dichlorobenzene	%	75 ± 30	40 – 130	No
1,3-Dichlorobenzene	%	71 ± 30	40 – 130	No
1,4-Dichlorobenzene	%	73 ± 36	40 – 130	No
2,4-Dichlorophenol	%	84 ± 33	40 – 130	No
Dieldrin	%	111 ± 46	40 – 130	No
Diethylphthalate	%	98 ± 41	40 – 130	No
2,4-Dimethylphenol	%	80 ± 49	40 – 130	No
Dimethylphthalate	%	98 ± 38	40 – 130	No
Di-n-butylphthalate	%	95 ± 35	40 – 130	No
2,4-Dinitrotoluene	%	100 ± 36	40 – 130	No
2,6-Dinitrotoluene	%	100 ± 38	40 – 130	No
Di-n-octylphthalate	%	100 ± 60	40 – 130	No
Endosulfan I	%	110 ± 51	40 – 130	No
Endosulfan II	%	117 ± 43	40 – 130	No
Endosulfan sulphate	%	123 ± 56	40 – 130	No
Endrin	%	116 ± 52	40 – 130	No
Endrin ketone	%	108 ± 45	40 – 130	No
Fluoranthene	%	93 ± 34	40 – 130	No
Fluorene	%	100 ± 37	40 – 130	No
Heptachlor	%	93 ± 39	40 – 130	No
Heptachlor epoxide	%	97 ± 35	40 – 130	No
Hexachlorobenzene	%	89 ± 32	40 – 130	No
Hexachlorobutadiene	%	79 ± 30	40 – 130	No
Hexachloroethane	%	72 ± 39	40 – 130	No
Indeno(1,2,3-c,d)pyrene	%	94 ± 59	40 – 130	No
Isophorone	%	78 ± 28	40 – 130	No
2-Methylnaphthalene	%	84 ± 35	40 – 130	No
3 & 4-Methylphenol (m- + p-cresol)	%	77 ± 40	40 – 130	No
2-Methylphenol (o-Cresol)	%	75 ± 40	40 – 130	No
Naphthalene	%	84 ± 36	40 – 130	No
Nitrobenzene	%	91 ± 39	40 – 130	No
2-Nitrophenol	%	81 ± 36	40 – 130	No
N-Nitrosodi-n-propylamine	%	84 ± 33	40 – 130	No
N-Nitrosodiphenylamine + Diphenylamine	%	76 ± 47	40 – 130	No
Phenanthrene	%	93 ± 34	40 – 130	No
Phenol	%	72 ± 33	40 – 130	No
Pyrene	%	111 ± 46	40 – 130	No
1,2,4-Trichlorobenzene	%	81 ± 29	40 – 130	No
2,4,5-Trichlorophenol	%	93 ± 42	40 – 130	No
2,4,6-Trichlorophenol	%	93 ± 46	40 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.3				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	97 ± 29	70 – 130	No
Benzene	%	106 ± 27	70 – 130	No
Bromobenzene	%	103 ± 31	70 – 130	No
Bromochloromethane	%	103 ± 35	70 – 130	No
Bromodichloromethane	%	106 ± 36	70 – 130	No
Bromoform (tribromomethane)	%	108 ± 40	70 – 130	No
Bromomethane (Methyl Bromide)	%	107 ± 36	70 – 130	No
2-Butanone (MEK)	%	97 ± 29	70 – 130	No
n-Butylbenzene	%	110 ± 34	70 – 130	No
tert-Butylbenzene	%	105 ± 32	70 – 130	No
Carbon disulphide	%	92 ± 24	70 – 130	No
Carbon tetrachloride	%	112 ± 41	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	105 ± 35	70 – 130	No
Chloroethane	%	105 ± 31	70 – 130	No
Chloroform (Trichloromethane)	%	103 ± 35	70 – 130	No
Chloromethane	%	110 ± 35	70 – 130	No
2-Chlorotoluene	%	105 ± 34	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	107 ± 35	70 – 130	No
1,2-Dibromo-3-chloropropane	%	102 ± 50	70 – 130	No
Dibromochloromethane	%	106 ± 36	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	104 ± 36	70 – 130	No
Dibromomethane	%	104 ± 35	70 – 130	No
1,2-Dichlorobenzene	%	104 ± 32	70 – 130	No
1,3-Dichlorobenzene	%	105 ± 32	70 – 130	No
1,4-Dichlorobenzene	%	105 ± 32	70 – 130	No
Dichlorodifluoromethane	%	119 ± 42	70 – 130	No
1,1-Dichloroethane	%	104 ± 33	70 – 130	No
1,2-Dichloroethane	%	105 ± 36	70 – 130	No
1,1-Dichloroethene	%	103 ± 26	70 – 130	No
cis-1,2-Dichloroethene	%	103 ± 35	70 – 130	No
trans-1,2-Dichloroethene	%	103 ± 37	70 – 130	No
Dichloromethane (methylene chloride)	%	109 ± 33	70 – 130	No
1,2-Dichloropropane	%	105 ± 34	70 – 130	No
1,3-Dichloropropane	%	106 ± 35	70 – 130	No
1,1-Dichloropropene	%	105 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	105 ± 38	70 – 130	No
trans-1,3-Dichloropropene	%	111 ± 40	70 – 130	No
Ethylbenzene	%	105 ± 33	70 – 130	No
Hexachlorobutadiene	%	105 ± 37	70 – 130	No
Isopropylbenzene (Cumene)	%	104 ± 34	70 – 130	No
4-Chlorotoluene	%	106 ± 35	70 – 130	No
Methyl tert-butylether (MTBE)	%	96 ± 28	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	96 ± 34	70 – 130	No
Naphthalene	%	100 ± 53	70 – 130	No
n-Propylbenzene	%	106 ± 40	70 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.3				
		Results	Control Limits	Outside Limit (Yes/No)
sec-Butylbenzene	%	108 ± 37	70 – 130	No
Styrene	%	101 ± 32	70 – 130	No
1,1,1,2-Tetrachloroethane	%	108 ± 36	70 – 130	No
1,1,2,2-Tetrachloroethane	%	109 ± 33	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	105 ± 30	70 – 130	No
Toluene	%	104 ± 33	70 – 130	No
1,2,3-Trichlorobenzene	%	103 ± 43	70 – 130	No
1,2,4-Trichlorobenzene	%	103 ± 40	70 – 130	No
1,3,5-Trichlorobenzene	%	105 ± 34	70 – 130	No
1,1,1-Trichloroethane	%	106 ± 36	70 – 130	No
1,1,2-Trichloroethane	%	106 ± 35	70 – 130	No
Trichloroethene (trichloroethylene)	%	103 ± 33	70 – 130	No
Trichlorofluoromethane	%	104 ± 29	70 – 130	No
1,2,3-Trichloropropane	%	104 ± 31	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	108 ± 52	70 – 130	No
1,2,4-Trimethylbenzene	%	105 ± 35	70 – 130	No
1,3,5-Trimethylbenzene	%	105 ± 35	70 – 130	No
Vinyl chloride	%	107 ± 37	70 – 130	No
m&p-Xylene	%	105 ± 34	70 – 130	No
o-Xylene	%	105 ± 31	70 – 130	No

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6089.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	115 ± 58	70 – 130	No
Acenaphthylene	%	105 ± 57	70 – 130	No
Anthracene	%	108 ± 39	70 – 130	No
Benzo[a]anthracene	%	112 ± 36	70 – 130	No
Benzo[a]pyrene (BAP)	%	118 ± 57	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	117 ± 57	70 – 130	No
Benzo[g,h,i]perylene	%	105 ± 55	70 – 130	No
Benzo[k]fluoranthene	%	122 ± 54	70 – 130	No
Chrysene	%	110 ± 40	70 – 130	No
Dibenzo[a,h]anthracene	%	107 ± 56	70 – 130	No
Fluoranthene	%	114 ± 30	70 – 130	No
Fluorene	%	116 ± 52	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	104 ± 55	70 – 130	No
Naphthalene	%	101 ± 67	70 – 130	No
Phenanthrene	%	123 ± 37	70 – 130	No
Pyrene	%	138 ± 56	70 – 130	**Yes** #2

Sample Spike QCs

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23806.36				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	101.0 ± 6.1	80 – 120	No
Total Boron	%	94 ± 14	80 – 120	No
Total Cadmium	%	99.0 ± 8.0	80 – 120	No
Total Chromium	%	100.0 ± 8.1	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23806.36				
		Results	Control Limits	Outside Limit (Yes/No)
Total Copper	%	98.0 ± 9.9	80 – 120	No
Total Lead	%	100.0 ± 6.1	80 – 120	No
Total Nickel	%	99 ± 12	80 – 120	No
Total Zinc	%	95.0 ± 7.7	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.65				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	100.0 ± 6.1	80 – 120	No
Total Boron	%	94 ± 14	80 – 120	No
Total Cadmium	%	96.0 ± 7.7	80 – 120	No
Total Chromium	%	99.0 ± 8.0	80 – 120	No
Total Copper	%	98.0 ± 9.9	80 – 120	No
Total Lead	%	100.0 ± 6.1	80 – 120	No
Total Nickel	%	100 ± 13	80 – 120	No
Total Zinc	%	96.0 ± 7.7	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.41				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	102.0 ± 6.2	80 – 120	No
Total Boron	%	94 ± 14	80 – 120	No
Total Cadmium	%	96.0 ± 7.7	80 – 120	No
Total Chromium	%	100.0 ± 8.1	80 – 120	No
Total Copper	%	98.0 ± 9.9	80 – 120	No
Total Lead	%	96.0 ± 5.8	80 – 120	No
Total Nickel	%	98 ± 12	80 – 120	No
Total Zinc	%	99.0 ± 8.0	80 – 120	No

sample spike PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9374.9				
		Results	Control Limits	Outside Limit (Yes/No)
Total hydrocarbons (C7 - C36)	%	140 ± 43	83 – 140	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.8				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	114 ± 42	40 – 120	No
Acenaphthylene	%	100 ± 38	40 – 120	No
Aldrin	%	104 ± 38	40 – 120	No
Anthracene	%	124 ± 46	40 – 120	**Yes** [#3]
Benzo[a]anthracene	%	118 ± 44	40 – 120	No
Benzo[a]pyrene (BAP)	%	94 ± 56	40 – 120	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	99 ± 53	40 – 120	No
Benzo[g,h,i]perylene	%	108 ± 63	40 – 120	No
Benzo[k]fluoranthene	%	108 ± 60	40 – 120	No
Benzyl alcohol	%	87 ± 51	40 – 120	No
alpha-BHC	%	100 ± 33	40 – 120	No
beta-BHC	%	98 ± 27	40 – 120	No
delta-BHC	%	107 ± 33	40 – 120	No
gamma-BHC (Lindane)	%	97 ± 30	40 – 120	No
Bis(2-chloroethoxy) methane	%	104 ± 48	40 – 120	No
Bis(2-chloroethyl)ether	%	99 ± 46	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.8				
		Results	Control Limits	Outside Limit (Yes/No)
Bis(2-chloroisopropyl)ether	%	96 ± 39	40 – 120	No
Bis(2-ethylhexyl)phthalate	%	125 ± 59	40 – 120	**Yes** #3
4-Bromophenyl phenyl ether	%	98 ± 39	40 – 120	No
Butylbenzylphthalate	%	126 ± 51	40 – 120	**Yes** #3
Carbazole	%	110 ± 39	40 – 120	No
4-Chloro-3-methylphenol	%	104 ± 40	40 – 120	No
2-Chlorophenol	%	90 ± 34	40 – 120	No
4-Chlorophenyl phenyl ether	%	114 ± 40	40 – 120	No
Chrysene	%	123 ± 47	40 – 120	**Yes** #3
4,4'-DDD	%	131 ± 60	40 – 120	**Yes** #3
4,4'-DDE	%	120 ± 49	40 – 120	No
4,4'-DDT	%	128 ± 61	40 – 120	**Yes** #3
Dibenzo[a,h]anthracene	%	105 ± 58	40 – 120	No
Dibenzofuran	%	112 ± 38	40 – 120	No
1,2-Dichlorobenzene	%	93 ± 38	40 – 120	No
1,3-Dichlorobenzene	%	92 ± 39	40 – 120	No
1,4-Dichlorobenzene	%	93 ± 46	40 – 120	No
2,4-Dichlorophenol	%	95 ± 37	40 – 120	No
Dieldrin	%	122 ± 50	40 – 120	**Yes** #3
Diethylphthalate	%	110 ± 45	40 – 120	No
2,4-Dimethylphenol	%	80 ± 49	40 – 120	No
Dimethylphthalate	%	111 ± 43	40 – 120	No
Di-n-butylphthalate	%	105 ± 39	40 – 120	No
2,4-Dinitrotoluene	%	111 ± 39	40 – 120	No
2,6-Dinitrotoluene	%	110 ± 42	40 – 120	No
Di-n-octylphthalate	%	110 ± 66	40 – 120	No
Endosulfan I	%	121 ± 56	40 – 120	**Yes** #3
Endosulfan II	%	127 ± 46	40 – 120	**Yes** #3
Endosulfan sulphate	%	137 ± 63	40 – 120	**Yes** #3
Endrin	%	129 ± 58	40 – 120	**Yes** #3
Endrin ketone	%	119 ± 50	40 – 120	No
Fluoranthene	%	101 ± 36	40 – 120	No
Fluorene	%	114 ± 42	40 – 120	No
Heptachlor	%	103 ± 43	40 – 120	No
Heptachlor epoxide	%	105 ± 37	40 – 120	No
Hexachlorobenzene	%	99 ± 36	40 – 120	No
Hexachlorobutadiene	%	103 ± 39	40 – 120	No
Hexachloroethane	%	92 ± 49	40 – 120	No
Indeno(1,2,3-c,d)pyrene	%	104 ± 65	40 – 120	No
Isophorone	%	88 ± 32	40 – 120	No
2-Methylnaphthalene	%	103 ± 43	40 – 120	No
3 & 4-Methylphenol (m- + p-cresol)	%	86 ± 45	40 – 120	No
2-Methylphenol (o-Cresol)	%	85 ± 45	40 – 120	No
Naphthalene	%	103 ± 44	40 – 120	No
Nitrobenzene	%	104 ± 45	40 – 120	No

