HUNTER VALLEY
OPERATIONS

MONTHLY ENVIRONMENTAL MONITORING REPORT SEPTEMBER 2025

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OWNER
Superintendent - Environment and Community

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1 | INTRODUCTION

This report has been compiled to provide a monthly summary of environmental monitoring results for Hunter Valley Operations (HVO). This report includes all monitoring data collected for the period 1 – 30 September 2025 (the 'Reporting Period').

2 | AIR QUALITY

2.1 | METEOROLOGICAL MONITORING

HVO maintains two meteorological stations: 'HVO Corporate' and 'Cheshunt' (refer to Figure 4).

2.1.1 | RAINFALL

Rainfall recorded at the HVO Corporate weather station during the period is summarised in Table 1. The 2023, 2024 and 2025 trends are shown in Figure 1.

Table 1 - Rainfall data for the reporting period

2025	Monthly Rainfall (mm)	Cumulative Rainfall (mm)
September	32.8	618.2

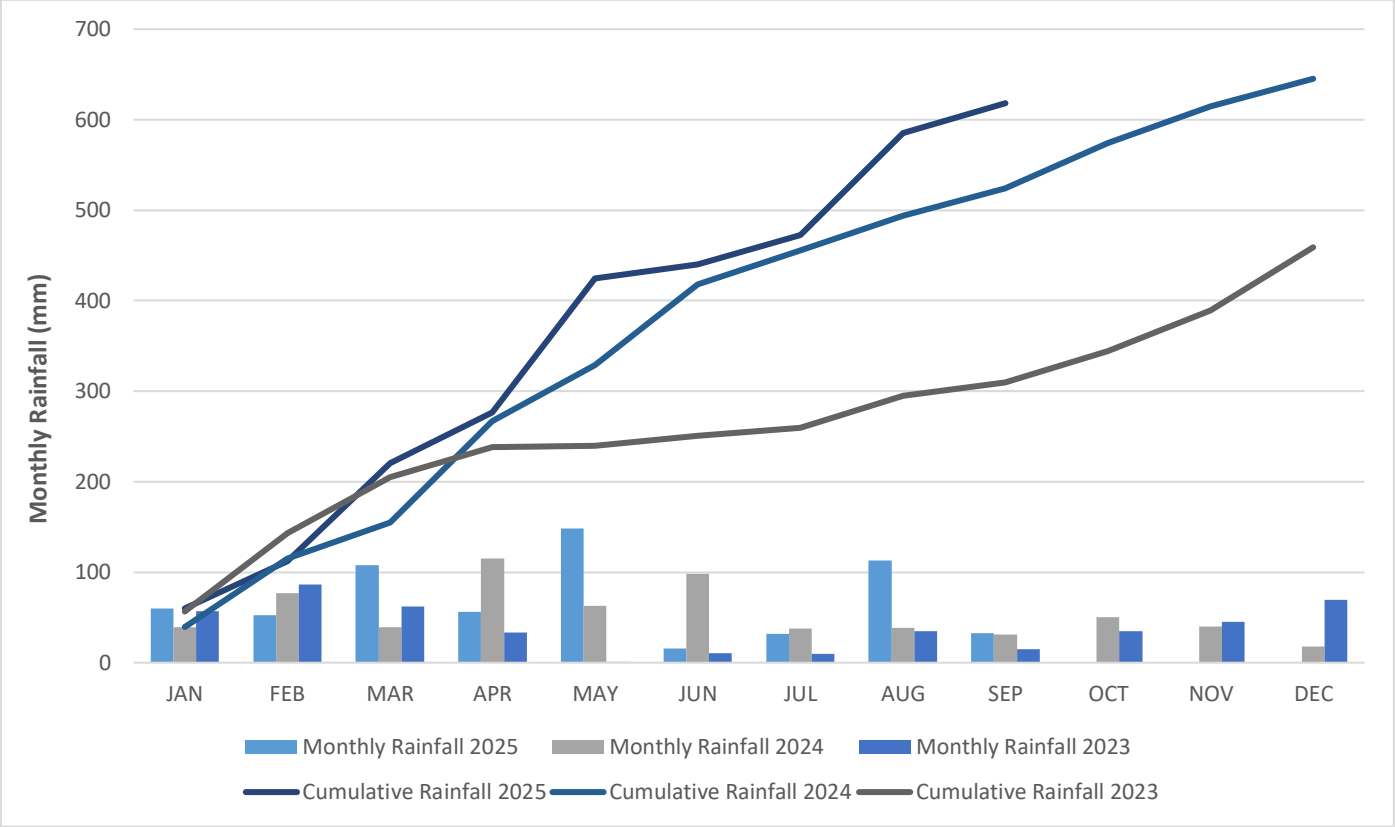

Figure 1 - Rainfall Summary 2023 – 2025

2.1.2 | WIND SPEED AND DIRECTION

Westerly winds were prevailing at the HVO Corporate weather station, whilst north westerly winds were prevailing at the HVO Cheshunt weather station during the reporting period as shown in Figure 2 and Figure 3.

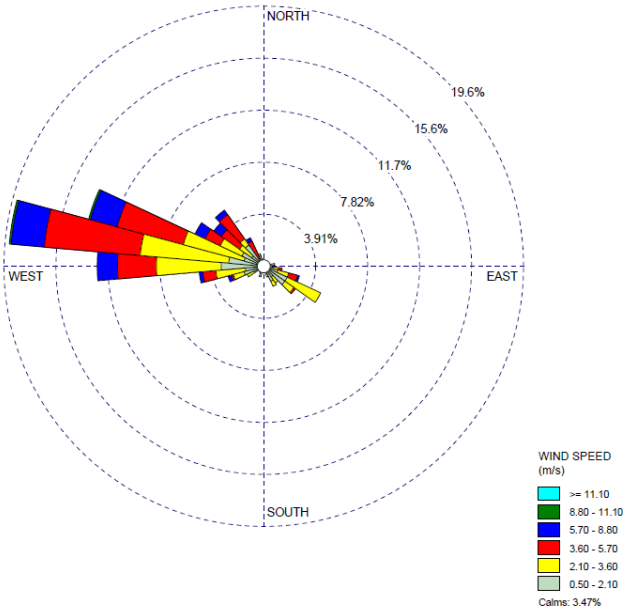

Figure 2 - HVO Corporate Wind Rose for the Reporting Period

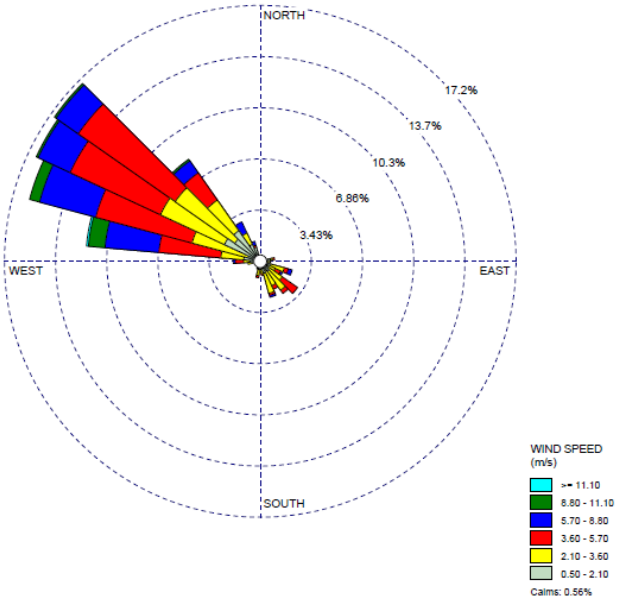

Figure 3 - HVO Cheshunt Wind Rose for the Reporting Period

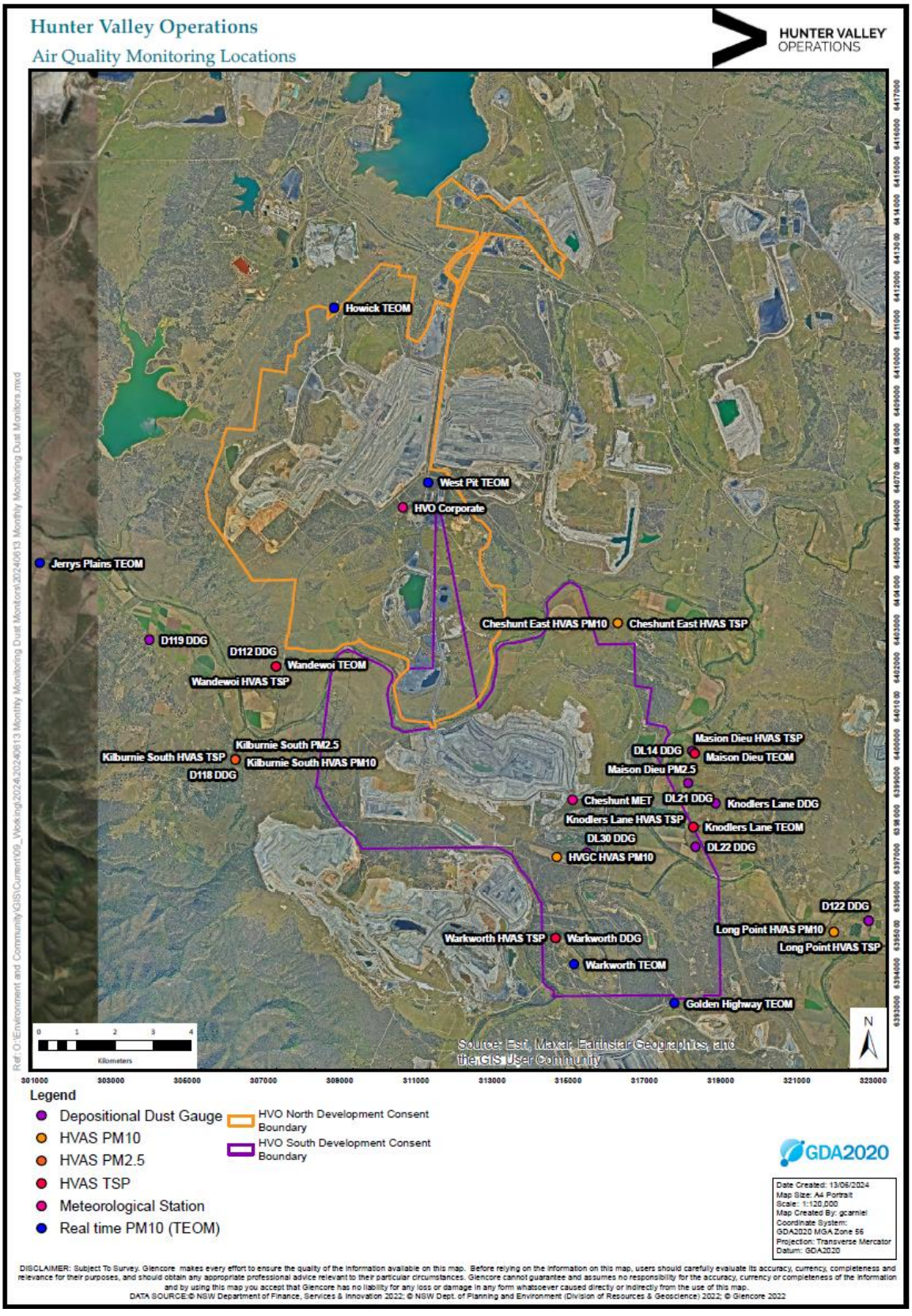

Figure 4 - Air Quality Monitoring Location Plan

2.2 | DEPOSITIONAL DUST

HVO operates and maintains a network of depositional dust gauges situated on private and mine owned land surrounding HVO to monitor regional air quality.

Figure 5**.** displays insoluble solids results from depositional dust gauges during the reporting period compared against the annual impact assessment criteria. Any monthly results deemed to be contaminated (due to presence of bird droppings, insects, etc.) are not displayed. An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

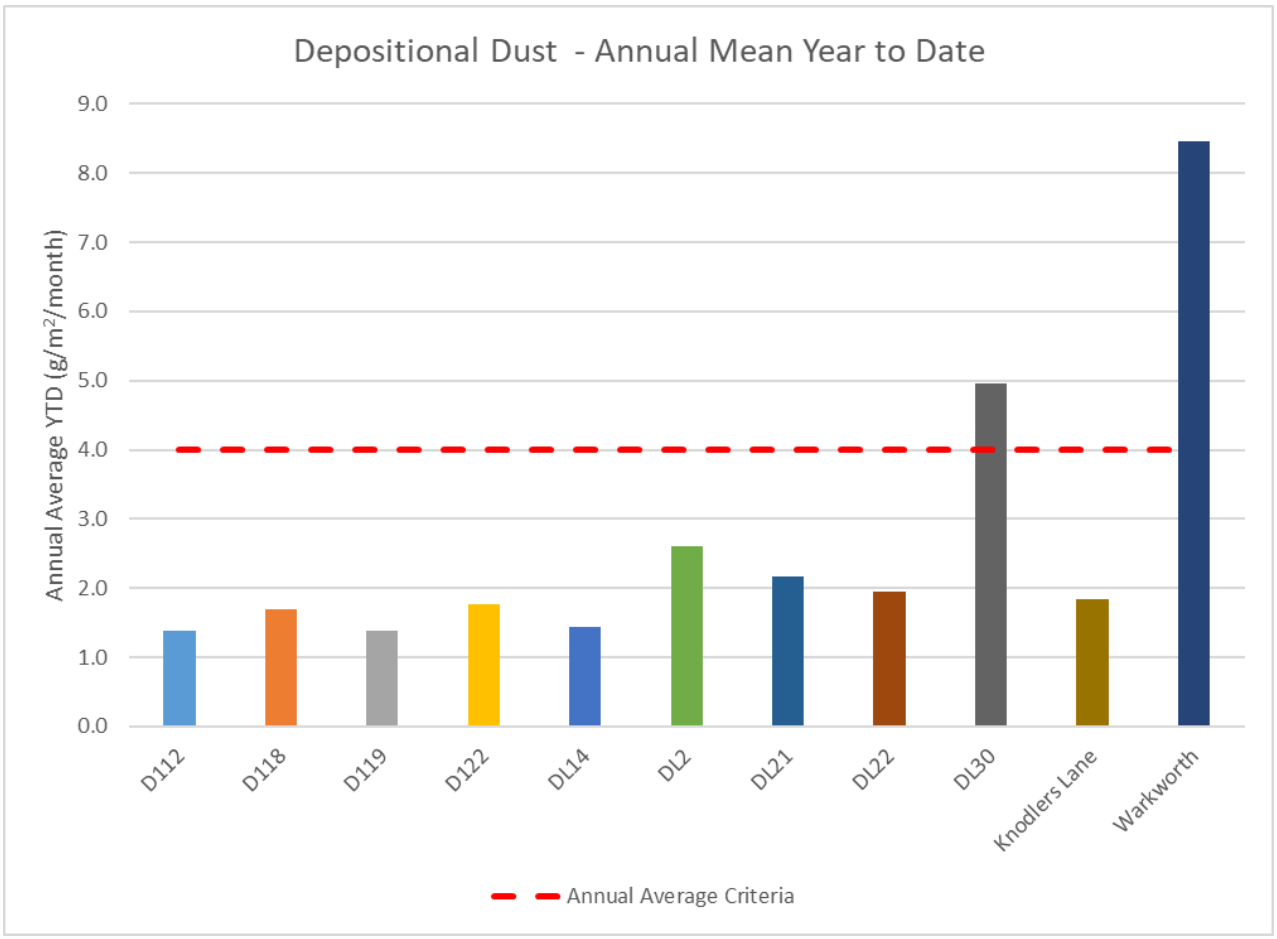

Figure 5 - Depositional Dust Results for the Reporting Period

2.3 | SUSPENDED PARTICLES

Suspended particles are measured by a network of High-Volume Air Samplers (HVAS) measuring Total Suspended Particulates (TSP) and Particulate Matter <10µm (PM_{10}). The Kilburnie South (Moses Crossing) and Maison Dieu HVAS also monitor Particulate Matter <2.5µm ($PM_{2.5}$). The location of these monitors is presented in **Figure 4**. Each HVAS runs for 24-hours on a six-day cycle.

2.3.1 | HVAS PM_{10} RESULTS

2.3.1.1 | PERFORMANCE AGAINST SHORT TERM IMPACT ASSESSMENT CRITERIA

Figure 6 shows individual PM_{10} results at each monitoring station against the short-term impact assessment criteria of 50µg/m^3. All monitors were below the short-term impact assessment criteria during the reporting period, with the exception of Gliding Club and Cheshunt East on the 27th of September. These potential exceedances were investigated by a third party and found that the maximum calculated HVO contributions, where applicable, were below the compliance limits.

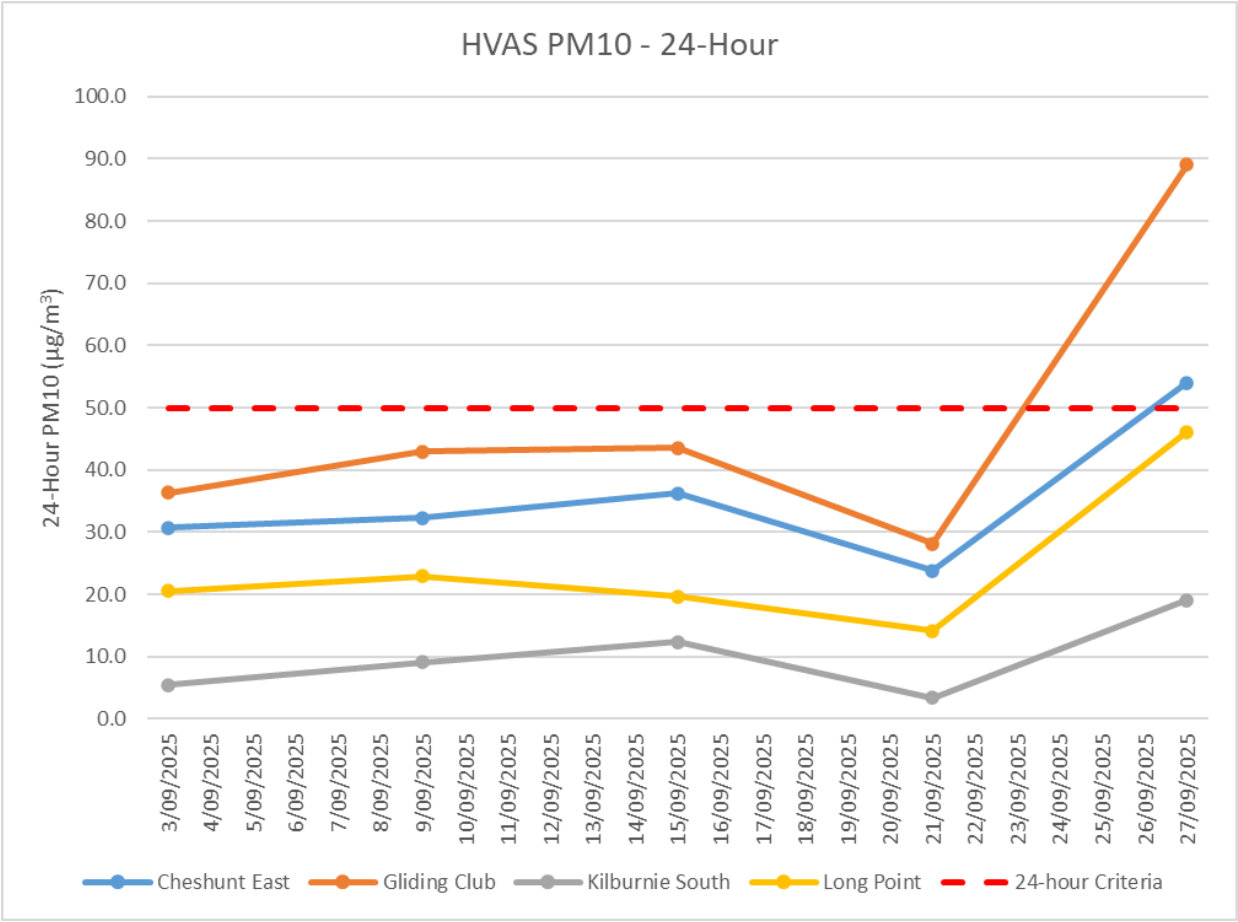

Figure 6 - Individual PM_{10} Results for the Reporting Period

2.3.1.2 | PERFORMANCE AGAINST LONG TERM IMPACT ASSESSMENT CRITERIA

Figure 7 shows the year-to-date annual average PM_{10} results. All monitors were below the relevant long term impact assessment criteria during the reporting period.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

