Kāpiti Coast
DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

Waikanae River, Recharge and Borefield Annual Report 2024/25 Consent WGN130103 [35973, 35974 & 35975]

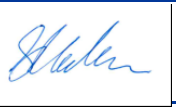
Prepared for Greater Wellington Regional Council
by Kāpiti Coast District Council

FINAL FOR SUBMISSION

Revision History

Revision Nº	Prepared By	Description	Date
0	T Drewitt B Thompson	Draft for AMG Review	20/08/2025
	T Drewitt B Thompson	Final for Submission	25/09/2025

Document Acceptance

Action	Name	Signed	Date
Prepared by	T Drewitt / B Thompson, Compliance		25/09/2025
Reviewed by	N Urlich, Senior Asset Planning Engineer		26/09/2025
Endorsed by	R Pillai, Acting Manager, Water & Wastewater Services		26/09/2025
Approved by	S Mallon, Group Manager, Infrastructure Services		29/09/2025
on behalf of	Kāpiti Coast District Council		

Contents

Appendices

1 Introduction and Compliance Summary

1.1 Overview of consented activities

Kāpiti Coast District Council (the Council) holds resource consents (WGN130103 [35973], [35974] and [35975]), which authorise the following activities:

- **Groundwater take** from bores within the Waikanae Bore field for supplementing public water supply, through Waikanae River recharge or as an emergency public water source;
- **Surface water take** from the Waikanae River for public water supply; and
- **Discharge of groundwater** from the Waikanae Bore field to the Waikanae River for the purpose of river recharge and bore trialling.

Under the groundwater take consent, the Council is authorised to abstract water from eight production wells within the Waikanae Borefield as part of the Waikanae River Recharge Scheme. All eight wells were operational throughout the 2024/25 reporting year (1 July 2024 to 30 June 2025). Figure 1 shows the location of the production wells and associated monitoring bores.

1.2 Monitoring requirements

The resource consents require ongoing monitoring of the Waikanae River, small coastal streams, wetlands, and the Waikanae Borefield. While no additional monitoring was triggered in 2024/25, the Council progressed investigations into potential updates to the Operational Management Plans (OMPs) for the Waikanae River, small coastal streams, and wetlands. The consents also require the Council to prepare and maintain a range of plans, manuals, and reports – summarised in the diagram in **Appendix A**.

1.3 Summary of Compliance Activity – 2024/25

The following provides a summary of activities and compliance for the 2024/25 river recharge season:

- **River recharge operations:** The river level/flow rate has been low enough to trigger river recharge on several occasions during the 2024/25 season, including in February, March and April 2025.
- **Trigger exceedances:** No verified environmental trigger exceedances occurred in 2024/25.
- **Periphyton trigger:** The periphyton trigger has never been exceeded over the life of the consent. In 2024/25, Wildlands Ltd was engaged to review the trigger. The ecologist recommended minor refinements to improve the robustness of the monitoring and response framework in the event of future exceedances.
- **Small coastal streams trigger:** A significant stream level drop in September 2022 prompted a review of trigger levels for small coastal streams. Wildlands, also engaged to review small coastal streams, determined the drop was likely caused by unrelated drain-clearing works. Revised trigger levels were recommended to reflect the new post-2022 baseline.
- **Wetland monitoring:** In 2023/24, Wildlands recommended relocating wetland monitoring plots due to loss of wetland characteristics unrelated to river recharge. In 2024/25, new plots were selected and surveyed. Wildlands confirmed that river recharge activities are not impacting wetland vegetation. The next Wetland Condition Assessment is proposed for 2027/28 in line with the three-yearly schedule.
- **Performance Assessment Report (PAR)**: The Council is proposing to defer the PAR by three years to allow more time for the RRwGW Scheme to operate before performance is assessed. A

s.127 Resource Management Act 1991 (RMA) application is being prepared to formally request this extension. In the meantime, interim monitoring continues to inform the future PAR.

- **Adaptive Management Group (AMG):** The AMG met on 8 September 2025 to discuss the draft Annual Report and Water Conservation Report. The Council sought advice from the AMG on several recommended changes to OMPs.

Table 1: Compliance Summary for 2024-25

Section		Key	
River	River Abstraction		No triggers or actions needed
	River Recharge		Trigger or action
	Downstream River Flows		Exceedance
	River Aquatic monitoring		
Bore field	Abstraction Volumes and Rates		
	Back-up wells PW1 and PW5		
	Shallow Aquifer Drawdown Monitoring		
	Deep Aquifer Drawdown Monitoring		
	Saline Intrusion Monitoring		
	Waikanae River Flow Gauging		
Wetlands	Wetlands Monitoring		
Small Coastal Streams	Small Coastal Streams Monitoring		

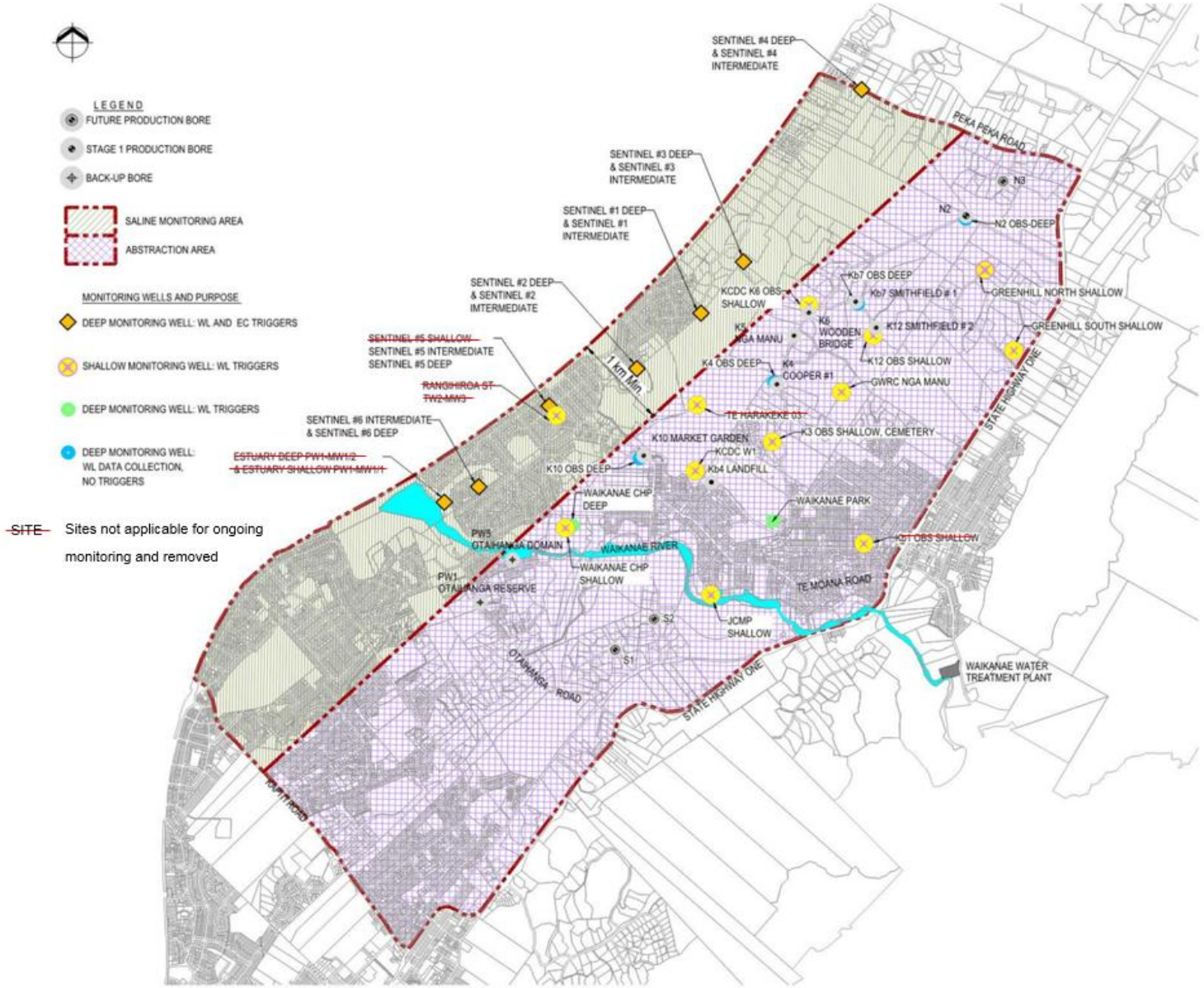


Figure 1: Location Plan - Waikanae Bore field Abstraction Wells and Monitoring Bores

2 Waikanae River

2.1 Waikanae River Flows

Greater Wellington Regional Council (GWRC) measures Waikanae River flow at a gauging station located approximately 200 metres upstream of the Waikanae Water Treatment Plant (WTP) intake.

Flow data from GWRC's SCADA system is transmitted to the Council's SCADA system at approximately 15-minute intervals. This data is used to manage public water supply abstraction. It is important to note that the Council stores and uses the real-time data as received, and it is not retrospectively updated if GWRC later adjusts the flow records based on updated level-to-flow conversion algorithms.

Figure 2 presents the river flow data for the 2024/25 monitoring period, and Table 2 summarises peak and low flow periods. River recharge was triggered in February, March, and April 2025 when flows approached the 750 L/s threshold.

Table 2: Upstream Waikanae River Flows

Period	1 July 2023 – 30 June 2024	1 July 2024 – 30 June 2025
Peak flow	60,005 L/s on 17 December 2023	197,525 L/s on 26 August 2024
Minimum flow	1,263 L/s on 19 July 2023	855 L/s on 13 March 2025
Low flow periods when river recharge used	N/A	February, March and April.

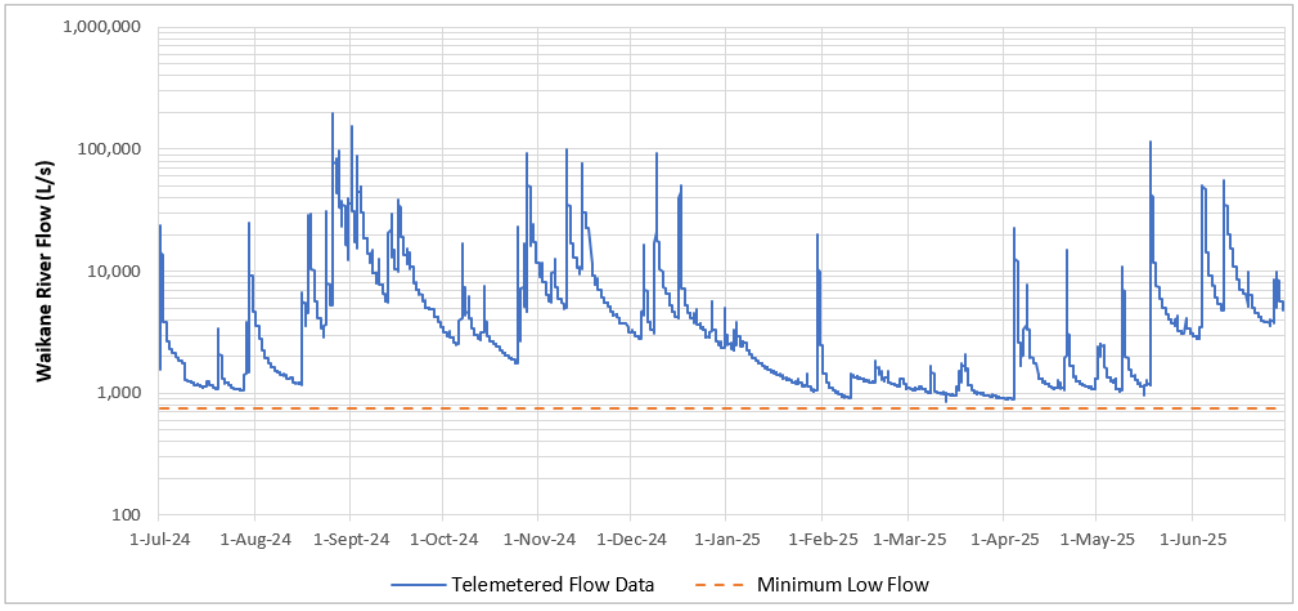


Figure 2: Waikanae River Flow at Water Treatment Plant (July 2024 – June 2025)

2.2 River Abstraction

No triggers or actions needed

The Council measures and records water abstraction from the Waikanae River using a flow meter installed at the Water Treatment Plant (WTP) intake.

In accordance with Condition 13 of consent WGN130103 [35974], abstraction data is automatically transmitted from the Council's SCADA system to GWRC's Water Use Data Management System (Hydrotel). The Council also provides a quarterly abstraction report to GWRC. Daily abstraction volumes for the 2024/25 reporting period are presented in Table 3 and shown graphically in Figure 3. The red line indicates the maximum daily volume authorised by the consent. No exceedances occurred during the 2024/25 period.

Table 3: Daily and Annual Waikanae River Abstractions

Period	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024	1 July 2024 – 30 June 2025
Maximum daily abstraction	19,107 m^3/day (on 11 February 2022)	19,423 m^3/day (on 6 December 2023)	15,722 m^3/day (on 16 February 2025)
Maximum allowable daily volume permitted by Condition 5 of consent WGN130103 [35974]	30,700 m^3/day	30,700 m^3/day	30,700 m^3/day
Total annual abstraction volume	4,812,719 m^3	4,700,011 m^3	4,418,718 m^3
Equivalent average daily abstraction	13,186 m^3/day	12,842 m^3/day	12,106 m^3/day
Maximum total abstraction volume permitted by Condition 5 of consent WGN130103 [35974]	11,174,800 m^3/year	11,174,800 m^3/year	11,174,800 m^3/year

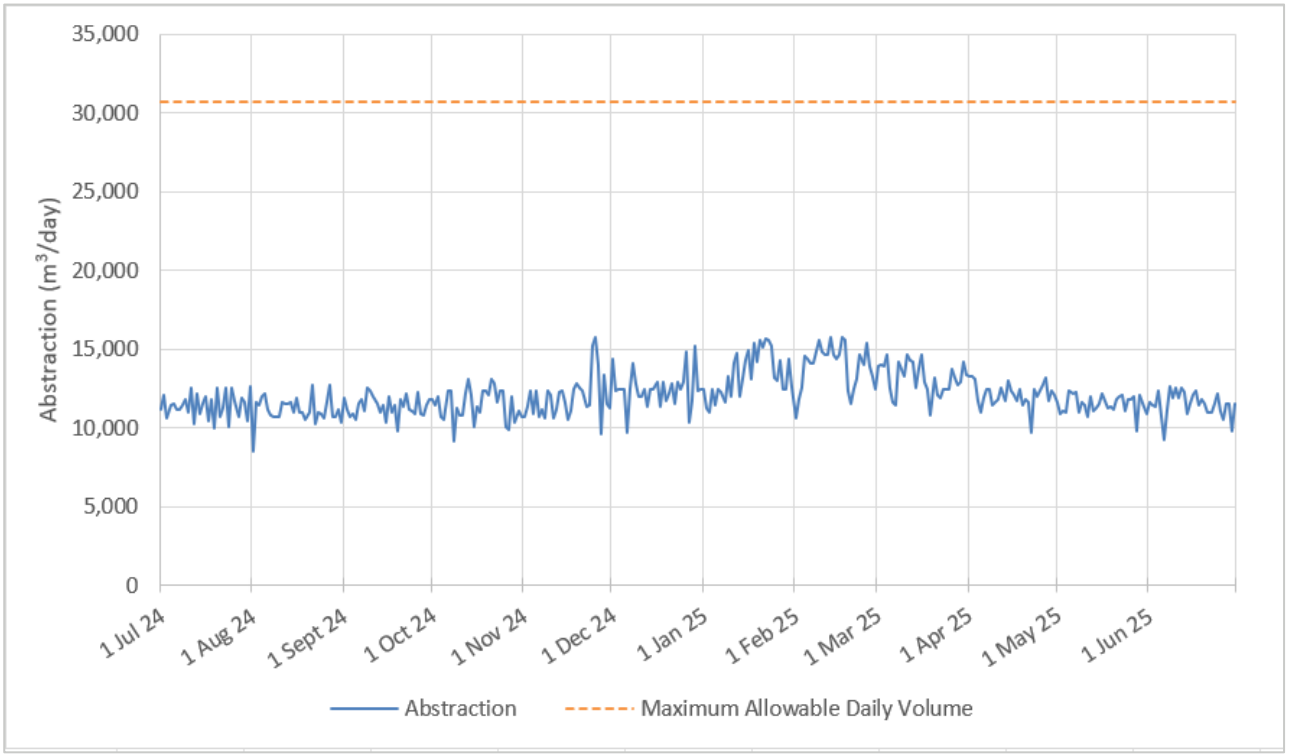


Figure 3: Waikanae WTP River Abstraction Volumes (m^3/day)

The instantaneous rates of abstraction (recorded at 15-minute intervals) for the reporting period are shown in Table 4 and Figure 4. The instantaneous abstraction rate was always less than the consented limit.

Table 4: Instantaneous rates of abstraction from Waikanae River

Period	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024	1 July 2024 – 30 June 2025
Maximum abstraction rate	240 L/s (on 11 February 2023)	318 L/s (on 14 November 2023)	311 L/s (on 16 August 2024)
Maximum abstraction rate at time of maximum abstraction permitted by Condition 5 [35974]*	463 L/s	463 L/s	463 L/s

** 355 L/s when the flows in the river are below 1,400 L/s and 463 L/s when the flows in the river are above 1,400 L/s.*

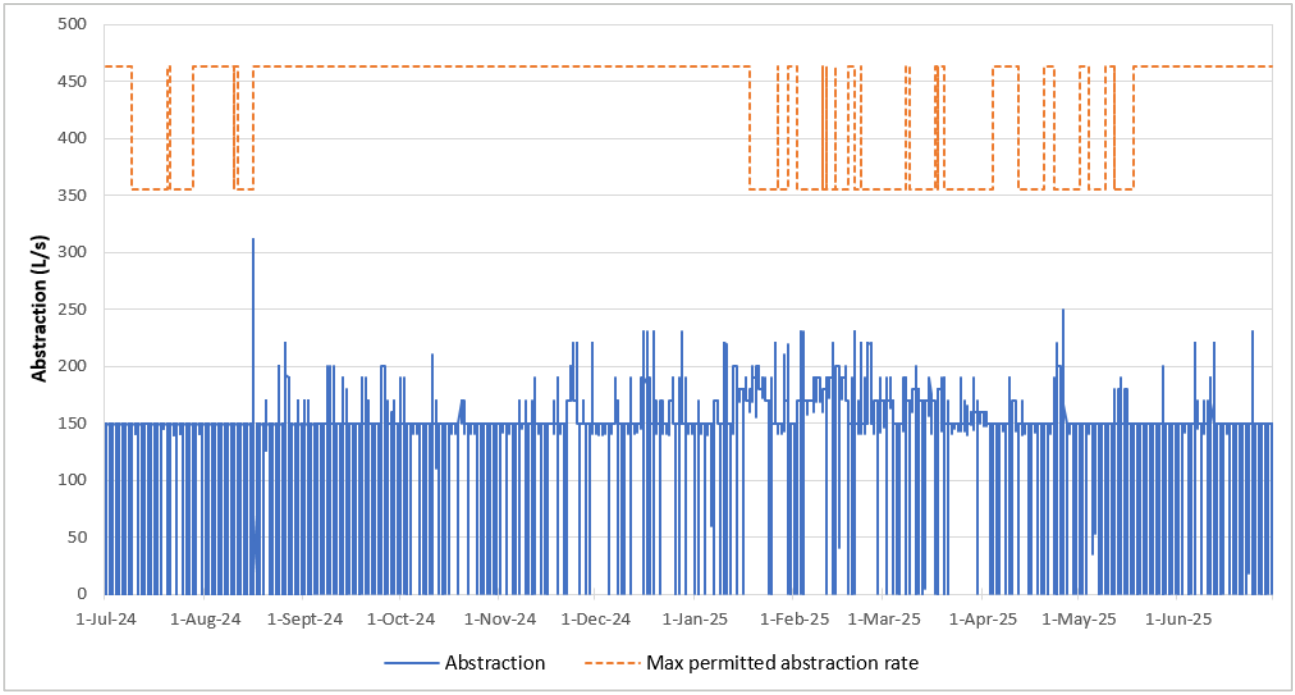


Figure 4: Waikanae WTP River Abstraction Rates (L/s)

2.3 River Recharge

No triggers or actions needed

River recharge is required when Waikanae River flows drop below 750 L/s, or below the natural upstream flow if it is less than 750 L/s, to maintain minimum downstream flow. Recharge is carried out in accordance with the approved Bore Preference Hierarchy Plan (BPHP) and Waikanae River Operational Management Plan (OMP). Daily and instantaneous discharge volumes from the borefield to the river are presented in Table 5 and shown in Figure 5 and Figure 6. Recharge was activated in February, March, and April 2025 due to low river flows. Discharges associated with bore testing and maintenance were within the limits for Short Duration Discharges, as defined by Consent WGN130103 [35975].

Table 5: River recharge discharges into the Waikanae River

Period	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Number of days of river recharge	No river recharge required, short-term discharges only.	No river recharge required, short-term discharges only	14 (excluding short-term)
Maximum river recharge	3,337 m^3/day (on 18 January 2023)	2,901 m^3/day (on 12 October 2023)	3,853 m^3/day (on 2 April 2025)
Ecological monitoring trigger exceeded?[1]	Trigger not exceeded	Trigger not exceeded	Trigger not exceeded
Number of days of short duration discharges	16 days above 0 m^3/day 35 days above 1 m^3/day	13 days above 0 m^3/day 15 days above 1 m^3/day	13 days above 0 m^3/day 26 days above 1 m^3/day
Total volume of bore water discharged to the Waikanae River (river recharge and additional short-term discharges)	27,723 m^3	21,409 m^3	52,169 m^3

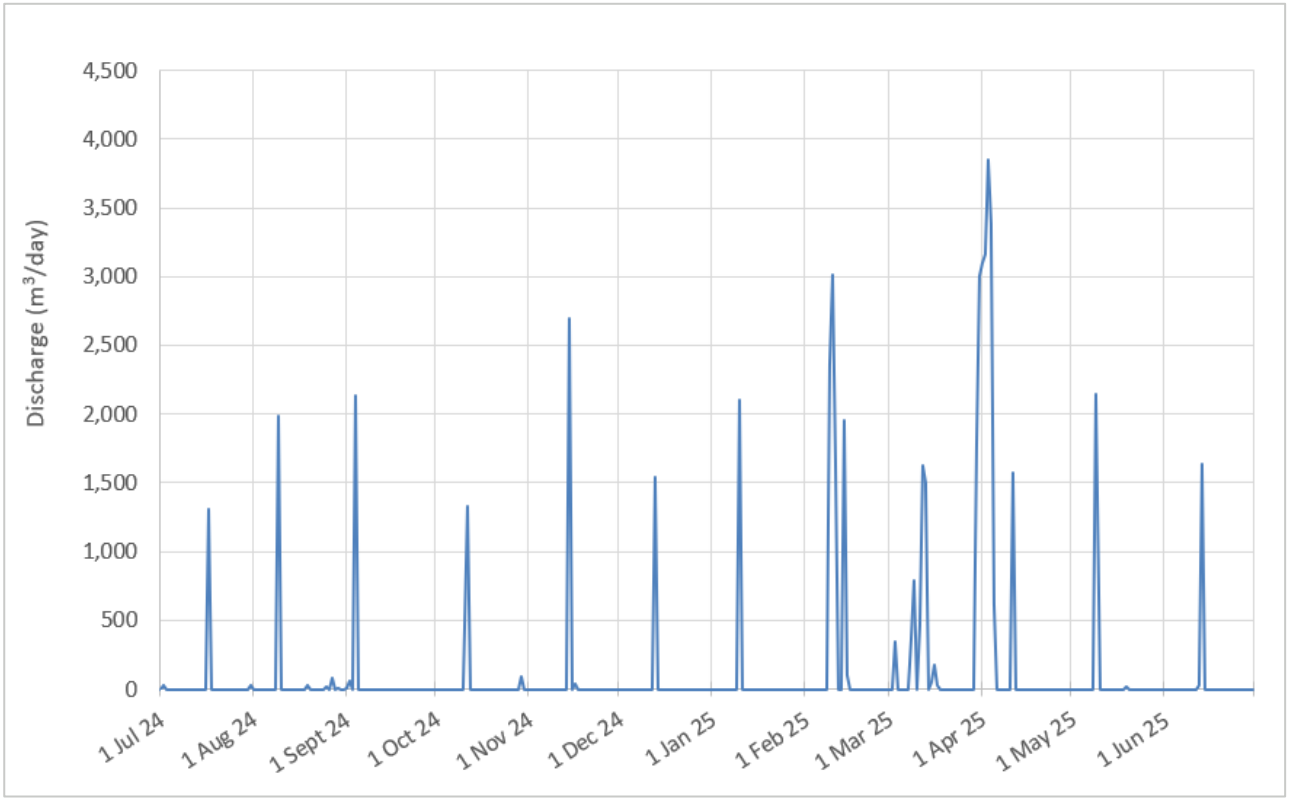


Figure 5: Daily Waikanae River Recharge (and Short Duration Discharges) for 2024/25 (m^3/day)

[1] Only when recharge exceeds 225L/s for 48 hours or greater.

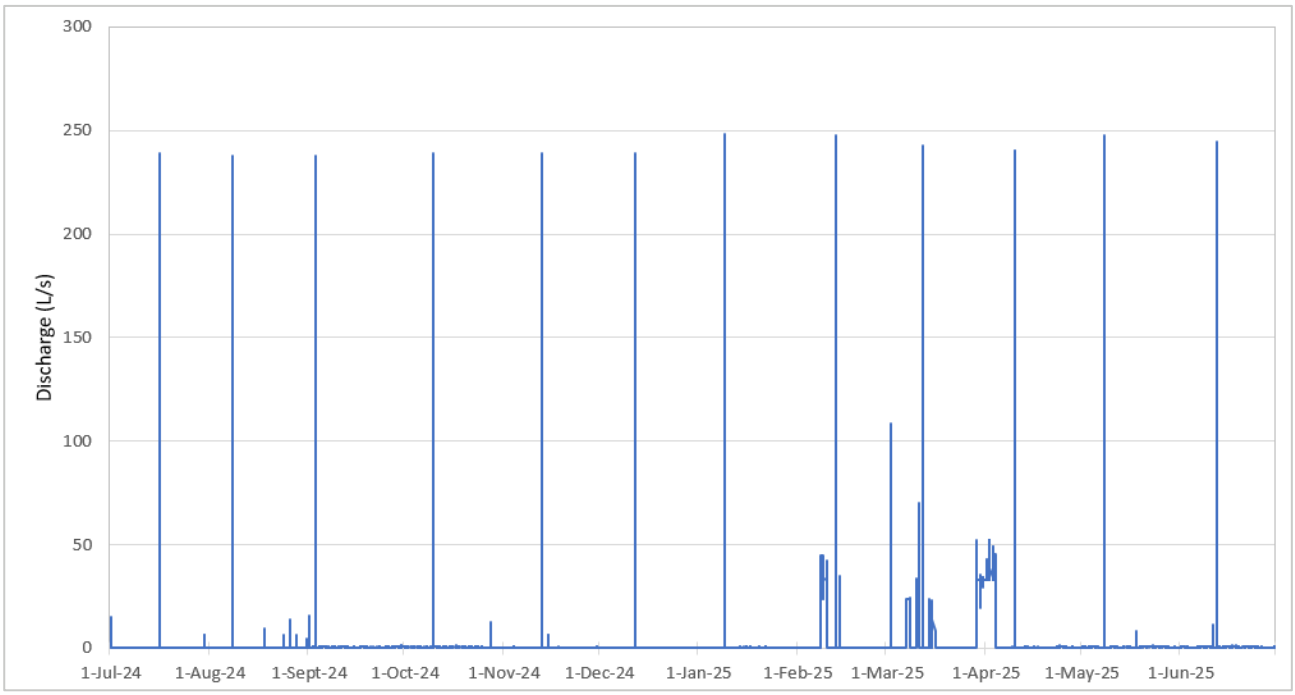


Figure 6: Instantaneous Waikanae River Recharge (and Short Duration Discharges) 2023/24 (L/s)

2.4 Downstream River Flows

No triggers or actions needed

In accordance with Condition 6 of consent WGN130103 [35974] and Condition 12 of WGN130103 [35975], the Council calculates the river flow immediately downstream of the Waikanae WTP's river recharge discharge structure. A minimum downstream flow of 750 L/s must be maintained, unless the natural upstream river flow falls below this level. Low-flow data for the downstream Waikanae River is provided in Table 6. An initial review of the March 2025 data identified several anomalies where river levels appeared to drop sharply and unexpectedly. These were assumed to be the result of a flow gauging error as flows recorded did not reflect adjacent recordings, and the data has been corrected accordingly.

Table 6: Downstream Waikanae River Flows

Period	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Lowest downstream river flow	938 L/s (on 12 February 2023)	1,113 L/s (on 19 July 2023)	753 L/s (on 29 March 2025)
Minimum flow of downstream river in accordance with Condition 6 of consent WGN130103 [35974] and condition 12 of WGN130103 [35975]	750 L/s	750 L/s	750 L/s
Maximum percentage recharge flow of river flow downstream	19%	17%	23%

Figure 7 shows the river flow at the GWRC gauging site upstream of the WTP (grey line), the WTP abstraction (yellow line), the river recharge (purple line) and the resulting calculated flow immediately downstream of the WTP (blue line) during the river recharge season of 2024/25 year.

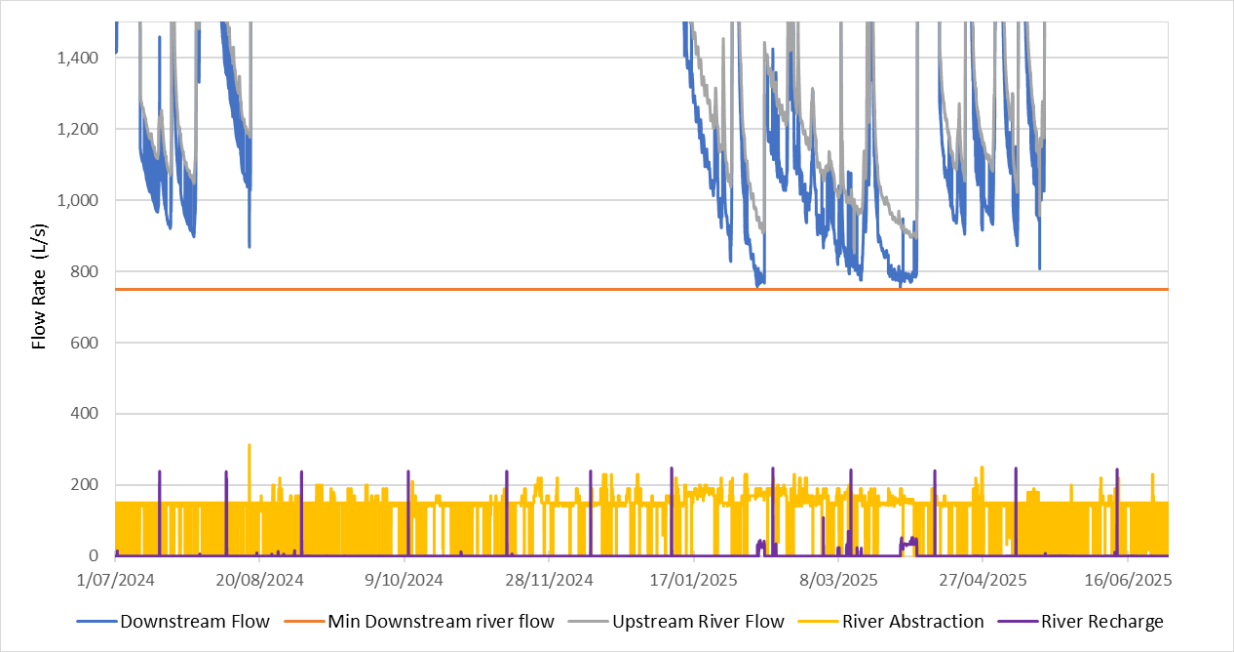


Figure 7: River flow upstream and downstream of WTP in 2024/25.

2.5 River Aquatic Monitoring

No triggers or actions needed

Periphyton and water quality monitoring in the Waikanae River is required when bore water discharge exceeds 225 L/s for a continuous period of 48 hours. If periphyton levels reach “high” or “very high” thresholds (as defined in the agreed monitoring letter), macroinvertebrate sampling is also undertaken. This trigger condition was not met during the 2024/25 monitoring period. As shown in Table 7, it was also not exceeded in 2023/24.

Table 7: River aquatic monitoring

Period	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Periphyton monitoring	Not required	Not required
Water Quality Sampling- DRP	Not required	Not required
Water Quality Sampling- Conductivity	Not required	Not required
Temperature	Not required	Not required

The periphyton monitoring trigger has not been exceeded since monitoring began. The purpose of this monitoring is to assess whether groundwater discharge is contributing to nuisance periphyton growth or adversely impacting macroinvertebrate communities. The Council engaged Wildlands to review the periphyton trigger in the River OMP in 2024/25. The findings from this review are discussed in Section 7 of this report.

3 Waikanae Borefield

3.1 Abstraction Volumes and Rates

No triggers or actions needed

Abstraction from each production well, measured in litres per second (L/s) and cubic metres per day (m³/day), is recorded in accordance with Conditions 13, 14, and 20 of consent WGN130103 [35973]. The Council automatically submits full abstraction data to GWRC via its SCADA system. A summary of the abstraction for the 2024/25 reporting period is provided in Table 8, with total daily abstraction from the Waikanae Bore field shown in **Error! Reference source not found.**.

Table 8: Total daily and annual volumes pumped from the production bores

Period	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Total annual volume pumped	33,139 m^3	19,801 m^3	44,127 m^3
Annual permitted volume (Condition 8 of WGN130103 [35973])	2,300,000 m³/year	2,300,000 m³/year	2,300,000 m³/year
Maximum total daily take volume and date	13,002 m^3/day (on 1 February 2023)	2,160 m^3 (on 12 October 2023)	3,126 m^3 (on 2 April 2025)
Maximum daily take permitted by Condition 6 of WGN130103 [35973]	23,600 m³/day	23,600 m³/day	23,600 m³/day

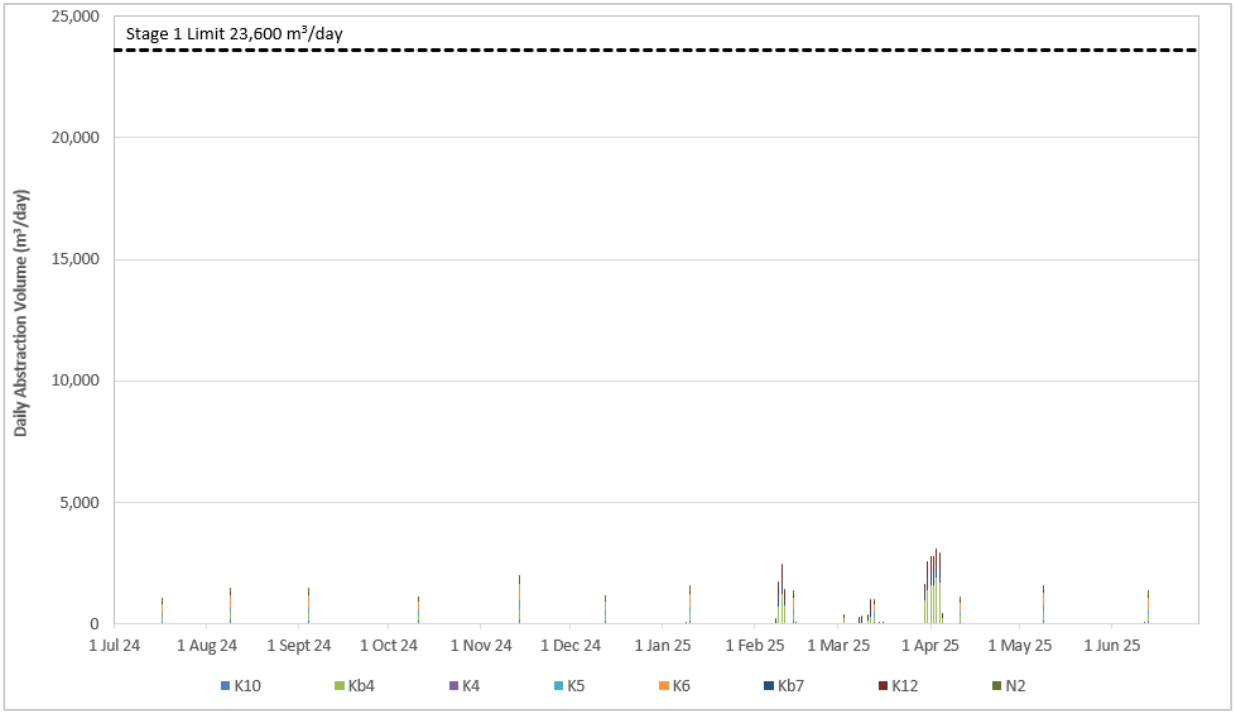


Figure 8: Daily Abstraction Volumes from Production Wells

The total instantaneous abstraction rate from the production wells is shown in Table 9 and plotted in Figure 9. The combined instantaneous abstraction from the Bore field was below the maximum abstraction permitted by Condition 8 of WGN130103 [35973] during 2024/25.

Table 9: Total instantaneous abstraction rate from production wells

Period	1 July 2022 - 30 June 2023	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Maximum combined abstraction	255 L/s for 15 minutes on 8 December 2022	254 L/s for 15 minutes on 9 August 2023	256 L/s for 15 minutes on 29 March 2025
Maximum instantaneous abstraction permitted by Condition 8 of WGN130103 [35973].	273 L/s	273 L/s	273 L/s

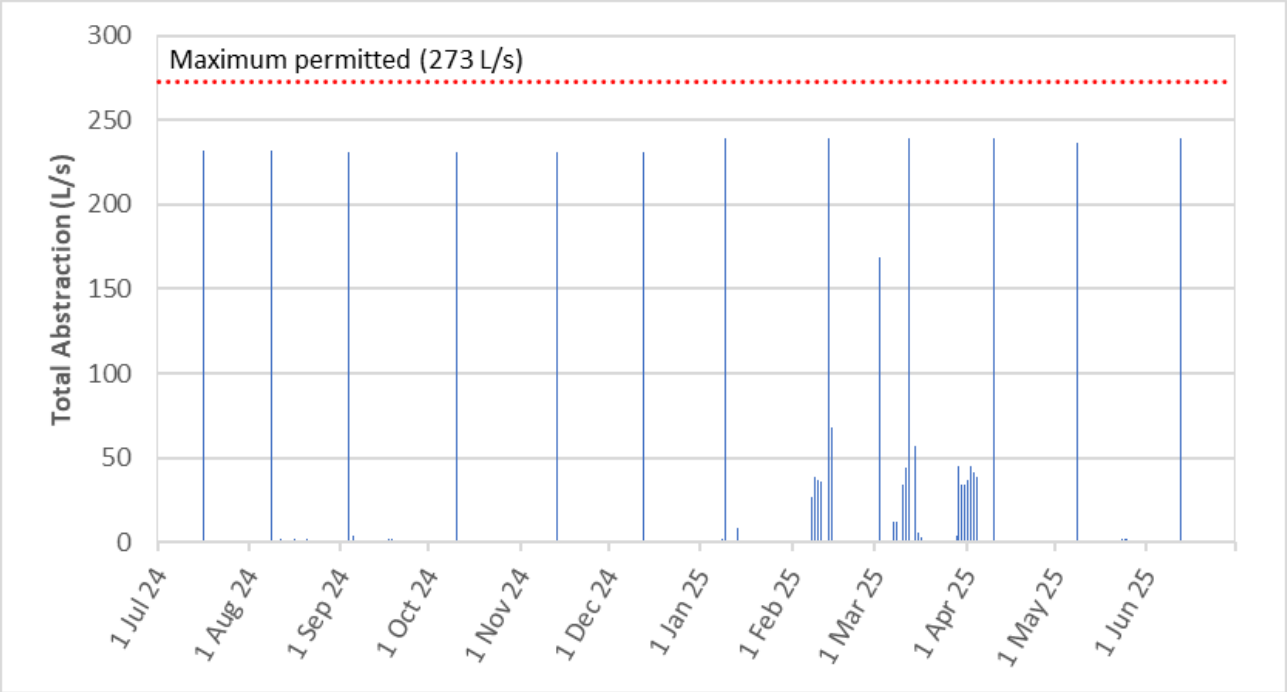


Figure 9: Total Instantaneous Abstraction from Production Wells

The maximum instantaneous abstraction rates for the individual production bores are detailed in Table 10. Figure 10 on the following page shows the daily and cumulative recharge from the Scheme over the past 10 years. Figure 10 shows the peaks of River Recharge Scheme use in 2018 and again in 2022, confirming the minimal use of the Scheme over the consent duration. The individual bore abstractions were below the Stage 1 maximum yield values in Condition 8 of WGN130103 [35973].

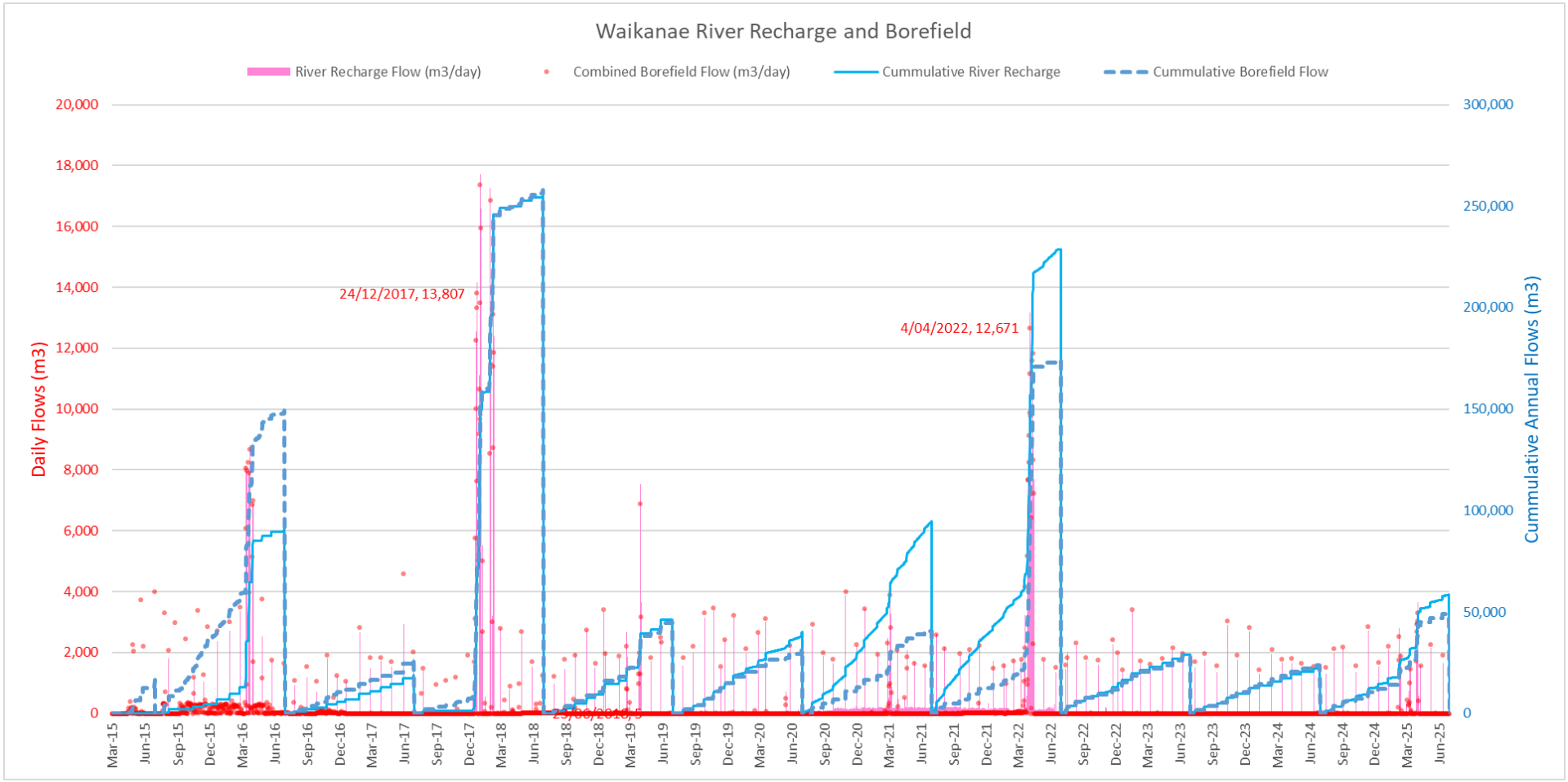


Figure 10: Waikanae River recharge and borefield since 2015

Table 10: Maximum Instantaneous abstraction rates for the individual production bores

Maximum instantaneous abstraction	Stage 1 Maximum yield (Condition 8 of WGN130103 [35973])	1 July 2023 – 30 June 2024	
K10	36 L/s	17 L/s	17 L/s
Kb4	35 L/s	35 L/s	35 L/s
K4	65 L/s	65 L/s	63 L/s
K5	36 L/s	30 L/s	30 L/s
K6	58 L/s	58 L/s	57 L/s
Kb7	8 L/s	6 L/s	6 L/s
K12	10 L/s	8 L/s	8 L/s
N2	25 L/s	25 L/s	24 L/s

3.2 Flow Gauging

No triggers or actions needed

Measurement of Waikanae River flows at Jim Cooke Memorial Park are undertaken when the bore field abstraction exceeds 23,000 m³/day for a three-day period as outlined in approved River and Bore field OMPs. This trigger was not reached during the 2024/25 period.

Table 11: Flow gauging of the Waikanae River

Period	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Flow Gauging Trigger Status	Bore field abstraction of 23,000 m³/day for a three-day period was not exceeded.	Bore field abstraction of 23,000 m³/day for a three-day period was not exceeded.

3.3 Back-up Wells PW1 and PW5

No triggers or actions needed

The Council holds a separate resource consent, WGN050025 [33147], for two groundwater bores located in Otaihanga (PW1 and PW5) to serve as a back-up water supply.

In 2024/25, PW1 and PW5 were not connected to the water reticulation system and were therefore not used. These bores have not been utilised since the Waikanae Bore field was commissioned in 2006 and are unlikely to be used in the foreseeable future.

Both bores have had their chlorine dosing systems decommissioned, and their water meters are currently unvalidated. As such, additional work would be required to bring them into service for emergency potable water supply.

Table 12: Combined abstraction from wells PW1 and PW5 for back up public water supply to the surrounding communities

Period	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Combined abstraction from wells PW1 and PW5	Wells not used for back up water supply.	Wells not used for back up water supply.
Maximum combined abstraction permitted by Consent WGN050025 [33147].	7000 m³/day	7000 m³/day

3.4 Borefield Monitoring Programme

The Borefield Monitoring Programme is set out in the approved Borefield OMP.

3.4.1 Shallow Aquifer Drawdown Monitoring

No triggers or actions needed

Table 13 lists the shallow aquifer monitoring sites, the applicable trigger levels and the minimum water level (daily average) recorded during the reporting period compared to last year.

Table 13: Shallow Aquifer Drawdown Monitoring Wells and Trigger Levels

Well Name	GWRC Bore Number	Trigger Level			Min level reporting period 2022/23 (mm AMSL)	Min level reporting period 2023/24 (mm AMSL)	Min level reporting period 2024/25 (mm AMSL)
		Alert (mm AMSL)	Action (mm AMSL)	Cease (mm AMSL)			
KCDC K6 Obs Shallow	R26/6992	2180	1980	1780	3258	3061	3059
GWRC Nga Manu	R26/6991	7138	6938	6738	8040	7798	7620
KCDC W1	R26/7025	4350	4150	3950	5052	4935	4953
Waikanae CHP Shallow	R26/6916	1445	1245	1045	2366	2187	2126
K12 Obs Shallow, Smithfield Rd	R26/6300	5035	4835	4635	5766	5493	5521
JCMP Shallow, Jim Cooke Memorial Park	N/A	6641	6441	6241	7507	7316	7353
K3A Obs Shallow, Cemetery	R26/6290	6964	6764	6564	8153	7715	7750
Greenhill North Shallow, Greenhill Rd North	N/A	6387	6187	5987	7156	6916	6918
Greenhill South Shallow, Greenhill Rd South	N/A	11829	11629	11429	12898	12500	12418

Several alarm notifications were received during the 2024/25 reporting period. The number of actual trigger events is summarised in Table 14. GWRC is responsible for maintaining the Nga Manu monitoring well (R26/6991). As in previous years, the trigger exceedance associated with this well was investigated and found to be the result of a fault with the monitoring equipment. This equipment is outside the Council's control, and it is understood that upgrading the Nga Manu bore is not currently a priority for GWRC. Given the ongoing issues, a broader discussion with GWRC may be necessary to assess the long-term viability and appropriateness of relying on GWRC monitoring wells for this consent.

Table 14: Shallow Aquifer Triggers

Period	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Total number of notifications	10	21
Total number of actual triggers	0	0

3.4.2 Deep Aquifer Drawdown Monitoring

No triggers or actions needed

Table 15 lists the deep aquifer monitoring sites, the applicable trigger levels and the minimum water level (daily average) recorded during this year's reporting period compared to last year.

Table 15: Deep Aquifer Drawdown Monitoring Wells and Trigger Levels

Well Name	GWRC Bore Number	Trigger Level			Min level reporting period 2022/23 (mm AMSL)	Min level reporting period 2023/24 (mm AMSL)	Min level reporting period 2024/25 (mm AMSL)
		Alert [mm AMSL]	Action [mm AMSL]	Cease [mm AMSL]			
Sentinel #1 Deep, Rutherford Drive	R26/6378	-1537	-3787	-5475	3517	3325	3157
Sentinel #1 Intermediate, Rutherford Drive	N/A	-2526	-4776	-6463	2053	1823	1815
Sentinel #2 Deep, Hodgkins Rd	N/A	-898	-2698	-4048	3044	2922	2887
Sentinel #2 Intermediate, Hodgkins Rd	N/A	-1757	-3557	-4907	1845	1798	1755
Sentinel #3 Deep, Old WWTP	R26/6776	-2090	-4490	-6290	2858	3118	2088
Sentinel #3 Intermediate, Old WWTP	N/A	-2547	-4947	-6747	2418	2126	1401
Sentinel #4 Deep, Peka Peka Rd	N/A	1832	932	257	4113	4027	3941
Sentinel #4 Intermediate, Peka Peka Rd	N/A	284	-616	-1291	2251	1988	1954
Sentinel #5 Intermediate, Taiata St	R26/6955	-393	-1443	-2231	1907	1821	1526

Well Name	GWRC Bore Number	Trigger Level			Min level reporting period 2022/23 (mm AMSL)	Min level reporting period 2023/24 (mm AMSL)	Min level reporting period 2024/25 (mm AMSL)
		Alert [mm AMSL]	Action [mm AMSL]	Cease [mm AMSL]			
Sentinel #5 Deep, Taiata St	N/A	19	-1031	-1819	2318	2117	2112
Sentinel #6 Deep, Tamati Place	N/A	560	-190	-752	2329	2226	2150
Sentinel #6 Intermediate, Tamati Place	N/A	599	-151	-714	2246	2107	2118
Waikanae CHP Deep	R26/6594	540	-510	-1298	2686	2540	1515
Waikanae Park	R26/6284	4611	2511	936	8884	8602	8541

Seven automated notifications of trigger values from deep monitoring wells were received by Council and GWRC during 2024/25, shown in Table 16. All events were due to monitoring system anomalies. Further analysis of all bore monitoring automatic notification events (short-term monitoring equipment failures or anomalies) is included in Section 3.4.4.

Table 16: Deep Aquifer Triggers

Period	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Total number of notifications	20	7
Total number of actual triggers	0	0

3.4.3 Saline Intrusion Monitoring

No triggers or actions needed

Table 17 lists the saline intrusion monitoring sites, the applicable trigger levels and the maximum electrical conductivity (daily average) recorded during this year's reporting period compared to last year.

Table 17: Saline Intrusion Monitoring Wells Electrical Conductivity Trigger Levels

Well Name	GWRC Bore Number	Trigger Level			Max this reporting period 2022/23 (µS/cm)	Max this reporting period 2023/24 (µS/cm)	Max this reporting period 2024/25 (µS/cm)
		Alert (µS/cm)	Action (µS/cm)	Cease (µS/cm)			
Sentinel #1 Deep, Rutherford Drive	R26/6378	1500	1875	2188	1286	1172	978
Sentinel #1 Intermediate, Rutherford Drive	N/A	521	651	760	462	404	455
Sentinel #2 Deep, Hodgkins Rd	N/A	1532	1915	2234	1198	1242	1261

Well Name	GWRC Bore Number	Trigger Level			Max this reporting period 2022/23 (µS/cm)	Max this reporting period 2023/24 (µS/cm)	Max this reporting period 2024/25 (µS/cm)
		Alert (µS/cm)	Action (µS/cm)	Cease (µS/cm)			
Sentinel #2 Intermediate, Hodgkins Rd	N/A	1699	2124	2478	961	975	1040
Sentinel #3 Deep, Old WWTP	R26/6776	1342	1677	1956	1305	1027	883
Sentinel #3 Intermediate, Old WWTP	N/A	2789	3486	4067	906	509	466
Sentinel #4 Deep, Peka Peka Rd	N/A	866	1082	1262	828	656	724
Sentinel #4 Intermediate, Peka Peka Rd	N/A	761	951	1110	673	687	595
Sentinel #5 Intermediate, Taiata St	R26/6955	3642	4553	5311	3564	3596	2901
Sentinel #5 Deep, Taiata St	N/A	5818	6518	7218	5114	5122	4926
Sentinel #6 Deep, Tamati Place	N/A	8693	9393	10093	7947	7536	7136
Sentinel #6 Intermediate, Tamati Place	N/A	1684	2105	2455	1952	1617	829

No notifications were received or triggers exceeded in 2024/25, as shown in Table 18.