sample spike PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5267.8				
		Results	Control Limits	Outside Limit (Yes/No)
2-Nitrophenol	%	93 ± 41	40 – 120	No
N-Nitrosodi-n-propylamine	%	96 ± 38	40 – 120	No
N-Nitrosodiphenylamine + Diphenylamine	%	85 ± 52	40 – 120	No
Phenanthrene	%	104 ± 37	40 – 120	No
Phenol	%	79 ± 36	40 – 120	No
Pyrene	%	123 ± 51	40 – 120	**Yes** #3
1,2,4-Trichlorobenzene	%	104 ± 37	40 – 120	No
2,4,5-Trichlorophenol	%	104 ± 47	40 – 120	No
2,4,6-Trichlorophenol	%	103 ± 51	40 – 120	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.11				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	98 ± 30	70 – 130	No
Benzene	%	108 ± 28	70 – 130	No
Bromobenzene	%	105 ± 32	70 – 130	No
Bromochloromethane	%	108 ± 37	70 – 130	No
Bromodichloromethane	%	108 ± 37	70 – 130	No
Bromoform (tribromomethane)	%	107 ± 40	70 – 130	No
Bromomethane (Methyl Bromide)	%	113 ± 38	70 – 130	No
2-Butanone (MEK)	%	103 ± 31	70 – 130	No
n-Butylbenzene	%	121 ± 37	70 – 130	No
tert-Butylbenzene	%	113 ± 34	70 – 130	No
Carbon disulphide	%	96 ± 25	70 – 130	No
Carbon tetrachloride	%	115 ± 42	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	105 ± 35	70 – 130	No
Chloroethane	%	111 ± 33	70 – 130	No
Chloroform (Trichloromethane)	%	109 ± 37	70 – 130	No
Chloromethane	%	117 ± 37	70 – 130	No
2-Chlorotoluene	%	108 ± 35	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	117 ± 38	70 – 130	No
1,2-Dibromo-3-chloropropane	%	106 ± 52	70 – 130	No
Dibromochloromethane	%	106 ± 36	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	105 ± 37	70 – 130	No
Dibromomethane	%	107 ± 36	70 – 130	No
1,2-Dichlorobenzene	%	105 ± 32	70 – 130	No
1,3-Dichlorobenzene	%	105 ± 32	70 – 130	No
1,4-Dichlorobenzene	%	104 ± 32	70 – 130	No
Dichlorodifluoromethane	%	128 ± 45	70 – 130	No
1,1-Dichloroethane	%	109 ± 35	70 – 130	No
1,2-Dichloroethane	%	108 ± 37	70 – 130	No
1,1-Dichloroethene	%	108 ± 27	70 – 130	No
cis-1,2-Dichloroethene	%	107 ± 36	70 – 130	No
trans-1,2-Dichloroethene	%	108 ± 39	70 – 130	No
Dichloromethane (methylene chloride)	%	114 ± 35	70 – 130	No
1,2-Dichloropropane	%	108 ± 35	70 – 130	No
1,3-Dichloropropane	%	108 ± 36	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.11				
		Results	Control Limits	Outside Limit (Yes/No)
1,1-Dichloropropene	%	107 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	104 ± 37	70 – 130	No
trans-1,3-Dichloropropene	%	110 ± 40	70 – 130	No
Ethylbenzene	%	106 ± 33	70 – 130	No
Hexachlorobutadiene	%	128 ± 45	70 – 130	No
Isopropylbenzene (Cumene)	%	109 ± 35	70 – 130	No
4-Chlorotoluene	%	106 ± 35	70 – 130	No
Methyl tert-butylether (MTBE)	%	101 ± 30	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	97 ± 34	70 – 130	No
Naphthalene	%	100 ± 53	70 – 130	No
n-Propylbenzene	%	109 ± 41	70 – 130	No
sec-Butylbenzene	%	119 ± 40	70 – 130	No
Styrene	%	101 ± 32	70 – 130	No
1,1,1,2-Tetrachloroethane	%	109 ± 37	70 – 130	No
1,1,2,2-Tetrachloroethane	%	115 ± 34	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	105 ± 30	70 – 130	No
Toluene	%	106 ± 34	70 – 130	No
1,2,3-Trichlorobenzene	%	102 ± 42	70 – 130	No
1,2,4-Trichlorobenzene	%	99 ± 39	70 – 130	No
1,3,5-Trichlorobenzene	%	105 ± 34	70 – 130	No
1,1,1-Trichloroethane	%	109 ± 37	70 – 130	No
1,1,2-Trichloroethane	%	108 ± 36	70 – 130	No
Trichloroethene (trichloroethylene)	%	103 ± 33	70 – 130	No
Trichlorofluoromethane	%	111 ± 31	70 – 130	No
1,2,3-Trichloropropane	%	108 ± 32	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	115 ± 55	70 – 130	No
1,2,4-Trimethylbenzene	%	108 ± 36	70 – 130	No
1,3,5-Trimethylbenzene	%	110 ± 36	70 – 130	No
Vinyl chloride	%	114 ± 39	70 – 130	No
m&p-Xylene	%	105 ± 34	70 – 130	No
o-Xylene	%	108 ± 32	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.31				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	103 ± 31	70 – 130	No
Benzene	%	103 ± 26	70 – 130	No
Bromobenzene	%	101 ± 30	70 – 130	No
Bromochloromethane	%	109 ± 37	70 – 130	No
Bromodichloromethane	%	106 ± 36	70 – 130	No
Bromoform (tribromomethane)	%	106 ± 39	70 – 130	No
Bromomethane (Methyl Bromide)	%	107 ± 36	70 – 130	No
2-Butanone (MEK)	%	104 ± 31	70 – 130	No
n-Butylbenzene	%	112 ± 34	70 – 130	No
tert-Butylbenzene	%	108 ± 33	70 – 130	No
Carbon disulphide	%	90 ± 24	70 – 130	No
Carbon tetrachloride	%	110 ± 40	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.31				
		Results	Control Limits	Outside Limit (Yes/No)
Chlorobenzene (monochlorobenzene)	%	101 ± 34	70 – 130	No
Chloroethane	%	105 ± 31	70 – 130	No
Chloroform (Trichloromethane)	%	107 ± 37	70 – 130	No
Chloromethane	%	108 ± 34	70 – 130	No
2-Chlorotoluene	%	102 ± 33	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	110 ± 36	70 – 130	No
1,2-Dibromo-3-chloropropane	%	107 ± 53	70 – 130	No
Dibromochloromethane	%	106 ± 36	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	106 ± 37	70 – 130	No
Dibromomethane	%	108 ± 37	70 – 130	No
1,2-Dichlorobenzene	%	101 ± 31	70 – 130	No
1,3-Dichlorobenzene	%	98 ± 30	70 – 130	No
1,4-Dichlorobenzene	%	97 ± 30	70 – 130	No
Dichlorodifluoromethane	%	118 ± 42	70 – 130	No
1,1-Dichloroethane	%	107 ± 34	70 – 130	No
1,2-Dichloroethane	%	108 ± 37	70 – 130	No
1,1-Dichloroethene	%	102 ± 25	70 – 130	No
cis-1,2-Dichloroethene	%	105 ± 36	70 – 130	No
trans-1,2-Dichloroethene	%	103 ± 37	70 – 130	No
Dichloromethane (methylene chloride)	%	113 ± 34	70 – 130	No
1,2-Dichloropropane	%	106 ± 35	70 – 130	No
1,3-Dichloropropane	%	109 ± 36	70 – 130	No
1,1-Dichloropropene	%	101 ± 32	70 – 130	No
cis-1,3-Dichloropropene	%	97 ± 35	70 – 130	No
trans-1,3-Dichloropropene	%	102 ± 37	70 – 130	No
Ethylbenzene	%	101 ± 31	70 – 130	No
Hexachlorobutadiene	%	124 ± 43	70 – 130	No
Isopropylbenzene (Cumene)	%	103 ± 33	70 – 130	No
4-Chlorotoluene	%	99 ± 33	70 – 130	No
Methyl tert-butylether (MTBE)	%	102 ± 30	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	99 ± 35	70 – 130	No
Naphthalene	%	97 ± 51	70 – 130	No
n-Propylbenzene	%	102 ± 39	70 – 130	No
sec-Butylbenzene	%	113 ± 38	70 – 130	No
Styrene	%	96 ± 31	70 – 130	No
1,1,1,2-Tetrachloroethane	%	108 ± 36	70 – 130	No
1,1,2,2-Tetrachloroethane	%	116 ± 35	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	99 ± 28	70 – 130	No
Toluene	%	101 ± 32	70 – 130	No
1,2,3-Trichlorobenzene	%	96 ± 40	70 – 130	No
1,2,4-Trichlorobenzene	%	90 ± 35	70 – 130	No
1,3,5-Trichlorobenzene	%	95 ± 31	70 – 130	No
1,1,1-Trichloroethane	%	104 ± 35	70 – 130	No
1,1,2-Trichloroethane	%	109 ± 36	70 – 130	No
Trichloroethene (trichloroethylene)	%	98 ± 32	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.31				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Trichlorofluoromethane	%	105 ± 30	70 – 130	No
1,2,3-Trichloropropane	%	109 ± 32	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	109 ± 53	70 – 130	No
1,2,4-Trimethylbenzene	%	102 ± 34	70 – 130	No
1,3,5-Trimethylbenzene	%	103 ± 34	70 – 130	No
Vinyl chloride	%	105 ± 36	70 – 130	No
m&p-Xylene	%	100 ± 32	70 – 130	No
o-Xylene	%	102 ± 30	70 – 130	No

Sample Spike PAH PrepWS xwllPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6089.9				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	107 ± 54	70 – 130	No
Acenaphthylene	%	99 ± 54	70 – 130	No
Anthracene	%	104 ± 38	70 – 130	No
Benzo[a]anthracene	%	108 ± 35	70 – 130	No
Benzo[a]pyrene (BAP)	%	116 ± 56	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	114 ± 55	70 – 130	No
Benzo[g,h,i]perylene	%	100 ± 53	70 – 130	No
Benzo[k]fluoranthene	%	122 ± 54	70 – 130	No
Chrysene	%	107 ± 39	70 – 130	No
Dibenzo[a,h]anthracene	%	104 ± 55	70 – 130	No
Fluoranthene	%	109 ± 29	70 – 130	No
Fluorene	%	109 ± 48	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	100 ± 53	70 – 130	No
Naphthalene	%	93 ± 62	70 – 130	No
Phenanthrene	%	118 ± 36	70 – 130	No
Pyrene	%	137 ± 55	70 – 130	**Yes** #4

Reference Material QCs

QC 1 AutoT - Autotitrator - Christchurch: 1607.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	7.6 ± 0.2	7.4 – 7.8	No
Total Alkalinity	g/m^3 as $CaCO_3$	152.3 ± 6.2	145 – 159	No
Electrical Conductivity (EC)	mS/m	65.4 ± 1.4	63.6 – 69.6	No

Low EC AQC 1 - Autotitrator - Christchurch: 1607.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	4.1 ± 0.2	3.6 – 4.2	No
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #5
Electrical Conductivity (EC)	mS/m	4.2 ± 0.2	2.4 – 5.1	No

Saline QC 1 - Autotitrator - Christchurch: 1607.4				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	5.1 ± 0.2	Undefined	N/A #5
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #5
Electrical Conductivity (EC)	mS/m	5,190 ± 110	5,000 – 5,310	No

pH 10 Buffer - Autotitrator - Christchurch: 1607.5				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	10.0 ± 0.2	9.9 – 10.1	No

pH 10 Buffer - Autotitrator - Christchurch: 1607.5				
		Results	Control Limits	Outside Limit (Yes/No)
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #5
Electrical Conductivity (EC)	mS/m	337.7 ± 6.8	Undefined	N/A #5

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23805.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m^3	0.0511 ± 0.0032	0.045 – 0.055	No
Total Boron	g/m^3	0.097 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m^3	0.0478 ± 0.0039	0.045 – 0.055	No
Total Chromium	g/m^3	0.0498 ± 0.0040	0.045 – 0.055	No
Total Copper	g/m^3	0.0509 ± 0.0052	0.045 – 0.055	No
Total Lead	g/m^3	0.0505 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m^3	0.0509 ± 0.0062	0.045 – 0.055	No
Total Zinc	g/m^3	0.478 ± 0.039	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23806.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m^3	0.0513 ± 0.0032	0.045 – 0.055	No
Total Boron	g/m^3	0.099 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m^3	0.0481 ± 0.0039	0.045 – 0.055	No
Total Chromium	g/m^3	0.0509 ± 0.0041	0.045 – 0.055	No
Total Copper	g/m^3	0.0498 ± 0.0050	0.045 – 0.055	No
Total Lead	g/m^3	0.0509 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m^3	0.0499 ± 0.0060	0.045 – 0.055	No
Total Zinc	g/m^3	0.488 ± 0.040	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23807.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m^3	0.0513 ± 0.0032	0.045 – 0.055	No
Total Boron	g/m^3	0.097 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m^3	0.0484 ± 0.0039	0.045 – 0.055	No
Total Chromium	g/m^3	0.0512 ± 0.0042	0.045 – 0.055	No
Total Copper	g/m^3	0.0507 ± 0.0051	0.045 – 0.055	No
Total Lead	g/m^3	0.0504 ± 0.0031	0.045 – 0.055	No
Total Nickel	g/m^3	0.0512 ± 0.0062	0.045 – 0.055	No
Total Zinc	g/m^3	0.494 ± 0.040	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23808.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m^3	0.0520 ± 0.0033	0.045 – 0.055	No
Total Boron	g/m^3	0.097 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m^3	0.0467 ± 0.0038	0.045 – 0.055	No
Total Chromium	g/m^3	0.0509 ± 0.0041	0.045 – 0.055	No
Total Copper	g/m^3	0.0491 ± 0.0050	0.045 – 0.055	No
Total Lead	g/m^3	0.0498 ± 0.0030	0.045 – 0.055	No
Total Nickel	g/m^3	0.0495 ± 0.0060	0.045 – 0.055	No
Total Zinc	g/m^3	0.483 ± 0.039	0.45 – 0.55	No

Solids QC - Total Dissolved Solids - Chch: 2127.3				
		Results	Control Limits	Outside Limit (Yes/No)
Total Dissolved Solids (TDS)	g/m^3	980 ± 160	800 – 1,200	No

NO2N QC - L4C by FIA Worksheet: 12588.7				
		Results	Control Limits	Outside Limit (Yes/No)
Nitrite-N	g/m³	0.503 ± 0.071	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.515 ± 0.062	0.42 – 0.58	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	Undefined	N/A #5

Filt MA QC PrepWS FiltMGchch - L4C by FIA Worksheet: 12588.63				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	0.467 ± 0.042	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.98 ± 0.12	0.85 – 1.15	No
Dissolved Reactive Phosphorus	g/m³	0.967 ± 0.050	0.85 – 1.15	No

Low QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13206.9				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	10.24 ± 0.60	9.2 – 11.1	No
Sulphate	g/m³	10.04 ± 0.75	8.9 – 11.2	No

High QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13206.10				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	99.7 ± 4.8	90 – 110	No
Sulphate	g/m³	101.7 ± 6.8	90 – 110	No

Filt MA QC PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13206.59				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	9.61 ± 0.57	8.4 – 10.8	No
Sulphate	g/m³	9.35 ± 0.71	8.3 – 10.5	No

NO2N QC - L4C by FIA Worksheet: 12591.7				
		Results	Control Limits	Outside Limit (Yes/No)
Nitrate-N + Nitrite-N	g/m³	0.504 ± 0.061	0.42 – 0.58	No

Analyst's Comments

#1 It should be noted that the recovery of the System Monitoring Compound (SMC) was elevated and outside the acceptable ranges. The corresponding sample results were accepted as the 2-fluorobiphenyl smc was acceptable.

#2 The Laboratory Control Spike (LCS) recovery for this analyte was elevated and above the acceptable recovery range of the method. The in-house spike control had a similar outcome, therefore the corrected recovery is 101%.

#3 The sample spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no related positives detected in the sample.

#4 The sample spike recovery for this analyte was elevated and above the acceptable recovery range of the method. The in-house spike control had a similar outcome, therefore the corrected recovery is 100%.

#5 Control limits have not been established for this analyte.

HillLabs

ANALYSIS REQUEST

R J Hill Laboratories Limited
1/17 Print Place
Middleton
Christchurch 8042, New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Job No: **405 7235**
Date Recv: 12-Dec-25 16:42
Received by: Brianna McLachlan
3140572351

Quote No 140553
Primary Contact Mark Scaife
Submitted By Mark Scaife
Client Name Stantec
Address Level 3/2 Hazledean road addington *Postcode* 8024
Phone 027238806 9 *Mobile* 027238806 9
Email mark.scaife@stantec.com
Charge To
Client Reference 310003431
Order No 310003431

Results To *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*

☒ *Email Primary Contact* ☐ *Email Submitter* ☐ *Email Client*
☐ *Email Other*
☐ *Other*

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories
Date & Time:
Name:
☐ *Tick if you require COC to be emailed back*
Signature:

Received at Hill Laboratories *(Refer to Lab created Job No above)*
Date & Time:
Name:
Signature:

Condition ☐ *Room Temp* ☐ *Chilled* ☐ *Frozen* *Temp:* 9.4

ADDITIONAL INFORMATION / KNOWN HAZARDS

Priority ☐ **Low** ☒ **Normal** ☑ **High**
☐ **Urgent** (ASAP, extra charge applies, please contact lab first)

Requested Reporting Date:

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	LX-BH01	12/12	12:30	water	Total & dissolved metals,
2	HS-BH01	12/12	11:00	water	TPH, BTEXN, PAHs,
3	BRC-BH01	11/12	4:15	water	VOCs, SVOCs, Nutrients,
4	BRO-BH01	11/12	12:20	water	physio chemical parameters
5	~~BRO-BH02~~				(As per Quote
6	WAN-BH01	11/12	3:10	water	" "
7	BRO-BH02	11/12	1:30	water	" "
8	RIN-03	11/12	2:00	water	Total & Dissolved metals,
9					TPH, BTEXN, PAHs
10					
11					
12					

Outlook

RE: With Note - Hill Labs Job Request Form and Summary Page for Job Number 4057235; Ref: 310003431

From Scaife, Mark <Mark.Scaife@stantec.com>
Date Tue 16/12/2025 8:09 AM
To Carla Johnstone <carla.johnstone@hill-labs.co.nz>

Hi Carla,

Thanks for reaching out. Can you please test the groundwater samples (LY-BH01 to BRO-BH02) for the following?

Total Metals	Arsenic, Boron, Cadmium, Chromium, Copper, Lead, Nickel, Mercury, Zinc
Dissolved Metals (field filtered)	Arsenic, Boron, Cadmium, Chromium, Copper, Lead, Nickel, Mercury, Zinc (trace level)
TPH	Total Petroleum Hydrocarbons – C_7-C_9, C_{10}-C_{14} and C_{15}-C_{36} fractions
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene
PAHs	Polycyclic Aromatic Hydrocarbons
VOCs	Volatile Organic Compounds (trace level)
SVOCs	Semi-volatile Organic Compounds (screen level)
Nutrients	Total Ammoniacal-N, Dissolved Inorganic Nitrogen, Total Kjeldahl Nitrogen, Nitrate-N, Nitrite-N, Dissolved Reactive Phosphorus
Physio-chemical parameters	Sum of Anions, Sum of Cations, pH, EC, Alkalinity (bicarbonate, carbonate and hydroxide alkalinities), Chloride, Sulfate, Sodium, Potassium, Calcium, Manganese, Iron, Total Dissolved Solids (TDS), Hardness

Testing of RIN-03 looks good as in the quote.

Cheers,
Mark

From: Carla Johnstone <carla.johnstone@hill-labs.co.nz>
Sent: Monday, 15 December 2025 12:31 pm
To: Scaife, Mark <Mark.Scaife@stantec.com>
Subject: With Note - Hill Labs Job Request Form and Summary Page for Job Number 4057235; Ref: 310003431

Hi Mark

We have booked this job in as per quote. Please confirm that is correct, our summary is on page 2.

Furthermore, FYI, one of the small VOC bottles for sample BRO-BH02 arrived broken, so there will be no repeat testing available for that one if required.