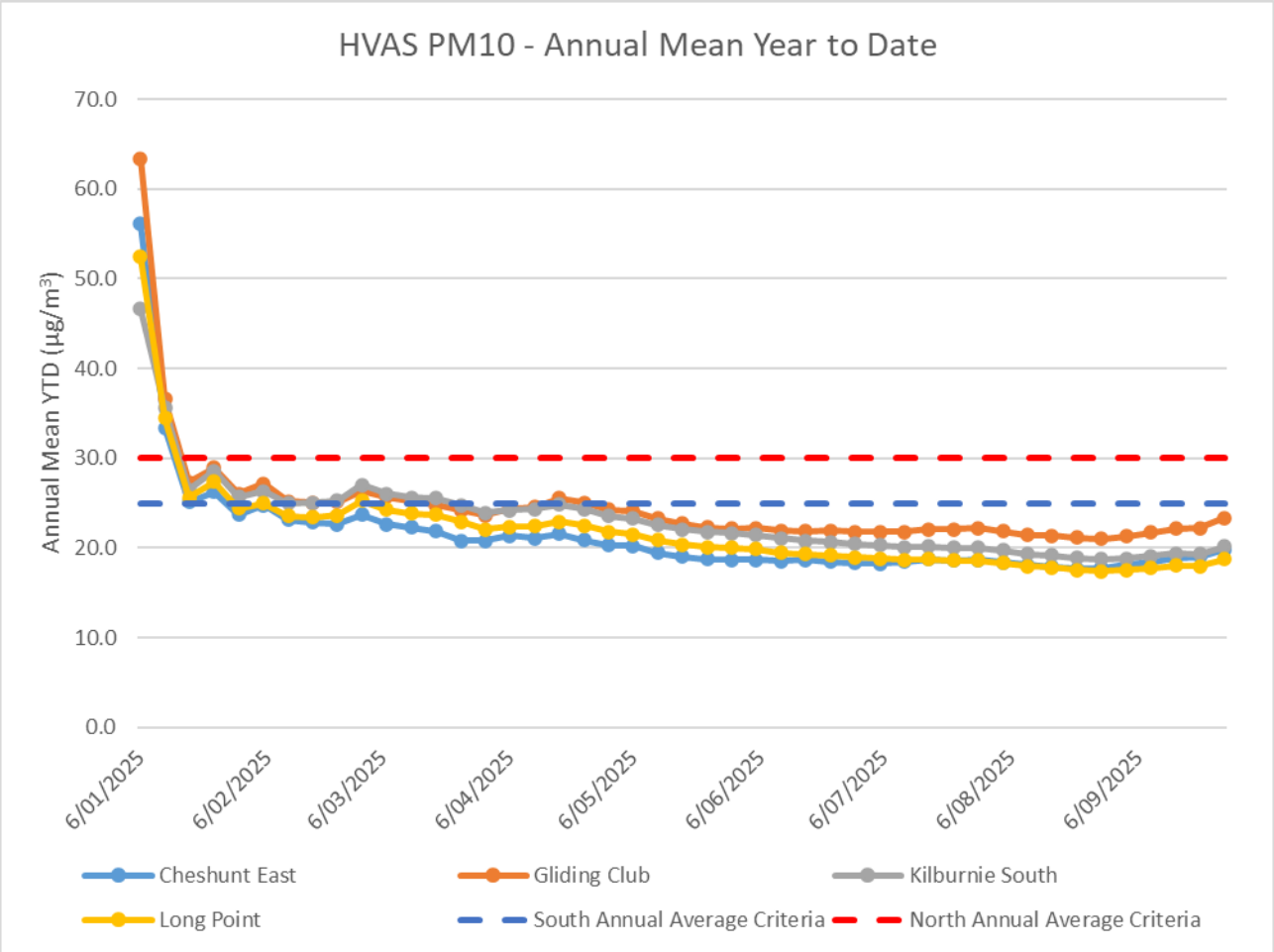

Figure 7 - Year to Date Average PM_{10} as at end of the Reporting Period

2.3.2 | HVAS $PM_{2.5}$ RESULTS

HVO monitors $PM_{2.5}$ at two HVAS locations, Kilburnie South (Moses Crossing) and Maison Dieu.

2.3.2.1 | HVAS $PM_{2.5}$ RESULTS

Figure 8 shows individual $PM_{2.5}$ results at each monitoring station against the HVO South short-term impact assessment criteria of 25µg/m^3. Both monitors were below the relevant short-term impact assessment criteria during the reporting period, with the exception of Maison Dieu on the 27th of September. This exceedance was investigated internally by HVO and it was found that the maximum calculated HVO contribution was below the compliance limit.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

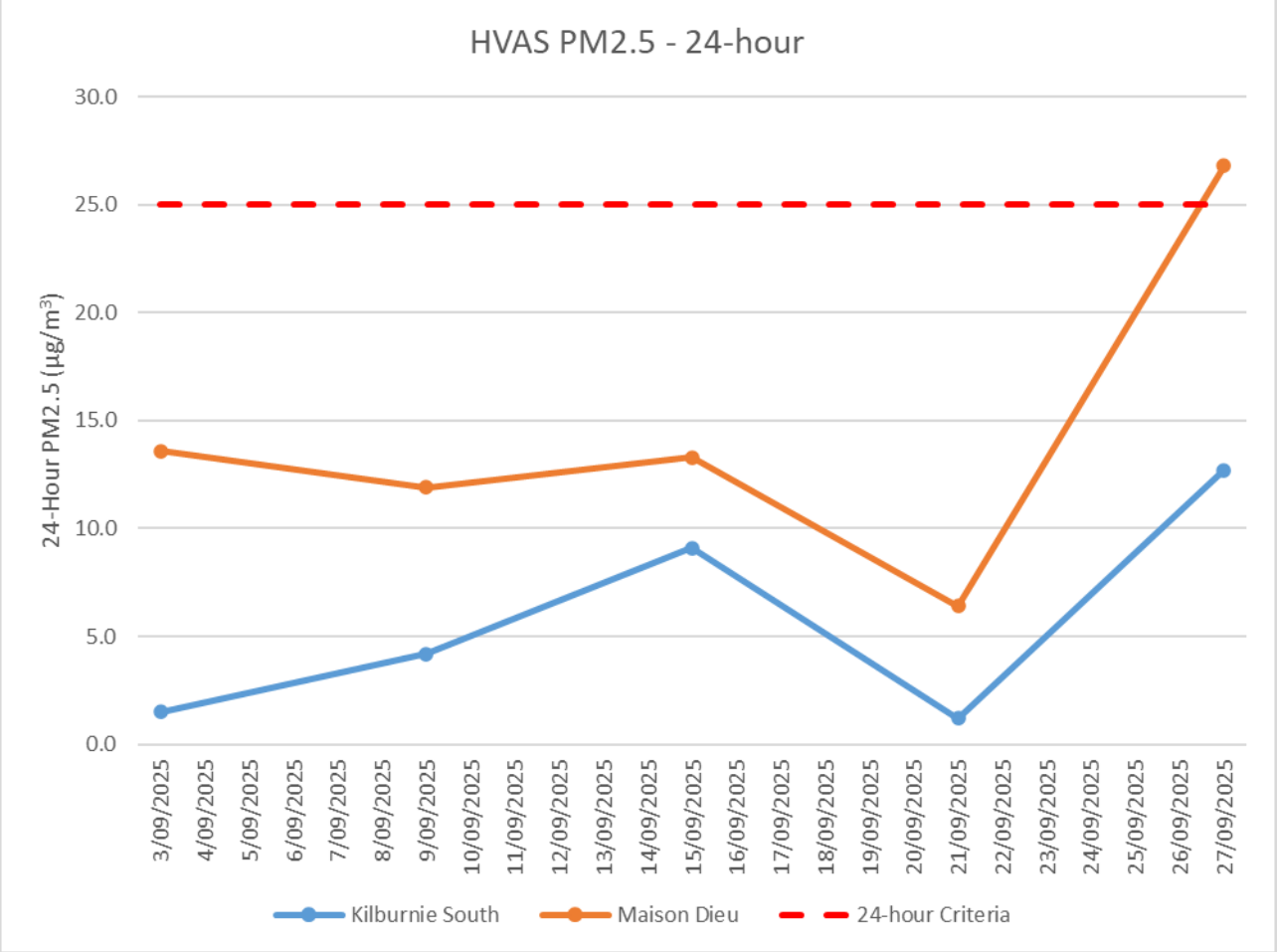

Figure 8 - Results for the Reporting Period

2.3.2.2 | PERFORMANCE AGAINST LONG TERM IMPACT ASSESSMENT CRITERIA

Figure 9 shows the year-to-date annual average $PM_{2.5}$ results. During the reporting period, the annual average year to date results show Kilburnie South below the $PM_{2.5}$ annual rolling mean and Maison Dieu above the $PM_{2.5}$ annual rolling mean criteria of 8µg/m^3.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

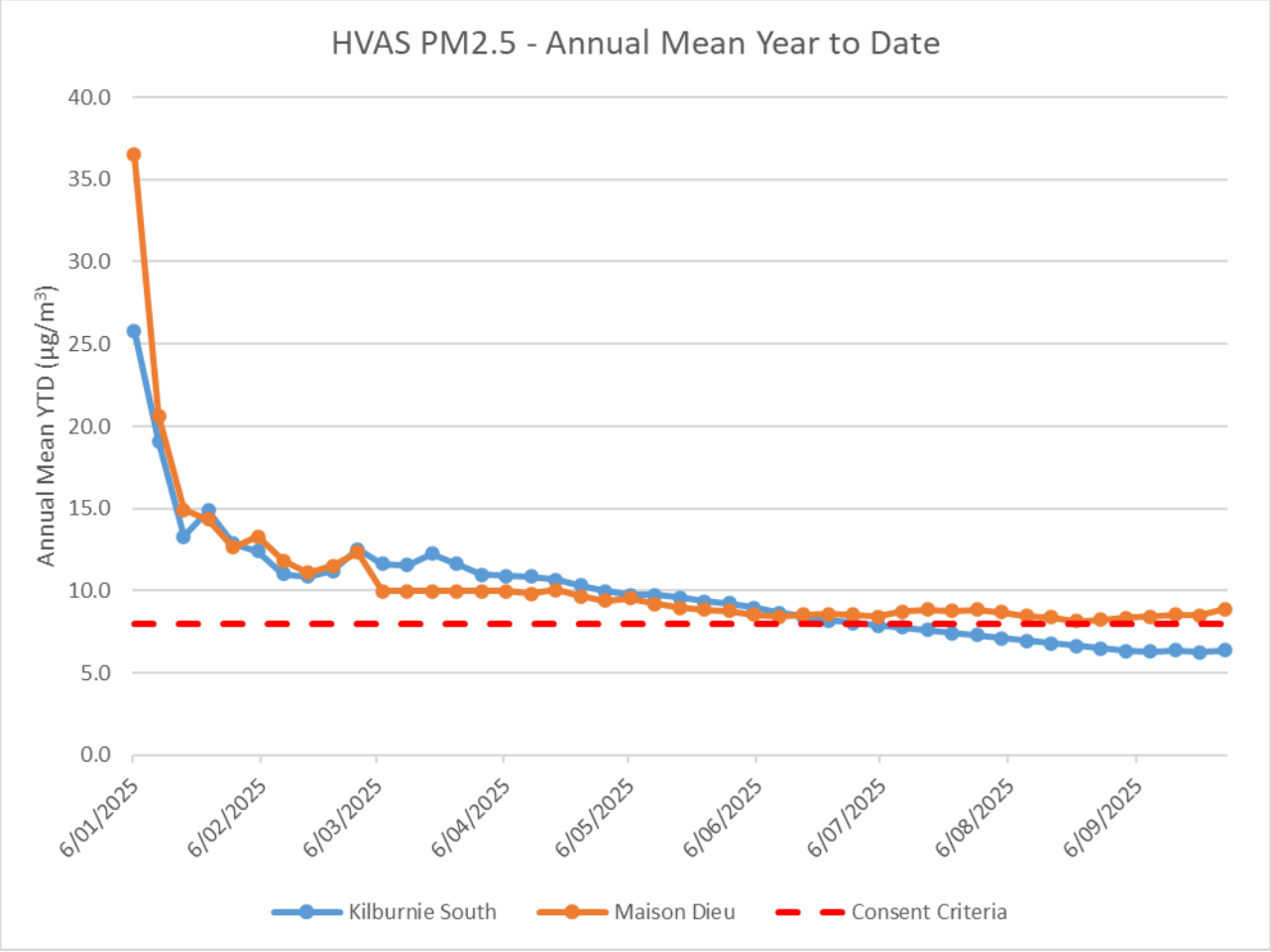

Figure 9 - Year to Date Average $PM_{2.5}$ as at end of the Reporting Period

2.3.3 | TSP RESULTS

2.3.3.1 | PERFORMANCE AGAINST LONG TERM IMPACT ASSESSMENT CRITERIA

Figure 10 shows the annual average TSP results compared against the long-term impact assessment criteria of 90µg/m^3.

Six of the seven monitors were below the relevant long-term impact assessment criteria during the reporting period. The Warkworth monitor was greater than the long-term impact assessment criteria during the reporting period.

An assessment of HVO's contribution against the long-term impact assessment criteria will be provided in the 2025 Annual Review.

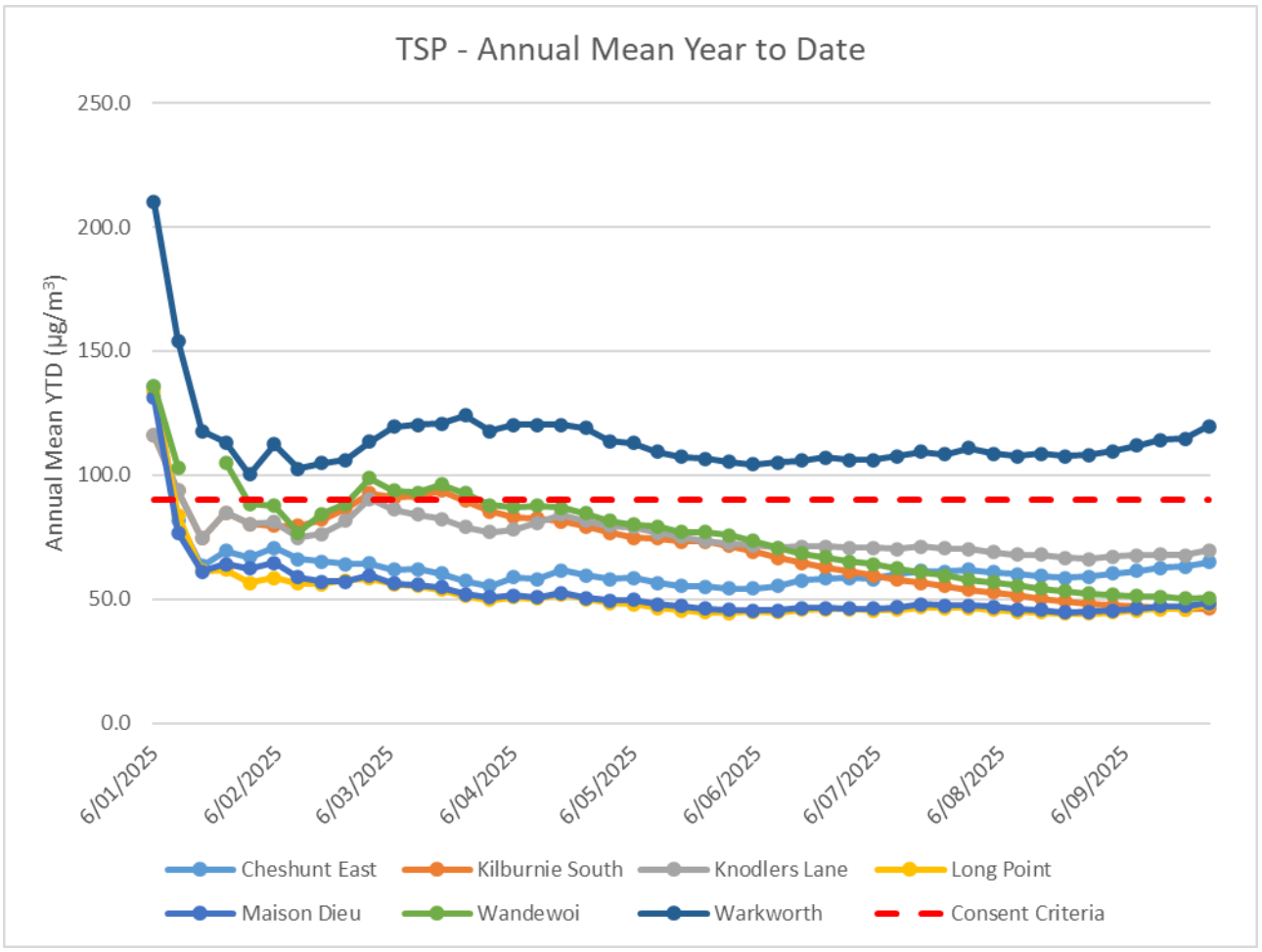

Figure 10 - Year to Date Average Total Suspended Particulates as at end of the Reporting Period

2.3.4 | REAL TIME PM_{10} RESULTS

HVO maintains a network of real time PM_{10} monitors. The real time air quality monitoring stations continuously record information and transmit data to a central database, generating alarms when particulate matter levels exceed internal trigger levels. Results from real time PM_{10} monitoring are used as a reactive measure to guide mining operations to help achieve compliance with the relevant conditions of the project approval.

Figure 11 shows the daily 24-hour average PM_{10} result from the real time monitoring sites. During the reporting period, daily results were below the 24-hr average criteria of 50µg/m^3 with the exception of:

- Warkworth on 8, 16, 26, 27 and 28 September

These exceedances were investigated internally by HVO and found that the maximum calculated HVO contribution was below the compliance limit.

The below listed monitors reported data capture rates of less than 75% on the respective dates, therefore these results are not displayed on Figure 11.

- Jerrys Plains on 19 September.
- Knodlers Lane on 26, 27 and 28 September.

Figure 12 shows the annual rolling average PM_{10} results from the real time monitoring sites. The annual average results for all monitors were below the relevant long-term impact assessment criterias for the reporting period, with the exception of Warkworth that is currently above the South annual rolling average but below the North annual rolling average.