Table 18: Saline Intrusion Monitoring Triggers

Period	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Total number of notifications	19	0
Total number of actual triggers	0	0

3.4.4 Analysis of Monitoring Bore Notification Alerts (Monitoring Equipment Outages)

The OMPs require the Council to monitor triggers during the recharge season and report on these triggers to GWRC. The Council received a total of 44 notifications of a trigger event for the RRwGW monitoring wells during 2024/25. Of these, 28 notifications were received during the river recharge season (1 December to 30 April). Table 19 summarises the in-season notifications, including the date, monitoring point and alert level. In all cases a Council or GWRC monitoring asset was found to have failed, or it had been affected by a maintenance or power outage event.

Table 19: Summary of Notified Monitoring Point Failure Events

Date	Monitoring Point	Alert Level
18/12/2024	KCDC W1	Level 1-3
07/01/2025	GWRC Nga Manu	Level 1-3
07/01/2025	GWRC Nga Manu	Level 1-3
07/01/2025	GWRC Nga Manu	Level 2-3
13/02/2025	GWRC Nga Manu	Level 1-3
13/02/2025	GWRC Nga Manu	Level 2
13/02/2025	Waikanae CHP Deep	Level 1
13/02/2025	Waikanae CHP Shallow	Level 1-3
14/02/2025	Waikanae CHP Shallow	Level 1-3
20/02/2025	Waikanae Park	Level 1-3
26/02/2025	Waikanae Park	Level 1-3

3.5 Bore Water Quality Monitoring

No triggers or actions needed

3.5.1 Production Bores

Following the approved BoMM:

- Bore water quality samples are taken from production bores at the start of the abstraction season.
- Water quality sampling is compulsory at the conclusion of the monitoring season if the abstraction from the bore field reaches 23,000m³/day for three consecutive days or reaches a volumetric measure of 540,000m³ or more.

Bore water quality samples were taken from production bores at the start of the 2024/25 season. Bore Water Quality Sampling results from Eurofins' analysis of samples can be found in Appendix E. No non-compliance indicators are noted.

The abstraction from production bores during 2024/25 did not exceed 23,000m^3/day for three consecutive days or reach 540,000m^3 or more, meaning monitoring at the conclusion of the season was not required.

3.5.2 Blended Bore Water

Blended Bore Water sampling is no longer required going forward, as per the approved Bore field OMP.

3.6 Potentially Affected Existing Private Wells

Condition 7 of consent WGN130103 [35973] requires work to be undertaken to identify potentially affected existing authorised wells (and actions (b)-(d) listed in the condition) prior to implementing each stage of the

project as referenced in Condition 6. GWRC confirmed on 21 July 2016 that Council has met all requirements of Condition 7 for Stage 1.

A website provides education information, live groundwater level monitoring information and has contact details if private well users wish to discuss issues arising or make complaints. The Council upgraded this website for 2020/21 year; now hosting live operating data, with geospatially represented bore information, on Council's own platform (it was operated for Council by consultant Beca, in the past). The Council is going to compile an updated contact list for all private well users and establish a forum for communicating with these users directly at the beginning of the season.

Refer to the web pages found at the following address:
https://www.kapiticoast.govt.nz/services/a-z-council-services-and-facilities/waters/water-supply/where-it-comes-from/private-bores/

3.7 Complaints

Condition 45 of consent WGN130103 [35973] requires Council to maintain an on-going record of any complaints received alleging adverse effects from, or related to, abstraction from the Waikanae Borefield, including complaints of any adverse effects on private bores. The Complaints Record is attached in Appendix E. There were no complaints received alleging adverse effects from, or related to, abstraction from the Waikanae Borefield in 2024/25.

Table 20: Complaints Record

Period	1 July 2023 - 30 June 2024	1 July 2024 - 30 June 2025
Number of complaints	0	0

4 Wetlands Monitoring

No triggers or actions needed

As required by the approval of the Wetland OMP, wetland triggers are applicable to Nga Manu wetland.

Figure 11 presents the Nga Manu wetland groundwater levels for the wetland monitoring period (Dec 2024 - May 2025), which includes regression analysis of the trigger levels based on the district wide shallow groundwater effects.

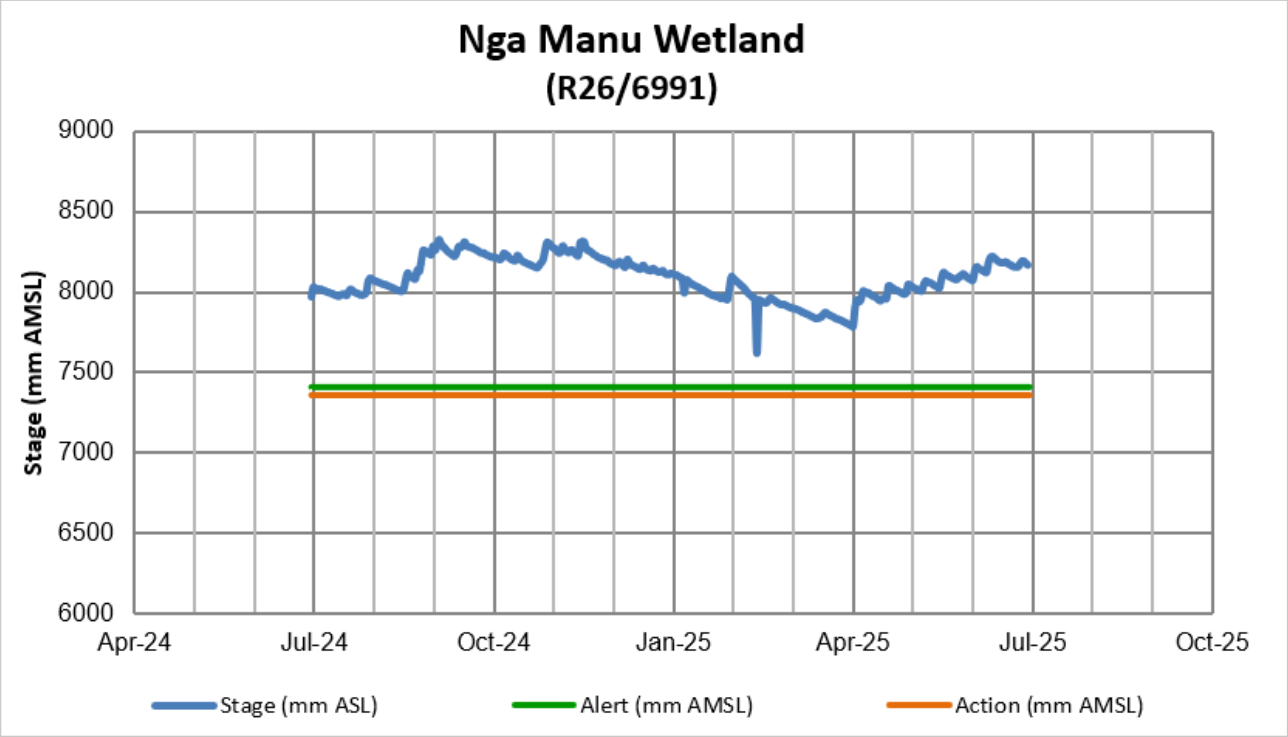


Figure 11: Nga Manu Wetland Regression Analysis

Te Harakeke Wetland is to be included in an updated Wetland OMP if access can be regained. The number of notifications and actual triggers from the alarm notifications are shown in Table 21 (the analysis of these triggers is provided in Table 19 in the previous section). As discussed, all notifications were due to technical faults with monitoring equipment, meaning no actual triggers were exceeded.

Table 21: Wetland Automated Triggers

Period	1 July 2022 - 30 June 2023	1 July 2024 - 30 June 2025
Total number of notifications	0	12
Total number of actual triggers	0	0

In 2024/25, the Council engaged Wildlands to select new plots to survey for Wetland Condition Assessments. Two plots in Nga Mana Wetland and a further plot slightly north-west of Te Harakeke wetland were selected and surveyed. Wildlands confirmed that river recharge activities are not impacting wetland vegetation. The next Wetland Condition Assessment is proposed for 2027/28 in line with the three-yearly schedule. Section 7 provides further discussion on Wildlands' report.

5 Small Coastal Streams Monitoring

No triggers or actions needed

One small coastal stream site, Ngārara Stream, has been monitored this year as defined in the Small Coastal Stream OMP. The required monitoring period is from 1 December 2024 to 1 May 2025. The ground water and stream level for the small coastal stream are shown in Figures 12 and 13.

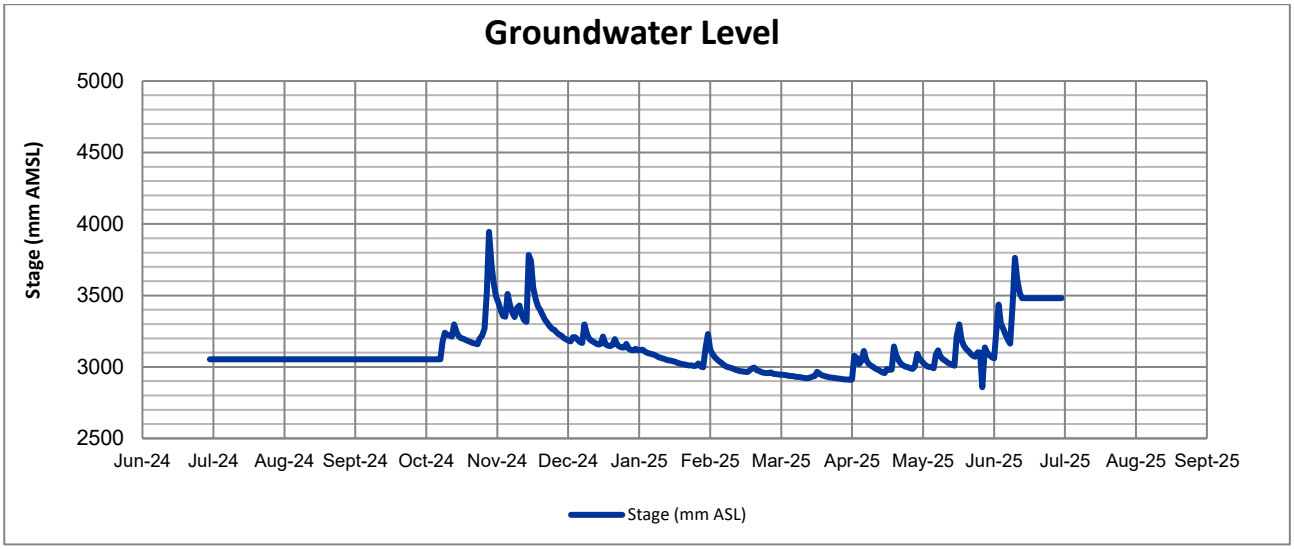


Figure 12: Ground water levels for Ngārara Small Coastal Stream

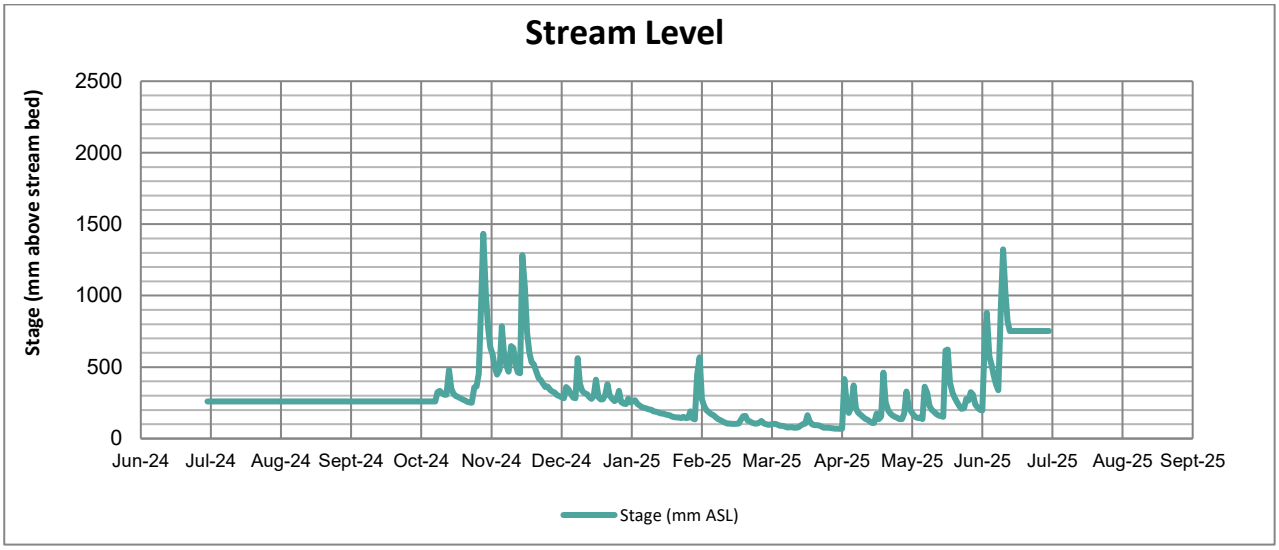


Figure 13: Stream levels for Ngārara Small Coastal Stream

The Council engaged Wildlands to review the trigger levels in the Small Coastal Streams OMP following a noticeable shift in the baseline water level of Ngārara Stream, reported in the 2023/24 Annual Report. This change was understood to be the result of culvert clearance works undertaken in September 2022, which removed a blockage and led to a sustained drop in stream levels. As a result, the Council questioned whether existing triggers should be adjusted to reflect a new baseline. The review was not prompted by any actual or perceived effects of the Scheme, as the scheme's use has remained well below initial expectations.

Wildlands confirmed that stream levels had decreased by approximately 366 mm due to the clearance activity and agreed that trigger levels should be recalibrated based on post-clearance monitoring data. They recommended that new triggers be set relative to the mean of the annual lowest levels recorded in the piezometer. This mean should be calculated using all valid monitoring data collected since 9 September 2022 (the date of the clearance works), with any anomalous data excluded prior to analysis. This approach aligns with standard hydrological practice, where the mean annual low flow is commonly used to set water take limits in surface water bodies.

The triggers for 2024/25 are set out in Table 22 based on the previous year's monitoring data. Table 23 provides further analysis of the monitoring results for 2024/25. Trigger levels are applicable from 1 December to 30 April each year, or if the Scheme is used outside this period for river recharge or supplementary supply.

Tables 22 and 23 show that the action and cease triggers for Ngarara Stream Level were exceeded in 2024/25. These triggers, including the Action and Cease response required in the Small Coastal Stream OMP, relate to production from bores K5 and K6. However, bores K5 and K6 were not used for production in 2024/25, as they are low down the Bore field Production Hierarchy. These bores were only used for the small maintenance discharges throughout the season. The monitoring data shows that using bores K5 and K6 for maintenance has a negligible effect, if any, on water levels in small coastal streams. As such, we have concluded that any change in stream level during the river recharge season is unrelated to bore use.

Table 22: Historic Trigger Levels for Small Coastal Streams

Location	Trigger Level (2024/25 year)			Min Value this reporting period 2024/25 (mm -)
	Alert (mm -)	Action (mm -)	Cease (mm -)	
Ngārara Groundwater Level (mm AMSL)	1656*			2907
Ngārara Stream Level (mm above stream bed)		300 #	150 +	63

* 200mm below the lowest recorded shallow groundwater level for historic monitoring results minus 15% of the range in water levels recorded.

\# 35th percentile stream depth is less than 300mm determined from staff gauge measurement.

\+ 35th percentile stream depth is less than 150mm determined from static staff gauge measurement.

Table 23: Analysis of Adaptive Management Trigger Levels - Small Coastal Streams 2024/25

Location	Minimum Level [1] (mm -)	Maximum Level [1] (mm -)	35th Percentile [2] (mm -)
Ngārara Groundwater Level (mm AMSL)	2907	3377	
Ngārara Stream Level (mm above stream bed)	63	900	124

1. Data was taken from the SCADA archive for period 00:00hrs 1/011/2018 thru 23:00 30/04/2025
2. The 35th Percentile is calculated by ranking all data values in the set noted above, in order, then assessing the data point at which 35% of all points are of lesser value.
3. Trigger levels as described in Table 22 notes.

Tables 22 and 23 show that the action and cease triggers for Ngarara Stream Level were exceeded in 2024/25. These triggers, including the Action and Cease response required in the Small Coastal Stream OMP, relate to production from bores K5 and K6. However, bores K5 and K6 were not used for production in 2024/25, as they are low down the Bore Production Hierarchy. These bores were only used for the small

maintenance discharges throughout the season (no more than four hours of pumping per monthly event). We have therefore not recorded these as actual exceedances.

The monitoring data shows that using bores K5 and K6 for maintenance has a negligible effect, if any, on water levels in small coastal streams. As such, we have concluded that any change in stream level during the river recharge season is unrelated to bore use. As part of reviewing the Small Coastal Streams OMP, we have asked Wildlands to consider whether the trigger/response mechanism can be reviewed to exclude maintenance discharges.

6 Operations

6.1 Operations Log and Maintenance Undertaken

The Council has confirmed that its existing SCADA system together with the NCS system are an 'electronic data management system' that records and stores the information required by Condition 20 of consent WGN130103 [35973] and Condition 18 of consent WGN130103 [35974]. Bore field abstraction, river abstraction and river recharge data are automatically transmitted from Council's SCADA system to GWRC's Water Use Data Management System. The Council has implemented Water Outlook as a system to store and report data and operational information relating to the Waikanae Bore field. The Council is also using Water Outlook to store and report data and operational information relating to the Waikanae River take and recharge. A copy of the site logs for each production bore is included in **Appendix D**, which also includes the Waikanae River take and recharge operational records.

6.2 Operation and Maintenance Manuals

The Waikanae Borefield Operation and Maintenance Manual (BOMM) and current Waikanae River Take Operations and Maintenance Manual (ROMM) have been approved by AMG & GWRC and were last updated on 19 December 2018.

The following have also been approved by GWRC:

- Borefield OMP (dated 29 November 2018),
- Wetland OMP (dated 9 March 2018),
- Small Coastal Streams OMP (dated 21 February 2019), and
- River OMP (dated 2 July 2020).

6.3 Waikanae WTP upgrade

The Council is progressing significant upgrades at the Waikanae WTP. The 30-month $22 million upgrade to increase earthquake resilience and to replace aging equipment at the Waikanae WTP started in February 2024. The project is stage two of a planned three-staged upgrade of the Waikanae Water Treatment Plant. These works are part-funded by a $5.2 million grant from the government, and include:

- Enabling works to move utilities such as telecommunications lines and stormwater pipes out of the way for excavations needed for the clarifier (completed in 2022)
- Building a rapid mix tank (to mix coagulants and flocculants which bind particles in the water)
- Building a new clarifier (a large tank where the bound particles bound together)
- Planned renewals to replace pumps and dosing equipment which are getting towards the end of their useful life, and
- Safety improvements which include constructing a new building to house chlorine tanks and dosing systems.

The works will also increase the seismic resilience of the water supply for Waikanae, Paraparaumu and Raumati. The two-and-a-half-year project follows enabling works completed in 2022, which included relocating a stormwater line and other utilities to make way for the new equipment.

7 Mitigation/Adaptive Management

7.1 Overview

The Waikanae River Recharge consents are governed through an adaptive management approach, which is a structured, flexible approach to environmental management that allows for decision-making to evolve over time based on monitoring results and new information.

The Council has progressed several mitigation and adaptive management projects in 2024/25, including:

- Preparing the resource consent application to delay the timing for the Performance Assessment Review (PAR) by at least three years to 7 April 2033 to align with actual water demand.
- Reviewing the periphyton trigger in the River OMP.
- Reviewing the small coastal streams trigger in the Small Coastal Streams OMP.
- Selecting new wetland monitoring plots for the three-yearly wetland assessments in the Wetland OMP.
- Progressing with other interim monitoring measures set out in the 2023/24 Annual Report.
- Preparing for fish passage improvements on the main weir in summer 2025/26.
- Progressing with the gravel extraction resource consent, which is set to be granted in 2025/26.

This section provides a summary of these projects.

7.2 Performance Assessment Review

In 2023/24, the Council proposed extending the timeframe for the PAR to 7 April 2033 (i.e. three years). The reason for this extension is that the Council's water demand has been much lower than anticipated since the consents were granted. This has resulted in limited use of the Scheme over the consent term, and the Council is likely pushing out the requirement to expand to Stage 2 by 3-4 years. The Council also anticipates having minimal monitoring data to undertake the PAR in 2029, due to triggers not being exceeded. The purpose of the delay is therefore to better align with the Council's progression to Stage 2 of the Scheme and collect more trigger-related monitoring data to inform the PAR. The Council anticipates submitting the s. 127 RMA resource consent application to amend the consent conditions in 2025/26.

7.3 Periphyton triggers – River OMP

The River OMP includes a trigger for assessing the effects of borefield discharge on periphyton in the Waikanae River. This trigger is defined as a continuous recharge discharge exceeding 225 L/s for more than 48 hours. To date, this threshold has not been exceeded during the term of the resource consent. The River OMP recommends that the AMG consider the appropriateness of the periphyton trigger during the five-year period leading up to the PAR (i.e. from 2023/24 onwards). Specifically, the AMG is encouraged to:

- Review whether the trigger has been exceeded and, if so, evaluate what the monitoring data reveals about periphyton response. If no exceedance has occurred, assess whether there are increasing concerns about elevated periphyton cover.
- Consider whether lowering the trigger threshold would support the collection of additional data to better inform the performance review.

- Re-evaluate the potential inclusion of chlorophyll-a sampling to enhance understanding of periphyton dynamics when elevated levels are observed.

In 2023/24, the Council undertook a desktop review of the trigger and potential exceedances of the resource consent term. The review concluded that, while the trigger hasn't yet been exceeded, it could be exceeded in the coming years depending on rainfall and demand. The Council proposed to undertake a "spot check" in 2024/25, including collecting monitoring data and reviewing the triggers. The Council engaged Wildlands to undertake this work during the 2024/25 monitoring season. Wildlands' report is provided in **Appendix C**.

Wildlands did not find any change in periphyton since baseline monitoring. However, Wildlands recommended a series of changes to the River OMP and periphyton trigger/response mechanisms. The recommendations are in response to issues observed by Wildlands in implementing the methodologies in the current River OMP. The Council will present these recommendations to the Adaptive Management Group (AMG) at the Annual Meeting. If accepted, the Council will submit an updated River OMP to GWRC for approval.

7.4 Small Coastal Streams OMP

In the 2023/24 annual monitoring data, the Council observed a significant decrease in water levels in the Ngarara Stream. In the Annual Report, the Council concluded that this was potentially due to a blockage being cleared within the catchment, reducing the base level for the stream. The Council engaged Wildlands to investigate the potential cause of the change in water levels and review the Council's trigger levels for small coastal streams considering a potentially new baseline. Wildlands' report is provided in **Appendix C**.

The Wildlands' report confirms that the water level in the Ngarara shallow piezometer dropped by 366mm since the stream was cleared in September 2022. As such, Wildlands recommended that new triggers should be based on monitoring data since the clearance. Wildlands recommended that trigger levels be set in relation to the mean of the annual lowest level in the piezometer, determined using monitoring data since 9 September 2022. The Council will present the report to the AMG and, if accepted, submit revisions to the Small Coastal Streams OMP to reflect the new triggers for the next River Recharge season. The Council has also asked Wildlands to review whether maintenance discharges should be excluded from the trigger/response mechanisms.

7.5 Review of Wetland OMP

The Wetland OMP requires the Council to undertake wetland condition monitoring every three years in Nga Manu Wetland and Te Harakeke Wetland (once access is regained) every three years. The Council engaged Wildlands to undertake wetland condition monitoring in Nga Manu Wetland in 2023/24 as per the established methodology and existing plots from baseline monitoring. The Council reported the results in the 2023/24 Annual Report.

Wildlands found that the wetland plot data showed a decrease in the presence of hydrophytic plants at both sites assessed, to the point where the sites are no longer considered wetlands. The aerial data delineating wetland communities indicate fluctuating water levels across the site with dryland scrub vegetation dying out in parts due to inundation and encroaching into wetland communities in others. However, because the River Recharge Scheme had only been used intermittently since the baseline monitoring, Wildlands concluded that the decrease in wetland habitat was likely due to other influences, such as surrounding land development.

Wildlands recommended that the wetland baseline be updated because of the 2024 conclusions. This is needed to remedy the fact that the original baseline plots have transitioned from wetland communities to dryland communities, and to increase the confidence in the wetland assessments by increasing the plots

(data points) from two plots in one wetland to six plots in two wetlands. The Council engaged Wildlands to undertake this working in the 2024/25 monitoring period. Wildlands' report is provided in **Appendix C**.

Wildlands established new wetland baseline monitoring plots using the methodology in the Wetland OMP. Wildlands compared the new baseline plots with the original plots and confirmed that there is a relatively consistent level of condition and pressure between the two. The new baseline measures will ensure that the ongoing wetland condition monitoring will give the Council a confident measure of potential effects in the Ngarara catchment throughout the lifetime of the Scheme. Wildlands recommended that the next wetland condition monitoring be undertaken in 2028, continuing the three-yearly monitoring interval. The Council will present the report to the AMG and, if accepted, submit revisions to the Wetland OMP to GWRC for approval.

7.6 Ongoing Projects

The PAR memo provided with the 2023/24 Annual Report set out several interim monitoring and other tasks to be completed before the new PAR date to support preparing this report. In 2024/25, the Council progressed with several aspects of this monitoring, including:

- Bore water quality data: The Council collects bore water quality data at the beginning of every season (around November/December each year). The Council is undertaking a high-level review of this data over the past ten years to establish if there are any trends in bore water quality. We will report on findings in 2025/26.
- Te Harakeke Wetland access: The Council continues to seek access to Te Harakeke Wetland for wetland condition monitoring. Wildlands have identified a new monitoring plot adjacent to Te Harakeke wetland, which is suitable in the interim.
- Ecological monitoring stocktake: The Council has initiated a stocktake of ecological monitoring in the Waikanae River to determine whether existing data can inform the Performance Assessment Report (PAR). This work will continue through 2025/26. Fish & Game is known to collect data on trout habitat and abundance, while GWRC is currently reconsenting its river maintenance activities and gathering extensive baseline data, including information on trout, native fish, birds, and river morphology. The Council will continue to engage with GWRC and other parties to identify any additional ecological data relevant to the Waikanae River.
- Land access agreements: The Council is reviewing land access agreements for all monitoring sites on private land to confirm these are up to date.
- Private well users: The Council is updating our database of private well users and their contact details and to commence a notification procedure for these well users at the beginning of the season.

7.7 Fish passage improvements over the main weir

The Council is working on undertaking fish passage improvements on the main weir. Previous fish surveys have identified that the main weir may be presenting a barrier to native fish, especially weak climbers. The Council has discussed potential improvements with representatives from GWRC, Te Atiawa ki Whakarongotai Charitable Trust and Fish & Game. In 2024/25, the Council sourced new boulders and had these blessed by Te Atiawa ki Whakarongotai. The Council is now awaiting an appropriate works window, outside key migration and spawning periods for native fish and trout, and during suitable weather conditions, to install boulders. The Council hopes to complete this work by the end of 2025.

7.8 Gravel extraction resource consent

The Council has applied for a replacement resource consent to extract gravel from above the intake and deposit this downstream of the weir. The purpose of the activity is to protect the intake from gravel deposition during high flow events. Council staff are in the process of reviewing draft conditions for the resource consent and we expect GWRC will grant the resource consent imminently. In the interim, the Council can continue to undertake works under the existing resource consent pursuant to s. 124 of the RMA.

7.9 Changes to Mitigation Plans

7.9.1 Operating Documents and Consent - active

The consents and the related operating documents were deployed as unchanged for the 2024/25 season, in the now normalised operating mode. No new consent amendments are proposed.

7.9.2 Operating Documents – revision control

7.9.2.1 Operation and Maintenance Manuals

The Council is proposing amendments to:

- The Wetland OMP
- The Small Coastal Streams OMP
- The River OMP

All amendments will be submitted to GWRC for approval in 2025/26.

7.9.2.2 Operation Management Planning

The Council offers no new operations management amendments for review.

7.9.3 Reports

The following monitoring reports are attached in **Appendix C**:

- River Recharge with Groundwater: Waikanae River 2025 Baseline Monitoring Report, Wildlands Consultants Limited, June 2025
- Ongoing Mitigation Plan for Small Coastal Streams Potentially Affected by the Kapiti Water Supply RRwGW Scheme, Wildlands Consultants Limited, June 2025
- Wetland Baseline Monitoring for River Recharge Project Update and Expansion 2025, Wildlands Consultants Limited, July 2025

7.10 Recommendations of the Adaptive Management Group

The AMG met on 8 September 2025. The Council sought the following recommendations from the AMG in response to the various investigations undertaken in 2023/24 and 2024/25:

- Council proceeds with amendments to the River OMP and periphyton trigger/response mechanisms proposed by Wildlands to capture more monitoring data.
- Council proceeds with amendments to the Small Coastal Streams OMP trigger proposed by Wildlands to reflect lower water levels in streams following clearance of the Black Drain.

- Council proceeds with amendments to the Wetland OMP as proposed by Wildlands to incorporate new wetland monitoring plots for the next wetland monitoring round scheduled for 2026/27.
- Council continues to progress with delaying the PAR by 3-years, as set out in the 2023/24 Annual Report.

The Council received the following feedback from AMG members:

- GWRC and Friends of the Waikanae River support the recommendations.
- Fish & Game had some initial concerns on the recommendations, specifically that increasing the trigger threshold for periphyton growth may be premature until the system has adequately been tested, increasing monitoring points inadvertently create confusion over causation, and wetland monitoring data needs to be robust to ensure any changes in wetlands are attributable to Scheme use. Following discussion with Council staff and further input from Wildlands, Fish & Game supports the proposed changes on the basis that there are opportunities to review these changes later (for example, through the annual AMG meetings, the PAR process and potential for s. 128 review if required).
- Other AMG members did not provide formal comment (support or otherwise) on the recommendations.

Based on the feedback received, the Council will proceed with the recommendations as presented at the Annual Meeting.

Appendix A

Consent Requirements and Documents

An annual Waikanae River, Recharge and Borefield report is required by Condition 42 of consent WGN130103 [35973], Condition 24 of consent WGN130103 [35974] and Condition 26 of consent WGN130103 [35975]. This report to Greater Wellington Regional Council (GWRC) covers the period from 1 July 2017 through to 30 June 2018. The requirements of these conditions are listed in the tables below (Table 23, Table 24, and Table 25) with cross-references to the relevant sections in this report.

Table 24: Requirements for Annual Waikanae River report

Condition 24 of Consent WGN130103 [35974]	Section in this Annual Report
The consent holder shall, by 30th September each year, submit an Annual Waikanae River report to the Manager, or by another date as agreed with the Manager. The annual Waikanae River report shall report on the year 1 July to 30 June inclusive, and include the following information:	
a) Records of the instantaneous rate of take (L/s), and total daily volumes (m^3);	Section 2.2
b) Flow and river recharge information to demonstrate compliance with Condition 6 (Waikanae River low flow);	Sections 2.1, 2.3 and 2.4
c) Provide information to demonstrate compliance with Condition 18 of this consent	Sections 2.1, 2.2 and Section 6.1
d) Results of all monitoring undertaken that year required by Conditions 19, 20 and 21 of this consent (if applicable), including a comprehensive analysis of the monitoring results, assessment against any relevant guidelines and comparison with previous years' results (i.e. trend analysis);*	Section 2.5 and Section 3.2
e) Details of any trigger levels or compliance limits that were reached (if occurred that year);	Section 2.5
f) Details of any actions and/or mitigation/adaptive management taken in response to trigger levels or compliance limits being reached, including an assessment of the effectiveness of these actions and/or mitigation/adaptive management;	Section 2.5 and Section 3.2
g) Any recommendations for changes to the Waikanae River Baseline Monitoring Plan or the On-going Mitigation Plan (as relevant), including triggers, compliance limits or actions and/or mitigation measures or changes to the operations and maintenance manual, including recommendations of the Adaptive Management Group (referred to in Condition 26 of this consent);	Section 6.2 and Section 7, 7.1.1 and 7.2
h) A discussion on any mitigation/adaptive management that may be required in the coming year;	Section 7
i) Summary of any maintenance undertaken.	Section 6.1
The annual Waikanae River report can be combined with the annual River Recharge report required by the conditions of discharge permit WGN130103 [35975]. The annual Waikanae River report shall be made available to the public on the Kāpiti Coast District Council website no later than 30 September each year, or by another date as agreed with the Manager. Note: The consent holder is only required to report on the listed requirements of this condition if they have occurred during that compliance year (1 July to 30 June inclusive). Note: The consent holder may request, with the Manager's approval, an extension of time to submit the annual report to the Manager and make it available to the public on the website, if the Adaptive Management Group requires more time to consider the draft annual report and provide their recommendations as required by part (g) of this condition.	Refer www.kapiticoast.govt.nz

**Conditions 19 and 20 due to completion of Baseline monitoring*

Table 25: Requirements for Annual River Recharge report

Condition 26 of Consent WGN130103 [35975]	Section in this Annual Report
The consent holder shall, no later than 30 September each year that a discharge to the river occurs, submit an annual River Recharge report to the Manager, or by another date as agreed with the Manager. The annual River Recharge report shall report on the year 1 July to 30 June inclusive, and include the following information:	
a) Records of the instantaneous rate of discharge (L/s), and total daily volumes (m^3) of discharge	Section 2.3
b) Dates, times and duration of discharge	Section 2.3
c) Information to demonstrate compliance with the rate of discharge specified in Condition 5	Section 2.3
d) Flow and river recharge information to demonstrate compliance with the Waikanae River low flow specified in Condition 12 of this consent	Section 2.4
e) Results of all monitoring undertaken that year required by Conditions 22* or 23 of this consent (if applicable), including a comprehensive analysis of the monitoring results, assessment against any relevant guidelines and comparison with previous years' results (i.e. trend analysis)	Section 2.5 and Section 3.2
f) Details of any trigger levels or compliance limits that were reached (if occurred that year)	Section 2.5
g) Details of any actions and/or mitigation/adaptive management taken in response to trigger levels or compliance limits being reached, including an assessment of the effectiveness of these actions and/or mitigation/adaptive management	Section 2.5 and Section 3.2
h) Any recommendations for changes to the Waikanae River Baseline Monitoring Plan or the On-going Mitigation Plan as relevant), including triggers, compliance limits or actions and/or mitigation measures or changes to the operations and maintenance manual, required by Condition 17 to be discussed with the Adaptive Management Group (as required by Condition 27 of this consent)	Section 6.2 and Section 7, 7.1.1 and 7.2
i) A discussion on any mitigation/adaptive management that may be required in the coming year	Section 7
j) Summary of any maintenance undertaken	Section 6.1
The annual River Recharge report may be combined with the annual Waikanae River report required by consent WGN130103 [35974]. The annual River Recharge River report shall be made available to the public on the Kāpiti Coast District Council website by 30 September each year, or by another date as agreed with the Manager. Note: The consent holder may request, with the Manager's approval, an extension of time to submit the annual report to the Manager and make it available to the public on the website, if the Adaptive Management Group requires more time to consider the draft annual report and provide their recommendations as required by part (g) of this condition.	Refer www.kapiticoast.govt.nz

**Condition 22 is not applicable due to completion of Baseline monitoring.*

Table 26: Requirements for Annual Waikanae Borefield report

Condition 42 of Consent WGN130103 [35973]	Section in this Annual Report
The consent holder shall, by 30 September each year, submit an annual Waikanae Borefield report to the Manager, or by another date as agreed with the Manager. The annual Waikanae Borefield report shall report on the year 1 July to 30 June inclusive, and include the following information:	
a) A copy of the records to demonstrate compliance with Condition 20 of this consent;	Sections 3.1 and 3.3
b) Details of the use (including daily and total volumes of groundwater abstracted) and reasons for that use of the water from the Borefield;	Section 3.1
c) A summary of Waikanae River flow gauging required by Condition 25 of this consent, if undertaken that year; *	Section 3.2
d) Results of all monitoring undertaken that year required by conditions of this consent (if applicable), including a comprehensive analysis of the monitoring results, assessment against any relevant guidelines and comparison with previous years' results (i.e. trend analysis);	Sections 3, 4 and 5
e) Results or evidence to demonstrate compliance with Condition 7 of this consent	Section 3.6
f) Details of any trigger levels or compliance limits that were reached (if occurred that year) and specifically the findings of saline monitoring compared with the 'alert', 'action' or 'cease' triggers;	Sections 3 and 4
g) Details of any actions and/or mitigation/adaptive management taken in response to trigger levels or compliance limits being reached, including an assessment of the effectiveness of these actions and/or mitigation/adaptive management;	Sections 3, 4 and 5
h) Any recommendations for changes to the monitoring plan required by conditions of this consent, including triggers, compliance limits or actions and/or mitigation measures or changes to the operations and maintenance manual, required by Condition 19 of this consent, including any recommendations of the Adaptive Management Committee (referred to in Condition 43 of this consent);	Section 6.2, Section 7.1.2, 7.1.3, 7.1.4, and 7.2
i) A discussion on any mitigation/adaptive management that may be required in the coming year;	Section 7
j) A copy of the complaints record required by Condition 45 of this consent;	Section 3.7
k) Summary of any maintenance undertaken.	Section 6.1
The annual Waikanae Borefield report shall be made available to the public on the Kāpiti Coast District Council website by 30 September each year, or by another date as agreed with the Manager. Note: The consent holder may request, with the Manager's approval, an extension of time to submit the annual report to the Manager and make it available to the public on the website, if the Adaptive Management Group requires more time to consider the draft annual report and provide their recommendations as required by part (h) of this condition.	Refer www.kapiticoast.govt.nz

** Condition that may change following S127*

In addition to the above consents, Council holds resource consent WGN050025 [33147] to abstract groundwater from two wells (PW1 and PW5) for the purpose of back up water supply for the communities of Waikanae, Paraparaumu and Raumati. Requirements of Condition 15 are discussed in Section 4.6

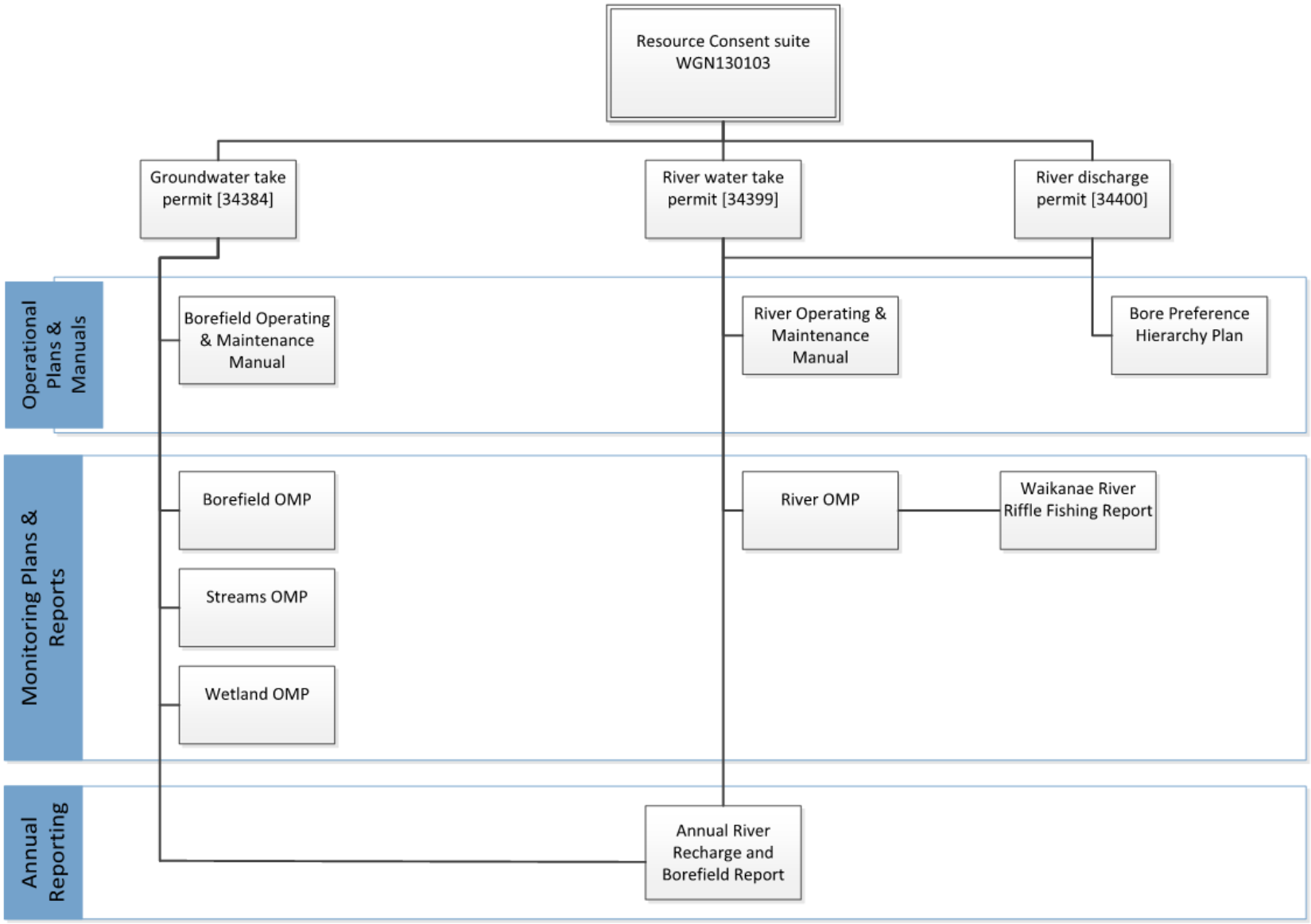
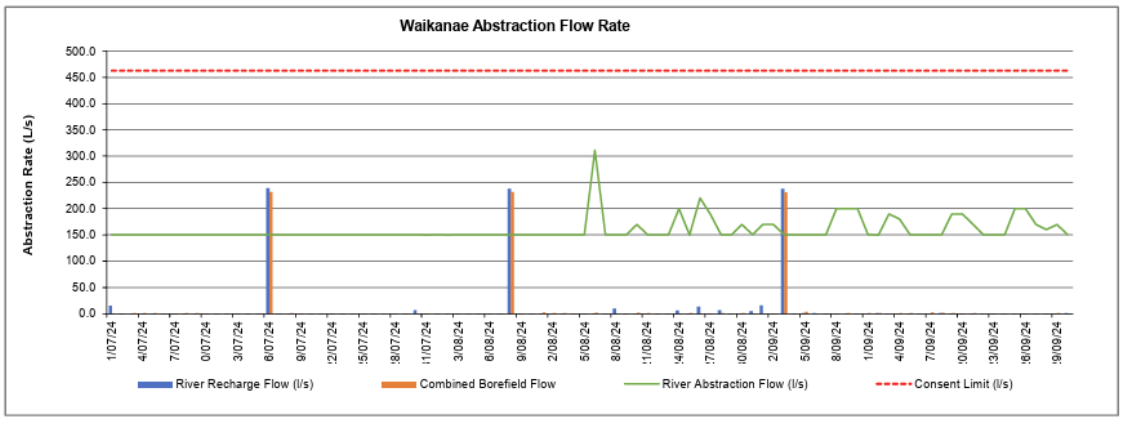


Figure 14: Key documents for RRwGW consent and ongoing monitoring

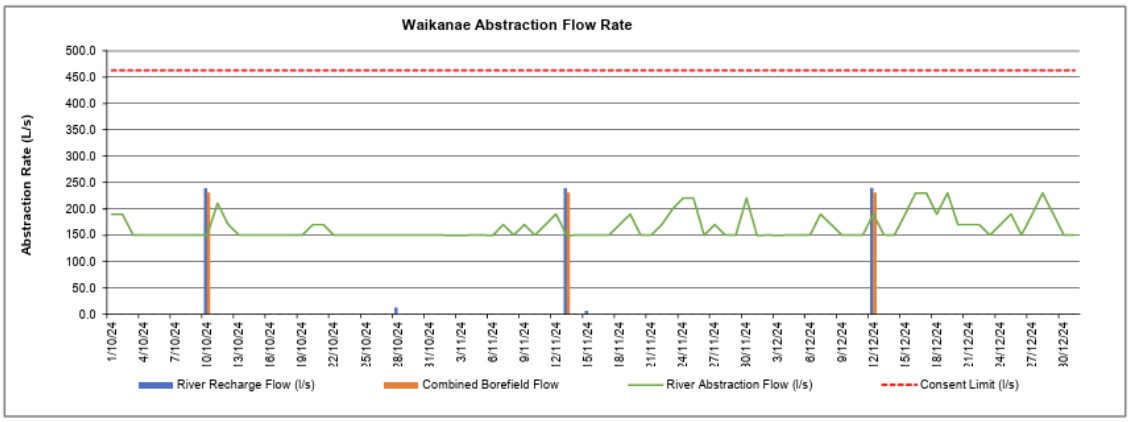
Appendix B

Summary of quarterly reporting

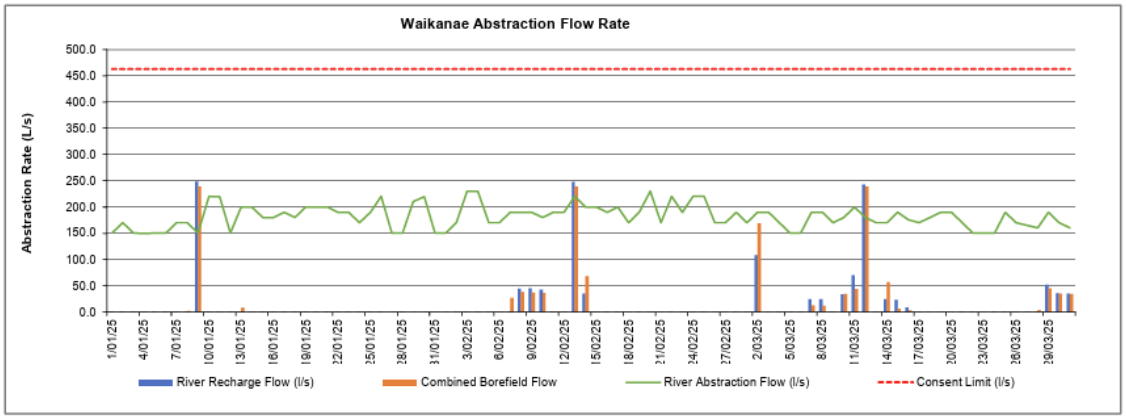
Period of report: **1-Jul-24 to 30-Sep-24**



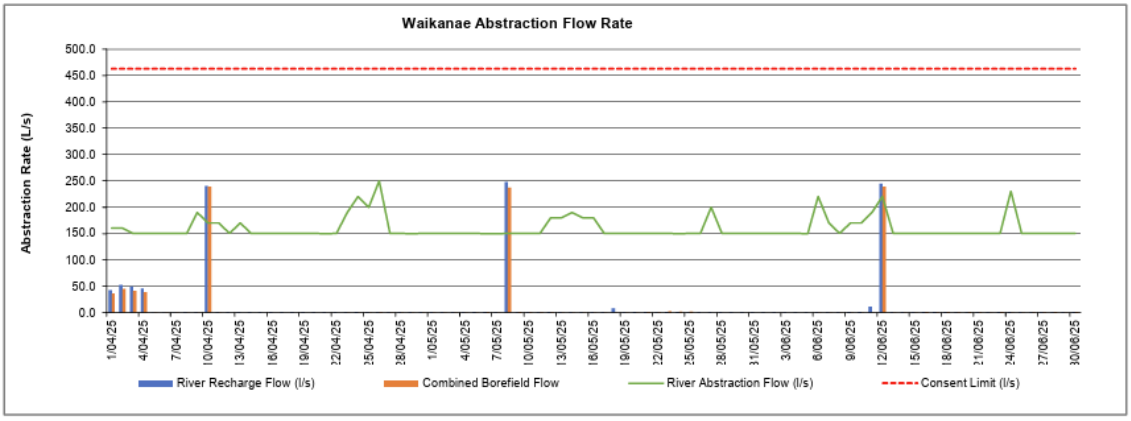
Period of report: **1-Oct-24 to 31-Dec-24**



Period of report: **1-Jan-25 to 31-Mar-25**



Period of report: **1-Apr-25 to 30-Jun-25**



Appendix C

Technical Reports

Ongoing Mitigation Plan for Small Coastal Streams Potentially Affected by the Kāpiti Water Supply RRwGW Scheme

Contract Report No. 7086d

Providing outstanding ecological services to sustain and improve our environments

Wildlands

Ongoing Mitigation Plan for Small Coastal Streams Potentially Affected by the Kāpiti Water Supply RRwGW Scheme

Contract Report No. 7086d

June 2025

Project Team:
Richard Storey – Report author and technical adviser
Tessa Roberts – Report review

Prepared for:
Kāpiti Coast District Council
175 Rimu Road
Paraparaumu 5032

Reviewed and approved for release by:

Sarah Budd
Principal Ecologist, Auckland Ecology Team Leader and Coordinator
Wildland Consultants Ltd
24/06/2025

Cite this report as follows:

Wildland Consultants (2025). *Ongoing mitigation plan for small coastal streams potentially affected by the Kāpiti water supply RRwGW scheme.* Wildland Consultants Contract Report No. 7086d. Prepared for Kāpiti Coast District Council. 13pp.

Auckland Office
12 Nixon Street, Grey Lynn, P.O. Box 46299, Herne Bay, Ph 09 360 6083

Head Office
99 Sala Street, PO Box 7137, Te Ngae, Rotorua Ph 07-343-9017 Email: rotorua@wildlands.co.nz

www.wildlands.co.nz

Contents

1.0 Introduction and Background

Kāpiti Coast District Council (KCDC) initiated the River Recharge with Groundwater (RRwGW) scheme in 2017 to address potable water shortages. The project involves increasing the potable water take from the Waikanae River and then recharging the river with groundwater extracted from the underlying aquifer complex. The borefield that may be used to recharge the Waikanae River includes eight borewells in current use (K4-K12,N2) and three proposed borewells (N3, S1-2) (Figure 1).

Water abstraction from the aquifer may potentially lead to water loss, habitat loss and effects on fish and aquatic macroinvertebrates in the small streams associated with the aquifer complex. At the time the consent was granted, these potential effects were not well understood. Therefore, to develop a better understanding and enable the potential effects to be managed, resource consent condition 35 (Consent WGN130103 [34384]) of the RRwGW scheme required the preparation of a Small Coastal Streams Ongoing Mitigation Plan (Streams OMP).

The Small Coastal Streams Baseline Monitoring Summary Report (CH2M Beca, 2017) examined the connections between groundwater and four small coastal streams (Hadfield, Kakariki, Ngarara and Muaupoko Streams). It concluded that among these, only the Ngarara Stream showed a response to the groundwater abstractions that are currently operating as part of the RRwGW scheme, while the Muaupoko Stream may be affected by future abstractions from two proposed borewells. Therefore, it recommended that until borewells S1 and S2 are developed, monitoring should continue and trigger values should be set only at the Ngarara site. On this basis, a Small Coastal Streams OMP was prepared by Boffa Miskell (2019) that outlines an on-going monitoring regime for the Ngarara Stream and sets ‘alert’, ‘action’ and ‘cease’ triggers for further monitoring and water management actions to ensure that this stream is protected from any adverse effects of the RRwGW. Table 1 shows the trigger levels for the Ngarara monitoring site recommended in the Small Coastal Streams OMP.

Due to interventions made by KCDC, water use has dropped to the point that the RRwGW has not been activated in the last ten years. However, since the Small Coastal Streams OMP was written, two significant changes have potentially affected the water levels in the Ngarara Stream, and hence the trigger levels recommended in the OMP. The first is the removal in September 2022 of a blocked culvert in “Black Drain” that had been slowing water flow, and hence raising water levels, in the Ngarara Stream. The second is the progressive residential development of part of the Ngarara catchment near Kakariki Stream, which may have altered surface runoff and groundwater recharge dynamics in the area. This is a possible reason for the progressive drying of the nearby Nga Manu wetland.

The requirement to update wetland monitoring methods and baseline data has also prompted the need for a review of the OMP for the Waikanae River and small coastal streams, to determine if baseline data and monitoring methods remain appropriate.