This email's attachment contains a Hill Labs Job Request Form and Summary Page, for Job Number 4057235; Ref: 310003431

Regards,

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Job Information Summary

Client:	Stantec New Zealand	**Lab No:**	4057235
Contact:	Mark Scaife	**Date Registered:**	12-Dec-2025 5:55 pm
	C/- Stantec New Zealand	**Priority:**	High
	PO Box 13052	**Quote No:**	140553
	Armagh	**Order No:**	310003431
	Christchurch 8141	**Client Reference:**	310003431
		Add. Client Ref:	
		Submitted By:	Mark Scaife
		Charge To:	Stantec New Zealand
		Target Date:	22-Dec-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	LX-BH01 12-Dec-2025 12:30 pm	Ground Water	UP1L, TPH250, N250, VOC40, VOC40, FN100, S100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEXN profile, water, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq
2	HS-BH01 12-Dec-2025 11:00 am	Ground Water	UP1L, TPH250, N250, VOC40, VOC40, FN100, S100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEXN profile, water, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq
3	BRE-BH01 11-Dec-2025 4:45 pm	Ground Water	UP1L, TPH250, N250, VOC40, VOC40, FN100, S100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEXN profile, water, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq
4	BRO-BH01 11-Dec-2025 12:20 pm	Ground Water	UP1L, TPH250, VOC40, VOC40, N100, S100, FN100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEXN profile, water, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
5	WAN-BH01 11-Dec-2025 3:10 pm	Ground Water	UP1L, TPH250, VOC40, VOC40, N100, FN100, S100, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEXN profile, water, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq
6	BRO-BH02 11-Dec-2025 1:30 pm	Ground Water	UP1L, TPH250, N100, FN100, S100, VOC40, cOrg500	Anion / Cation profile including CO2 & CO3, Dissolved Inorganic Nitrogen, Volatile Organic Compounds Screening in Water by Headspace GC-MS, Total Dissolved Solids (TDS), Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Dissolved Boron, Dissolved Iron, Dissolved Manganese, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Total Boron, Dissolved Mercury, Total Mercury, Total Ammoniacal-N, Dissolved Reactive Phosphorus, Total Kjeldahl Nitrogen (TKN), Semivolatile Organic Compounds Screening in Water by GC-MS, TPH + BTEXN profile, water, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq
7	RIN-03 11-Dec-2025 2:00 pm	Ground Water	TPH250, VOC40, VOC40, N100, FN100, cOrg500	Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn, Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq, TPH + BTEX profile, Water

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1-6
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-7
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-6
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	1-6
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	1-6
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-6
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-6
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-6

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-6
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-6
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-6
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	1-6
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	1-6
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-6
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1-6
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-6
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-6
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-6
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m^3	1-6
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m^3	1-6
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1-6
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-6
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-6
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	1-6
Dissolved Inorganic Nitrogen	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m^3	1-6
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m^3	1-6
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-6
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m^3	1-6
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m^3	1-6
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m^3	1-6
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m^3	1-6
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m^3	1-6
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m^3	1-7
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m^3	1-7
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m^3	7
BTEXN in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m^3	1-6
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m^3	1-7

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m^3	1-6
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m^3	1-6
Dissolved Inorganic Nitrogen		0.002 - 0.010 g/m^3	1-6
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m^3	1-7
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m^3	1-7
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m^3	1-7
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m^3	1-7

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Stantec New Zealand	**Lab No:**	4057235	SPv1
Contact:	Mark Scaife	**Date Received:**	12-Dec-2025	
	C/- Stantec New Zealand	**Date Reported:**	22-Dec-2025	
	PO Box 13052	**Quote No:**	140553	
	Armagh	**Order No:**	310003431	
	Christchurch 8141	**Client Reference:**	310003431	
		Submitted By:	Mark Scaife	

Sample Type: Aqueous

Sample Name:		LX-BH01 12-Dec-2025 12:30 pm	HS-BH01 12-Dec-2025 11:00 am	BRE-BH01 11-Dec-2025 4:45 pm	BRO-BH01 11-Dec-2025 12:20 pm	WAN-BH01 11-Dec-2025 3:10 pm
Lab Number:		4057235.1	4057235.2	4057235.3	4057235.4	4057235.5
Individual Tests						
Sum of Anions	meq/L	4.4	6.0	4.7	17.5	6.1
Sum of Cations	meq/L	4.4	5.7	4.8	17.4	7.0
pH	pH Units	6.9	6.8	6.9	6.9	6.7
Total Alkalinity	g/m^3 as $CaCO_3$	143	166	153	670	260
Carbonate	g/m^3 at 25°C	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bicarbonate	g/m^3 at 25°C	174	200	186	810	320
Free Carbon Dioxide	g/m^3 at 25°C	36	58	37	172	94
Total Hardness	g/m^3 as $CaCO_3$	143	220	177	500	196
Electrical Conductivity (EC)	mS/m	44.3	59.2	48.9	156.9	58.9
Total Dissolved Solids (TDS)	g/m^3	260	380	350	1,010	410
Dissolved Boron	g/m^3	0.13	< 0.05	0.15	0.27	0.08
Total Boron	g/m^3	0.126	< 0.053	0.154	0.28	0.078
Dissolved Calcium	g/m^3	42	66	55	124	45
Dissolved Iron	g/m^3	0.58	7.4	0.34	13.4	24
Dissolved Magnesium	g/m^3	9.1	14.2	9.5	47	21
Dissolved Manganese	g/m^3	0.170	0.64	0.092	3.0	1.67
Dissolved Mercury	g/m^3	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Total Mercury	g/m^3	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011
Dissolved Potassium	g/m^3	3.3	6.9	3.3	17.5	15.5
Dissolved Sodium	g/m^3	32	18.7	28	144	34
Chloride	g/m^3	30	38	42	97	30
Dissolved Inorganic Nitrogen*	g/m^3	0.043	0.066	0.014	0.68	4.8
Total Ammoniacal-N	g/m^3	0.043	0.063	0.012	0.67	4.8
Nitrite-N	g/m^3	< 0.002	0.002	0.002	0.014	< 0.02 #1
Nitrate-N	g/m^3	< 0.002	< 0.002	< 0.002	< 0.002	< 0.02
Nitrate-N + Nitrite-N	g/m^3	< 0.002	0.003	< 0.002	0.013	< 0.02 #1
Total Kjeldahl Nitrogen (TKN)	g/m^3	0.24	0.33	2.2	2.6	6.6
Dissolved Reactive Phosphorus	g/m^3	< 0.004	< 0.004	0.32	0.022	0.41
Sulphate	g/m^3	34	78	22	64	< 0.5
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Dissolved Arsenic	g/m^3	< 0.0010	0.0177	0.0091	0.0058	0.0176
Dissolved Cadmium	g/m^3	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Dissolved Chromium	g/m^3	< 0.0005	< 0.0005	< 0.0005	0.0008	0.0016
Dissolved Copper	g/m^3	0.0007	< 0.0005	0.0144	0.0008	< 0.0005
Dissolved Lead	g/m^3	0.00030	< 0.00010	0.00018	0.00014	< 0.00010
Dissolved Nickel	g/m^3	0.0010	0.0011	0.0102	0.0013	< 0.0005
Dissolved Zinc	g/m^3	0.091	0.0029	0.0170	0.0027	< 0.0010

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Aqueous						
Sample Name:		LX-BH01 12-Dec-2025 12:30 pm	HS-BH01 12-Dec-2025 11:00 am	BRE-BH01 11-Dec-2025 4:45 pm	BRO-BH01 11-Dec-2025 12:20 pm	WAN-BH01 11-Dec-2025 3:10 pm
Lab Number:		4057235.1	4057235.2	4057235.3	4057235.4	4057235.5
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn						
Total Arsenic	g/m³	< 0.0011	0.0185	0.0094	0.0050	0.0188
Total Cadmium	g/m³	< 0.000053	< 0.000053	< 0.000053	< 0.000053	< 0.000053
Total Chromium	g/m³	< 0.00053	< 0.00053	0.00167	0.00083	0.00156
Total Copper	g/m³	0.00069	< 0.00053	0.0154	0.00097	< 0.00053
Total Lead	g/m³	0.00028	0.00015	0.0028	0.00034	< 0.00011
Total Nickel	g/m³	0.00097	0.00095	0.0098	0.00133	< 0.00053
Total Zinc	g/m³	0.080	0.0021	0.040	0.0034	< 0.0011
BTEXN in Water by Headspace GC-MS						
Benzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	g/m³	0.0011	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m&p-Xylene	g/m³	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
o-Xylene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Naphthalene	g/m³	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Acenaphthene	g/m³	< 0.00010	< 0.00010	< 0.00010	0.00019	< 0.00010
Acenaphthylene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[a]anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[g,h,i]perylene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Benzo[k]fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Chrysene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Dibenzo[a,h]anthracene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Fluoranthene	g/m³	< 0.00010	< 0.00010	< 0.00010	0.00016	< 0.00010
Fluorene	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010
Naphthalene	g/m³	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Phenanthrene	g/m³	< 0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Pyrene	g/m³	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Haloethers in SVOC Water Samples by GC-MS						
Bis(2-chloroethoxy) methane	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroethyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Bromophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4-Chlorophenyl phenyl ether	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Nitrogen containing compounds in SVOC Water Samples by GC-MS*						
2,4-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,6-Dinitrotoluene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Nitrobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
N-Nitrosodi-n-propylamine	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Aldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
alpha-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
beta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
delta-BHC	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
gamma-BHC (Lindane)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDD	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Sample Type: Aqueous						
Sample Name:		LX-BH01 12-Dec-2025 12:30 pm	HS-BH01 12-Dec-2025 11:00 am	BRE-BH01 11-Dec-2025 4:45 pm	BRO-BH01 11-Dec-2025 12:20 pm	WAN-BH01 11-Dec-2025 3:10 pm
Lab Number:		4057235.1	4057235.2	4057235.3	4057235.4	4057235.5
Organochlorine Pesticides in SVOC Water Samples by GC-MS						
Dieldrin	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS						
Acenaphthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Acenaphthylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[a]pyrene (BAP)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[g,h,i]perylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Benzo[k]fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1&2-Chloronaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chrysene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibenzo[a,h]anthracene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluoranthene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Fluorene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Methylnaphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Naphthalene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenanthrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Pyrene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Phenols in SVOC Water Samples by GC-MS						
4-Chloro-3-methylphenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Chlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dichlorophenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2,4-Dimethylphenol	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2-Methylphenol (o-Cresol)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
2-Nitrophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pentachlorophenol (PCP)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,5-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4,6-Trichlorophenol	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Plasticisers in SVOC Water Samples by GC-MS						
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Butylbenzylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di(2-ethylhexyl)adipate	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Diethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dimethylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-butylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Di-n-octylphthalate	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Other Halogenated compounds in SVOC Water Samples by GC-MS						
1,2-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,3-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,4-Dichlorobenzene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Sample Type: Aqueous						
Sample Name:		LX-BH01 12-Dec-2025 12:30 pm	HS-BH01 12-Dec-2025 11:00 am	BRE-BH01 11-Dec-2025 4:45 pm	BRO-BH01 11-Dec-2025 12:20 pm	WAN-BH01 11-Dec-2025 3:10 pm
Lab Number:		4057235.1	4057235.2	4057235.3	4057235.4	4057235.5
Other Halogenated compounds in SVOC Water Samples by GC-MS						
Hexachloroethane	g/m³	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,2,4-Trichlorobenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Other compounds in SVOC Water Samples by GC-MS						
Benzyl alcohol	g/m³	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Dibenzofuran	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isophorone	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Total Petroleum Hydrocarbons in Water						
C7 - C9	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS						
Benzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Ethylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Toluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
m&p-Xylene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
o-Xylene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Halogenated Aliphatics in VOC Water by Headspace GC-MS						
Bromomethane (Methyl Bromide)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Carbon tetrachloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromo-3-chloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromomethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichlorodifluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2-Dichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
trans-1,2-Dichloroethene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dichloromethane (methylene chloride)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1-Dichloropropene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
cis-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
trans-1,3-Dichloropropene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobutadiene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2,2-Tetrachloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,1-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichloroethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichloroethene (trichloroethylene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Trichlorofluoromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichloropropane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Vinyl chloride	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Haloaromatics in VOC Water by Headspace GC-MS						
Bromobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
2-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Sample Type: Aqueous						
Sample Name:		LX-BH01 12-Dec-2025 12:30 pm	HS-BH01 12-Dec-2025 11:00 am	BRE-BH01 11-Dec-2025 4:45 pm	BRO-BH01 11-Dec-2025 12:20 pm	WAN-BH01 11-Dec-2025 3:10 pm
Lab Number:		4057235.1	4057235.2	4057235.3	4057235.4	4057235.5
Haloaromatics in VOC Water by Headspace GC-MS						
1,2-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,4-Dichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Chlorotoluene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,3-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,2,4-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trichlorobenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS						
n-Butylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
tert-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Isopropylbenzene (Cumene)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
n-Propylbenzene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
sec-Butylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Styrene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
1,2,4-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
1,3,5-Trimethylbenzene	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Ketones in VOC Water by Headspace GC-MS						
Acetone	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
2-Butanone (MEK)	g/m³	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl tert-butylether (MTBE)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trihalomethanes in VOC Water by Headspace GC-MS						
Bromodichloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Bromoform (tribromomethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Chloroform (Trichloromethane)	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Dibromochloromethane	g/m³	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Other VOC in Water by Headspace GC-MS						
Carbon disulphide	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Naphthalene	g/m³	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005

Sample Name:		BRO-BH02 11-Dec-2025 1:30 pm	RIN-03 11-Dec-2025 2:00 pm
Lab Number:		4057235.6	4057235.7
Individual Tests			
Sum of Anions	meq/L	14.5	-
Sum of Cations	meq/L	16.0	-
pH	pH Units	6.9	-
Total Alkalinity	g/m³ as $CaCO_3$	580	-
Carbonate	g/m³ at 25°C	< 1.0	-
Bicarbonate	g/m³ at 25°C	700	-
Free Carbon Dioxide	g/m³ at 25°C	142	-
Total Hardness	g/m³ as $CaCO_3$	420	-
Electrical Conductivity (EC)	mS/m	135.6	-
Total Dissolved Solids (TDS)	g/m³	880	-
Dissolved Boron	g/m³	0.25	-
Total Boron	g/m³	0.25	-
Dissolved Calcium	g/m³	107	-
Dissolved Iron	g/m³	39	-
Dissolved Magnesium	g/m³	37	-
Dissolved Manganese	g/m³	3.4	-
Dissolved Mercury	g/m³	< 0.00010	-
Total Mercury	g/m³	< 0.00011	-
Dissolved Potassium	g/m³	10.0	-
Dissolved Sodium	g/m³	131	-

Sample Type: Aqueous			
Sample Name:		BRO-BH02 11-Dec-2025 1:30 pm	RIN-03 11-Dec-2025 2:00 pm
Lab Number:		4057235.6	4057235.7
Individual Tests			
Chloride	g/m³	85	-
Dissolved Inorganic Nitrogen*	g/m³	2.2	-
Total Ammoniacal-N	g/m³	2.2	-
Nitrite-N	g/m³	< 0.002	-
Nitrate-N	g/m³	< 0.002	-
Nitrate-N + Nitrite-N	g/m³	< 0.002	-
Total Kjeldahl Nitrogen (TKN)	g/m³	5.0	-
Dissolved Reactive Phosphorus	g/m³	< 0.004	-
Sulphate	g/m³	29	-
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn			
Dissolved Arsenic	g/m³	0.071	< 0.0010
Dissolved Cadmium	g/m³	< 0.00005	< 0.00005
Dissolved Chromium	g/m³	0.0010	< 0.0005
Dissolved Copper	g/m³	< 0.0005	< 0.0005
Dissolved Lead	g/m³	< 0.00010	< 0.00010
Dissolved Nickel	g/m³	0.0007	< 0.0005
Dissolved Zinc	g/m³	< 0.0010	0.0035
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn			
Total Arsenic	g/m³	0.079	< 0.0011
Total Cadmium	g/m³	< 0.000053	< 0.000053
Total Chromium	g/m³	0.00103	< 0.00053
Total Copper	g/m³	< 0.00053	< 0.00053
Total Lead	g/m³	< 0.00011	0.00012
Total Nickel	g/m³	0.00063	< 0.00053
Total Zinc	g/m³	< 0.0011	0.0026
BTEX in Water by Headspace GC-MS			
Benzene	g/m³	-	< 0.0010
Toluene	g/m³	-	< 0.0010
Ethylbenzene	g/m³	-	< 0.0010
m&p-Xylene	g/m³	-	< 0.002
o-Xylene	g/m³	-	< 0.0010
BTEXN in Water by Headspace GC-MS			
Benzene	g/m³	< 0.0010	-
Toluene	g/m³	< 0.0010	-
Ethylbenzene	g/m³	< 0.0010	-
m&p-Xylene	g/m³	< 0.002	-
o-Xylene	g/m³	< 0.0010	-
Naphthalene	g/m³	< 0.0010	-
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq			
Acenaphthene	g/m³	< 0.00010	< 0.00010
Acenaphthylene	g/m³	< 0.00010	< 0.00010
Anthracene	g/m³	< 0.00010	< 0.00010
Benzo[a]anthracene	g/m³	< 0.00010	< 0.00010
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	< 0.00010
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	< 0.00010
Benzo[g,h,i]perylene	g/m³	< 0.00010	< 0.00010
Benzo[k]fluoranthene	g/m³	< 0.00010	< 0.00010
Chrysene	g/m³	< 0.00010	< 0.00010
Dibenzo[a,h]anthracene	g/m³	< 0.00010	< 0.00010
Fluoranthene	g/m³	< 0.00010	< 0.00010
Fluorene	g/m³	< 0.0002	< 0.0002
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	< 0.00010
Naphthalene	g/m³	< 0.0005	< 0.0005
Phenanthrene	g/m³	< 0.0004	< 0.0004

Sample Type: Aqueous			
Sample Name:		BRO-BH02 11-Dec-2025 1:30 pm	RIN-03 11-Dec-2025 2:00 pm
Lab Number:		4057235.6	4057235.7
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq			
Pyrene	g/m³	< 0.0002	< 0.0002
Haloethers in SVOC Water Samples by GC-MS			
Bis(2-chloroethoxy) methane	g/m³	< 0.005	-
Bis(2-chloroethyl)ether	g/m³	< 0.005	-
Bis(2-chloroisopropyl)ether	g/m³	< 0.005	-
4-Bromophenyl phenyl ether	g/m³	< 0.005	-
4-Chlorophenyl phenyl ether	g/m³	< 0.005	-
Nitrogen containing compounds in SVOC Water Samples by GC-MS*			
2,4-Dinitrotoluene	g/m³	< 0.010	-
2,6-Dinitrotoluene	g/m³	< 0.010	-
Nitrobenzene	g/m³	< 0.005	-
N-Nitrosodi-n-propylamine	g/m³	< 0.010	-
N-Nitrosodiphenylamine + Diphenylamine*	g/m³	< 0.010	-
Organochlorine Pesticides in SVOC Water Samples by GC-MS			
Aldrin	g/m³	< 0.005	-
alpha-BHC	g/m³	< 0.005	-
beta-BHC	g/m³	< 0.005	-
delta-BHC	g/m³	< 0.005	-
gamma-BHC (Lindane)	g/m³	< 0.005	-
4,4'-DDD	g/m³	< 0.005	-
4,4'-DDE	g/m³	< 0.005	-
4,4'-DDT	g/m³	< 0.010	-
Dieldrin	g/m³	< 0.005	-
Endosulfan I	g/m³	< 0.010	-
Endosulfan II	g/m³	< 0.010	-
Endosulfan sulphate	g/m³	< 0.010	-
Endrin	g/m³	< 0.010	-
Endrin ketone	g/m³	< 0.010	-
Heptachlor	g/m³	< 0.005	-
Heptachlor epoxide	g/m³	< 0.005	-
Hexachlorobenzene	g/m³	< 0.005	-
Polycyclic Aromatic Hydrocarbons in SVOC Water Samples by GC-MS			
Acenaphthene	g/m³	< 0.003	-
Acenaphthylene	g/m³	< 0.003	-
Anthracene	g/m³	< 0.003	-
Benzo[a]anthracene	g/m³	< 0.003	-
Benzo[a]pyrene (BAP)	g/m³	< 0.003	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.003	-
Benzo[g,h,i]perylene	g/m³	< 0.003	-
Benzo[k]fluoranthene	g/m³	< 0.003	-
1&2-Chloronaphthalene	g/m³	< 0.003	-
Chrysene	g/m³	< 0.003	-
Dibenzo[a,h]anthracene	g/m³	< 0.003	-
Fluoranthene	g/m³	< 0.003	-
Fluorene	g/m³	< 0.003	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003	-
2-Methylnaphthalene	g/m³	< 0.003	-
Naphthalene	g/m³	< 0.003	-
Phenanthrene	g/m³	< 0.003	-
Pyrene	g/m³	< 0.003	-
Phenols in SVOC Water Samples by GC-MS			
4-Chloro-3-methylphenol	g/m³	< 0.010	-
2-Chlorophenol	g/m³	< 0.005	-
2,4-Dichlorophenol	g/m³	< 0.005	-