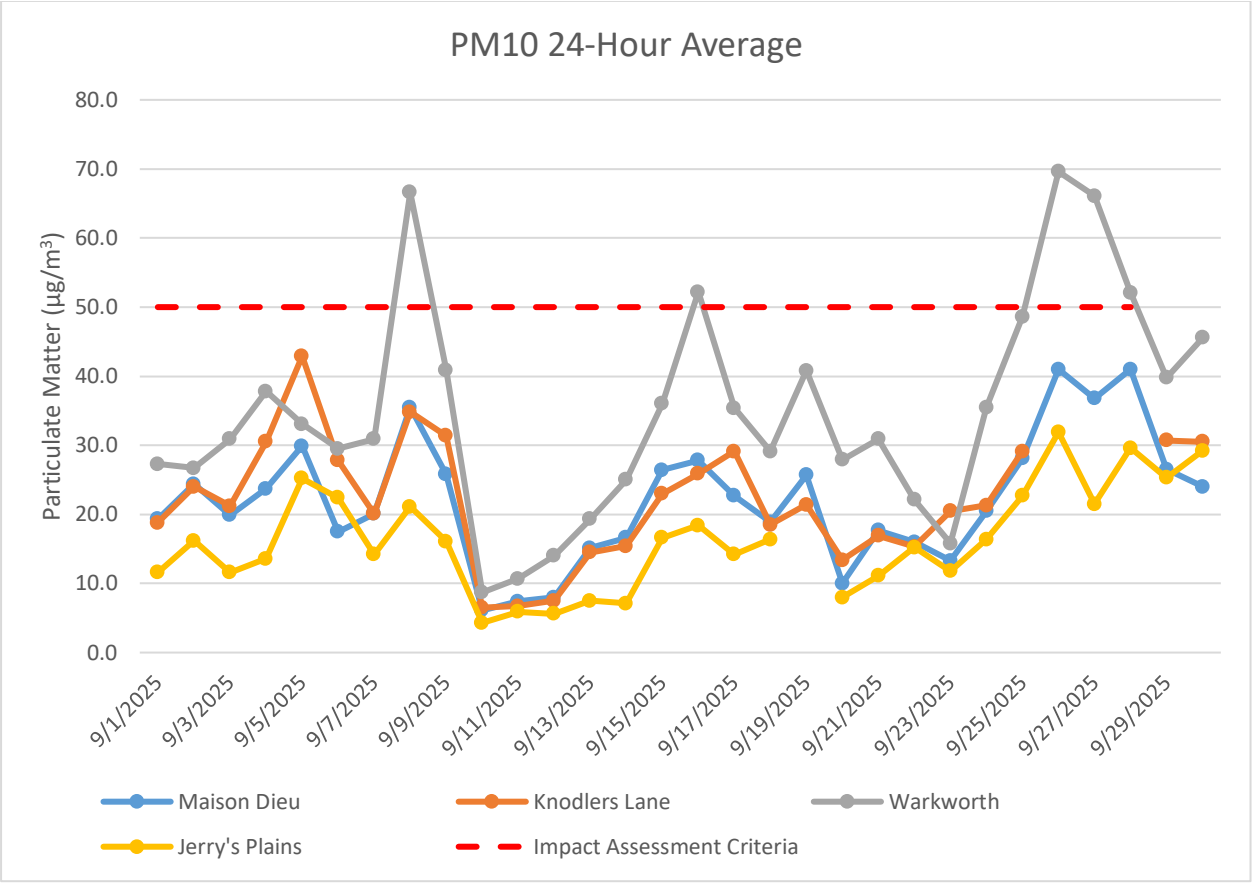

Figure 11 - Real Time PM_{10} 24hr for the Reporting Period

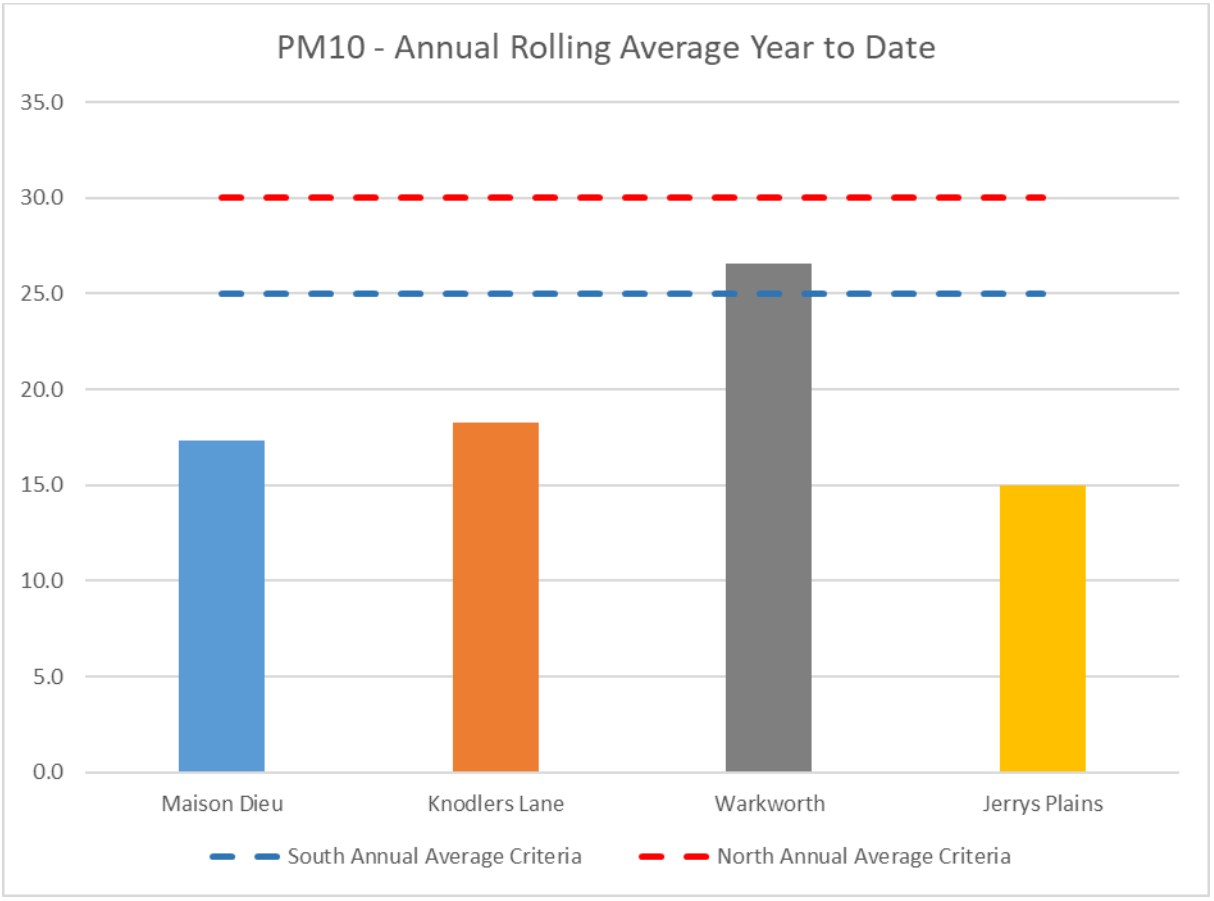

Figure 12 - Real Time PM_{10} Annual Average for the Reporting Period

2.3.5 | REAL TIME ALARMS FOR AIR QUALITY

The real time monitoring system generated two hundred and fifty-three (253) automated air quality related alarms during the reporting period. Thirty-seven (37) alarms related to adverse weather conditions (wind or rain) and two hundred and sixteen (216) alarms related to dust conditions.

3 | WATER QUALITY

HVO maintains a network of surface water and groundwater monitoring sites.

3.1 | SURFACE WATER

Surface watercourses are sampled on a quarterly sampling regime. Water quality is assessed through the parameters of pH, electrical conductivity (EC) and Total Suspended Solids (TSS). The location of surface water monitoring points across HVO is shown in **Figure 13.**

Results from monitoring on site dams, the Hunter River and other natural tributaries are provided in **Figure 14 to 25**.