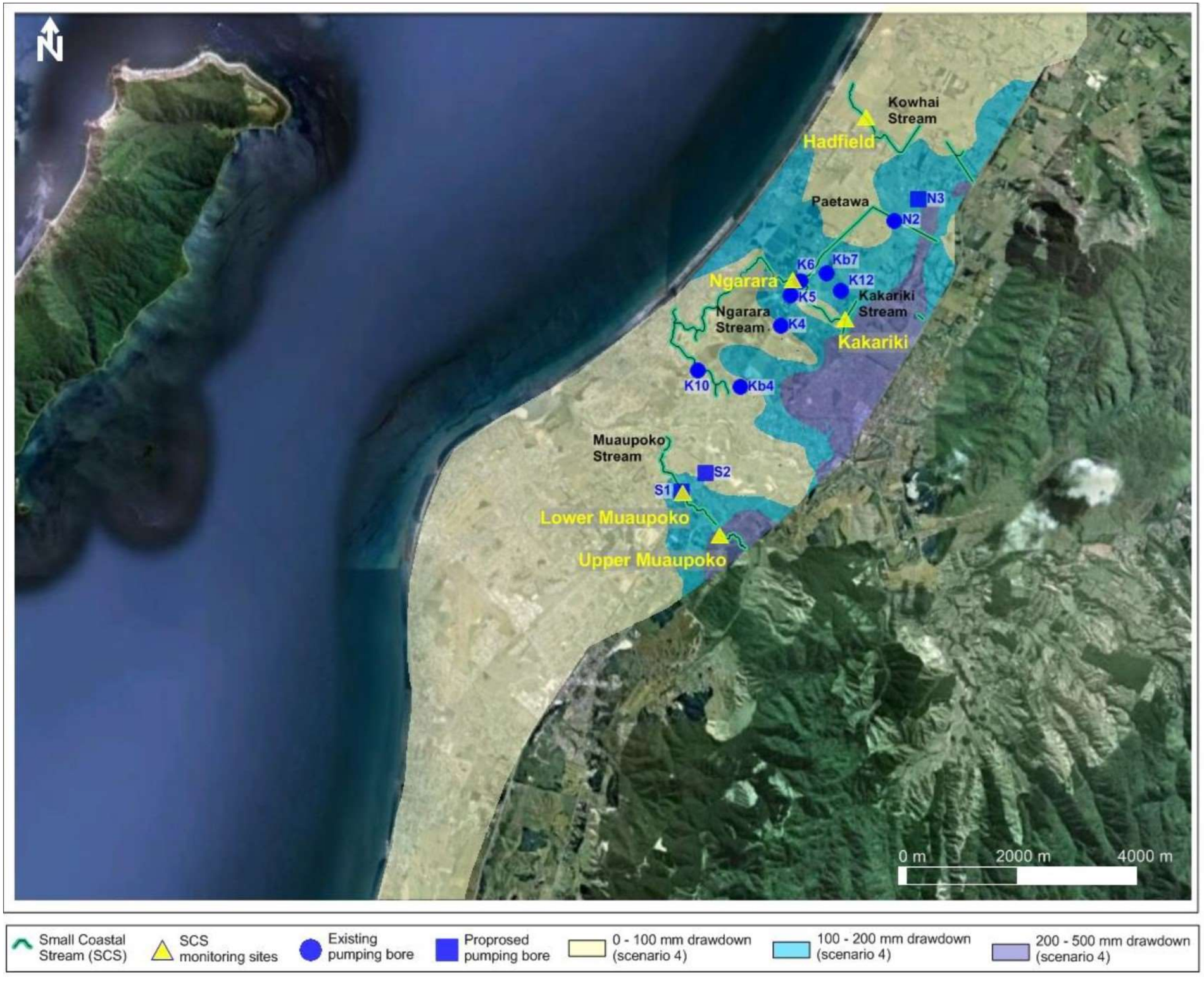


Figure 1 – Map of the area potentially affected by groundwater pumping for recharge of the Waikanae River, showing the locations of the borewells and the original monitoring sites (copied from CH2M Beca 2017).

Table 1 – Trigger levels for the Ngarara surface water and shallow groundwater monitoring sites, as recommended by the Small Coastal Streams OMP (Boffa Miskell 2019).

Level	Trigger value	Action
Alert	Water level in the shallow piezometer is 200 millimetres below the lowest recorded shallow groundwater level for historic monitoring results minus 15% of the range in water levels recorded.	1. Determine whether low water level is due to pumping. 2. Measure stream depths and water level at staff gauge as described below. 3. Read staff gauge fortnightly.
Action	35th percentile of stream depth measurements* is less than 300 millimetres, determined from staff gauge measurement.	1. Determine whether low water level is due to pumping. 2. Repeat measurements of stream depth and water level at staff gauge. 3. Read staff gauge weekly. 4. Adjust pumping rates from borewell.
Cease	35th percentile of stream depth measurements* is less than 150 millimetres, determined from static staff gauge measurement.	1. Cease pumping from borewells K5 and K6. 2. Determine whether low water level is due to pumping. 3. Repeat measurements of stream depth and water level at staff gauge. 4. Read staff gauge daily.

*stream depth is measured at three points across the stream (25 percent, 50 percent and 75 percent of the stream width), on 50 cross sections spaced 2 metres apart, starting at 50 metres downstream of the monitoring station and ending 50 metres upstream of the monitoring station. This gives a total of 150 depth measurements. Water level on a staff gauge at the monitoring station is recorded at the same time so that changes in the depth measurements can be inferred from changes in water level at the staff gauge.

2.0 Project Objective and Scope

The objectives of this project were to determine:

- Whether the water levels in the Ngārara Stream have been affected by the recent changes to the Ngārara Stream and catchment.
- If so, whether any changes require a revision of the location of the monitoring site, or the baseline and mitigation trigger levels for the current monitoring site on the Ngārara Stream.
- Whether any further data are needed to meet the first two objectives.

3.0 Methods

The following steps were undertaken:

- Review the Baseline Monitoring report (Beca 2017) and the Small Coastal Streams OMP (Boffa Miskell 2019).
- Assess the options for the monitoring site location.
- Analyse surface water and groundwater data from the small coastal stream in the Ngārara catchment in relation to the clearance of Black Drain and the progressive development of the upper catchment. The effect of each of these factors on water level was determined by adding each as a "fixed factor" to a linear model that related stream water level and rainfall in the statistics package "R".
- Review the trigger levels and actions for Small Coastal Streams in Boffa Miskell (2019).

4.0 Assessment of Monitoring Data

4.1 Water levels in the Ngarara stream and shallow piezometer

According to the monitoring records from 1 November 2018 to 21May 2025, the water level in the stream was very closely correlated with the water level in the shallow piezometer (Figure 2). Figures 2 and 3 show that the piezometer level responds to rainfall with minimal delay, when compared with the response in the stream water level. The dataset with a 15-minute time step shows that the water level in the piezometer peaks within 15 minutes of the peak water level at the stream surface, though (as can be seen by the "loops" in Figure 2), it may decline more slowly than the stream surface water level after the peak has passed. These results show the very close connection between the shallow groundwater and the stream, and indicate that trigger levels could be based on either stream level or piezometer level. The main difference between the stream and piezometer water levels is that the stream water level responds 1.69 times more strongly than the piezometer water level following a rain event (Figures 3 and 4).

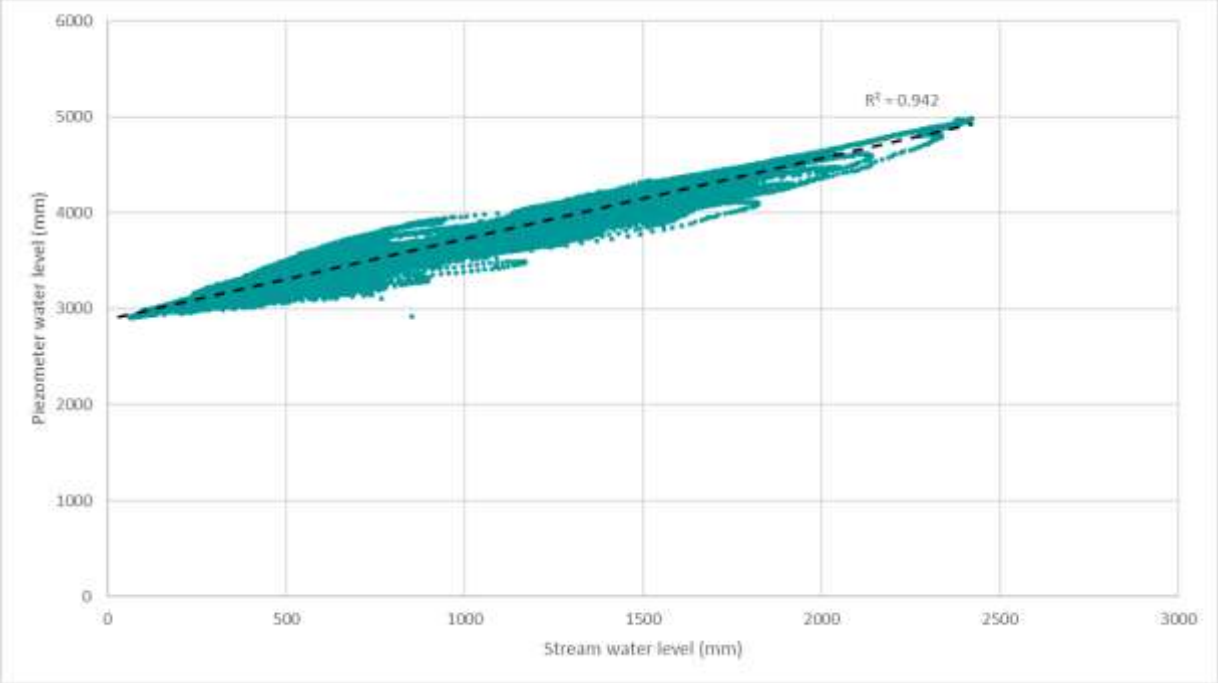


Figure 2 – Relationship between piezometer and stream water levels over the entire monitoring period (1 November 2018 to 21 May 2025) at a 15-minute time step. Dashed line is the "line of best fit" between piezometer and stream water level. R^2 relates to the goodness of fit (a perfect fit is R^2=1).

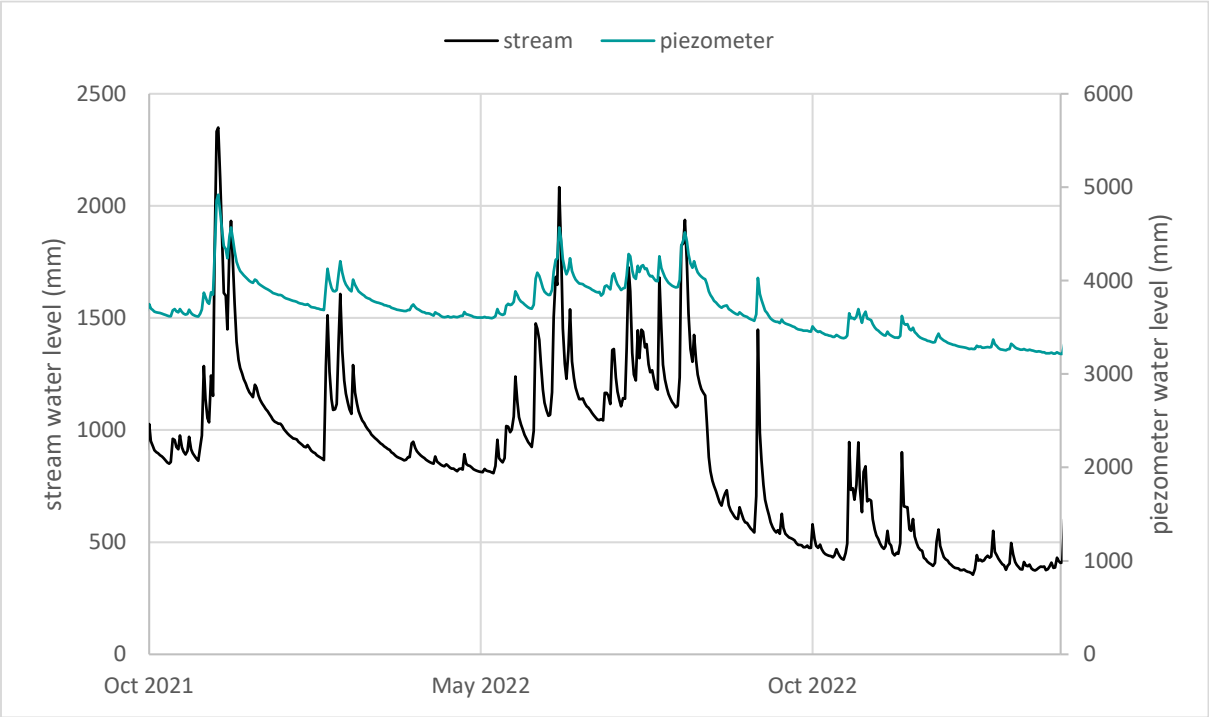


Figure 3 – Water levels in the stream and shallow piezometer at the Ngarara Stream during an example period (October 2021 to 15 March 2023).

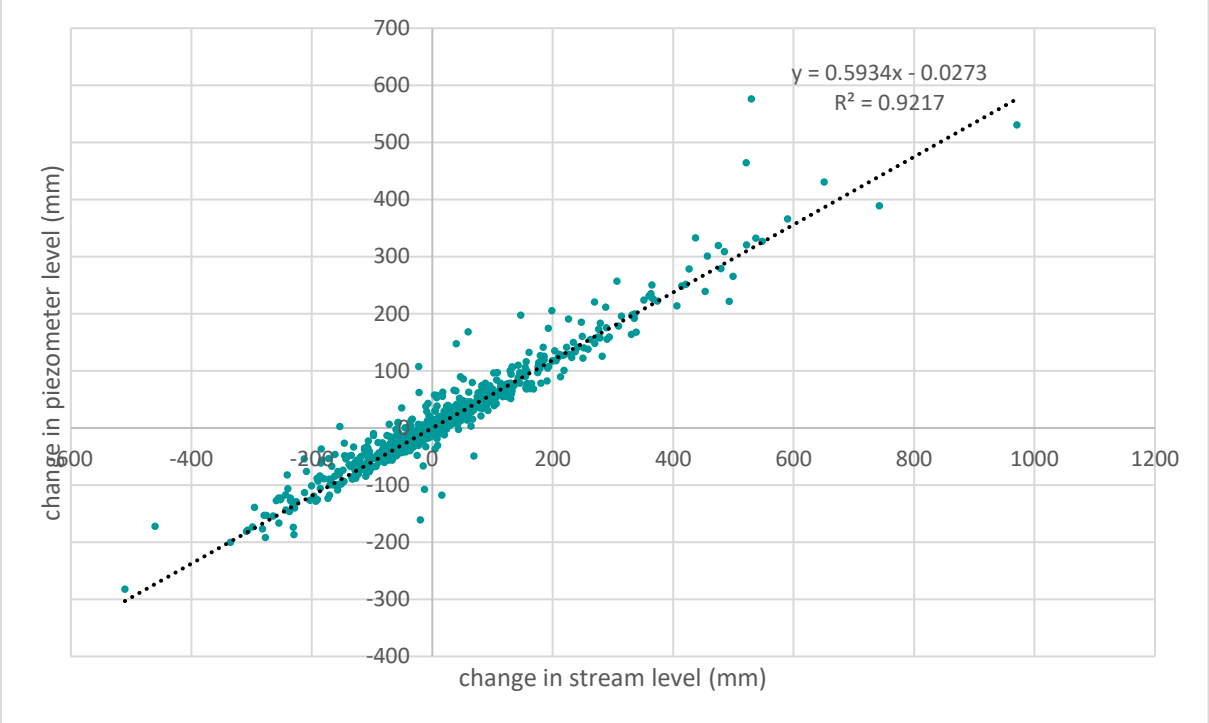


Figure 4 – Change over 24 hours in piezometer level vs. change over 24 hours in stream level during the entire monitoring period (1 November 2018 to 22 June 2024). Dashed line is "line of best fit" between piezometer and surface water level. R^2 relates to the goodness of fit (a perfect fit is R^2=1).

4.2 Effect of clearing the Black Drain culvert

Following the clearance of the Black Drain culvert, the relationship between stream level and rainfall changed noticeably (Figure 5). A linear model between stream water level (dependent variable) and rainfall (total over the past two weeks; independent variable) with culvert clearance as a fixed factor was run with the following code in R:

model <- lm(water level ~ Rainfall_2wk + Clearance)

The model output for the stream water level and piezometer water level are shown in Tables 2 and 3.

Table 2 – Model output for the linear model relating stream water level and rainfall, with clearance of the Black Drain as a fixed factor.

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	775.8804	5.3135	146.02	<2e-16 ***
Rainfall_2wk	6.6867	0.1474	45.37	<2e-16 ***
Clearance: yes	-494.2450	6.9703	-70.91	<2e-16 ***

Table 3 – Model output for the linear model relating piezometer water level and rainfall, with clearance of the Black Drain as a fixed factor.

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	3516.5635	5.8862	597.43	<2e-16 ***
Rainfall_2wk	6.1426	0.1631	37.65	<2e-16 ***
Clearance: yes	-365.9169	7.7225	-47.38	<2e-16 ***

These results indicate that clearing the culvert had a highly significant effect on the water level in both the Ngarara Stream and piezometer, and that the water level in the stream and piezometer were 494 millimetres and 366 millimetres lower, respectively, after the culvert clearance than before.

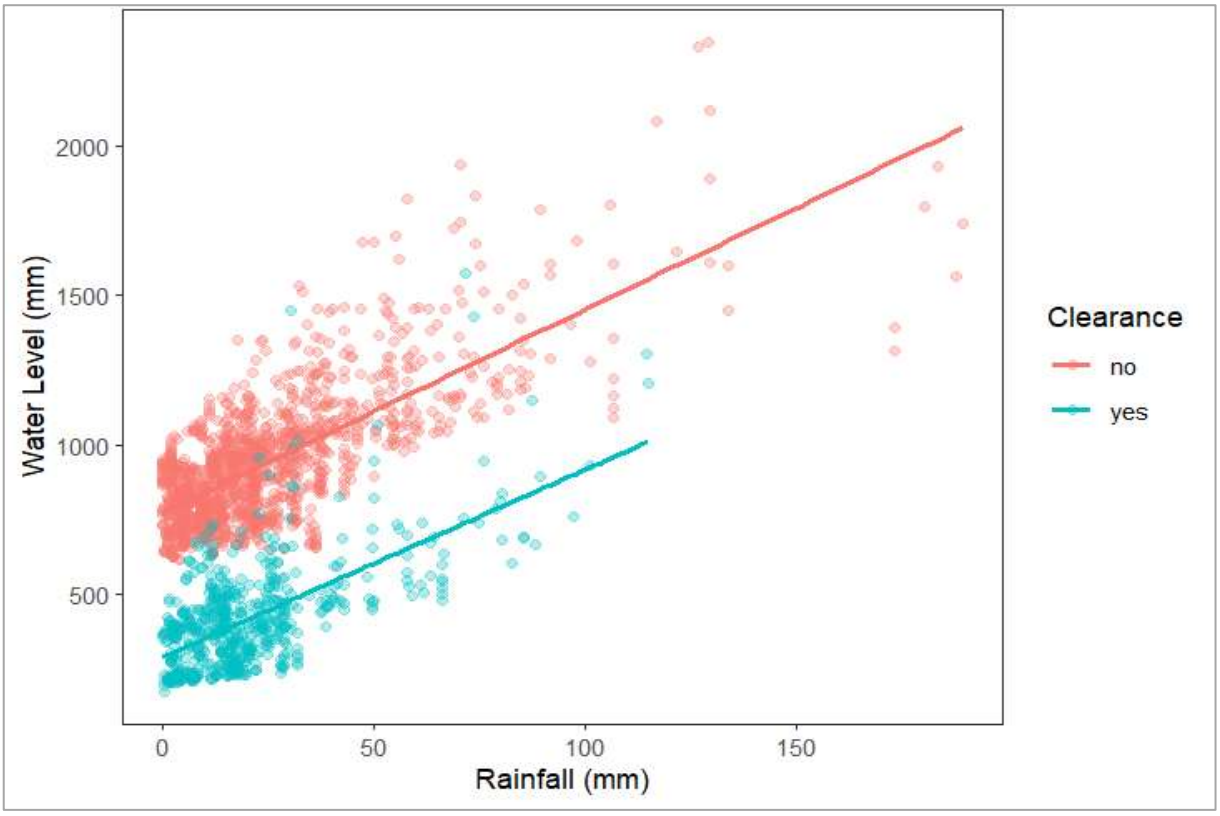


Figure 5a – Relationship between rainfall (total over the past two weeks) and water level in the stream, before and after the Black Drain culvert was cleared.

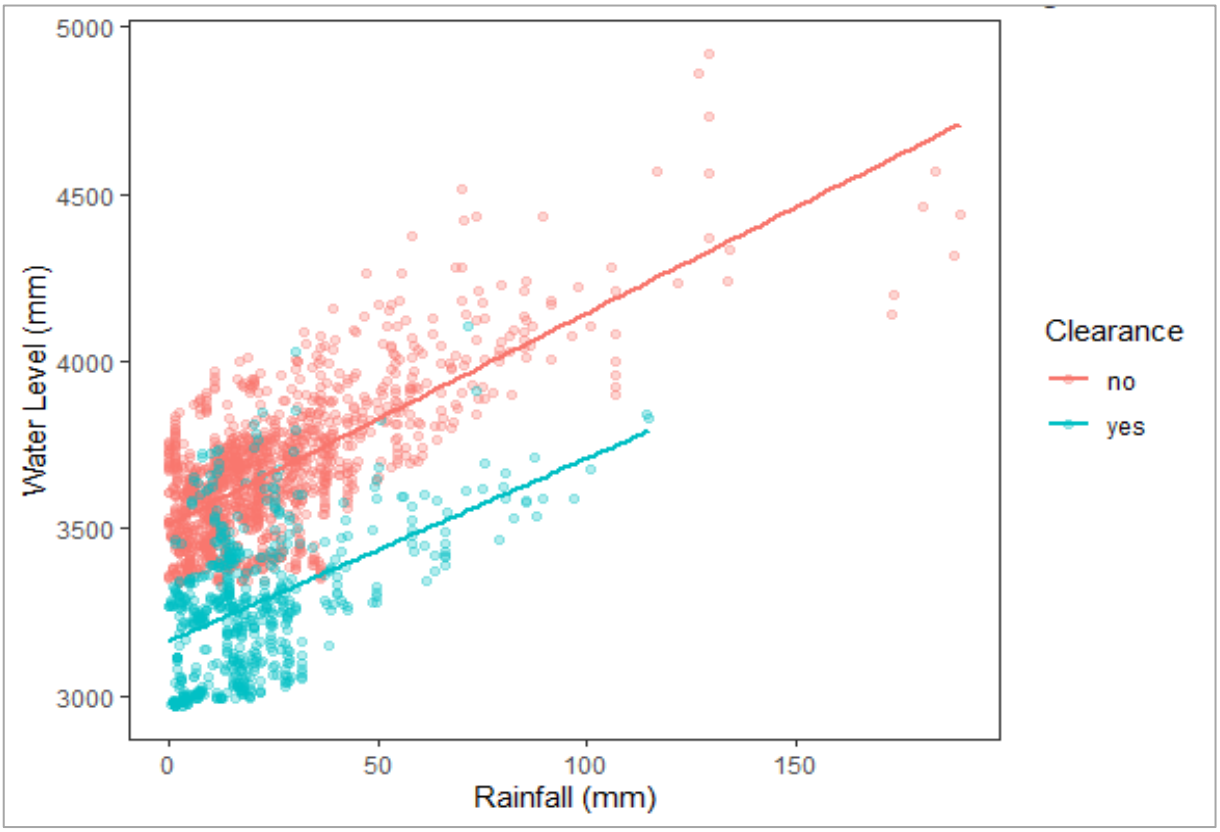


Figure 5b – Relationship between rainfall (total over the past two weeks) and water level in the piezometer, before and after the Black Drain culvert was cleared.

4.3 Effect of development in the upper catchment

Since development of the upper catchment has been increasing progressively over time, date (days since the start of the monitoring period) was used as a surrogate for development. The same linear model was run, but with "days" added as an interaction term:

model2 <- lm(water level ~ Rainfall_2wk * Days + Clearance)

The model output for the stream water level and piezometer water level are shown in Tables 4 and 5.

Table 4 – Model output for the linear model relating stream water level and rainfall, with clearance of the Black Drain as a fixed factor and "Days" (i.e. time since the start of the monitoring record), a surrogate variable representing progressive development of the catchment, as a second factor.

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	7.097e+02	1.088e+01	65.225	<2e-16 ***
Rainfall_2wk	6.376e+00	4.274e-01	14.918	<2e-16 ***
Days	1.060e-01	1.133e-02	9.362	<2e-16 ***
Clearance: yes	-6.028e+02	1.167e+01	-51.636	<2e-16 ***
Rainfall_2wk*Days	2.919e-05	3.550e-04	0.082	0.934

Table 5 – Model output for the linear model relating stream water level and rainfall, with clearance of the Black Drain as a fixed factor and "Days" (i.e. time since the start of the monitoring record), a surrogate variable representing progressive development of the catchment, as a second factor.

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	3.443e+03	1.181e+01	291.561	<2e-16 ***
Rainfall_2wk	4.961e+00	4.636e-01	10.701	<2e-16 ***
Days	1.280e-01	1.230e-02	10.408	<2e-16 ***
Clearance:yes	-5.124e+02	1.266e+01	-40.488	<2e-16 ***
Rainfall_2wk*Days	7.165e-04	3.856e-04	1.858	0.0633

The low t value (0.082) and high p value (>0.05) on the final line of each model output indicate that time since the start of the monitoring period was not significant, i.e. progressive development of the catchment has not significantly altered the water level in the Ngarara Stream. Therefore, for the current purpose, the effect of development on the piezometer water level can be safely ignored.

5.0 Comments on Current Trigger Levels

Currently the trigger for the Alert level is "200 millimetres below the lowest recorded shallow groundwater level for historic monitoring results minus 15% of the range in water levels recorded."

The wording does not specify whether "historic monitoring results" should be based on daily averages or on the raw data, which is recorded at 15 minute intervals. However, the difference between these is only 14 millimetres, which is less than 1 percent of the range and therefore is not considered to be important. In Table 2 the 15 minute raw data are used. More importantly, it is not clear whether the wording means

1) Lowest recorded shallow groundwater level minus 200 millimetres minus 15% of the range; or
2) Lowest recorded shallow groundwater level minus (200 millimetres minus 15% of the range).

It is assumed that the first interpretation is intended. However, this must be clarified because, as shown in Table 6, the difference between the first and second interpretations may be 400 millimetres or more.

Table 6 – Alert trigger level for the Ngarara shallow piezometer, as recommended by the Small Coastal Streams OMP (Boffa Miskell 2019), using monitoring data before and after clearance of the Black Drain culvert.

	Pre-clearance	Post-clearance
Lowest recorded shallow groundwater level	2921 mm	2907 mm
Range of water levels	2063 mm	1289 mm
15% of range	309 mm	193 mm
Trigger level (below lowest level) - interpretation 1	509 mm	393 mm
Trigger level (absolute) – interpretation 1	2412 mm	2514 mm
Trigger level (below lowest level) - interpretation 2	-109 mm	-7 mm
Trigger level (absolute) – interpretation 2	3030 mm	2900 mm

The Small Coastal Streams OMP gives no justification for choosing this Alert trigger level. It is noted that basing calculations on the lowest recorded value in the entire monitoring dataset and the range of water levels over the entire monitoring dataset makes the trigger level highly sensitive to extreme low and high water levels, and means it is likely to change over time. It is also noted that setting the trigger level lower than the lowest recorded water level appears to not provide enough protection to instream values.

The OMP also gives no justification for the stream depth values set for Action and Cease take triggers. It is unclear how the values of 300 millimetres and 150 millimetres were chosen as trigger values for Action and Cease levels, or how the 35th percentile of all depth values was chosen as the representative value to compare with the trigger values. No references to ecological literature were given in relation to the chosen thresholds.

The OMP also states that monitoring data should be checked to determine whether the production bores are the cause of a trigger level being exceeded, but it provides no advice on how cause can be determined. Given that the Baseline Monitoring Report has already demonstrated a connection between groundwater pumping and stream water levels, it is questioned whether this step is necessary.

6.0 Conclusions and Recommendations

6.1 Location of monitoring station

Since the Baseline Monitoring Report indicated that Ngarara was the only one of the locations surveyed that appeared to be affected by currently operating borewells, it is recommended to retain Ngarara as the location for monitoring the potential effects of groundwater pumping.

6.2 Stream or shallow groundwater level

Since the stream and the shallow piezometer water levels are so closely linked, either one could be used to set trigger levels. However, it should be noted that the raw data contain some clearly erroneous values, so these should be carefully removed before calculating trigger values or determining whether trigger values have been crossed.

6.3 Effect of clearing the Black Drain culvert

Following clearance of the culvert at Black Drain, water level in the Ngarara shallow piezometer has dropped by 366 millimetres. Therefore, the new trigger levels should be based on monitoring data since the culvert clearance.

6.4 Recommended trigger levels

It is recommended that the trigger levels should be set in relation to the mean of the annual lowest level in the piezometer (Table 3). This level should be determined using all monitoring data since 9 September 2022 (when the Black Drain culvert was cleared), noting that the dataset must be checked and any erroneous values removed before calculations are performed. The mean annual low water level in the piezometer is somewhat equivalent to mean annual low flow in streams, which is typically used to set limits on water takes in surface waters.

6.5 Ecological effects of recommended trigger levels

The trigger levels recommended in Table 3 have been set to align with minimum flow limits commonly used for surface water takes from streams and rivers in New Zealand. The effect of different water levels on the fish and macroinvertebrates in the Ngarara Stream can be assessed using a habitat suitability model called SEFA (System for Environmental Flow Analysis; Jowett Consulting; www.sefa.co.nz). This is a well-known and recognised system for determining the impacts of flow abstractions on stream biota. It is based on detailed measurements of water depth and velocity at 10-15 stream cross sections, combined with established habitat suitability curves for a variety of fish and macroinvertebrate species. If resources are available, it could be used to further refine the trigger values in Table 7 before they are implemented, or could be used to better understand the effects of the recommended trigger levels.

Table 7 – Recommended trigger levels for the Ngarara surface water and shallow groundwater monitoring sites.

Level	Trigger value	Action
Alert	Water level in the shallow piezometer is at the mean lowest annual level, as determined from monitoring data since 9 Sept 2022.	Start to reduce pumping rate in borewells K5 and K6
Action	Water level in the shallow piezometer is at the mean lowest annual level, minus 50 millimetres*.	Further reduction in pumping rate in borewells K5 and K6.
Cease	Water level in the shallow piezometer is at the mean lowest annual level, minus 100 millimetres*.	Cease pumping from borewells K5 and K6.

* the range of mean annual low water levels in the piezometer is approximately 200 millimetres. Therefore, the mean annual low level minus 100 millimetres is close to the lowest water level recorded since September 2022.

References

Boffa Miskell. (2019). *Small Coastal Streams Aquatic Ongoing Mitigation Plan. Kāpiti Water Supply RRwGW Scheme. Prepared for Kāpiti Coast District Council*. 21 February 2019. 19 pp.

CHM Beca (2017). *Small Coastal Streams Baseline Monitoring Summary Report (Consent WGN130103 [34384]).* Prepared for Greater Wellington Regional Council On behalf of Kāpiti Coast District Council. 5 September 2017. 54 pp.

Call Free 0508 WILDNZ
Ph +64 7 343 9017
Fax +64 7 349018
ecology@wildlands.co.nz

99 Sala Street
PO Box 7137, Te Ngae
Rotorua 3042, New Zealand

Regional Offices located in Auckland; Christchurch;
Dunedin; Hamilton; Invercargill; Queenstown; Tauranga;
Wānaka; Wellington; Whangārei.

wildlands.co.nz

Wildlands

Wetland Baseline Monitoring for River Recharge Project Update and Expansion 2025

Contract Report No. 7086c

Providing outstanding ecological services to sustain and improve our environments

Wildlands

Wetland Baseline Monitoring for River Recharge Project Update and Expansion 2025

Contract Report No. 7086c

July 2025

Project Team:

Tessa Roberts – Project manager
Lily Tidwell – Report author
Joe Dillon – Field work and report author
Jo McQueen – Report review

Prepared for:

Kāpiti Coast District Council
175 Rimu Road,
Paraparaumu 5032

Reviewed and approved for release by:

Jo McQueen
Principal Ecologist
Wildland Consultants Ltd
04/07/2025

Cite this report as follows:

Wildland Consultants. (2025). *Wetland baseline monitoring for river recharge project update and expansion 2025*. Wildland Consultants Contract Report No. 7086c. Prepared for Kāpiti Coast District Council. 19pp.

Wellington Office
204 Thorndon Quay, Wellington 6011, Ph 04-237-7341

Head Office
99 Sala Street, PO Box 7137, Te Ngae, Rotorua Ph 07-343-9017 Email: rotorua@wildlands.co.nz

www.wildlands.co.nz

Contents

1.0 Introduction

1.1 River Recharge Project

Kāpiti Coast District Council (KCDC) initiated the River Recharge with Groundwater (RRwGW) Project in 2017 to address potable water shortages. The project involves increasing potable water take from the Waikanae River and then recharging the river with groundwater extracted from the underlying aquifer complex.

The potential effects of aquifer abstraction relate to water loss and thus potential habitat loss in the wetlands and small streams associated with the aquifer complex. There are also potential effects from adding groundwater to the Waikanae River, altering the habitat and aquatic life downstream of this point.

Within the current knowledge of these interconnected freshwater systems, potential effects of groundwater recharge cannot be fully understood. Thus, ongoing monitoring and adaptive management is needed to ensure that any effects of aquifer abstraction on wetlands, streams, and the Waikanae River are documented and responded to in a timely manner, as required by Conditions 21, 23, 32, and 35 of consent WGN130103 [34384].

1.2 Wetland Condition Monitoring

Resource consent condition 29 (Consent WGN130103 [34384]) for Kāpiti Coast District Council's (Council) RRwGW project required monitoring to be undertaken in accordance with the Wetland Baseline Monitoring Plan (Wetland BMP). That plan (Boffa Miskell 2017), certified by GWRC, among other things, required wetland condition monitoring (in accordance with on-going field-based plots). The baseline wetland monitoring assessment was carried out in 2015, 2016, and 2017, within two permeant condition monitoring plots in Nga Manu Reserve.

Once baseline conditions were established, condition monitoring was scheduled to be carried out every three years, according to the Wetland Ongoing Mitigation Plan (Boffa Miskell 2018). Monitoring locations, methodologies, and triggers across the three stages of the RRwGW project are described by Boffa Miskell (2018). After baseline, condition monitoring has been undertaken in 2021 (Boffa 2021) and 2024 (Wildland Consultants 2024).

The 2024 wetland monitoring survey (Wildland Consultants 2024) concluded that both Nga Manu wetland plots are drying out and shifting toward a dryland community, to the point where neither of the original plots now qualify as wetland. As the RRwGW scheme is not active, the changes in wetland communities must be related to other pressures occurring within the wider landscape.

Council has agreed to update the wetland condition baseline as a result of the 2024 conclusions. This is needed to remedy the fact that the original baseline plots have transitioned from wetland communities to dryland communities, and to increase the confidence in the wetland assessments by increasing the plots (data points) from two plots in one wetland to six plots in two wetlands. The second wetland is Lake Rawakahia and is within the Ngarara catchment.

The new wetland baseline monitoring plots were established this summer (2025) following the methods set out in the Ongoing Monitoring Plan (Boffa Miskell 2018). This report outlines the new wetland baseline data. This data will be used to develop trigger levels and cease abstraction compliance limits to manage effects on wetlands. The data is used to inform mitigation and/or adaptive management strategies that might be needed to protect the wetlands including "effects" triggers.

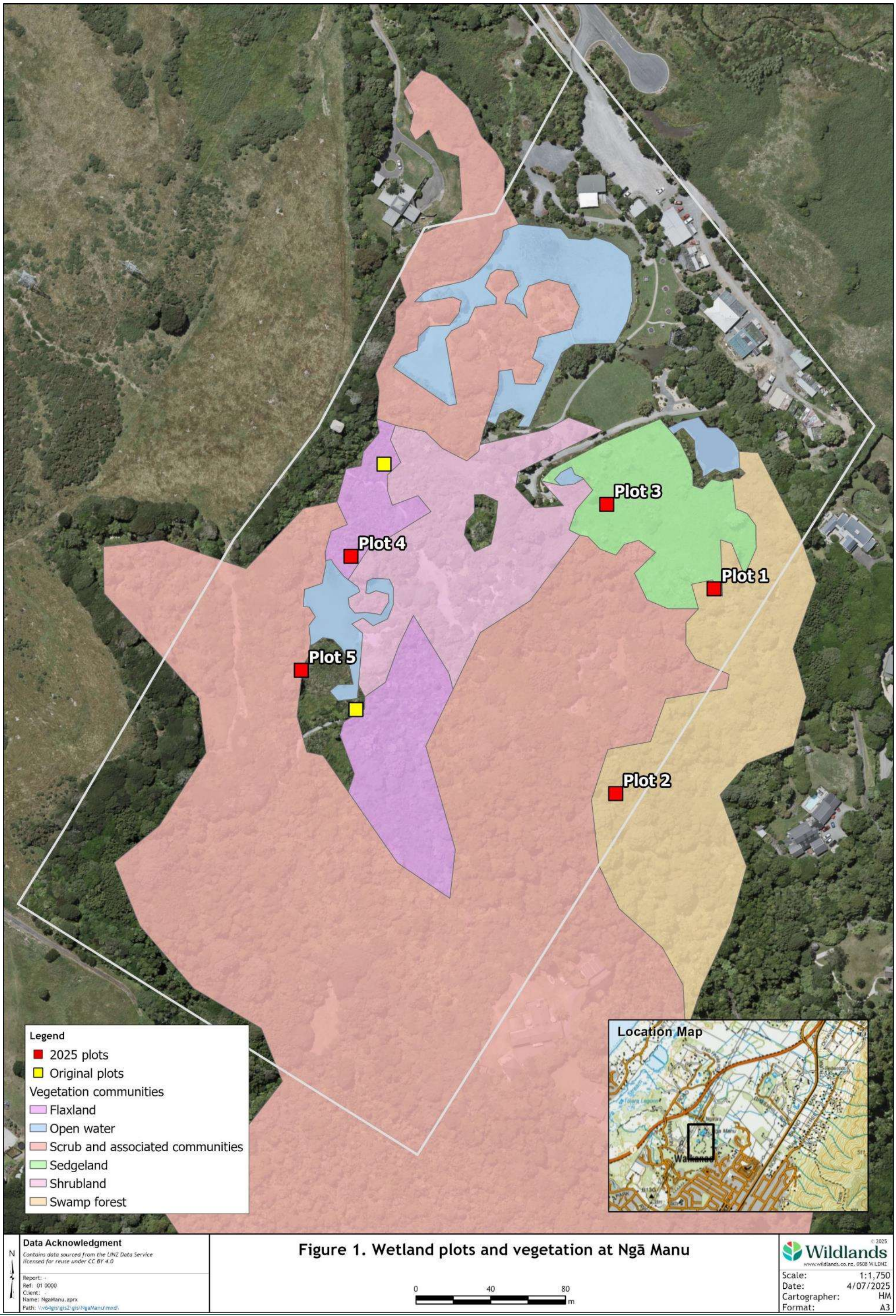


Figure 1. Wetland plots and vegetation at Ngā Manu

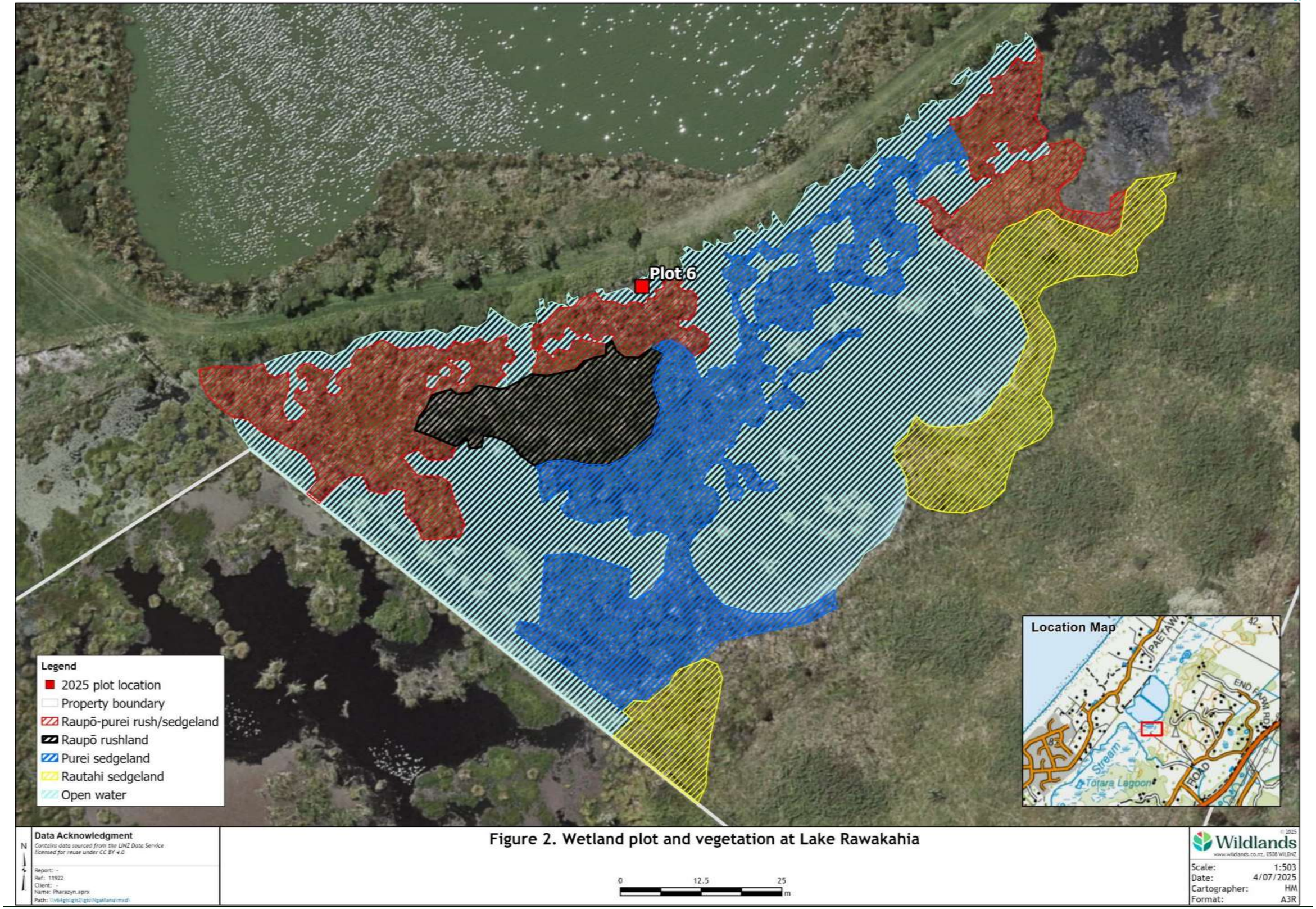


Figure 2. Wetland plot and vegetation at Lake Rawakahia

2.0 Methods

2.1 Plot Locations

Six new plots were established in late March 2025. Five plots were established in Ngā Manu (Figure 1), and one plot at Lake Rawakahia (Figure 2). Plot locations were based on the vegetation map produced in Wildland Consultants (2024) and chosen to include as much diversity as possible within the wetland systems.

At Ngā Manu, the plots were located in:

- Pukatea (*Laurelia novae-zelandiae*) swamp forest.
- Maire tawake (*Syzygium maire*) swamp forest.
- Rautahi (*Carex geminata*) sedgeland.
- Harakeke (*Phormium tenax*) flaxland.
- Raupō (*Typha orientalis*)-harakeke rushland.

At Lake Rawakahia, the plot was located in pūrei (*Carex secta*) sedgeland.

2.2 Wetland Condition Monitoring

As per the Baseline Monitoring Plan (Boffa Miskell 2017), Wetland condition monitoring is undertaken in accordance with Clarkson *et al.* (2004) at the required sites whenever a trigger level is exceeded, or every three years.

Wetland condition was measured at six plots in the wetlands and followed methodologies in 'The Handbook for Wetland Condition Monitoring' (Clarkson *et al.* 2004) and 'A Vegetation Tool for Wetland Delineation in New Zealand' (Clarkson 2013).

Each plot is 2 x 2m in size and permanently marked using long painted stakes.

Threats or pressures to the wetland such as changes in drainage on adjacent land, land use changes, stock access, or damage to the wetland were recorded, and all vascular plant species observed within the plots were noted.

Four indices from Clarkson (2013) were used in this assessment:

- **Wetland Condition Index** is measured at the wetland scale and scored out of a possible 25 points, with higher scores indicating better wetland condition. Scores relate to hydrological integrity, physio-chemical parameters, browsing, predation, intactness, and dominance of indigenous species. Soil and leaf litter analysis are not included in this monitoring.
- **Wetland Pressure Index** is measured at the catchment scale and scored out of a possible 30 points, with lower scores indicating better wetland condition. Scores relate to modification, water quality, animal access, surrounding land use, and pest plant presence.
- **Wetland Indicator Index** is measured in 2 x 2 metre plots and scored out of a possible 20 points, with higher scores indicating better wetland condition. Scores relate to canopy cover, understory, and species health sub-indices.

- **Wetland Prevalence Index is measured in 2 x 2 metre plots and scored from one to five, with lower** scores indicating a greater affinity of the plant community to water. A vegetation community is typically considered hydrophytic (a wetland) if it has a Prevalence Index score of three or lower. Scores relate to the percent cover of species in five indicator groups:
  - Obligate Wetland (OBL): > 99 % occurrence in wetlands.
  - Facultative Wetland (FACW): 67-99 % occurrence in wetlands.
  - Facultative (FAC): 34-66% occurrence in wetlands.
  - Facultative Upland (FACU): 1-33 % occurrence in wetlands.
  - Obligate Upland (UPL): < 1 % occurrence in wetlands.
- **Wetland Dominance Test** measures species abundances within a 2 x 2 metre plot and determines whether the dominant vegetation is hydrophytic using the same indicator groups as the Prevalence Index.

3.0 Results

Descriptions and photographs of each wetland condition plot are found in Appendix 1.

Raw data for each wetland condition plot are found in Appendix 2.

3.1 Monitoring Plots

All plots within the reset baseline consisted of wetland vegetation and were dominated by hydrophytes. The wetland Prevalence Index varied from 1.06 to 2.89. Two plots, Plot 1 and Plot 2, have inconclusive scores above the prevalence index of 2.5, however, both sites are part of swamp forest that seasonally contains standing water, and as such are hydrologically considered to be wetlands. All sites have high indicator scores, between 17 and 20, due to a low prevalence of exotic species (Table 1).

Table 1 – Monitoring results for Ngā Manu and Lake Rawakahia wetlands, 2025. Prevalence Index scores below three are indicative of a wetland, though values between 2.5 and 3.5 are considered inconclusive with further investigations into hydrology and soil assessments to determine wetland status (as per the Clarkson, 2013 method). The dominance test indicates the percentage of dominant species within the plot that are OBL, FACW, or FAC.

Parameter	Ngā Manu					Lake Rawakahia
	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6
Indicator Score (out of 20)	20	17	18	20	18	18
Prevalence Index (out of 5)	2.89	2.65	2.20	2.25	1.57	1.06
Dominance Test	100%	80%	100%	100%	75%	100%
Vegetation type	Pukatea forest	Maire tawake forest	Rautahi sedgeland	Harakeke flaxland	Raupō-harakeke rushland	Pūrei sedgeland

3.2 Overall Wetland Condition and Pressures

Overall wetland condition and catchment pressures for Ngā Manu were compared across the two plot points at Nga Manu 2015-17 baseline, as well as the 2021, 2024, and the six plot points within Nga Manu and Lake Rawakahia 2025 monitoring periods. Generally, these appear to show a relatively consistent level of condition and pressure. Since 2015-17, the condition score has varied between 20.17 and 22, reaching its highest in the 2024 monitoring period. In the same time span, the pressure score has increased from 12.67 to 16, but remains moderate (Table 2).

Lake Rawakahia was measured for the first time this year, as part of a new baseline. The condition score was high (22.67) and the pressure score was relatively low (10).

Table 2 – Wetland Condition and Pressure scores for Ngā Manu wetland, 2015 to 2025. Condition score assesses the current condition of the wetland between 0-25, with 25 being the best possible wetland condition. Pressure score is based on the level of pressure on the wetland, between 0-30, where 30 is the highest possible level of pressure.

Wetland and Catchment Parameters	2015-17 Baseline	2021 Monitoring	2024 Monitoring	2025 New Baseline
Condition score (out of 25)	20.92	20.25	22	20.17
Pressure score (out of 30)	12.67	14	14	16

4.0 Summary

The new baseline measures within the six plots and two wetlands will ensure that the ongoing wetland condition monitoring will give the Council a confident measure of potential effects in the Ngārara catchment throughout the lifetime of the River Recharge scheme.

The plots should be remeasured in 2028, continuing the three-yearly monitoring interval.

References

Boffa Miskell Ltd. (2017). *Wetland Baseline Monitoring Plan—Kāpiti Water Supply Project River Recharge with Groundwater Scheme*. Boffa Miskell Ltd.

Boffa Miskell Ltd. (2018). Wetland Ongoing Mitigation Plan—Kāpiti Water Supply Project River Recharge with Groundwater Scheme. Boffa Miskell Ltd.

Boffa Miskell Ltd. (2021). Wetland Ongoing Mitigation Monitoring—Kāpiti Water Supply Project River Recharge with Groundwater Scheme. Boffa Miskell Ltd.

Clarkson, B. R. (2013). *A vegetation tool for wetland delineation in New Zealand* (LC1793; p. 70). Manaaki Whenua. http://datastore.landcareresearch.co.nz/dataset/a-vegetation-tool-for-wetland-delineation-in-new-zealand.

Clarkson, B. R., Sorrell, B. K., Reeves, P. N., Champion, P. D., Partridge, T. R., & Clarkson, B. D. (2004). *Handbook for monitoring wetland condition: Coordinated Monitoring of New Zealand Wetlands*. 73. https://doi.org/10.7931/J2Z60KZ3.

Wildland Consultants (2024). *Ngā Manu ongoing wetland mitigation monitoring, 2024.* Wildland Consultants Contract Report No. 7086. Prepared for Kāpiti Coast District Council. 55pp.

Appendix 1 Wetland Condition Plot Profiles

Plot 1: Pukatea Forest

Plot 1 is situated on the northern side of the swamp forest (Plate 1) within Ngā Manu. The area surrounding the plot is dominated by pukatea with occasional maire tawake. Within the plot, there are some non-wetland components, namely māhoe (*Melicytus ramiflorus* subsp. *ramiflorus*), which have resulted in a prevalence index score of 2.89 indicating upland vegetation. However, wetland status is confirmed by the primary hydrological indicator of wet soils.

Plate 1 – Plot 1. Photo taken from the Southern corner. 28 March 2025.

Plot 2: Maire Tawake Forest

Plot 2 is situated on the southern side of the swamp forest (Plate 2) within Ngā Manu. The area surrounding the plot is largely maire tawake, with some kahikatea (*Dacrycarpus dacrydioides*). The canopy of the plot is dominated by maire tawake. Young pukatea and maire tawake are common in the ground vegetation layer. The prevalence index score is 2.41, indicating wetland vegetation.

Plate 2 – Plot 2. Photo taken from the post closest to the track. 28 March 2025.

Plot 3: Rautahi Sedgeland

Plot 3 is situated in the north of Ngā Manu, within a large area of rautahi with a few scattered tī kouka, harakeke, and maire tawake. The plot is *c.*90% rautahi, with a single tī kouka (*Cordyline australis*) and small amounts of pōhuehue (*Muehlenbeckia australis*) and blackberry (*Rubus fruticosus*) (Plate 3). The prevalence index score is 2.20, indicating wetland vegetation.

Plate 3 – Plot 3. Photo taken from the Southernmost post. 28 March 2025.

Plot 4: Harakeke Flaxland

Plot 4 is situated within a small patch of harakeke on the edge of a lake (Plate 4). The plot and area surrounding are dominated by harakeke, with scattered wheki (*Dicksonia squarrosa*) and hangehange (*Geniostoma ligustrifolium* var. *ligustrifolium*). The prevalence index score is 2.25, indicating wetland vegetation.

Plate 4 – Plot 4. Photo taken from the post closest to the dry peninsula. 28 March 2025.

Plot 5: Raupō-Harakeke Rushland

Plot 5 is situated on the edge of a lake within raupō rushland. The plot could not safely be placed entirely within raupō-dominant vegetation; therefore, a portion of the plot is dominated by harakeke (FACW) with rarauhe (*Pteridium esculentum*) and blackberry (both FACU) (Plate 5). The prevalence index score is 1.57, indicating wetland vegetation.

Plate 5 – Plot 5. Photo taken from the post closest to the dryland scrub. 28 March 2025.

Plot 6: Pūrei sedgeland

Plot 6 is situated within a large rushland on the edge of a drainage ditch (Plate 6). The dominant species is pūrei, with raupō occurring commonly. All species in this plot were OBL, FACW, or FAC. The prevalence index score is 1.03, indicating wetland vegetation.

Plate 6 – Plot 6. Photo taken from the post closest to the dryland scrub. 27 March 2025.