Sample Type: Aqueous			
Sample Name:		BRO-BH02 11-Dec-2025 1:30 pm	RIN-03 11-Dec-2025 2:00 pm
Lab Number:		4057235.6	4057235.7
Phenols in SVOC Water Samples by GC-MS			
2,4-Dimethylphenol	g/m³	< 0.005	-
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010	-
2-Methylphenol (o-Cresol)	g/m³	< 0.005	-
2-Nitrophenol	g/m³	< 0.010	-
Pentachlorophenol (PCP)	g/m³	< 0.10	-
Phenol	g/m³	< 0.010	-
2,4,5-Trichlorophenol	g/m³	< 0.010	-
2,4,6-Trichlorophenol	g/m³	< 0.010	-
Plasticisers in SVOC Water Samples by GC-MS			
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03	-
Butylbenzylphthalate	g/m³	< 0.010	-
Di(2-ethylhexyl)adipate	g/m³	< 0.005	-
Diethylphthalate	g/m³	< 0.010	-
Dimethylphthalate	g/m³	< 0.010	-
Di-n-butylphthalate	g/m³	< 0.010	-
Di-n-octylphthalate	g/m³	< 0.010	-
Other Halogenated compounds in SVOC Water Samples by GC-MS			
1,2-Dichlorobenzene	g/m³	< 0.010	-
1,3-Dichlorobenzene	g/m³	< 0.010	-
1,4-Dichlorobenzene	g/m³	< 0.010	-
Hexachlorobutadiene	g/m³	< 0.010	-
Hexachloroethane	g/m³	< 0.010	-
1,2,4-Trichlorobenzene	g/m³	< 0.005	-
Other compounds in SVOC Water Samples by GC-MS			
Benzyl alcohol	g/m³	< 0.05	-
Carbazole	g/m³	< 0.005	-
Dibenzofuran	g/m³	< 0.005	-
Isophorone	g/m³	< 0.005	-
Total Petroleum Hydrocarbons in Water			
C7 - C9	g/m³	< 0.10	< 0.10
C10 - C14	g/m³	< 0.2	< 0.2
C15 - C36	g/m³	< 0.4	< 0.4
Total hydrocarbons (C7 - C36)	g/m³	< 0.7	< 0.7
BTEX in VOC Water by Headspace GC-MS			
Benzene	g/m³	< 0.003	-
Ethylbenzene	g/m³	< 0.005	-
Toluene	g/m³	< 0.003	-
m&p-Xylene	g/m³	< 0.005	-
o-Xylene	g/m³	< 0.003	-
Halogenated Aliphatics in VOC Water by Headspace GC-MS			
Bromomethane (Methyl Bromide)	g/m³	< 0.003	-
Carbon tetrachloride	g/m³	< 0.003	-
Chloroethane	g/m³	< 0.003	-
Chloromethane	g/m³	< 0.003	-
1,2-Dibromo-3-chloropropane	g/m³	< 0.003	-
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003	-
Dibromomethane	g/m³	< 0.003	-
Dichlorodifluoromethane	g/m³	< 0.003	-
1,1-Dichloroethane	g/m³	< 0.003	-
1,2-Dichloroethane	g/m³	< 0.003	-
1,1-Dichloroethene	g/m³	< 0.003	-
cis-1,2-Dichloroethene	g/m³	< 0.003	-
trans-1,2-Dichloroethene	g/m³	< 0.003	-
Dichloromethane (methylene chloride)	g/m³	< 0.10	-

Sample Type: Aqueous			
Sample Name:		BRO-BH02 11-Dec-2025 1:30 pm	RIN-03 11-Dec-2025 2:00 pm
Lab Number:		4057235.6	4057235.7
Halogenated Aliphatics in VOC Water by Headspace GC-MS			
1,2-Dichloropropane	g/m³	< 0.003	-
1,3-Dichloropropane	g/m³	< 0.003	-
1,1-Dichloropropene	g/m³	< 0.003	-
cis-1,3-Dichloropropene	g/m³	< 0.005	-
trans-1,3-Dichloropropene	g/m³	< 0.005	-
Hexachlorobutadiene	g/m³	< 0.003	-
1,1,1,2-Tetrachloroethane	g/m³	< 0.003	-
1,1,2,2-Tetrachloroethane	g/m³	< 0.003	-
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003	-
1,1,1-Trichloroethane	g/m³	< 0.003	-
1,1,2-Trichloroethane	g/m³	< 0.003	-
Trichloroethene (trichloroethylene)	g/m³	< 0.003	-
Trichlorofluoromethane	g/m³	< 0.003	-
1,2,3-Trichloropropane	g/m³	< 0.003	-
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003	-
Vinyl chloride	g/m³	< 0.003	-
Haloaromatics in VOC Water by Headspace GC-MS			
Bromobenzene	g/m³	< 0.003	-
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003	-
2-Chlorotoluene	g/m³	< 0.003	-
1,2-Dichlorobenzene	g/m³	< 0.003	-
1,3-Dichlorobenzene	g/m³	< 0.003	-
1,4-Dichlorobenzene	g/m³	< 0.003	-
4-Chlorotoluene	g/m³	< 0.003	-
1,2,3-Trichlorobenzene	g/m³	< 0.003	-
1,2,4-Trichlorobenzene	g/m³	< 0.003	-
1,3,5-Trichlorobenzene	g/m³	< 0.003	-
Monoaromatic Hydrocarbons in VOC Water by Headspace GC-MS			
n-Butylbenzene	g/m³	< 0.005	-
tert-Butylbenzene	g/m³	< 0.003	-
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005	-
Isopropylbenzene (Cumene)	g/m³	< 0.003	-
n-Propylbenzene	g/m³	< 0.005	-
sec-Butylbenzene	g/m³	< 0.003	-
Styrene	g/m³	< 0.005	-
1,2,4-Trimethylbenzene	g/m³	< 0.003	-
1,3,5-Trimethylbenzene	g/m³	< 0.003	-
Ketones in VOC Water by Headspace GC-MS			
Acetone	g/m³	< 0.5	-
2-Butanone (MEK)	g/m³	< 0.5	-
Methyl tert-butylether (MTBE)	g/m³	< 0.003	-
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10	-
Trihalomethanes in VOC Water by Headspace GC-MS			
Bromodichloromethane	g/m³	< 0.003	-
Bromoform (tribromomethane)	g/m³	< 0.003	-
Chloroform (Trichloromethane)	g/m³	< 0.003	-
Dibromochloromethane	g/m³	< 0.003	-
Other VOC in Water by Headspace GC-MS			
Carbon disulphide	g/m³	< 0.005	-
Naphthalene	g/m³	< 0.005	-

Analyst's Comments

#1 Severe matrix interferences required that a dilution be performed prior to analysis, resulting in a detection limit higher than that normally achieved for the NOxN /NO2N analysis.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1-6
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-7
Total Digestion with HCl	Nitric/hydrochloric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-6
Total anions for anion/cation balance check	Calculation: sum of anions as mEquiv/L calculated from Alkalinity (bicarbonate), Chloride and Sulphate. Nitrate-N, Nitrite-N. Fluoride, Dissolved Reactive Phosphorus and Cyanide also included in calculation if available. APHA 1030 E : Online Edition.	0.07 meq/L	1-6
Total cations for anion/cation balance check	Sum of cations as mEquiv/L calculated from Sodium, Potassium, Calcium and Magnesium. Iron, Manganese, Aluminium, Zinc, Copper, Lithium, Total Ammoniacal-N and pH (H^+) also included in calculation if available. APHA 1030 E : Online Edition.	0.05 meq/L	1-6
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H^+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-6
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-6
Carbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-6
Bicarbonate	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-6
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D : Online Edition.	1.0 g/m^3 at 25°C	1-6
Total Hardness	Calculation from Dissolved Calcium and Dissolved Magnesium. APHA 2340 B : Online Edition.	1.0 g/m^3 as $CaCO_3$	1-6
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	1-6
Total Dissolved Solids (TDS)	Filtration through GF/C (1.2 µm), gravimetric. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2540 C (modified; drying temperature of 103 - 105°C used rather than 180 ± 2°C) : Online Edition.	10 g/m^3	1-6
Dissolved Boron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-6
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m^3	1-6
Dissolved Calcium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m^3	1-6
Dissolved Iron	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-6
Dissolved Magnesium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m^3	1-6
Dissolved Manganese	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0005 g/m^3	1-6
Dissolved Mercury	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00010 g/m^3	1-6
Total Mercury	Acid digestion, ICP-MS, screen level. APHA 3125 B : Online Edition.	0.00011 g/m^3	1-6

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Dissolved Potassium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.05 g/m³	1-6
Dissolved Sodium	Filtered sample, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.02 g/m³	1-6
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1-6
Dissolved Inorganic Nitrogen*	Calculation: NH_4-N + NO_3-N + NO_2-N. In-house calculation.	0.005 g/m³	1-6
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) : Online Edition.	0.010 g/m³	1-6
Nitrite-N	Filtered sample from Christchurch. Automated Azo dye colorimetry, Flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	1-6
Nitrate-N	Calculation: (Nitrate-N + Nitrite-N) - Nitrite-N. In-House.	0.0010 g/m³	1-6
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) : Online Edition.	0.002 g/m³	1-6
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, automated phenol/hypochlorite colorimetry. APHA 4500-N_{org} D (modified): Online Edition.	0.10 g/m³	1-6
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) : Online Edition.	0.004 g/m³	1-6
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m³	1-6
Heavy metals, dissolved, trace As,Cd,Cr,Cu,Ni,Pb,Zn	0.45µm Filtration, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00005 - 0.0010 g/m³	1-7
Heavy metals, totals, trace As,Cd,Cr,Cu,Ni,Pb,Zn	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.000053 - 0.0011 g/m³	1-7
BTEX in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m³	7
BTEXN in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.0010 - 0.002 g/m³	1-6
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m³	1-7
Semivolatile Organic Compounds Screening in Water by GC-MS	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.003 - 0.10 g/m³	1-6
Volatile Organic Compounds Screening in Water by Headspace GC-MS	Headspace GC-MS analysis. In-house based on US EPA 8260 and 5021.	0.003 - 0.5 g/m³	1-6
Dissolved Inorganic Nitrogen*		0.002 - 0.010 g/m³	1-6
Total Petroleum Hydrocarbons in Water			
C7 - C9	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.10 g/m³	1-7
C10 - C14	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.2 g/m³	1-7
C15 - C36	Solvent extraction, GC-FID analysis. In-house based on US EPA 8015.	0.4 g/m³	1-7
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	0.7 g/m³	1-7

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 16-Dec-2025 and 22-Dec-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

0508 HILL LAB (44 555 22)
+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Quality Assurance Report

Client:	Stantec New Zealand	**Lab No:**	4057235	QCPv1
Contact:	Mark Scaife	**Date Received:**	12-Dec-2025	
	C/- Stantec New Zealand	**Date Reported:**	22-Dec-2025	
	PO Box 13052	**Quote No:**	140553	
	Armagh	**Order No:**	310003431	
	Christchurch 8141	**Client Reference:**	310003431	
		Submitted By:	Mark Scaife	

Sample Specific QCs

BTEXN in Water by Headspace GC-MS

		4057235.1	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	103	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq

		4057235.1	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	106	40 – 130	No
Benzo[a]pyrene-d12	%	106	40 – 130	No
Fluoranthene-d10	%	93	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS

		4057235.1	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	89	40 – 120	No
2-fluorophenol	%	68	40 – 120	No
Nitrobenzene-d5	%	83	40 – 120	No
Phenol-d5	%	59	40 – 120	No
Terphenyl-d14	%	53	40 – 120	No
2,4,6-Tribromophenol	%	80	40 – 120	No

System monitoring Compounds for VOC - % Recovery

		4057235.1	Control Limits	Outside Limit (Yes/No)
4-Bromofluorobenzene	%	102	80 – 120	No
Dibromofluoromethane	%	106	80 – 120	No
Toluene-d8	%	101	80 – 120	No

BTEXN in Water by Headspace GC-MS

		4057235.2	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	118	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq

		4057235.2	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	104	40 – 130	No
Benzo[a]pyrene-d12	%	105	40 – 130	No
Fluoranthene-d10	%	96	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS

		4057235.2	Control Limits	Outside Limit (Yes/No)
2-fluorobiphenyl	%	98	40 – 120	No
2-fluorophenol	%	73	40 – 120	No
Nitrobenzene-d5	%	92	40 – 120	No
Phenol-d5	%	66	40 – 120	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4057235.2	**Control Limits**	**Outside Limit (Yes/No)**
Terphenyl-d14	%	69	40 – 120	No
2,4,6-Tribromophenol	%	92	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4057235.2	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	99	80 – 120	No
Dibromofluoromethane	%	108	80 – 120	No
Toluene-d8	%	100	80 – 120	No

BTEXN in Water by Headspace GC-MS				
		4057235.3	**Control Limits**	**Outside Limit (Yes/No)**
Benzene-d6	%	104	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4057235.3	**Control Limits**	**Outside Limit (Yes/No)**
1-methylnaphthalene-d10	%	104	40 – 130	No
Benzo[a]pyrene-d12	%	106	40 – 130	No
Fluoranthene-d10	%	98	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4057235.3	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	76	40 – 120	No
2-fluorophenol	%	50	40 – 120	No
Nitrobenzene-d5	%	74	40 – 120	No
Phenol-d5	%	54	40 – 120	No
Terphenyl-d14	%	44	40 – 120	No #1
2,4,6-Tribromophenol	%	70	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4057235.3	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	101	80 – 120	No
Dibromofluoromethane	%	106	80 – 120	No
Toluene-d8	%	101	80 – 120	No

BTEXN in Water by Headspace GC-MS				
		4057235.4	**Control Limits**	**Outside Limit (Yes/No)**
Benzene-d6	%	103	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4057235.4	**Control Limits**	**Outside Limit (Yes/No)**
1-methylnaphthalene-d10	%	103	40 – 130	No
Benzo[a]pyrene-d12	%	104	40 – 130	No
Fluoranthene-d10	%	91	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4057235.4	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	80	40 – 120	No
2-fluorophenol	%	60	40 – 120	No
Nitrobenzene-d5	%	75	40 – 120	No
Phenol-d5	%	59	40 – 120	No
Terphenyl-d14	%	33	40 – 120	**Yes** #1
2,4,6-Tribromophenol	%	71	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4057235.4	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	99	80 – 120	No
Dibromofluoromethane	%	108	80 – 120	No
Toluene-d8	%	101	80 – 120	No

BTEXN in Water by Headspace GC-MS				
		4057235.5	**Control Limits**	**Outside Limit (Yes/No)**
Benzene-d6	%	104	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4057235.5	**Control Limits**	**Outside Limit (Yes/No)**
1-methylnaphthalene-d10	%	105	40 – 130	No
Benzo[a]pyrene-d12	%	113	40 – 130	No
Fluoranthene-d10	%	92	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4057235.5	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	84	40 – 120	No
2-fluorophenol	%	58	40 – 120	No
Nitrobenzene-d5	%	81	40 – 120	No
Phenol-d5	%	67	40 – 120	No
Terphenyl-d14	%	44	40 – 120	No #1
2,4,6-Tribromophenol	%	77	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4057235.5	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	100	80 – 120	No
Dibromofluoromethane	%	107	80 – 120	No
Toluene-d8	%	101	80 – 120	No

BTEXN in Water by Headspace GC-MS				
		4057235.6	**Control Limits**	**Outside Limit (Yes/No)**
Benzene-d6	%	105	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4057235.6	**Control Limits**	**Outside Limit (Yes/No)**
1-methylnaphthalene-d10	%	102	40 – 130	No
Benzo[a]pyrene-d12	%	106	40 – 130	No
Fluoranthene-d10	%	100	40 – 130	No

SMC Compounds in SVOC Water Samples by GC-MS				
		4057235.6	**Control Limits**	**Outside Limit (Yes/No)**
2-fluorobiphenyl	%	74	40 – 120	No
2-fluorophenol	%	51	40 – 120	No
Nitrobenzene-d5	%	69	40 – 120	No
Phenol-d5	%	51	40 – 120	No
Terphenyl-d14	%	25	40 – 120	**Yes** #1
2,4,6-Tribromophenol	%	62	40 – 120	No

System monitoring Compounds for VOC - % Recovery				
		4057235.6	**Control Limits**	**Outside Limit (Yes/No)**
4-Bromofluorobenzene	%	102	80 – 120	No
Dibromofluoromethane	%	108	80 – 120	No
Toluene-d8	%	101	80 – 120	No

BTEX in Water by Headspace GC-MS				
		4057235.7	Control Limits	Outside Limit (Yes/No)
Benzene-d6	%	103	80 – 120	No

Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq				
		4057235.7	Control Limits	Outside Limit (Yes/No)
1-methylnaphthalene-d10	%	107	40 – 130	No
Benzo[a]pyrene-d12	%	111	40 – 130	No
Fluoranthene-d10	%	105	40 – 130	No

Blank QCs

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22936.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m^3	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m^3	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m^3	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22936.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m^3	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m^3	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m^3	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m^3	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m^3	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22936.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m^3	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m^3	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m^3	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m^3	< 0.05 ± 0.034	-0.050 – 0.050	No