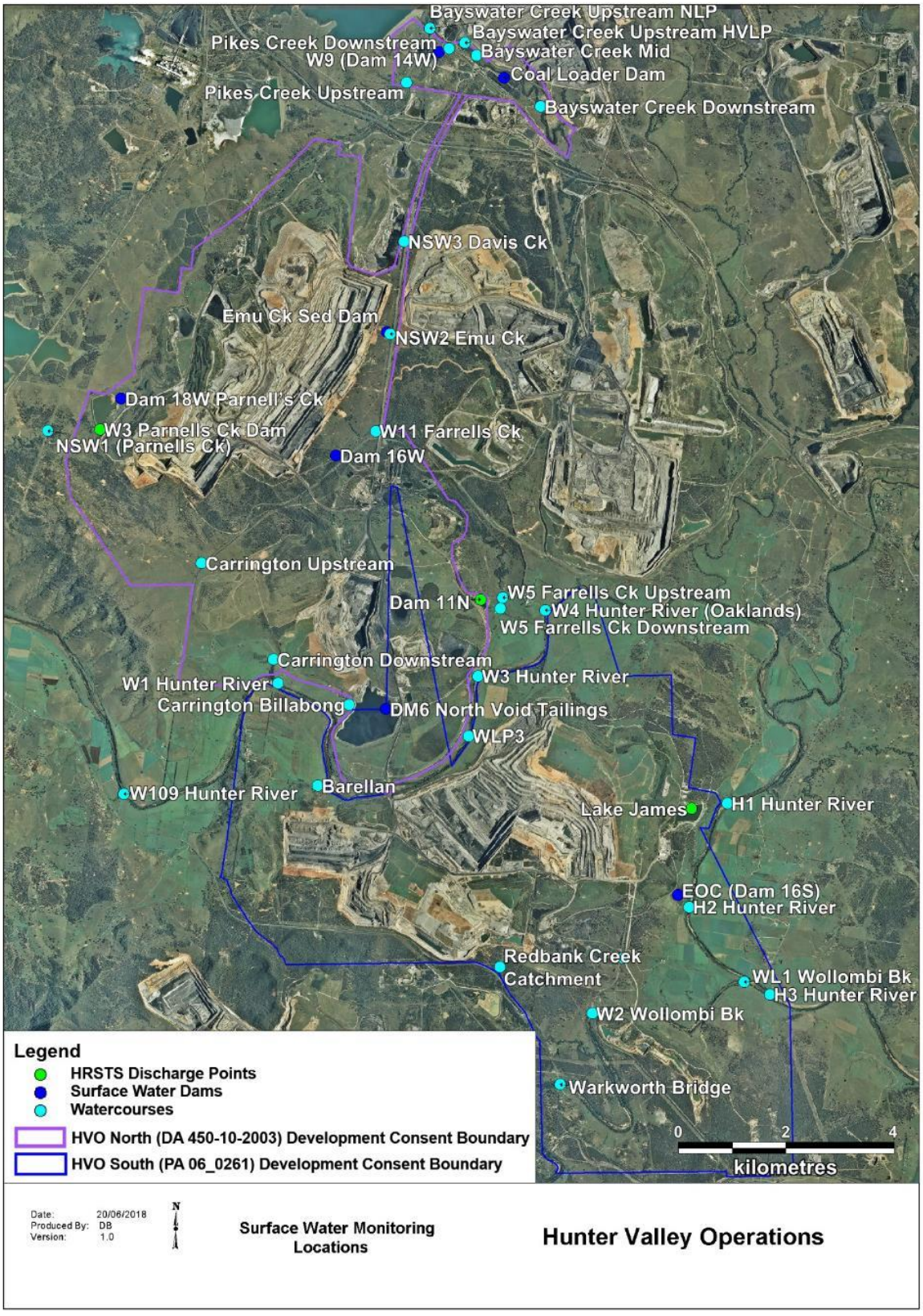

Figure 13 - HVO Surface Water Monitoring Locations

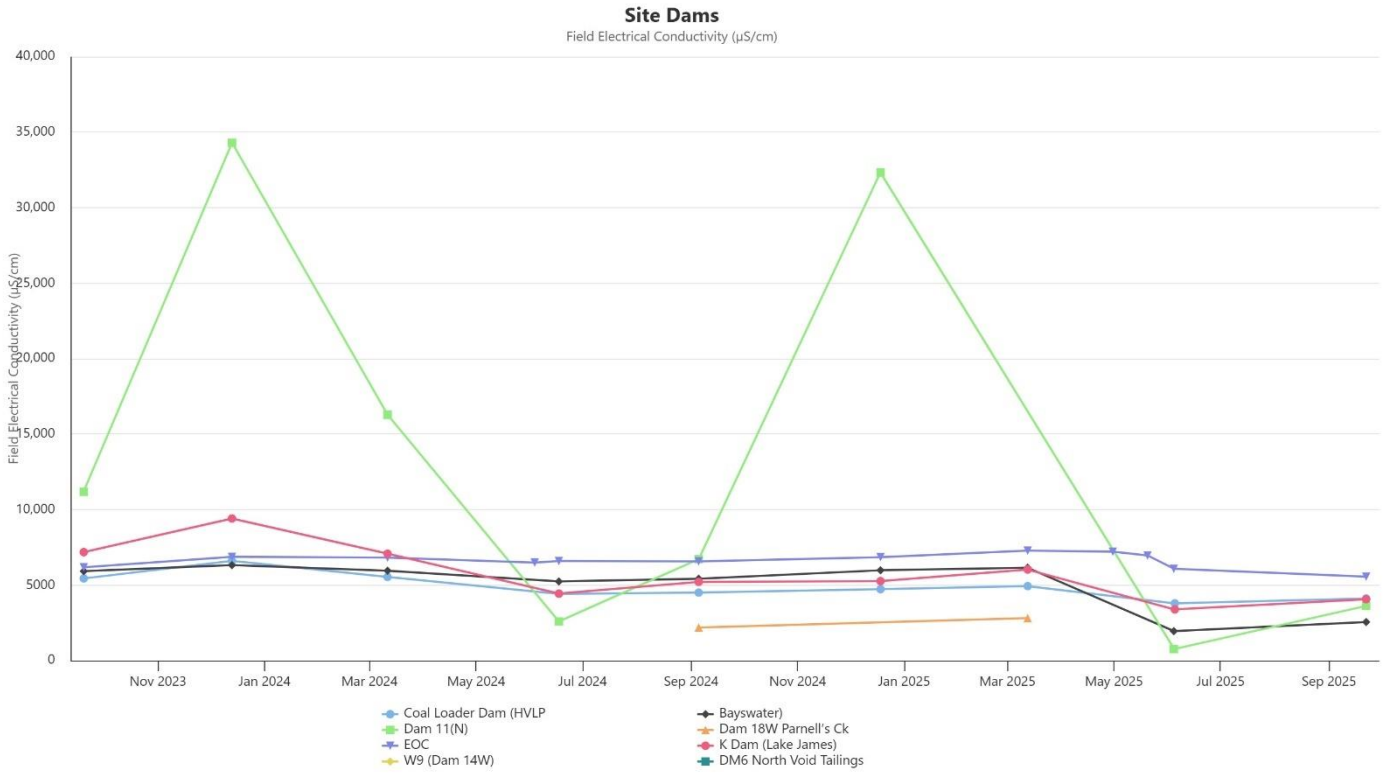

Figure 14 - Site Dams Electrical Conductivity – Q3 2025

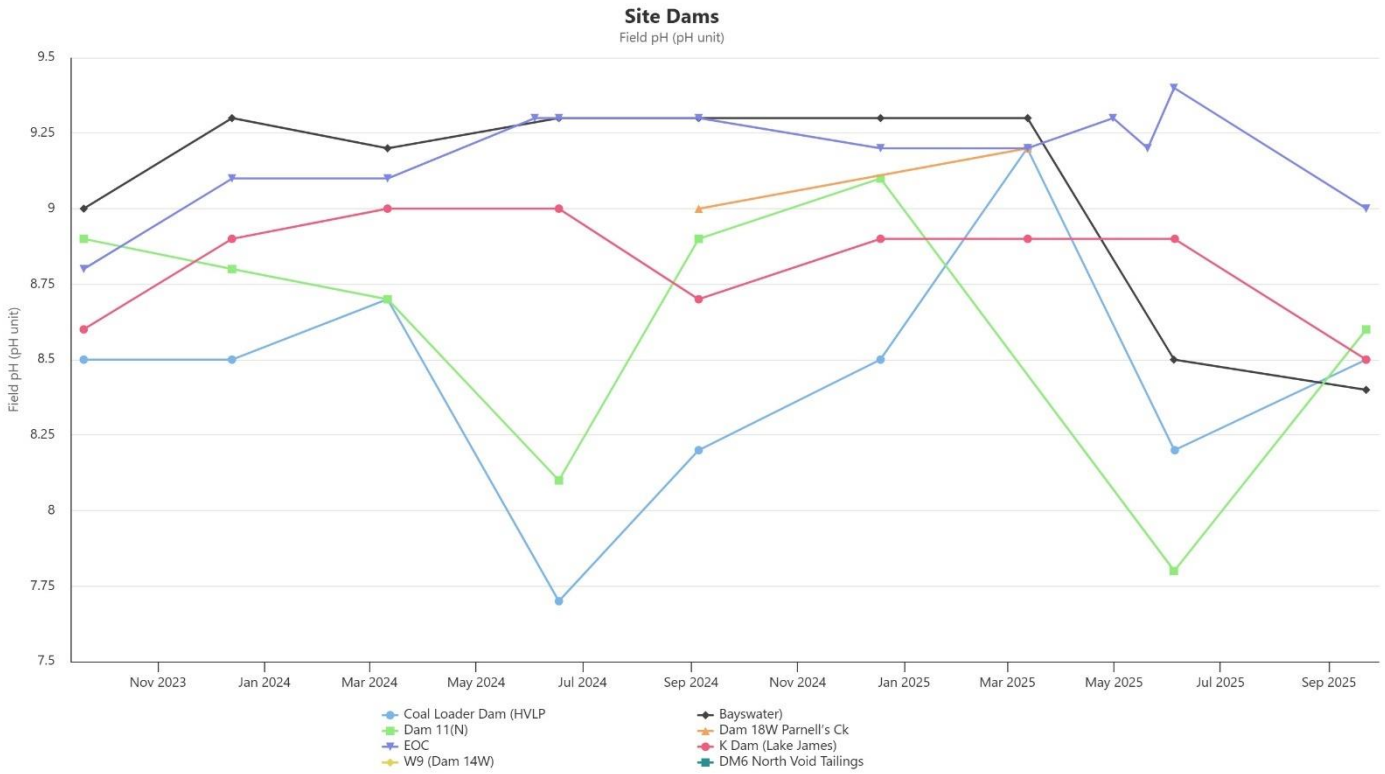

Figure 15 - Site Dams Field pH – Q3 2025

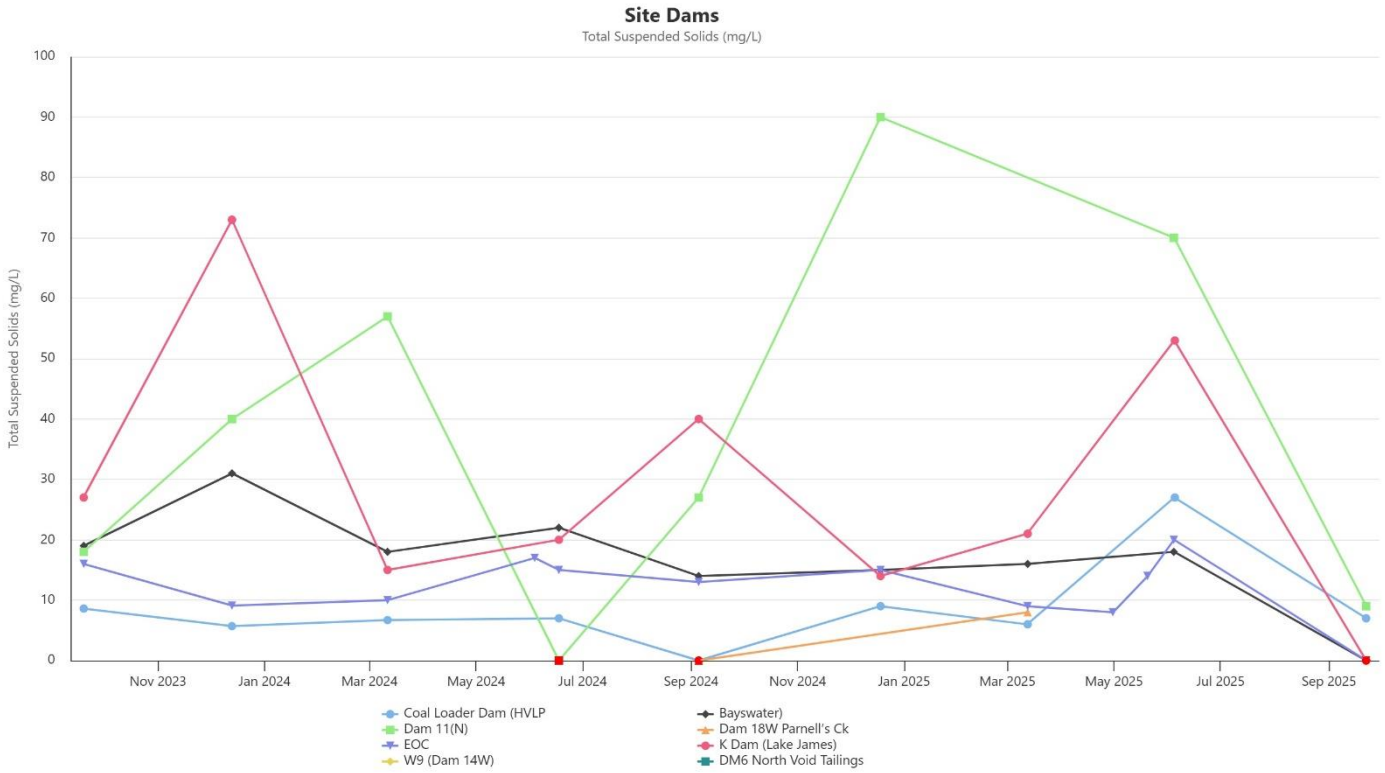

Figure 16 - Site Dams Total Suspended Solids – Q3 2025

Figure 17 - Wollombi Brook Electrical Conductivity – Q3 2025

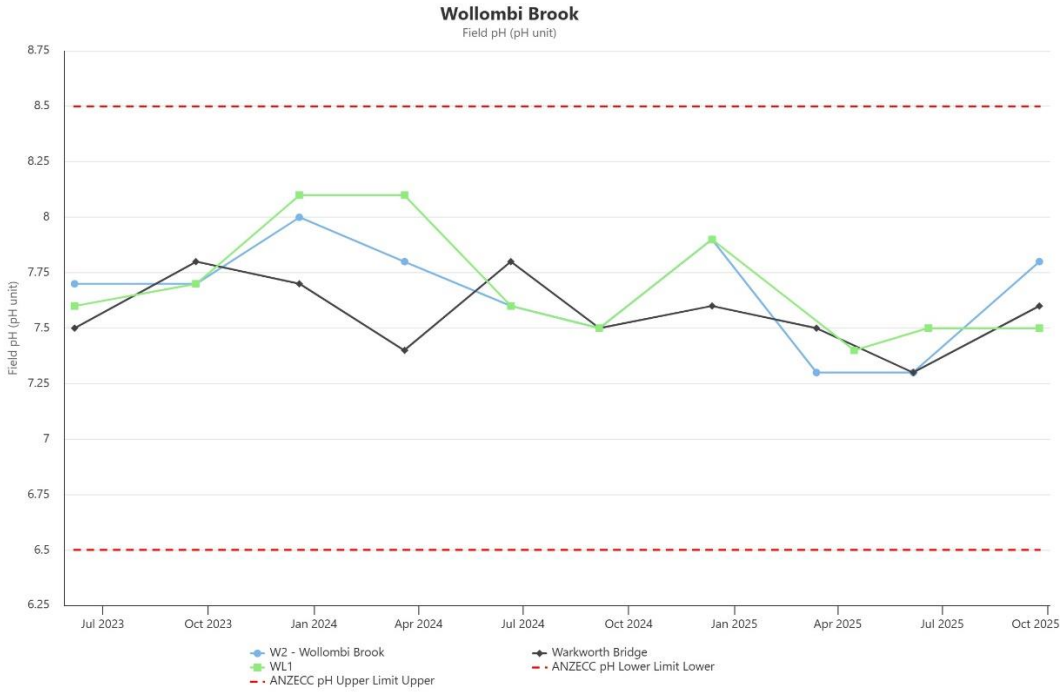

Figure 18 - Wollombi Brook Field pH – Q3 2025

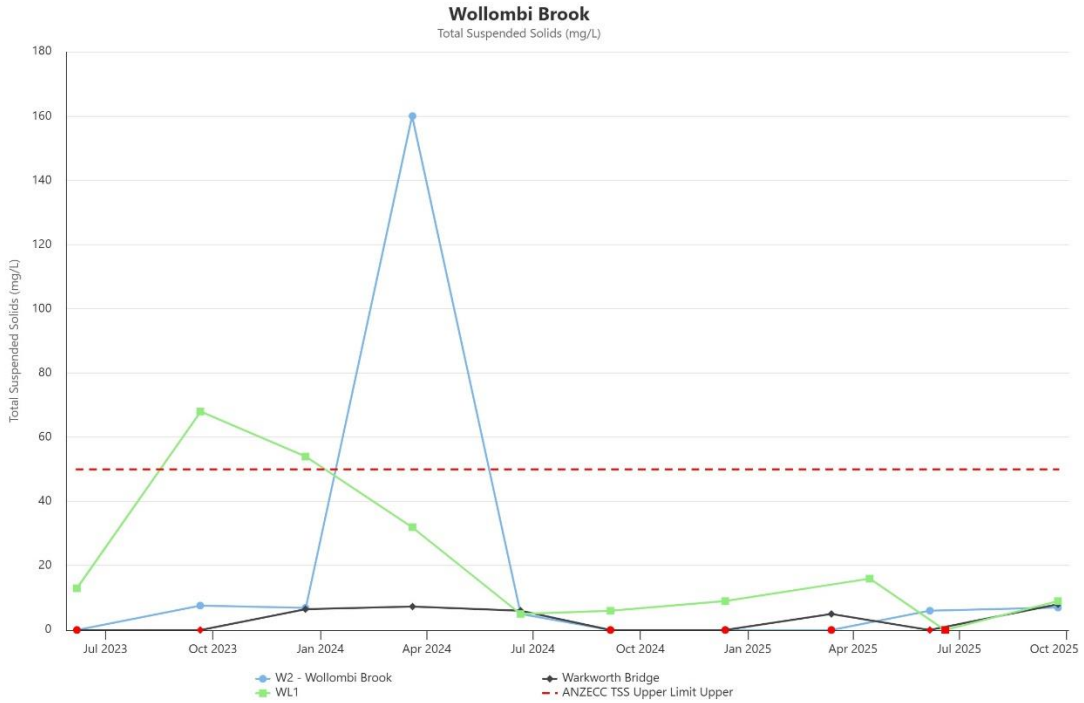

Figure 19 - Wollombi Brook Total Suspended Solids – Q3 2025

Figure 20 - Hunter River Electrical Conductivity – Q3 2025

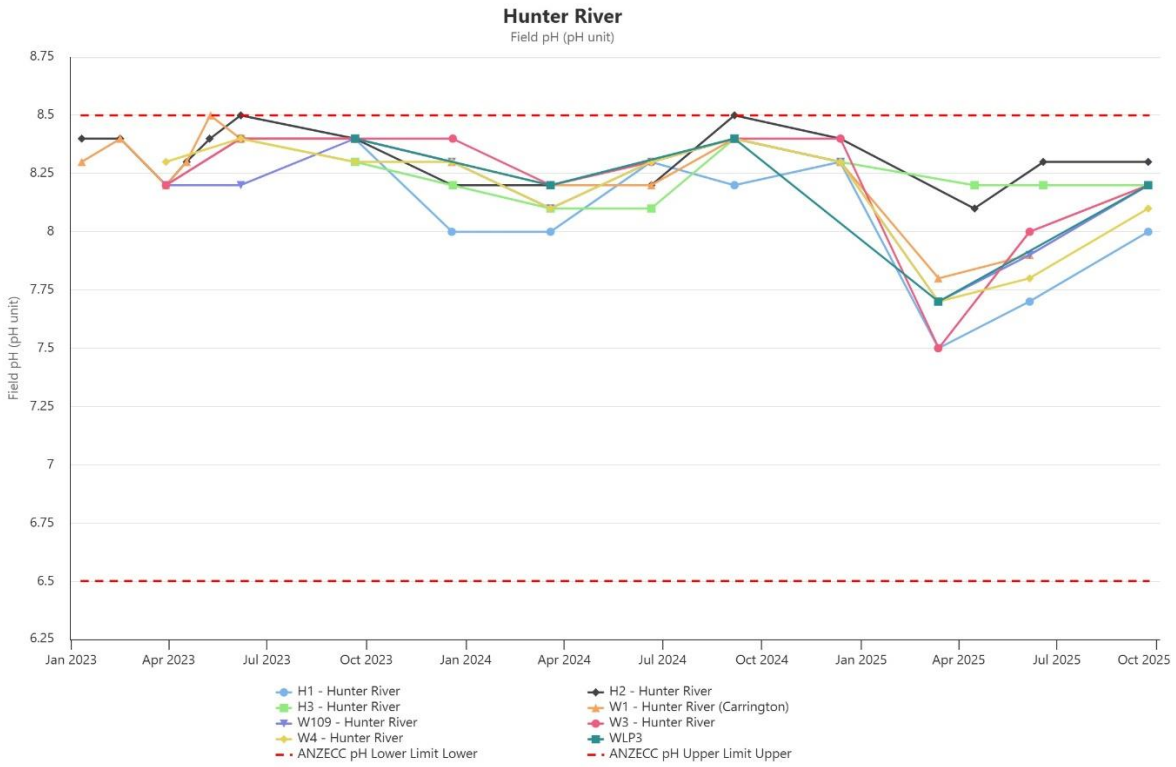

Figure 21 - Hunter River Field pH – Q3 2025

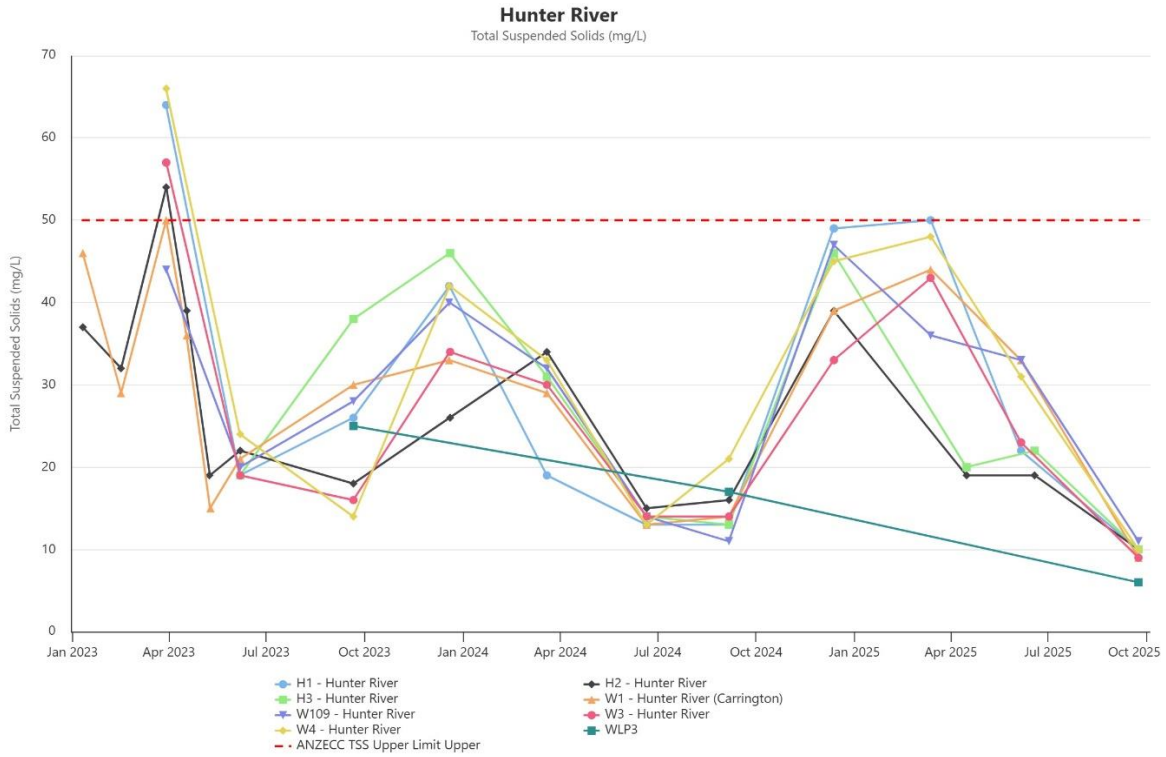

Figure 22 - Hunter River Field TSS – Q3 2025

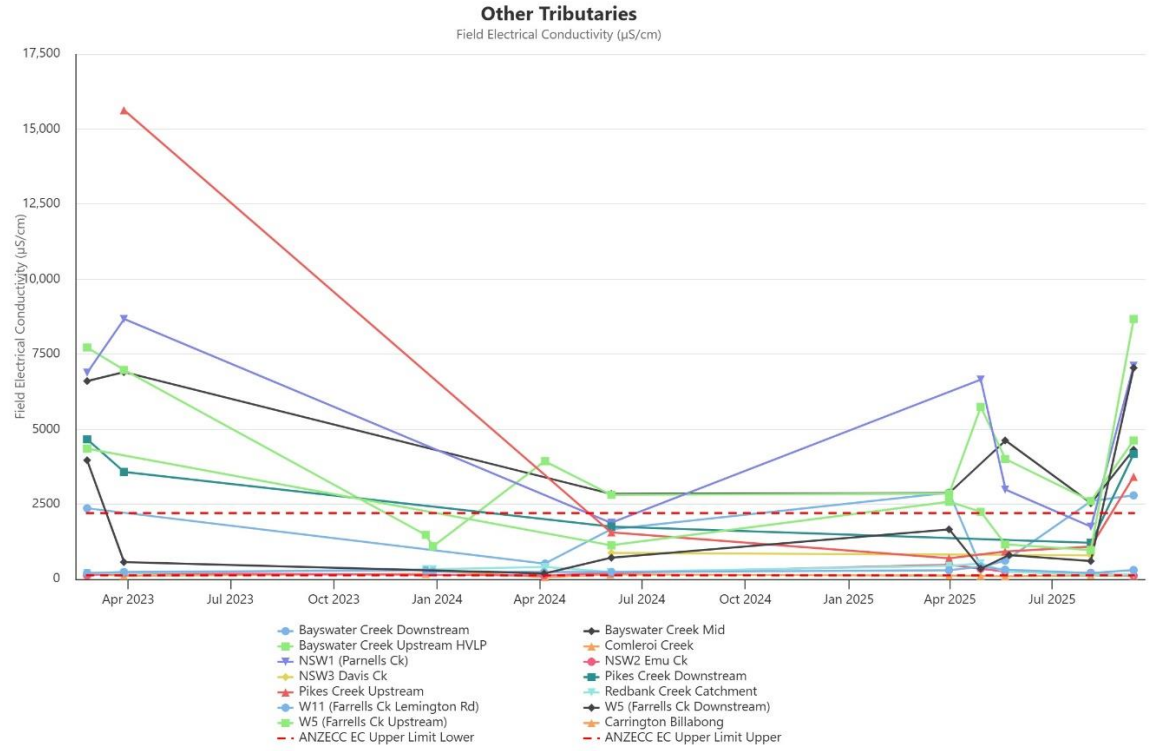

Figure 23 - Other Tributaries Electrical Conductivity – Q3 2025

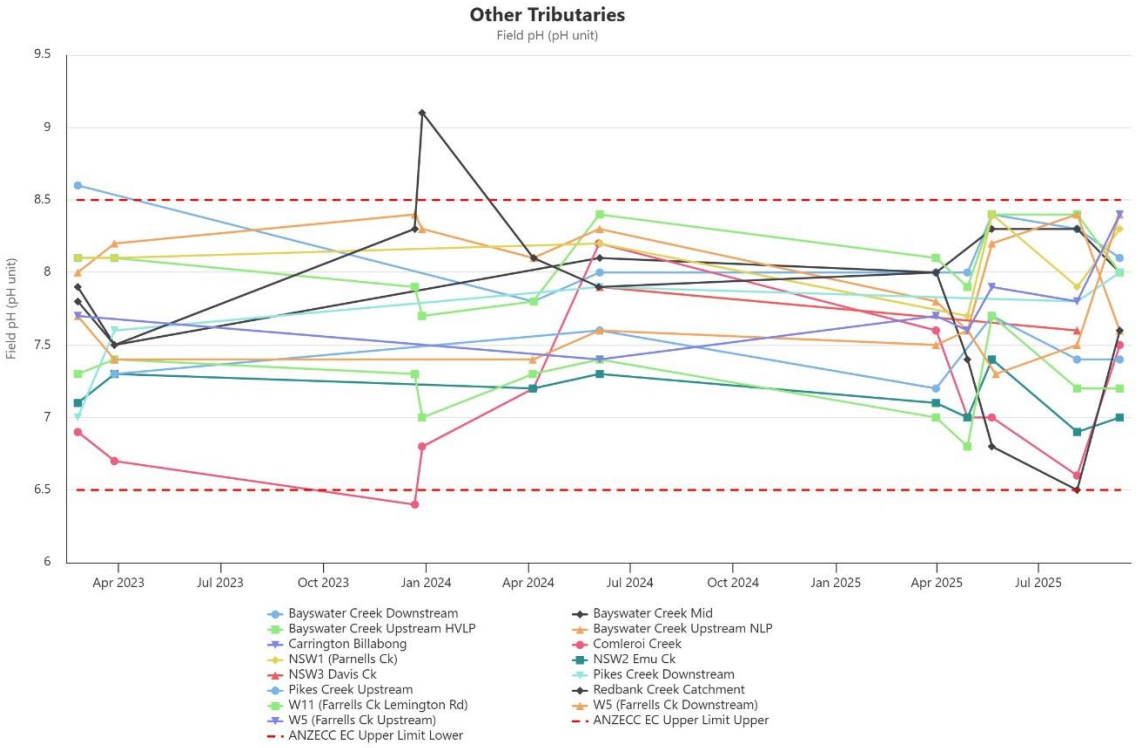

Figure 24 - Other Tributaries Field pH – Q3 2025

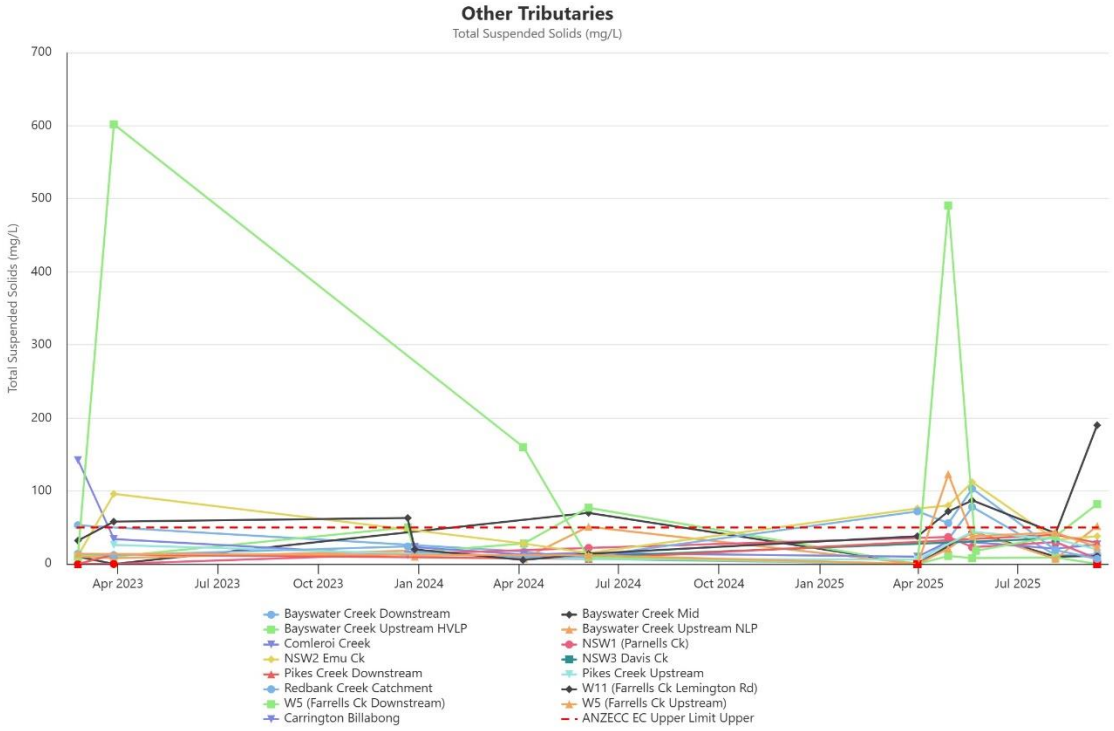

Figure 25 - Other Tributaries Total Suspended Solids – Q3 2025

3.1.1 | SURFACE WATER TRIGGER TRACKING

Internal trigger limits have been developed to assess monitoring data on an on-going basis and to highlight potentially adverse surface water impacts. The process for evaluating monitoring results against the internal triggers and subsequent responses are outlined in the HVO Water Management Plan.

Surface water trigger tracking results are summarised in Table 2.

Table 2 - Surface Water Trigger Tracking – Q3 2025

Site	Date	Trigger Limit	Response Action
Bayswater Creek Downstream	11/09/2025	Field pH	**Investigation required - 3rd consecutive trigger exceedance** Rainfall was received on the day of sampling with 1.0mm recorded at the Corporate Meteorological Weather station, and for the two days prior (9/09-10/09) with rainfall depths of 29.8mm recorded. The field sheet indicated moderate flow and light brown colouration at the sample location. The results for TSS and EC were not above the trigger limits. A review of the historical data set for Bayswater Creek Downstream (2011 - 2025) indicates that the pH result of 8.1 is below the maximum recorded result of 8.6 and below the 95th percentile result of 8.4. The three pH results in Q3 (July = 8.40, August = 8.30 and September = 8.10) are generally consistent with Bayswater Creek Upstream results (July = 8.40, August = 8.40 and September = 8.00) and indicate a downward trend toward the upper pH trigger value. At this stage, no further investigation is considered to be warranted. However, should future results indicate an upward trend that is not consistent with Bayswater Creek Upstream results, further investigation should be undertaken to identify potential causes of the elevated pH results.

W11 (Farrells Ck Lemington)	11/09/2025	Total Suspended Solids(mg/L)	**Investigation required - trigger exceedance** Rainfall was received on the day of sampling with 1.0mm recorded at the Corporate Meteorological Weather station, and an additional 29.8mm recorded the two days prior to sampling. The monitoring round data record indicates no flow at the monitoring location during sample collection. A review of historical TSS results (2011 - 2025) for the W11 monitoring location indicates that the 11/09/25 TSS result of 190mg/L is above the 95th percentile (90.9mg/L) and below the maximum (868mg/L) of the historical data set. While the investigation suggests that elevated TSS at this monitoring location following rainfall events may be likely to result in exceedances of the 50mg/L trigger, this particular result is the second highest in the historical data set and is the third trigger of 2025

Site	Date	Trigger Limit	Response Action
Bayswater Creek Downstream	11/09/2025	Field pH	**Investigation required - 3rd consecutive trigger exceedance** Rainfall was received on the day of sampling with 1.0mm recorded at the Corporate Meteorological Weather station, and for the two days prior (9/09-10/09) with rainfall depths of 29.8mm recorded. The field sheet indicated moderate flow and light brown colouration at the sample location. The results for TSS and EC were not above the trigger limits. A review of the historical data set for Bayswater Creek Downstream (2011 - 2025) indicates that the pH result of 8.1 is below the maximum recorded result of 8.6 and below the 95th percentile result of 8.4. The three pH results in Q3 (July = 8.40, August = 8.30 and September = 8.10) are generally consistent with Bayswater Creek Upstream results (July = 8.40, August = 8.40 and September = 8.00) and indicate a downward trend toward the upper pH trigger value. At this stage, no further investigation is considered to be warranted. However, should future results indicate an upward trend that is not consistent with Bayswater Creek Upstream results, further investigation should be undertaken to identify potential causes of the elevated pH results.

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3.2 | SITE WATER USE

HVO is permitted to extract water from the Hunter River under water allocation licenses issued by Water NSW.

HVO did not extract water from the Hunter River during the reporting period.

3.3 | HRSTS DISCHARGE

HVO participates in the Hunter River Salinity Trading Scheme (HRSTS), allowing discharge from licensed discharge points Dam 11N (to Farrell's Creek), Lake James (to the Hunter River) and Parnell's Dam (to Parnell's Creek). Discharges can only take place subject to HRSTS regulations.

Under the HRSTS, HVO did not discharge during the reporting period.

3.4 | GROUNDWATER MONITORING RESULTS

Groundwater monitoring is undertaken on a quarterly basis in accordance with the HVO Water Management Plan and Groundwater Monitoring Programme. The location of groundwater monitoring points across HVO are show in **Figure 26.**

Groundwater monitoring results are provided in **Figures 27 to 77**.