Appendix 2 Baseline Wetland Condition Monitoring Data

Plot	Ngā Manu 1 (NGMN01)	**Date**	28/03/2025
Field team	JD, HM	**Stress score**	5/5
NZTM	1773684.0, 5474446.0	**Composition**	Maire tawake-pukatea forest

Common name	Species	% Cover	Height (m)	Dominant	Bio Status	Indicator status
Canopy						
Pukatea	*Laurelia novae-zelandiae*	50	8	Yes	Endemic	FAC
Maire tawake	*Syzygium maire*	5	10	No	Endemic	OBL
Swamp lawyer	*Rubus australis*	5	6	No	Endemic	FAC
Subcanopy						
Māhoe	*Melicytus ramiflorus* subsp. *ramiflorus*	5	3	No	Non-Endemic	FACU
Maire tawake	*Syzygium maire*	5	4	No	Endemic	OBL
Swamp coprosma	*Coprosma tenuicaulis*	10	2.5	No	Endemic	FACW
Pukatea	*Laurelia novae-zelandiae*	2	3	No	Endemic	FAC
Groundcover						
Kohekohe	*Didymocheton spectabilis*	4	0.3	No	Endemic	UPL
Whekī	*Dicksonia squarrosa*	2	0.3	No	Endemic	FACU
New Zealand jasmine	*Parsonsia heterophylla*	1	0.1	No	Endemic	FACU
Hangehange	*Geniostoma ligustrifolium* var. *ligustrifolium*	2	0.4	No	Endemic	FACU
Tītoki	*Alectryon excelsus*	1	0.2	No	Endemic	UPL

Plot Condition Index	20/20	**Prevalence Index**	2.89	**Dominance Test**	100%

Plot	Ngā Manu 2 (NGMN02)	Date	28/03/2025
Field team	JD, HM	Stress score	5/5
NZTM	1773684.0, 5474446.0	Composition	Maire tawake-pukatea forest

Common name	Species	% Cover	Height (m)	Dominant	Bio Status	Indicator status
Canopy						
Maire tawake	*Syzygium maire*	60	13	Yes	Endemic	OBL
Supplejack	*Ripogonum scandens*	5	10	No	Endemic	FACU
Subcanopy						
Pukatea	*Laurelia novae-zelandiae*	8	4	No	Endemic	FAC
Kohekohe	*Didymocheton spectabilis*	10	5	No	Endemic	UPL
Whekī	*Dicksonia squarrosa*	10	4	No	Endemic	FACU
Hangehange	*Geniostoma ligustrifolium* var. *ligustrifolium*	15	5	No	Endemic	FACU
Groundcover						
Pukatea	*Laurelia novae-zelandiae*	5	0.3	Yes	Endemic	FAC
Hangehange	*Geniostoma ligustrifolium* var. *ligustrifolium*	1	0.4	No	Endemic	FACU
Maire tawake	*Syzygium maire*	5	0.4	Yes	Endemic	OBL
Kohekohe	*Didymocheton spectabilis*	1	0.2	No	Endemic	UPL
Hanging spleenwort	*Asplenium gracillimum*	5	0.5	Yes	Non-Endemic	FACW
Kiekie	*Freycinetia banksii*	5	0.4	Yes	Endemic	FACU

Plot Condition Index	20/20	Prevalence Index	2.89	Dominance Test	80%

Plot	Ngā Manu 3 (NGMN03)	Date	28/03/2025
Field team	JD, HM	Stress score	5/5
NZTM	1773684.0, 5474446.0	Composition	Pūkio sedgeland

Common name	Species	% Cover	Height (m)	Dominant	Bio Status	Indicator status
Canopy						
Rautahi	*Carex geminata*	90	1.4	Yes	Endemic	FACW
Pōhuehue	*Muehlenbeckia australis*	2	1	No	Non-Endemic	FACU
Tī kōuka	*Cordyline australis*	8	1.8	No	Endemic	FAC
Groundcover						
Blackberry	*Rubus fruticosus* agg.	10	0.4	Yes	Exotic	FAC

Plot Condition Index	18/20	Prevalence Index	2.20	Dominance Test	100%

Plot	Ngā Manu 4 (NGMN04)	Date	28/03/2025
Field team	JD, HM	Stress score	5/5
NZTM	1773490.0, 5474459.0	Composition	Harakeke flaxland

Common name	Species	% Cover	Height (m)	Dominant	Bio Status	Indicator status
Canopy						
Harakeke	*Phormium tenax*	70	3.8	Yes	Endemic	FACW
Whekī	*Dicksonia squarrosa*	5	2.5	No	Endemic	FACU
Hangehange	*Geniostoma ligustrifolium* var. *ligustrifolium*	5	1.5	No	Endemic	FACU
Groundcover						
Pūrei	*Carex secta*	3	0.2	Yes	Endemic	OBL
Putaputawētā	*Carpodetus serratus*	2	0.3	No	Endemic	FACU

Plot Condition Index	20/20	Prevalence Index	2.25	Dominance Test	100%

Plot	Ngā Manu 5 (NGMN05)	Date	28/03/2025
Field team	JD, HM	Stress score	5/5
NZTM	1773462.0, 5474397.0	Composition	Raupō rushland

Common name	Species	% Cover	Height (m)	Dominant	Bio Status	Indicator status
Canopy						
Harakeke	*Phormium tenax*	30	3.2	Yes	Endemic	FACW
Raupō	*Typha orientalis*	60	3	Yes	Non-Endemic	OBL
Groundcover						
Rarauhe	*Pteridium esculentum*	5	0.9	Yes	Non-Endemic	FACU
Pōhuehue	*Muehlenbeckia australis*	1	0.3	No	Non-Endemic	FACU
Blackberry	*Rubus fruticosus* agg.	5	0.4	Yes	Exotic	FAC
Duckweed	*Lemna disperma*	1	0	No	Non-Endemic	OBL

Plot Condition Index	18/20	Prevalence Index	1.57	Dominance Test	75%

Plot	Rawakahia (PHPO01)	**Date**	27/03/2025
Field team	JD, HM	**Stress score**	5/5
NZTM	1772733.50, 5475743.44	**Composition**	Pūrei/raupō sedgeland

Common name	Species	% Cover	Height (m)	Dominant	Bio Status	Indicator status
Canopy						
Raupō	*Typha orientalis*	15	3.2	Yes	Non-Endemic	OBL
Subcanopy						
Pūrei	*Carex secta*	80	1.6	Yes	Endemic	OBL
Lotus	*Lotus pedunculatus*	1	1.1	No	Exotic	FAC
	Isolepis prolifera	5	0.5	No	Non-Endemic	OBL
Groundcover						
Water pepper	*Persicaria hydropiper*	1	0.2	No	Exotic	FACW
Marsh bedstraw	*Galium palustre*	2	0.1	Yes	Exotic	OBL
	Hydrocotyle pterocarpa	2	0.2	Yes	Non-Endemic	OBL

Plot Condition Index	18/20	**Prevalence Index**	1.03	**Dominance Test**	100%

Call Free 0508 WILDNZ
Ph +64 7 343 9017
Fax +64 7 349018
ecology@wildlands.co.nz

99 Sala Street
PO Box 7137, Te Ngae
Rotorua 3042, New Zealand

Regional Offices located in Auckland; Christchurch;
Dunedin; Hamilton; Invercargill; Queenstown; Tauranga;
Wānaka; Wellington; Whangārei.

wildlands.co.nz

Wildlands

River Recharge with Groundwater: Waikanae River 2025 Baseline Monitoring Report

Contract Report No. 7086b

Providing outstanding ecological services to sustain and improve our environments

Wildlands

River Recharge with Groundwater: Waikanae River 2025 Baseline Monitoring Report

Contract Report No. 7086b

August 2025

Project Team:
Richard Storey – Report author and technical adviser
Lily Tidwell – Report author
Sarah Budd – Report review

Prepared for:
Kāpiti Coast District Council
175 Rimu Road
Paraparaumu 5032

Reviewed and approved for release by:

Sarah Budd
Principal Ecologist, Auckland Ecology Team Leader and Coordinator
Wildland Consultants Ltd
12/08/2025

Cite this report as follows:

Wildland Consultants (2025). *River Recharge with Groundwater: Waikanae River 2025 Baseline Monitoring Report.* Wildland Consultants Contract Report No. 7086b. Prepared for Kāpiti Coast District Council. 20pp.

Wellington Office
204 Thorndon Quay, Wellington 6011, Ph 04-237-7341

Head Office
99 Sala Street, PO Box 7137, Te Ngae, Rotorua Ph 07-343-9017 Email: rotorua@wildlands.co.nz

www.wildlands.co.nz

Contents

1.0 Introduction

Kāpiti Coast District Council (KCDC) initiated the River Recharge with Groundwater (RRwGW) Project in 2017 to address potable water shortages. The project involves increasing potable water take from the Waikanae River and then recharging the river with groundwater extracted from the underlying aquifer complex.

The potential effects of aquifer abstraction relate to water loss and thus potential habitat loss in the wetlands and small streams associated with the aquifer complex. There are also potential effects from adding groundwater to the Waikanae River, altering the habitat and aquatic life downstream of this point. Changes to conductivity and nutrient concentrations, for example, may encourage excessive periphyton growth.

Within the current knowledge of these interconnected freshwater systems, potential effects of groundwater recharge cannot be fully understood. Thus, ongoing monitoring and adaptive management is needed to ensure that any effects of aquifer abstraction on wetlands, streams, and the Waikanae River are documented and responded to in a timely manner, as required by Conditions 21, 23, 32, and 35 of consent WGN130103 [34384] (See Appendix 1 for relevant consent conditions). Periphyton monitoring is the primary method by which any changes to the Waikanae River are being monitored.

Due to interventions made by KCDC, water use has dropped to the point that the RRwGW has not yet needed to be activated to compensate for water take from the Waikanae River. However, recent wetland monitoring related to the project has indicated changes to the hydrology in the area which must be caused by other pressures, such as development within the wider landscape. These changes have prompted a review of the Ongoing Mitigation Plans (OMP) for the wetlands, Waikanae River, and small coastal streams, to determine if baseline data and monitoring methods remain appropriate. Furthermore, this work looks to provide information on the upcoming Year-15 consent review as part of the adaptive management for this project. The current report presents the review of the OMP for the Waikanae River.

2.0 Project objectives and scope

The objective of this project was to determine whether the current baseline measures and trigger values are still appropriate in measuring the effect of adding groundwater to the Waikanae River. To achieve this, the following steps were carried out:

- Collect an additional season (February to April) of baseline monitoring data (fortnightly surveys).
- Review the original baseline data and monitoring protocols described in Boffa Miskell (2017, 2018a), focusing particularly on periphyton
- Compare the new data with the original baseline data, and update the OMP if required.

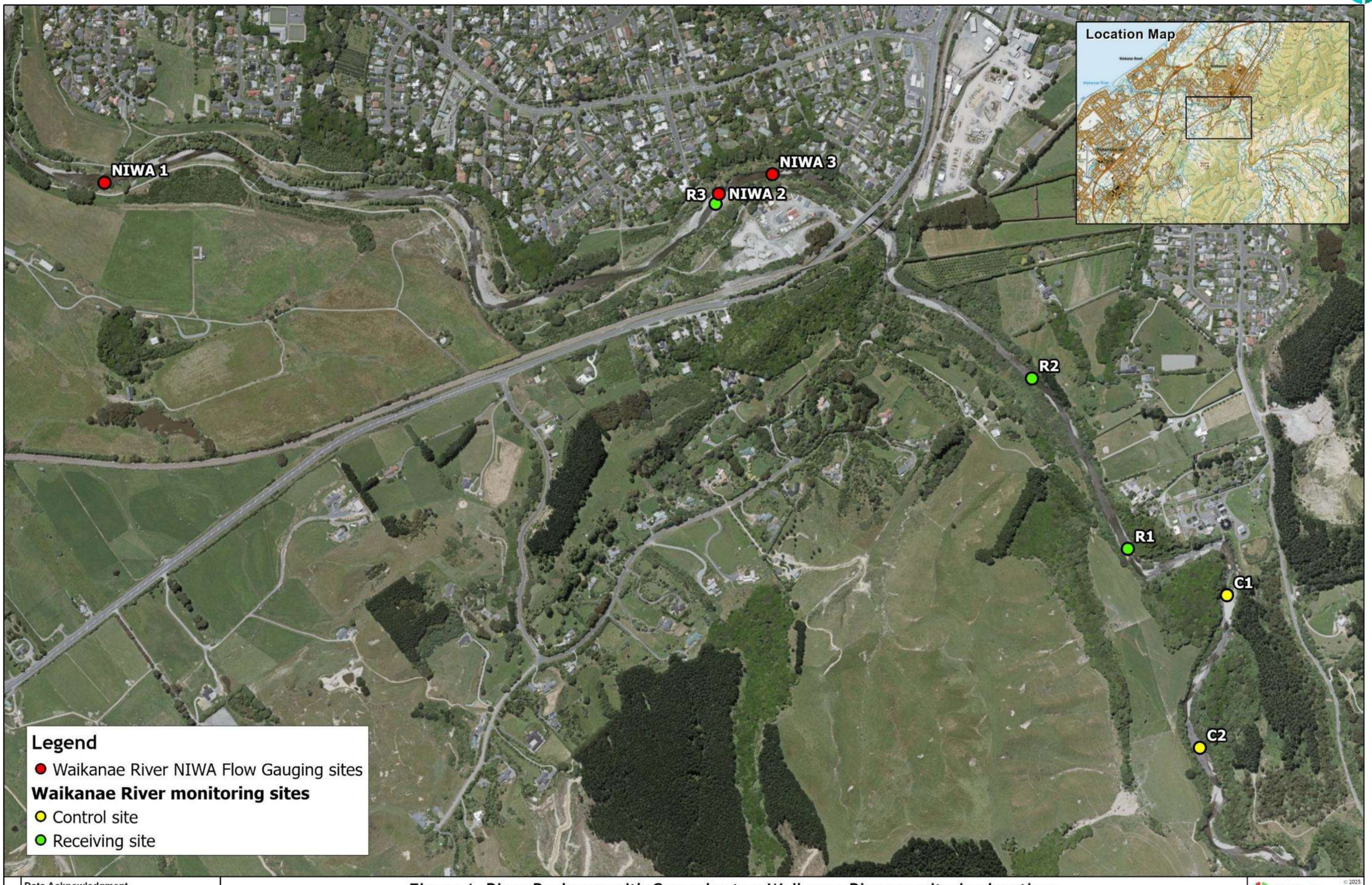


Figure 1. River Recharge with Groundwater: Waikanae River monitoring locations

3.0 Data Collection Methods

The methodology for the current data collection has followed the same methods used for the original baseline monitoring in 2014-2017 (Boffa Miskell, 2017). These methods are as follows:

3.1 Monitoring sites

Three downstream (receiving) and two upstream (control) monitoring sites were originally selected in the 2014 Baseline Monitoring Plan (BMP). Coordinates for these monitoring sites provided in the BMP (Table 1) were used to relocate the sites in 2025, though exact transects could not be recreated due to changes in river morphology and a lack of permanent markers. The locations of the sites are shown in Figure 1 and described below:

- C1: *c.*120 metres upstream of the Waikanae Water Treatment Plant (WTP) discharge point.
- C2: *c.*400 metres upstream of the Waikanae WTP discharge point.
- R1: *c.*250 metres downstream of the Waikanae WTP discharge point.
- R2: *c.*450 metres downstream of R1, *c.*500 metres upstream of the State Highway 1 bridge.
- R3: *c.*100 metres downstream of the State Highway 1 bridge.

Three flow gauging stations are in place to monitor river flow. These are all downstream of the discharge point (at the Waikanae WTP) and the five monitoring sites, though the upper two flow gauges are near the downstream monitoring site R3 (Figure 1). Flow is also continually measured at the WTP. During the 2025 monitoring period, occasional discharges from the river recharge scheme added less than 2 percent to the river flow when they occurred, therefore gauging stations downstream of the discharge point provided a fairly accurate record of natural river flows.

Table 1 – NZTM coordinates of Waikanae River monitoring sites.

Site Type	Monitoring Site	Easting	Northing
Control	C1	1774581	5471439
	C2	1774522	5471107
Receiving	R1	1774365	5471540
	R2	1774156	5471922
	R3	1773467	5472291
Flow gauge	NIWA 1	1772136	5472337
	NIWA 2	1773474	5472313
	NIWA 3	1773591	5472355

3.2 Monitoring regime

To the extent practicable, water sampling and periphyton assessment (visual and biomass) was carried out in fine weather during low-flow conditions approximately every two weeks. For safety, monitoring was not carried out when flows were 4 m^3/second or greater. This meant that the time between sampling rounds was variable due to weather, and site C2 was not sampled in Week 8 monitoring (17-18 February 2025) due to high flows. Typically, two days were required to collect all samples on each monitoring occasion.

A total of five monitoring sessions were completed in the 2025 monitoring season (February to April).

- Week 8: 17-18 February 2025.
- Week 11: 12 & 14 March 2025.
- Week 12: 21 March 2025.
- Week 14: 31 March - 1 April 2025.
- Week 16: 14-15 April 2025.

3.3 Periphyton monitoring

3.3.1 Periphyton visual assessments

A combination of two rapid assessment methods (RAM-1 and RAM-2) from the Stream Periphyton Monitoring Manual (Biggs & Kilroy 2000) was used, as follows. A measuring tape was run across the width of the river to locate five equidistant sampling points along a transect located within a riffle. A bathyscope was then used to undertake visual cover assessments at each sampling point, estimating the cover of various lengths and colours of periphyton as defined in the RAM-2 method. Depth, velocity, and percent shading were also recorded at each point. This method was repeated for a total of two riffle and two run transects per site.

The periphyton cover reported includes observations of thin mats/films, medium mats, thick mats, and short and long filaments. Options for colours included green, light brown, black/dark brown for thin and medium mats, as well as green/light brown and black/dark brown for thick mats. For both filament types, options were green and brown/reddish. As with the baseline report, the cover measurements from visual observations are presented as Periphyton Weighted Composite Cover (PeriWCC) (Matheson et al. 2012) which can be compared with the trigger levels in the consent conditions.

According to Matheson *et al.* (2012) PeriWCC is calculated as % cover of algal filaments + (% cover of algal mats)/2.

3.3.2 Biomass sampling

One stone (*c.*10 centimetres diameter) was collected near each visual assessment point, within riffle transects only (total 10 stones per monitoring site) for periphyton biomass sampling following "Quantitative Method 1b" from Biggs & Kilroy (2000). To collect periphyton from a standard area, a 7-centimetre sample container lid was held against the stone while the rest of the stone was scrubbed clean of any periphyton or other material. The lid was then removed and a toothbrush was used to collect the remaining periphyton. A squirt bottle of river water was used to rinse all material from the stone and toothbrush into the sample container. The ten samples from each site were pooled, then frozen and sent to the Cawthron Institute for chlorophyll *a* and ash-free dry mass analysis.

3.3.3 Cyanobacteria

Targeted cyanobacteria sampling was not within the scope of this monitoring programme. The periphyton visual assessment protocol included provision to record incidental observations of cyanobacteria mats but none were recorded in 2025.

3.4 Water chemistry and temperature

Water samples were collected from the upstream riffle at each receiving and control site, for a total of 24 water samples across the 2025 February to April monitoring season (Site C2 in Week 8 was not sampled, as explained above). The following parameters were then measured by the Kāpiti Coast District Council water chemistry lab:

- Ammoniacal nitrogen.
- Nitrate.
- Nitrite.
- Dissolved inorganic nitrogen.
- Total nitrogen.
- Dissolved reactive phosphorus.
- Total phosphorus.
- Dissolved calcium.

Immediately following sample collection, a handheld probe (PTTestr 35) was used to measure water temperature, pH, and conductivity.

4.0 Water Quantity

4.1 Rainfall and river flow

Rainfall and river flow data for the Waikanae River at the Waikanae WTP were compiled from the Greater Wellington Regional Council Environmental Data Dashboard (Figure 2). The average and median flows from 1 February to 20 April 2025 were 1.34 and 1.05 m^3/second. The lowest flow recording during this period was 0.78 m^3/second on 3 April (Week 14). Flows greater than three times the median flow (i.e. 3.15 m^3/second) will generally wash away periphyton, though in the baseline monitoring report (Boffa Miskell 2017), a threshold of 10 m^3/second was used. Flows exceeding both of these thresholds were recorded once during the monitoring period, on 4 and 5 April (Week 14), peaking at 20.73 m^3/second on 5 April. This was nine days before the final sample collection. A high flow event (peaking at 21.32 m^3/second) also occurred on 31 January, 18 days before the first sample collection.

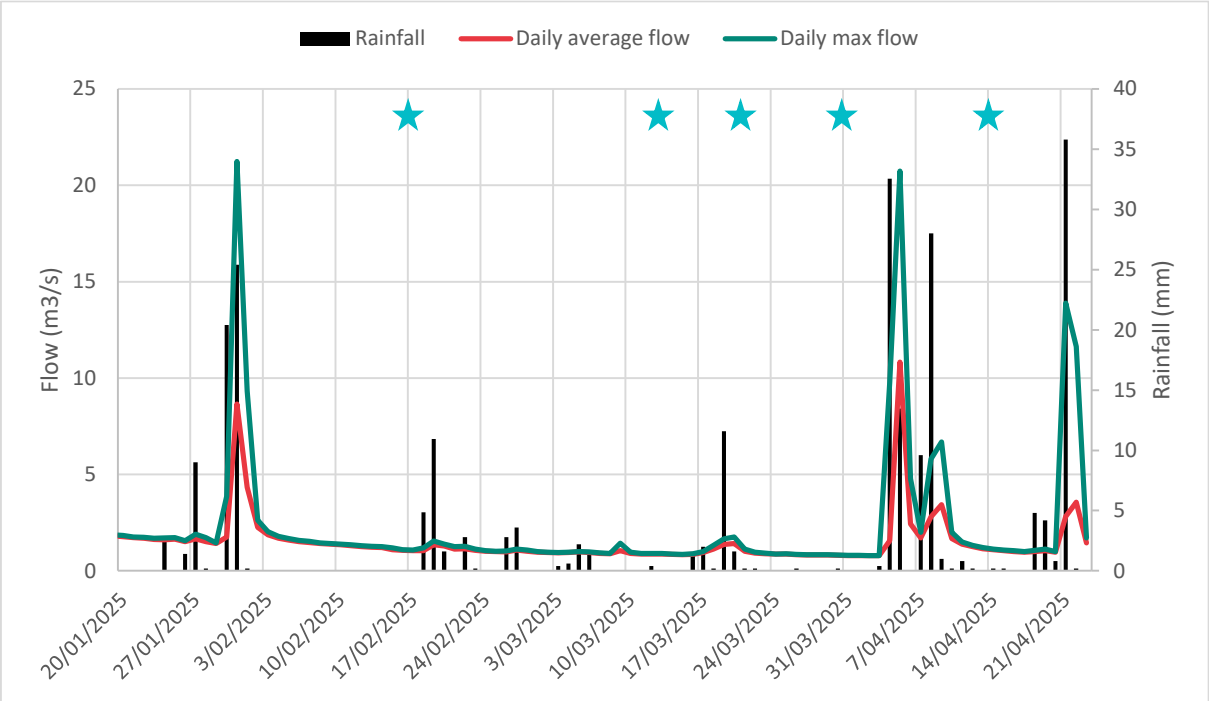


Figure 2 – Daily average and maximum flow and total rainfall, as measured at the GWRC Waikanae River gauging station, weeks 4 to 16 (20 January to 23 April) 2025. Vertical gridlines are at one-week intervals. Stars indicate dates when periphyton monitoring occured.

4.2 Abstraction and recharge

Average river abstraction at the Waikanae WTP from July 2024 to April 2025 was 146 L/s (12,600 m^3/day), with peak river abstraction of 184 to 190 L/s (16,000 to 16,400 m^3/day) occurring on 24 November 2024, 23 January 2025 and 8-17 February 2025.

To keep the groundwater pumps in operating condition they are activated for short periods at intervals throughout the year. From July 2024 to May 2025, groundwater was discharged to the Waikanae River (river recharge) about once per month for 1-6 hours, at a rate of up to 250 L/s. From February to early April 2025, river recharge events were more frequent and longer in duration. On 8 February, river recharge was switched on for 56 hours at 15-45 L/s, and on 13 February it was switched on for three hours at up to 250 L/s. On 2, 7, 8, 11, 12, and 15 March 2025 river recharge was switched on for 3-14 hours per day (usually at *c.*30 L/s but once at up to 250 L/s), and was on continuously from 29 March to 4 April 2025, generally at 33-45 L/s.

River flow upstream of the WTP was typically 1.2 m^3/s (1,200 L/s) at baseflow in winter and 0.9-1.0 m^3/s (900-1,000 L/s) in summer. River recharge added more than 10 percent of river flow for a period of up to 1.5 hours in each of July and August 2024, and January, February 2025, March, April and May 2025 , and added more than 2 percent of river flow for 56 hours in February, 135 hours from 29 March to 4 April 2025, and for short periods of a few hours each on other days in March 2025.

None of the river recharge events exceeded the current “Alert” trigger level of greater than 225 L/s continuous recharge for 48 hours or more.

5.0 Field sampling results

5.1 Water chemistry and temperature

Water chemistry and temperature data are summarised in Tables 2 and 3 below, and complete raw data are found in Appendix 2. No significant differences in water chemistry measures were found among sites or among sampling weeks.

Conductivity, pH and dissolved calcium showed very similar values in 2025 to those during the original baseline monitoring period in 2014-2017 (Tables 2 and 3). However, total nitrogen appeared to be nearly three times higher in 2025, and phosphorus (both total and dissolved reactive phosphorus) appeared to be about half as high in 2025 as in 2014-2017. The reasons for these differences are not known. If real, they could affect periphyton growth rates, depending on whether periphyton growth is limited by nitrogen, phosphorus or both. Unfortunately, the detection limit of the laboratory method used in 2025 prevented comparison of nitrate and dissolved inorganic nitrogen results, which are more relevant to periphyton growth than total nitrogen.

Table 2 – Water quality measures for the Waikanae River, averaged over all sites by week. Italicised values are those below the detection limit of the analysis method used. SD = standard deviation. BLM is the Baseline Monitoring Report (Boffa Miskell, 2017).

Measurement	Week 8	Week 11	Week 12	Week 14	Week 16	Average ± SD	Average from BLM
Temperature (˚C)	19.18	15.78	16.30	17.18	15.10	16.63 ± 1.83	
Conductivity (µS/cm)	--	117.55	104.37	128.32	101.70	113.73 ± 16.34	111.3 ± 13.0
pH	7.71	7.86	7.79	8.04	7.92	7.88 ± 0.27	7.57 ± 0.19
Ammoniacal nitrogen (g/m3)	0.017	0.019	0.018	0.021	0.018	0.018 ± 0.004	
Dissolved inorganic nitrogen (g/m3)	*<0.262*	*<0.264*	*<0.264*	*<0.266*	*<0.263*	Below detection	0.116 ± 0.087
Nitrate (g/m3)	*<0.230*	*<0.230*	*<0.230*	*<0.230*	*<0.230*	Below detection	0.114 ± 0.089
Nitrite (g/m3)	*<0.015*	*<0.015*	*<0.015*	*<0.015*	*<0.015*	Below detection	
Total nitrogen (g/m3)	0.54	*0.49*	*0.49*	*0.49*	0.56	0.51 ± 0.06	0.184 ± 0.091
Dissolved reactive phosphorus (g/m3)	0.0082	*0.0049*	*0.0049*	*0.0049*	*0.0049*	0.0055 ± 0.0023	0.011 ± 0.003
Total phosphate (g/m3)	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	Below detection	0.014 ± 0.004
Dissolved calcium (g/m3)	5.8	5.8	5.3	6.1	5.4	5.7 ± 0.5	5.46 ± 0.48

Table 3 – Water quality measures for the Waikanae River, averaged over all weeks by site. Italicised values are those below the detection limit of the analysis method used. SD = standard deviation. BLM is the Baseline Monitoring Report (Boffa Miskell, 2017).

Measurement	C1	C2	R1	R2	R3	Average ± SD	Average from BLM
Temperature (˚C)	16.70	15.90	15.98	17.40	17.33	16.63 ± 1.83	
Conductivity (µS/cm)	106.65	104.98	113.50	126.10	126.90	113.73 ± 16.34	111.3 ± 13.0
pH	7.70	7.64	7.89	8.26	7.94	7.88 ± 0.27	7.57 ± 0.19
Ammoniacal nitrogen (g/m3)	0.021	0.016	0.019	0.017	0.018	0.018 ± 0.004	
Dissolved inorganic nitrogen (g/m3)	*<0.266*	*<0.262*	*<0.264*	*<0.262*	*<0.264*	Below detection	0.116 ± 0.087
Nitrate (g/m3)	*<0.230*	*<0.230*	*<0.230*	*<0.230*	*<0.230*	Below detection	0.114 ± 0.089
Nitrite (g/m3)	*<0.015*	*<0.015*	*<0.015*	*<0.015*	*<0.015*	Below detection	
Total nitrogen (g/m3)	0.574	0.493	0.512	0.490	0.490	0.51 ± 0.06	0.184 ± 0.091
Dissolved reactive phosphorus (g/m3)	0.005	0.005	0.005	0.007	0.005	0.0055 ± 0.002	0.011 ± 0.003
Total phosphate (g/m3)	*<0.005*	*<0.005*	*<0.005*	*<0.005*	*<0.005*	Below detection	0.014 ± 0.004
Dissolved calcium (g/m3)	5.400	5.450	5.780	5.880	5.550	5.7 ± 0.5	5.46 ± 0.48

5.2 Periphyton monitoring

5.2.1 Periphyton visual assessments

PeriWCC values were generally low (less than 12 percent at all sites and sampling occasions) but were highly variable among the various sites and sampling occasions (Figures 3 and 4). It is not clear whether this reflects natural variability or sampling variability (since the visual assessment method is a subjective estimate).

Figure 4 shows that C1 typically has lower PeriWCC than other sites. However, a one-way ANOVA showed no significant difference between any of the monitoring sites ($F=1.88$, $df=4, 19$, $p=0.16$).

Generally, periphyton growth is most strongly affected by water temperature, nutrients (nitrogen and phosphorus), light (the inverse of shade), streambed sediment size and time since the last flow higher than three times the median flow (Matheson et al. 2012, Snelder et al. 2014). The relative influence of these factors may differ among different environments.

Average PeriWCC per site was not obviously correlated with shade (Figure 5). For example, C1 (which was the only site with a lower PeriWCC) had slightly more shade than R1 and R3, but less shade than C2 and R2. Average PeriWCC per date was not obviously correlated with water temperature or with river flow in the preceding two weeks. For example, the last sampling occasion had relatively high PeriWCC but the lowest water temperature and was the only sampling occasion that had a high flow event within the previous two weeks. The lack of correlations with known driving factors may be because the values of PeriWCC recorded during this period were low relative to natural and sampling variability.

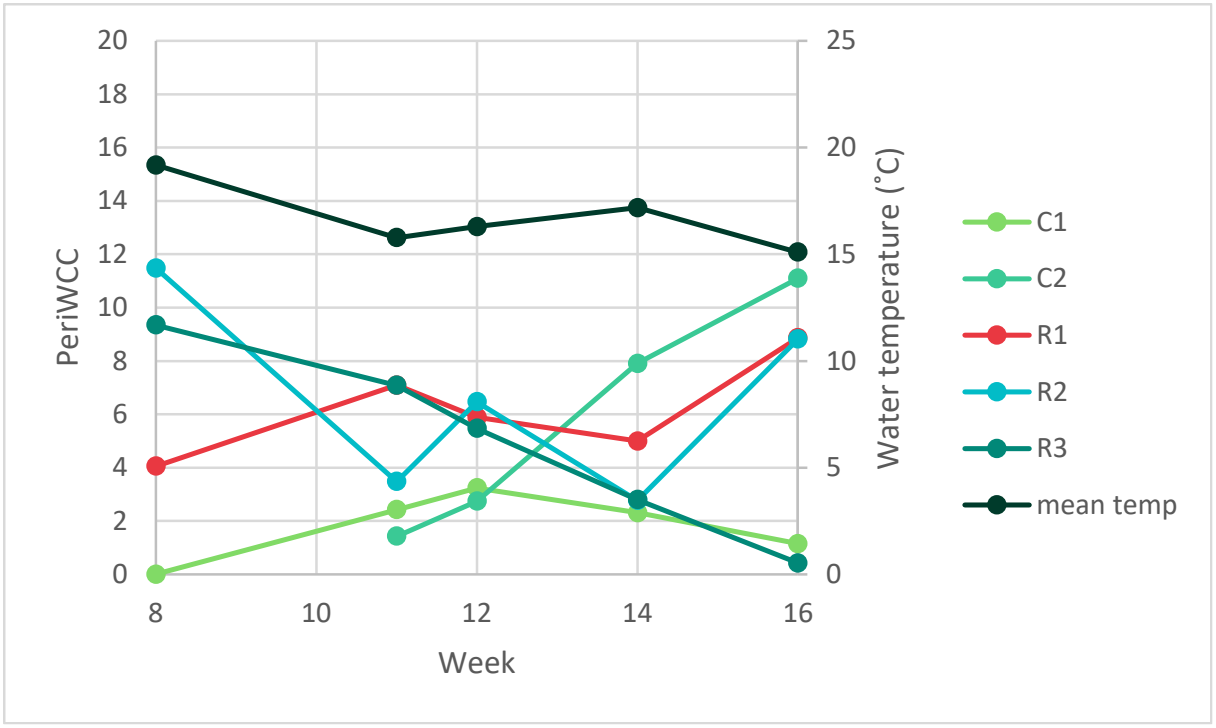


Figure 3 – PeriWCC on each sampling occasion at each of the monitoring sites

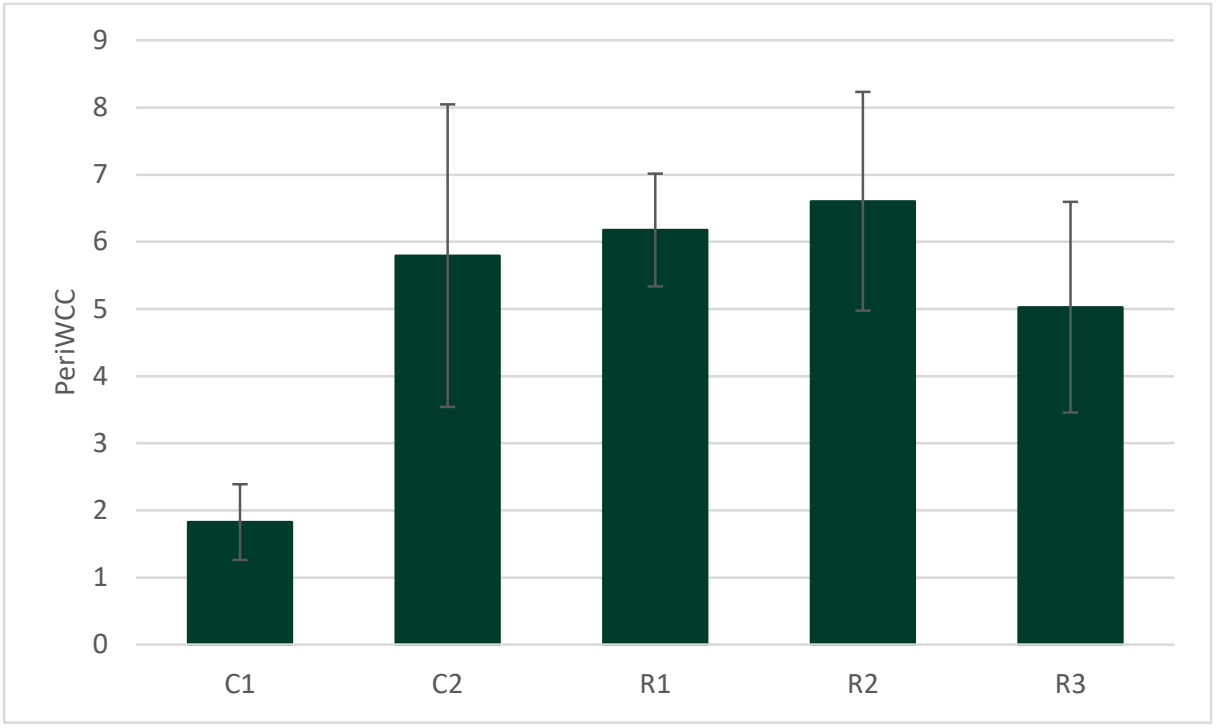


Figure 4 – Average PeriWCC ± one standard error at each of the monitoring sites.

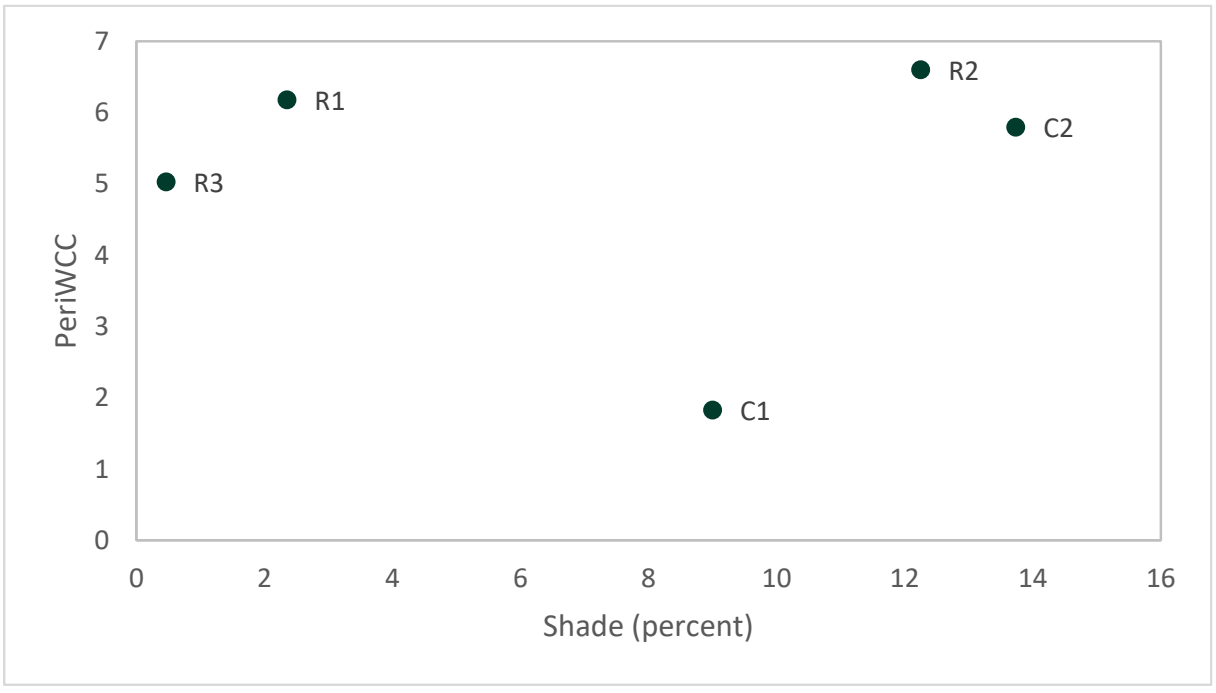


Figure 5 – Average PeriWCC vs. percent shade at each of the monitoring sites.

PeriWCC levels observed in 2025 were similar to those recorded in 2017 and 2014, and much lower than the peak cover recorded in 2015 and 2016 (Boffa Miskell 2017). Note that river recharge occurred in 2016.

To understand why the 2025 PeriWCC observations were similar to the lowest values recorded during 2014-2017, it is helpful to compare the two monitoring periods in terms of the environmental factors that drive periphyton growth. A summary of periphyton (as PeriWCC and biomass) and environmental factors is provided in Table 4.

During the baseline monitoring period, high PeriWCC occurred in two years, 2015 and 2016. In 2015, high PeriWCC may have been due to high water temperatures and high flow stability. In 2016, high PeriWCC may have been due to high water temperatures and low average summer flow (and also perhaps because river recharge was implemented that year). Differences in nutrient concentrations (TN and DRP) between years do not seem correlated with the differences in PeriWCC. In 2025 flow stability was high, average summer flow was low and total nitrogen was high compared to the baseline monitoring years. These conditions would be expected to promote high periphyton growth in 2025. However, average water temperature from January to March and average dissolved reactive phosphorus were relatively low in 2025, which would reduce the growth rate of periphyton. It appears that water temperature and/or dissolved reactive phosphorus concentration had more effect on periphyton growth than flow stability and total nitrogen in this particular case.

5.2.2 Periphyton biomass

Periphyton biomass data were limited to two sampling dates (Weeks 8 and 16) for R1-R3 and one sampling date (Week 16) for C1-C2. The results for Week 16 were higher than for Week 8, but both sets of results were well within the range of values reported in the baseline monitoring report. In that report, most values were below 50 mg/m^2 but occasionally exceeded 100 mg/m^2 and on one occasion exceeded 1800 mg/m^2.

Due to the low number of data points and high variability, few patterns could be identified. Generally, shade is expected to depress periphyton biomass. However, in this dataset the correlation between shade and periphyton biomass in Week 16 was very weak (Pearson R=-0.03 and 0.03 for chlorophyll a and AFDW, respectively).

Generally, high river flows are expected to greatly reduce periphyton biomass. However, in Week 16, five to ten days after two high-flow events, periphyton biomass was slightly higher than in Week 8 at R2 and R3, and more than ten times higher than in Week 8 at R1 (Figure 6).

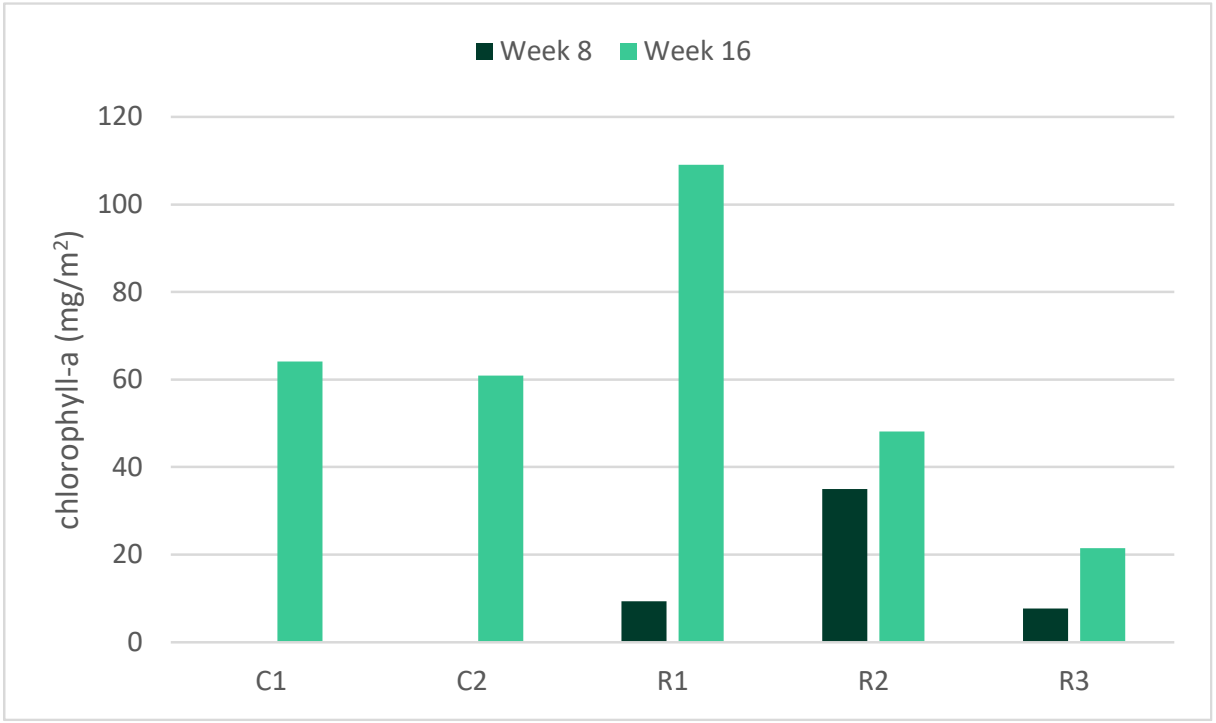


Figure 6 – Chlorophyll a at each of the monitoring sites in week 8 and week 16.

Table 4 – Summary of periphyton and environmental driving factors for 2025 in relation to baseline monitoring years. Data for PeriWCC and nutrients were read from the relevant graphs in the BLM report (Boffa Miskell 2017). Flow stability is based on the length of time during the monitoring period that flows remain continuously below 10 m^3/second. ND = no data.

Measurement	2014	2015	2016	2017	2025
Average PeriWCC	3.1	10.6	12.7	3.6	5.1
Max PeriWCC	8	38	24	11	11
Chlorophyll a (min-max as mg/m^2)	10-180	10-210	5-1900	5-45	5-110
Water temperature (˚C)[1]	17.9	20.3	21.9	15.6	18
Shade %	ND	ND	ND	ND	8
Average summer flow (m^3/s)[2]	2.28	2.81	2.00	9.51	1.67
Flow stability	Mod	High	Mod	Low	High
Total nitrogen (g/m3)	0.17	0.17	0.18	0.22	0.51
Total phosphorus (g/m3)					<0.005
Dissolved reactive phosphorus (g/m3)	0.0095	0.0103	0.0108	0.0107	0.0055

[1] Water temperatures for Waikanae River at Greenaway Rd, downloaded from GWRC Environmental Data Dashboard https://graphs.gw.govt.nz/envmon?view=tabular-data on 3 June 2026. This is the only source for which comparable water temperature data are available for all monitoring years. Temperatures may be slightly higher than at the monitoring sites for this study.

[2] Data downloaded from GWRC Environmental Data Dashboard https://graphs.gw.govt.nz/envmon?view=tabular-data on 3 June 2026. These data are used instead of the data reported in the Baseline Monitoring report and the current report as they ensure comparability between 2014-2017 and 2025 data.

6.0 Recommendations for Ongoing Monitoring and Trigger Levels

6.1 Summary of baseline monitoring in 2025 compared with 2014-2017

The objective of this project was to determine whether the current baseline measures and trigger values are still appropriate in measuring the effect of adding groundwater to the Waikanae River. To determine whether a change in the trigger values is required, the values of key variables were compared between 2025 and 2014-2017, noting whether any have changed significantly since the original baseline monitoring period.

The monitoring and trigger values specified in the Waikanae River OMP are focused on periphyton (specifically, PeriWCC). As described in Section 5.2, the periphyton results (as PeriWCC and chlorophyll a) from February to April 2025 were relatively low compared to 2014-2017 values, but still within the range of values recorded in 2014-2017. The water quality and hydrological variables measured in the baseline monitoring report are mostly those that could influence periphyton growth rates. Water temperature, conductivity and flow stability in 2025 were comparable to values recorded in 2014-2017, whereas phosphorus appeared to be lower and total nitrogen higher in 2025. Dissolved inorganic nitrogen could not be compared due to the detection limits of the analysis method used in 2025.

6.2 Recommendations for trigger values in the ongoing mitigation plan

It should be noted that the trigger values in the Waikanae River OMP, which are based on PeriWCC, do not make reference to the baseline levels of periphyton cover in the river. Rather, they are set according to the thresholds in Matheson et al. (2012) for protection of ecological values. Therefore, amendments to the trigger levels are not required based on changes in periphyton cover between 2014-17 and 2025. However, some amendments to the trigger levels and actions are recommended for other reasons that emerged during the course of the 2025 monitoring. These are summarised in Table 5 and described below.

6.2.1 Trigger for operation of the river recharge scheme

It is recommended that the trigger for operation of the river recharge scheme is changed from "greater than 225 L/s for a period of 48 hours or more of continuous river recharge" to "recharge of greater than 225 L/s for a total of 48 hours or more in a four day period". This change is recommended to recognise that river recharge may impact the river even if it is switched off occasionally during a period of operation.

6.2.2 Sites to monitor against trigger levels

It is recommended that data from all five monitoring sites (C1-2, R1-3) are used to determined whether trigger values have been crossed, rather than data from C1 and R1 only. This change is recommended because the PeriWCC monitoring data show high variability among sites and sampling occasions, therefore relying on only one control and one receiving site may lead to false negative or false positive results.

6.2.3 Addition of baseline monitoring at the start of river recharge

The impact of river recharge on periphyton growth can be detected with more confidence if periphyton cover is compared before *vs.* after river recharge in addition to upstream *vs.* downstream of the recharge (C1 *vs.* R1). A before vs. after comparison can be made if periphyton cover is assessed within a few (e.g. three) days after the river recharge scheme is activated. It can be safely assumed that periphyton cover measured within three days will represent conditions before the river recharge scheme was activated (according to Matheson et al. (2016), it takes about ten days after a minor flood for PeriWCC to increase by 20 percent).

6.2.4 Minor changes to trigger levels

Minor changes to the trigger levels for periphyton cover are recommended as follows:

1. The level to trigger weekly monitoring of periphyton should be adjusted from 25 percent to 20 percent to bring it in line with Matheson et al. (2012).
2. The difference in PeriWCC between control and receiving sites that triggers Action level and Cease level should be increased to 10 percent and 20 percent, respectively. A difference of 5 percent, as exists currently, could be caused by natural variability and/or sampling variability.

6.2.5 Monitoring water quality

It is recommended to collect more data on water quality during periods when the river recharge scheme is operating. This data collection is to improve understanding of the effects of groundwater addition on periphyton, since to date very little data has been collected while the river recharge scheme has been operating. If periphyton proliferates while river recharge is occurring, the water quality and flow data will help to understand the key variables driving periphyton growth.

The Waikanae River OMP (Boffa Miskell 2018) recommends measuring conductivity and water temperature at C1 and R1, and sampling dissolved reactive phosphorus at all sites, when Action level is triggered.

Here it is recommended to measure water temperature and conductivity with a field probe and take a water sample for analysis of dissolved inorganic nitrogen, total nitrogen, dissolved reactive phosphate and total phosphorus at all sites, starting at Alert level, at the same time as periphyton visual assessments. These variables are recommended as they are all known to be strong drivers of periphyton growth, and to date little data has been collected during river recharge. In addition, it is recommended to continuously measure dissolved oxygen (using an oxygen logger) at any site where PeriWCC exceeds 39 percent (Action level). This is because high periphyton biomass may cause daily fluctuations in dissolved oxygen that can be harmful to fish or macroinvertebrates.

6.2.6 Monitoring benthic macroinvertebrates

It is recommended to collect more data on benthic macroinvertebrates. This is to improve understanding of the effects of periphyton proliferation on macroinvertebrates, since little data have been collected to date during periods of high periphyton cover.

The Waikanae River OMP (Boffa Miskell 2018) recommends sampling benthic macroinvertebrate once when Action Level is triggered, and mentions that the Council may want to sample benthic macroinvertebrates again at a higher level of periphyton cover. It does not specify which sites should be sampled or what protocol should be used.

Here it is recommended that benthic macroinvertebrates should be sampled at C1-2 and R1-3 once every five years to reassess baseline levels of macroinvertebrate metrics (MCI, EPT richness and % EPT abundance) and a list of macroinvertebrate taxa present. Because the benthic macroinvertebrate community is relatively stable (provided environmental conditions remain stable), once per five years should be sufficient to maintain current baseline data. Macroinvertebrates should be sampled when the Action trigger level is crossed, and again when the Cease trigger level is crossed. Macroinvertebrates should be sampled at all five sites (C1-2, R1-3). Three replicate Surber samples per site should be collected (using the quantitative sample method in the National Environmental Monitoring Standards for Macroinvertebrates 2022) and analysed separately using the 200+ fixed count or full count method in NEMS macroinvertebrates (2022). Results should be reported as Macroinvertebrate Community Index (MCI), EPT richness, % EPT abundance and Average Score Per Metric (ASPM), giving the average and standard deviation for each index at each site.

Table 5 – Current rigger levels and required actions described by Boffa Miskell (2018) and our recommendations for improvement of each.

Level	Trigger		Action	
	Current	**Recommended**	**Current**	**Recommended**
Alert	Recharge of greater than 225 L/s for a period of 48 hours or more of continuous river recharge	Recharge of greater than 225 L/s for a total of 48 hours or more in a 4-day period	Undertake investigation into Periphyton WCC cover 3 - 10 days after the first 48hr recharge period. If periphyton cover is: • > 25% Periphyton WCC level at site R1; and • Periphyton WCC level at site C1 is more than 5% (nominal) less than the R1 PeriWCC level Further evaluate monitoring results to check whether river recharge is the likely cause of the exceedance. If so, monitor weekly and review recharge activity.	Assess Periphyton WCC cover at C1, C2, R1, R2, and R3 0-3 days after the first 48-hour recharge period (baseline survey), and measure Periphyton WCC 8-12 days after the first 48-hour recharge period (impact survey). If the average periphyton cover (PeriWCC) across sites R1-R3 in the impact survey is: • >20%; and • >5% higher than the average of sites C1-C2; and • >5% higher than in the baseline survey Then: • Monitor periphyton cover weekly • Measure water temperature and conductivity at all sites at the same time as periphyton monitoring. • Take a water sample from C1 and R1 at the same time as periphyton monitoring. Analyse for nitrate, total N, dissolved reactive phosphorus and total P. • Review recharge activity.
Action	• Recharge of greater than 225 L/s for a period of 48 hours or more of continuous river recharge, and • > 39% Periphyton WCC level at site R1; and • Periphyton WCC level at site C1 is more than 5% (nominal) less than the R1 PeriWCC level	• Recharge continues to be >225 L/s for a total of 48 hours or more in a 4-day period, and • PeriWCC in any of sites R1-R3 is > 39%; and • the average PeriWCC across sites R1-R3 is ○ > 10% higher than the average of sites C1-C2; and ○ > 10% higher than in the baseline survey	Re-evaluate monitoring results to check whether river recharge is the likely cause of the exceedance. If so, • Reduce quantity of groundwater entering the river. • Expand the visual monitoring to sites C2, R2 and R3 to establish if the effect is more widespread. • Sample DRP and Electrical Conductivity in the discharge, and undertake one set of macroinvertebrate community sampling (if not previously undertaken as part of ongoing mitigation monitoring at R1). • Monitor weekly and review recharge activity	• Reduce quantity of groundwater entering the river. • Continue to monitor periphyton and water quality weekly at sites C1, C2, R1, R2 and R3. • Measure dissolved oxygen continuously at any site with PeriWCC >39%. • Sample benthic macroinvertebrates at all sites.
Cease	• Recharge of greater than 225 L/s for a period of 48 hours or more of continuous river recharge, and • > 55% Periphyton WCC level at site R1; and • Periphyton WCC level at site C1 is more than 5% (nominal) less than the R1 PeriWCC level	• Recharge continues to be >225 L/s for a total of 48 hours or more in a 4 day period; and • PeriWCC in any of sites R1-R3 is > 55%; and the average PeriWCC across sites R1-R3 is ○ > 20% higher than the average of C1-C2; and ○ > 20% higher than in the baseline survey	Immediately cease groundwater discharge to Waikanae River until biomass is reduced (which is likely to be as a result of a natural flushing flow event).	• Immediately cease groundwater discharge to Waikanae River until periphyton cover (average PeriWCC across sites R1-R3) is reduced to <40% (which is likely to be as a result of a natural flushing flow event). • Sample benthic macroinvertebrates at all sites.