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22936.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22936.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No
Dissolved Boron	g/m³	< 0.05 ± 0.033	-0.050 – 0.050	No
Dissolved Cadmium	g/m³	< 0.00005 ± 0.000033	-0.000050 – 0.000050	No
Dissolved Calcium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Chromium	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Copper	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Iron	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Lead	g/m³	< 0.00010 ± 0.000067	-0.000100 – 0.000100	No
Dissolved Magnesium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No
Dissolved Manganese	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Nickel	g/m³	< 0.0005 ± 0.00034	-0.00050 – 0.00050	No
Dissolved Potassium	g/m³	< 0.05 ± 0.034	-0.050 – 0.050	No
Dissolved Sodium	g/m³	< 0.02 ± 0.014	-0.020 – 0.020	No

5x Dilution ARBlank PrepWS DissPrep - WS: Environmental Waters by ICP-MS (EW): 22936.20				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Arsenic	g/m³	< 0.005 ± 0.00067	-0.0050 – 0.0050	No
Dissolved Boron	g/m³	< 0.3 ± 0.033	-0.25 – 0.25	No
Dissolved Cadmium	g/m³	< 0.0003 ± 0.000033	-0.00025 – 0.00025	No
Dissolved Calcium	g/m³	< 0.3 ± 0.034	-0.25 – 0.25	No
Dissolved Chromium	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Copper	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Iron	g/m³	< 0.10 ± 0.014	-0.100 – 0.100	No
Dissolved Lead	g/m³	< 0.0005 ± 0.000067	-0.00050 – 0.00050	No
Dissolved Magnesium	g/m³	< 0.10 ± 0.014	-0.100 – 0.100	No
Dissolved Manganese	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Nickel	g/m³	< 0.003 ± 0.00034	-0.0025 – 0.0025	No
Dissolved Potassium	g/m³	< 0.3 ± 0.034	-0.25 – 0.25	No
Dissolved Sodium	g/m³	< 0.10 ± 0.014	-0.100 – 0.100	No
Dissolved Zinc	g/m³	< 0.005 ± 0.00067	-0.0050 – 0.0050	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.23				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.23				
		Results	Control Limits	Outside Limit (Yes/No)
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.24				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00035	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00073	-0.0105 – 0.0105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.25				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.26				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00041	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000082	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00035	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.0011	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.27				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.27				
		Results	Control Limits	Outside Limit (Yes/No)
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Blank 1 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 218.25				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

Blank 2 PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 218.26				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.00011 ± 0.000071	-0.000106 – 0.000106	No

20x Dilution PrepWS TDigHCl - WS: Env. Waters with HCl Matrix: 218.27				
		Results	Control Limits	Outside Limit (Yes/No)
Total Mercury	g/m³	< 0.002 ± 0.000072	-0.0021 – 0.0021	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.4				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	g/m³	< 0.5 ± 0.30	0.0 – 0.050	No
Benzene	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Bromobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Bromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromodichloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Bromoform (tribromomethane)	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
Bromomethane (Methyl Bromide)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
2-Butanone (MEK)	g/m³	< 0.5 ± 0.030	0.0 – 0.050	No
n-Butylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
tert-Butylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Carbon disulphide	g/m³	< 0.005 ± 0.031	0.0 – 0.00025	No
Carbon tetrachloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chlorobenzene (monochlorobenzene)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloroethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Chloroform (Trichloromethane)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Chloromethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
2-Chlorotoluene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
4-Isopropyltoluene (p-Cymene)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,2-Dibromo-3-chloropropane	g/m³	< 0.003 ± 0.0023	0.0 – 0.00025	No
Dibromochloromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dibromoethane (ethylene dibromide, EDB)	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Dibromomethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,3-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,4-Dichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Dichlorodifluoromethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,2-Dichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1-Dichloroethene	g/m³	< 0.003 ± 0.0032	0.0 – 0.00025	No
cis-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
trans-1,2-Dichloroethene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Dichloromethane (methylene chloride)	g/m³	< 0.10 ± 0.060	0.0 – 0.00025	No
1,2-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No

water blank PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.4				
		Results	Control Limits	Outside Limit (Yes/No)
1,3-Dichloropropane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1-Dichloropropene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
cis-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
trans-1,3-Dichloropropene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Ethylbenzene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Isopropylbenzene (Cumene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
4-Chlorotoluene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Methyl tert-butylether (MTBE)	g/m³	< 0.003 ± 0.031	0.0 – 0.00025	No
4-Methylpentan-2-one (MIBK)	g/m³	< 0.10 ± 0.029	0.0 – 0.050	No
Naphthalene	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
n-Propylbenzene	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
sec-Butylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
Styrene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
1,1,1,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2,2-Tetrachloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Tetrachloroethene (tetrachloroethylene)	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
Toluene	g/m³	< 0.003 ± 0.0059	0.0 – 0.00025	No
1,2,3-Trichlorobenzene	g/m³	< 0.003 ± 0.0027	0.0 – 0.00025	No
1,2,4-Trichlorobenzene	g/m³	< 0.003 ± 0.0028	0.0 – 0.00025	No
1,3,5-Trichlorobenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
1,1,1-Trichloroethane	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,1,2-Trichloroethane	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichloroethene (trichloroethylene)	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Trichlorofluoromethane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,2,3-Trichloropropane	g/m³	< 0.003 ± 0.0031	0.0 – 0.00025	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	g/m³	< 0.003 ± 0.024	0.0 – 0.00025	No
1,2,4-Trimethylbenzene	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
1,3,5-Trimethylbenzene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No
Vinyl chloride	g/m³	< 0.003 ± 0.0029	0.0 – 0.00025	No
m&p-Xylene	g/m³	< 0.005 ± 0.0030	0.0 – 0.00050	No
o-Xylene	g/m³	< 0.003 ± 0.0030	0.0 – 0.00025	No

Blank 1 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23823.16				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

10x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23823.17				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.011 ± 0.00074	-0.0105 – 0.0105	No
Total Boron	g/m³	< 0.53 ± 0.035	-0.52 – 0.52	No
Total Cadmium	g/m³	< 0.0006 ± 0.000036	-0.00052 – 0.00052	No
Total Chromium	g/m³	< 0.006 ± 0.00036	-0.0052 – 0.0052	No
Total Copper	g/m³	< 0.006 ± 0.00038	-0.0052 – 0.0052	No
Total Lead	g/m³	< 0.0011 ± 0.000074	-0.00105 – 0.00105	No
Total Nickel	g/m³	< 0.006 ± 0.00041	-0.0052 – 0.0052	No
Total Zinc	g/m³	< 0.011 ± 0.00073	-0.0105 – 0.0105	No

Blank 2 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23823.18				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

20x Dilution PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23823.19				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.021 ± 0.00074	-0.021 – 0.021	No
Total Boron	g/m³	< 1.1 ± 0.035	-1.05 – 1.05	No
Total Cadmium	g/m³	< 0.0011 ± 0.000036	-0.00105 – 0.00105	No
Total Chromium	g/m³	< 0.011 ± 0.00038	-0.0105 – 0.0105	No
Total Copper	g/m³	< 0.011 ± 0.00052	-0.0105 – 0.0105	No
Total Lead	g/m³	< 0.0021 ± 0.000074	-0.0021 – 0.0021	No
Total Nickel	g/m³	< 0.011 ± 0.00047	-0.0105 – 0.0105	No
Total Zinc	g/m³	< 0.021 ± 0.00075	-0.021 – 0.021	No

Blank 3 PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23823.20				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	< 0.0011 ± 0.00074	-0.00105 – 0.00105	No
Total Boron	g/m³	< 0.06 ± 0.035	-0.052 – 0.052	No
Total Cadmium	g/m³	< 0.00006 ± 0.000036	-0.000052 – 0.000052	No
Total Chromium	g/m³	< 0.0006 ± 0.00036	-0.00052 – 0.00052	No
Total Copper	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Lead	g/m³	< 0.00011 ± 0.000074	-0.000105 – 0.000105	No
Total Nickel	g/m³	< 0.0006 ± 0.00035	-0.00052 – 0.00052	No
Total Zinc	g/m³	< 0.0011 ± 0.00073	-0.00105 – 0.00105	No

Filt Blk 1 PrepWS FiltMGchch - L4C by FIA Worksheet: 12594.136				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Nitrate-N + Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 2 PrepWS FiltMGchch - L4C by FIA Worksheet: 12594.156				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	< 0.010 ± 0.0067	-0.0100 – 0.0100	No
Nitrite-N	g/m³	< 0.002 ± 0.0014	-0.0030 – 0.0030	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	-0.0040 – 0.0040	No

Filt Blk 1 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13216.33				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	0.13 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

Filt Blk 2 PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13216.47				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	0.13 ± 0.34	-0.75 – 0.75	No
Sulphate	g/m³	< 0.5 ± 0.34	-0.75 – 0.75	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 647.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 647.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 647.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 647.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 648.2				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 648.8				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blk PrepWS TKDig - Total Kjeldahl Nitrogen by FIA: 648.47				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

TKN Blank - Total Kjeldahl Nitrogen by FIA: 648.48				
		Results	Control Limits	Outside Limit (Yes/No)
Total Kjeldahl Nitrogen (TKN)	g/m³	< 0.10 ± 0.061	-0.100 – 0.100	No

Blank PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9377.2				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.060	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.061	0.0 – 0.100	No
C15 - C20	g/m³	0.196 ± 0.084	0.0 – 0.100	**Yes** #2
C21 - C25	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

Blank 2 PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9377.26				
		Results	Control Limits	Outside Limit (Yes/No)
C7 - C9	g/m³	< 0.10 ± 0.060	0.0 – 0.075	No
C10 - C11	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C12 - C14	g/m³	< 0.10 ± 0.061	0.0 – 0.100	No
C15 - C20	g/m³	0.142 ± 0.074	0.0 – 0.100	**Yes** #2
C21 - C25	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C26 - C29	g/m³	< 0.10 ± 0.060	0.0 – 0.100	No
C30 - C36	g/m³	< 0.10	0.0 – 0.100	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5269.1				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Acenaphthylene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Aldrin	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]anthracene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Benzo[a]pyrene (BAP)	g/m³	< 0.003 ± 0.00092	0.0 – 0.00025	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	g/m³	< 0.003 ± 0.0013	0.0 – 0.00025	No
Benzo[g,h,i]perylene	g/m³	< 0.003 ± 0.00099	0.0 – 0.00025	No
Benzo[k]fluoranthene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Benzyl alcohol	g/m³	< 0.05 ± 0.017	0.0 – 0.0025	No
alpha-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
beta-BHC	g/m³	< 0.005 ± 0.0031	0.0 – 0.00025	No
delta-BHC	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
gamma-BHC (Lindane)	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Bis(2-chloroethoxy) methane	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroethyl)ether	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
Bis(2-chloroisopropyl)ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Bis(2-ethylhexyl)phthalate	g/m³	< 0.03 ± 0.015	0.0 – 0.00100	No
4-Bromophenyl phenyl ether	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Butylbenzylphthalate	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
Carbazole	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
4-Chloro-3-methylphenol	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
1&2-Chloronaphthalene	g/m³	< 0.003 ± 0.00088	0.0 – 0.00050	No
2-Chlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No
4-Chlorophenyl phenyl ether	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Chrysene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
4,4'-DDD	g/m³	< 0.005 ± 0.0025	0.0 – 0.00025	No
4,4'-DDE	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
4,4'-DDT	g/m³	< 0.010 ± 0.0048	0.0 – 0.00050	No
Di(2-ethylhexyl)adipate	g/m³	< 0.005 ± 0.0030	0.0 – 0.00025	No
Dibenzo[a,h]anthracene	g/m³	< 0.003 ± 0.0012	0.0 – 0.00025	No
Dibenzofuran	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
1,2-Dichlorobenzene	g/m³	< 0.010 ± 0.0054	0.0 – 0.00050	No
1,3-Dichlorobenzene	g/m³	< 0.010 ± 0.0052	0.0 – 0.00050	No
1,4-Dichlorobenzene	g/m³	< 0.010 ± 0.0046	0.0 – 0.00050	No
2,4-Dichlorophenol	g/m³	< 0.005 ± 0.0028	0.0 – 0.00025	No

blank PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5269.1				
		Results	Control Limits	Outside Limit (Yes/No)
Dieldrin	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Diethylphthalate	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
2,4-Dimethylphenol	g/m³	< 0.005 ± 0.0014	0.0 – 0.00025	No
Dimethylphthalate	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-butylphthalate	g/m³	< 0.010 ± 0.0056	0.0 – 0.00100	No
2,4-Dinitrotoluene	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
2,6-Dinitrotoluene	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
Di-n-octylphthalate	g/m³	< 0.010 ± 0.0031	0.0 – 0.00050	No
Endosulfan I	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endosulfan II	g/m³	< 0.010 ± 0.0057	0.0 – 0.00050	No
Endosulfan sulphate	g/m³	< 0.010 ± 0.0049	0.0 – 0.00050	No
Endrin	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Endrin ketone	g/m³	< 0.010 ± 0.0053	0.0 – 0.00050	No
Fluoranthene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Fluorene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Heptachlor	g/m³	< 0.005 ± 0.0027	0.0 – 0.00025	No
Heptachlor epoxide	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
Hexachlorobutadiene	g/m³	< 0.010 ± 0.0056	0.0 – 0.00050	No
Hexachloroethane	g/m³	< 0.010 ± 0.0041	0.0 – 0.00050	No
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.003 ± 0.00074	0.0 – 0.00025	No
Isophorone	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2-Methylnaphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
3 & 4-Methylphenol (m- + p-cresol)	g/m³	< 0.010 ± 0.0043	0.0 – 0.00050	No
2-Methylphenol (o-Cresol)	g/m³	< 0.005 ± 0.0021	0.0 – 0.00025	No
Naphthalene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
Nitrobenzene	g/m³	< 0.005 ± 0.0026	0.0 – 0.00025	No
2-Nitrophenol	g/m³	< 0.010 ± 0.0051	0.0 – 0.00050	No
N-Nitrosodi-n-propylamine	g/m³	< 0.010 ± 0.0055	0.0 – 0.00050	No
N-Nitrosodiphenylamine + Diphenylamine	g/m³	< 0.010 ± 0.0028	0.0 – 0.00050	No
Pentachlorophenol (PCP)	g/m³	< 0.10 ± 0.048	0.0 – 0.0050	No
Phenanthrene	g/m³	< 0.003 ± 0.0017	0.0 – 0.000125	No
Phenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
Pyrene	g/m³	< 0.003 ± 0.0016	0.0 – 0.000125	No
1,2,4-Trichlorobenzene	g/m³	< 0.005 ± 0.0029	0.0 – 0.00025	No
2,4,5-Trichlorophenol	g/m³	< 0.010 ± 0.0050	0.0 – 0.00050	No
2,4,6-Trichlorophenol	g/m³	< 0.010 ± 0.0045	0.0 – 0.00050	No

water blank PrepWS apHSVw - BTEX by Headspace Water Analysis: 5036.2				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	g/m³	< 0.0010 ± 0.00015	0.0 – 0.00100	No
Toluene	g/m³	< 0.0010 ± 0.00018	0.0 – 0.00100	No
Ethylbenzene	g/m³	< 0.0010 ± 0.00021	0.0 – 0.00100	No
m&p-Xylene	g/m³	< 0.002 ± 0.00031	0.0 – 0.0020	No
o-Xylene	g/m³	< 0.0010 ± 0.00016	0.0 – 0.00100	No
Naphthalene	g/m³	< 0.0010 ± 0.00015	0.0 – 0.00100	No

FBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22951.16				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

FBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22951.17				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 1 - WS: Environmental Waters by ICP-MS (EW): 22951.18				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

ARBlank PrepWS DissPrep 2 - WS: Environmental Waters by ICP-MS (EW): 22951.19				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Zinc	g/m³	< 0.0010 ± 0.00067	-0.00100 – 0.00100	No

water blank PrepWS apHSVw - BTEX by Headspace Water Analysis: 5037.2				
		Results	Control Limits	Outside Limit (Yes/No)
Toluene	g/m³	< 0.0010 ± 0.00018	0.0 – 0.00100	No

Blank PrepWS TCLPzhe PrepWS apHSVw - BTEX by Headspace Water Analysis: 5037.28				
		Results	Control Limits	Outside Limit (Yes/No)
Toluene	g/m³	< 0.010 ± 0.00020	0.0 – 0.0100	No

FBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 221.49				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

FBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 221.50				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

ARBlank PrepWS DissPrepHCl 1 - WS: Env. Waters with HCl Matrix: 221.51				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

ARBlank PrepWS DissPrepHCl 2 - WS: Env. Waters with HCl Matrix: 221.52				
		Results	Control Limits	Outside Limit (Yes/No)
Dissolved Mercury	g/m³	< 0.00010 ± 0.000065	-0.000100 – 0.000100	No