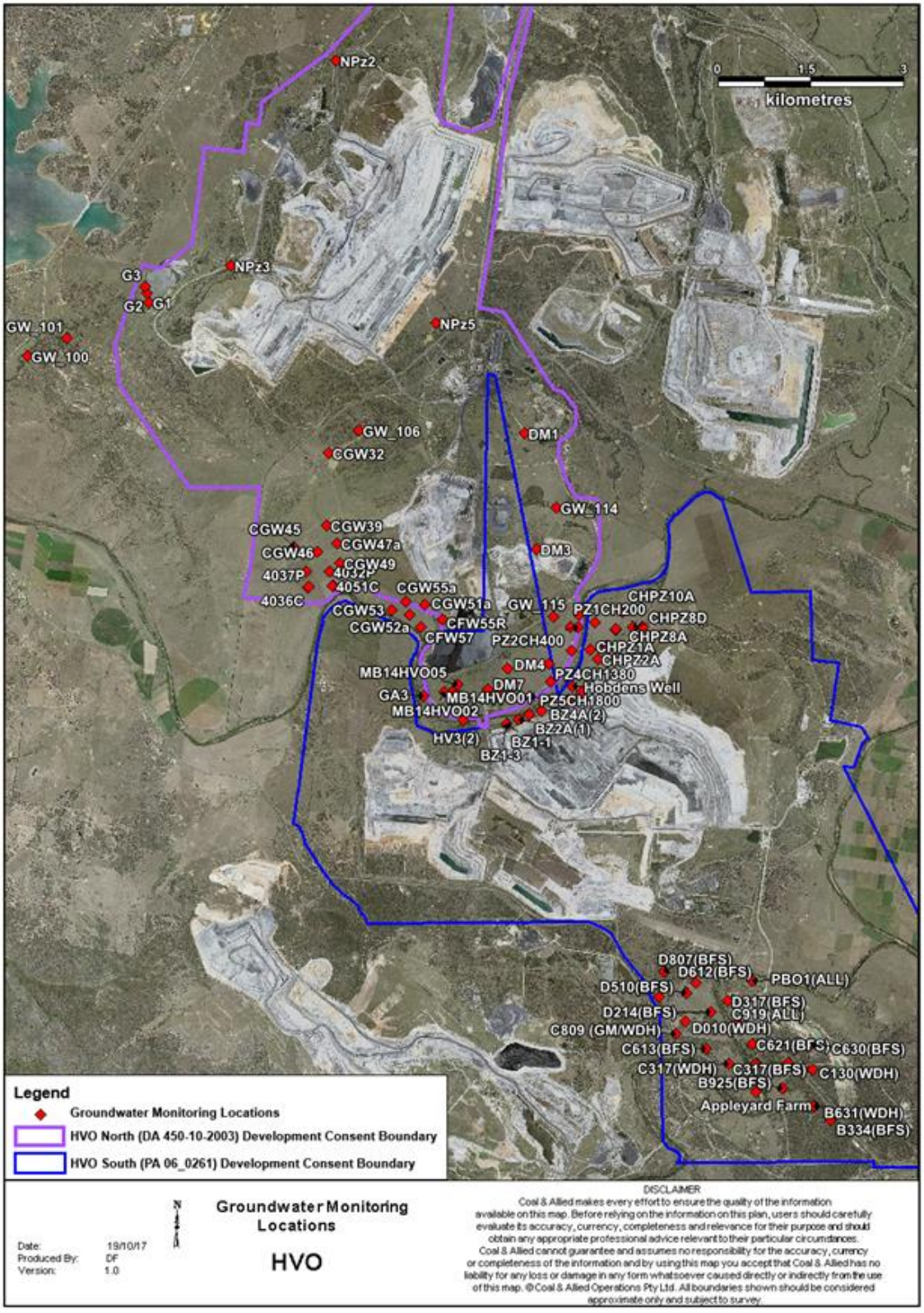

Figure 26 - Groundwater Monitoring Locations at HVO

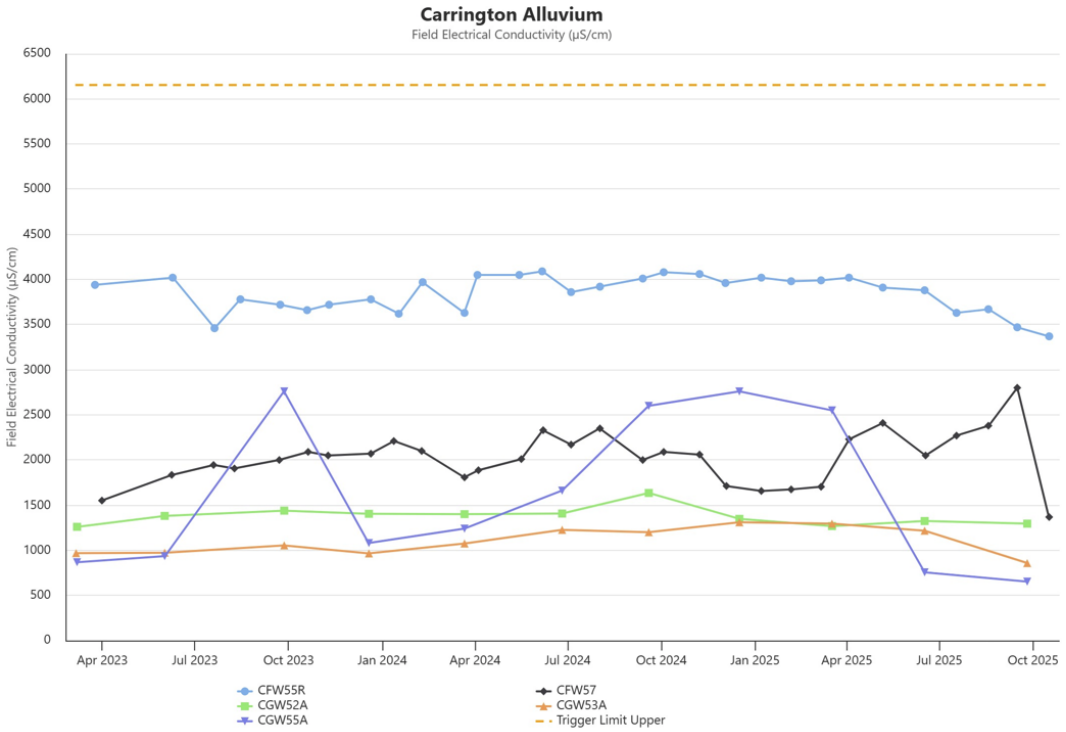

Figure 27 - Carrington Alluvium Electrical Conductivity Trend – Q3 2025

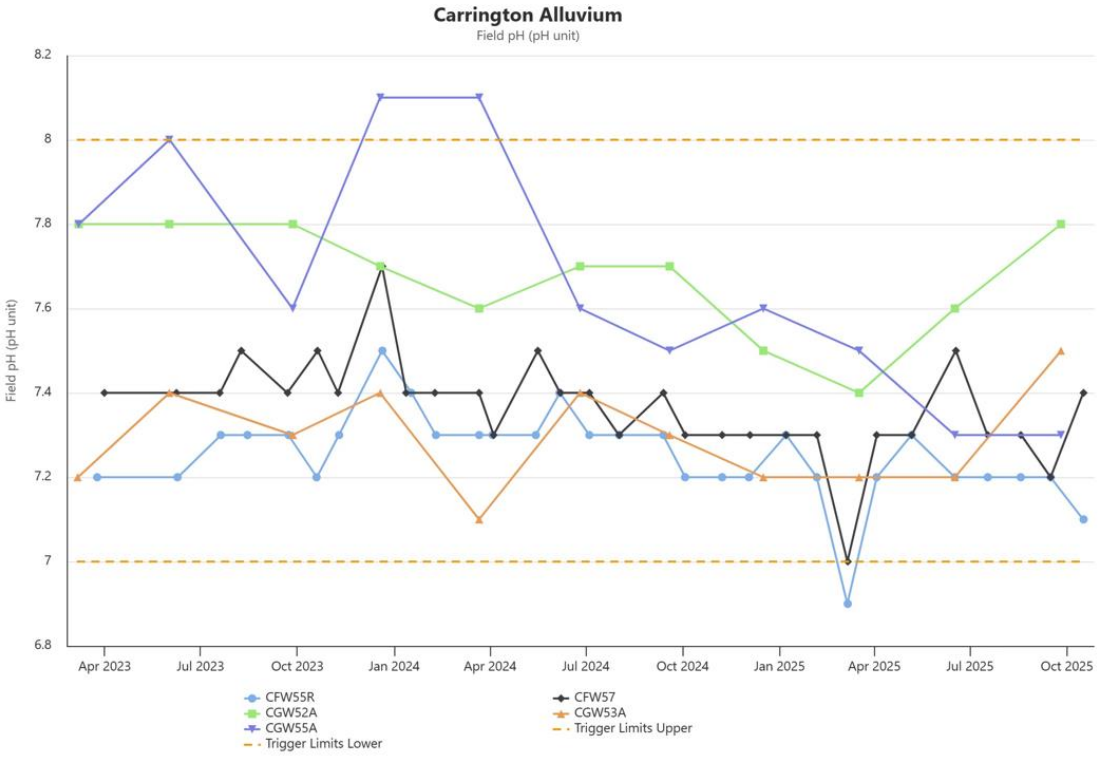

Figure 28 - Carrington Alluvium Field pH Trend – Q3 2025

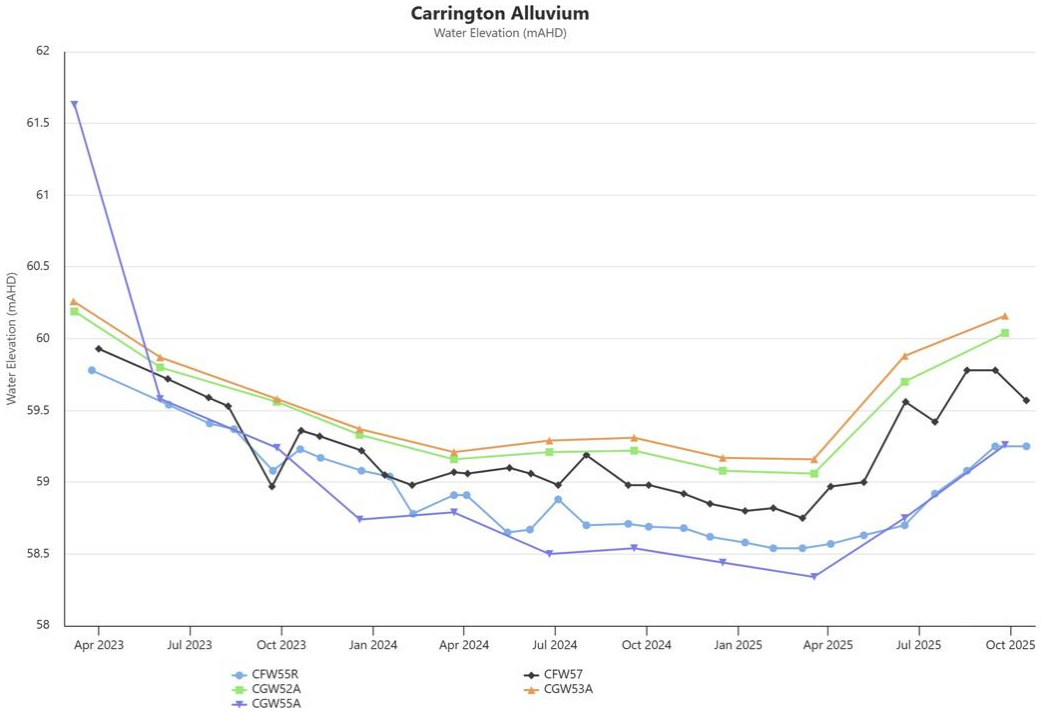

Figure 29 - Carrington Alluvium Water Elevation Trend – Q3 2025

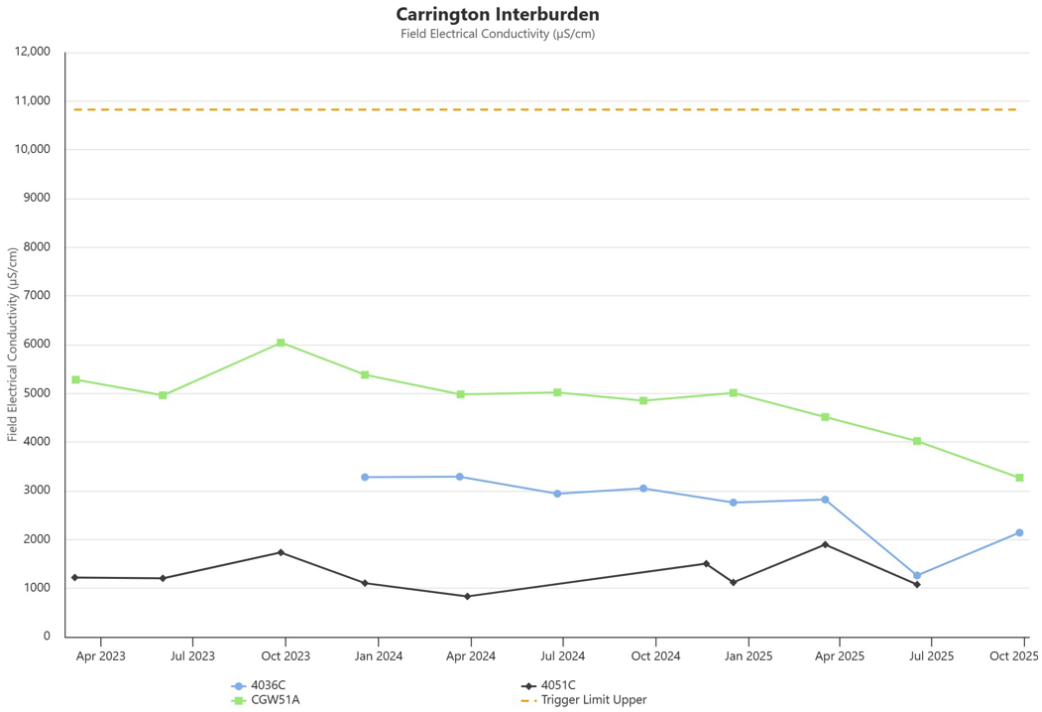

Figure 30 - Carrington Interburden Electrical Conductivity Trend – Q3 2025

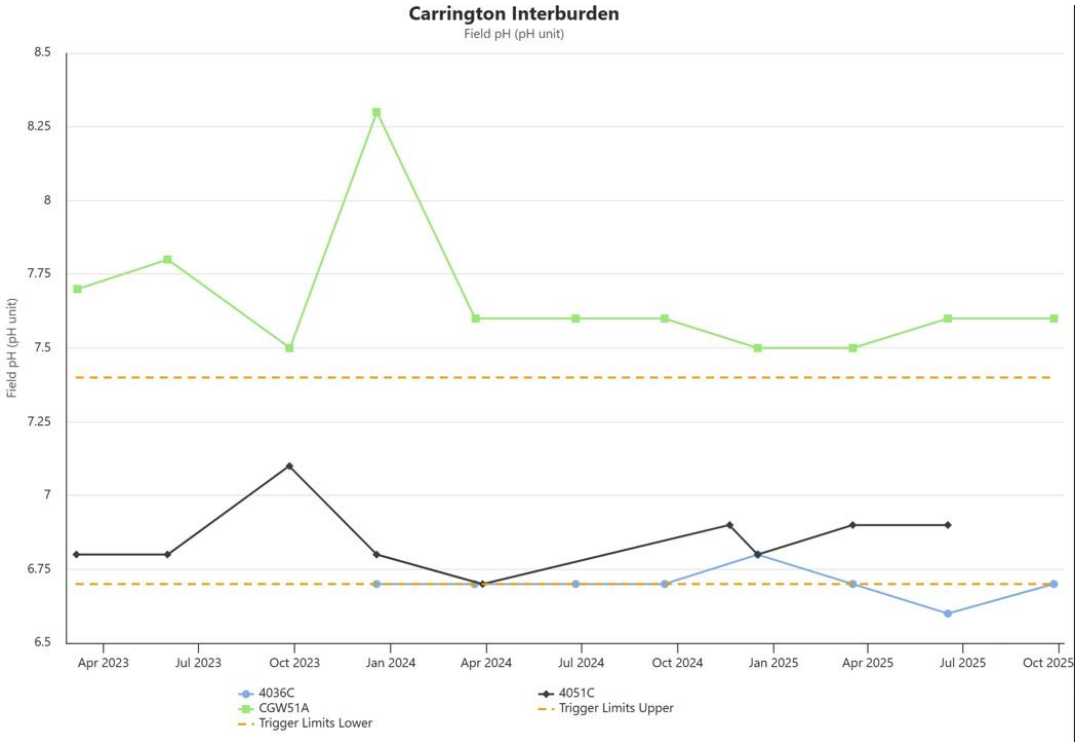

Figure 31 - Carrington Interburden Field pH Trend – Q3 2025

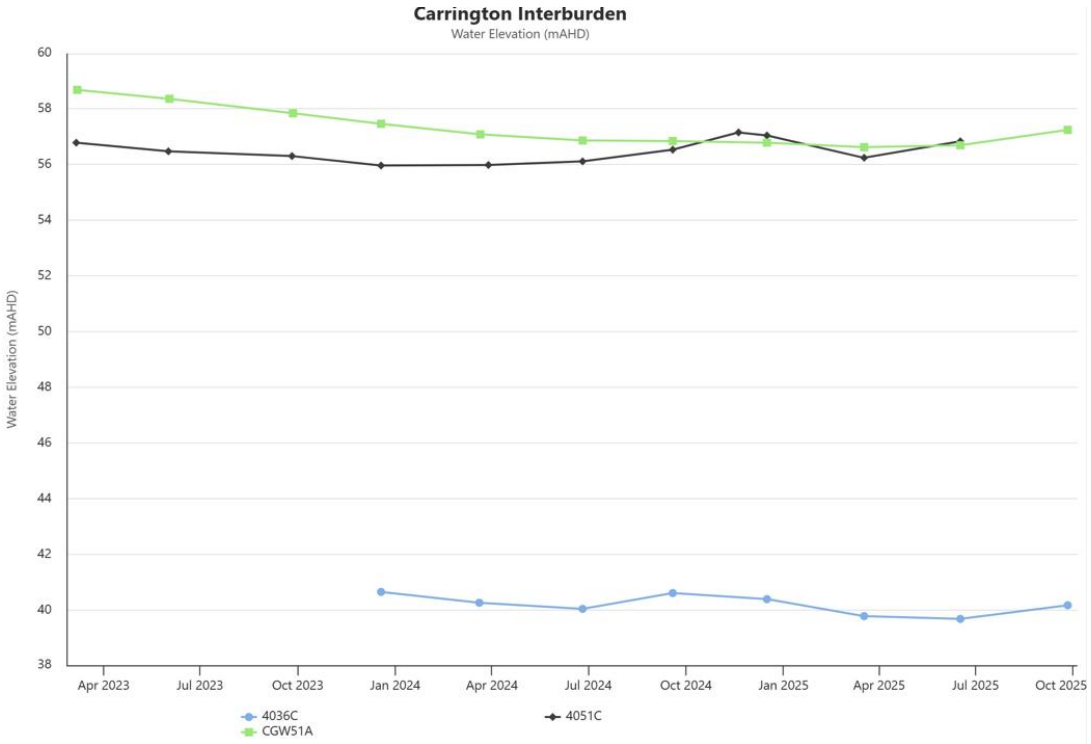

Figure 32 - Carrington Interburden Water Elevation Trend – Q3 2025

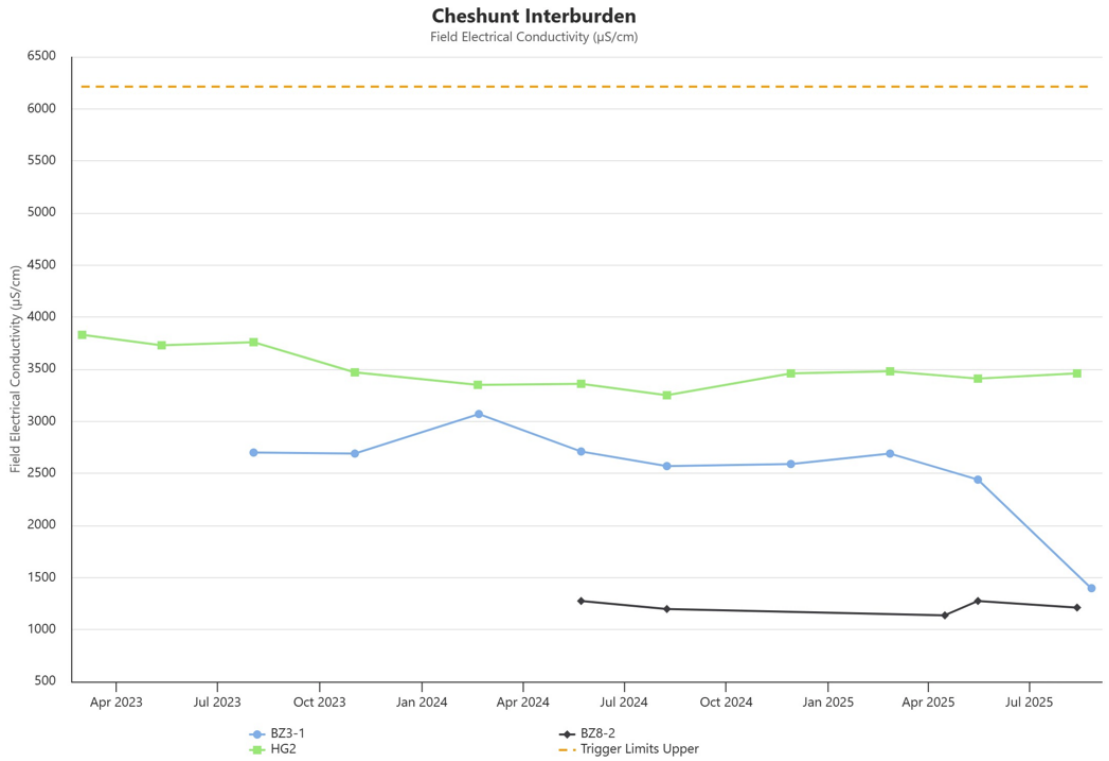

Figure 33 - Cheshunt Interburden Electrical Conductivity Trend – Q3 2025

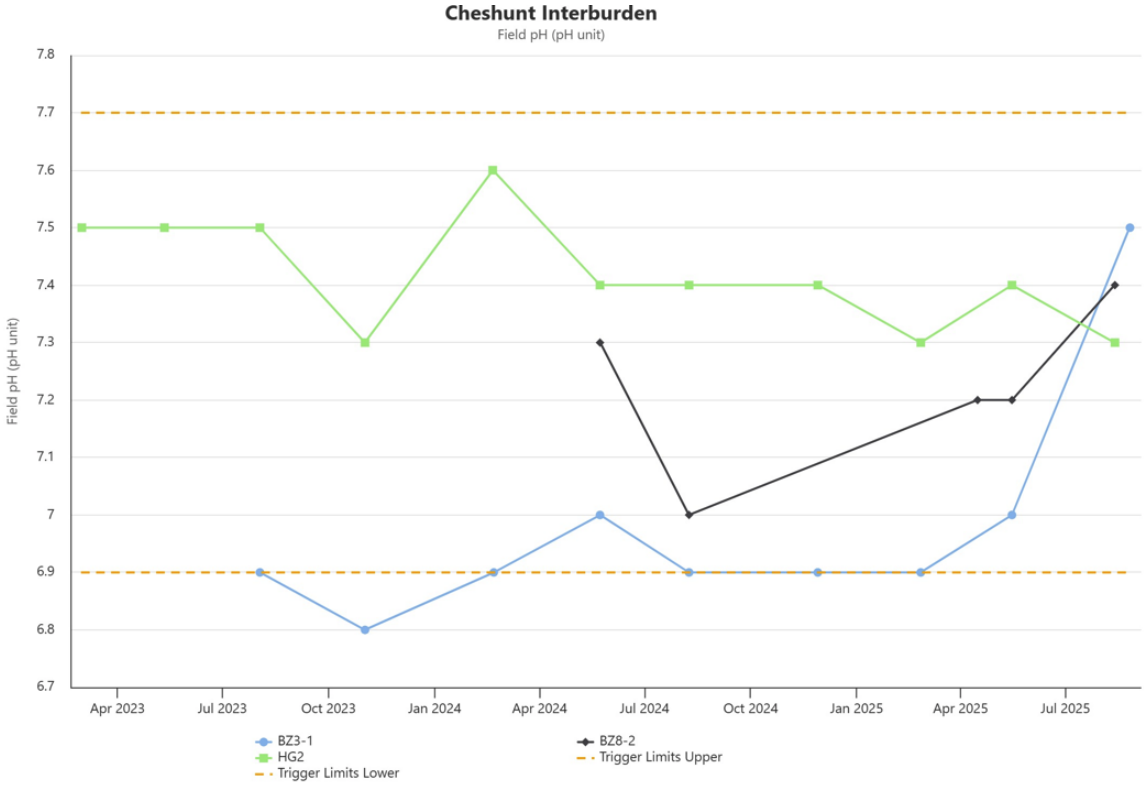