References

Biggs, B. & Kilroy, C. (2000). *Stream periphyton monitoring manual.* National Institute of Water and Atmospheric Research. Prepared for New Zealand Ministry for the Environment. Christchurch, New Zealand. 246 pp.

Boffa Miskell Limited (2017). *Waikanae River Final Aquatic Baseline Monitoring Report. Kāpiti Water Supply Project River Recharge with Groundwater Scheme*. Prepared for Kāpiti Coast District Council. 72pp.

Boffa Miskell Limited (2018). *Waikanae River Ongoing Mitigation Plan. Kāpiti Water Supply Project River Recharge with Groundwater Scheme*. Prepared for Kāpiti Coast District Council. 17pp.

Boffa Miskell Limited (2019). *Small Coastal Streams Aquatic Ongoing Mitigation Plan. Kāpiti Water Supply Project River Recharge with Groundwater Scheme*. Prepared for Kāpiti Coast District Council. 11pp.

Matheson, F., Quinn, J., & Hickey, C. (2012). *Review of the New Zealand instream plant and nutrient guidelines and development of an extended decision making framework: Phases 1 and 2 final report*. NIWA Client Report HAM2012-081, Prepared for the Ministry of Science & Innovation Envirolink Fund. 127 pp.

Matheson, F., Quinn, J., & Hickey, C. (2016). *Instream plant and nutrient guidelines: Review and development of an extended decision-making framework Phase 3*. NIWA Client Report HAM2015-064, Prepared for the Ministry of Science & Innovation Envirolink Fund. 117 pp.

Snelder, T. H., Booker, D. J., Quinn, J. M., & Kilroy, C. (2014). *Predicting periphyton cover frequency distributions across New Zealand's rivers*. Journal of the American Water Resources Association, 50(1), 111-127.

Appendix 1

Raw monitoring data

Table A1-1 – Complete water quality measurements for the Waikanae River. Italicised values are those below test sensitivity.

Site	Analysis	Week 8	Week 11	Week 12	Week 14	Week 16
C1	Temperature (˚C)	17.81	15.10	17.30	18.20	15.10
	Conductivity (µS/cm)	99.4	110.50	106.90	104.60	104.60
	pH	7.51	7.56	7.68	7.89	7.84
	Ammoniacal nitrogen (g/m^3)	0.023	0.020	0.020	0.025	*0.0149*
	Nitrate (g/m^3)	*0.2299*	*0.2299*	*0.2299*	*0.2299*	*0.2299*
	Nitrite (g/m^3)	*0.0149*	*0.0149*	*0.0149*	*0.0149*	*0.0149*
	Dissolved inorganic nitrogen (g/m^3)	0.268	0.265	0.265	0.270	0.260
	Total nitrogen (g/m^3)	0.7	*0.49*	*0.49*	*0.49*	0.7
	Dissolved reactive phosphate (g/m^3)	0.007	*0.0049*	*0.0049*	*0.0049*	*0.0049*
	Total phosphate (g/m^3)	*0.049*	*0.049*	*0.049*	*0.049*	*0.049*
	Dissolved calcium (g/m^3)	5.4	5.7	5.3	5.3	5.3
C2	Temperature (˚C)		14.00	16.20	18.10	15.30
	Conductivity (µS/cm)		110.10	105.20	104.40	100.20
	pH		7.50	7.58	7.72	7.75
	Ammoniacal nitrogen (g/m^3)		0.018	0.015	*0.0149*	*0.0149*
	Nitrate (g/m^3)		*0.2299*	*0.2299*	*0.2299*	*0.2299*
	Nitrite (g/m^3)		*0.0149*	*0.0149*	*0.0149*	*0.0149*
	Dissolved inorganic nitrogen (g/m^3)		0.263	0.265	0.260	0.260
	Total nitrogen (g/m^3)		*0.49*	*0.49*	*0.49*	*0.5*
	Dissolved reactive phosphate (g/m^3)		*0.0049*	*0.0049*	*0.0049*	*0.0049*
	Total phosphate (g/m^3)		*0.049*	*0.049*	*0.049*	*0.049*
	Dissolved calcium (g/m^3)		5.6	5.5	5.4	5.3
R1	Temperature (˚C)	19.8	13.60	15.40	16.30	14.80
	Conductivity (µS/cm)	136	113.50	101.00	141.40	98.10
	pH	7.7	7.70	8.10	8.03	7.94
	Ammoniacal nitrogen (g/m^3)	0.015	0.018	0.02	0.029	*0.0149*
	Nitrate (g/m^3)	*0.2299*	*0.2299*	0.2299	*0.2299*	*0.2299*
	Nitrite (g/m^3)	*0.0149*	*0.0149*	0.0149	*0.0149*	*0.0149*
	Dissolved inorganic nitrogen (g/m^3)	0.26	0.263	0.265	0.274	0.26
	Total nitrogen (g/m^3)	*0.49*	*0.49*	0.49	*0.49*	0.6
	Dissolved reactive phosphate (g/m^3)	*0.005*	*0.0049*	0.0049	*0.0049*	*0.0049*
	Total phosphate (g/m^3)	*0.049*	*0.049*	0.049	*0.049*	*0.049*
	Dissolved calcium (g/m^3)	5.3	5.9	5.4	6.7	5.6

Site	Analysis	Week 8	Week 11	Week 12	Week 14	Week 16
R2	Temperature (˚C)	18.5	18.80		16.90	15.40
	Conductivity (µS/cm)	127.2			148.00	104.20
	pH	7.92	8.46		8.50	8.15
	Ammoniacal nitrogen (g/m^3)	*0.0149*	0.018	*0.0149*	*0.0149*	0.024
	Nitrate (g/m^3)	*0.2299*	*0.2299*	*0.2299*	*0.2299*	*0.2299*
	Nitrite (g/m^3)	*0.0149*	*0.0149*	*0.0149*	*0.0149*	*0.0149*
	Dissolved inorganic nitrogen (g/m^3)	0.26	0.263	0.26	0.26	0.269
	Total nitrogen (g/m^3)	*0.49*	*0.49*	*0.49*	*0.49*	*0.49*
	Dissolved reactive phosphate (g/m^3)	0.016	*0.0049*	*0.0049*	*0.0049*	*0.0049*
	Total phosphate (g/m^3)	*0.049*	*0.049*	*0.049*	*0.049*	*0.049*
	Dissolved calcium (g/m^3)	6.9	5.4	4.9	6.8	5.4
R3	Temperature (˚C)	20.6	17.40		16.40	14.90
	Conductivity (µS/cm)	111	136.10		143.20	101.40
	pH	7.69	8.08		8.04	7.93
	Ammoniacal nitrogen (g/m^3)	*0.0149*	0.020	0.018		0.021
	Nitrate (g/m^3)	*0.2299*	*0.2299*	*0.2299*		*0.2299*
	Nitrite (g/m^3)	*0.0149*	*0.0149*	*0.0149*		*0.0149*
	Dissolved inorganic nitrogen (g/m^3)	0.26	0.265	0.263		0.266
	Total nitrogen (g/m^3)	*0.49*	*0.49*	*0.49*		*0.49*
	Dissolved reactive phosphate (g/m^3)	*0.0049*	0.005	*0.0049*		*0.0049*
	Total phosphate (g/m^3)	*0.049*	*0.049*	*0.049*		*0.049*
	Dissolved calcium (g/m^3)	5.4	6.3	5.2		5.3

Call Free 0508 WILDNZ
Ph +64 7 343 9017
Fax +64 7 349018
ecology@wildlands.co.nz

99 Sala Street
PO Box 7137, Te Ngae
Rotorua 3042, New Zealand

Regional Offices located in Auckland; Christchurch;
Dunedin; Hamilton; Invercargill; Queenstown; Tauranga;
Wānaka; Wellington; Whangārei.

wildlands.co.nz

Wildlands

Appendix D

Operation and Maintenance Logs Intake and Production Bores

Bore operational logs

K10 Operational Bore Log

Date	FY	Filled in log bc	Bore Level a	Pump Run Hours	Temperature	Flow Forward	Flow Reverse	Cabinet Filter	Checked W	Compressor S	Run comp	Compressor Run Hours	Well-head Security (	Comments
7/01/2021	2020/2021	Yes	52	4838	14.3	21270	111	3 - No Action	Yes	23/07/2021	Yes	175.00		
14/01/2021	2020/2021	Yes	52	4838	14.4	21270	111	3 - No Action	Yes	23/07/2021	Yes	175.00		
21/01/2021	2020/2021	Yes	52	4838	14.3	21270	111	3 - No Action	Yes	23/07/2021	Yes	175.00		
28/01/2021	2020/2021	Yes	52	4840	15.3	21403	111	3 - No Action	Yes	23/07/2021	Yes	175.00		
4/02/2021	2020/2021	Yes	52	4840	14.3	21403	111	2 - Clean	Yes	23/07/2021	Yes	175.00		
11/02/2021	2020/2021	Yes	52	4840	14.3	21403	111	3 - No Action	Yes	23/07/2021	Yes	175.00		
18/02/2021	2020/2021	Yes	52	4840	14.3	21403	111	1 - Change	Yes	13/07/2021	Yes	175.00		
25/02/2021	2020/2021	Yes	52	4843	15.4	21562	111	2 - Clean	Yes	13/07/2021	Yes	175.00		
3/03/2021	2020/2021	Yes	52	4843	14.3	21562	111	3 - No Action	Yes	23/07/2021	Yes	175.00		checked battery age on ups bu
11/03/2021	2020/2021	Yes	52	4844	14.3	21634	111	3 - No Action	Yes	23/07/2021	Yes	175.00		
23/03/2021	2020/2021	Yes	52	4844	14.3	21634	111	3 - No Action	Yes	13/07/2021	Yes	175.00		
31/03/2021	2020/2021	Yes	52	4846	14.3	21774	111	2 - Clean	Yes	13/07/2021	Yes	176.00		
8/04/2021	2020/2021	Yes	52	4846	14.3	21774	111	2 - Clean	Yes	13/07/2021	Yes	176.00		
22/04/2021	2020/2021	Yes	52	4851	14.9	22051	111	2 - Clean	Yes	13/07/2021	Yes	177.00		
28/04/2021	2020/2021	Yes	52	4851	14.3	22051	111	2 - Clean	Yes	13/07/2021	Yes	177.00		
6/05/2021	2020/2021	Yes	52	4851	14.3	22051	111	2 - Clean	Yes	13/07/2021	Yes	178.00		
13/05/2021	2020/2021	Yes	52	4853	14.3	22170	111	1 - Change	Yes	13/07/2021	Yes	178.00		
20/05/2021	2020/2021	Yes	52	4853	14.3	22170	111	3 - No Action	Yes	23/07/2021	Yes	178.00		
3/06/2021	2020/2021	Yes	52	4853	14.3	22170	111	2 - Clean	Yes	13/07/2021	Yes	178.00		
17/06/2021	2020/2021	Yes	52	4855	14.3	22277	111	3 - No Action	Yes	23/07/2021	Yes	179.00		
29/07/2021	2021/2022	Yes	52	4858	14.3	22439	111	2 - Clean	Yes	13/07/2021	Yes	180.00		Service due
12/08/2021	2021/2022	Yes	52	4860	14.3	22582	111	3 - No Action	Yes	12/02/2022	Yes	180.00		
19/08/2021	2021/2022	Yes	52	4860	14	22582	111	2 - Clean	Yes	12/02/2022	Yes	108.00		
3/09/2021	2021/2022	Yes	52	4860	14.3	22582	111	2 - Clean	Yes	12/02/2022	Yes	180.00		Compressor was manually turn
9/09/2021	2021/2022	Yes	52	4860	14.3	22582	111	2 - Clean	Yes	12/02/2022	Yes	180.00		
23/09/2021	2021/2022	Yes	52	4862	14.4	22715	111	2 - Clean	Yes	12/02/2022	Yes	181.00	Constant leak from l	
30/09/2021	2021/2022	Yes	52	4862	14.3	22715	111	2 - Clean	Yes	12/02/2022	Yes	181.00		
14/10/2021	2021/2022	Yes	51	4865	18.7	22859	111	3 - No Action	Yes	12/02/2022	Yes	181.00		
21/10/2021	2021/2022	Yes	52	4865	14.3	22859	111	3 - No Action	Yes	12/02/2022	Yes	181.00		
23/12/2021	2021/2022	Yes	52	4868	14.4	23067	111	3 - No Action	Yes	12/08/2022	Yes	182.00	power and sensor er	
30/12/2021	2021/2022	Yes	52	4868	14.3	23067	111	3 - No Action	Yes	12/08/2022	Yes	182.00		
6/01/2022	2021/2022	Yes	52	4868	14.3	23067	111	3 - No Action	Yes	12/08/2022	Yes	182.00		
14/01/2022	2021/2022	Yes	52	4868	14.4	23069	111	3 - No Action	Yes	12/08/2022	Yes	182.00		
27/01/2022	2021/2022	Yes	52	4870	14.3	23201	111.36	3 - No Action	Yes	12/08/2022	Yes	183.00		
3/02/2022	2021/2022	Yes	52	4870	14.3	23201.55	111.36	3 - No Action	Yes	18/01/2023	Yes	183.39		
10/02/2022	2021/2022	Yes	52	4870	14.4	23201.55	111.36	3 - No Action	Yes	10/01/2023	Yes	183.00	ok	
17/02/2022	2021/2022	Yes	52	4872	14.7	23321	111	3 - No Action	Yes	18/01/2023	Yes	184.00		
24/02/2022	2021/2022	Yes	52	4872	14.3	23321	111	3 - No Action	Yes	18/01/2023	Yes	184.00		
3/03/2022	2021/2022	Yes	52	4872	14.3	23321	111	3 - No Action	Yes	18/01/2023	Yes	184.00		
9/03/2022	2021/2022	Yes	52	4872	14.3	23321	111	3 - No Action	Yes	18/01/2023	Yes	185.00		
17/03/2022	2021/2022	Yes	52	4875	14.7	23441	111	3 - No Action	Yes	18/01/2023	Yes	185.00		
24/03/2022	2021/2022	Yes	52	4875	14.3	23442	111	2 - Clean	Yes	1/07/2022	Yes	187.00	Ok	
31/03/2022	2021/2022	Yes	52	4875	16.8	23451	111	3 - No Action	Yes	18/07/2022	Yes	188.00		
7/04/2022	2021/2022	Yes	52	4953	14.3	28058.23	111.36	2 - Clean	Yes	1/07/2022	Yes	188.85		
14/04/2022	2021/2022	Yes	50	4966	17.6	28653	111	3 - No Action	Yes	1/07/2022	Yes	189.92		
21/04/2022	2021/2022	Yes	52	4966	14.4	28653	111	3 - No Action	Yes	18/01/2023	Yes	190.00		
28/04/2022	2021/2022	Yes	52	4966	14.4	28653.02	111.36	2 - Clean	Yes	1/07/2022	Yes	190.54		
5/05/2022	2021/2022	Yes	52	4966	14.4	28653.02	111.36	2 - Clean	Yes	5/01/2023	Yes	190.94	OK	
12/05/2022	2021/2022	Yes	51	4968	15.4	28792.98	111.36	3 - No Action	Yes	1/07/2022	Yes	191.00		
19/05/2022	2021/2022	Yes	52	4968	14.4	28792.98	111.36	2 - Clean	Yes	1/01/2023	Yes	192.00	OK	
26/05/2022	2021/2022	Yes	52	4968	14.3	28792	111.36	1 - Change	Yes	1/01/2023	Yes	192.00	OK	
9/06/2022	2021/2022	Yes	52	4970	14.3	28792	111	3 - No Action	Yes	18/01/2023	Yes	193.00		
16/06/2022	2021/2022	Yes	52	4970	15	28913.11	111.36	3 - No Action	Yes	16/01/2023	Yes	194.00	Ok	
23/06/2022	2021/2022	Yes	52	4970	14.3	28913.11	111.36	2 - Clean	Yes	1/01/2023	Yes	194.50	OK	
1/07/2022	2022/2023	Yes	52	4970	14.3	28913.11	111.37	2 - Clean	Yes	1/01/2023	Yes	194.90	ok	
7/07/2022	2022/2023	Yes	52	4970	14.2	28913.11	111.37	2 - Clean	Yes	2/01/2023	Yes	195.20	good	Nil
14/07/2022	2022/2023	Yes	52	4973	16.8	29036.5	111.37	2 - Clean	Yes	1/01/2023	Yes	196.10	Nil	Nil
21/07/2022	2022/2023	Yes	52	4977	14.3	29321.59	111.37	2 - Clean	Yes	21/07/2022	Yes	196.40		
28/07/2022	2022/2023	Yes	53	4977	14.3	29321.59	111.37	2 - Clean	Yes	1/01/2023	Yes	196.00	OK	
4/08/2022	2022/2023	Yes	52	4977	14.3	29321.59	111.37	2 - Clean	Yes	4/07/2022	Yes	197.27		
11/08/2022	2022/2023	Yes	32	4980	24.2	29452.51	111.37	2 - Clean	Yes	11/01/2023	Yes	198.27	OK	
17/08/2022	2022/2023	Yes	52	4980	14.3	29496.1	111.37	2 - Clean	Yes	1/01/2023	Yes	198.27		
25/08/2022	2022/2023	Yes	52	4980	14.3	294296	111	3 - No Action	Yes	18/01/2023	Yes	198.00		
1/09/2022	2022/2023	Yes	52	4980	14.3	29496.1	111.37	2 - Clean	Yes	1/07/2022	Yes	199.17		
8/09/2022	2022/2023	Yes	51	4983	17	29645.24	111.37	2 - Clean	Yes	1/01/2023	Yes	200.00	OK	
15/09/2022	2022/2023	Yes	52	4983	14.3	29645.24	111.37	2 - Clean	Yes	15/01/2023	Yes	200.27		
23/09/2022	2022/2023	Yes	52	4983	14.3	29645	111	3 - No Action	Yes	18/01/2023	Yes	200.00		
29/09/2022	2022/2023	Yes	52	4983	14.3	29645.24	111.37	3 - No Action	Yes	1/01/2023	Yes	200.63		Bleed compressor & cylinder
6/10/2022	2022/2023	Yes	52	4983	14.3	29645.24	111.37	2 - Clean	Yes	6/01/2023	Yes	200.00	OK	
14/10/2022	2022/2023	Yes	52	4985	14.3	29765.71	111.37	2 - Clean	Yes	1/01/2023	Yes	201.72		
20/10/2022	2022/2023	Yes	52	4985	14.3	29765	111	3 - No Action	Yes	18/01/2023	Yes	201.00		
27/10/2022	2022/2023	Yes	52	4985	14.3	29765.71	111.37	3 - No Action	Yes	10/01/2023	Yes	201.74	Ok but compressor s	
3/11/2022	2022/2023	Yes	52	4985	14.3	29765	111	3 - No Action	Yes	10/01/2023	Yes	202.00		
10/11/2022	2022/2023	Yes	52	4985	14.3	29765.71	111.37	2 - Clean	Yes	10/01/2023	Yes	202.13	Ok	
17/11/2022	2022/2023	Yes	52	4985	14.3	29765	111	2 - Clean	Yes	10/01/2023	Yes	202.00		
24/11/2022	2022/2023	Yes	52	4988	14.3	29933.93	111.37	3 - No Action	Yes	10/01/2023	Yes	203.22	Ok	
1/12/2022	2022/2023	Yes	52	4988	14.3	29933.93	111.37	2 - Clean	Yes	10/01/2023	Yes	203.23	Ok	
8/12/2022	2022/2023	Yes	33	4989	24.5	29984.13	111.37	2 - Clean	Yes	8/03/2023	Yes	203.95		
15/12/2022	2022/2023	Yes	52	4990	14.3	30071.94	111.37	2 - Clean	Yes	15/03/2023	Yes	203.95		
22/12/2022	2022/2023	Yes	52	4992	14.3	30178.34	111.37	2 - Clean	Yes	1/03/2022	Yes	204.43	Ok	
29/12/2022	2022/2023	Yes	52	4992	14.3	30178.34	111.37	2 - Clean	Yes	1/01/2023	Yes	204.43	OK	
5/01/2023	2022/2023	Yes	52	4992.31	14.3	30178.34	111.37	2 - Clean	Yes	5/03/2023	Yes	204.57		
12/01/2023	2022/2023	Yes	52	4992.31	14.3	30178.34	111.37	2 - Clean	Yes	18/01/2023	Yes	204.82	OK	
19/01/2023	2022/2023	Yes	52	4996.19	14.3	30408.87	111.37	2 - Clean	Yes	19/03/2023	Yes	205.65		
26/01/2023	2022/2023	Yes	52	4996.19	14.3	30408	111.37	3 - No Action	Yes	26/01/2023	Yes	205.00		
2/02/2023	2022/2023	Yes	52	4996.19	14.3	30408.87	111.37	2 - Clean	Yes	2/03/2023	Yes	205.79		
9/02/2023	2022/2023	Yes	32	4997	24.4	30471	111	3 - No Action	Yes	23/04/2023	Yes	206.00		
16/02/2023	2022/2023	Yes	52	4998	14.3	30528.4	111.37	2 - Clean	Yes	1/03/2023	Yes	206.68	Ok	Comp service date's a bit vague
23/02/2023	2022/2023	Yes	52	4998.21	14.3	30528.4	111.37	2 - Clean	Yes	23/01/2023	Yes	208.96	OK	
2/03/2023	2022/2023	Yes	52	4998.21	14.3	30528.4	111.37	2 - Clean	Yes	23/10/2023	Yes	207.00	Ok	
9/03/2023	2022/2023	Yes	33	4999	24.2	30600	111	3 - No Action	Yes	23/10/2023	Yes	208.00		
16/03/2023	2022/2023	Yes	52	5000	14.3	30654.19	111.37	2 - Clean	Yes	23/10/2023	Yes	208.00	Ok	
23/03/2023	2022/2023	Yes	52	5000.34	14.3	30654.19	111.37	2 - Clean	Yes	24/03/2024	Yes	209.22	OK	
30/03/2023	2022/2023	Yes	52	5000.34	14.2	30654.19	111.37	2 - Clean	Yes	23/10/2023	Yes	209.38		
6/04/2023	2022/2023	Yes	52	5000.34	14.3	30654.19	111.37	2 - Clean	Yes	23/02/2024	Yes	209.38	OK	
13/04/2023	2022/2023	Yes	32	5002	24.3	30770.94	111.37	3 - No Action	Yes	23/10/2023	Yes	210.00	Ok	
20/04/2023	2022/2023	Yes	52	5002.69	14.3	30793.71	111.37	2 - Clean	Yes	23/02/2024	Yes	210.06	OK	
27/04/2023	2022/2023	Yes	52	5002.69	14.3	30793.71	111.37	2 - Clean	Yes	23/10/2023	Yes	210.06		
4/05/2023	2022/2023	Yes	52	5002	14.3	30793.71	111.37	2 - Clean	Yes	23/02/2024	Yes	210.06	OK	
11/05/2023	2022/2023	Yes	32	5005.11	24.6	30937.28	111.37	2 - Clean	Yes	23/10/2023	Yes	210.59		
18/05/2023	2022/2023	Yes	52	5005.11	14.3	30949	111	3 - No Action	Yes	23/02/2024	Yes	216.00		
25/05/2023	2022/2023	Yes	52	5005.33	14.3	30949.81	111.37	2 - Clean	Yes	23/10/2023	Yes	222.93		Cabinet alarm faulty
1/06/2023	2022/2023	Yes	52	5005.33	14.3	30949.81	111.37	2 - Clean	Yes	23/02/2024	Yes	226.48	OK	
8/06/2023	2022/2023	Yes	33	5005.71	24.1	30972.24	111.37	2 - Clean	Yes	23/10/2023	Yes	237.80		
15/06/2023	2022/2023	Yes	52	5007	14.3	31088	111	3 - No Action	Yes	23/02/2024	Yes	271.00		Plc panel view not working, not
22/06/2023	2022/2023	Yes	52	5007	14.3	31088.34	111.37	2 - Clean	Yes	23/10/2023	Yes	272.00	Ok	
29/06/2023	2022/2023	Yes	52	5007.67	14.3	31088.34	111.37	2 - Clean	Yes	23/02/2024	Yes	272.80	OK	
6/07/2023	2023/2024	Yes	52	5007.67	14.3	31088.34	111.37	2 - Clean	Yes	23/10/2023	Yes	273.00	Ok	
13/07/2023	2023/2024	Yes	32	5009.44	24.5	31193.79	111.37	2 - Clean	Yes	23/10/2023	Yes	274.15		
20/07/2023	2023/2024	Yes	52	5009.68	14.3	31207.34	111.37	2 - Clean	Yes	23/10/2023	Yes	274.00	Ok	
27/07/2023	2023/2024	Yes	52	5009.68	14.3	31207.34	111.37	2 - Clean	Yes	23/10/2023	Yes	275.04	OK	
3/08/2023	2023/2024	Yes	52	5009.68	14.3	31207.34	111.37	2 - Clean	Yes	23/10/2023	Yes	275.40		
9/08/2023	2023/2024	Yes	52	5012	14.6	31345	111	3 - No Action	Yes	23/02/2024	Yes	276.00		
17/08/2023	2023/2024	Yes	52	5012	14.3	31345.15	111.37	3 - No Action	Yes	23/02/2024	Yes	276.00		
24/08/2023	2023/2024	Yes	52	5012.01	14.3	31345.16	111.37	2 - Clean	Yes	1/02/2024	Yes	277.18	OK	
31/08/2023	2023/2024	Yes	52	5012.01	14.3	31345.16	111.37	2 - Clean	Yes	29/02/2024	Yes	277.42		
7/09/2023	2023/2024	Yes	52	5012.01	14.3	31345.16	111.37	3 - No Action	Yes	23/02/2024	Yes	277.76		
14/09/2023	2023/2024	Yes	52	5014	14.7	31467.27	111.37	2 - Clean	Yes	14/02/2024	Yes	278.00	Ok	
21/09/2023	2023/2024	Yes	52	5014	14.3	31467.27	111.37	3 - No Action	Yes	23/02/2024	Yes	278.00		Panel Display has not rebooted
28/09/2023	2023/2024	Yes	52	5014.07	14.3	31467.27	111.37	2 - Clean	Yes	28/02/2024	Yes	279.17		
5/10/2023	2023/2024	Yes	52	5014.07	14.3	31467.27	111.37	3 - No Action	Yes	23/02/2024	Yes	279.53		
12/10/2023	2023/2024	Yes	50	5017	19.3	31686.9	111.37	2 - Clean	Yes	1/02/2024	Yes	280.00	Ok	
19/10/2023	2023/2024	Yes	52	5017.77	14.4	31686.9	111.37	2 - Clean	Yes	1/02/2024	Yes	280.49	OK	
26/10/2023	2023/2024	Yes	52	5017.77	14.3	31686.9	111.37	2 - Clean	Yes	26/02/2024	Yes	280.91		
2/11/2023	2023/2024	Yes	52	5017.77	14.3	31686	111	3 - No Action	Yes	23/01/2024	Yes	281.00		
9/11/2023	2023/2024	Yes	52	5020	14.7	31823.11	111.37	3 - No Action	Yes	1/02/2024	Yes	282.00	Ok	
16/11/2023	2023/2024	Yes	52	5020.07	14.4	31823.11	111.37	2 - Clean	Yes	1/02/2024	Yes	282.14	OK	Paint repairs required
23/11/2023	2023/2024	Yes	52	5020.07	14.4	31823.11	111.37	2 - Clean	Yes	23/02/2024	Yes	283.70		
30/11/2023	2023/2024	Yes	52	5020.07	14.4	31823	111	3 - No Action	Yes	23/02/2024	Yes	282.00		
7/12/2023	2023/2024	Yes	52	5020.07	14.4	31823.11	111.37	2 - Clean	Yes	1/02/2024	Yes	282.00	Ok	
14/12/2023	2023/2024	Yes	51	5023	18.3	32018.86	111.37	2 - Clean	Yes	1/02/2024	Yes	283.00	OK	
21/12/2023	2023/2024	Yes	52	5023.38	14.4	32018.86	111.37	3 - No Action	Yes	23/02/2024	Yes	283.79		no sealant around cable entry
28/12/2023	2023/2024	Yes	52	5023.38	14.4	32018	111	3 - No Action	Yes	28/02/2024	Yes	283.00		
4/01/2024	2023/2024	Yes	52	5023.38	14.4	32018.86	111.37	3 - No Action	Yes	28/02/2024	Yes	284.00		
11/01/2024	2023/2024	Yes	52	5025	15.2	32121.74	111.37	2 - Clean	Yes	1/02/2024	Yes	285.00	OK	
18/01/2024	2023/2024	Yes	52	5025.12	14.4	32121.74	111.37	3 - No Action	Yes	18/02/2024	Yes	285.01		
25/01/2024	2023/2024	Yes	52	5025.12	14.4	32121.74	111.37	2 - Clean	Yes	17/02/2024	Yes	285.14		
1/02/2024	2023/2024	Yes	52	5025.12	14.4	32121.74	111.37	2 - Clean	Yes	1/02/2024	Yes	285.00	Ok	
8/02/2024	2023/2024	Yes	52	5025.12	14.4	32121.74	111.37	2 - Clean	Yes	8/02/2024	Yes	285.00	Ok	
15/02/2024	2023/2024	Yes	50	5027	19.4	32273.87	111.37	2 - Clean	Yes	15/02/2024	Yes	286.00	Ok	
22/02/2024	2023/2024	Yes	52	5027	14.4	32273	111	3 - No Action	Yes	23/02/2024	Yes	287.00		Service due on comp
29/02/2024	2023/2024	Yes	52	5027	14.4	32273.87	111.37	2 - Clean	Yes	29/08/2024	Yes	288.00	Ok	
7/03/2024	2023/2024	Yes	52	5027	14.3	32273.87	111.37	2 - Clean	Yes	29/08/2024	Yes	288.00	Ok	
14/03/2024	2023/2024	Yes	51	5029.85	16.8	32401.97	111.37	2 - Clean	Yes	29/08/2024	Yes	289.41		
21/03/2024	2023/2024	Yes	52	5029.85	14.3	32401	111	3 - No Action	Yes	28/02/2025	Yes	289.00		
28/03/2024	2023/2024	Yes	52	5029.85	14.3	32401.97	111.37	2 - Clean	Yes	29/08/2024	Yes	289.00	Ok	Bottom of cabinet filter plastic l
4/04/2024	2023/2024	Yes	52	5029.85	14.3	32401.97	111.37	2 - Clean	Yes	29/08/2024	Yes	289.00	Ok	
11/04/2024	2023/2024	Yes	51	5032	16.6	32533.76	111.37	2 - Clean	Yes	29/08/2024	Yes	290.38		
18/04/2024	2023/2024	Yes	52	5032	14.3	32533	111	3 - No Action	Yes	28/02/2025	Yes	290.00		
25/04/2024	2023/2024	Yes	52	5032	14.3	32533.76	111.37	2 - Clean	Yes	29/08/2024	Yes	290.00	Ok	Air vessel fencing paint peeling
2/05/2024	2023/2024	Yes	52	5032	14.3	32533.76	111.37	2 - Clean	Yes	29/08/2024	Yes	290.00	OK	
9/05/2024	2023/2024	Yes	52	5034	14.3	32652	111.37	2 - Clean	Yes	29/08/2024	Yes	291.00	Ok	
16/05/2024	2023/2024	Yes	52	5034	14.4	32652.71	111.37	2 - Clean	Yes	29/08/2024	Yes	291.10		
23/05/2024	2023/2024	Yes	52	5034	14.3	32652.71	111.37	2 - Clean	Yes	29/08/2024	Yes	291.00	OK	
30/05/2024	2023/2024	Yes	52	5034	14.3	32652.71	111.37	2 - Clean	Yes	29/08/2024	Yes	291.00	OK	
6/06/2024	2023/2024	Yes	52	5034	14.3	32652	111.37	2 - Clean	Yes	29/08/2024	Yes	291.00	Ok	
13/06/2024	2023/2024	Yes	52	5036.08	14.8	32770.55	111.37	2 - Clean	Yes	29/08/2024	Yes	292.05		
20/06/2024	2023/2024	Yes	52	5036.08	14.3	32770	111	3 - No Action	Yes	28/02/2025	Yes	292.00		
27/06/2024	2023/2024	Yes	52	5036.46	14.3	32790.81	111.4	2 - Clean	Yes	29/08/2024	Yes	292.00	Ok	
4/07/2024	2024/2025	Yes	52	5036.46	14.3	32790.88	111	3 - No Action	Yes	28/02/2025	Yes	292.00		
11/07/2024	2024/2025	Yes	52	5036.46	14.3	32790.94	111.5	2 - Clean	Yes	29/08/2024	Yes	292.00	Ok	
18/07/2024	2024/2025	Yes	52	5038	14.3	32892.44	111.55	2 - Clean	Yes	29/08/2024	Yes	292.96		
25/07/2024	2024/2025	Yes	52	5038.37	14.4	32892.52	111.61	2 - Clean	Yes	29/08/2024	Yes	292.96		

KB4 Operational Bore Log

Date	FY	Filled in lo	Bore Level	Pump Run	Temperatu	Flow Forw	Flow Reve	Cabinet Fl	Checked V	Well-head	Comments
7/01/2021	2020/2021	Yes	33	5512	14.7	277496	5089	3 - No Acti	Yes		
14/01/2021	2020/2021	Yes	33	5512	14.9	277504	5105	3 - No Acti	Yes		
21/01/2021	2020/2021	Yes	33	5512	14.6	277504	5121	3 - No Acti	Yes		
28/01/2021	2020/2021	Yes	33	5514	15	277777	5139	3 - No Acti	Yes		
4/02/2021	2020/2021	Yes	33	5514	14.8	277777	5154	2 - Clean	Yes		
11/02/2021	2020/2021	Yes	33	5514	14.7	277777	5169	3 - No Acti	Yes		
18/02/2021	2020/2021	Yes	33	5514	14.7	277777	5185	1 - Change	Yes		
18/02/2021	2020/2021	Yes	33	5514	14.7	277777	5185	1 - Change	Yes		
25/02/2021	2020/2021	Yes	33	5516	15.8	278075	5207	2 - Clean	Yes		
3/03/2021	2020/2021	Yes	33	5524	14.8	278662	5220	2 - Clean	No		display not booting up properly. inform Tom
11/03/2021	2020/2021	Yes	0.33	5564	14.7	282679	5234	3 - No Acti	Yes		
23/03/2021	2020/2021	Yes	33	5564	14.7	282679	5234	3 - No Acti	Yes		had to reboot display as screen stuck. this
31/03/2021	2020/2021	Yes	33	5567	14.7	282972	5279	2 - Clean	Yes		
8/04/2021	2020/2021	Yes	33	5567	14.7	282972	5297	2 - Clean	Yes		
22/04/2021	2020/2021	Yes	33	5571	15.4	283529	5330	2 - Clean	Yes		
28/04/2021	2020/2021	Yes	33	5571	14.5	283529	5344	2 - Clean	Yes		
6/05/2021	2020/2021	Yes	33	5571	14.7	283529	5362	2 - Clean	Yes		
13/05/2021	2020/2021	Yes	33	5573	14.7	283764	5377	1 - Change	Yes		
20/05/2021	2020/2021	Yes	33	5573	14.7	283764	5393	3 - No Acti	Yes		
3/06/2021	2020/2021	Yes	33	5573	14.6	283764	5424	2 - Clean	Yes		
17/06/2021	2020/2021	Yes	33	5575	14.6	283982	5454	3 - No Acti	Yes		
29/07/2021	2021/2022	Yes	33	5578	14.6	284328	5454	2 - Clean	Yes		
12/08/2021	2021/2022	Yes	33	5580	14.6	284626	5587	3 - No Acti	Yes		
19/08/2021	2021/2022	Yes	33	5580	14.7	284625	5603	2 - Clean	Yes		
3/09/2021	2021/2022	Yes	33	5580	14.6	284625	5603	2 - Clean	Yes		
9/09/2021	2021/2022	Yes	33	5580	14.7	284625	5652	2 - Clean	Yes		
23/09/2021	2021/2022	Yes	33	5582	14.7	284905	5685	2 - Clean	Yes		
30/09/2021	2021/2022	Yes	33	5582	14.6	284905	5701	2 - Clean	Yes		
14/10/2021	2021/2022	Yes	32	5585	17.3	285206	5733	3 - No Acti	Yes		
21/10/2021	2021/2022	Yes	33	5585	14.7	285206	5750	3 - No Acti			
23/12/2021	2021/2022	Yes	33	5590	14.9	285800	5601	3 - No Acti		level sens	
30/12/2021	2021/2022	Yes	35	5590	14.8	285800	5916	3 - No Acti	Yes		
6/01/2022	2021/2022	Yes	36	5590	14.8	285800	5916	3 - No Acti	Yes		
3/02/2022	2021/2022	Yes	37	5592	14.8	286096	5999	3 - No Acti	Yes	nil	
10/02/2022	2021/2022	Yes	37	5592	14.9	286096	6015	3 - No Acti	Yes		
17/02/2022	2021/2022	Yes	36	5594	15.3	286344	6031	3 - No Acti	Yes		
24/02/2022	2021/2022	Yes	36	5594	14.8	286344	6048	3 - No Acti	Yes		
3/03/2022	2021/2022	Yes	36	5594	14.9	286345	6065	3 - No Acti	Yes		
10/03/2022	2021/2022	Yes	36	5596	15.4	286592	6084	3 - No Acti	Yes		
17/03/2022	2021/2022	Yes	36	5596	14.7	286592	6100	3 - No Acti	Yes		
24/03/2022	2021/2022	Yes	36	5643	14.7	290355	6112	2 - Clean	Yes	Ok	
31/03/2022	2021/2022	Yes	27	5735	22.5	300826	6119	3 - No Acti	Yes		
7/04/2022	2021/2022	Yes	35	5867	14.7	317284	6123	2 - Clean	Yes		
14/04/2022	2021/2022	Yes	27	5992	22.5	332660	6127	3 - No Acti	Yes		
21/04/2022	2021/2022	Yes	36	5996	14.7	333091	6143	3 - No Acti	Yes		
28/04/2022	2021/2022	Yes	36	5996	14.6	333091	6160	2 - Clean	Yes		
5/05/2022	2021/2022	Yes	36	5996	14.7	333091	6177	2 - Clean	Yes	OK	
12/05/2022	2021/2022	Yes	36	5996	14.6	333091	6194	3 - No Acti	Yes		
19/05/2022	2021/2022	Yes	36	5996	14.7	333091	6210	2 - Clean	Yes	OK	
26/05/2022	2021/2022	Yes	36	5996	14.6	333091	6227	1 - Change	Yes	OK	
9/06/2022	2021/2022	Yes	36	5996	14.7	333091	6259	3 - No Acti	Yes		
16/06/2022	2021/2022	Yes	36	5996	14.7	333091	6278	3 - No Acti	Yes	Ok	
23/06/2022	2021/2022	Yes	36	5996	14.5	333091	6295	2 - Clean	Yes	OK	Electrical work been carry out on main swit
30/06/2022	2021/2022	Yes	37	5996	14.6	333092	6312	2 - Clean	Yes	ok	
7/07/2022	2022/2023	Yes	36	5996	14.4	333092	6328	2 - Clean	Yes	Good	Nil
14/07/2022	2022/2023	Yes	37	5996	14.6	333092	6346	2 - Clean	Yes	Nil	Nil
21/07/2022	2022/2023	Yes	2	5996	14.5	333092	6363	2 - Clean	Yes		
28/07/2022	2022/2023	Yes	2	5996	14.6	333092	6380	2 - Clean	Yes	OK	
4/08/2022	2022/2023	Yes	3	5996	14.7	333092	6398	2 - Clean	Yes		
11/08/2022	2022/2023	Yes	3	5996	14.5	333092	6415	2 - Clean	Yes	OK	
17/08/2022	2022/2023	Yes	4	5996	14.7	333092	6431	2 - Clean	Yes		
25/08/2022	2022/2023	Yes	99	5996	14.7	333092	6450	3 - No Acti	Yes		
8/09/2022	2022/2023	Yes	0	5996	14.7	333093	6486	2 - Clean	Yes	OK	Borehole level has no display
15/09/2022	2022/2023	Yes	0	5996	14.6	333093	6504	2 - Clean	Yes		Bore level not showing on display
23/09/2022	2022/2023	Yes	36	5996	14.6	333110	6523	3 - No Acti	Yes		
29/09/2022	2022/2023	Yes	36	5996	14.5	333110	6539	3 - No Acti	Yes		
6/10/2022	2022/2023	Yes	36	5996	14.4	333110	6556	2 - Clean	Yes	OK	
14/10/2022	2022/2023	Yes	36	5998.54	14.7	333359	6576	2 - Clean	Yes		
20/10/2022	2022/2023	Yes	36	5998	14.5	333359	6592	3 - No Acti	Yes		
27/10/2022	2022/2023	Yes	36	5998	14.5	333359	6609	3 - No Acti	Yes		
3/11/2022	2022/2023	Yes	36	5998	14.6	333360	6628	3 - No Acti	Yes		alarm not ack
10/11/2022	2022/2023	Yes	36	5998	14.6	333360	6647	2 - Clean	Yes	Ok	
17/11/2022	2022/2023	Yes	36	5998	14.5	333360	6665	2 - Clean	Yes		alarm not ACK
24/11/2022	2022/2023	Yes	36	6001	14.7	333703	6682	3 - No Acti	Yes	Ok	
1/12/2022	2022/2023	Yes	36	6001	14.7	333703	6700	2 - Clean	Yes	Ok	
8/12/2022	2022/2023	Yes	28	6002.37	23.8	333833	6718	2 - Clean	Yes		
16/12/2022	2022/2023	Yes	36	6003	14.7	333984	6739	2 - Clean	Yes		
22/12/2022	2022/2023	Yes	36	6005	14.9	334198	6753	2 - Clean	Yes	Ok	
29/12/2022	2022/2023	Yes	36	6005.36	14.8	334198	6771	2 - Clean	Yes	OK	
5/01/2023	2022/2023	Yes	36	6005.35	14.5	334198	6787	2 - Clean	Yes		
12/01/2023	2022/2023	Yes	36	6005.35	14.6	334198	6804	2 - Clean	Yes	OK	
19/01/2023	2022/2023	Yes	36	6009.22	14.7	334677	6820	2 - Clean	Yes		
26/01/2023	2022/2023	Yes	36	6009	14.8	334677	6820	3 - No Acti	Yes		alarm shutoff not working on display. reset
2/02/2023	2022/2023	Yes	36	6009.22	14.6	334678	6852	2 - Clean	Yes		
9/02/2023	2022/2023	Yes	28	6010	23.7	334825	6870	3 - No Acti	Yes		
16/02/2023	2022/2023	Yes	36	6011	14.5	334923	6887	2 - Clean	Yes	Ok	
23/02/2023	2022/2023	Yes	36	6011.21	14.6	334923	6903	2 - Clean	Yes	OK	
2/03/2023	2022/2023	Yes	36	6011	14.6	334924	6921	2 - Clean	Yes	Ok	
9/03/2023	2022/2023	Yes	28	6012	23.4	335084	6934	3 - No Acti	Yes		
16/03/2023	2022/2023	Yes	36	6013	14.7	335175	6952	2 - Clean	Yes	Ok	Gave bore apron a sweep, stones
23/03/2023	2022/2023	Yes	36	6013.25	14.6	335175	6968	2 - Clean	Yes	OK	
30/03/2023	2022/2023	Yes	36	6013.25	14.4	335175	6984	2 - Clean	Yes		
6/04/2023	2022/2023	Yes	36	6013.25	14.6	335175	7000	2 - Clean	Yes	OK	
13/04/2023	2022/2023	Yes	28	6014	23.5	335387	7016	3 - No Acti	Yes	Ok	
20/04/2023	2022/2023	Yes	36	6015.55	14.6	335458	7032	2 - Clean	Yes	OK	
27/04/2023	2022/2023	Yes	36	6015.55	14.5	335458	7048	2 - Clean	Yes		
4/05/2023	2022/2023	Yes	36	6015.52	14.6	335458	7065	2 - Clean	Yes	OK	
11/05/2023	2022/2023	Yes	28	6017.72	23.6	335730	7081	2 - Clean	Yes		
18/05/2023	2022/2023	Yes	49	7800	13.7	433753	7081	3 - No Acti	Yes		
18/05/2023	2022/2023	Yes	49	7800	13.7	433753	7081	3 - No Acti	Yes		
25/05/2023	2022/2023	Yes	36	6018.05	14.5	335767	7115	2 - Clean	Yes		
1/06/2023	2022/2023	Yes	36	6018.02	14.6	335767	7132	2 - Clean	Yes	OK	
8/06/2023	2022/2023	Yes	28	6019.01	23.5	335887	7149	2 - Clean	Yes		
15/06/2023	2022/2023	Yes	36	6020	14.4	336048	7167	3 - No Acti	Yes		Plc not ack alarm
22/06/2023	2022/2023	Yes	36	6020	14.5	336048	7185	2 - Clean	Yes	Ok	
29/06/2023	2022/2023	Yes	36	6020.32	14.5	336048	7203	2 - Clean	Yes	OK	
6/07/2023	2023/2024	Yes	36	6020	14.5	336049	7223	2 - Clean	Yes	Ok	
13/07/2023	2023/2024	Yes	28	6021.89	23.6	336244	7241	2 - Clean	Yes		
20/07/2023	2023/2024	Yes	36	6022	14.5	336292	7260	2 - Clean	Yes	Ok	
27/07/2023	2023/2024	Yes	36	6022.29	14.5	336292	7279	2 - Clean	Yes	OK	
3/08/2023	2023/2024	Yes	36	6022.29	14.4	336292	7298	2 - Clean	Yes		
9/08/2023	2023/2024	Yes	36	6024	15	336570	7315	3 - No Acti	Yes		
17/08/2023	2023/2024	Yes	36	6024	14.5	336571	7338	3 - No Acti	Yes		
24/08/2023	2023/2024	Yes	36	6024.55	14.6	336573	7359	2 - Clean	Yes	OK	
31/08/2023	2023/2024	Yes	36	6024.55	14.5	336573	7378	2 - Clean	Yes		
7/09/2023	2023/2024	Yes	36	6024.55	14.6	3366575	7399	3 - No Acti	Yes		
14/09/2023	2023/2024	Yes	36	6026	15.2	336781	7418	2 - Clean	Yes	Ok	
21/09/2023	2023/2024	Yes	36	6026	14.6		7437	3 - No Acti	Yes		Reset power on display to get alarm stop c
28/09/2023	2023/2024	Yes	36	6026.22	14.5	336782	7457	2 - Clean	Yes		
5/10/2023	2023/2024	Yes	36	6026	14.6	336782	7476	3 - No Acti	Yes		
12/10/2023	2023/2024	Yes	35	6029	18.6	337208	7495	2 - Clean	Yes	Ok	
19/10/2023	2023/2024	Yes	36	6029.67	14.6	337208	7514	2 - Clean	Yes	OK	
26/10/2023	2023/2024	Yes	36	6029.67	14.6	337208	7532	2 - Clean	Yes		
2/11/2023	2023/2024	Yes	36	6029	14.6	337208	7551	3 - No Acti	Yes		
9/11/2023	2023/2024	Yes	35	6031	15.2	337481	7573	3 - No Acti	Yes	Ok	
16/11/2023	2023/2024	Yes	36	6031.86	14.7	337481	7591	2 - Clean	Yes	OK	
23/11/2023	2023/2024	Yes	36	6031.86	14.6	337481	7610	2 - Clean	Yes		
30/11/2023	2023/2024	Yes	36	6031	14.6	337482	7630	3 - No Acti	Yes		
7/12/2023	2023/2024	Yes	36	6031	14.7	337482	7648	2 - Clean	Yes	Ok	
14/12/2023	2023/2024	Yes	35	6035	15.9	337888	7668	2 - Clean	Yes	OK	
21/12/2023	2023/2024	Yes	36	6035	14.6	337889		3 - No Acti	Yes		
28/12/2023	2023/2024	Yes	36	6035	14.8	337889	7705	3 - No Acti	Yes		
4/01/2024	2023/2024	Yes	36	6035	14.7	337889	7723	3 - No Acti	Yes		
11/01/2024	2023/2024	Yes	36	6036	15.5	338100	7742	2 - Clean	Yes	OK	Crack appearing in wrap
18/01/2024	2023/2024	Yes	36	6036.84	14.8	338100	7761	2 - Clean	Yes		
25/01/2024	2023/2024	Yes	36	6036.84	14.8	338100	7780	2 - Clean	Yes		
1/02/2024	2023/2024	Yes	36	6036	14.7	338100	7800	2 - Clean	Yes	Ok	
8/02/2024	2023/2024	Yes	36	6036	14.7	338101	7821	2 - Clean	Yes	Ok	
15/02/2024	2023/2024	Yes	35	6039	17.6	338411	7841	2 - Clean	Yes	Ok	
22/02/2024	2023/2024	Yes	36	6039	14.7	338412	7862	3 - No Acti	Yes		
29/02/2024	2023/2024	Yes	36	6039	14.7	338412	7883	2 - Clean	Yes	Ok	
7/03/2024	2023/2024	Yes	36	6039	14.5	338416	7908	2 - Clean	Yes	Ok	
14/03/2024	2023/2024	Yes	35	6041.47	16.5	338677	7931	2 - Clean	Yes		
21/03/2024	2023/2024	Yes	36	6041	14.6	338677	7953	3 - No Acti	Yes		
28/03/2024	2023/2024	Yes	36	6041	14.6	338681	7980	2 - Clean	Yes	Ok	Retic guys have fixed the leaking Toby on t
4/04/2024	2023/2024	Yes	36	6041	14.6	338684	8004	2 - Clean	Yes	Ok	
11/04/2024	2023/2024	Yes	35	6043	16.5	338943	8030	2 - Clean	Yes		
18/04/2024	2023/2024	Yes	36	6043	14.6	338947	8056	3 - No Acti	Yes		
26/04/2024	2023/2024	Yes	36	6043	14.6	338950	8085	2 - Clean	Yes	Ok	
2/05/2024	2023/2024	Yes	36	6043	14.6	338953	8109	2 - Clean	Yes	OK	Plastic covering still cracking on door
9/05/2024	2023/2024	Yes	36	6045	14.6	339194	8134	2 - Clean	Yes	Ok	
16/05/2024	2023/2024	Yes	36	6045	14.6	339198	8161	2 - Clean	Yes		
23/05/2024	2023/2024	Yes	36	6045	14.5	339200	8186	2 - Clean	Yes	OK	
30/05/2024	2023/2024	Yes	36	6045	14.5	339211	8222	2 - Clean	Yes	OK	
6/06/2024	2023/2024	Yes	36	6045	14.5	339215	8250	2 - Clean	Yes	Ok	Looks like relief valve is starting to weep
13/06/2024	2023/2024	Yes	36	6047.38	15.2	339452	8277	2 - Clean	Yes		
20/06/2024	2023/2024	Yes	36	6047	14.5	339456	8304	3 - No Acti	Yes		
27/06/2024	2023/2024	Yes	36	6047	14.5	339459	8332	2 - Clean	Yes	Ok	
4/07/2024	2024/2025	Yes	36	6047	14.5	339467	8360	3 - No Acti	Yes		
11/07/2024	2024/2025	Yes	36	6047	14.6	339467	8388	2 - Clean	Yes	Ok	HMI intruder alarm stays red see pic.
18/07/2024	2024/2025	Yes	36	6049	14.6	339697	8414	2 - Clean	Yes		
25/07/2024	2024/2025	Yes	36	6049.22	14.5	339702	8443	2 - Clean	Yes		Alarm system showing up with intruder, reg