QC Spike QCs

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.3				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	97 ± 29	70 – 130	No
Benzene	%	106 ± 27	70 – 130	No
Bromobenzene	%	103 ± 31	70 – 130	No
Bromochloromethane	%	103 ± 35	70 – 130	No
Bromodichloromethane	%	106 ± 36	70 – 130	No
Bromoform (tribromomethane)	%	108 ± 40	70 – 130	No
Bromomethane (Methyl Bromide)	%	107 ± 36	70 – 130	No
2-Butanone (MEK)	%	97 ± 29	70 – 130	No
n-Butylbenzene	%	110 ± 34	70 – 130	No
tert-Butylbenzene	%	105 ± 32	70 – 130	No
Carbon disulphide	%	92 ± 24	70 – 130	No
Carbon tetrachloride	%	112 ± 41	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	105 ± 35	70 – 130	No
Chloroethane	%	105 ± 31	70 – 130	No
Chloroform (Trichloromethane)	%	103 ± 35	70 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.3				
		Results	Control Limits	Outside Limit (Yes/No)
Chloromethane	%	110 ± 35	70 – 130	No
2-Chlorotoluene	%	105 ± 34	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	107 ± 35	70 – 130	No
1,2-Dibromo-3-chloropropane	%	102 ± 50	70 – 130	No
Dibromochloromethane	%	106 ± 36	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	104 ± 36	70 – 130	No
Dibromomethane	%	104 ± 35	70 – 130	No
1,2-Dichlorobenzene	%	104 ± 32	70 – 130	No
1,3-Dichlorobenzene	%	105 ± 32	70 – 130	No
1,4-Dichlorobenzene	%	105 ± 32	70 – 130	No
Dichlorodifluoromethane	%	119 ± 42	70 – 130	No
1,1-Dichloroethane	%	104 ± 33	70 – 130	No
1,2-Dichloroethane	%	105 ± 36	70 – 130	No
1,1-Dichloroethene	%	103 ± 26	70 – 130	No
cis-1,2-Dichloroethene	%	103 ± 35	70 – 130	No
trans-1,2-Dichloroethene	%	103 ± 37	70 – 130	No
Dichloromethane (methylene chloride)	%	109 ± 33	70 – 130	No
1,2-Dichloropropane	%	105 ± 34	70 – 130	No
1,3-Dichloropropane	%	106 ± 35	70 – 130	No
1,1-Dichloropropene	%	105 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	105 ± 38	70 – 130	No
trans-1,3-Dichloropropene	%	111 ± 40	70 – 130	No
Ethylbenzene	%	105 ± 33	70 – 130	No
Hexachlorobutadiene	%	105 ± 37	70 – 130	No
Isopropylbenzene (Cumene)	%	104 ± 34	70 – 130	No
4-Chlorotoluene	%	106 ± 35	70 – 130	No
Methyl tert-butylether (MTBE)	%	96 ± 28	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	96 ± 34	70 – 130	No
Naphthalene	%	100 ± 53	70 – 130	No
n-Propylbenzene	%	106 ± 40	70 – 130	No
sec-Butylbenzene	%	108 ± 37	70 – 130	No
Styrene	%	101 ± 32	70 – 130	No
1,1,1,2-Tetrachloroethane	%	108 ± 36	70 – 130	No
1,1,2,2-Tetrachloroethane	%	109 ± 33	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	105 ± 30	70 – 130	No
Toluene	%	104 ± 33	70 – 130	No
1,2,3-Trichlorobenzene	%	103 ± 43	70 – 130	No
1,2,4-Trichlorobenzene	%	103 ± 40	70 – 130	No
1,3,5-Trichlorobenzene	%	105 ± 34	70 – 130	No
1,1,1-Trichloroethane	%	106 ± 36	70 – 130	No
1,1,2-Trichloroethane	%	106 ± 35	70 – 130	No
Trichloroethene (trichloroethylene)	%	103 ± 33	70 – 130	No
Trichlorofluoromethane	%	104 ± 29	70 – 130	No
1,2,3-Trichloropropane	%	104 ± 31	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	108 ± 52	70 – 130	No

water LCS PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
1,2,4-Trimethylbenzene	%	105 ± 35	70 – 130	No
1,3,5-Trimethylbenzene	%	105 ± 35	70 – 130	No
Vinyl chloride	%	107 ± 37	70 – 130	No
m&p-Xylene	%	105 ± 34	70 – 130	No
o-Xylene	%	105 ± 31	70 – 130	No

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6089.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	115 ± 58	70 – 130	No
Acenaphthylene	%	105 ± 57	70 – 130	No
Anthracene	%	108 ± 39	70 – 130	No
Benzo[a]anthracene	%	112 ± 36	70 – 130	No
Benzo[a]pyrene (BAP)	%	118 ± 57	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	117 ± 57	70 – 130	No
Benzo[g,h,i]perylene	%	105 ± 55	70 – 130	No
Benzo[k]fluoranthene	%	122 ± 54	70 – 130	No
Chrysene	%	110 ± 40	70 – 130	No
Dibenzo[a,h]anthracene	%	107 ± 56	70 – 130	No
Fluoranthene	%	114 ± 30	70 – 130	No
Fluorene	%	116 ± 52	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	104 ± 55	70 – 130	No
Naphthalene	%	101 ± 67	70 – 130	No
Phenanthrene	%	123 ± 37	70 – 130	No
Pyrene	%	138 ± 56	70 – 130	**Yes** [#3]

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6090.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	113 ± 57	70 – 130	No
Acenaphthylene	%	97 ± 53	70 – 130	No
Anthracene	%	107 ± 39	70 – 130	No
Benzo[a]anthracene	%	111 ± 36	70 – 130	No
Benzo[a]pyrene (BAP)	%	123 ± 60	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	117 ± 57	70 – 130	No
Benzo[g,h,i]perylene	%	113 ± 59	70 – 130	No
Benzo[k]fluoranthene	%	125 ± 56	70 – 130	No
Chrysene	%	114 ± 42	70 – 130	No
Dibenzo[a,h]anthracene	%	115 ± 60	70 – 130	No
Fluoranthene	%	106 ± 28	70 – 130	No
Fluorene	%	107 ± 48	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	112 ± 59	70 – 130	No
Naphthalene	%	101 ± 67	70 – 130	No
Phenanthrene	%	120 ± 37	70 – 130	No
Pyrene	%	126 ± 51	70 – 130	No

LCS PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9377.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total hydrocarbons (C7 - C36)	%	120 ± 37	80 – 137	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5269.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	102 ± 38	40 – 130	No
Acenaphthylene	%	89 ± 34	40 – 130	No
Aldrin	%	96 ± 35	40 – 130	No
Anthracene	%	116 ± 43	40 – 130	No
Benzo[a]anthracene	%	111 ± 42	40 – 130	No
Benzo[a]pyrene (BAP)	%	92 ± 55	40 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	95 ± 50	40 – 130	No
Benzo[g,h,i]perylene	%	96 ± 56	40 – 130	No
Benzo[k]fluoranthene	%	103 ± 57	40 – 130	No
Benzyl alcohol	%	77 ± 45	40 – 130	No
alpha-BHC	%	95 ± 31	40 – 130	No
beta-BHC	%	91 ± 26	40 – 130	No
delta-BHC	%	98 ± 30	40 – 130	No
gamma-BHC (Lindane)	%	93 ± 29	40 – 130	No
Bis(2-chloroethoxy) methane	%	96 ± 44	40 – 130	No
Bis(2-chloroethyl)ether	%	84 ± 39	40 – 130	No
Bis(2-chloroisopropyl)ether	%	84 ± 34	40 – 130	No
Bis(2-ethylhexyl)phthalate	%	115 ± 54	40 – 130	No
4-Bromophenyl phenyl ether	%	94 ± 38	40 – 130	No
Butylbenzylphthalate	%	116 ± 47	40 – 130	No
Carbazole	%	100 ± 35	40 – 130	No
4-Chloro-3-methylphenol	%	92 ± 35	40 – 130	No
2-Chlorophenol	%	82 ± 31	40 – 130	No
4-Chlorophenyl phenyl ether	%	108 ± 38	40 – 130	No
Chrysene	%	114 ± 44	40 – 130	No
4,4'-DDD	%	125 ± 58	40 – 130	No
4,4'-DDE	%	115 ± 47	40 – 130	No
4,4'-DDT	%	114 ± 54	40 – 130	No
Dibenzo[a,h]anthracene	%	97 ± 54	40 – 130	No
Dibenzofuran	%	102 ± 34	40 – 130	No
1,2-Dichlorobenzene	%	75 ± 30	40 – 130	No
1,3-Dichlorobenzene	%	72 ± 31	40 – 130	No
1,4-Dichlorobenzene	%	73 ± 36	40 – 130	No
2,4-Dichlorophenol	%	87 ± 34	40 – 130	No
Dieldrin	%	109 ± 45	40 – 130	No
Diethylphthalate	%	103 ± 43	40 – 130	No
2,4-Dimethylphenol	%	78 ± 48	40 – 130	No
Dimethylphthalate	%	105 ± 41	40 – 130	No
Di-n-butylphthalate	%	98 ± 36	40 – 130	No
2,4-Dinitrotoluene	%	110 ± 39	40 – 130	No
2,6-Dinitrotoluene	%	106 ± 41	40 – 130	No
Di-n-octylphthalate	%	104 ± 62	40 – 130	No
Endosulfan I	%	113 ± 53	40 – 130	No
Endosulfan II	%	115 ± 42	40 – 130	No
Endosulfan sulphate	%	124 ± 57	40 – 130	No

LCS PrepWS xwSVasc - WS: Semivolatile Water Analysis: 5269.2				
		Results	Control Limits	Outside Limit (Yes/No)
Endrin	%	114 ± 51	40 – 130	No
Endrin ketone	%	110 ± 46	40 – 130	No
Fluoranthene	%	97 ± 35	40 – 130	No
Fluorene	%	105 ± 39	40 – 130	No
Heptachlor	%	96 ± 40	40 – 130	No
Heptachlor epoxide	%	101 ± 36	40 – 130	No
Hexachlorobenzene	%	95 ± 34	40 – 130	No
Hexachlorobutadiene	%	81 ± 31	40 – 130	No
Hexachloroethane	%	73 ± 39	40 – 130	No
Indeno(1,2,3-c,d)pyrene	%	93 ± 58	40 – 130	No
Isophorone	%	80 ± 29	40 – 130	No
2-Methylnaphthalene	%	85 ± 36	40 – 130	No
3 & 4-Methylphenol (m- + p-cresol)	%	77 ± 40	40 – 130	No
2-Methylphenol (o-Cresol)	%	76 ± 40	40 – 130	No
Naphthalene	%	86 ± 37	40 – 130	No
Nitrobenzene	%	94 ± 41	40 – 130	No
2-Nitrophenol	%	86 ± 38	40 – 130	No
N-Nitrosodi-n-propylamine	%	87 ± 34	40 – 130	No
N-Nitrosodiphenylamine + Diphenylamine	%	84 ± 51	40 – 130	No
Phenanthrene	%	96 ± 35	40 – 130	No
Phenol	%	67 ± 31	40 – 130	No
Pyrene	%	111 ± 46	40 – 130	No
1,2,4-Trichlorobenzene	%	83 ± 30	40 – 130	No
2,4,5-Trichlorophenol	%	97 ± 43	40 – 130	No
2,4,6-Trichlorophenol	%	100 ± 50	40 – 130	No

water LCS PrepWS apHSVw - BTEX by Headspace Water Analysis: 5036.3				
		Results	Control Limits	Outside Limit (Yes/No)
Benzene	%	99 ± 11	88 – 111	No
Toluene	%	99.0 ± 6.6	95 – 110	No
Ethylbenzene	%	98.0 ± 6.5	95 – 114	No
m&p-Xylene	%	98.0 ± 7.5	93 – 114	No
o-Xylene	%	100.0 ± 7.5	92 – 115	No
Naphthalene	%	98 ± 18	74 – 120	No

water LCS PrepWS apHSVw - BTEX by Headspace Water Analysis: 5037.3				
		Results	Control Limits	Outside Limit (Yes/No)
Toluene	%	104.0 ± 6.9	95 – 110	No

LCS PAH PrepWS xwlPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6093.2				
		Results	Control Limits	Outside Limit (Yes/No)
Acenaphthene	%	112 ± 57	70 – 130	No
Fluoranthene	%	110 ± 29	70 – 130	No

Sample Spike QCs

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.63				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	%	97.0 ± 5.9	80 – 120	No
Total Boron	%	95 ± 14	80 – 120	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.63				
		Results	Control Limits	Outside Limit (Yes/No)
Total Cadmium	%	96.0 ± 7.7	80 – 120	No
Total Chromium	%	94.0 ± 7.6	80 – 120	No
Total Copper	%	99 ± 10	80 – 120	No
Total Lead	%	96.0 ± 5.8	80 – 120	No
Total Nickel	%	97 ± 12	80 – 120	No
Total Zinc	%	94.0 ± 7.6	80 – 120	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.11				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	98 ± 30	70 – 130	No
Benzene	%	108 ± 28	70 – 130	No
Bromobenzene	%	105 ± 32	70 – 130	No
Bromochloromethane	%	108 ± 37	70 – 130	No
Bromodichloromethane	%	108 ± 37	70 – 130	No
Bromoform (tribromomethane)	%	107 ± 40	70 – 130	No
Bromomethane (Methyl Bromide)	%	113 ± 38	70 – 130	No
2-Butanone (MEK)	%	103 ± 31	70 – 130	No
n-Butylbenzene	%	121 ± 37	70 – 130	No
tert-Butylbenzene	%	113 ± 34	70 – 130	No
Carbon disulphide	%	96 ± 25	70 – 130	No
Carbon tetrachloride	%	115 ± 42	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	105 ± 35	70 – 130	No
Chloroethane	%	111 ± 33	70 – 130	No
Chloroform (Trichloromethane)	%	109 ± 37	70 – 130	No
Chloromethane	%	117 ± 37	70 – 130	No
2-Chlorotoluene	%	108 ± 35	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	117 ± 38	70 – 130	No
1,2-Dibromo-3-chloropropane	%	106 ± 52	70 – 130	No
Dibromochloromethane	%	106 ± 36	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	105 ± 37	70 – 130	No
Dibromomethane	%	107 ± 36	70 – 130	No
1,2-Dichlorobenzene	%	105 ± 32	70 – 130	No
1,3-Dichlorobenzene	%	105 ± 32	70 – 130	No
1,4-Dichlorobenzene	%	104 ± 32	70 – 130	No
Dichlorodifluoromethane	%	128 ± 45	70 – 130	No
1,1-Dichloroethane	%	109 ± 35	70 – 130	No
1,2-Dichloroethane	%	108 ± 37	70 – 130	No
1,1-Dichloroethene	%	108 ± 27	70 – 130	No
cis-1,2-Dichloroethene	%	107 ± 36	70 – 130	No
trans-1,2-Dichloroethene	%	108 ± 39	70 – 130	No
Dichloromethane (methylene chloride)	%	114 ± 35	70 – 130	No
1,2-Dichloropropane	%	108 ± 35	70 – 130	No
1,3-Dichloropropane	%	108 ± 36	70 – 130	No
1,1-Dichloropropene	%	107 ± 33	70 – 130	No
cis-1,3-Dichloropropene	%	104 ± 37	70 – 130	No
trans-1,3-Dichloropropene	%	110 ± 40	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.11				
		Results	Control Limits	Outside Limit (Yes/No)
Ethylbenzene	%	106 ± 33	70 – 130	No
Hexachlorobutadiene	%	128 ± 45	70 – 130	No
Isopropylbenzene (Cumene)	%	109 ± 35	70 – 130	No
4-Chlorotoluene	%	106 ± 35	70 – 130	No
Methyl tert-butylether (MTBE)	%	101 ± 30	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	97 ± 34	70 – 130	No
Naphthalene	%	100 ± 53	70 – 130	No
n-Propylbenzene	%	109 ± 41	70 – 130	No
sec-Butylbenzene	%	119 ± 40	70 – 130	No
Styrene	%	101 ± 32	70 – 130	No
1,1,1,2-Tetrachloroethane	%	109 ± 37	70 – 130	No
1,1,2,2-Tetrachloroethane	%	115 ± 34	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	105 ± 30	70 – 130	No
Toluene	%	106 ± 34	70 – 130	No
1,2,3-Trichlorobenzene	%	102 ± 42	70 – 130	No
1,2,4-Trichlorobenzene	%	99 ± 39	70 – 130	No
1,3,5-Trichlorobenzene	%	105 ± 34	70 – 130	No
1,1,1-Trichloroethane	%	109 ± 37	70 – 130	No
1,1,2-Trichloroethane	%	108 ± 36	70 – 130	No
Trichloroethene (trichloroethylene)	%	103 ± 33	70 – 130	No
Trichlorofluoromethane	%	111 ± 31	70 – 130	No
1,2,3-Trichloropropane	%	108 ± 32	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	115 ± 55	70 – 130	No
1,2,4-Trimethylbenzene	%	108 ± 36	70 – 130	No
1,3,5-Trimethylbenzene	%	110 ± 36	70 – 130	No
Vinyl chloride	%	114 ± 39	70 – 130	No
m&p-Xylene	%	105 ± 34	70 – 130	No
o-Xylene	%	108 ± 32	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.31				
		Results	Control Limits	Outside Limit (Yes/No)
Acetone	%	103 ± 31	70 – 130	No
Benzene	%	103 ± 26	70 – 130	No
Bromobenzene	%	101 ± 30	70 – 130	No
Bromochloromethane	%	109 ± 37	70 – 130	No
Bromodichloromethane	%	106 ± 36	70 – 130	No
Bromoform (tribromomethane)	%	106 ± 39	70 – 130	No
Bromomethane (Methyl Bromide)	%	107 ± 36	70 – 130	No
2-Butanone (MEK)	%	104 ± 31	70 – 130	No
n-Butylbenzene	%	112 ± 34	70 – 130	No
tert-Butylbenzene	%	108 ± 33	70 – 130	No
Carbon disulphide	%	90 ± 24	70 – 130	No
Carbon tetrachloride	%	110 ± 40	70 – 130	No
Chlorobenzene (monochlorobenzene)	%	101 ± 34	70 – 130	No
Chloroethane	%	105 ± 31	70 – 130	No
Chloroform (Trichloromethane)	%	107 ± 37	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.31				
		Results	Control Limits	Outside Limit (Yes/No)
Chloromethane	%	108 ± 34	70 – 130	No
2-Chlorotoluene	%	102 ± 33	70 – 130	No
4-Isopropyltoluene (p-Cymene)	%	110 ± 36	70 – 130	No
1,2-Dibromo-3-chloropropane	%	107 ± 53	70 – 130	No
Dibromochloromethane	%	106 ± 36	70 – 130	No
1,2-Dibromoethane (ethylene dibromide, EDB)	%	106 ± 37	70 – 130	No
Dibromomethane	%	108 ± 37	70 – 130	No
1,2-Dichlorobenzene	%	101 ± 31	70 – 130	No
1,3-Dichlorobenzene	%	98 ± 30	70 – 130	No
1,4-Dichlorobenzene	%	97 ± 30	70 – 130	No
Dichlorodifluoromethane	%	118 ± 42	70 – 130	No
1,1-Dichloroethane	%	107 ± 34	70 – 130	No
1,2-Dichloroethane	%	108 ± 37	70 – 130	No
1,1-Dichloroethene	%	102 ± 25	70 – 130	No
cis-1,2-Dichloroethene	%	105 ± 36	70 – 130	No
trans-1,2-Dichloroethene	%	103 ± 37	70 – 130	No
Dichloromethane (methylene chloride)	%	113 ± 34	70 – 130	No
1,2-Dichloropropane	%	106 ± 35	70 – 130	No
1,3-Dichloropropane	%	109 ± 36	70 – 130	No
1,1-Dichloropropene	%	101 ± 32	70 – 130	No
cis-1,3-Dichloropropene	%	97 ± 35	70 – 130	No
trans-1,3-Dichloropropene	%	102 ± 37	70 – 130	No
Ethylbenzene	%	101 ± 31	70 – 130	No
Hexachlorobutadiene	%	124 ± 43	70 – 130	No
Isopropylbenzene (Cumene)	%	103 ± 33	70 – 130	No
4-Chlorotoluene	%	99 ± 33	70 – 130	No
Methyl tert-butylether (MTBE)	%	102 ± 30	70 – 130	No
4-Methylpentan-2-one (MIBK)	%	99 ± 35	70 – 130	No
Naphthalene	%	97 ± 51	70 – 130	No
n-Propylbenzene	%	102 ± 39	70 – 130	No
sec-Butylbenzene	%	113 ± 38	70 – 130	No
Styrene	%	96 ± 31	70 – 130	No
1,1,1,2-Tetrachloroethane	%	108 ± 36	70 – 130	No
1,1,2,2-Tetrachloroethane	%	116 ± 35	70 – 130	No
Tetrachloroethene (tetrachloroethylene)	%	99 ± 28	70 – 130	No
Toluene	%	101 ± 32	70 – 130	No
1,2,3-Trichlorobenzene	%	96 ± 40	70 – 130	No
1,2,4-Trichlorobenzene	%	90 ± 35	70 – 130	No
1,3,5-Trichlorobenzene	%	95 ± 31	70 – 130	No
1,1,1-Trichloroethane	%	104 ± 35	70 – 130	No
1,1,2-Trichloroethane	%	109 ± 36	70 – 130	No
Trichloroethene (trichloroethylene)	%	98 ± 32	70 – 130	No
Trichlorofluoromethane	%	105 ± 30	70 – 130	No
1,2,3-Trichloropropane	%	109 ± 32	70 – 130	No
1,1,2-Trichlorotrifluoroethane (Freon 113)	%	109 ± 53	70 – 130	No