Figure 34 - Cheshunt Interburden Field pH Trend – Q3 2025

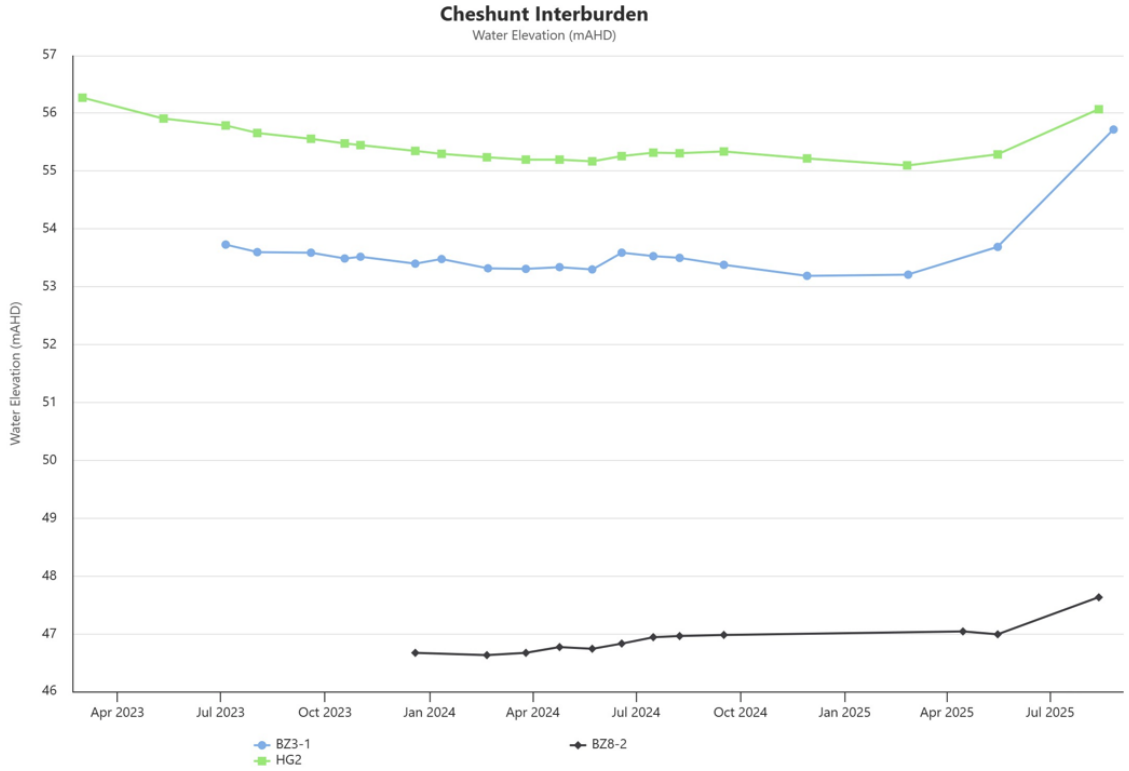

Figure 35 - Cheshunt Interburden Water Elevation Trend – Q3 2025

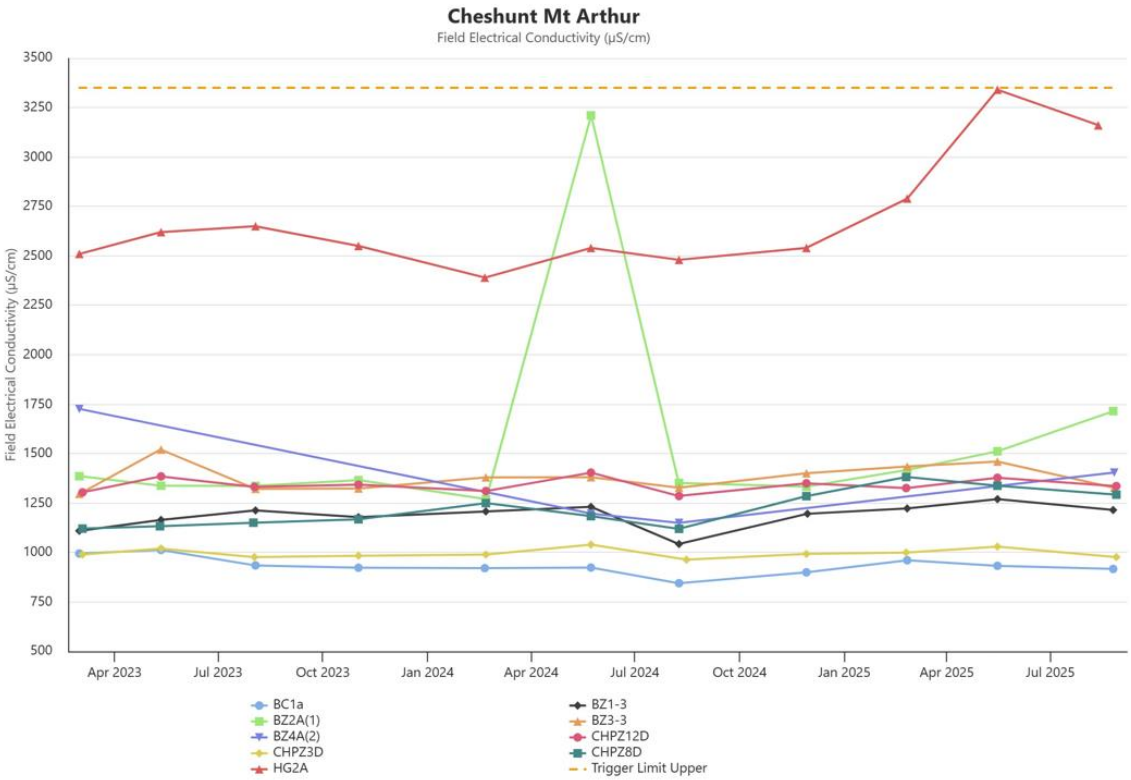

Figure 36 - Cheshunt Mt Arthur Electrical Conductivity Trend – Q3 2025

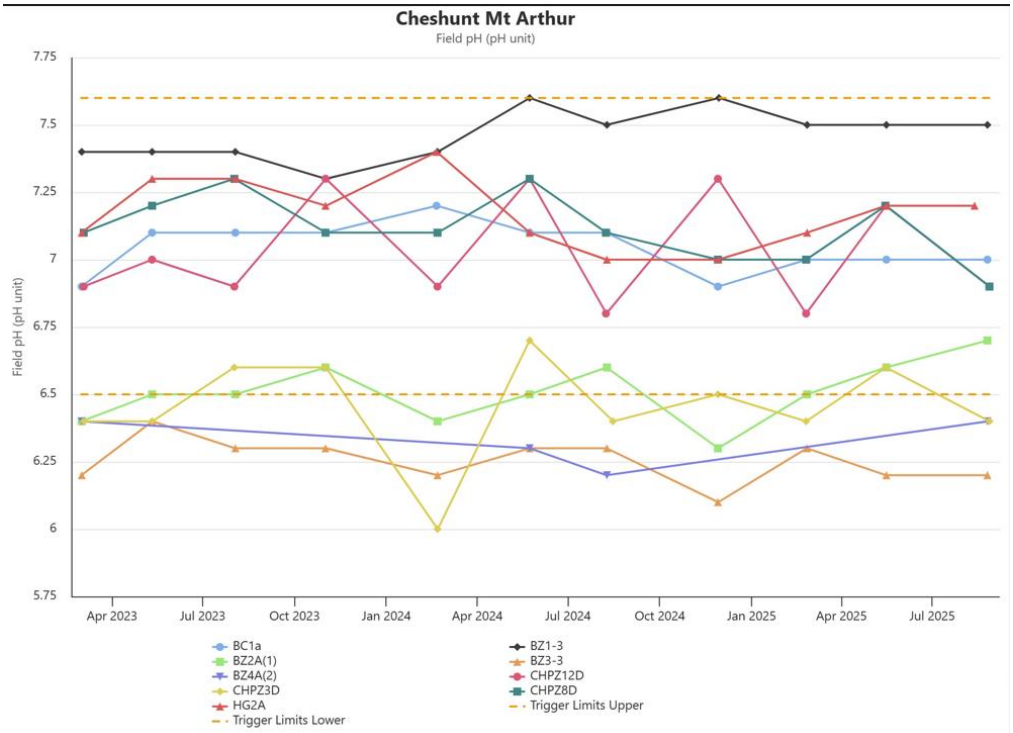

Figure - 37 Cheshunt Mt Arthur Field pH Trend – Q3 2025

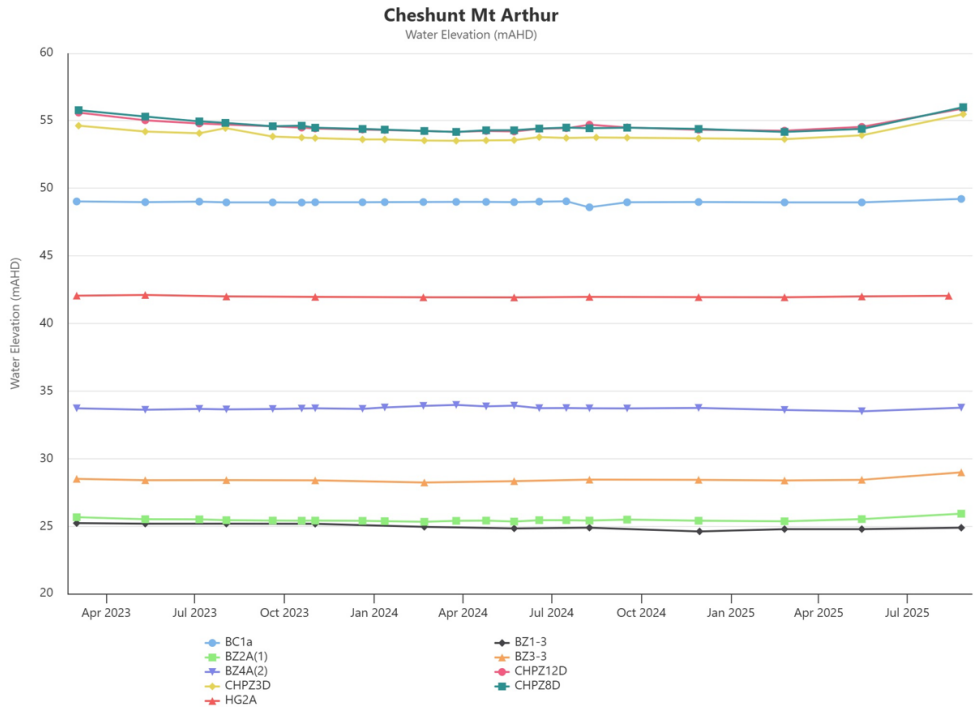

Figure 38 - Cheshunt Mt Arthur Water Elevation Trend – Q3 2025

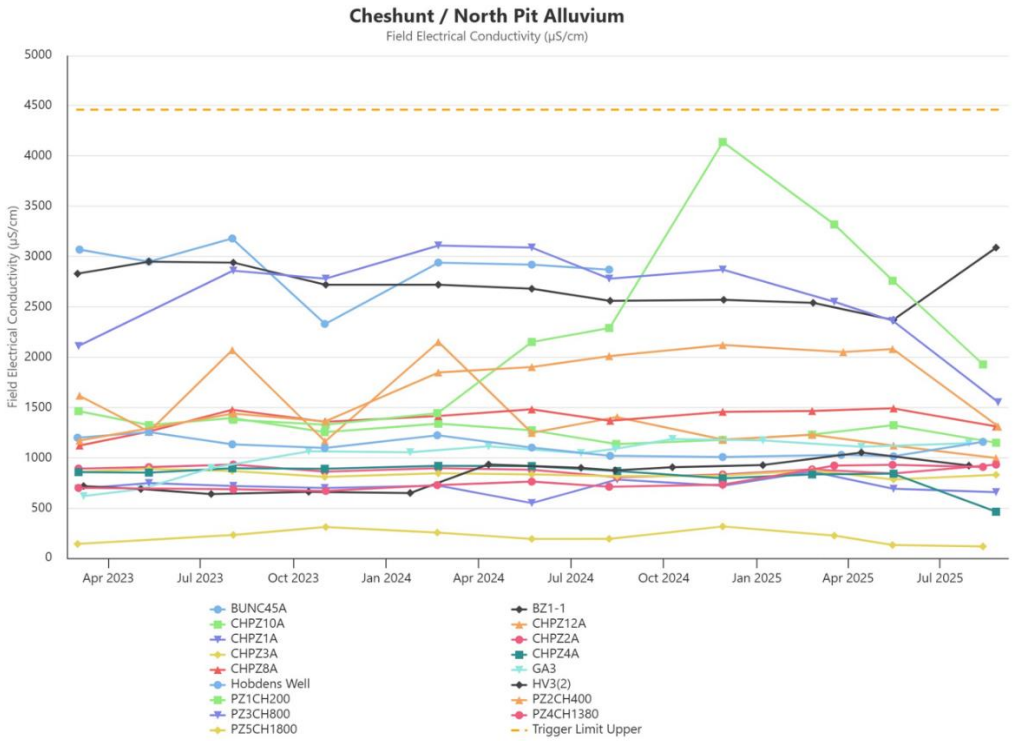

Figure 39 - Cheshunt North Pit Alluvium Electrical Conductivity Trend – Q3 2025

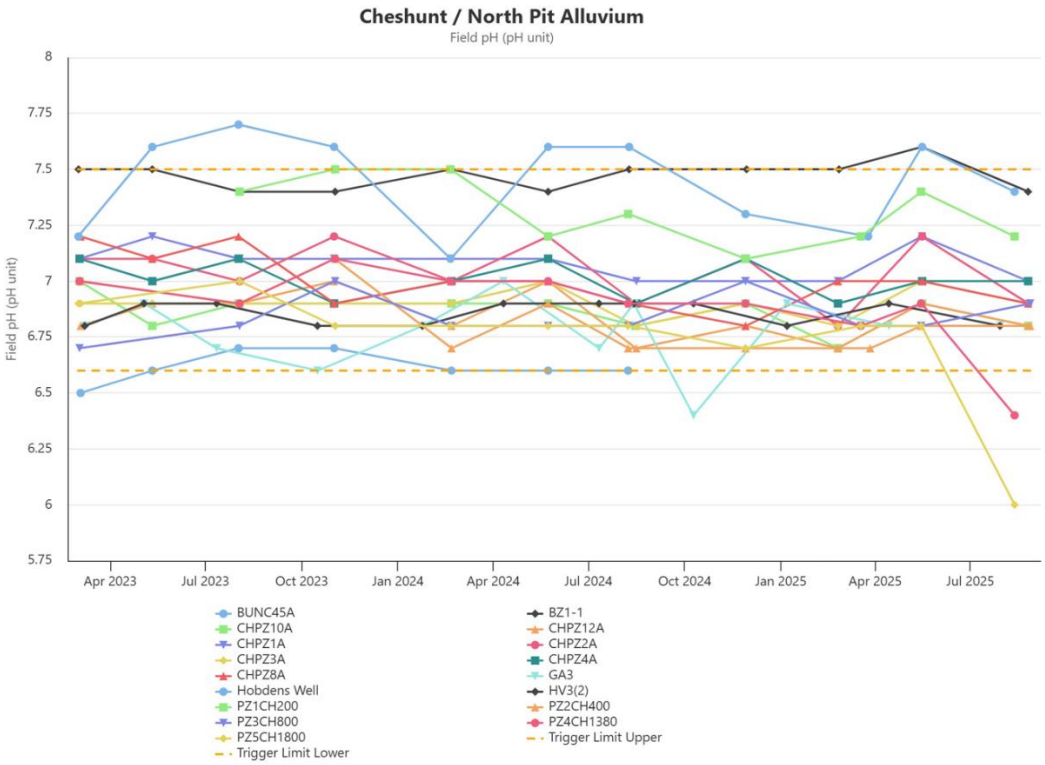

Figure 40 - Cheshunt North Alluvium Field pH Trend – Q3 2025

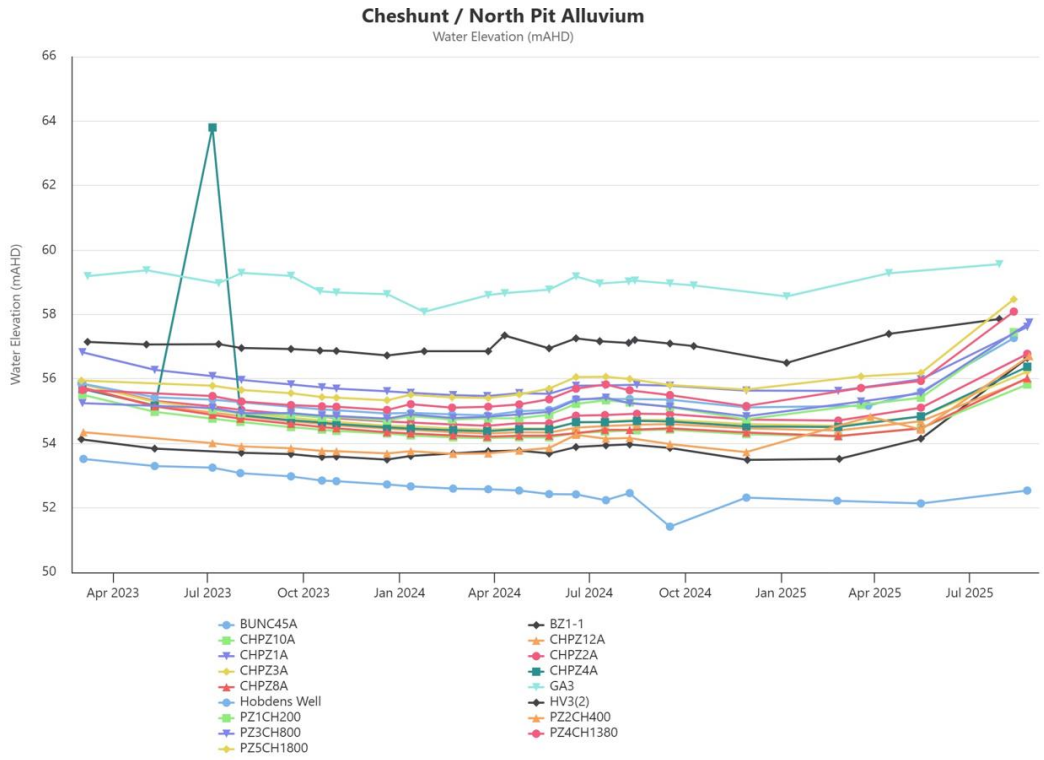

Figure 41 - Cheshunt North Pit Alluvium Water Elevation Trend – Q3 2025

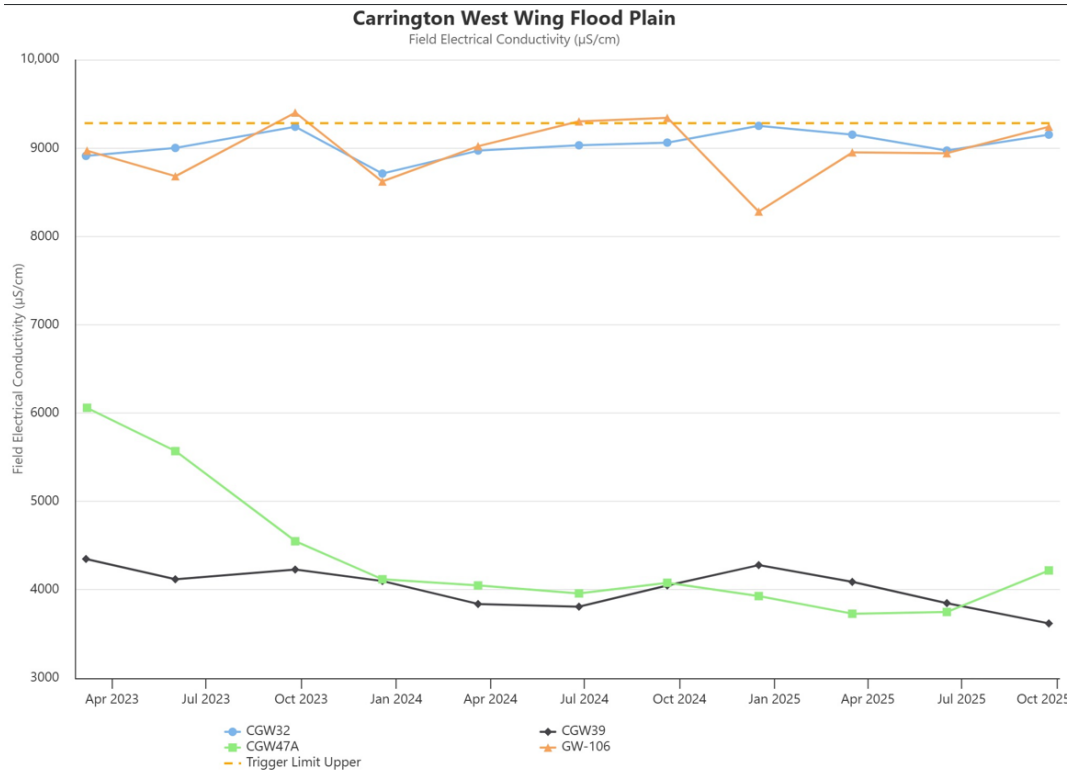

Figure 42 - Carrington West Wing Flood Plain Electrical Conductivity Trend – Q3 2025