Kāpiti Coast DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

K4 Operation Bore Log

Date	FY	Filled in lo	Bore Level	Pump Run	Temperatu	Flow Forw	Flow Reve	Cabinet Fi	Checked V	Well-head Security	Comment	Comments
7/01/2021	2020/2021	Yes	49	7452	13.7	1537424	88148	3 - No Acti	Yes			
14/01/2021	2020/2021	Yes	49	7452	13.8	1537578	88297	3 - No Acti	Yes			
21/01/2021	2020/2021	Yes	49	7452	13.7	1537633	88364	3 - No Acti	Yes			
28/01/2021	2020/2021	Yes	49	7454	14.4	1538218	88449	3 - No Acti	Yes			
4/02/2021	2020/2021	Yes	49	7454	13.8	1538360	88600	2 - Clean	Yes			
11/02/2021	2020/2021	Yes	49	7454	13.7	1538442	88689	3 - No Acti	Yes			
18/02/2021	2020/2021	Yes	49	7475	13.7	1538544	88798	1 - Change	Yes			
25/02/2021	2020/2021	Yes	49	7457	15.4	1539294	88925	2 - Clean	Yes			
3/03/2021	2020/2021	Yes	49	7457	13.8	1539386	89024	2 - Clean	Yes			estimate ups battery age 5 years
23/03/2021	2020/2021	Yes	49	7469	13.7	1541353	89024	3 - No Acti	Yes			alarm not silencing wen X pressed. rest p
31/03/2021	2020/2021	Yes	49	7471	13.7	1541977	89447	2 - Clean	Yes			
8/04/2021	2020/2021	Yes	49	7471	13.7	1542104	89586	2 - Clean	Yes			
22/04/2021	2020/2021	Yes	49	7475	14.8	1543247	89769	2 - Clean	Yes			
28/04/2021	2020/2021	Yes	49	7475	13.7	1543311	89838	2 - Clean	Yes			
6/05/2021	2020/2021	Yes	49	7475	13.7	1543469	89999	2 - Clean	Yes			
13/05/2021	2020/2021	Yes	49	7477	13.9	1544002	90112	1 - Change	Yes			
20/05/2021	2020/2021	Yes	49	7477	13.7	1544186	90299	3 - No Acti	Yes			
3/06/2021	2020/2021	Yes	49	7477	13.7	1544566	90671	2 - Clean	Yes			
17/06/2021	2020/2021	Yes	49	7479	13.7	1545156	90859	3 - No Acti	Yes			
29/07/2021	2021/2022	Yes	49	7482	13.7	1546553	90859	2 - Clean	Yes			
12/08/2021	2021/2022	Yes	49	7484	13.7	1547344	91711	3 - No Acti	Yes			
19/08/2021	2021/2022	Yes	49	7484	13.7	1547555	91904	2 - Clean	Yes			
3/09/2021	2021/2022	Yes	49	7484	13.7	1547555	92018	2 - Clean	Yes			
9/09/2021	2021/2022	Yes	49	7484	13.7	1547759	92067	2 - Clean	Yes			
23/09/2021	2021/2022	Yes	49	7486	13.7	1548522	92270	2 - Clean	Yes			
30/09/2021	2021/2022	Yes	49	7486	13.7	1548763	92472	2 - Clean	Yes			
14/10/2021	2021/2022	Yes	48	7488	18	1549669	92666	3 - No Acti	Yes			
21/10/2021	2021/2022	Yes	49	7488	13.7	1549884	92752	3 - No Acti	Yes			
23/12/2021	2021/2022	Yes	49	7493	13.8	1552846	94040	3 - No Acti				
30/12/2021	2021/2022	Yes	49	7493	13.8	1553062	94282	3 - No Acti	Yes			
6/01/2022	2021/2022	Yes	49	7493	13.9	1553349	94282	3 - No Acti	Yes			
14/01/2022	2021/2022	Yes	49	7493	13.8	1553747	95149	3 - No Acti	Yes			
27/01/2022	2021/2022	Yes	49	7495	13.8	1555261	96381	3 - No Acti	Yes			
3/02/2022	2021/2022	Yes	49	7495	13.7	1555833	97164	2 - Clean	Yes		ok	
10/02/2022	2021/2022	Yes	49	7495	13.7	1556378	97961	3 - No Acti	Yes			
17/02/2022	2021/2022	Yes	49	7497	14.6	1557373	98646	3 - No Acti	Yes			
24/02/2022	2021/2022	Yes	49	7497	13.7	1557991	99475	3 - No Acti	Yes			
3/03/2022	2021/2022	Yes	49	7497	13.7	1558659	100392	3 - No Acti	Yes			
10/03/2022	2021/2022	Yes	49	7499	14.6	1559698	101185	3 - No Acti	Yes			
17/03/2022	2021/2022	Yes	49	7499	13.7	1560342	102105	3 - No Acti	Yes			
24/03/2022	2021/2022	Yes	49	7496	13.7	1561728	104179	2 - Clean	Yes		Ok	
31/03/2022	2021/2022	Yes	37	7568	22.7	1572960	105830	3 - No Acti	Yes			
7/04/2022	2021/2022	Yes	49	7626	13.8	397377	4910	2 - Clean	Yes			
14/04/2022	2021/2022	Yes	31	7758	25.5	424097	4913	3 - No Acti	Yes			
21/04/2022	2021/2022	Yes	49	7761	13.7	424824	4930	3 - No Acti	Yes			
28/04/2022	2021/2022	Yes	49	7761	13.7	424824	4945	2 - Clean	Yes			
5/05/2022	2021/2022	Yes	49	7761	13.7	424824	4959	2 - Clean	Yes		OK	
12/05/2022	2021/2022	Yes	48	7764	15.2	425359	4973	3 - No Acti	Yes			
19/05/2022	2021/2022	Yes	49	7764	13.7	425359	4988	2 - Clean	Yes		OK	
26/05/2022	2021/2022	Yes	49	7764	13.7	425359	5002	1 - Change	Yes		OK	
9/06/2022	2021/2022	Yes	49	7764	13.7	425359	5027	3 - No Acti	Yes			
16/06/2022	2021/2022	Yes	49	7766	15.2	425815	5042	3 - No Acti	Yes		Ok	
23/06/2022	2021/2022	Yes	49	7766	13.7	425815	5055	2 - Clean	Yes		OK	
30/06/2022	2021/2022	Yes	49	7766	13.7	425815	5068	2 - Clean	Yes		ok	
7/07/2022	2022/2023	Yes	49	7766	13.6	425815	5081	2 - Clean	Yes		Good	Nil
14/07/2022	2022/2023	Yes	49	7768	15.9	426299	5095	2 - Clean	Yes		Nil	Nil
21/07/2022	2022/2023	Yes	49	7773	13.7	427590	5108	2 - Clean	Yes			
28/07/2022	2022/2023	Yes	49	7773	13.7	427590	5121	2 - Clean	Yes		OK	
4/08/2022	2022/2023	Yes	49	7773	13.7	427590	5135	2 - Clean	Yes			
11/08/2022	2022/2023	Yes	45	7776	26.3	428285	5148	2 - Clean	Yes		OK	Motor temp higher than normal on pump
17/08/2022	2022/2023	Yes	49	7776	13.7	428285	5160	2 - Clean	Yes			
25/08/2022	2022/2023	Yes	49	7776	13.7	428285	5176	3 - No Acti	Yes			
1/09/2022	2022/2023	Yes	49	7776	13.7	428285	5190	2 - Clean	Yes			
8/09/2022	2022/2023	Yes	48	7779	15.8	428839	5205	2 - Clean	Yes		OK	
15/09/2022	2022/2023	Yes	49	7779	13.7	428839	5220	2 - Clean	Yes			
23/09/2022	2022/2023	Yes	49	7779	13.7	428839	5236	3 - No Acti	Yes			
29/09/2022	2022/2023	Yes	49	7779	13.7	428839	5249	3 - No Acti	Yes			
6/10/2022	2022/2023	Yes	49	7779	13.6	428839	5263	2 - Clean	Yes		OK	
14/10/2022	2022/2023	Yes	49	7781	13.8	429300	5279	2 - Clean	Yes			
20/10/2022	2022/2023	Yes	49	7781	13.7	429300	5293	3 - No Acti	Yes			
27/10/2022	2022/2023	Yes	49	7781	13.7	429300	5309	3 - No Acti	Yes		Ok	
3/11/2022	2022/2023	Yes	49	7781	13.7	429300	5325	3 - No Acti	Yes			
10/11/2022	2022/2023	Yes	49	7781	13.7	429300	5342	2 - Clean	Yes		Ok	
17/11/2022	2022/2023	Yes	49	7781	13.6	429300	5360	2 - Clean	Yes			
24/11/2022	2022/2023	Yes	49	7783	13.8	429919	5377	3 - No Acti	Yes		Ok	
1/12/2022	2022/2023	Yes	49	7783	13.7	429919	5394	2 - Clean	Yes		Ok	
8/12/2022	2022/2023	Yes	29	7784	29.4	430209	5411	2 - Clean	Yes			
16/12/2022	2022/2023	Yes	49	7785	13.7	430432	5434	2 - Clean	Yes			
22/12/2022	2022/2023	Yes	49	7787	13.8	430825	5450	2 - Clean	Yes		Ok	
29/12/2022	2022/2023	Yes	49	7787.56	13.7	430825	5474	2 - Clean	Yes		OK	
5/01/2023	2022/2023	Yes	49	7787.56	13.7	430825	5493	2 - Clean	Yes			
12/01/2023	2022/2023	Yes	49	7787	13.7	430825	5510	2 - Clean	Yes		OK	
19/01/2023	2022/2023	Yes	49	7791.45	13.8	431731	5529	2 - Clean	Yes			
26/01/2023	2022/2023	Yes	49	7791	13.7	431731	5529	3 - No Acti	Yes			
2/02/2023	2022/2023	Yes	49	7791.45	13.7	431732	5573	2 - Clean	Yes			
9/02/2023	2022/2023	Yes	29	7792	29.3	432042	5593	3 - No Acti	Yes			
16/02/2023	2022/2023	Yes	49	7793	13.7	432185	5613	2 - Clean	Yes		Ok	
23/02/2023	2022/2023	Yes	49	7793.4	13.7	432185	5629	2 - Clean	Yes		OK	
2/03/2023	2022/2023	Yes	49	7793	13.7	432185	5646	2 - Clean	Yes		Ok	
8/03/2023	2022/2023	Yes	29	7794	28.6	432520	5661	3 - No Acti	Yes			
16/03/2023	2022/2023	Yes	49	7795	13.7	432653	5682	2 - Clean	Yes		Ok	
23/03/2023	2022/2023	Yes	49	7795.42	13.7	432653	5698	2 - Clean	Yes		OK	
30/03/2023	2022/2023	Yes	49	7795.4	13.6	432653	57.12	2 - Clean	Yes			
6/04/2023	2022/2023	Yes	49	7795.41	13.7	432653	5727	2 - Clean	Yes		OK	
13/04/2023	2022/2023	Yes	30	7796	28.6	432801	5743	3 - No Acti	Yes		Ok	
20/04/2023	2022/2023	Yes	49	7797.71	13.7	433187	5759	2 - Clean	Yes		OK	
27/04/2023	2022/2023	Yes	49	7797	13.7	433187	5774	2 - Clean	Yes			
4/05/2023	2022/2023	Yes	49	7797.71	13.7	433187	5789	2 - Clean	Yes		OK	
11/05/2023	2022/2023	Yes	29	7799.63	29.2	433638	5805	2 - Clean	Yes			
18/05/2023	2022/2023	Yes	49	7800	13.7	433753	7081	3 - No Acti	Yes			
25/05/2023	2022/2023	Yes	49	7800.15	13.7	433753	5833	2 - Clean	Yes			
1/06/2023	2022/2023	Yes	49	7800.12	13.7	433753	5848	2 - Clean	Yes		OK	
8/06/2023	2022/2023	Yes	29	7801.19	29.2	433997	5862	2 - Clean	Yes			
15/06/2023	2022/2023	Yes	49	7802	13.7	434271	5876	3 - No Acti	Yes			Plc not ack alarm
22/06/2023	2022/2023	Yes	49	7802	13.6	434271	5890	2 - Clean	Yes		Ok	Filter padlock seized needs replacement-
29/06/2023	2022/2023	Yes	49	7802.37	13.7	434271	5904	2 - Clean	Yes		OK	
6/07/2023	2023/2024	Yes	49	7802	13.7	434271	5917	2 - Clean	Yes		Ok	Dings in cabinet, 5 in total, worst one phc
13/07/2023	2023/2024	Yes	30	7802.97	29.1	434410	5930	2 - Clean	Yes			
20/07/2023	2023/2024	Yes	49	13.7	13.7	434723	5944	2 - Clean	Yes		Ok	Need to fix the faulty alarm ack function -
27/07/2023	2023/2024	Yes	49	7804.32	13.7	434723	5957	2 - Clean	Yes		OK	
3/08/2023	2023/2024	Yes	49	7804.32	13.6	434723	5971	2 - Clean	Yes			
9/08/2023	2023/2024	Yes	48	7806	14.5	435240	5982	3 - No Acti	Yes			
17/08/2023	2023/2024	Yes	49	7806	13.7	435240	5997	3 - No Acti	Yes			
24/08/2023	2023/2024	Yes	49	7806.55	13.7	435240	6011	2 - Clean	Yes		OK	
31/08/2023	2023/2024	Yes	49	7806.55	13.7	435240	6024	2 - Clean	Yes			
7/09/2023	2023/2024	Yes	49	7806.55	13.7	435240	6039	3 - No Acti	Yes			
14/09/2023	2023/2024	Yes	48	7808	14.5	435618	6055	2 - Clean	Yes		Ok	
21/09/2023	2023/2024	Yes	49	7808	13.7		6069	3 - No Acti	Yes			Door alarm not working. Reset power to c
28/09/2023	2023/2024	Yes	49	7808.18	13.7	435618	6083	2 - Clean	Yes			
5/10/2023	2023/2024	Yes	49	7808	13.7	435618	6097	3 - No Acti	Yes			
12/10/2023	2023/2024	Yes	47	7811	17.9	436410	6111	2 - Clean	Yes		Ok	
19/10/2023	2023/2024	Yes	49	7811.5	13.7	436410	6127	2 - Clean	Yes		OK	
26/10/2023	2023/2024	Yes	49	7811.58	13.7	436410	6143	2 - Clean	Yes			
2/11/2023	2023/2024	Yes	49	7811	13.7	436410	6158	3 - No Acti	Yes			
9/11/2023	2023/2024	Yes	48	7813	14.5	436866	6173	3 - No Acti	Yes		Ok	
16/11/2023	2023/2024	Yes	49	7813.55	13.7	436866	6191	2 - Clean	Yes		OK	
23/11/2023	2023/2024	Yes	49	7813.55	13.7	436866	6211	2 - Clean	Yes			
30/11/2023	2023/2024	Yes	49	7813	13.7	436866	6227	3 - No Acti	Yes			
7/12/2023	2023/2024	Yes	49	7813	13.7	436866	6240	2 - Clean	Yes		Ok	
14/12/2023	2023/2024	Yes	48	7816	15.3	437626	6254	2 - Clean	Yes		OK	
21/12/2023	2023/2024	Yes	49	7816	13.7	437626		3 - No Acti	Yes			
28/12/2023	2023/2024	Yes	49	7816	13.7	437626	6292	3 - No Acti	Yes			
4/01/2024	2023/2024	Yes	49	7816	13.7	437626	6309	3 - No Acti	Yes			
11/01/2024	2023/2024	Yes	48	7818	14.7	438011	6327	2 - Clean	Yes		OK	
18/01/2024	2023/2024	Yes	48	7818.47	13.8	438011	6346	2 - Clean	Yes			
25/01/2024	2023/2024	Yes	49	7818.47	13.7	438011	6366	2 - Clean	Yes			
1/02/2024	2023/2024	Yes	49	7818	13.7	438011	6384	2 - Clean	Yes		Ok	
8/02/2024	2023/2024	Yes	49	7818	13.7	438011	6401	2 - Clean	Yes		Ok	
15/02/2024	2023/2024	Yes	47	7820	17.3	438571	6418	2 - Clean	Yes		Ok	
22/02/2024	2023/2024	Yes	48	7820	13.7	438571	6437	3 - No Acti	Yes			
29/02/2024	2023/2024	Yes	48	7820	13.7	438571	6454	2 - Clean	Yes		Ok	
7/03/2024	2023/2024	Yes	48	7820	13.7	438571	6469	2 - Clean	Yes		Ok	
14/03/2024	2023/2024	Yes	48	7822.88	16.2	439035	6484	2 - Clean	Yes			
21/03/2024	2023/2024	Yes	48	7822	13.7	439035	6502	3 - No Acti	Yes			
28/03/2024	2023/2024	Yes	49	7822	13.7	439035	6519	2 - Clean	Yes		Ok	
4/04/2024	2023/2024	Yes	48	7822	13.7	439035	6535	2 - Clean	Yes		Ok	
11/04/2024	2023/2024	Yes	48	7824	14.9	439492	6552	2 - Clean	Yes			
18/04/2024	2023/2024	Yes	48	7824	13.7	439492	6569	3 - No Acti	Yes			
26/04/2024	2023/2024	Yes	49	7824	13.7	439492	6586	2 - Clean	Yes		Ok	
2/05/2024	2023/2024	Yes	48	7824	13.7	439492	6598	2 - Clean	Yes		OK	
9/05/2024	2023/2024	Yes	48	7826	13.8	439917	6612	2 - Clean	Yes		Ok	
16/05/2024	2023/2024	Yes	48	7826	13.7	439917	6625	2 - Clean	Yes			
23/05/2024	2023/2024	Yes	48	7826	13.7	439917	6639	2 - Clean	Yes		OK	
30/05/2024	2023/2024	Yes	48	7826	13.7	439917	6653	2 - Clean	Yes		OK	
6/06/2024	2023/2024	Yes	48	7826	13.7	439917	6666	2 - Clean	Yes		Ok	
13/06/2024	2023/2024	Yes	48	7828.58	14.7	440320	6681	2 - Clean	Yes			
20/06/2024	2023/2024	Yes	48	7828	13.7	440320	6694	3 - No Acti	Yes			
27/06/2024	2023/2024	Yes	48	7828	13.7	440320	6707	2 - Clean	Yes		Ok	
4/07/2024	2024/2025	Yes	48	7828	13.7	440320	6720	3 - No Acti	Yes			
11/07/2024	2024/2025	Yes	48	7828	13.7	440320	6733	2 - Clean	Yes		Ok	
18/07/2024	2024/2025	Yes	48	7830	13.7	440731	6746	2 - Clean	Yes			
25/07/2024	2024/2025	Yes	48	7830	13.7	440731	6759	2 - Clean	Yes			

Kāpiti Coast DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

K5 Operation Bore Log

Date	FY	Filled in lo	Bore Level	Pump Run	Temperatu	Flow Forw	Flow Reve	Cabinet Fi	Checked V	Well-head	Comments
7/01/2021	2020/2021	Yes	53	5324	14.9	581881	4304	3 - No Acti	Yes		
14/01/2021	2020/2021	Yes	53	5324	15	581881	4307		Yes		
21/01/2021	2020/2021	Yes	53	5324	14.9	581881	4310	3 - No Acti	Yes		
28/01/2021	2020/2021	Yes	52	5326	15.2	582166	4315	3 - No Acti	Yes		
4/02/2021	2020/2021	Yes	53	5326	15	582167	4386	2 - Clean	Yes		
11/02/2021	2020/2021	Yes	53	5326	14.9	582167	4389	3 - No Acti	Yes		
18/02/2021	2020/2021	Yes	53	5326	15	582167	4393	1 - Change	Yes		
25/02/2021	2020/2021	Yes	50	5329	15.7	582508	4397	2 - Clean	Yes		
3/03/2021	2020/2021	Yes	53	5329	15	582515	4401	2 - Clean	Yes		ups battery age 5 years
11/03/2021	2020/2021	Yes	49	7469	13.8	1541160	89146	3 - No Acti	Yes		
11/03/2021	2020/2021	Yes	49	7469	13.8	1541160	89146	3 - No Acti	Yes		
23/03/2021	2020/2021	Yes	53	582670	14.9	582670	4411	3 - No Acti	Yes		rust in some areas on bore pipew
31/03/2021	2020/2021	Yes	51	5333	14.9	582983	4416	2 - Clean	Yes		
8/04/2021	2020/2021	Yes	24	5333	15	582983	4421	2 - Clean	Yes		
22/04/2021	2020/2021	Yes	53	5337	15.3	470	0.71	2 - Clean	Yes		
28/04/2021	2020/2021	Yes	55	5337	14.9	470	0.71	2 - Clean	Yes		
6/05/2021	2020/2021	Yes	55	5337	14.9	470	0.71	2 - Clean	Yes		
13/05/2021	2020/2021	Yes	55	5339	15	693	0.71	1 - Change	Yes		
20/05/2021	2020/2021	Yes	55	5339	14.9	693	0.71	3 - No Acti	Yes		
3/06/2021	2020/2021	Yes	55	5339	14.9	693	0	2 - Clean	Yes		
17/06/2021	2020/2021	Yes	56	5341	14.9	917	0.72	3 - No Acti	Yes		
29/07/2021	2021/2022	Yes	56	5344	14.9	1276	0	2 - Clean	Yes		
12/08/2021	2021/2022	Yes	55	5346	14.9	1568	0.73	3 - No Acti	Yes		
19/08/2021	2021/2022	Yes	56	5346	14.9	1568	0.73	2 - Clean	Yes		
3/09/2021	2021/2022	Yes	55	5346	14.9	1568	0	2 - Clean	Yes		
9/09/2021	2021/2022	Yes	56	5346	14.9	1568	0	2 - Clean	Yes		
23/09/2021	2021/2022	Yes	56	5348	14.9	1838	0.73	2 - Clean	Yes		
30/09/2021	2021/2022	Yes	56	5348	15	1838	0.73	2 - Clean	Yes		
14/10/2021	2021/2022	Yes	51	5351	16.7	2128	0.73	3 - No Acti	Yes		
21/10/2021	2021/2022	Yes	55	5351	14.9	2128	0.73	3 - No Acti	Yes		
23/12/2021	2021/2022	Yes	56	5356	15	2683	0.73	3 - No Acti	Yes		
30/12/2021	2021/2022	Yes	56	5356	15	2683	0.73	3 - No Acti	Yes		
6/01/2022	2021/2022	Yes	56	5356	15	2683	0.73	3 - No Acti	Yes		
14/01/2022	2021/2022	Yes	56	5356	15	2686	0.74	3 - No Acti	Yes		
27/01/2022	2021/2022	Yes	55	5358	15	2973.97	0.74	3 - No Acti	Yes		
3/02/2022	2021/2022	Yes	56	5358	15	2973.97	0.74	2 - Clean	Yes	ok	filter cabinet padlock needs CRC
3/02/2022	2021/2022	Yes	56	5358	15	2973.97	0.74	2 - Clean	Yes	ok	filter cabinet padlock needs CRC
10/02/2022	2021/2022	Yes	56	5358	15	2973.97	0.74	3 - No Acti			
17/02/2022	2021/2022	Yes	54	5360	15.2	3211	0.75	3 - No Acti	Yes		
24/02/2022	2021/2022	Yes	56	5936	15.7	3211	0.75	3 - No Acti	Yes		
3/03/2022	2021/2022	Yes	56	5960	15	3211	0.75	3 - No Acti	Yes		
10/03/2022	2021/2022	Yes	54	5362	15.3	3448	0.75	3 - No Acti	Yes		
17/03/2022	2021/2022	Yes	56	5362	15	3448	0.75	3 - No Acti	Yes		
24/03/2022	2021/2022	Yes	56	5362	14.9	3448	0.75	2 - Clean	Yes	Ok	
31/03/2022	2021/2022	Yes	54	5362	17.2	3477	0.8	3 - No Acti	Yes		
7/04/2022	2021/2022	Yes	55	5436	15	10696.2	0.8	2 - Clean	Yes		
14/04/2022	2021/2022	Yes	50	5440	16.1	11111.28	0.8	3 - No Acti	Yes		Nice pine needles on the ground
21/04/2022	2021/2022	Yes	55	5440	15	11111	0.8	3 - No Acti	Yes		
28/04/2022	2021/2022	Yes	55	5440	15	11111.28	0.8	2 - Clean	Yes		Alarm does not deactivate upon r
5/05/2022	2021/2022	Yes	55	5440	15	11111.28	0.8	2 - Clean	Yes	OK	Could not deactivate cabinet alar
12/05/2022	2021/2022	Yes	53	5443	15.5	11393.4	0.8	3 - No Acti	Yes		
19/05/2022	2021/2022	Yes	56	5443	14.9	11393.4	0.8	2 - Clean	Yes	OK	Could not deactivate cabinet alar
26/05/2022	2021/2022	Yes	55	5443	14.9	11393.4	0.8	2 - Clean	Yes	OK	
9/06/2022	2021/2022	Yes	56	5443	14.9	11393	0.8	3 - No Acti	Yes		
16/06/2022	2021/2022	Yes	53	5445	15.6	11637.15	0.8	3 - No Acti	Yes	Ok	
23/06/2022	2021/2022	Yes	56	5445	14.9	11637.15	0.8	2 - Clean	Yes	OK	
30/06/2022	2021/2022	Yes	56	5445	14.9	11637.15	0.8	2 - Clean	Yes	ok	
7/07/2022	2022/2023	Yes	56	5445	14.8	11637	0.8	2 - Clean	Yes	Good	Alarm faulty
14/07/2022	2022/2023	Yes	52	5447	15.9	11894	0.8	2 - Clean	Yes		
21/07/2022	2022/2023	Yes	56	5447	14.8	11894.97	0.8	2 - Clean	Yes		
28/07/2022	2022/2023	Yes	56	5447	14.9	11894.97	0.8	2 - Clean	Yes	OK	
4/08/2022	2022/2023	Yes	56	5447	15	11894.97	0.8	2 - Clean	Yes		
11/08/2022	2022/2023	Yes	49	5450	17.4	12262.81	0.8	2 - Clean	Yes	OK	
17/08/2022	2022/2023	Yes	56	5450	14.9	12262.81	0.8	2 - Clean	Yes		
25/08/2022	2022/2023	Yes	56	5450	14.9	12262	0.8	3 - No Acti	Yes		
1/09/2022	2022/2023	Yes	56	5450	14.9	12262.81	0.8	2 - Clean	Yes		
8/09/2022	2022/2023	Yes	52	5452	15.7	12560.92	0.8	2 - Clean	Yes	OK	
15/09/2022	2022/2023	Yes	56	5452	14.9	12560.92	0.8	2 - Clean	Yes		
23/09/2022	2022/2023	Yes	56	5452	14.9	12560	0.8	3 - No Acti	Yes		
29/09/2022	2022/2023	Yes	56	5452	14.9	12560.92	0.8	3 - No Acti	Yes		
6/10/2022	2022/2023	Yes	56	5452	14.9	12560.93	0.8	2 - Clean	Yes	OK	
14/10/2022	2022/2023	Yes	55	5454.74	15	12800.78	0.8	2 - Clean	Yes		
20/10/2022	2022/2023	Yes	56	5454	14.9	12800	0.8	3 - No Acti	Yes		
27/10/2022	2022/2023	Yes	56	5454	15	12800.78	0.8	3 - No Acti	Yes	Ok	
3/11/2022	2022/2023	Yes	56	5454	14.9	12800	0.8	3 - No Acti	Yes		alarm not acktrees need pruning
10/11/2022	2022/2023	Yes	56	5454	15	12800.78	0.8	2 - Clean	Yes	Ok	
17/11/2022	2022/2023	Yes	56	5454	14.9	12800	0.81	2 - Clean	Yes		alarm not ack
24/11/2022	2022/2023	Yes	55	5457	15	13125	0.81	3 - No Acti	Yes	Ok	PLC panel view LCD screen is bl
1/12/2022	2022/2023	Yes	56	5457	14.9	13125	0.81	2 - Clean	Yes	Ok	A water blast of concrete pad cou
8/12/2022	2022/2023	Yes	24	5458	26.2	13296.2	0.81	2 - Clean	Yes		
16/12/2022	2022/2023	Yes	56	5459	14.9	13391.25	0.81	2 - Clean	Yes		Blank screen
22/12/2022	2022/2023	Yes	56	5460	15	13510.59	0.81	2 - Clean	Yes	Ok	
29/12/2022	2022/2023	Yes	56	5460.86	15	13510.59	0.81	2 - Clean	Yes	OK	
5/01/2023	2022/2023	Yes	56	5460.86	15	13510.59	0.81	2 - Clean	Yes		
12/01/2023	2022/2023	Yes	56	5460.86	15	13510.59	0.81	2 - Clean	Yes	OK	
19/01/2023	2022/2023	Yes	55	5464.79	15	13934.5	0.81	2 - Clean	Yes		
26/01/2023	2022/2023	Yes	55	5464	15.1	13934.5	0.81	3 - No Acti	Yes		
2/02/2023	2022/2023	Yes	56	5464	15	13934.5	0.81	2 - Clean	Yes		
9/02/2023	2022/2023	Yes	27	5466	24.7	14091	0.81	3 - No Acti	Yes		
16/02/2023	2022/2023	Yes	56	5466	14.9	14151.53	0.82	2 - Clean	Yes	Ok	
23/02/2023	2022/2023	Yes	55	5466.82	14.9	14151.53	0.82	2 - Clean	Yes	OK	
2/03/2023	2022/2023	Yes	55	5466	14.9	14151.53	0.82	2 - Clean	Yes	Ok	
9/03/2023	2022/2023	Yes	27	5468	24.3	14323	0.84	3 - No Acti	Yes		
16/03/2023	2022/2023	Yes	55	5468	15	14378.05	0.84	2 - Clean	Yes	Ok	Swept bore apron - gravel & pine
23/03/2023	2022/2023	Yes	55	5468.93	15	14378.06	0.86	2 - Clean	Yes	OK	
30/03/2023	2022/2023	Yes	55	5468.9	14.9	14378.07	0.86	2 - Clean	Yes		
6/04/2023	2022/2023	Yes	55	5468.93	14.9	14378.07	0.86	2 - Clean	Yes	OK	
13/04/2023	2022/2023	Yes	29	5469	24.2	14456.6	0.87	3 - No Acti	Yes	Ok	
20/04/2023	2022/2023	Yes	56	5471.21	14.9	14622.86	0.88	2 - Clean	Yes	OK	
27/04/2023	2022/2023	Yes	55	5471	15	14622.88	0.89	2 - Clean	Yes		
4/05/2023	2022/2023	Yes	56	5471.22	14.9	14622.9	0.9	2 - Clean	Yes	OK	
11/05/2023	2022/2023	Yes	26	5473.02	24.7	14818.45	0.91	2 - Clean	Yes		
18/05/2023	2022/2023	Yes	56	5473	14.9	14896	0.92	3 - No Acti	Yes		
25/05/2023	2022/2023	Yes	55	5473.75	14.9	14896.22	0.92	2 - Clean	Yes		
1/06/2023	2022/2023	Yes	56	5473.25	14.9	14896.22	0.93	2 - Clean	Yes	OK	
8/06/2023	2022/2023	Yes	27	5474.9	24.7	15020.79	0.94	2 - Clean	Yes		
15/06/2023	2022/2023	Yes	56	5476	14.8	15142	0.94	3 - No Acti	Yes		
22/06/2023	2022/2023	Yes	55	5476	14.8	15142.05	0.94	2 - Clean	Yes	Ok	
29/06/2023	2022/2023	Yes	56	5476.04	14.9	15142.06	0.96	2 - Clean	Yes	OK	
6/07/2023	2023/2024	Yes	55	5476	14.9	15142.06	0.96	2 - Clean	Yes	Ok	
13/07/2023	2023/2024	Yes	29	5476.8	24.7	15223.85	0.97	2 - Clean	Yes		
20/07/2023	2023/2024	Yes	55	5478	14.9	15356.13	0.97	2 - Clean	Yes	Ok	
27/07/2023	2023/2024	Yes	55	5478.03	14.9	15356.13	0.97	2 - Clean	Yes	OK	Green waste illegally dumped
3/08/2023	2023/2024	Yes	55	5478.03	14.8	15356.13	0.97	2 - Clean	Yes		
9/08/2023	2023/2024	Yes	54	5480	15.2	15597	0.98	3 - No Acti	Yes		
17/08/2023	2023/2024	Yes	56	5480	14.8	15597	0.98	3 - No Acti	Yes		
24/08/2023	2023/2024	Yes	55	5480.28	14.9	15597.62	0.98	2 - Clean	Yes	OK	
31/08/2023	2023/2024	Yes	55	5480.28	14.9	15597.62	0.98	2 - Clean	Yes		
7/09/2023	2023/2024	Yes	55	5480.28	14.9	15597.62	0.98	3 - No Acti	Yes		
14/09/2023	2023/2024	Yes	54	5482	15.2	15789.66	0.98	2 - Clean	Yes	Ok	
21/09/2023	2023/2024	Yes	55	5482	14.9	15789.66	0.98	3 - No Acti	Yes		VSD is off but making a lot of far
28/09/2023	2023/2024	Yes	56	5482.08	14.9	15789.66	0.98	2 - Clean	Yes		
5/10/2023	2023/2024	Yes	55	5482	14.9	15789	0.98	3 - No Acti	Yes		
12/10/2023	2023/2024	Yes	50	5485	16.6	16153.74	0.98	2 - Clean	Yes	Ok	
19/10/2023	2023/2024	Yes	55	5485.46	14.9	16153.74	0.98	2 - Clean	Yes	OK	
26/10/2023	2023/2024	Yes	55	5485.46	14.9	16153.74	0.98	2 - Clean	Yes		
2/11/2023	2023/2024	Yes	55	5485	14.9	16153	0.98	3 - No Acti	Yes		
9/11/2023	2023/2024	Yes	54	5487	15.2	16376.87	0.98	3 - No Acti	Yes	Ok	
16/11/2023	2023/2024	Yes	55	5487.55	14.9	16376.87	0.98	2 - Clean	Yes	OK	
23/11/2023	2023/2024	Yes	55	5487.55	14.9	16376.87	0.98	2 - Clean	Yes		
30/11/2023	2023/2024	Yes	55	5487	14.9	16376	0.98	3 - No Acti	Yes		
7/12/2023	2023/2024	Yes	55	5487	14.9	16376.87	0.98	2 - Clean	Yes	Ok	
14/12/2023	2023/2024	Yes	52	5490	15.6	16730.61	1.01	2 - Clean	Yes	OK	
21/12/2023	2023/2024	Yes	55	5490	14.9	16730.61	1.01	3 - No Acti	Yes		
28/12/2023	2023/2024	Yes	55	5490	15	16730	1	3 - No Acti	Yes		
4/01/2024	2023/2024	Yes	55	5490	15	16730	1.01	3 - No Acti	Yes		
11/01/2024	2023/2024	Yes	54	5492	15.4	16911.57	1.01	2 - Clean	Yes	OK	Small crack appearing in wrap
18/01/2024	2023/2024	Yes	55	5492.56	15	16911.85	1.01	2 - Clean	Yes		
25/01/2024	2023/2024	Yes	55	5492.53	15	16911.58	1.02	2 - Clean	Yes		
1/02/2024	2023/2024	Yes	55	5492	15	16911.58	1.02	2 - Clean	Yes	Ok	
8/02/2024	2023/2024	Yes	55	5492	15	16911.58	1.02	2 - Clean	Yes	Ok	
15/02/2024	2023/2024	Yes	51	5495	16.5	17184.17	1.02	2 - Clean	Yes	Ok	
22/02/2024	2023/2024	Yes	55	5495	15	17184	1	3 - No Acti	Yes		
29/02/2024	2023/2024	Yes	55	5495	15	17184.17	1.02	2 - Clean	Yes	Ok	
7/03/2024	2023/2024	Yes	55	5495	14.9	17184.17	1.02	2 - Clean	Yes	Ok	
14/03/2024	2023/2024	Yes	52	5497.1	16	17402.46	1.02	2 - Clean	Yes		
21/03/2024	2023/2024	Yes	55	5497	14.9	17402	1.02	3 - No Acti	Yes		
28/03/2024	2023/2024	Yes	55	5497	15	17402.46	1.02	2 - Clean	Yes	Ok	
4/04/2024	2023/2024	Yes	55	5497	14.9	17402.46	1.02	2 - Clean	Yes	Ok	
11/04/2024	2023/2024	Yes	53	5499	15.5	17639.56	1.02	2 - Clean	Yes		
18/04/2024	2023/2024	Yes	55	5499	14.9	17639	1.02	3 - No Acti	Yes		
26/04/2024	2023/2024	Yes	55	5499	14.9	17639.56	1.02	2 - Clean	Yes	Ok	
2/05/2024	2023/2024	Yes	55	5499	14.9	17639.56	1.02	2 - Clean	Yes	OK	
9/05/2024	2023/2024	Yes	55	5501	14.9	17853	1.02	2 - Clean	Yes	Ok	
16/05/2024	2023/2024	Yes	55	5501	14.9	17853.74	1.02	2 - Clean	Yes		
23/05/2024	2023/2024	Yes	55	5501	14.9	17853.74	1.02	2 - Clean	Yes	OK	
30/05/2024	2023/2024	Yes	55	5501	14.9	17853.74	1.02	2 - Clean	Yes	OK	
6/06/2024	2023/2024	Yes	55	5501	14.9	17853	1.02	2 - Clean	Yes	Ok	
13/06/2024	2023/2024	Yes	54	5503.18	15.3	18054.59	1.02	2 - Clean	Yes		
20/06/2024	2023/2024	Yes	55	5503	14.9	18054	1.02	3 - No Acti	Yes		
27/06/2024	2023/2024	Yes	55	5503	14.9	18078.57	1.02	2 - Clean	Yes	Ok	
4/07/2024	2024/2025	Yes	55	5503	14.9	18078	1.02	3 - No Acti	Yes		
11/07/2024	2024/2025	Yes	55	5503	14.9	18078.57	1.02	2 - Clean	Yes	Ok	
18/07/2024	2024/2025	Yes	55	5505	14.9	18234.83	1.02	2 - Clean	Yes		

K6 Operation Bore Log

Date	FY	Filled in log	Bore Level	Pump Run	Temperature	Flow Forward	Flow Reverse	Cabinet Filter	Checked V	Compressor Service	Run compressor	Well-head	Comments
7/01/2021	2020/2021	Yes	43	7170	14.5	578932	265610		Yes	30/01/2021	Yes		
14/01/2021	2020/2021	Yes	44	7170	14.5	578932	265613	3 - No Acti	Yes	13/01/2022	Yes		
21/01/2021	2020/2021	Yes	44	7170	14.5	578932	265616	3 - No Acti	Yes	13/01/2022	Yes		
28/01/2021	2020/2021	Yes	44	7172	15.1	579383	265618	3 - No Acti	Yes	13/01/2022	Yes		
4/02/2021	2020/2021	Yes	45	7172	14.5	579383	265620	3 - No Acti	Yes	13/01/2022	Yes		compressor manual sw
11/02/2021	2020/2021	Yes	77	7172	14.5	579383	265621	3 - No Acti	Yes	13/01/2022	Yes		
18/02/2021	2020/2021	Yes	84	7172	14.5	579383	265621	1 - Change	Yes	13/07/2021	Yes		
25/02/2021	2020/2021	Yes	97	7175	16.1	579921	265623	2 - Clean	Yes	13/07/2021	Yes		
3/03/2021	2020/2021	Yes	50	7175	14.5	579921	265624	2 - Clean	Yes	12/01/2021	Yes		battery age about 5 yea
11/03/2021	2020/2021	Yes	50	7176	14.6	580024	265624	3 - No Acti	Yes	13/01/2022	Yes		
23/03/2021	2020/2021	Yes	50	7176	14.5	580024	265624	3 - No Acti	Yes	13/08/2021	Yes		BlackBerry and weeds
31/03/2021	2020/2021	Yes	50	7179	14.6	580718	265624	2 - Clean	Yes	13/07/2021	Yes		
8/04/2021	2020/2021	Yes	50	7179	14.5	580718	265624	2 - Clean	Yes	13/07/2021	Yes		
22/04/2021	2020/2021	Yes	49	7183	15.5	581605	265626	2 - Clean	Yes	13/07/2021	Yes		
28/04/2021	2020/2021	Yes	50	7183	14.5	581605	265626	2 - Clean	Yes	13/07/2021	Yes		
6/05/2021	2020/2021	Yes	50	7183	14.5	581605	265627	2 - Clean	Yes	13/07/2021	Yes		
13/05/2021	2020/2021	Yes	50	7185	14.7	581985	265630	1 - Change	Yes	13/07/2021	Yes		
20/05/2021	2020/2021	Yes	50	7185	14.5	581985	265631	3 - No Acti	Yes	13/01/2022	Yes		
3/06/2021	2020/2021	Yes	50	7185	14.5	581985	265632	2 - Clean	Yes	13/07/2021	Yes		
17/06/2021	2020/2021	Yes	50	7187	14.5	582357	265633	3 - No Acti	Yes	13/01/2022	Yes		
29/07/2021	2021/2022	Yes	50	7190	14.5	582986	265633	2 - Clean	Yes	13/07/2021	Yes		Power cycled controller
12/08/2021	2021/2022	Yes	50	7192	14.5	583479	265641	3 - No Acti	Yes	12/02/2022	Yes		
19/08/2021	2021/2022	Yes	50	7192	14.5	583479	265642	2 - Clean	Yes	13/01/2022	Yes		
3/09/2021	2021/2022	Yes	50	7192	14.5	583479	265645	2 - Clean	Yes	12/02/2022	Yes		
9/09/2021	2021/2022	Yes	50	7192	14.5	583479	265647	2 - Clean	Yes	12/02/2022	Yes		
23/09/2021	2021/2022	Yes	50	7194	14.5	583929	265651	2 - Clean	Yes	12/02/2022	Yes		Bridge getting repaired
30/09/2021	2021/2022	Yes	50	7194	14.5	583929	265653	2 - Clean	Yes	12/02/2022	Yes		
14/10/2021	2021/2022	Yes	48	7197	18.2	584417	265657	3 - No Acti	Yes	12/02/2022	Yes		
21/10/2021	2021/2022	Yes	50	7197	14.5	584417	265661	3 - No Acti	Yes	12/02/2022	Yes		
23/12/2021	2021/2022	Yes	50	7203	14.6	585704	265746	3 - No Acti	Yes	12/08/2022	Yes		
30/12/2021	2021/2022	Yes	50	7203	14.5	585704	266182	3 - No Acti	Yes	13/01/2022	Yes		
6/01/2022	2021/2022	Yes	0.5	7203	14.5	585704	266182	3 - No Acti	Yes	13/01/2022	Yes		
14/01/2022	2021/2022	Yes	50	7203	14.5	585704	266182	3 - No Acti	Yes	13/01/2022	Yes		compressor due for ser
27/01/2022	2021/2022	Yes	29	7207	28			3 - No Acti	Yes	18/01/2023	Yes		
10/02/2022	2021/2022	Yes	50	7208	14.5	586660	266185	3 - No Acti	Yes	10/01/2023	Yes		
17/02/2022	2021/2022	Yes	50	7210	15.2	587053	266185	3 - No Acti	Yes	18/01/2023	Yes		
24/02/2022	2021/2022	Yes	50	7210	14.5	587053	266186	3 - No Acti	Yes	18/01/2023	Yes		
3/03/2022	2021/2022	Yes	50	7210	14.5	587054	266186	3 - No Acti	Yes	18/01/2023	Yes		
10/03/2022	2021/2022	Yes	49	7212	15.3	587460	266187	3 - No Acti	Yes	18/01/2023	Yes		
17/03/2022	2021/2022	Yes	50	7212	14.5	587460	266187	3 - No Acti	Yes	18/01/2023	Yes		
24/03/2022	2021/2022	Yes	50	7212	14.5	587460	266188	3 - No Acti	Yes	1/07/2022	Yes	Ok	
31/03/2022	2021/2022	Yes	49	7212	17.8	587501	266188	3 - No Acti	Yes	18/01/2023	Yes		
7/04/2022	2021/2022	Yes	49	7228	14.6	589805	266188	2 - Clean	Yes	1/07/2022	Yes		
14/04/2022	2021/2022	Yes	47	7231	17.1	590462	266189	3 - No Acti	Yes	1/07/2022	Yes		
21/04/2022	2021/2022	Yes	50	7231	14.5	590462	266190	3 - No Acti	Yes	18/01/2023	Yes		
28/04/2022	2021/2022	Yes	50	7231	14.5	590462	266190	2 - Clean	Yes	1/07/2022	Yes		Cabinet alarm does not
5/05/2022	2021/2022	Yes	50	7231	14.5	590426	266191	2 - Clean	Yes	1/01/2023	Yes	OK	Could not deactivate c
12/05/2022	2021/2022	Yes	49	7234	15.9	590948	266192	3 - No Acti	Yes	1/07/2022	Yes		
19/05/2022	2021/2022	Yes	50	7234	14.5	590948	266192	2 - Clean	Yes	1/01/2023	Yes	OK	Could not deactivate ca
26/05/2022	2021/2022	Yes	50	7234	14.5	590948	266193	2 - Clean	Yes	1/01/2023	Yes	OK	
9/06/2022	2021/2022	Yes	50	7234	14.5	590948	266193	3 - No Acti	Yes	18/01/2023	Yes		
16/06/2022	2021/2022	Yes	49	7236	16.4	591356	266193	3 - No Acti	Yes	16/01/2023	Yes	Ok	Signs of flooding
23/06/2022	2021/2022	Yes	50	7236	14.5	591356	266193	2 - Clean	Yes	1/01/2023	Yes	OK	
30/06/2022	2021/2022	Yes	50	7236	14.5	591356	266193	2 - Clean	Yes	30/01/2023	Yes	ok	
7/07/2022	2022/2023	Yes	50	7236	14.5	591359	266197	2 - Clean	Yes	2/01/2023	Yes	Good	No Moss or weeds
14/07/2022	2022/2023	Yes	49	7238	16.5	591796	266197	2 - Clean	Yes	1/01/2023	Yes		
21/07/2022	2022/2023	Yes	50	7238	14.5	591796	266197	2 - Clean	Yes	21/07/2022	Yes		
28/07/2022	2022/2023	Yes	50	7238	14.5	591796	266197	2 - Clean	Yes	1/01/2023	Yes	OK	
4/08/2022	2022/2023	Yes	50	7238	14.5	591796	266198	2 - Clean	Yes	4/07/2022	Yes		
11/08/2022	2022/2023	Yes	45	7241	22	592437	266198	2 - Clean	Yes	11/01/2023	Yes	OK	
17/08/2022	2022/2023	Yes	50	7241	14.5	592437	266198	2 - Clean	Yes	1/01/2023	Yes		
25/08/2022	2022/2023	Yes	50	7241	14.5	592437	266198	3 - No Acti	Yes	18/01/2023	Yes		
1/09/2022	2022/2023	Yes	50	7241	14.5	592437	266198	2 - Clean	Yes	1/07/2022	Yes		
8/09/2022	2022/2023	Yes	48	7243	16.3	592936	266198	2 - Clean	Yes	1/01/2023	Yes	OK	
15/09/2022	2022/2023	Yes	50	7243	14.5	592936	266198	2 - Clean	Yes	15/07/2022	Yes		
23/09/2022	2022/2023	Yes	50	7243	14.5	592936	266198	3 - No Acti	Yes	18/01/2023	Yes		
29/09/2022	2022/2023	Yes	50	7243	14.5	592936	266199	3 - No Acti	Yes	1/01/2023	Yes		Bleed compressor & cy
6/10/2022	2022/2023	Yes	50	7243	14.5	592936	266199	2 - Clean	Yes	6/01/2023	Yes	OK	
14/10/2022	2022/2023	Yes	49	7245.69	14.7	593354	266199	2 - Clean	Yes	1/01/2023	Yes		
20/10/2022	2022/2023	Yes	50	7245.7	14.5	593354	266200	3 - No Acti	Yes	18/01/2023	Yes		
27/10/2022	2022/2023	Yes	50	7245.7	14.5	593354	266201	3 - No Acti	Yes	10/01/2023	Yes	Ok	
3/11/2022	2022/2023	Yes	50	7245.9	14.5	593354	266204	3 - No Acti	Yes	10/01/2023	Yes		alarm not ack
10/11/2022	2022/2023	Yes	49	7245.9	14.5	593355	266212	2 - Clean	Yes	10/01/2023	Yes	Ok	Filter grill tabs all buste
17/11/2022	2022/2023	Yes	49	7245.9	14.5	593355	266218	2 - Clean	Yes	18/01/2023	Yes		alarm not ack
24/11/2022	2022/2023	Yes	50	7248	14.7	593914	266221	3 - No Acti	Yes	18/01/2023	Yes	Ok	Bore concrete pad neec
1/12/2022	2022/2023	Yes	49	7248	14.5	593914	266223	2 - Clean	Yes	18/01/2023	Yes	Ok	Operator has done a ni
8/12/2022	2022/2023	Yes	29	7250	31.3	594302	266226	2 - Clean	Yes	8/03/2023	Yes		
16/12/2022	2022/2023	Yes	49	7250	14.5	594384	266233	2 - Clean	Yes	16/03/2023	Yes		
22/12/2022	2022/2023	Yes	49	7252	14.6	594734	266236	2 - Clean	Yes	1/03/2023	Yes	Ok	
29/12/2022	2022/2023	Yes	49	7252.34	14.5	594734	266245	2 - Clean	Yes	1/01/2023	Yes	OK	
5/01/2023	2022/2023	Yes	50	7252.34	14.5	594734	266249	2 - Clean	Yes	5/03/2023	Yes		
12/01/2023	2022/2023	Yes	49	7252.35	14.5	594734	266251	2 - Clean	Yes	18/01/2023	Yes	OK	
19/01/2023	2022/2023	Yes	49	7256.25	14.6	595548	266253	2 - Clean	Yes	19/03/2023	Yes		
26/01/2023	2022/2023	Yes	49	7256.25	14.5	595548	266253	3 - No Acti	Yes	26/01/2023	Yes		compressor manual co
2/02/2023	2022/2023	Yes	49	7256.26	14.5	595549	266256	2 - Clean	Yes	2/03/2023	Yes		
9/02/2023	2022/2023	Yes	30	7257	31	595882	266258	3 - No Acti	Yes	2/03/2023	Yes		
16/02/2023	2022/2023	Yes	49	7258	14.5	595967	266259	2 - Clean	Yes	1/03/2023	Yes	Ok	Comp svce date a bit v
23/02/2023	2022/2023	Yes	49	7258.27	14.5	595967	266259	2 - Clean	Yes	23/01/2023	Yes	OK	
2/03/2023	2022/2023	Yes	49	7258.27	14.5	595968	266263	2 - Clean	Yes	23/10/2023	Yes	Ok	Air relief on bore pipe c
8/03/2023	2022/2023	Yes	30	7259	30	596313	266263	3 - No Acti	Yes	23/10/2023	Yes		
16/03/2023	2022/2023	Yes	49	7260	14.5	596389	330126	2 - Clean	Yes	23/10/2023	Yes	Ok	Gave bore apron a swe
23/03/2023	2022/2023	Yes	49	7260.3	14.5	596389	266263	2 - Clean	Yes	23/03/2024	Yes	OK	
30/03/2023	2022/2023	Yes	49	7260.3	14.5	596389	266263	2 - Clean	Yes	23/10/2023	Yes	Pic below	
6/04/2023	2022/2023	Yes	49	7260.3	14.5	596389	266264	2 - Clean	Yes	23/02/2024	Yes	OK	
13/04/2023	2022/2023	Yes	31	7261	29.9	596612	266264	3 - No Acti	Yes	23/10/2023	No	Ok	Compressor already ru
20/04/2023	2022/2023	Yes	49	7262.68	14.5	596884	266264	2 - Clean	Yes	23/02/2024	Yes	OK	
27/04/2023	2022/2023	Yes	49	7262.68	14.5	596884	266264	2 - Clean	Yes	23/10/2023	Yes		Seap, ref where the fing
4/05/2023	2022/2023	Yes	49	7262.68	14.5	596884	266264	2 - Clean	Yes	23/02/2024	Yes	OK	
11/05/2023	2022/2023	Yes	30	7264.07	31.2	597174	266265	2 - Clean	Yes	23/02/2024	Yes		
18/05/2023	2022/2023	Yes	49	7265	14.5	597386	266265	3 - No Acti	Yes	23/02/2024	Yes		
25/05/2023	2022/2023	Yes	49	7265.11	14.5	597386	266265	2 - Clean	Yes	23/10/2023	Yes		Cabinet alarm faulty
1/06/2023	2022/2023	Yes	49	7265.11	14.5	597386	266265	2 - Clean	Yes	3/02/2024	Yes	OK	
8/06/2023	2022/2023	Yes	30	7266.46	30.9	597668	266265	2 - Clean	Yes	23/02/2024	Yes		
15/06/2023	2022/2023	Yes	49	7267	14.5	597852	266265	3 - No Acti	Yes	23/02/2024	Yes		Alarm not ack
22/06/2023	2022/2023	Yes	49	7267	14.5	597852	266265	2 - Clean	Yes	23/10/2023	Yes	Ok	Could do with a weed i
29/06/2023	2022/2023	Yes	49	7267.36	14.5	597852	266265	2 - Clean	Yes	23/02/2024	Yes	OK	
6/07/2023	2023/2024	Yes	49	7267.36	14.5	597852	266265	2 - Clean	Yes	23/10/2023	Yes	Ok	
13/07/2023	2023/2024	Yes	31	7268.47	31	598086	266265	2 - Clean	Yes	23/10/2023	Yes		
20/07/2023	2023/2024	Yes	49	7269	14.5	598263	266265	2 - Clean	Yes	23/10/2023	Yes	Ok	Alarm ack function nee
27/07/2023	2023/2024	Yes	49	7269.34	14.5	598263	266265	2 - Clean	Yes	23/10/2023	Yes	OK	
3/08/2023	2023/2024	Yes	49	7269.34	14.5	598263	266265	2 - Clean	Yes	23/10/2023	Yes		
9/08/2023	2023/2024	Yes	49	7271	15.2	598741	266265	3 - No Acti	Yes	23/02/2024	Yes		
17/08/2023	2023/2024	Yes	49	7271	14.5	598741	266265	3 - No Acti	Yes	23/02/2024	Yes		
24/08/2023	2023/2024	Yes	49	7271.65	14.5	598741	266265	2 - Clean	Yes	1/02/2024	Yes	OK	
31/08/2023	2023/2024	Yes	49	7271.65	14.5	598741	266266	2 - Clean	Yes	28/02/2024	Yes		
7/09/2023	2023/2024	Yes	49	7271.65	14.5	598741	266266	3 - No Acti	Yes	23/02/2024	Yes		
14/09/2023	2023/2024	Yes	49	7273	15.2	599140	266266	2 - Clean	Yes	14/02/2024	Yes	Ok	
21/09/2023	2023/2024	Yes	49	7273	14.5	599140	266266	3 - No Acti	Yes	23/02/2024	Yes		Compressor manual co
28/09/2023	2023/2024	Yes	49	7273.57	14.5	599140	266267	2 - Clean	Yes	28/02/2024	Yes		
5/10/2023	2023/2024	Yes	49	7273.57	14.5	599140	266267	3 - No Acti	Yes	23/02/2024	Yes		
12/10/2023	2023/2024	Yes	46	7277	18.3	599897	266268	2 - Clean	Yes	1/02/2024	Yes	Ok	
19/10/2023	2023/2024	Yes	49	7277.27	14.5	599897	266268	2 - Clean	Yes	1/02/2024	Yes	OK	
26/10/2023	2023/2024	Yes	49	7277.27	14.5	599897	266268	2 - Clean	Yes	26/02/2024	Yes		
2/11/2023	2023/2024	Yes	49	7277.27	14.5	599898	266270	3 - No Acti	Yes	23/02/2024	Yes		
9/11/2023	2023/2024	Yes	48	7279	15.1	600418	266271	3 - No Acti	Yes	1/02/2024	Yes	Ok	
16/11/2023	2023/2024	Yes	49	7279.81	14.5	600418	266272	2 - Clean	Yes	1/02/2024	Yes	OK	
23/11/2023	2023/2024	Yes	49	7279.81	14.5	600418	266274	2 - Clean	Yes	23/02/2024	Yes		
30/11/2023	2023/2024	Yes	49	7279.81	14.5	600418	266274	3 - No Acti	Yes	23/12/2024	Yes		
7/12/2023	2023/2024	Yes	49	7279.81	14.5	600418	266277	2 - Clean	Yes	1/02/2024	Yes	Ok	
14/12/2023	2023/2024	Yes	48	7283	15.9	601087	266278	2 - Clean	Yes	1/02/2024	Yes	OK	
21/12/2023	2023/2024	Yes	49	7283	14.5	601087		3 - No Acti	Yes	23/02/2024	Yes	ok	
28/12/2023	2023/2024	Yes	49	7283	14.5	601087	266282	3 - No Acti	Yes	23/02/2024	Yes		
4/01/2024	2023/2024	Yes	49	7283	14.5	601087	266284	3 - No Acti	Yes	23/02/2024	Yes		
11/01/2024	2023/2024	Yes	49	7284	15.3	601409	266290	2 - Clean	Yes	1/02/2024	Yes	OK	Compressor shed could
18/01/2024	2023/2024	Yes	49	7284.68	14.5	601409	266292	2 - Clean	Yes	18/02/2024	Yes		
25/01/2024	2023/2024	Yes	49	7284.68	14.5	601409	266295	2 - Clean	Yes	25/02/2024	Yes		
1/02/2024	2023/2024	Yes	49	7284.68	14.5	601409	266296	2 - Clean	Yes	1/02/2024	Yes	Ok	
8/02/2024	2023/2024	Yes	49	7284.68	14.5	601409	266297	2 - Clean	Yes	8/02/2024	Yes	Ok	Air solenoid valve on c
15/02/2024	2023/2024	Yes	47	7286	18	601861	266297	2 - Clean	Yes	15/02/2024	Yes	Ok	
22/02/2024	2023/2024	Yes	49	7286	14.5	601861	266297	3 - No Acti	Yes	23/02/2024	Yes	Comp due	
29/02/2024	2023/2024	Yes	49	7286	14.5	601861	266297	2 - Clean	Yes	29/02/2024	Yes	Ok	
7/03/2024	2023/2024	Yes	49	7286	14.5	601861	266298	2 - Clean	Yes	29/08/2024	Yes	Ok	
14/03/2024	2023/2024	Yes	48	7289.01	16.8	602288	266298	2 - Clean	Yes	29/08/2024	Yes		
21/03/2024	2023/2024	Yes	49	7289.01	14.5	602288	266298	3 - No Acti	Yes	28/02/2025	Yes		
28/03/2024	2023/2024	Yes	49	7289.01	14.5	602288	266299	2 - Clean	Yes	29/08/2024	Yes	Ok	Weeds starting to com
4/04/2024	2023/2024	Yes	49	7289.01	14.5	602288	266299	2 - Clean	Yes	29/08/2024	Yes	Ok	
11/04/2024	2023/2024	Yes	48	7291	15.6	602706	266299	2 - Clean	Yes	29/08/2024	Yes		
18/04/2024	2023/2024	Yes	49	7291	14.5	602706	266299	3 - No Acti	Yes	28/02/2025	Yes		
26/04/2024	2023/2024	Yes	49	7291	14.5	602706	266299	2 - Clean	Yes	29/08/2024	Yes	Ok	
2/05/2024	2023/2024	Yes	49	7291	14.5	602706	266299	2 - Clean	Yes	29/08/2024	Yes	OK	
9/05/2024	2023/2024	Yes	49	7292	14.7	603092	266299	2 - Clean	Yes	29/08/2024	Yes	Ok	
16/05/2024	2023/2024	Yes	49	7292	14.5	603092	266299	2 - Clean	Yes	29/08/2024	Yes		
23/05/2024	2023/2024	Yes	49	7292	14.5	603092	266299	2 - Clean	Yes	29/08/2024	Yes	OK	
30/05/2024	2023/2024	Yes	49	7292	14.5	603092	266299	2 - Clean	Yes	29/08/2024	Yes	OK	
6/06/2024	2023/2024	Yes	49	7292	14.5	603092	266299	2 - Clean	Yes	29/08/2024	Yes	Ok	
13/06/2024	2023/2024	Yes	48	7294.76	15.4	603458	266299	2 - Clean	Yes	29/08/2024	Yes		
20/06/2024	2023/2024	Yes	49	7294.79	14.5	603458	266299	3 - No Acti	Yes	28/02/2025	Yes		
27/06/2024	2023/2024	Yes	49	7294	14.5	603458	266299	2 - Clean	Yes	29/08/2024	Yes	Ok	
4/07/2024	2024/2025	Yes	49	7294.79	14.5	603458	26299	3 - No Acti	Yes	28/02/2025	Yes		
11/07/2024	2024/2025	Yes	49	7294.79	14.5	603458	266299	2 - Clean	Yes	29/08/2024	Yes	Ok	Cable duct could do wi
18/07/2024	2024/2025	Yes	49	7296	14.6	603819	266299	2 - Clean	Yes	29/08/2024	Yes		
25/07/2024	2024/2025	Yes	49	7296	14.5	603819	266299	2 - Clean	Yes	29/08/2024	Yes		