water sample spike PrepWS apHSVOCw - VOC Headspace Water Analysis: 2356.31				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
1,2,4-Trimethylbenzene	%	102 ± 34	70 – 130	No
1,3,5-Trimethylbenzene	%	103 ± 34	70 – 130	No
Vinyl chloride	%	105 ± 36	70 – 130	No
m&p-Xylene	%	100 ± 32	70 – 130	No
o-Xylene	%	102 ± 30	70 – 130	No

Spike PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23823.35				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Arsenic	%	99.0 ± 6.0	80 – 120	No
Total Boron	%	97 ± 14	80 – 120	No
Total Cadmium	%	96.0 ± 7.7	80 – 120	No
Total Chromium	%	99.0 ± 8.0	80 – 120	No
Total Copper	%	102 ± 11	80 – 120	No
Total Lead	%	97.0 ± 5.9	80 – 120	No
Total Nickel	%	102 ± 13	80 – 120	No
Total Zinc	%	96.0 ± 7.7	80 – 120	No

Sample Spike PAH PrepWS xwllPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6089.9				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	107 ± 54	70 – 130	No
Acenaphthylene	%	99 ± 54	70 – 130	No
Anthracene	%	104 ± 38	70 – 130	No
Benzo[a]anthracene	%	108 ± 35	70 – 130	No
Benzo[a]pyrene (BAP)	%	116 ± 56	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	114 ± 55	70 – 130	No
Benzo[g,h,i]perylene	%	100 ± 53	70 – 130	No
Benzo[k]fluoranthene	%	122 ± 54	70 – 130	No
Chrysene	%	107 ± 39	70 – 130	No
Dibenzo[a,h]anthracene	%	104 ± 55	70 – 130	No
Fluoranthene	%	109 ± 29	70 – 130	No
Fluorene	%	109 ± 48	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	100 ± 53	70 – 130	No
Naphthalene	%	93 ± 62	70 – 130	No
Phenanthrene	%	118 ± 36	70 – 130	No
Pyrene	%	137 ± 55	70 – 130	**Yes** #4

Sample Spike PAH PrepWS xwllPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6090.10				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Acenaphthene	%	104 ± 53	70 – 130	No
Acenaphthylene	%	88 ± 48	70 – 130	No
Anthracene	%	103 ± 38	70 – 130	No
Benzo[a]anthracene	%	108 ± 35	70 – 130	No
Benzo[a]pyrene (BAP)	%	119 ± 58	70 – 130	No
Benzo[b]fluoranthene + Benzo[j]fluoranthene	%	113 ± 55	70 – 130	No
Benzo[g,h,i]perylene	%	119 ± 62	70 – 130	No
Benzo[k]fluoranthene	%	118 ± 52	70 – 130	No
Chrysene	%	112 ± 41	70 – 130	No
Dibenzo[a,h]anthracene	%	119 ± 62	70 – 130	No

Sample Spike PAH PrepWS xwlIPAHsc - Polycyclic Aromatic Hydrocarbon Water Analysis: 6090.10				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Fluoranthene	%	110 ± 29	70 – 130	No
Fluorene	%	101 ± 45	70 – 130	No
Indeno(1,2,3-c,d)pyrene	%	112 ± 59	70 – 130	No
Naphthalene	%	90 ± 60	70 – 130	No
Phenanthrene	%	119 ± 36	70 – 130	No
Pyrene	%	108 ± 44	70 – 130	No

sample spike PrepWS xwTPH - WS: Total Petroleum Hydrocarbons Water Analysis: 9377.9				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total hydrocarbons (C7 - C36)	%	147 ± 45	83 – 140	**Yes** #5

water sample spike PrepWS apHSVw - BTEX by Headspace Water Analysis: 5036.25				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Benzene	%	102 ± 12	81 – 125	No
Toluene	%	103.0 ± 6.8	93 – 112	No
Ethylbenzene	%	99.0 ± 6.6	90 – 117	No
m&p-Xylene	%	102.0 ± 7.8	86 – 118	No
o-Xylene	%	104.0 ± 7.7	86 – 120	No
Naphthalene	%	103 ± 18	79 – 126	No

water sample spike PrepWS apHSVw - BTEX by Headspace Water Analysis: 5037.18				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Toluene	%	100.0 ± 6.7	93 – 112	No

Reference Material QCs

QC 1 AutoT - Autotitrator - Christchurch: 1612.2				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	7.6 ± 0.2	7.4 – 7.8	No
Total Alkalinity	g/m^3 as $CaCO_3$	150.2 ± 6.1	145 – 159	No
Electrical Conductivity (EC)	mS/m	65.4 ± 1.4	63.6 – 69.6	No

Low EC AQC 1 - Autotitrator - Christchurch: 1612.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	4.1 ± 0.2	3.6 – 4.2	No
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #6
Electrical Conductivity (EC)	mS/m	4.6 ± 0.2	2.4 – 5.1	No

Saline QC 1 - Autotitrator - Christchurch: 1612.4				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	5.3 ± 0.2	Undefined	N/A #6
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #6
Electrical Conductivity (EC)	mS/m	5,190 ± 110	5,000 – 5,310	No

pH 10 Buffer - Autotitrator - Christchurch: 1612.5				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
pH	pH Units	10.0 ± 0.2	9.9 – 10.1	No
Total Alkalinity	g/m^3 as $CaCO_3$	Unknown	Undefined	N/A #6
Electrical Conductivity (EC)	mS/m	337.0 ± 6.8	Undefined	N/A #6

Solids QC - Total Dissolved Solids - Chch: 2129.3				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Dissolved Solids (TDS)	g/m^3	1,000 ± 170	800 – 1,200	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23821.28				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	0.0505 ± 0.0032	0.045 – 0.055	No
Total Boron	g/m³	0.093 ± 0.037	0.090 – 0.110	No
Total Cadmium	g/m³	0.0480 ± 0.0039	0.045 – 0.055	No
Total Chromium	g/m³	0.0486 ± 0.0040	0.045 – 0.055	No
Total Copper	g/m³	0.0486 ± 0.0049	0.045 – 0.055	No
Total Lead	g/m³	0.0477 ± 0.0029	0.045 – 0.055	No
Total Nickel	g/m³	0.0480 ± 0.0058	0.045 – 0.055	No
Total Zinc	g/m³	0.475 ± 0.038	0.45 – 0.55	No

1% 50ppb TRDig and TDig ME QC PrepWS TDig - WS: Env. Waters Totals by ICP-MS (EWT): 23823.21				
		Results	Control Limits	Outside Limit (Yes/No)
Total Arsenic	g/m³	0.0488 ± 0.0031	0.045 – 0.055	No
Total Boron	g/m³	0.098 ± 0.038	0.090 – 0.110	No
Total Cadmium	g/m³	0.0463 ± 0.0038	0.045 – 0.055	No
Total Chromium	g/m³	0.0508 ± 0.0041	0.045 – 0.055	No
Total Copper	g/m³	0.0498 ± 0.0050	0.045 – 0.055	No
Total Lead	g/m³	0.0488 ± 0.0030	0.045 – 0.055	No
Total Nickel	g/m³	0.0502 ± 0.0061	0.045 – 0.055	No
Total Zinc	g/m³	0.475 ± 0.039	0.45 – 0.55	No

NO2N QC - L4C by FIA Worksheet: 12594.7				
		Results	Control Limits	Outside Limit (Yes/No)
Nitrite-N	g/m³	0.512 ± 0.072	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.500 ± 0.061	0.42 – 0.58	No
Dissolved Reactive Phosphorus	g/m³	< 0.004 ± 0.0027	Undefined	N/A #6

Filt MA QC PrepWS FiltMGchch - L4C by FIA Worksheet: 12594.137				
		Results	Control Limits	Outside Limit (Yes/No)
Total Ammoniacal-N	g/m³	0.481 ± 0.043	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.97 ± 0.12	0.85 – 1.15	No
Dissolved Reactive Phosphorus	g/m³	0.978 ± 0.050	0.85 – 1.15	No

Low QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13216.9				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	10.07 ± 0.59	9.2 – 11.1	No
Sulphate	g/m³	10.21 ± 0.76	8.9 – 11.2	No

High QC - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13216.10				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	100.2 ± 4.8	90 – 110	No
Sulphate	g/m³	101.2 ± 6.8	90 – 110	No

Filt MA QC PrepWS FiltMGchch - Ion Chromatography General Anion Worksheet - Dionex DX 120: 13216.34				
		Results	Control Limits	Outside Limit (Yes/No)
Chloride	g/m³	9.62 ± 0.57	8.4 – 10.8	No
Sulphate	g/m³	9.38 ± 0.71	8.3 – 10.5	No

NO2N QC - L4C by FIA Worksheet: 12598.7				
		Results	Control Limits	Outside Limit (Yes/No)
Nitrite-N	g/m³	0.517 ± 0.073	0.42 – 0.58	No
Nitrate-N + Nitrite-N	g/m³	0.514 ± 0.062	0.42 – 0.58	No

Replicates

WS: Env. Waters Totals by ICP-MS (EWT): 23821.62

		Replicate 1	Replicate 2	Pass/Fail
Total Arsenic	g/m^3	< 0.0011 ± 0.00074	< 0.0011 ± 0.00074	Pass
Total Cadmium	g/m^3	< 0.000053 ± 0.000036	< 0.00006 ± 0.000036	Pass
Total Chromium	g/m^3	< 0.00053 ± 0.00036	< 0.0006 ± 0.00036	Pass
Total Copper	g/m^3	< 0.00053 ± 0.00036	< 0.0006 ± 0.00036	Pass
Total Nickel	g/m^3	< 0.00053 ± 0.00036	< 0.0006 ± 0.00036	Pass
Total Lead	g/m^3	0.000116 ± 0.000074	< 0.00011 ± 0.000074	Pass
Total Zinc	g/m^3	0.00264 ± 0.00076	0.00272 ± 0.00076	Pass

Analyst's Comments

#1 The recovery of the System Monitoring Compound (SMC) was low and outside the acceptable ranges, due to the matrix of the sample. The reported result may therefore be an under-estimate of the actual sample concentration.

#2 Elevated blank levels were observed for this band, however the corresponding data was accepted as the corresponding samples do not show contamination.

#3 The Laboratory Control Spike (LCS) recovery for this analyte was elevated and above the acceptable recovery range of the method. The in-house spike control had a similar outcome, therefore the corrected recovery is 101%.

#4 The sample spike recovery for this analyte was elevated and above the acceptable recovery range of the method. The in-house spike control had a similar outcome, therefore the corrected recovery is 100%.

#5 The sample spike recovery was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the sample.

#6 Control limits have not been established for this analyte.

Appendix F

Quality Assurance and Quality Control

Table F1: Groundwater Duplicate Results

		Location Code	HS_25_BH01			AVD_25_BH01			AVO_25_BH02			RIV_25_BH04		
		Date	09-10-2025			10-10-2025	09-10-2025		08-12-2025			09-12-2025		
		Field ID	HS-BH01	DUP1		AVD-BH01	DUP2		AVO-BH02	DUP-01		RIV-BH04	DUP-02	
		Sample Type	Normal	Field_D		Normal	Field_D		Normal	Field_D		Normal	Field_D	
		Lab Report Number	4005975	4005975		4005975	4005975		4054559	4054559		4054559	4054559	
		Sample Code	4005975_6	4005975_11		4005975_7	4005975_13		4054559_8	4054559_11		4054559_7	4054559_12	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL												
Sample Quality Parameters														
Total Alkalinity (as CaCO3)	mg/L	1	189			250			290			134		
Nitrate (as N)	mg/L	0.001	<0.002			0.026			<0.002			<0.002		
Bicarbonate Alkalinity as (HCO3)	mg/L	1	230			300			350			163		
Carbonate Alkalinity (as CO3)	mg/L	1	<1.0			<1.0			<1			<1		
Nitrite (as N) (filtered)	mg/L	0.002	<0.002			0.015			<0.002			<0.002		
Nitrate + Nitrite (as N) (filtered)	mg/L	0.002	<0.002			0.041			<0.002			<0.002		
Ammonium Ion (as N) (filtered)	mg/L	0.01	0.065			0.98			0.183			0.098		
Nitrogen (Inorganic)	mg/L	0.005	0.066			1.02			0.184			0.099		
Total Anions	meq/L	0.05	8.2			7.3			10.5			3.7		
Total Cations (filtered)	meq/L	0.05	8.1			7.5			12			3.8		
Sulphate (as SO4) (filtered)	mg/L	0.5	132			26			38			18.3		
Hardness (as CaCO3)	mg/L	1	340			260			460			99		
Physical														
pH (Lab)	pH_Units	0.1	6.9			6.5			7			7.5		
Inorganics														
Total Dissolved Solids @180°C	mg/L	10	570			530			710			220		
Major Ions														
Sodium (filtered)	mg/L	0.02	25			42			61			40		
Potassium (filtered)	mg/L	0.05	7.6			2.1			3.4			3		
Calcium (filtered)	mg/L	0.05	101			76			157			22		
Magnesium (filtered)	mg/L	0.02	21			15.8			15.8			10.9		
Chloride (filtered)	mg/L	0.5	59			64			142			23		
Nutrients														
Dissolved Reactive Phosphorus (filtered)	g/m3	0.004	<0.004			<0.004			<0.004			0.021		
Heavy Metals														
Arsenic	mg/L	0.001	0.035	0.033	6	0.0159	0.031	64	0.0115	0.0127	10	<0.0011	<0.0011	0
Arsenic (filtered)	mg/L	0.001	<0.0010	0.035	189	0.0188	0.030	46	0.0078	0.0079	1	<0.001	0.0011	10
Boron	mg/L	0.05	<0.053			0.47			0.2			0.116		
Boron (filtered)	mg/L	0.05	<0.05			0.42			0.23			0.13		
Cadmium	mg/L	0.00005	<0.000053	<0.000053	0	0.00031	0.00039	23	<0.000053	<0.000053	0	<0.000053	<0.000053	0
Cadmium (filtered)	mg/L	0.00005	<0.00005	<0.00005	0	0.00031	0.00036	15	<0.00005	<0.00005	0	<0.00005	<0.00005	0
Chromium	mg/L	0.0005	0.00064	<0.00053	19	0.0036	0.0044	20	0.00159	0.00157	1	<0.00053	<0.00053	0
Chromium (filtered)	mg/L	0.0005	<0.0005	<0.0005	0	0.0033	0.0037	11	<0.0005	<0.0005	0	<0.0005	<0.0005	0
Copper	mg/L	0.0005	0.00064	0.00066	3	0.0036	0.0055	42	0.005	0.0045	11	<0.00053	<0.00053	0
Copper (filtered)	mg/L	0.0005	<0.0005	0.0005	0	0.0031	0.0040	25	<0.0005	<0.0005	0	<0.0005	<0.0005	0
Iron (filtered)	mg/L	0.02	0.65			9.6			2.6			0.36		
Lead	mg/L	0.0001	0.00062	0.00052	18	0.0047	0.0143	101	0.0057	0.0054	5	<0.00011	<0.00011	0
Lead (filtered)	mg/L	0.0001	<0.00010	0.00047	130	0.0031	0.0080	88	0.00031	0.00029	7	<0.0001	<0.0001	0
Manganese (filtered)	mg/L	0.0005	0.95			2.5			0.25			0.182		
Mercury	mg/L	0.0001	<0.00011			<0.00011			<0.00011			<0.00011		
Mercury (filtered)	mg/L	0.0001	<0.00010			<0.000105			<0.0001			<0.0001		
Nickel	mg/L	0.0005 - 0.001	0.00176	0.00175	1	0.021	0.022	5	0.0035	0.0035	0	<0.00053	<0.00053	0
Nickel (filtered)	mg/L	0.0005 - 0.001	0.0014	0.0014	0	0.021	0.021	0	0.0019	0.002	5	<0.0005	<0.0005	0
Zinc	mg/L	0.001	0.0085	0.0088	3	1.09	1.20	10	0.148	0.16	8	0.27	0.28	4
Zinc (filtered)	mg/L	0.001	0.0087	0.0078	11	1.09	1.14	4	0.089	0.081	9	0.28	0.29	4
Total Petroleum Hydrocarbons														
TPH C7 - C9 Fraction	mg/L	0.1	<0.10	<0.10	0	<0.10	<0.10	0	<0.1	<0.1	0	<0.1	<0.1	0
TPH C10 - C14 Fraction	mg/L	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
TPH C15 - C36 Fraction	mg/L	0.4	<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<0.4	0	<0.4	<0.4	0
TPH C7 - C36 Fraction	mg/L	0.7	<0.7	<0.7	0	<0.7	<0.7	0	<0.7	<0.7	0	<0.7	<0.7	0
Polycyclic aromatic hydrocarbons														
Acenaphthene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Acenaphthylene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Anthracene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Benz(a)anthracene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Benzo(a)pyrene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Benzo(b)&(j)fluoranthene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Benzo(g,h,i)perylene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Benzo(k)fluoranthene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Chrysene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0