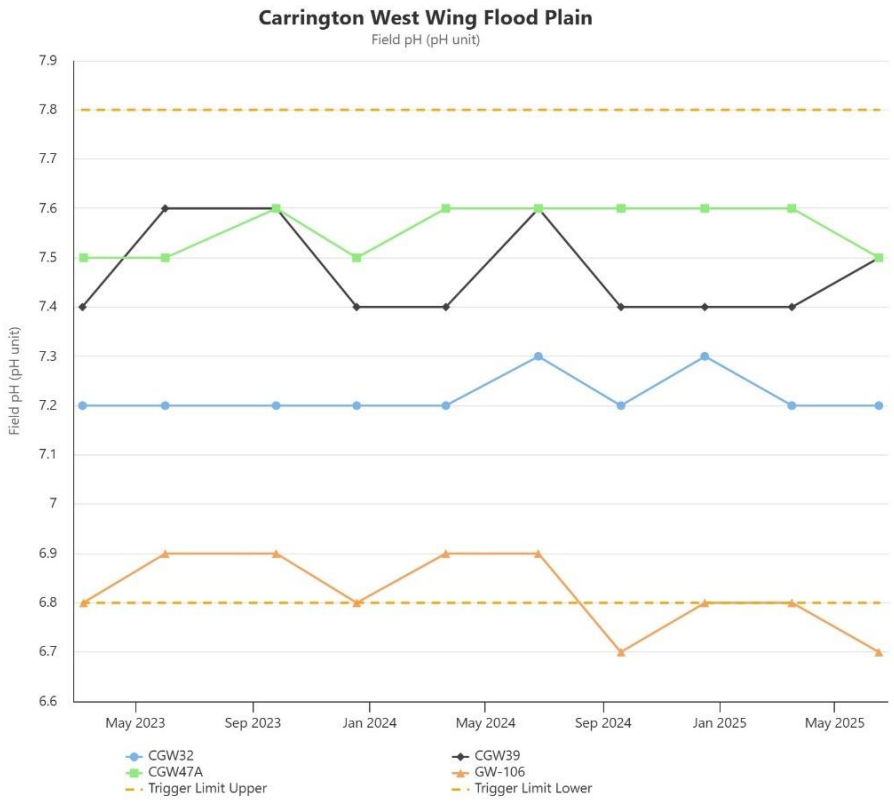

Figure 43 - Carrington West Wing Flood Plain pH Trend – Q3 2025

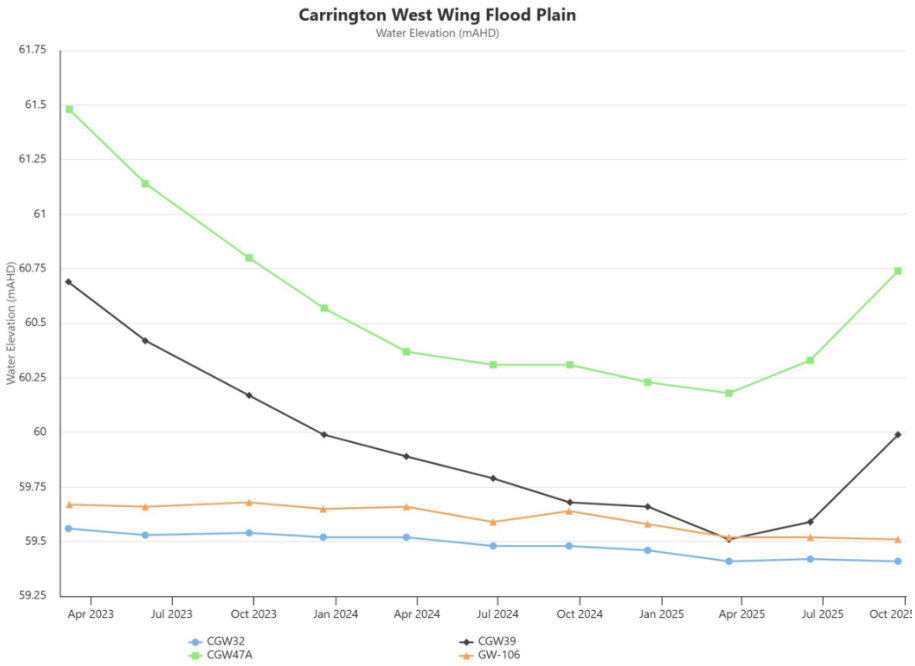

Figure 44 - Carrington West Wing Flood Plain Water Elevation Trend – Q3 2025

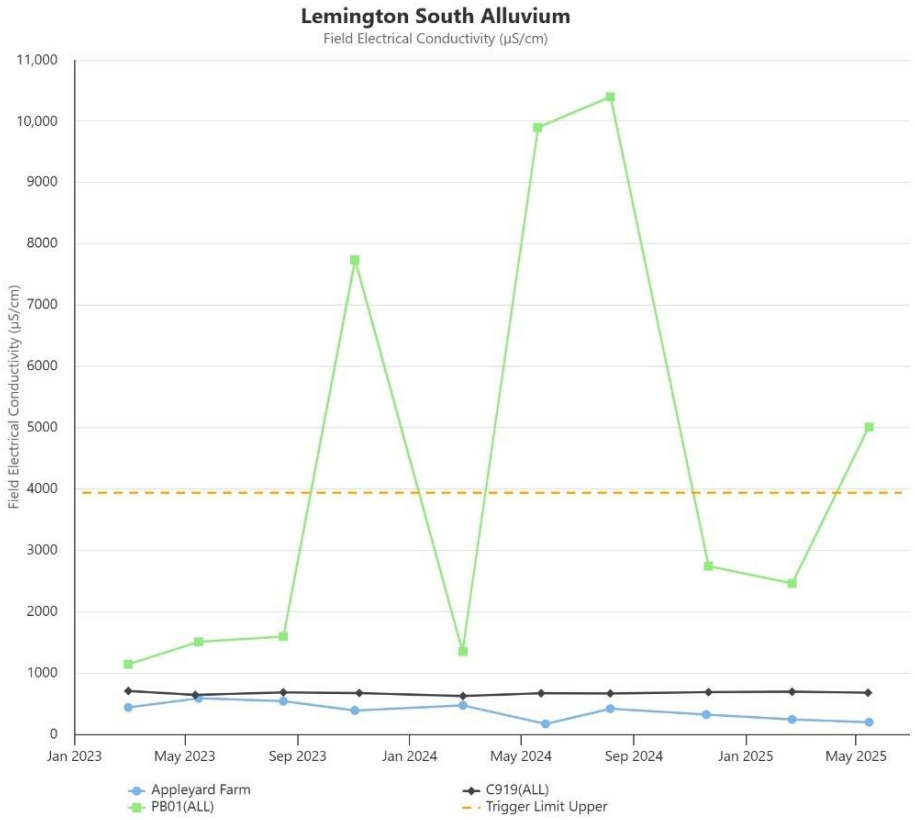

Figure 45 - Lemington South Alluvium Electrical Conductivity Trend – Q3 2025

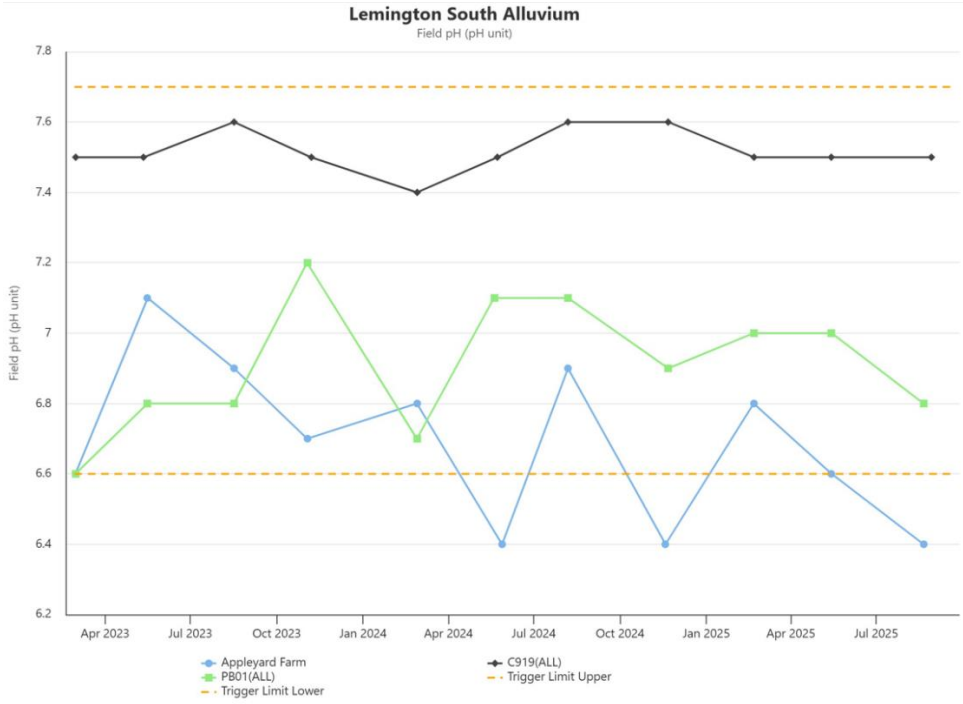

Figure 46 - Lemington South Alluvium Field pH Trend – Q3 2025

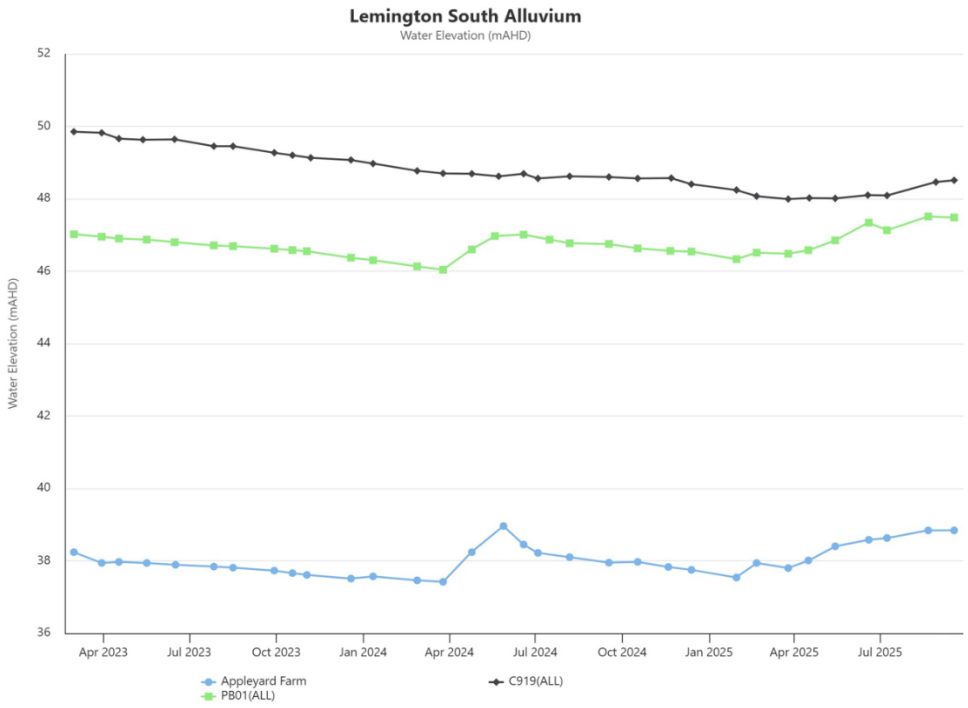

Figure 47 - Lemington South Alluvium Water Elevation Trend – Q3 2025

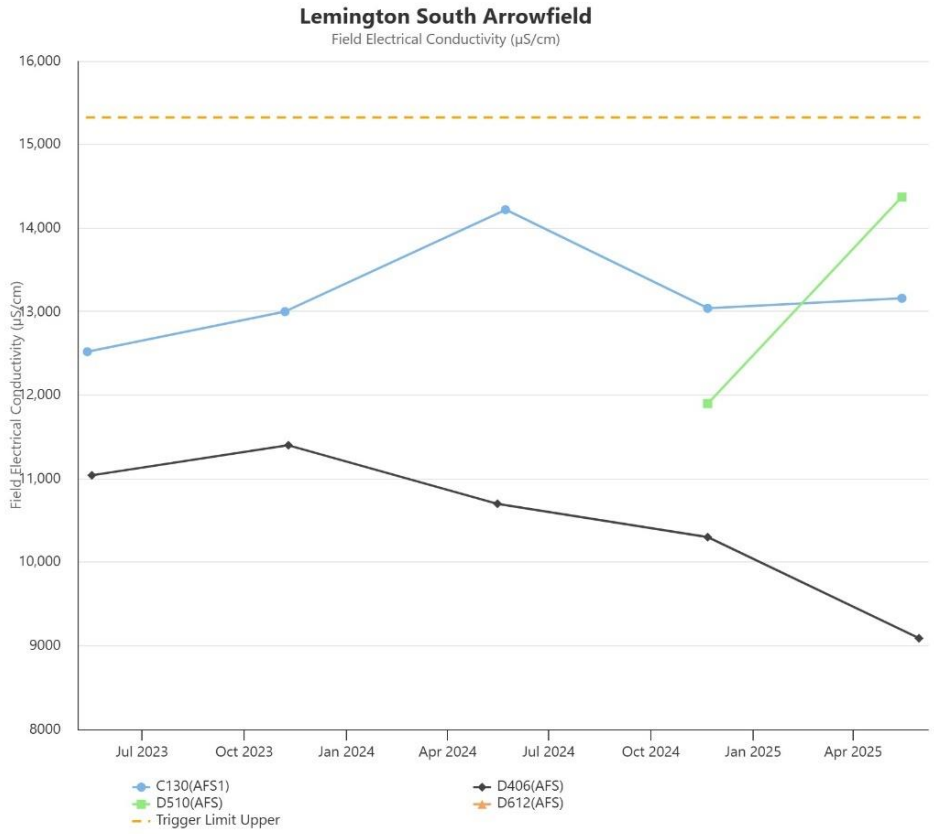

Figure 48 - Lemington South Arrowfield Electrical Conductivity Trend – Q3 2025

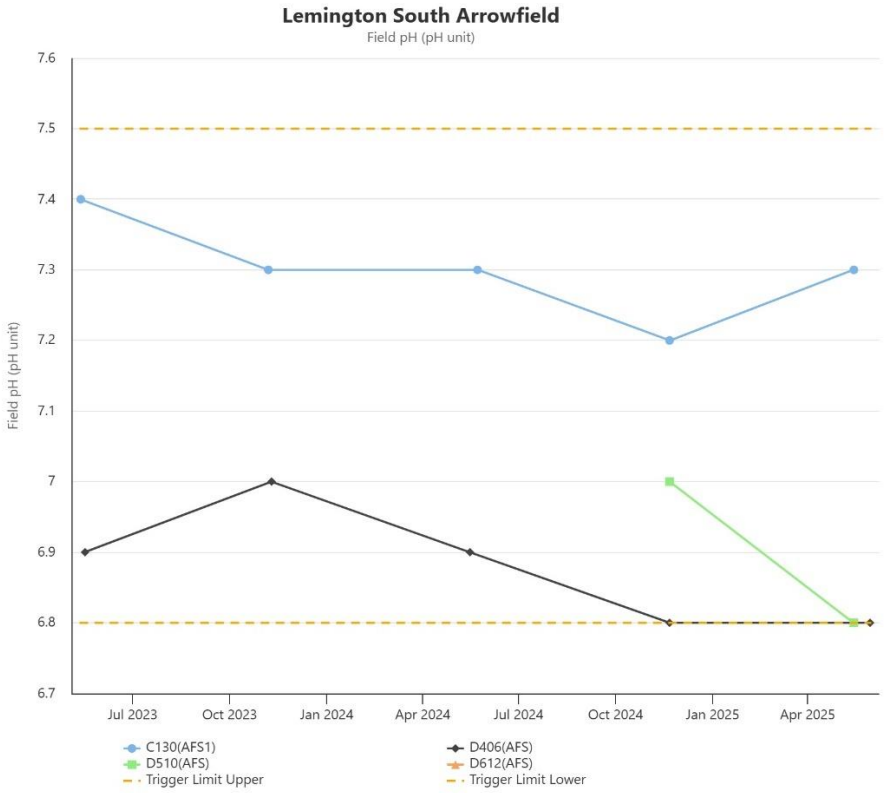

Figure 49 - Lemington South Arrowfield Field pH Trend – Q3 2025

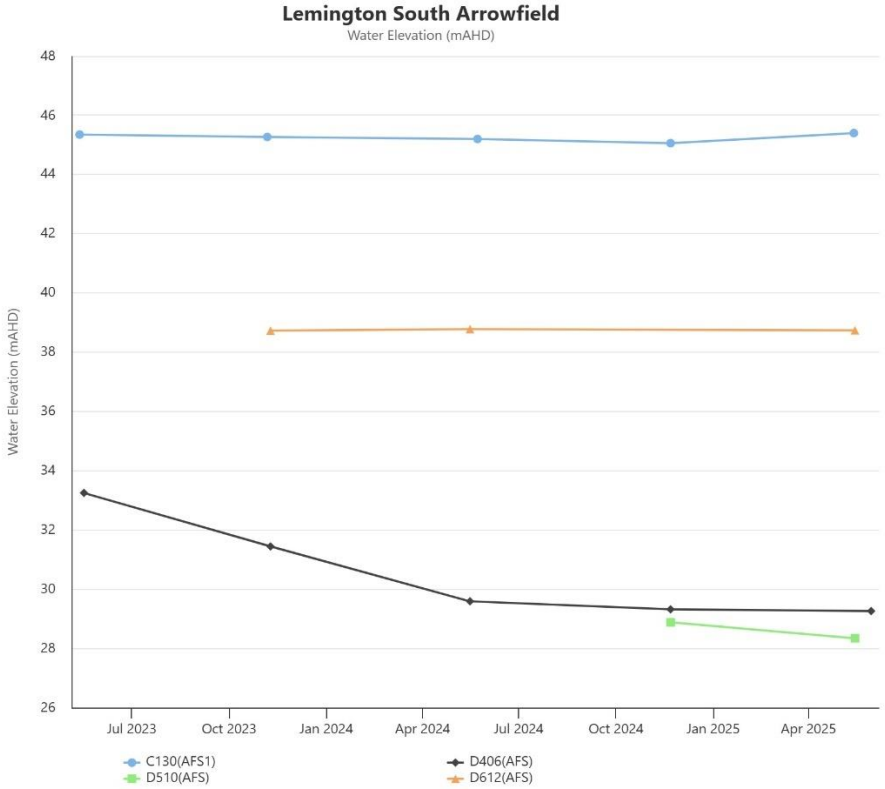

Figure 50 - Lemington South Arrowfield Water Elevation Trend – Q3 2025

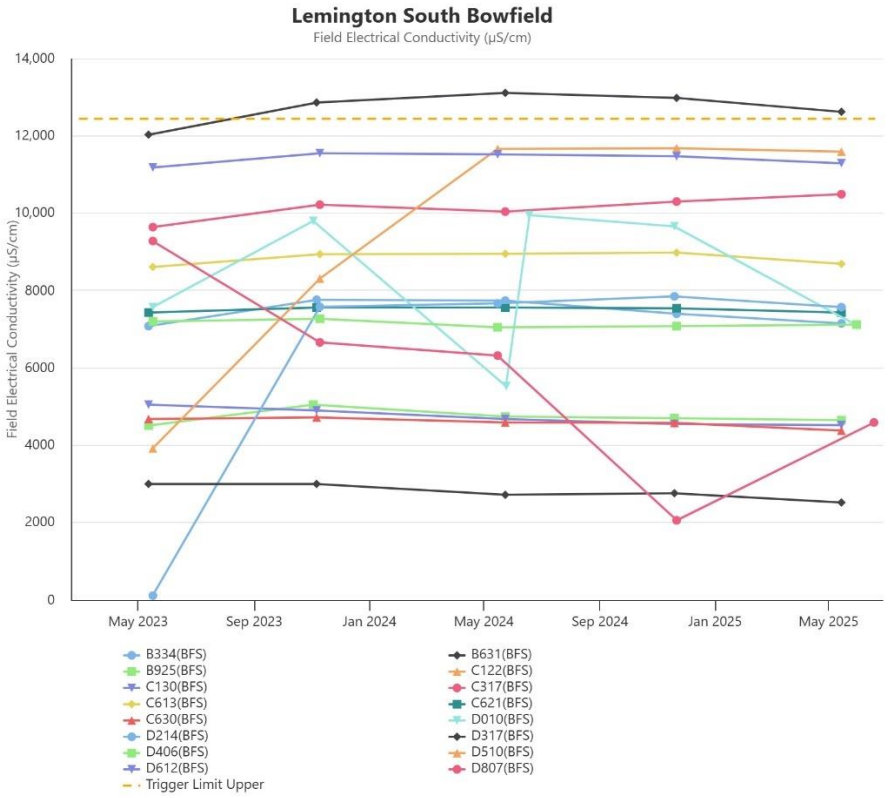