Kāpiti Coast DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

KB7 Operation Bore Log

Date	FY	Filled in log	Bore Level	Pump Run	Temperature	Flow Forw	Flow Reve	Cabinet Fil	Checked V	Well-head Security	Comment	Comments
7/01/2021	2020/2021	Yes	40	1755	14.1	15094	94	3 - No Acti	Yes			
14/01/2021	2020/2021	Yes	40	1755	14.2	15096	94	3 - No Acti	Yes			
21/01/2021	2020/2021	Yes	40	1755	14.1	15096	94	3 - No Acti	Yes			
28/01/2021	2020/2021	Yes	39	1758	14.3	15143	94	3 - No Acti	Yes			
4/02/2021	2020/2021	Yes	40	1758	14.2	15143	94	2 - Clean	Yes			Filter lid needs repairing. pop rivet back on
11/02/2021	2020/2021	Yes	40	1758	14.1	15143	94	3 - No Acti	Yes			
18/02/2021	2020/2021	Yes	40	1758	14.1	15145	94	1 - Change	Yes			
25/02/2021	2020/2021	Yes	38	1761	14.5	15213	94	2 - Clean	Yes			
3/03/2021	2020/2021	Yes	39	1784	14.2	15717	94.41	3 - No Acti	Yes			battery age about 4 years
11/03/2021	2020/2021	Yes	39	1835	14.2	16825	94	3 - No Acti	Yes			
23/03/2021	2020/2021	Yes	40	1835	14.7	16825	94	3 - No Acti	Yes			
31/03/2021	2020/2021	Yes	40	1838	14.1	16877	94	2 - Clean	Yes			
8/04/2021	2020/2021	Yes	40	1838	14.2	16877	94	2 - Clean	Yes			
22/04/2021	2020/2021	Yes	39	1842	14.4	16979	94	2 - Clean	Yes			
28/04/2021	2020/2021	Yes	40	1842	14.1	16979	94	2 - Clean				
6/05/2021	2020/2021	Yes	40	1842	14.1	16979	94	2 - Clean	Yes			
13/05/2021	2020/2021	Yes	40	1844	14.2	17022	94	1 - Change	Yes			
20/05/2021	2020/2021	Yes	40	1844	14.1	17022	94.42	3 - No Acti	Yes			
20/05/2021	2020/2021	Yes	40	1844	14.1	17022	94.42	3 - No Acti	Yes			
20/05/2021	2020/2021	Yes	40	1844	14.1	17022	94.42	3 - No Acti	Yes			
3/06/2021	2020/2021	Yes	40	1844	14.1	17022	94	2 - Clean	Yes			
17/06/2021	2020/2021	Yes	40	1846	14.1	17062	94	3 - No Acti	Yes			
29/07/2021	2021/2022	Yes	40	1849	14.1	17127	94	2 - Clean	Yes			Alarm unable to be turned off when door op
12/08/2021	2021/2022	Yes	40	1851	14.1	17178	94	3 - No Acti	Yes			
19/08/2021	2021/2022	Yes	40	1851	14.1	17179	97	2 - Clean	Yes			
3/09/2021	2021/2022	Yes	40	1851	14.1	17179	94	2 - Clean	Yes			
9/09/2021	2021/2022	Yes	40	1851	14.1	17179	94	2 - Clean	Yes			
23/09/2021	2021/2022	Yes	40	1854	14.1	17231	94	2 - Clean	Yes			
30/09/2021	2021/2022	Yes	40	1854	14.1	17232	94	2 - Clean	Yes			
14/10/2021	2021/2022	Yes	38	1856	15	17275	95	3 - No Acti	Yes			
21/10/2021	2021/2022	Yes	40	1856	14.1	17275	95	3 - No Acti	Yes			
23/12/2021	2021/2022	Yes	40	1861	14.2	17392	95	3 - No Acti	Yes			
30/12/2021	2021/2022	Yes	40	1861	14.3	17392	95.3	3 - No Acti	Yes			
6/01/2022	2021/2022	Yes	40	1861	14.1	17392	95.31	3 - No Acti	Yes			
14/01/2022	2021/2022	Yes	40	1861	14.2	17393	95.31	3 - No Acti	Yes			
27/01/2022	2021/2022	Yes	40	1863	14.2	17442.55	93.31	3 - No Acti				
3/02/2022	2021/2022	Yes	40	1863	14.1	17442.57	95.31	2 - Clean	Yes		ok	
10/02/2022	2021/2022	Yes	40	1863	14.2	17442.59	95.31	3 - No Acti	Yes			
17/02/2022	2021/2022	Yes	39	1865	14.4	17486	95	3 - No Acti	Yes			
24/02/2022	2021/2022	Yes	40	1865	14.1	17486	95	3 - No Acti	Yes			
3/03/2022	2021/2022	Yes	40	1865	14.2	17486	95.32	3 - No Acti	Yes			
10/03/2022	2021/2022	Yes	39	1867	14.4	17529	95.32	3 - No Acti	Yes			
17/03/2022	2021/2022	Yes	40	1867	14.2	17529	95	3 - No Acti	Yes			
24/03/2022	2021/2022	Yes	38	1932	14.2	18923	95.3	2 - Clean	Yes		Ok	
31/03/2022	2021/2022	Yes	4	2034	24	21141	95	3 - No Acti	Yes			
7/04/2022	2021/2022	Yes	35	2167	14.2	24031.88	95.33	2 - Clean	Yes			
14/04/2022	2021/2022	Yes	4	2305	23.9	27027.32	95.33	3 - No Acti	Yes			
21/04/2022	2021/2022	Yes	38	2308	14.2	27095	95.33	3 - No Acti	Yes			
28/04/2022	2021/2022	Yes	39	2308	14.2	27095.43	95.33	2 - Clean	Yes			
5/05/2022	2021/2022	Yes	39	2308	14.2	27095.44	95.33	2 - Clean	Yes		OK	Alarm OK this time
12/05/2022	2021/2022	Yes	38	2311	14.5	27145.83	95.34	3 - No Acti	Yes			
19/05/2022	2021/2022	Yes	40	2311	14.2	27145.84	95.34	2 - Clean	Yes		OK	
26/05/2022	2021/2022	Yes	40	2311	14.2	27145.85	95.34	2 - Clean	Yes		OK	Well head flange corrosion requires attentio
9/06/2022	2021/2022	Yes	40	2311	14.1	27145.88	95.34	3 - No Acti	Yes			
16/06/2022	2021/2022	Yes	39	2313	14.6	27189.41	95.34	3 - No Acti	Yes		Rust on bore flange	
23/06/2022	2021/2022	Yes	40	2313	14.2	27189.43	95.34	2 - Clean	Yes		OK	Corrosion still requires attention
30/06/2022	2021/2022	Yes	40	2313	14.1	27189	95.34	2 - Clean	Yes		ok	
7/07/2022	2022/2023	Yes	40	2313	14.1	27189.47	95.34	2 - Clean	Yes		Good	Nil
14/07/2022	2022/2023	Yes	39	2315	14.5	27235	95.34	2 - Clean	Yes			
21/07/2022	2022/2023	Yes	40	2320	14.1	27350.27	95.34	2 - Clean	Yes			
28/07/2022	2022/2023	Yes	40	2320	14.1	27350.28	95.35	2 - Clean	Yes		OK	
4/08/2022	2022/2023	Yes	40	2320	14.1	27350.29	95.35	2 - Clean	Yes			
11/08/2022	2022/2023	Yes	36	2323	14.3	27417.63	95.35	2 - Clean	Yes		OK	
17/08/2022	2022/2023	Yes	40	2323	14.1	27417.64	95.35	2 - Clean	Yes			
25/08/2022	2022/2023	Yes	41	2323	24.2	27417	95	3 - No Acti	Yes			
1/09/2022	2022/2023	Yes	40	2323	14.1	27417.67	95.36	2 - Clean	Yes			
8/09/2022	2022/2023	Yes	39	2326	14.5	27471.96	95.36	2 - Clean	Yes		oK	
15/09/2022	2022/2023	Yes	40	2326	14.2	27471.96	95.36	2 - Clean				
23/09/2022	2022/2023	Yes	40	2326	14.2	27471	95	3 - No Acti	Yes			
29/09/2022	2022/2023	Yes	40	2326	14.2	27471.98	95.36	3 - No Acti	Yes			
6/10/2022	2022/2023	Yes	40	2326	14.1	27472	95.36	2 - Clean	Yes		OK	
14/10/2022	2022/2023	Yes	40	2328.16	14.2	27516.34	95.36	2 - Clean	Yes			
20/10/2022	2022/2023	Yes	40	2328	14.2	27516	95	3 - No Acti	Yes			
27/10/2022	2022/2023	Yes	40	2328	14.1	24516.36	95.36	3 - No Acti	Yes		Ok	
3/11/2022	2022/2023	Yes	40	2928	14.1	27516	95	3 - No Acti	Yes			
10/11/2022	2022/2023	Yes	40	2328	14.2	27516.37	95.36	2 - Clean	Yes		Ok	
17/11/2022	2022/2023	Yes	40	2328	14.1	27516	95	2 - Clean	Yes			
24/11/2022	2022/2023	Yes	40	2331	14.2	27578.62	95.37	2 - Clean	Yes		Ok	
1/12/2022	2022/2023	Yes	40	2331	14.2	27578.63	95.37	2 - Clean	Yes		Ok	Bore pad was water blasted last week
8/12/2022	2022/2023	Yes	13	2333	25.8	27624.75	95.37	2 - Clean	Yes			
16/12/2022	2022/2023	Yes	40	2333.3	14.2	27628.7	95.37	2 - Clean	Yes			
22/12/2022	2022/2023	Yes	40	2335	14.2	27667.22	95.37	2 - Clean	Yes		Ok	
29/12/2022	2022/2023	Yes	40	2335.19	14.2	27667.27	95.38	2 - Clean	Yes		OK	
5/01/2023	2022/2023	Yes	40	2335.12	14.2	27667.25	95.38	2 - Clean	Yes			
12/01/2023	2022/2023	Yes	40	2335.12	14.2	27667.29	95.38	2 - Clean	Yes		OK	
19/01/2023	2022/2023	Yes	40	2339.05	14.2	27752.57	95.38	2 - Clean	Yes			
26/01/2023	2022/2023	Yes	40	2339	14.2	27752	95.38	3 - No Acti				plc display faulty. AFI need to fix. reset pov
2/02/2023	2022/2023	Yes	40	2339.05	14.2	27752.6	95.38	2 - Clean	Yes			
9/02/2023	2022/2023	Yes	12	2340	25.8	27790	95	3 - No Acti	Yes			
16/02/2023	2022/2023	Yes	40	2341	14.2	27795.65	95.38	2 - Clean	Yes		Ok	PLC panel view screen is blank
23/02/2023	2022/2023	Yes	40	2341.04	14.1	27795.68	95.38	2 - Clean	Yes		OK	
2/03/2023	2022/2023	Yes	40	2341	14.2	27795.7	95.39	2 - Clean	Yes		Ok	
8/03/2023	2022/2023	Yes	12	2342	25.2	27836	95.39	3 - No Acti	Yes			
16/03/2023	2022/2023	Yes	40	2343	14.2	27842.22	95.39	2 - Clean	Yes		Ok	
23/03/2023	2022/2023	Yes	40	2343.19	14.2	27842.23	95.39	2 - Clean	Yes		OK	
30/03/2023	2022/2023	Yes	40	2343.18	14.1	27842.25	95.39	2 - Clean	Yes			
6/04/2023	2022/2023	Yes	40	2343.18	14.2	27842.28	95.39	2 - Clean	Yes		OK	
13/04/2023	2022/2023	Yes	13	2344	25.3	27866.23	95.39	3 - No Acti	Yes		Ok	
20/04/2023	2022/2023	Yes	40	2345.34	14.2	27888.94	95.39	2 - Clean	Yes		OK	
27/04/2023	2022/2023	Yes	40	2345.3	14.1	27888.97	95.4	2 - Clean	Yes			
4/05/2023	2022/2023	Yes	40	2345.37	14.1	27888.98	95.4	2 - Clean	Yes		OK	
11/05/2023	2022/2023	Yes	13	2346.64	25.7	27917.27	95.4	2 - Clean	Yes			
18/05/2023	2022/2023	Yes	40	2347	14.1	27945	95	3 - No Acti	Yes			
25/05/2023	2022/2023	Yes	40	2347.95	14.1	27945.83	95.46	2 - Clean	Yes			Cabinet alarm faulty
1/06/2023	2022/2023	Yes	40	2347.95	14.2	27945.88	95.48	2 - Clean	Yes		OK	
8/06/2023	2022/2023	Yes	13	2349.47	25.7	27978.81	95.48	2 - Clean	Yes			
15/06/2023	2022/2023	Yes	40	2350	14.1	27995	95	3 - No Acti	Yes			Alarm not ack
22/06/2023	2022/2023	Yes	40	2350	14.1	27995.37	95.48	2 - Clean	Yes		Ok	
29/06/2023	2022/2023	Yes	40	2350.23	14.1	27995.39	95.48	2 - Clean	Yes		OK	
6/07/2023	2023/2024	Yes	40	2350	14.1	27995.42	95.48	2 - Clean	Yes		Ok	Dings in rear of cabinet - see pic
13/07/2023	2023/2024	Yes	13	2351.57	25.9	28024.6	95.48	2 - Clean	Yes			
20/07/2023	2023/2024	Yes	40	2352	14.1	28037.95	95.48	2 - Clean	Yes		Ok	Alarm ack function needs to be fixed.
27/07/2023	2023/2024	Yes	40	2352.19	14.1	28038	95.48	2 - Clean	Yes		OK	
3/08/2023	2023/2024	Yes	40	2352.19	14.1	28038.04	95.48	2 - Clean	Yes			
9/08/2023	2023/2024	Yes	39	2354	14.3	28086	95.48	3 - No Acti	Yes			
17/08/2023	2023/2024	Yes	40	2354	14.1	28086	95.48	3 - No Acti	Yes			
24/08/2023	2023/2024	Yes	40	2354.42	14.2	28086.41	95.48	2 - Clean	Yes		OK	
31/08/2023	2023/2024	Yes	40	2354.42	14.1	28086.45	95.48	2 - Clean	Yes			
7/09/2023	2023/2024	Yes	40	2354.42	14.1	28088.79	96.51	3 - No Acti	Yes			
14/09/2023	2023/2024	Yes	39	2356	14.4	28136.29	99.53	2 - Clean	Yes		Ok	
21/09/2023	2023/2024	Yes	40	2356	14.2	28136.4	100.71	3 - No Acti	Yes			
28/09/2023	2023/2024	Yes	40	2356.24	14.2	28136.46	100.71	2 - Clean	Yes			
5/10/2023	2023/2024	Yes	40	2356	14.1	28136.5	100.71	3 - No Acti	Yes			
12/10/2023	2023/2024	Yes	38	2359	14.9	28210.75	100.71	2 - Clean	Yes		Ok	
19/10/2023	2023/2024	Yes	40	2359.67	14.2	28210.79	100.71	2 - Clean	Yes		OK	
26/10/2023	2023/2024	Yes	40	2359.67	14.1	28210.81	100.71	2 - Clean	Yes			
2/11/2023	2023/2024	Yes	40	2359	14.2	28210	100	3 - No Acti	Yes			
9/11/2023	2023/2024	Yes	39	2361	14.3	28258.94	100.72	3 - No Acti	Yes		Ok	
16/11/2023	2023/2024	Yes	40	2361.89	14.2	28259	100.72	2 - Clean	Yes		OK	Paint repair required
23/11/2023	2023/2024	Yes	40	2361.89	14.2	28259.03	100.72	2 - Clean	Yes			
30/11/2023	2023/2024	Yes	40	2361	14.2	28259	100	3 - No Acti	Yes			
7/12/2023	2023/2024	Yes	40	2361	14.2	28259.08	100.72	2 - Clean	Yes		Ok	
14/12/2023	2023/2024	Yes	38	2365	14.5	28330.47	100.72	2 - Clean	Yes		OK	
21/12/2023	2023/2024	Yes	40	2365	14.2	28330.48	100.72	3 - No Acti	Yes			
28/12/2023	2023/2024	Yes	40	2365	14.2	28330	100	3 - No Acti	Yes			
4/01/2024	2023/2024	Yes	40	2365	14.2	28330	100	3 - No Acti	Yes			
11/01/2024	2023/2024	Yes	39	2367	14.4	28372.11	100.73	2 - Clean	Yes		OK	Small cracks on wrap
18/01/2024	2023/2024	Yes	40	2367.1	14.2	28372.14	100.73	2 - Clean	Yes			
25/01/2024	2023/2024	Yes	40	2367.1	14.2	28372.17	100.73	2 - Clean	Yes			
1/02/2024	2023/2024	Yes	40	2367	14.2	28372.25	100.73	2 - Clean	Yes		Ok	
8/02/2024	2023/2024	Yes	40	2367	14.2	28372.38	100.74	2 - Clean	Yes		Ok	
15/02/2024	2023/2024	Yes	38	2369	14.8	28428.39	100.74	2 - Clean	Yes		Ok	
22/02/2024	2023/2024	Yes	40	2369	14.2	28428	100	3 - No Acti	Yes			
29/02/2024	2023/2024	Yes	40	2369	14.2	28428.57	100.74	2 - Clean	Yes		Ok	
7/03/2024	2023/2024	Yes	40	2369	14.2	28428.85	100.74	2 - Clean	Yes		Ok	
14/03/2024	2023/2024	Yes	38	2371.81	14.6	28475.16	100.74	2 - Clean	Yes			
21/03/2024	2023/2024	Yes	40	2371	14.2	28475	100	3 - No Acti	Yes			
28/03/2024	2023/2024	Yes	40	2371	14.2	28475.57	100.74	2 - Clean	Yes		Ok	
4/04/2024	2023/2024	Yes	40	2371	14.2	28476.03	100.74	2 - Clean	Yes		Ok	
11/04/2024	2023/2024	Yes	38	2374	14.4	28524.66	100.74	2 - Clean	Yes			
18/04/2024	2023/2024	Yes	40	2374	14.2	28524	100	3 - No Acti	Yes			
26/04/2024	2023/2024	Yes	40	2374	14.2	28525.2	100.74	2 - Clean	Yes		Ok	
2/05/2024	2023/2024	Yes	40	2374	14.2	28525.46	100.74	2 - Clean	Yes		OK	
9/05/2024	2023/2024	Yes	39	2376	14.2	28569	100	2 - Clean	Yes		Ok	
16/05/2024	2023/2024	Yes	40	2376	14.2	28569.99	100.75	2 - Clean	Yes			
23/05/2024	2023/2024	Yes	40	2376	14.2	28570.25	100.75	2 - Clean	Yes		OK	
30/05/2024	2023/2024	Yes	40	2376	14.2	28570.63	100.75	2 - Clean	Yes		OK	
6/06/2024	2023/2024	Yes	40	2376	14.1	28575	102.64	2 - Clean	Yes		Ok	
13/06/2024	2023/2024	Yes	39	2376.35	14.4	28594.93	107.76	2 - Clean	Yes			
20/06/2024	2023/2024	Yes	40	2376	14.1	28609	115	3 - No Acti	Yes			
27/06/2024	2023/2024	Yes	40	2376	14.1	28621.01	119.67	2 - Clean	Yes		Ok	
4/07/2024	2024/2025	Yes	40	2376	14.1	28643	123	3 - No Acti	Yes			
11/07/2024	2024/2025	Yes	40	2376	14.1	28671.47	129.84	2 - Clean	Yes		Ok	
18/07/2024	2024/2025	Yes	40	2378	14.2	28725	133.05	2 - Clean	Yes			

K12 Operational Bore Log

Date	FY	Filled in lo	Bore Level	Pump Run	Temperatu	Flow Forw	Flow Reve	Cabinet Fi	Checked V	Well-head	Comments
7/01/2021	2020/2021	Yes	63	755	13.7	21696	54	3 - No Acti	Yes		
14/01/2021	2020/2021	Yes	64	756	13.7	21699	54	3 - No Acti	Yes		
21/01/2021	2020/2021	Yes	63.2	756	13.7	21699	54	3 - No Acti	Yes		
28/01/2021	2020/2021	Yes	62	758	13.8	21760	54	3 - No Acti	Yes		
4/02/2021	2020/2021	Yes	758	62.6	13.7	21760	54	2 - Clean	Yes		
11/02/2021	2020/2021	Yes	62.9	758	13.7	21760	54	3 - No Acti	Yes		
18/02/2021	2020/2021	Yes	63	758	13.7	21760	54	1 - Change	Yes		
25/02/2021	2020/2021	Yes	61.1	761	13.9	21845	54	2 - Clean	Yes		
3/03/2021	2020/2021	Yes	60.8	779	13.7	22297	54	3 - No Acti	Yes		battery 5 y
11/03/2021	2020/2021	Yes	61	819	13.7	23515	54	3 - No Acti	Yes		
23/03/2021	2020/2021	Yes	62	819	13.7	23515	54	3 - No Acti	Yes		
31/03/2021	2020/2021	Yes	62	822	13.7	23613	54	2 - Clean	Yes		
8/04/2021	2020/2021	Yes	62.2	822	13.7	23613	54	2 - Clean	Yes		
22/04/2021	2020/2021	Yes	60.8	827	13.8	23747	54	2 - Clean	Yes		
28/04/2021	2020/2021	Yes	62	827	13.7	23747	54	2 - Clean	Yes		
6/05/2021	2020/2021	Yes	62.1	827	13.7	23747	54	2 - Clean	Yes		
13/05/2021	2020/2021	Yes	62	829	13.7	23804	54	1 - Change	Yes		
20/05/2021	2020/2021	Yes	62.3	829	13.7	23804	54.49	3 - No Acti	Yes		
3/06/2021	2020/2021	Yes	62.4	829	13.7	23804	54	2 - Clean	Yes		
17/06/2021	2020/2021	Yes	62.9	831	13.7	23858	54	3 - No Acti	Yes		
29/07/2021	2021/2022	Yes	62	834	13.7	23941	54	2 - Clean	Yes		
12/08/2021	2021/2022	Yes	63.4	836	13.7	24010	54	3 - No Acti	Yes		
19/08/2021	2021/2022	Yes	63	836	13.7	24010	54	2 - Clean	Yes		
3/09/2021	2021/2022	Yes	63.4	836	13.7	24010	54	2 - Clean	Yes		
9/09/2021	2021/2022	Yes	65	836	13.7	24010	54	2 - Clean	Yes		
23/09/2021	2021/2022	Yes	63.2	838	13.7	24080	54	2 - Clean	Yes		
30/09/2021	2021/2022	Yes	62.9	838	13.7	24080	54	2 - Clean	Yes		
14/10/2021	2021/2022	Yes	60.5	841	14.3	24150	54	3 - No Acti	Yes		
21/10/2021	2021/2022	Yes	62	841	13.7	24150	54	3 - No Acti	Yes		
23/12/2021	2021/2022	Yes	63	846	13.7	24306	54.49	3 - No Acti	Yes	power cab	power cab
30/12/2021	2021/2022	Yes	62.9	846	13.6	24306	54.49	3 - No Acti	Yes		
6/01/2022	2021/2022	Yes	63	846	13.6	24306	54.49	3 - No Acti	Yes	cable entry	
14/01/2022	2021/2022	Yes	63.1	846	13.7	24306	54.49	3 - No Acti	Yes		
27/01/2022	2021/2022	Yes	62.6	849	13.7	24371	54.49	3 - No Acti	Yes		
3/02/2022	2021/2022	Yes	62.7	849	13.7	24371.21	54.49	2 - Clean	Yes	ok	
10/02/2022	2021/2022	Yes	63.5	849	13.7	24371.21	54.49	3 - No Acti	Yes		
17/02/2022	2021/2022	Yes	63.2	851	13.8	24429	54	3 - No Acti	Yes		
24/02/2022	2021/2022	Yes	62.7	851	13.7	24429	54	3 - No Acti	Yes		
3/03/2022	2021/2022	Yes	63.3	581	13.7	24429	54.49	3 - No Acti	Yes		
10/03/2022	2021/2022	Yes									
17/03/2022	2021/2022	Yes	63	853	13.7	24487	54	3 - No Acti	Yes		
24/03/2022	2021/2022	Yes	60.8	902	13.7	25901.5	54.49	2 - Clean	Yes	Ok	
31/03/2022	2021/2022	Yes	12.5	976	25.3	28684	54.49	3 - No Acti	Yes		
7/04/2022	2021/2022	Yes	56.3	996	13.7	32522.87	54.49	2 - Clean	Yes		
14/04/2022	2021/2022	Yes	12.4	1016	25.6	36466.32	54.49	3 - No Acti	Yes		
21/04/2022	2021/2022	Yes	60.3	1016	13.7	36550	64.5	3 - No Acti	Yes		
28/04/2022	2021/2022	Yes	61.2	1016	13.7	36550.43	54.5	2 - Clean	Yes		
5/05/2022	2021/2022	Yes	61.6	1016	13.7	36550.43	54.5	2 - Clean	Yes	OK	
12/05/2022	2021/2022	Yes	60.3	1018	13.8	36617.59	54.5	3 - No Acti	Yes		
19/05/2022	2021/2022	Yes	61.9	1018	13.7	36617.59	54.5	2 - Clean	Yes	OK	
26/05/2022	2021/2022	Yes	61.9	1018	13.7	36617.59	54.5	2 - Clean	Yes	OK	
9/06/2022	2021/2022	Yes	62.2	1018	13.7	36617.59	54.5	3 - No Acti	Yes		
16/06/2022	2021/2022	Yes	60	1020	13.9	36675.6	54.5	3 - No Acti	Yes	Ok	Rust sighte
23/06/2022	2021/2022	Yes	62.3	1020	13.7	36675.6	54.5	2 - Clean	Yes	OK	
30/06/2022	2021/2022	Yes									
7/07/2022	2022/2023	Yes	62.4	1020	13.7	36675.6	54.5	2 - Clean	Yes	Good	Nil
14/07/2022	2022/2023	Yes	60.8	1020	14	36737	54.5	2 - Clean	Yes		
21/07/2022	2022/2023	Yes	62.2	1024	13.7	36887.9	54.5	2 - Clean	Yes		
28/07/2022	2022/2023	Yes	62.5	1024	13.7	36887.9	54.5	2 - Clean	Yes	OK	
4/08/2022	2022/2023	Yes	62.5	1024	13.7	36887.9	54.5	2 - Clean	Yes		
11/08/2022	2022/2023	Yes	58.4	1025	16.1	36978.28	54.5	2 - Clean	Yes	OK	
17/08/2022	2022/2023	Yes	62.5	1025	13.7	36978.28	54.5	2 - Clean	Yes		
25/08/2022	2022/2023	Yes	62.6	1025	13.7	36978	54	3 - No Acti	Yes		
1/09/2022	2022/2023	Yes	62.7	1025	13.7	36978.28	54.5	2 - Clean	Yes		
8/09/2022	2022/2023	Yes	61	1026	13.9	37050	54.5	2 - Clean	Yes	OK	blocking fe
15/09/2022	2022/2023	Yes	62.5	1026	13.7	37050.88	54.5	2 - Clean	Yes		
23/09/2022	2022/2023	Yes	62.6	1026	13.7	37050	54	3 - No Acti	Yes		
29/09/2022	2022/2023	Yes	62.5	1026	13.7	37050.88	54.5	3 - No Acti	Yes		
6/10/2022	2022/2023	Yes	62.5	1026	13.7	37050	54.5	2 - Clean	Yes	OK	
14/10/2022	2022/2023	Yes	62.2	1027.2	13.7	37109.3	54.5	2 - Clean	Yes		
20/10/2022	2022/2023	Yes	62.4	1027	13.7	37109	54.5	3 - No Acti	Yes		
27/10/2022	2022/2023	Yes	62.4	1027	13.7	37109.3	54.5	3 - No Acti	Yes	Ok	
3/11/2022	2022/2023	Yes	62.4	1027	13.6	37109	54	3 - No Acti	Yes		
10/11/2022	2022/2023	Yes	62.3	1027	13.7	37109.31	54.5	2 - Clean	Yes		
17/11/2022	2022/2023	Yes	62.3	1027	13.6	37109	54.5	2 - Clean	Yes		
24/11/2022	2022/2023	Yes	62	1029	13.7	37192.83	54.5	3 - No Acti	Yes	Ok	
1/12/2022	2022/2023	Yes	62.4	1029	13.6	37192.83	54.5	2 - Clean	Yes	Ok	Concrete p
8/12/2022	2022/2023	Yes	24.8	1031.6	27.7	37242	54.5	2 - Clean	Yes		
16/12/2022	2022/2023	Yes									
22/12/2022	2022/2023	Yes	62.2	1033	13.7	37310.34	54.5	2 - Clean	Yes	Ok	
29/12/2022	2022/2023	Yes	62.3	1033.8	13.7	37310.34	54.5	2 - Clean	Yes	OK	
5/01/2023	2022/2023	Yes	62.2	1033.8	13.7	37310.35	54.5	2 - Clean	Yes		
12/01/2023	2022/2023	Yes	62.3	1033.8	13.7	37310.35	54.5	2 - Clean	Yes	OK	
19/01/2023	2022/2023	Yes	61.9	1037	13.7	37424.25	54.5	2 - Clean	Yes		
26/01/2023	2022/2023	Yes	62.1	1037	13.7	37424	54.5	3 - No Acti	Yes		rust
2/02/2023	2022/2023	Yes	62.1	1037	13.7	37424.25	54.5	2 - Clean	Yes		
9/02/2023	2022/2023	Yes	24.6	1039	27.6	37478	54.5	3 - No Acti	Yes		
16/02/2023	2022/2023	Yes	62.1	1039	13.7	37481.76	54.5	2 - Clean	Yes	Ok	Bit of subs
23/02/2023	2022/2023	Yes	62	1039.2	13.7	37481.76	54.5	2 - Clean	Yes	OK	Remove ca
2/03/2023	2022/2023	Yes	62.1	1039	13.6	37481.76	54.5	2 - Clean	Yes	Ok	
9/03/2023	2022/2023	Yes	24.3	1041	26.6	37540	54.5	3 - No Acti	Yes		
16/03/2023	2022/2023	Yes	62	1041	13.6	37543.26	54.5	2 - Clean	Yes	Ok	
23/03/2023	2022/2023	Yes	62	1041.3	13.7	37543.26	54.5	2 - Clean	Yes	OK	
30/03/2023	2022/2023	Yes	62.1	1041.3	13.7	37543.26	54.5	2 - Clean	Yes		
6/04/2023	2022/2023	Yes	62	1041.3	13.7	37543.27	54.5	2 - Clean	Yes	OK	
13/04/2023	2022/2023	Yes	25.3	1042	26.6	37580.63	54.5	3 - No Acti	Yes	Ok	
20/04/2023	2022/2023	Yes	62.1	1043	13.7	37604.89	54.5	2 - Clean	Yes	OK	
27/04/2023	2022/2023	Yes	62.2	1043	13.7	37604.89	54.5	2 - Clean	Yes		
4/05/2023	2022/2023	Yes	62.3	1043.5	13.7	37604.89	54.5	2 - Clean	Yes	OK	
11/05/2023	2022/2023	Yes	25	1045.1	27.5	37654.03	54.5	2 - Clean	Yes		
18/05/2023	2022/2023	Yes	62	1046	13.7	37680	54	3 - No Acti	Yes		
25/05/2023	2022/2023	Yes	62.4	1046	13.7	37680.59	54.5	2 - Clean	Yes		
1/06/2023	2022/2023	Yes	62.3	1046	13.7	37680.59	54.5	2 - Clean	Yes	OK	
8/06/2023	2022/2023	Yes	25.6	1047.2	27.5	37717.75	54.5	2 - Clean	Yes		
15/06/2023	2022/2023	Yes	62.2	1048	13.7	37746	54.5	3 - No Acti	Yes		
22/06/2023	2022/2023	Yes	62.3	1048	13.7	37746.5	54.5	2 - Clean	Yes	Ok	
29/06/2023	2022/2023	Yes	62.2	1048.1	13.7	37746.5	54.5	2 - Clean	Yes	OK	Wrap on fi Action Nee
6/07/2023	2023/2024	Yes	62.3	1048	13.7	37746.5	54.5	2 - Clean	Yes	Ok	No action l
13/07/2023	2023/2024	Yes	26.1	1049.1	27.4	37774.26	54.5	2 - Clean	Yes		No action l
20/07/2023	2023/2024	Yes	62.2	1050	13.7	37803.27	54.5	2 - Clean	Yes	Ok	No action l
27/07/2023	2023/2024	Yes	62.2	1050.1	13.7	37803.27	54.5	2 - Clean	Yes	OK	No action l
3/08/2023	2023/2024	Yes	62.2	1050.1	13.7	37803.27	54.5	2 - Clean	Yes		No action l
9/08/2023	2023/2024	Yes	61.2	1052	13.8	37867	54	3 - No Acti	Yes	Ok	Perspex sa No action l
17/08/2023	2023/2024	Yes	62.2	1052	13.7	37867	54.5	3 - No Acti	Yes		No action l
24/08/2023	2023/2024	Yes	62.2	1052.3	13.7	37867.05	54.5	2 - Clean	Yes	OK	No action l
31/08/2023	2023/2024	Yes	62.3	1052.3	13.7	37867.05	54.5	2 - Clean	Yes		No action l
7/09/2023	2023/2024	Yes	62.3	1052	13.7	37867.05	54.5	3 - No Acti	Yes		No action l
14/09/2023	2023/2024	Yes	61.4	1054	13.8	37919.79	54.5	2 - Clean	Yes	Ok	No action l
21/09/2023	2023/2024	Yes	62.1	1054	13.7	37919.79	54.5	3 - No Acti	Yes		Rust on fla No action l
28/09/2023	2023/2024	Yes	62.2	1054.1	13.7	37919.79	54.5	2 - Clean	Yes		No action l
5/10/2023	2023/2024	Yes	62.1	1054	13.7	37919.76	54.5	3 - No Acti	Yes		No action l
12/10/2023	2023/2024	Yes	59.4	1057	14.2	38020.84	54.5	2 - Clean	Yes	Ok	No action l
19/10/2023	2023/2024	Yes	62	1057.6	13.7	38020.84	54.5	2 - Clean	Yes	OK	No action l
26/10/2023	2023/2024	Yes	62.1	1057.6	13.7	38020.84	54.5	2 - Clean	Yes		No action l
2/11/2023	2023/2024	Yes	62.2	1057	13.7	38028	54.5	3 - No Acti	Yes		No action l
9/11/2023	2023/2024	Yes	61.1	1059	13.8	38085.75	54.5	3 - No Acti	Yes	Ok	No action l
16/11/2023	2023/2024	Yes	62	1059.9	13.7	38085.75	54.5	2 - Clean	Yes	OK	Paint repai No action l
23/11/2023	2023/2024	Yes	62	1059.9	13.7	38085.75	54.5	2 - Clean	Yes		No action l
30/11/2023	2023/2024	Yes	62	1059	13.7	38085	54.5	3 - No Acti	Yes		No action l
7/12/2023	2023/2024	Yes	62	1059	13.7	38085.75	54.5	2 - Clean	Yes	Ok	No action l
14/12/2023	2023/2024	Yes	60.2	1063	13.8	38180.97	54.5	2 - Clean	Yes	OK	No action l
21/12/2023	2023/2024	Yes	61.9	1063	13.7	38180.7	54.5	3 - No Acti	Yes		No action l
28/12/2023	2023/2024	Yes	62	1063	13.7	38180	54	3 - No Acti	Yes		No action l
4/01/2024	2023/2024	Yes	62	1063	13.7	38180	54.5	3 - No Acti	Yes		No action l
11/01/2024	2023/2024	Yes	61	1065	13.8	38325.78	54.5	2 - Clean	Yes	OK	Small crac Action Nee
18/01/2024	2023/2024	Yes	61.9	1065	13.7	38235.78	54.5	2 - Clean	Yes		No action l
25/01/2024	2023/2024	Yes	61.8	1065.1	13.7	38235.7	54.5	3 - No Acti	Yes		No action l
1/02/2024	2023/2024	Yes	61.9	1065	13.7	38235.78	54.5	2 - Clean	Yes	Ok	No action l
8/02/2024	2023/2024	Yes	61.9	1065	13.7	38235.78	54.5	2 - Clean	Yes	Ok	No action l
15/02/2024	2023/2024	Yes	59.6	1067	14.2	38310.09	54.5	2 - Clean	Yes	Ok	No action l
22/02/2024	2023/2024	Yes	61.7	1064	13.7	38310	54	3 - No Acti	Yes		No action l
29/02/2024	2023/2024	Yes	61.8	1067	13.7	38310.09	54.5	2 - Clean	Yes	Ok	No action l
7/03/2024	2023/2024	Yes	61.8	1067	13.7	38310.09	54.5	2 - Clean	Yes		No action l
14/03/2024	2023/2024	Yes	60	1069	14.1	38371	54.5	2 - Clean	Yes		No action l
21/03/2024	2023/2024	Yes	61.7	1069	13.7	38371	54.5	3 - No Acti			No action l
28/03/2024	2023/2024	Yes	61.7	1069	13.7	38371.59	54.5	2 - Clean	Yes	Ok	No action l
4/04/2024	2023/2024	Yes	61.7	1069	13.7	38371.59	54.5	2 - Clean	Yes	Ok	No action l
11/04/2024	2023/2024	Yes	60.5	1071	13.8	38435.9	54.5	2 - Clean	Yes		No action l
18/04/2024	2023/2024	Yes	61.7	1071	13.7	38435	54	3 - No Acti	Yes		No action l
26/04/2024	2023/2024	Yes									
2/05/2024	2023/2024	Yes	61.8	1071	13.7	38435.9	54.5	2 - Clean	Yes	OK	No action l
9/05/2024	2023/2024	Yes	61.7	1073	13.7	38494	54	2 - Clean	Yes	Ok	No action l
16/05/2024	2023/2024	Yes	62.1	1073	13.7	38494.11	54.5	2 - Clean	Yes		No action l
23/05/2024	2023/2024	Yes	61.8	1073	13.7	38494.11	54.5	2 - Clean	Yes	OK	No action l
30/05/2024	2023/2024	Yes	61.8	1073	13.7	38494.11	54.5	2 - Clean	Yes	OK	No action l
6/06/2024	2023/2024	Yes	61.8	1073	13.7	38494	54.5	2 - Clean	Yes	Ok	No action l
13/06/2024	2023/2024	Yes	61	1075.6	13.8	38550.62	54.5	2 - Clean	Yes		No action l
20/06/2024	2023/2024	Yes	61.8	1075	13.7	38550	54.5	3 - No Acti	Yes		No action l
27/06/2024	2023/2024	Yes	61.8	1075	13.7	38550.62	54.5	2 - Clean	Yes	Ok	No action l
4/07/2024	2024/2025	Yes	61.9	1075	13.7	38550	54.5	3 - No Acti	Yes		No action l
11/07/2024	2024/2025	Yes	61.9	1075	13.7	38550.62	54.5	2 - Clean	Yes	Ok	No action l
18/07/2024	2024/2025	Yes	61.8	1077	13.7	38603.88	54.5	2 - Clean	Yes		No action l
25/07/2024	2024/2025	Yes	61.9	1077	13.7	38603.88	54.5	2 - Clean	Yes		No action l