		Location Code	HS_25_BH01			AVD_25_BH01			AVO_25_BH02			RIV_25_BH04		
		Date	09-10-2025			10-10-2025	09-10-2025		08-12-2025			09-12-2025		
		Field ID	HS-BH01	DUP1		AVD-BH01	DUP2		AVO-BH02	DUP-01		RIV-BH04	DUP-02	
		Sample Type	Normal	Field_D		Normal	Field_D		Normal	Field_D		Normal	Field_D	
		Lab Report Number	4005975	4005975		4005975	4005975		4054559	4054559		4054559	4054559	
		Sample Code	4005975_6	4005975_11		4005975_7	4005975_13		4054559_8	4054559_11		4054559_7	4054559_12	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL												
Dibenz(a,h)anthracene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Fluoranthene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Fluorene	mg/L	0.0002	<0.003	<0.0002	0	<0.003	<0.0002	0	<0.003	<0.0002	0	<0.003	<0.0002	0
Indeno(1,2,3-c,d)pyrene	mg/L	0.0001	<0.003	<0.00010	0	<0.003	<0.00010	0	<0.003	<0.0001	0	<0.003	<0.0001	0
Phenanthrene	mg/L	0.0004	<0.003	<0.0004	0	<0.003	<0.0004	0	<0.003	<0.0004	0	<0.003	<0.0004	0
Pyrene	mg/L	0.0002	<0.003	<0.0002	0	<0.003	<0.0002	0	<0.003	<0.0002	0	<0.003	<0.0002	0
2-Methylnaphthalene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Chloronaphthalenes (1- + 2-)	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Monocyclic Aromatic Hydrocarbons														
1,2,4-trimethylbenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,3,5-Trimethylbenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Isopropylbenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
n-Butylbenzene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
n-Propylbenzene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
p-Isopropyltoluene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
sec-Butylbenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Styrene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
tert-Butylbenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
BTEXN														
Naphthalene	mg/L	0.0005	<0.003	<0.0005	0	<0.003	<0.0005	0	<0.003	<0.0005	0	<0.003	<0.0005	0
Benzene	mg/L	0.001	<0.003	<0.0010	0	<0.003	<0.0010	0	<0.001	<0.001	0	<0.001	<0.001	0
Toluene	mg/L	0.001	<0.003	<0.0010	0	0.004	0.0053	28	<0.001	<0.001	0	<0.001	<0.001	0
Ethylbenzene	mg/L	0.001	<0.005	<0.0010	0	<0.005	<0.0010	0	<0.001	<0.001	0	<0.001	<0.001	0
Xylenes (m & p)	mg/L	0.002	<0.005	<0.002	0	<0.005	<0.002	0	<0.002	<0.002	0	<0.002	<0.002	0
Xylene (o)	mg/L	0.001	<0.003	<0.0010	0	<0.003	<0.0010	0	<0.001	<0.001	0	<0.001	<0.001	0
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,1,2,2-Tetrachloroethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,1,1-Trichloroethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,1,2-Trichloroethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,2,3-Trichloropropane	mg/L	0.005	<0.003			<0.003			<0.003			<0.003		
1,2-Dibromo-3-chloropropane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,2-Dibromoethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,1-Dichloroethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,2-Dichloroethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,1-Dichloroethene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
cis-1,2-Dichloroethene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
trans-1,2-dichloroethene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,2-Dichloropropane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,3-Dichloropropane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,1-Dichloropropene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
cis-1,3-Dichloropropene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
trans-1,3-dichloropropene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Bromodichloromethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Bromoform	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Bromomethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Carbon disulfide	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Carbon tetrachloride	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Chlorodibromomethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Chloroethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Chloroform	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Chloromethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Dibromomethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Dichlorodifluoromethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Dichloromethane	mg/L	0.1	<0.10			<0.10			<0.1			<0.1		
Hexachlorobutadiene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Hexachloroethane	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Trichloroethene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Tetrachloroethene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Trichlorofluoromethane	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Vinyl chloride	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Freon 113	ug/L	3	<3			<3			<3			<3		

		Location Code	HS_25_BH01			AVD_25_BH01			AVO_25_BH02			RIV_25_BH04		
		Date	09-10-2025			10-10-2025	09-10-2025		08-12-2025			09-12-2025		
		Field ID	HS-BH01	DUP1		AVD-BH01	DUP2		AVO-BH02	DUP-01		RIV-BH04	DUP-02	
		Sample Type	Normal	Field_D		Normal	Field_D		Normal	Field_D		Normal	Field_D	
		Lab Report Number	4005975	4005975		4005975	4005975		4054559	4054559		4054559	4054559	
		Sample Code	4005975_6	4005975_11		4005975_7	4005975_13		4054559_8	4054559_11		4054559_7	4054559_12	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL												
SVOCs														
4-Bromophenyl phenyl ether	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
4-Chlorophenyl phenyl ether	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Benzyl alcohol	mg/L	0.05	<0.05			<0.05			<0.05			<0.05		
Bis(2-chloroethoxy) methane	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Bis(2-chloroethyl) ether	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Bis(2-chloroisopropyl) ether	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Di(2-ethylhexyl) adipate	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Dibenzofuran	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Phthalates														
Bis(2-ethylhexyl) phthalate	mg/L	0.03	<0.03			<0.03			<0.03			<0.03		
Butylbenzyl phthalate	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Diethyl phthalate	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Dimethyl phthalate	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Di-n-butyl phthalate	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Di-n-octyl phthalate	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Organochlorine Pesticides														
p,p-DDE	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
a-BHC	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Aldrin	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
b-BHC	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
d-BHC	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
DDD	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
DDT	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Dieldrin	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Endosulfan I	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Endosulfan II	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Endosulfan sulphate	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Endrin	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Endrin ketone	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
g-BHC	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Heptachlor	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Heptachlor epoxide	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Halogenated Benzenes														
1,2,3-Trichlorobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,2,4-Trichlorobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,2-Dichlorobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,3,5-Trichlorobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,3-Dichlorobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
1,4-Dichlorobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
2-Chlorotoluene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
4-Chlorotoluene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Bromobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Chlorobenzene	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		
Hexachlorobenzene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Pesticides														
Carbazole	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Amino Aliphatics														
N-Nitrosodi-n-propylamine	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Phenolics														
2,4-Dimethylphenol	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
2-Methylphenol	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
2-Nitrophenol	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
3- & 4- Methylphenol	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Phenol	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Amino Aromatics														
n-Nitrosodiphenylamine & Diphenylamine	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Phenolics-Halogenated														
2,4,5-Trichlorophenol	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
2,4,6-Trichlorophenol	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
2,4-Dichlorophenol	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		

		Location Code	HS_25_BH01			AVD_25_BH01			AVO_25_BH02			RIV_25_BH04		
		Date	09-10-2025			10-10-2025	09-10-2025		08-12-2025			09-12-2025		
		Field ID	HS-BH01	DUP1		AVD-BH01	DUP2		AVO-BH02	DUP-01		RIV-BH04	DUP-02	
		Sample Type	Normal	Field_D		Normal	Field_D		Normal	Field_D		Normal	Field_D	
		Lab Report Number	4005975	4005975		4005975	4005975		4054559	4054559		4054559	4054559	
		Sample Code	4005975_6	4005975_11		4005975_7	4005975_13		4054559_8	4054559_11		4054559_7	4054559_12	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL												
2-Chlorophenol	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
4-Chloro-3-methylphenol	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Pentachlorophenol	mg/L	0.1	<0.10			<0.10			<0.1			<0.1		
E-Nitrobenzenes														
Nitrobenzene	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Explosives														
2,4-Dinitrotoluene	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
2,6-Dinitrotoluene	mg/L	0.01	<0.010			<0.010			<0.01			<0.01		
Solvents														
Methyl Ethyl Ketone	mg/L	0.5	<0.5			<0.5			<0.5			<0.5		
Methyl iso-butyl ketone	mg/L	0.1	<0.10			<0.10			<0.1			<0.1		
Acetone	mg/L	0.5	<0.5			<0.5			<0.5			<0.5		
Isophorone	mg/L	0.005	<0.005			<0.005			<0.005			<0.005		
Methyl-t-butyl ether	mg/L	0.003	<0.003			<0.003			<0.003			<0.003		

***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: 50 (1 - 10 x EQL); 50 (10 - 30 x EQL); 50 (> 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**

Table F2: Groundwater Blank Results

		Sample Type	Trip_B			Rinsate							
		Date	10-10-2025			07-10-2025	08-10-2025	09-10-2025		08-12-2025	09-12-2025	11-12-2025	
		Field ID	Trip Blank	Trip Blank 2	Trip Blank 3	R1-BH01	R2	R3	R4	RIN-01	RIN-02	RIN-03	RINS 3
		Lab Report Number	4005542	4005975	4005975	4002959	4005542	4005975	4005975	4054559	4054559	4057235	4055927
		Sample Code	4005542_7	4005975_14	4005975_15	4002959_1	4005542_1	4005975_1	4005975_12	4054559_13	4054559_14	4057235_7	4055927_5
		Matrix Type	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
	Unit	EQL											
Heavy Metals													
Arsenic	mg/L	0.001				<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011
Arsenic (filtered)	mg/L	0.001				<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Cadmium	mg/L	0.00005				<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053	<0.000053
Cadmium (filtered)	mg/L	0.00005				<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Chromium	mg/L	0.0005				<0.00053	<0.00053	<0.00053	<0.00053	<0.00053	<0.00053	<0.00053	<0.00053
Chromium (filtered)	mg/L	0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper	mg/L	0.0005				<0.00053	<0.00053	0.00076	0.00062	<0.00053	0.00091	<0.00053	<0.00053
Copper (filtered)	mg/L	0.0005				<0.0005	<0.0005	0.0006	0.0006	<0.0005	0.0006	<0.0005	<0.0005
Lead	mg/L	0.0001				<0.00011	<0.00011	0.00020	0.00027	<0.00011	0.00025	0.00012	<0.00011
Lead (filtered)	mg/L	0.0001				<0.00010	<0.00010	0.00012	0.00017	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.0005 - 0.001				<0.00053	<0.00053	<0.00053	<0.00053	<0.00053	<0.00053	<0.00053	<0.00053
Nickel (filtered)	mg/L	0.0005 - 0.001				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	mg/L	0.001				<0.0011	0.0017	0.0073	0.0081	0.0029	0.0095	0.0026	0.0027
Zinc (filtered)	mg/L	0.001				0.0014	0.0011	0.0059	0.0079	0.003	0.0069	0.0035	0.0029
Total Petroleum Hydrocarbons													
TPH C7 - C9 Fraction	mg/L	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1
TPH C10 - C14 Fraction	mg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
TPH C15 - C36 Fraction	mg/L	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
TPH C7 - C36 Fraction	mg/L	0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Polycyclic aromatic hydrocarbons													
Acenaphthene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Acenaphthylene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Anthracene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Benz(a)anthracene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(a)pyrene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(b)&(j)fluoranthene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(g,h,i)perylene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Benzo(k)fluoranthene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Chrysene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Dibenz(a,h)anthracene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Fluoranthene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Fluorene	mg/L	0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Indeno(1,2,3-c,d)pyrene	mg/L	0.0001				<0.00010	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001
Phenanthrene	mg/L	0.0004				<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Pyrene	mg/L	0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Monocyclic Aromatic Hydrocarbons													
1,2,4-trimethylbenzene	mg/L	0.003	<0.003	<0.003	<0.003								
1,3,5-Trimethylbenzene	mg/L	0.003	<0.003	<0.003	<0.003								
Isopropylbenzene	mg/L	0.003	<0.003	<0.003	<0.003								
n-Butylbenzene	mg/L	0.005	<0.005	<0.005	<0.005								
n-Propylbenzene	mg/L	0.005	<0.005	<0.005	<0.005								
p-Isopropyltoluene	mg/L	0.005	<0.005	<0.005	<0.005								
sec-Butylbenzene	mg/L	0.003	<0.003	<0.003	<0.003								
Styrene	mg/L	0.005	<0.005	<0.005	<0.005								
tert-Butylbenzene	mg/L	0.003	<0.003	<0.003	<0.003								
BTEXN													
Naphthalene	mg/L	0.0005	<0.005	<0.005	<0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Benzene	mg/L	0.001	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Toluene	mg/L	0.001	<0.003	<0.003	<0.003	0.0013	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	mg/L	0.001	<0.005	<0.005	<0.005	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Xylenes (m & p)	mg/L	0.002	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Xylene (o)	mg/L	0.001	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.001	<0.001
Volatile Organic Compounds													
1,1,1,2-Tetrachloroethane	mg/L		<0.003	<0.003	<0.003								
1,1,2,2-Tetrachloroethane	mg/L		<0.003	<0.003	<0.003								
1,1,1-Trichloroethane	mg/L		<0.003	<0.003	<0.003								
1,1,2-Trichloroethane	mg/L		<0.003	<0.003	<0.003								
1,2,3-Trichloropropane	mg/L		<0.003	<0.003	<0.003								
1,2-Dibromo-3-chloropropane	mg/L		<0.003	<0.003	<0.003								
1,2-Dibromoethane	mg/L		<0.003	<0.003	<0.003								
1,1-Dichloroethane	mg/L		<0.003	<0.003	<0.003								
1,2-Dichloroethane	mg/L		<0.003	<0.003	<0.003								

		Sample Type	Trip_B			Rinsate							
		Date	10-10-2025			07-10-2025	08-10-2025	09-10-2025		08-12-2025	09-12-2025	11-12-2025	
		Field ID	Trip Blank	Trip Blank 2	Trip Blank 3	R1-BH01	R2	R3	R4	RIN-01	RIN-02	RIN-03	RINS 3
		Lab Report Number	4005542	4005975	4005975	4002959	4005542	4005975	4005975	4054559	4054559	4057235	4055927
		Sample Code	4005542_7	4005975_14	4005975_15	4002959_1	4005542_1	4005975_1	4005975_12	4054559_13	4054559_14	4057235_7	4055927_5
		Matrix Type	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
	Unit	EQL											
1,1-Dichloroethene	mg/L		<0.003	<0.003	<0.003								
cis-1,2-Dichloroethene	mg/L		<0.003	<0.003	<0.003								
trans-1,2-dichloroethene	mg/L		<0.003	<0.003	<0.003								
1,2-Dichloropropane	mg/L		<0.003	<0.003	<0.003								
1,3-Dichloropropane	mg/L		<0.003	<0.003	<0.003								
1,1-Dichloropropene	mg/L		<0.003	<0.003	<0.003								
cis-1,3-Dichloropropene	mg/L		<0.005	<0.005	<0.005								
trans-1,3-dichloropropene	mg/L		<0.005	<0.005	<0.005								
Bromodichloromethane	mg/L		<0.003	<0.003	<0.003								
Bromoform	mg/L		<0.003	<0.003	<0.003								
Bromomethane	mg/L		<0.003	<0.003	<0.003								
Carbon disulfide	mg/L		<0.005	<0.005	<0.005								
Carbon tetrachloride	mg/L		<0.003	<0.003	<0.003								
Chlorodibromomethane	mg/L		<0.003	<0.003	<0.003								
Chloroethane	mg/L		<0.003	<0.003	<0.003								
Chloroform	mg/L		<0.003	<0.003	<0.003								
Chloromethane	mg/L		<0.003	<0.003	<0.003								
Dibromomethane	mg/L		<0.003	<0.003	<0.003								
Dichlorodifluoromethane	mg/L		<0.003	<0.003	<0.003								
Dichloromethane	mg/L		<0.10	<0.10	<0.10								
Hexachlorobutadiene	mg/L		<0.003	<0.003	<0.003								
Trichloroethene	mg/L		<0.003	<0.003	<0.003								
Tetrachloroethene	mg/L		<0.003	<0.003	<0.003								
Trichlorofluoromethane	mg/L		<0.003	<0.003	<0.003								
Vinyl chloride	mg/L		<0.003	<0.003	<0.003								
Freon 113	ug/L		<3	<3	<3								
Halogenated Benzenes													
1,2,3-Trichlorobenzene	mg/L		<0.003	<0.003	<0.003								
1,2,4-Trichlorobenzene	mg/L		<0.003	<0.003	<0.003								
1,2-Dichlorobenzene	mg/L		<0.003	<0.003	<0.003								
1,3,5-Trichlorobenzene	mg/L		<0.003	<0.003	<0.003								
1,3-Dichlorobenzene	mg/L		<0.003	<0.003	<0.003								
1,4-Dichlorobenzene	mg/L		<0.003	<0.003	<0.003								
2-Chlorotoluene	mg/L		<0.003	<0.003	<0.003								
4-Chlorotoluene	mg/L		<0.003	<0.003	<0.003								
Bromobenzene	mg/L		<0.003	<0.003	<0.003								
Chlorobenzene	mg/L		<0.003	<0.003	<0.003								
Solvents													
Methyl Ethyl Ketone	mg/L		<0.5	<0.5	<0.5								
Methyl iso-butyl ketone	mg/L		<0.10	<0.10	<0.10								
Acetone	mg/L		<0.5	<0.5	<0.5								
Methyl-t-butyl ether	mg/L		<0.003	<0.003	<0.003								

wsp.com