Kāpiti Coast DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

N2 Operational Bore Log

Date	FY	Filled in lo	Bore Level	Pump Run	Temperatu	Flow Forw	Flow Reve	Cabinet Fl	Checked V	Well-head	Comments
7/01/2021	2020/2021	Yes	43	533	13	48870	9	3 - No Acti	Yes		
14/01/2021	2020/2021	Yes	43	533	13	48915	9.95	3 - No Acti	Yes		
21/01/2021	2020/2021	Yes	43	533	13	48915	9.95	2 - Clean	Yes		
28/01/2021	2020/2021	Yes	42.8	536	13.4	49105	9.95	3 - No Acti	Yes		
4/02/2021	2020/2021	Yes	42.8	536	13	49106	9	2 - Clean	Yes		No lock on
11/02/2021	2020/2021	Yes	42.8	536	13	49108	9.95	3 - No Acti	Yes		
18/02/2021	2020/2021	Yes	42.8	536	13	49120	9	1 - Change	Yes		
25/02/2021	2020/2021	Yes	37.5	537	27.7	49225	9.95	3 - No Acti	Yes		
3/03/2021	2020/2021	Yes	42.7	538	13	49385	9	3 - No Acti	Yes		power mor
11/03/2021	2020/2021	Yes	42.6	539	13.1	49500	9	3 - No Acti	Yes		
23/03/2021	2020/2021	Yes	42.7	539	13	49526	9	3 - No Acti	Yes		
31/03/2021	2020/2021	Yes	42	542	13	49755	9	2 - Clean	Yes		
8/04/2021	2020/2021	Yes	42.8	542	13	49766	9	2 - Clean	Yes		
22/04/2021	2020/2021	Yes	42.6	546	13.5	50196	9	2 - Clean	Yes		
28/04/2021	2020/2021	Yes	42	546	13	50201	9.95	2 - Clean	Yes		
6/05/2021	2020/2021	Yes	42.7	546	13	50205	9.95	2 - Clean	Yes		
13/05/2021	2020/2021	Yes	42.7	548	13.1	50386	9.95	1 - Change			
20/05/2021	2020/2021	Yes	42.8	548	13	50389	9.95	3 - No Acti	Yes		
3/06/2021	2020/2021	Yes	42.9	548	13	50393	9	2 - Clean	Yes		
17/06/2021	2020/2021	Yes	42.9	550	13	50555	9.95	3 - No Acti	Yes		
29/07/2021	2021/2022	Yes	43.2	554	13	50873	9	2 - Clean	Yes		
12/08/2021	2021/2022	Yes	43.2	556	13	51113	9.95	3 - No Acti	Yes		
19/08/2021	2021/2022	Yes	43	556	13	51114	9.95	2 - Clean	Yes		
3/09/2021	2021/2022	Yes	43.3	556	13	51116	9	2 - Clean	Yes		
9/09/2021	2021/2022	Yes	43	556	13	51117	9.95	2 - Clean	Yes		
23/09/2021	2021/2022	Yes	43.2	558	13	51315	9.95	2 - Clean	Yes		
30/09/2021	2021/2022	Yes	43.3	558	13	51316	9.95	2 - Clean	Yes		
14/10/2021	2021/2022	Yes	42.9	561	14.3	51539	9	3 - No Acti	Yes		
21/10/2021	2021/2022	Yes	43	561	13	51543	9.95	3 - No Acti	Yes		
30/12/2021	2021/2022	Yes									
6/01/2022	2021/2022	Yes	43.3	565	13	52202	9.95	3 - No Acti	Yes		
14/01/2022	2021/2022	Yes	43.2	565	13	52269	9.95	3 - No Acti	Yes		
27/01/2022	2021/2022	Yes	43.1	565	13	52346	9.95	3 - No Acti	Yes		
3/02/2022	2021/2022	Yes	43	567	13	52662	9.95	3 - No Acti	Yes		
17/02/2022	2021/2022	Yes	42.9	567	13	52729.9	9.95	2 - Clean	Yes	ok	
24/02/2022	2021/2022	Yes									
3/03/2022	2021/2022	Yes	43	569	13.6	53055	9.95	3 - No Acti	Yes		
10/03/2022	2021/2022	Yes	43.1	569	13	53123	9.95	3 - No Acti	Yes		
18/03/2022	2021/2022	Yes	43	569	13	53195	9.95	3 - No Acti	Yes		
24/03/2022	2021/2022	Yes									
31/03/2022	2021/2022	Yes									
7/04/2022	2021/2022	Yes	42.8	571	13	53588.69	9.95	2 - Clean	Yes	Ok	
14/04/2022	2021/2022	Yes	42.6	571	13.4	53695	9.95	3 - No Acti	Yes		
21/04/2022	2021/2022	Yes	41.8	670	13.1	62432.16	9.95	2 - Clean	Yes		
28/04/2022	2021/2022	Yes	41.4	726	13.9	68255.53	9.95	3 - No Acti	Yes		
5/05/2022	2021/2022	Yes	42.4	727	13	68324	9.95	3 - No Acti	Yes		
12/05/2022	2021/2022	Yes	42.6	727	13	68325.6	9.95	2 - Clean	Yes		
19/05/2022	2021/2022	Yes	42.8	727	13	68326.48	9.95	2 - Clean	Yes	OK	
26/05/2022	2021/2022	Yes	42.8	729	13.7	68538.11	9.95	3 - No Acti	Yes		
8/06/2022	2021/2022	Yes	43.2	729	13	68538.72	9.95	2 - Clean	Yes	OK	Well head
9/06/2022	2021/2022	Yes	43.1	729	13	68539	9.95	2 - Clean	Yes	OK	
16/06/2022	2021/2022	Yes	43.3	729	13	65840	9.95	3 - No Acti	Yes		
23/06/2022	2021/2022	Yes	43.5	731	13.7	68719	9.95	3 - No Acti	Yes	Ok	
30/06/2022	2021/2022	Yes	43.4	731	13	68719.93	9.95	2 - Clean	Yes	OK	
7/07/2022	2022/2023	Yes									
14/07/2022	2022/2023	Yes	43.3	731	13	68720	9.95	2 - Clean	Yes	Good	Nil
21/07/2022	2022/2023	Yes	43.2	733	13.8	68914	9.96	2 - Clean	Yes		
28/07/2022	2022/2023	Yes	43.5	733	13	68914.91	9.96	2 - Clean	Yes		
4/08/2022	2022/2023	Yes	43.5	733	13	68914.93	9.96	2 - Clean	Yes	OK	
11/08/2022	2022/2023	Yes	43.5	733	13	68914.95	9.96	2 - Clean	Yes		
17/08/2022	2022/2023	Yes	43	736	15	69199.63	9.96	2 - Clean	Yes	OK	
25/08/2022	2022/2023	Yes	43.5	736	13	69119.4	9.96	2 - Clean	Yes		
1/09/2022	2022/2023	Yes	43.6	736	13	69199	9.96	3 - No Acti	Yes		
8/09/2022	2022/2023	Yes	43.5	736	13	69199.73	9.96	2 - Clean	Yes		
15/09/2022	2022/2023	Yes	43.3	739	13.7	69420.89	9.96	2 - Clean	Yes	OK	Bore fence
23/09/2022	2022/2023	Yes	43.4	739	13	69420	9.96	2 - Clean	Yes		
29/09/2022	2022/2023	Yes	43.4	739	13	69421	9.96	3 - No Acti	Yes		
6/10/2022	2022/2023	Yes	43.3	739	13	69421.11	9.96	3 - No Acti	Yes		
14/10/2022	2022/2023	Yes	43.4	739	13	69421.16	9.96	2 - Clean	Yes	OK	
20/10/2022	2022/2023	Yes	43.2	741.4	13.1	69600.56	9.96	2 - Clean	Yes		
27/10/2022	2022/2023	Yes	43.2	741	13	69600	9.96	3 - No Acti	Yes		
3/11/2022	2022/2023	Yes	43.2	741	13	69600.82	9.96	3 - No Acti	Yes	Ok	Cow pats v
10/11/2022	2022/2023	Yes		741	13	69601	9.96	3 - No Acti	Yes		bore level
17/11/2022	2022/2023	Yes	0	741	13	69603.06	9.96	2 - Clean	Yes	Ok	Bore Level
24/11/2022	2022/2023	Yes	0	741	13	69611	9.96	2 - Clean	Yes		
1/12/2022	2022/2023	Yes	42.2	744	13.1	69899.74	9.96	3 - No Acti	Yes	Ok	Cable gap
8/12/2022	2022/2023	Yes	42.3	744	13	69913.42	9.96	2 - Clean	Yes	Ok	Concrete p
15/12/2022	2022/2023	Yes	37.2	744	27.2	69965.64	9.96	2 - Clean	Yes		
22/12/2022	2022/2023	Yes	42.1	746	13	70160.75	9.96	2 - Clean	Yes		
29/12/2022	2022/2023	Yes	42.1	748	13	70346.89	9.97	2 - Clean	Yes	Ok	
5/01/2023	2022/2023	Yes	42.1	748.3	13	70351.79	10.84	2 - Clean	Yes	OK	
12/01/2023	2022/2023	Yes	42	748.3	13	70351	10.84	2 - Clean	Yes		
19/01/2023	2022/2023	Yes	42	748.3	13	70351.82	10.84	2 - Clean	Yes	OK	
26/01/2023	2022/2023	Yes	41.9	752.3	13.1	70709.48	10.84	2 - Clean	Yes		
2/02/2023	2022/2023	Yes	41.9	752	13	70716	10.84	3 - No Acti	Yes		
9/02/2023	2022/2023	Yes	41.9	752.5	13	70748.87	10.84	2 - Clean	Yes		
16/02/2023	2022/2023	Yes	36.8	752	27.5	70838	10.84	3 - No Acti	Yes		
23/02/2023	2022/2023	Yes	41.9	754	13	71009.02	10.84	2 - Clean	Yes	Ok	
2/03/2023	2022/2023	Yes	41.8	754.8	13	71050.69	10.84	2 - Clean	Yes	OK	
9/03/2023	2022/2023	Yes	41.8	754	13	71096.54	10.84	2 - Clean	Yes	Ok	
16/03/2023	2022/2023	Yes	39.5	754	15.1	71138	10.84	3 - No Acti	Yes		
23/03/2023	2022/2023	Yes	41.8	754	13	71194.56	10.84	2 - Clean	Yes	Ok	
30/03/2023	2022/2023	Yes	41.9	754.9	13	71234.68	10.84	2 - Clean	Yes	OK	
6/04/2023	2022/2023	Yes	41.9	754.3	13	71272.77	10.84	2 - Clean	Yes		
13/04/2023	2022/2023	Yes	41.9	754.9	13	71308.97	10.84	2 - Clean	Yes	OK	
20/04/2023	2022/2023	Yes	39.5	754	15	71349.64	10.84	3 - No Acti	Yes	Ok	
27/04/2023	2022/2023	Yes	42	754.2	13	71390.3	10.84	2 - Clean	Yes	OK	
4/05/2023	2022/2023	Yes	42.1	754	13	71424.98	10.84	2 - Clean	Yes		
11/05/2023	2022/2023	Yes	42.1	754.4	13	71461.54	10.84	2 - Clean	Yes	OK	Lock and c
18/05/2023	2022/2023	Yes	36.9	755.1	27.8	71567.67	10.84	2 - Clean	Yes		
25/05/2023	2022/2023	Yes	42.2	756	13	71768	10	3 - No Acti	Yes		
1/06/2023	2022/2023	Yes	42.2	756.9	13	71807.45	10.84	2 - Clean	Yes		
8/06/2023	2022/2023	Yes	42.3	756.9	13	71852.81	10.84	2 - Clean	Yes	OK	
15/06/2023	2022/2023	Yes	36.9	757.6	27.7	71950.55	10.84	3 - No Acti	Yes	Ok	
22/06/2023	2022/2023	Yes	42.1	759	13	72129	10.84	3 - No Acti	Yes		
29/06/2023	2022/2023	Yes	42.1	759	13	72162.85	10.84	2 - Clean	Yes	Ok	
6/07/2023	2023/2024	Yes	42.1	759.4	13	72199.8	10.84	2 - Clean	Yes	OK	No action N
13/07/2023	2023/2024	Yes	42.1	759	13	72233.33	10.84	2 - Clean	Yes	Ok	No action N
20/07/2023	2023/2024	Yes	37.1	759.5	25.2	72287.26	10.84	2 - Clean	Yes		No action N
27/07/2023	2023/2024	Yes	42.1	761	13	72475.6	10.84	2 - Clean	Yes	Ok	No action N
3/08/2023	2023/2024	Yes	42.1	761.2	13	72505.01	10.84	2 - Clean	Yes	OK	No action N
9/08/2023	2023/2024	Yes	42.1	761.2	13	72534.66	10.84	2 - Clean	Yes		No action N
17/08/2023	2023/2024	Yes	42	763	13.6	72754	10.81	3 - No Acti	Yes	Ok	Perspex br No action N
24/08/2023	2023/2024	Yes	42.1	763	13	72785	10.84	3 - No Acti	Yes		No action N
31/08/2023	2023/2024	Yes	42.2	763.2	13	72815.89	10.84	2 - Clean	Yes	OK	No action N
7/09/2023	2023/2024	Yes	42.1	763.4	13	72846.57	10.84	2 - Clean	Yes		No action N
14/09/2023	2023/2024	Yes	42.1	763	13	72885.15	10.84	3 - No Acti	Yes		No action N
21/09/2023	2023/2024	Yes	37.1	763	26	72947	10.84	3 - No Acti	Yes		No action N
28/09/2023	2023/2024	Yes	42	765	13	73136	10.84	3 - No Acti	Yes		Rust on air No action N
5/10/2023	2023/2024	Yes	42.1	765.2	13	73177.82	10.84	2 - Clean	Yes		No action N
12/10/2023	2023/2024	Yes	42	765	13	73214	10.84	3 - No Acti	Yes		No action N
19/10/2023	2023/2024	Yes	37	766	27.1	73318	10.84	3 - No Acti	Yes		No action N
26/10/2023	2023/2024	Yes	42	768	13	73610	10.84	2 - Clean	Yes	OK	No action N
2/11/2023	2023/2024	Yes	42.1	768.8	13	73658.73	10.84	2 - Clean	Yes		No action N
9/11/2023	2023/2024	Yes	42	768	13	73707.45	10.84	3 - No Acti	Yes		No action N
16/11/2023	2023/2024	Yes	36.8	769	27.1	73816	10.84	3 - No Acti	Yes		No action N
23/11/2023	2023/2024	Yes	41.9	771.7	13	74005.07	10.84	2 - Clean	Yes	OK	No action N
30/11/2023	2023/2024	Yes	41.9	771.2	13	74056.81	10.84	2 - Clean	Yes		No action N
7/12/2023	2023/2024	Yes	41.9	771	13	74105	10.84	3 - No Acti	Yes		No action N
14/12/2023	2023/2024	Yes	41.9	771	13	74156.71	10.84	2 - Clean	Yes	Ok	No action N
21/12/2023	2023/2024	Yes	36.9	771	26.8	74244	10.84	3 - No Acti	Yes		No action N
28/12/2023	2023/2024	Yes	41.9	774	13	74533.67	10.84	3 - No Acti	Yes	no sealant	No action N
4/01/2024	2023/2024	Yes	41.9	774	13	74584	10.84	3 - No Acti	Yes		No action N
11/01/2024	2023/2024	Yes	41.8	774	13	74630.15	10.84	3 - No Acti	Yes		No action N
18/01/2024	2023/2024	Yes	36.9	774	26.9	74720.36	10.84	3 - No Acti	Yes		No action N
25/01/2024	2023/2024	Yes	41.8	776.1	13	74868.8	10.84	2 - Clean	Yes		No action N
1/02/2024	2023/2024	Yes	41.7	776.1	13	74912.52	10.84	2 - Clean	Yes		No action N
8/02/2024	2023/2024	Yes	41.7	776	13	74957.1	10.84	2 - Clean	Yes	Ok	No action N
15/02/2024	2023/2024	Yes	41.7	776	13	75006.54	10.84	2 - Clean	Yes	Ok	No action N
22/02/2024	2023/2024	Yes	36.7	776	26.8	75095	10.84	3 - No Acti	Yes	lock is dod cable outsi	No action N
29/02/2024	2023/2024	Yes	41.6	778	13	75310	10.84	3 - No Acti	Yes		No action N
7/03/2024	2023/2024	Yes	41.6	778	13	75349.08	10.84	2 - Clean	Yes	Ok	No action N
14/03/2024	2023/2024	Yes	41.6	778	13	75388.95	10.84	2 - Clean	Yes		No action N
21/03/2024	2023/2024	Yes	36.7	779	26.7	75468.52	10.84	2 - Clean	Yes	Ok	No action N
28/03/2024	2023/2024	Yes	41.5	780	13	75640	10.84	3 - No Acti	Yes		No action N
4/04/2024	2023/2024	Yes	41.6	780	13	75668.53	10.84	2 - Clean	Yes	Ok	No action N
11/04/2024	2023/2024	Yes	41.6	780	13	75695.43	10.84	2 - Clean	Yes	Ok	No action N
18/04/2024	2023/2024	Yes	36.7	781.2	26.1	75762.94	10.84	2 - Clean	Yes	OK	Cabinet co Action Nee
26/04/2024	2023/2024	Yes	41.7	783	13	75644	10.84	3 - No Acti	Yes		No action N
2/05/2024	2023/2024	Yes									
9/05/2024	2023/2024	Yes	41.7	783	13	75995.36	10.84	2 - Clean	Yes	OK	Could do v No action N
16/05/2024	2023/2024	Yes	41.5	785	13.2	76188.89	10.84	2 - Clean	Yes	Ok	No action N
23/05/2024	2023/2024	Yes	41.7	785	13	76209.05	10.84	2 - Clean	Yes		No action N
30/05/2024	2023/2024	Yes	41.7	785	13	76229.86	10.84	2 - Clean	Yes	OK	Cabinet ne No action N
6/06/2024	2023/2024	Yes	41.6	785	13	76249.1	10.84	2 - Clean	Yes	OK	No action N
13/06/2024	2023/2024	Yes	41.5	785	13	76270	10.84	2 - Clean	Yes	Ok	Apron coul No action N
20/06/2024	2023/2024	Yes	36.8	785	24.1	76317	10.84	2 - Clean	Yes	Ok	No action N
27/06/2024	2023/2024	Yes	41.7	786	13	76480	10.84	3 - No Acti	Yes		No action N
4/07/2024	2024/2025	Yes	41.6	786	13.1	76497	10.84	2 - Clean	Yes	Ok	No action N
11/07/2024	2024/2025	Yes	41.7	786.9	13	76517	10.84	3 - No Acti	Yes		No action N
18/07/2024	2024/2025	Yes	41.7	786	13	76533.54	10.84	2 - Clean	Yes	Ok	No action N
25/07/2024	2024/2025	Yes	41.8	788	13.1	76713.35	10.84	2 - Clean	Yes		No action N
			41.7	788.8	13	76732.82	10.84	2 - Clean	Yes		No action N

Appendix E

Bore Water Quality Sampling Results

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE **AR-24-NW-073671-01** REPORT DATE **27/11/2024**

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders: Binu Chaudhary **Order code:** EUNZWE-00215854
Contract: Kapiti DC Waste Water Treatement Plant
Submission Reference: Pre-Season Bore Testing **Purchase Order Number:** 389578

SAMPLE CODE **812-2024-00168045**

Sample Name Bore K4
Sampling Point code: NW0002254016 **Sampling Point name:** Bore K4
Reception Date & Time: 13/11/2024 11:35
Analysis Started on: 14/11/2024 **Analysis Ending Date:** 27/11/2024
Product Type Source Bore Water **Sampled Date & Time** 13/11/2024 00:00
Sampler(s) Tama Te-Whata

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.05	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	4.35	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	101	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	0.26	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	3.73	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	72.3	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	46.7	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	<0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.085	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	3.40	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	**Dissolved Copper**			

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	0.007	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	3.58	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.123	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	1.45	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.097	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	74.1	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.24	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	5	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	<0.05	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	7.68	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	<0.01	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	7.6		0.1
NW011	**Sulphate**			
	Sulphate	13.1	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	<0.2	mg/l	0.2
NW08B	**Temperature**			
	Temperature	20.5	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	102	mg CaCO3/l	1
①**NW207**	**Total Dissolved Solids**			
	Total dissolved Solids	257	mg/l	1

		RESULTS		LOQ
①NW339	**Total Dissolved Solids**			
	Total dissolved Solids	229	mg/l	1
NW030	**Total Hardness**			
	Hardness	23	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	0.036	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	0.7	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.105	mg/l	0.005

LIST OF METHODS

NW002	**Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D	NW003	**Total Alkalinity:** APHA Online Edition 2320 B
NW006	**Fluoride:** APHA Online Edition 4110 B	NW007	**Chloride:** APHA Online Edition 4110 B
NW008	**Nitrite-N:** APHA Online Edition 4110 B	NW009	**Bromide:** APHA Online Edition 4110 B
NW010	**Nitrate-N:** APHA Online Edition 4110 B	NW011	**Sulphate:** APHA Online Edition 4110 B
NW023	**Conductivity:** APHA 24th Edition 2510 B	NW028	**Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B
NW030	**Total Hardness:** APHA Online Edition 2340 B	NW084	**Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.
NW08B	**Temperature:** APHA 24th Edition 2550 B	NW103	**Dissolved Boron:** APHA Online Edition 3125 B mod.
NW104	**Dissolved Cadmium:** APHA Online Edition 3125 B mod.	NW105	**Dissolved Calcium:** APHA Online Edition 3125 B mod.
NW106	**Dissolved Chromium:** APHA Online Edition 3125 B mod.	NW108	**Dissolved Copper:** APHA Online Edition 3125 B mod.
NW109	**Dissolved Iron:** APHA Online Edition 3125 B mod.	NW110	**Dissolved Lead:** APHA Online Edition 3125 B mod.
NW112	**Dissolved Magnesium:** APHA Online Edition 3125 B mod.	NW113	**Dissolved Manganese:** APHA Online Edition 3125 B mod.
NW116	**Dissolved Nickel:** APHA Online Edition 3125 B mod.	NW117	**Dissolved Potassium:** APHA Online Edition 3125 B mod.
NW119	**Dissolved Silver:** APHA Online Edition 3125 B mod.	NW120	**Dissolved Sodium:** APHA Online Edition 3125 B mod.
NW125	**Dissolved Zinc:** APHA Online Edition 3125 B mod.	NW189	**Total Nitrogen:** APHA Online Edition 4500-NO3- I
NW194	**Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B	NW195	**pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B
NW199	**Sulphide:** APHA Online Edition 4500-S²- B, C, F	NW207	**Total Dissolved Solids:** Internal Method, Calculation
NW210	**Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B	NW303	**Anion Sum:** APHA Online Edition 1030 E
NW304	**Cation Sum:** APHA Online Edition 1030 E	NW305	**Ion Balance:** APHA Online Edition 1030 E
NW339	**Total Dissolved Solids:** Internal Method, Gravimetry	NW352	**Hydrogen Sulphide:** APHA Online Edition 4500-S2- H
NW583	**Dissolved Arsenic:** APHA Online Edition 3125 B mod.	NW673	**Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)
NW676	**Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)	NW679	**Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager - Wellington

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

END OF REPORT

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE **AR-24-NW-073672-01** REPORT DATE **27/11/2024**

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders: Binu Chaudhary **Order code:** EUNZWE-00215854
Contract: Kapiti DC Waste Water Treatement Plant
Submission Reference: Pre-Season Bore Testing **Purchase Order Number:** 389578

SAMPLE CODE **812-2024-00168046**

Sample Name Bore K5
Sampling Point code: NW0002254017 **Sampling Point name:** Bore K5
Reception Date & Time: 13/11/2024 11:35
Analysis Started on: 14/11/2024 **Analysis Ending Date:** 27/11/2024
Product Type Source Bore Water **Sampled Date & Time** 13/11/2024 00:00
Sampler(s) Tama Te-Whata

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.37	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	10.9	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	246	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	0.79	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	9.12	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	209	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	113	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.469	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	30.6	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	**Dissolved Copper**			

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	<0.005	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	13.6	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.0689	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	6.92	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.094	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	144	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.05	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	4	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	<0.05	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	8.68	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	<0.01	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	8.1		0.1
NW011	**Sulphate**			
	Sulphate	0.51	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	<0.2	mg/l	0.2
NW08B	**Temperature**			
	Temperature	20.5	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	249	mg CaCO3/l	1
①**NW207**	**Total Dissolved Solids**			
	Total dissolved Solids	622	mg/l	1

		RESULTS		LOQ
①NW339	**Total Dissolved Solids**			
	Total dissolved Solids	554	mg/l	1
NW030	**Total Hardness**			
	Hardness	132	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	0.352	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	0.3	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.100	mg/l	0.005

LIST OF METHODS

NW002 **Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D

NW003 **Total Alkalinity:** APHA Online Edition 2320 B

NW006 **Fluoride:** APHA Online Edition 4110 B

NW007 **Chloride:** APHA Online Edition 4110 B

NW008 **Nitrite-N:** APHA Online Edition 4110 B

NW009 **Bromide:** APHA Online Edition 4110 B

NW010 **Nitrate-N:** APHA Online Edition 4110 B

NW011 **Sulphate:** APHA Online Edition 4110 B

NW023 **Conductivity:** APHA 24th Edition 2510 B

NW028 **Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B

NW030 **Total Hardness:** APHA Online Edition 2340 B

NW084 **Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.

NW08B **Temperature:** APHA 24th Edition 2550 B

NW103 **Dissolved Boron:** APHA Online Edition 3125 B mod.

NW104 **Dissolved Cadmium:** APHA Online Edition 3125 B mod.

NW105 **Dissolved Calcium:** APHA Online Edition 3125 B mod.

NW106 **Dissolved Chromium:** APHA Online Edition 3125 B mod.

NW108 **Dissolved Copper:** APHA Online Edition 3125 B mod.

NW109 **Dissolved Iron:** APHA Online Edition 3125 B mod.

NW110 **Dissolved Lead:** APHA Online Edition 3125 B mod.

NW112 **Dissolved Magnesium:** APHA Online Edition 3125 B mod.

NW113 **Dissolved Manganese:** APHA Online Edition 3125 B mod.

NW116 **Dissolved Nickel:** APHA Online Edition 3125 B mod.

NW117 **Dissolved Potassium:** APHA Online Edition 3125 B mod.

NW119 **Dissolved Silver:** APHA Online Edition 3125 B mod.

NW120 **Dissolved Sodium:** APHA Online Edition 3125 B mod.

NW125 **Dissolved Zinc:** APHA Online Edition 3125 B mod.

NW189 **Total Nitrogen:** APHA Online Edition 4500-NO3- I

NW194 **Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B

NW195 **pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B

NW199 **Sulphide:** APHA Online Edition 4500-S²- B, C, F

NW207 **Total Dissolved Solids:** Internal Method, Calculation

NW210 **Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B

NW303 **Anion Sum:** APHA Online Edition 1030 E

NW304 **Cation Sum:** APHA Online Edition 1030 E

NW305 **Ion Balance:** APHA Online Edition 1030 E

NW339 **Total Dissolved Solids:** Internal Method, Gravimetry

NW352 **Hydrogen Sulphide:** APHA Online Edition 4500-S2- H

NW583 **Dissolved Arsenic:** APHA Online Edition 3125 B mod.

NW673 **Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)

NW676 **Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)

NW679 **Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager - Wellington

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.
This document can only be reproduced in full.
The tests are identified by a five-digit code, their description is available on request.
Accreditation does not apply to comments or graphical representations.
Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND.
The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.
Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.
All samples become the property of Eurofins to the extent necessary for the performance of the Services.
Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.
If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.
The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.
The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.
This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.
Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.
Eurofins General Terms and Conditions apply.

END OF REPORT

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE	AR-24-NW-073673-01	REPORT DATE	27/11/2024

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders:	Binu Chaudhary	**Order code:**	EUNZWE-00215854
Contract:	Kapiti DC Waste Water Treatement Plant		
Submission Reference:	Pre-Season Bore Testing	**Purchase Order Number:**	389578

SAMPLE CODE	812-2024-00168047		
Sample Name	Bore K6		
Sampling Point code:	NW0002254018	**Sampling Point name:**	Bore K6
Reception Date & Time:	13/11/2024 11:35		
Analysis Started on:	14/11/2024	**Analysis Ending Date:**	27/11/2024
Product Type	Source Bore Water	**Sampled Date & Time**	13/11/2024 00:00
Sampler(s)	Tama Te-Whata		

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.47	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	11.0	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	286	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	0.74	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	9.10	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	185	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	112	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	<0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.697	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	29.1	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	**Dissolved Copper**			

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	<0.005	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	15.1	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.0792	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	8.96	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.057	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	141	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.04	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	6	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	<0.05	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	9.46	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	0.03	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	8.0		0.1
NW011	**Sulphate**			
	Sulphate	0.39	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	0.3	mg/l	0.2
NW08B	**Temperature**			
	Temperature	20.5	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	289	mg CaCO3/l	1
①**NW207**	**Total Dissolved Solids**			
	Total dissolved Solids	616	mg/l	1

		RESULTS		LOQ
①NW339	**Total Dissolved Solids**			
	Total dissolved Solids	549	mg/l	1
NW030	**Total Hardness**			
	Hardness	135	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	0.500	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	0.2	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.066	mg/l	0.005

LIST OF METHODS

NW002	**Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D	NW003	**Total Alkalinity:** APHA Online Edition 2320 B
NW006	**Fluoride:** APHA Online Edition 4110 B	NW007	**Chloride:** APHA Online Edition 4110 B
NW008	**Nitrite-N:** APHA Online Edition 4110 B	NW009	**Bromide:** APHA Online Edition 4110 B
NW010	**Nitrate-N:** APHA Online Edition 4110 B	NW011	**Sulphate:** APHA Online Edition 4110 B
NW023	**Conductivity:** APHA 24th Edition 2510 B	NW028	**Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B
NW030	**Total Hardness:** APHA Online Edition 2340 B	NW084	**Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.
NW08B	**Temperature:** APHA 24th Edition 2550 B	NW103	**Dissolved Boron:** APHA Online Edition 3125 B mod.
NW104	**Dissolved Cadmium:** APHA Online Edition 3125 B mod.	NW105	**Dissolved Calcium:** APHA Online Edition 3125 B mod.
NW106	**Dissolved Chromium:** APHA Online Edition 3125 B mod.	NW108	**Dissolved Copper:** APHA Online Edition 3125 B mod.
NW109	**Dissolved Iron:** APHA Online Edition 3125 B mod.	NW110	**Dissolved Lead:** APHA Online Edition 3125 B mod.
NW112	**Dissolved Magnesium:** APHA Online Edition 3125 B mod.	NW113	**Dissolved Manganese:** APHA Online Edition 3125 B mod.
NW116	**Dissolved Nickel:** APHA Online Edition 3125 B mod.	NW117	**Dissolved Potassium:** APHA Online Edition 3125 B mod.
NW119	**Dissolved Silver:** APHA Online Edition 3125 B mod.	NW120	**Dissolved Sodium:** APHA Online Edition 3125 B mod.
NW125	**Dissolved Zinc:** APHA Online Edition 3125 B mod.	NW189	**Total Nitrogen:** APHA Online Edition 4500-NO3- I
NW194	**Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B	NW195	**pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B
NW199	**Sulphide:** APHA Online Edition 4500-S²- B, C, F	NW207	**Total Dissolved Solids:** Internal Method, Calculation
NW210	**Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B	NW303	**Anion Sum:** APHA Online Edition 1030 E
NW304	**Cation Sum:** APHA Online Edition 1030 E	NW305	**Ion Balance:** APHA Online Edition 1030 E
NW339	**Total Dissolved Solids:** Internal Method, Gravimetry	NW352	**Hydrogen Sulphide:** APHA Online Edition 4500-S2- H
NW583	**Dissolved Arsenic:** APHA Online Edition 3125 B mod.	NW673	**Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)
NW676	**Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)	NW679	**Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager - Wellington

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.
This document can only be reproduced in full.
The tests are identified by a five-digit code, their description is available on request.
Accreditation does not apply to comments or graphical representations.
Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND.
The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.
Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.
All samples become the property of Eurofins to the extent necessary for the performance of the Services.
Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.
If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.
The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.
The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.
This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.
Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.
Eurofins General Terms and Conditions apply.

END OF REPORT

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE **AR-24-NW-073670-01** REPORT DATE **27/11/2024**

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders: Binu Chaudhary **Order code:** EUNZWE-00215854
Contract: Kapiti DC Waste Water Treatement Plant
Submission Reference: Pre-Season Bore Testing **Purchase Order Number:** 389578

SAMPLE CODE **812-2024-00168043**

Sample Name Bore K10
Sampling Point code: NW0002254014 **Sampling Point name:** Bore K10
Reception Date & Time: 13/11/2024 11:35
Analysis Started on: 14/11/2024 **Analysis Ending Date:** 27/11/2024
Product Type Source Bore Water **Sampled Date & Time** 13/11/2024 00:00
Sampler(s) Tama Te-Whata

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.20	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	7.81	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	216	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	0.52	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	6.96	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	123	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	81.0	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.151	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	45.3	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	**Dissolved Copper**			

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	<0.005	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	12.6	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.158	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	7.02	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.032	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	79.7	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.03	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	7	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	<0.05	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	5.79	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	<0.01	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	7.8		0.1
NW011	**Sulphate**			
	Sulphate	<0.02	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	<0.2	mg/l	0.2
NW08B	**Temperature**			
	Temperature	20.5	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	217	mg CaCO3/l	1
①**NW339**	**Total Dissolved Solids**			
	Total dissolved Solids	397	mg/l	1

		RESULTS		LOQ
①NW207	**Total Dissolved Solids**			
	Total dissolved Solids	446	mg/l	1
NW030	**Total Hardness**			
	Hardness	165	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	0.233	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	0.3	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.066	mg/l	0.005

LIST OF METHODS

NW002	**Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D	NW003	**Total Alkalinity:** APHA Online Edition 2320 B
NW006	**Fluoride:** APHA Online Edition 4110 B	NW007	**Chloride:** APHA Online Edition 4110 B
NW008	**Nitrite-N:** APHA Online Edition 4110 B	NW009	**Bromide:** APHA Online Edition 4110 B
NW010	**Nitrate-N:** APHA Online Edition 4110 B	NW011	**Sulphate:** APHA Online Edition 4110 B
NW023	**Conductivity:** APHA 24th Edition 2510 B	NW028	**Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B
NW030	**Total Hardness:** APHA Online Edition 2340 B	NW084	**Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.
NW08B	**Temperature:** APHA 24th Edition 2550 B	NW103	**Dissolved Boron:** APHA Online Edition 3125 B mod.
NW104	**Dissolved Cadmium:** APHA Online Edition 3125 B mod.	NW105	**Dissolved Calcium:** APHA Online Edition 3125 B mod.
NW106	**Dissolved Chromium:** APHA Online Edition 3125 B mod.	NW108	**Dissolved Copper:** APHA Online Edition 3125 B mod.
NW109	**Dissolved Iron:** APHA Online Edition 3125 B mod.	NW110	**Dissolved Lead:** APHA Online Edition 3125 B mod.
NW112	**Dissolved Magnesium:** APHA Online Edition 3125 B mod.	NW113	**Dissolved Manganese:** APHA Online Edition 3125 B mod.
NW116	**Dissolved Nickel:** APHA Online Edition 3125 B mod.	NW117	**Dissolved Potassium:** APHA Online Edition 3125 B mod.
NW119	**Dissolved Silver:** APHA Online Edition 3125 B mod.	NW120	**Dissolved Sodium:** APHA Online Edition 3125 B mod.
NW125	**Dissolved Zinc:** APHA Online Edition 3125 B mod.	NW189	**Total Nitrogen:** APHA Online Edition 4500-NO3- I
NW194	**Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B	NW195	**pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B
NW199	**Sulphide:** APHA Online Edition 4500-S²- B, C, F	NW207	**Total Dissolved Solids:** Internal Method, Calculation
NW210	**Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B	NW303	**Anion Sum:** APHA Online Edition 1030 E
NW304	**Cation Sum:** APHA Online Edition 1030 E	NW305	**Ion Balance:** APHA Online Edition 1030 E
NW339	**Total Dissolved Solids:** Internal Method, Gravimetry	NW352	**Hydrogen Sulphide:** APHA Online Edition 4500-S2- H
NW583	**Dissolved Arsenic:** APHA Online Edition 3125 B mod.	NW673	**Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)
NW676	**Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)	NW679	**Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager - Wellington

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.
This document can only be reproduced in full.
The tests are identified by a five-digit code, their description is available on request.
Accreditation does not apply to comments or graphical representations.
Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND.
The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.
Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.
All samples become the property of Eurofins to the extent necessary for the performance of the Services.
Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.
If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.
The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.
The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.
This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.
Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.
Eurofins General Terms and Conditions apply.

END OF REPORT

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE **AR-25-NW-004610-01** REPORT DATE **25/01/2025**

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders: Binu Chaudhary **Order code:** EUNZWE-00226839
Contract: Kapiti DC Waste Water Treatement Plant
Submission Reference: K12 Pre Season **Purchase Order Number:** 391709
Comments: KTP validation comment: results confirmed

SAMPLE CODE **812-2025-00004768**

Sample Name Bore K12
Sample Reference Pre Season
Sampling Point code: NW0002254020 **Sampling Point name:** Bore K12
Reception Date & Time: 13/01/2025 10:40
Analysis Started on: 13/01/2025 **Analysis Ending Date:** 23/01/2025
Sampling date 2025-01-13 **Product Type** Source Bore Water
Sampled Date & Time 13/01/2025 09:08

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.01	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	4.76	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	87	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	0.29	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	4.97	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	94.7	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	51.6	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	<0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.411	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	18.6	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	<0.005	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	10.1	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.0147	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	2.04	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.064	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	72.5	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.09	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	5	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	0.18	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	2.13	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	<0.01	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	7.5		0.1
NW011	**Sulphate**			
	Sulphate	15.5	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	0.7	mg/l	0.2
NW08B	**Temperature**			
	Temperature	18.3	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	87	mg CaCO3/l	1
①**NW207**	**Total Dissolved Solids**			
	Total dissolved Solids	284	mg/l	1

		RESULTS		LOQ
①NW339	**Total Dissolved Solids**			
	Total dissolved Solids	253	mg/l	1
NW030	**Total Hardness**			
	Hardness	88	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	0.012	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	<0.1	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.051	mg/l	0.005

LIST OF METHODS

NW002	**Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D	NW003	**Total Alkalinity:** APHA Online Edition 2320 B
NW006	**Fluoride:** APHA Online Edition 4110 B	NW007	**Chloride:** APHA Online Edition 4110 B
NW008	**Nitrite-N:** APHA Online Edition 4110 B	NW009	**Bromide:** APHA Online Edition 4110 B
NW010	**Nitrate-N:** APHA Online Edition 4110 B	NW011	**Sulphate:** APHA Online Edition 4110 B
NW023	**Conductivity:** APHA 24th Edition 2510 B	NW028	**Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B
NW030	**Total Hardness:** APHA Online Edition 2340 B	NW084	**Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.
NW08B	**Temperature:** APHA 24th Edition 2550 B	NW103	**Dissolved Boron:** APHA Online Edition 3125 B mod.
NW104	**Dissolved Cadmium:** APHA Online Edition 3125 B mod.	NW105	**Dissolved Calcium:** APHA Online Edition 3125 B mod.
NW106	**Dissolved Chromium:** APHA Online Edition 3125 B mod.	NW108	**Dissolved Copper:** APHA Online Edition 3125 B mod.
NW109	**Dissolved Iron:** APHA Online Edition 3125 B mod.	NW110	**Dissolved Lead:** APHA Online Edition 3125 B mod.
NW112	**Dissolved Magnesium:** APHA Online Edition 3125 B mod.	NW113	**Dissolved Manganese:** APHA Online Edition 3125 B mod.
NW116	**Dissolved Nickel:** APHA Online Edition 3125 B mod.	NW117	**Dissolved Potassium:** APHA Online Edition 3125 B mod.
NW119	**Dissolved Silver:** APHA Online Edition 3125 B mod.	NW120	**Dissolved Sodium:** APHA Online Edition 3125 B mod.
NW125	**Dissolved Zinc:** APHA Online Edition 3125 B mod.	NW189	**Total Nitrogen:** APHA Online Edition 4500-NO3- I
NW194	**Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B	NW195	**pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B
NW199	**Sulphide:** APHA Online Edition 4500-S²- B, C, F	NW207	**Total Dissolved Solids:** Internal Method, Calculation
NW210	**Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B	NW303	**Anion Sum:** APHA Online Edition 1030 E
NW304	**Cation Sum:** APHA Online Edition 1030 E	NW305	**Ion Balance:** APHA Online Edition 1030 E
NW339	**Total Dissolved Solids:** Internal Method, Gravimetry	NW352	**Hydrogen Sulphide:** APHA Online Edition 4500-S2- H
NW583	**Dissolved Arsenic:** APHA Online Edition 3125 B mod.	NW673	**Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)
NW676	**Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)	NW679	**Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Gordon McArthur Senior Laboratory Analyst Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager

Cody Forbes Technical Specialist
Technical Specialist

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.
This document can only be reproduced in full.
The tests are identified by a five-digit code, their description is available on request.
Accreditation does not apply to comments or graphical representations.
Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND.
The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.
Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.
All samples become the property of Eurofins to the extent necessary for the performance of the Services.
Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.
If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.
The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.
The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.
This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.
Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.
Eurofins General Terms and Conditions apply.

END OF REPORT

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE	AR-24-NW-072237-01	REPORT DATE	22/11/2024

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders:	Binu Chaudhary	**Order code:**	EUNZWE-00215854
Contract:	Kapiti DC Waste Water Treatement Plant		
Submission Reference:	Pre-Season Bore Testing	**Purchase Order Number:**	389578

SAMPLE CODE	812-2024-00168044		
Sample Name	Bore KB4		
Sampling Point code:	NW0002254015	**Sampling Point name:**	Bore KB4
Reception Date & Time:	13/11/2024 11:35		
Analysis Started on:	14/11/2024	**Analysis Ending Date:**	22/11/2024
Product Type	Source Bore Water	**Sampled Date & Time**	13/11/2024 00:00
Sampler(s)	Tama Te-Whata		

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.16	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	13.3	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	179	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	1.20	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	10.5	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	343	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	141	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	<0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.221	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	40.1	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	**Dissolved Copper**			

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	<0.005	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	13.8	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.0366	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	6.86	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.034	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	165	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.03	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	5	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	<0.05	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	11.8	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	<0.01	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	7.9		0.1
NW011	**Sulphate**			
	Sulphate	2.55	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	<0.2	mg/l	0.2
NW08B	**Temperature**			
	Temperature	20.5	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	180	mg CaCO3/l	1
①**NW207**	**Total Dissolved Solids**			
	Total dissolved Solids	777	mg/l	1

		RESULTS		LOQ
①NW339	**Total Dissolved Solids**			
	Total dissolved Solids	692	mg/l	1
NW030	**Total Hardness**			
	Hardness	157	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	0.108	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	0.2	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.026	mg/l	0.005

LIST OF METHODS

NW002	**Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D	NW003	**Total Alkalinity:** APHA Online Edition 2320 B
NW006	**Fluoride:** APHA Online Edition 4110 B	NW007	**Chloride:** APHA Online Edition 4110 B
NW008	**Nitrite-N:** APHA Online Edition 4110 B	NW009	**Bromide:** APHA Online Edition 4110 B
NW010	**Nitrate-N:** APHA Online Edition 4110 B	NW011	**Sulphate:** APHA Online Edition 4110 B
NW023	**Conductivity:** APHA 24th Edition 2510 B	NW028	**Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B
NW030	**Total Hardness:** APHA Online Edition 2340 B	NW084	**Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.
NW08B	**Temperature:** APHA 24th Edition 2550 B	NW103	**Dissolved Boron:** APHA Online Edition 3125 B mod.
NW104	**Dissolved Cadmium:** APHA Online Edition 3125 B mod.	NW105	**Dissolved Calcium:** APHA Online Edition 3125 B mod.
NW106	**Dissolved Chromium:** APHA Online Edition 3125 B mod.	NW108	**Dissolved Copper:** APHA Online Edition 3125 B mod.
NW109	**Dissolved Iron:** APHA Online Edition 3125 B mod.	NW110	**Dissolved Lead:** APHA Online Edition 3125 B mod.
NW112	**Dissolved Magnesium:** APHA Online Edition 3125 B mod.	NW113	**Dissolved Manganese:** APHA Online Edition 3125 B mod.
NW116	**Dissolved Nickel:** APHA Online Edition 3125 B mod.	NW117	**Dissolved Potassium:** APHA Online Edition 3125 B mod.
NW119	**Dissolved Silver:** APHA Online Edition 3125 B mod.	NW120	**Dissolved Sodium:** APHA Online Edition 3125 B mod.
NW125	**Dissolved Zinc:** APHA Online Edition 3125 B mod.	NW189	**Total Nitrogen:** APHA Online Edition 4500-NO3- I
NW194	**Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B	NW195	**pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B
NW199	**Sulphide:** APHA Online Edition 4500-S²- B, C, F	NW207	**Total Dissolved Solids:** Internal Method, Calculation
NW210	**Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B	NW303	**Anion Sum:** APHA Online Edition 1030 E
NW304	**Cation Sum:** APHA Online Edition 1030 E	NW305	**Ion Balance:** APHA Online Edition 1030 E
NW339	**Total Dissolved Solids:** Internal Method, Gravimetry	NW352	**Hydrogen Sulphide:** APHA Online Edition 4500-S2- H
NW583	**Dissolved Arsenic:** APHA Online Edition 3125 B mod.	NW673	**Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)
NW676	**Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)	NW679	**Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager - Wellington

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.
This document can only be reproduced in full.
The tests are identified by a five-digit code, their description is available on request.
Accreditation does not apply to comments or graphical representations.
Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND.
The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.
Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.
All samples become the property of Eurofins to the extent necessary for the performance of the Services.
Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.
If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.
The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.
The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.
This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.
Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.
Eurofins General Terms and Conditions apply.

END OF REPORT

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE **AR-24-NW-072241-01** REPORT DATE **22/11/2024**

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders: Binu Chaudhary **Order code:** EUNZWE-00215854
Contract: Kapiti DC Waste Water Treatement Plant
Submission Reference: Pre-Season Bore Testing **Purchase Order Number:** 389578

SAMPLE CODE **812-2024-00168048**

Sample Name Bore KB7
Sampling Point code: NW0002254019 **Sampling Point name:** Bore KB7
Reception Date & Time: 13/11/2024 11:35
Analysis Started on: 14/11/2024 **Analysis Ending Date:** 22/11/2024
Product Type Source Bore Water **Sampled Date & Time** 13/11/2024 00:00
Sampler(s) Tama Te-Whata

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.09	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	7.64	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	96	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	0.61	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	6.64	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	191	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	84.1	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	<0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.511	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	19.3	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	**Dissolved Copper**			

eurofins

Food & Water Testing

ANALYTICAL REPORT

REPORT CODE **AR-24-NW-074011-01** REPORT DATE **29/11/2024**

Attention Kapiti Coast District Council
Kim Mazur
175 Rimu Road
5032 Paraparaumu
NEW ZEALAND
Phone +64275554729
Email Kim.Mazur@kapiticoast.govt.nz
Copy to: Coley (Marcus.Coley@kapiticoast.govt.nz)

Contact for your orders: Binu Chaudhary **Order code:** EUNZWE-00215854
Contract: Kapiti DC Waste Water Treatement Plant
Submission Reference: Pre-Season Bore Testing **Purchase Order Number:** 389578

SAMPLE CODE **812-2024-00168042**

Sample Name Bore N2
Sampling Point code: NW0002254013 **Sampling Point name:** Bore N2
Reception Date & Time: 13/11/2024 11:35
Analysis Started on: 14/11/2024 **Analysis Ending Date:** 29/11/2024
Product Type Source Bore Water **Sampled Date & Time** 13/11/2024 00:00
Sampler(s) Tama Te-Whata

		RESULTS		LOQ
NW676	**Ammonia Nitrogen**			
	Ammonia nitrogen	0.10	mg/l	0.01
NW303	**Anion Sum**			
	Anions, sum	3.90	meq/l	0.01
NW002	**Bicarbonate Alkalinity**			
	Bicarbonate alkalinity	72	mg CaCO3/l	1
NW009	**Bromide**			
	Bromide	0.25	mg/l	0.02
NW304	**Cation Sum**			
	Cations, sum	3.26	meq/l	0.01
NW007	**Chloride**			
	Chloride (Cl)	71.7	mg/l	0.02
NW023	**Conductivity**			
	Conductivity	43.5	mS/m	0.1
NW679	**Cyanide**			
	Cyanide	<0.005	mg/l	0.005
NW583	**Dissolved Arsenic**			
	Arsenic (As)	<0.001	mg/l	0.001
NW103	**Dissolved Boron**			
	Boron (B)	0.056	mg/l	0.005
NW104	**Dissolved Cadmium**			
	Cadmium (Cd)	<0.0002	mg/l	0.0002
NW105	**Dissolved Calcium**			
	Calcium (Ca)	24.2	mg/l	0.05
NW106	**Dissolved Chromium**			
	Chromium (Cr)	<0.001	mg/l	0.001
NW108	**Dissolved Copper**			

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	<0.005	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	6.21	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.0764	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	2.43	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.128	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	34.0	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.18	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	3	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	0.06	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	8.86	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	<0.01	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	7.6		0.1
NW011	**Sulphate**			
	Sulphate	20.3	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	0.3	mg/l	0.2
NW08B	**Temperature**			
	Temperature	20.4	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	73	mg CaCO3/l	1
①**NW207**	**Total Dissolved Solids**			
	Total dissolved Solids	239	mg/l	1

		RESULTS		LOQ
①NW339	**Total Dissolved Solids**			
	Total dissolved Solids	213	mg/l	1
NW030	**Total Hardness**			
	Hardness	86	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	0.034	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	0.1	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.135	mg/l	0.005

LIST OF METHODS

NW002	**Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D	NW003	**Total Alkalinity:** APHA Online Edition 2320 B
NW006	**Fluoride:** APHA Online Edition 4110 B	NW007	**Chloride:** APHA Online Edition 4110 B
NW008	**Nitrite-N:** APHA Online Edition 4110 B	NW009	**Bromide:** APHA Online Edition 4110 B
NW010	**Nitrate-N:** APHA Online Edition 4110 B	NW011	**Sulphate:** APHA Online Edition 4110 B
NW023	**Conductivity:** APHA 24th Edition 2510 B	NW028	**Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B
NW030	**Total Hardness:** APHA Online Edition 2340 B	NW084	**Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.
NW08B	**Temperature:** APHA 24th Edition 2550 B	NW103	**Dissolved Boron:** APHA Online Edition 3125 B mod.
NW104	**Dissolved Cadmium:** APHA Online Edition 3125 B mod.	NW105	**Dissolved Calcium:** APHA Online Edition 3125 B mod.
NW106	**Dissolved Chromium:** APHA Online Edition 3125 B mod.	NW108	**Dissolved Copper:** APHA Online Edition 3125 B mod.
NW109	**Dissolved Iron:** APHA Online Edition 3125 B mod.	NW110	**Dissolved Lead:** APHA Online Edition 3125 B mod.
NW112	**Dissolved Magnesium:** APHA Online Edition 3125 B mod.	NW113	**Dissolved Manganese:** APHA Online Edition 3125 B mod.
NW116	**Dissolved Nickel:** APHA Online Edition 3125 B mod.	NW117	**Dissolved Potassium:** APHA Online Edition 3125 B mod.
NW119	**Dissolved Silver:** APHA Online Edition 3125 B mod.	NW120	**Dissolved Sodium:** APHA Online Edition 3125 B mod.
NW125	**Dissolved Zinc:** APHA Online Edition 3125 B mod.	NW189	**Total Nitrogen:** APHA Online Edition 4500-NO3- I
NW194	**Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B	NW195	**pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B
NW199	**Sulphide:** APHA Online Edition 4500-S²- B, C, F	NW207	**Total Dissolved Solids:** Internal Method, Calculation
NW210	**Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B	NW303	**Anion Sum:** APHA Online Edition 1030 E
NW304	**Cation Sum:** APHA Online Edition 1030 E	NW305	**Ion Balance:** APHA Online Edition 1030 E
NW339	**Total Dissolved Solids:** Internal Method, Gravimetry	NW352	**Hydrogen Sulphide:** APHA Online Edition 4500-S2- H
NW583	**Dissolved Arsenic:** APHA Online Edition 3125 B mod.	NW673	**Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)
NW676	**Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)	NW679	**Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager - Wellington

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

END OF REPORT

		RESULTS		LOQ
NW108	**Dissolved Copper**			
	Copper (Cu)	<0.0005	mg/l	0.0005
NW109	**Dissolved Iron**			
	Iron (Fe)	<0.005	mg/l	0.005
NW110	**Dissolved Lead**			
	Lead (Pb)	<0.0005	mg/l	0.0005
NW112	**Dissolved Magnesium**			
	Magnesium (Mg)	11.4	mg/l	0.01
NW113	**Dissolved Manganese**			
	Manganese (Mn)	0.0097	mg/l	0.0005
NW116	**Dissolved Nickel**			
	Nickel (Ni)	<0.0005	mg/l	0.0005
NW117	**Dissolved Potassium**			
	Potassium (K)	2.83	mg/l	0.01
NW673	**Dissolved Reactive Phosphorus**			
	Phosphorus	0.079	mg/l	0.002
NW119	**Dissolved Silver**			
	Silver (Ag)	<0.0005	mg/l	0.0005
NW120	**Dissolved Sodium**			
	Sodium (Na)	107	mg/l	0.01
NW125	**Dissolved Zinc**			
	Zinc (Zn)	<0.002	mg/l	0.002
NW006	**Fluoride**			
	Fluoride	0.06	mg/l	0.02
①**NW028**	**Free Carbon Dioxide**			
	Carbon dioxide	3	mg CO2/l	1
NW352	**Hydrogen Sulphide**			
	Sulphide	<0.05	mg/l	0.05
NW305	**Ion Balance**			
	Ion balance	6.95	%	0.01
NW084	**Mercury - Acid Soluble**			
	Mercury (Hg)	<0.0005	mg/l	0.0005
NW010	**Nitrate-N**			
	Nitrate-N	<0.01	mg/l	0.01
NW008	**Nitrite-N**			
	Nitrite Nitrogen as N	<0.01	mg/l	0.01
NW195	**pH (Tested beyond 15 minute APHA holding time)**			
	pH	7.9		0.1
NW011	**Sulphate**			
	Sulphate	14.0	mg/l	0.02
NW199	**Sulphide**			
	Sulphide	<0.2	mg/l	0.2
NW08B	**Temperature**			
	Temperature	20.5	°C	0.1
NW003	**Total Alkalinity**			
	Alkalinity total	97	mg CaCO3/l	1
①**NW339**	**Total Dissolved Solids**			
	Total dissolved Solids	412	mg/l	1

		RESULTS		LOQ
①NW207	**Total Dissolved Solids**			
	Total dissolved Solids	462	mg/l	1
NW030	**Total Hardness**			
	Hardness	95	mg CaCO3/l	1
NW189	**Total Nitrogen**			
	Total Nitrogen (N)	<0.002	mg/l	0.002
NW210	**Total Non-Purgeable Organic Carbon**			
	Total Organic Carbon	<0.1	mg/l	0.1
NW194	**Total Phosphorus**			
	Total phosphorus	0.029	mg/l	0.005

LIST OF METHODS

NW002	**Bicarbonate Alkalinity:** APHA Online Edition 4500-CO2 D	NW003	**Total Alkalinity:** APHA Online Edition 2320 B
NW006	**Fluoride:** APHA Online Edition 4110 B	NW007	**Chloride:** APHA Online Edition 4110 B
NW008	**Nitrite-N:** APHA Online Edition 4110 B	NW009	**Bromide:** APHA Online Edition 4110 B
NW010	**Nitrate-N:** APHA Online Edition 4110 B	NW011	**Sulphate:** APHA Online Edition 4110 B
NW023	**Conductivity:** APHA 24th Edition 2510 B	NW028	**Free Carbon Dioxide:** APHA Online Edition 4500-CO2 B
NW030	**Total Hardness:** APHA Online Edition 2340 B	NW084	**Mercury - Acid Soluble:** APHA Online Edition 3125 B mod.
NW08B	**Temperature:** APHA 24th Edition 2550 B	NW103	**Dissolved Boron:** APHA Online Edition 3125 B mod.
NW104	**Dissolved Cadmium:** APHA Online Edition 3125 B mod.	NW105	**Dissolved Calcium:** APHA Online Edition 3125 B mod.
NW106	**Dissolved Chromium:** APHA Online Edition 3125 B mod.	NW108	**Dissolved Copper:** APHA Online Edition 3125 B mod.
NW109	**Dissolved Iron:** APHA Online Edition 3125 B mod.	NW110	**Dissolved Lead:** APHA Online Edition 3125 B mod.
NW112	**Dissolved Magnesium:** APHA Online Edition 3125 B mod.	NW113	**Dissolved Manganese:** APHA Online Edition 3125 B mod.
NW116	**Dissolved Nickel:** APHA Online Edition 3125 B mod.	NW117	**Dissolved Potassium:** APHA Online Edition 3125 B mod.
NW119	**Dissolved Silver:** APHA Online Edition 3125 B mod.	NW120	**Dissolved Sodium:** APHA Online Edition 3125 B mod.
NW125	**Dissolved Zinc:** APHA Online Edition 3125 B mod.	NW189	**Total Nitrogen:** APHA Online Edition 4500-NO3- I
NW194	**Total Phosphorus:** APHA Online Edition 4500-P G / 4500-P B	NW195	**pH (Tested beyond 15 minute APHA holding time):** APHA 24th Edition 4500-H B
NW199	**Sulphide:** APHA Online Edition 4500-S²- B, C, F	NW207	**Total Dissolved Solids:** Internal Method, Calculation
NW210	**Total Non-Purgeable Organic Carbon:** APHA Online Edition 5310 B	NW303	**Anion Sum:** APHA Online Edition 1030 E
NW304	**Cation Sum:** APHA Online Edition 1030 E	NW305	**Ion Balance:** APHA Online Edition 1030 E
NW339	**Total Dissolved Solids:** Internal Method, Gravimetry	NW352	**Hydrogen Sulphide:** APHA Online Edition 4500-S2- H
NW583	**Dissolved Arsenic:** APHA Online Edition 3125 B mod.	NW673	**Dissolved Reactive Phosphorus:** Internal Method based on APHA 4500-P F, Spectrophotometry (DA)
NW676	**Ammonia Nitrogen:** Internal Method, Spectrophotometry (DA)	NW679	**Cyanide:** APHA Online Edition 4500-CN C & E

Signature

Marylou Cabral Laboratory Manager Eurofins ELS Limited

Jennifer Mont Supervisor Eurofins ELS Limited

Divina Cunanan Lagazon Supervisor Eurofins ELS Limited

Gabriela Carvalhaes Business Unit Manager - Wellington

EXPLANATORY NOTE

①Test is not accredited
②Test is subcontracted within Eurofins group and is accredited
③Test is subcontracted within Eurofins group and is not accredited
④Test is subcontracted outside Eurofins group and is accredited
⑤Test is subcontracted outside Eurofins group and is not accredited
⑥Test result is provided by the customer and is not accredited
⑦Tested at the sampling point by Eurofins and is not accredited
⑧Tested at the sampling point by Eurofins and is accredited
⑨Test is RLP accredited
⑩Test is subcontracted within Eurofins group and is RLP accredited

N/A means Not Applicable
Not Detected means not detected at or above the Limit of Quantification (LOQ)
LOQ means Limit of Quantification and the unit of LOQ is the same as the result unit
✗ (Unsatisfactory) means does not meet the specification
✓ (Satisfactory) means meets the specification
MAV means Maximum Allowable Value

The Customer acknowledges and accepts that: (a) where Eurofins is not responsible for sampling, the test result(s) in this report apply only to the sample as received. Customer is solely responsible for the sampling process and warrants that the sample provided to Eurofins is representative of the lot / batch from which the samples were drawn; and (b) Eurofins expresses no opinion and accepts no liability in respect of the Customer's production process or homogeneity of the product.
This document can only be reproduced in full.
The tests are identified by a five-digit code, their description is available on request.
Accreditation does not apply to comments or graphical representations.
Unless otherwise stated, all tests in this analytical report (except for subcontracted tests) are performed at 85 Port Road, Seaview, Lower Hutt, Wellington, NEW ZEALAND.
The laboratory is not responsible for the information provided by the customer which can affect the validity of the results, for example: sampling information such as date/time, field data etc.
Eurofins may subcontract the performance of part or all of the Services to a third party and the Customer authorises the release of all information necessary to the third party for the provision of the Services.
All samples become the property of Eurofins to the extent necessary for the performance of the Services.
Eurofins will not be required to store samples and may destroy or otherwise dispose of the samples or return the samples to the Customer (at the Customer's cost in all respects) immediately following analysis of the samples.
If the Customer pays for storage of the samples Eurofins will take commercially reasonable steps to store the samples for the agreed period in terms of industry practice.
The Eurofins water sampling service follows methodology based on AS/NZS 5667 and / or best practice to collect and transport samples that are fit for the purpose of analytical testing. The laboratory is not responsible for sampling activities unless explicitly indicated by the statement "Sampled by Eurofins" on the report for water samples.
The Customer acknowledges that the Services are provided using the current state of technology and methods developed and generally applied by Eurofins and involve analysis, interpretations, consulting work and conclusions. Eurofins shall use commercially reasonable degree of care in providing the Services.
This report is produced and issued on the basis of information, documents and/or samples provided by, or on behalf of, the Customer and solely for the benefit of the Customer who is responsible for acting as it sees fit on the basis of this report. Neither Eurofins nor any of its officers, employees, agents or subcontractors shall be liable to the Customer nor any third party for any actions taken or not taken on the basis of this report nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to Eurofins.
Eurofins shall have no liability for any indirect or consequential loss including, without limitation, loss of production, loss of contracts, loss of profits, loss of business or costs incurred from business interruption, loss of opportunity, loss of goodwill or damage to reputation and cost of product recall (including any losses suffered as a result of distribution of the Customer's products subject of the Services prior to the report being released by Eurofins). It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Customer.
Eurofins General Terms and Conditions apply.

END OF REPORT

Appendix F

Complaints Record