Figure 51 - Lemington South Bowfield Electrical Conductivity Trend – Q3 2025

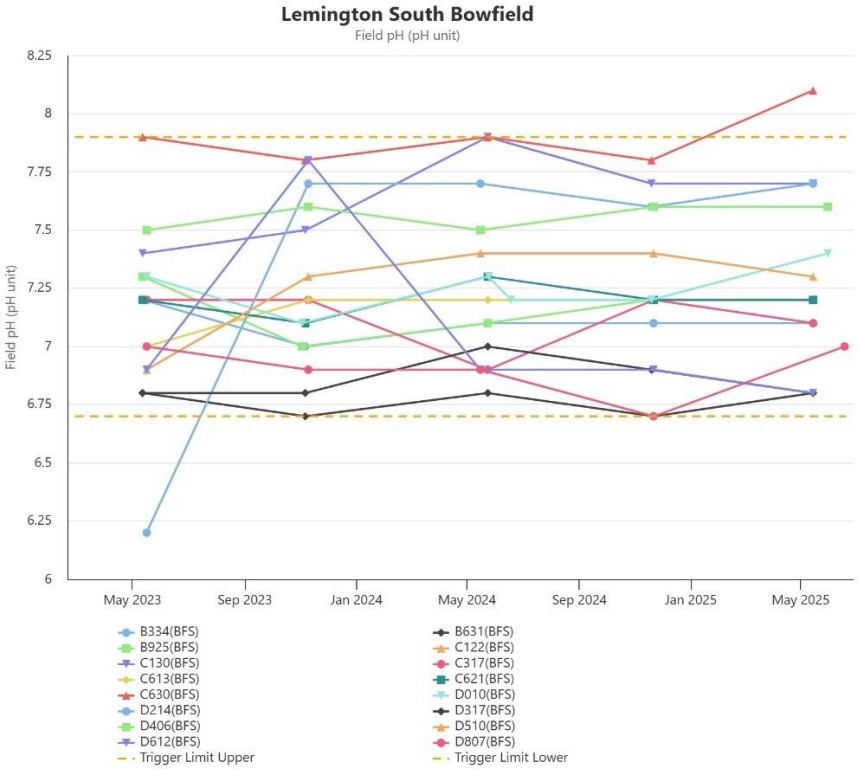

Figure 52 - Lemington South Bowfield pH Trend – Q3 2025

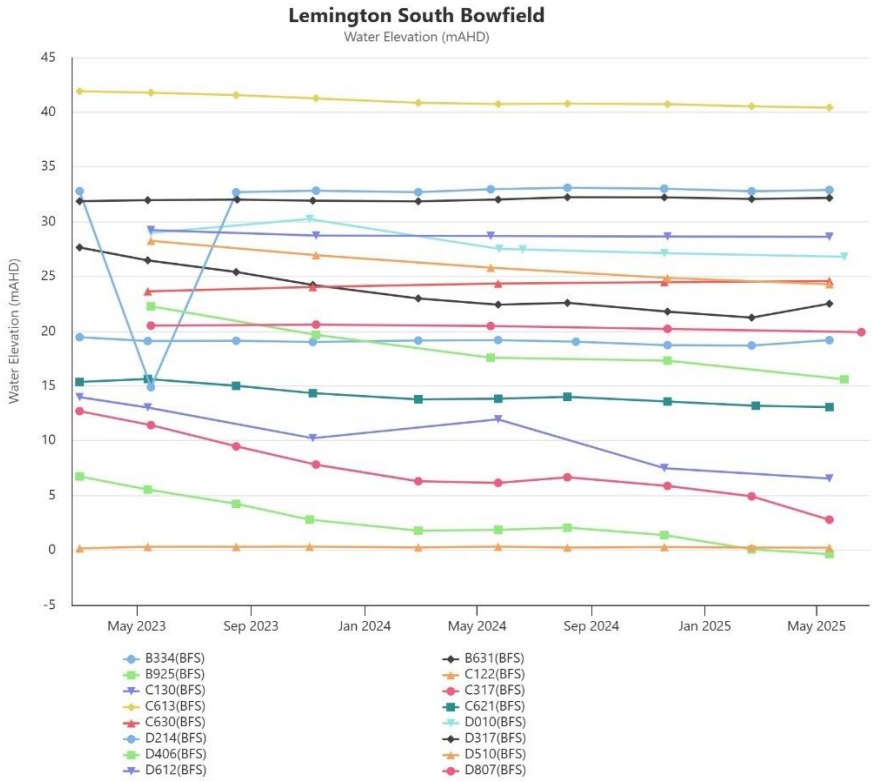

Figure 53 - Lemington South Bowfield Water Elevation Trend – Q3 2025

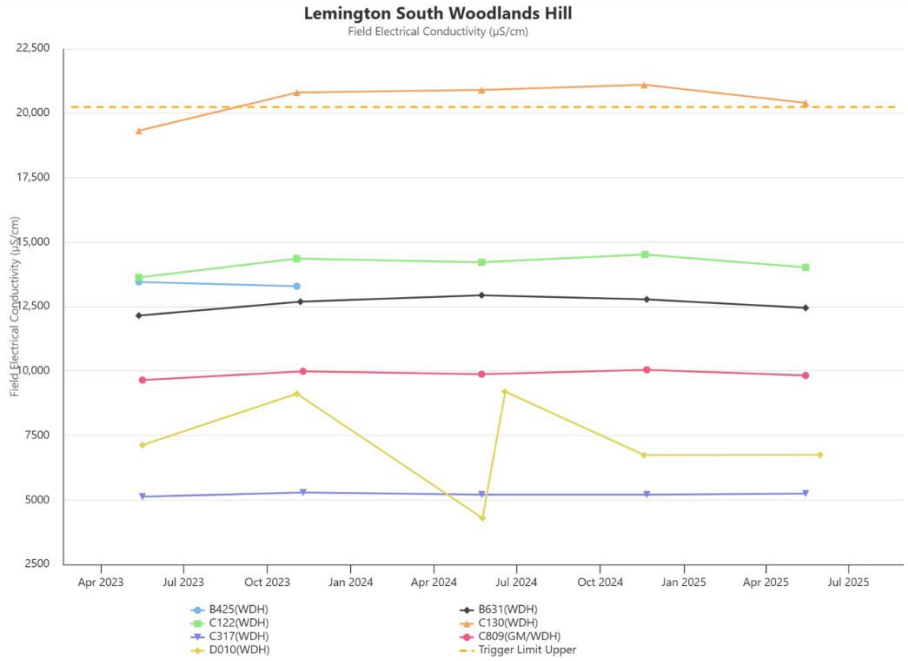

Figure 54 - Lemington South Woodlands Hill Electrical Conductivity Trend – Q3 2025

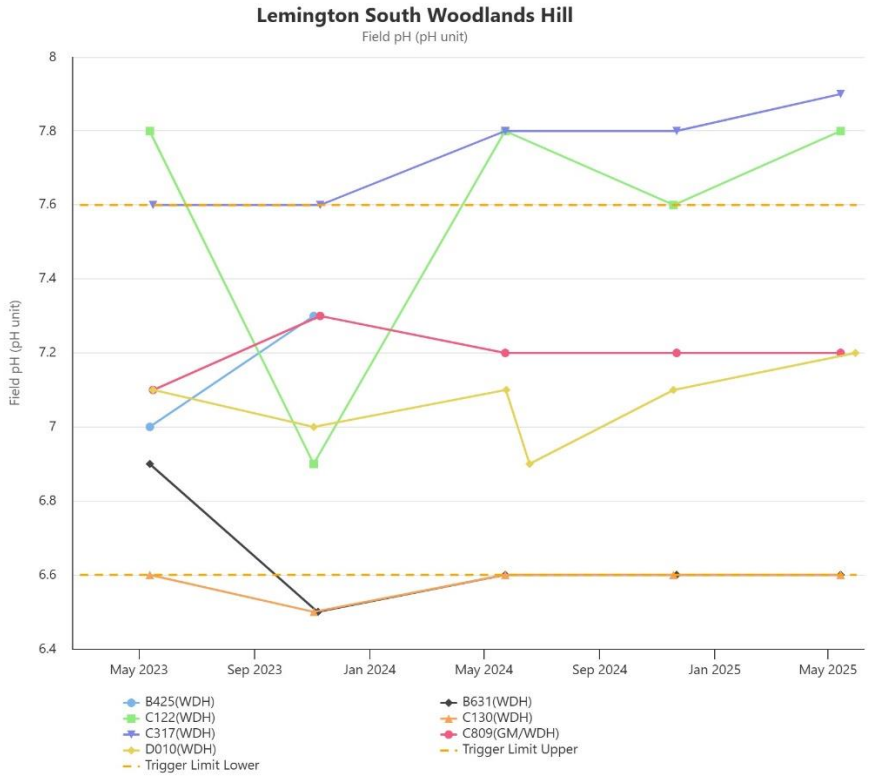

Figure 55 - Lemington South Woodlands Hill Field pH Trend – Q3 2025

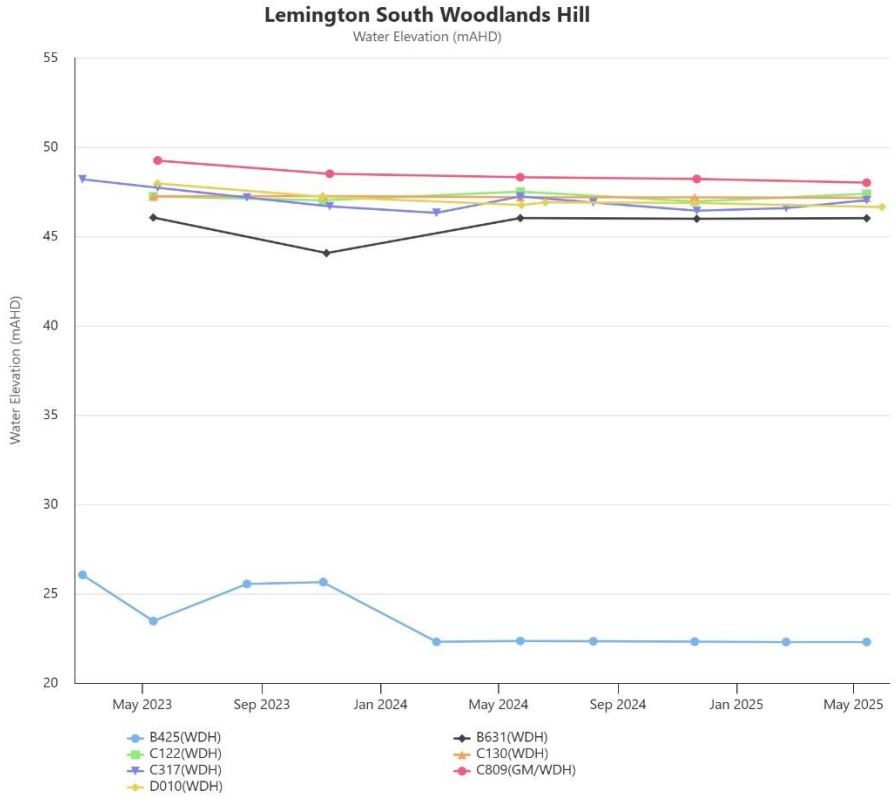

Figure 56 - Lemington South Woodlands Hill Water Elevation Trend – Q3 2025

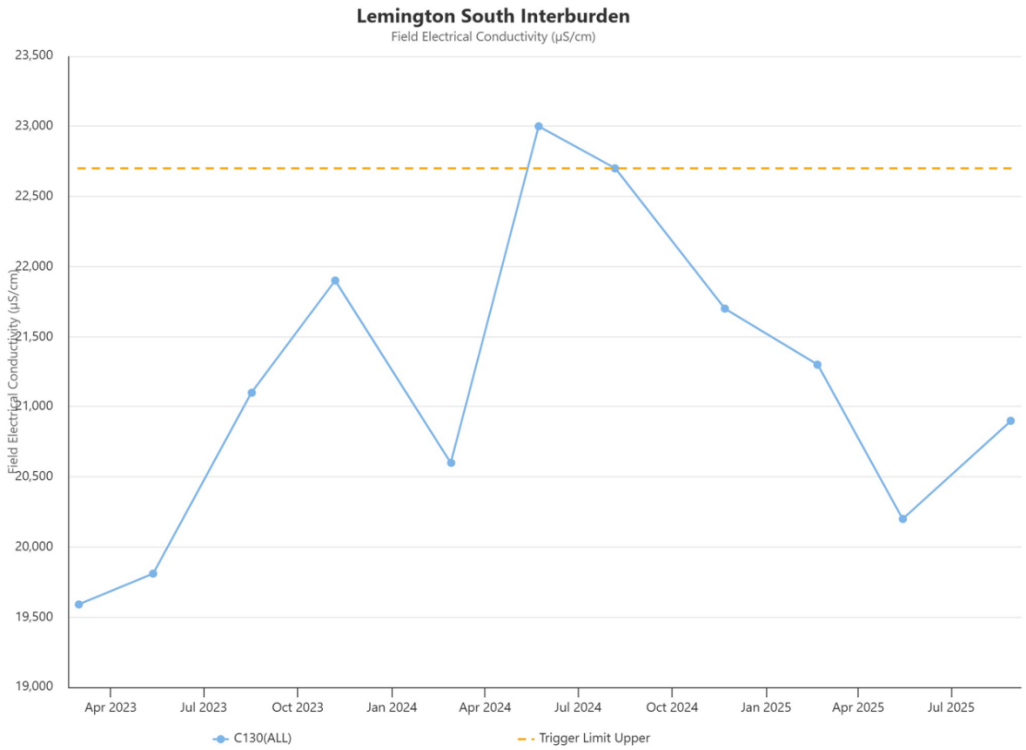

Figure 57 - Lemington South Interburden Electrical Conductivity Trend – Q3 2025

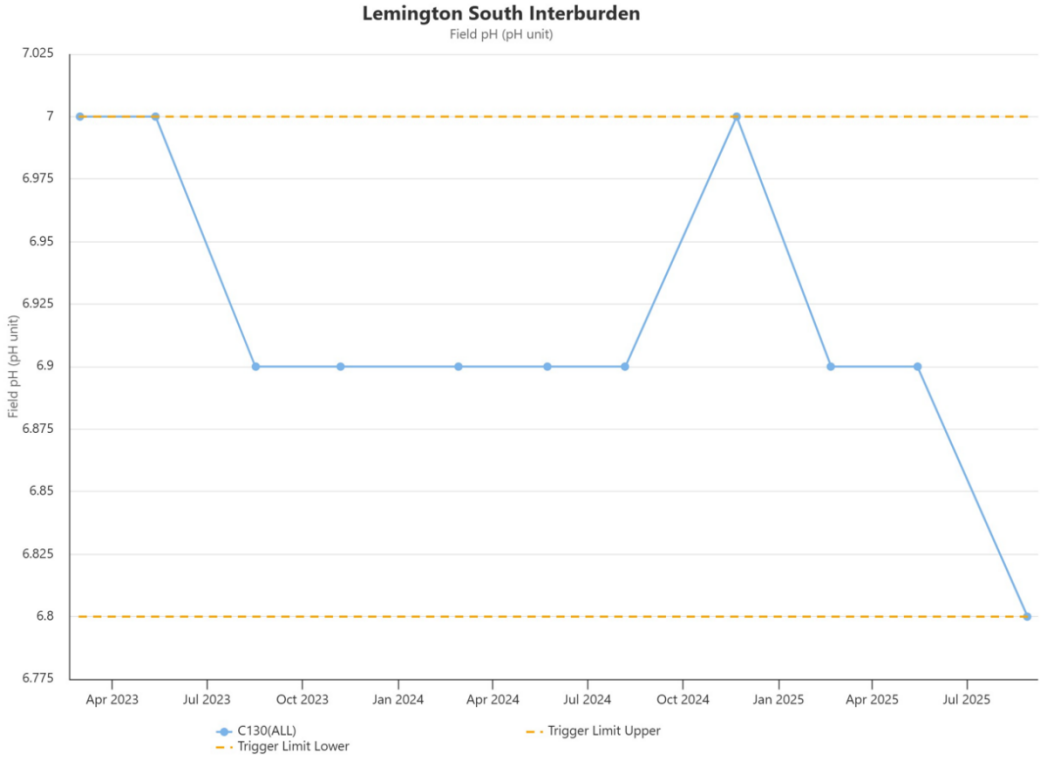

Figure 58 - Lemington South Interburden Field pH Trend – Q3 2025

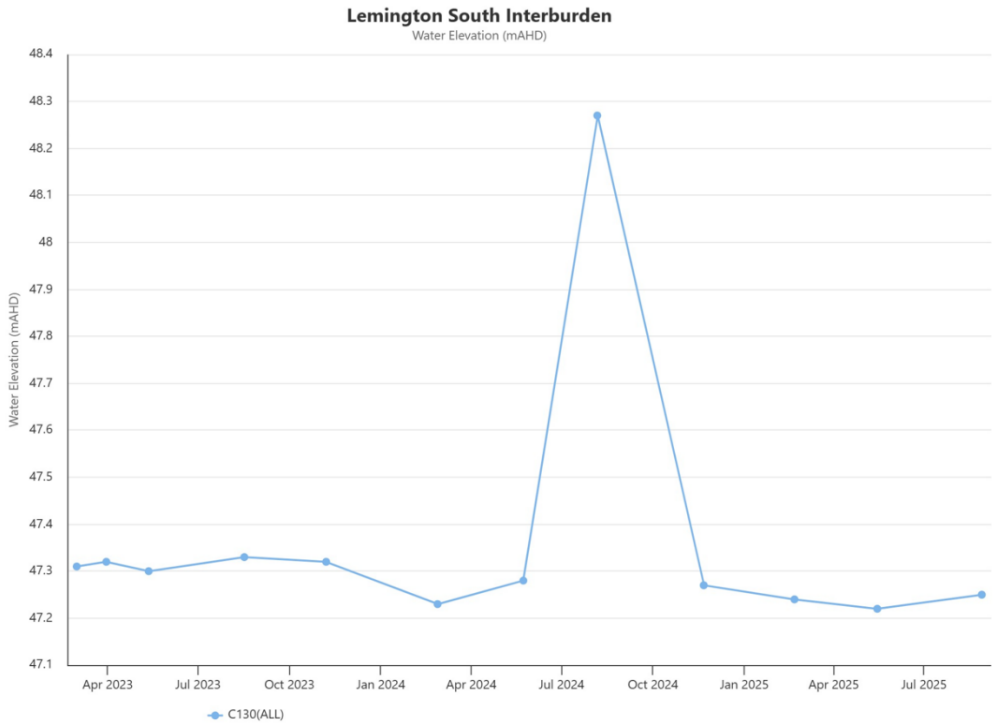

Figure 59 - Lemington South Interburden Water Elevation Trend – Q3 2025

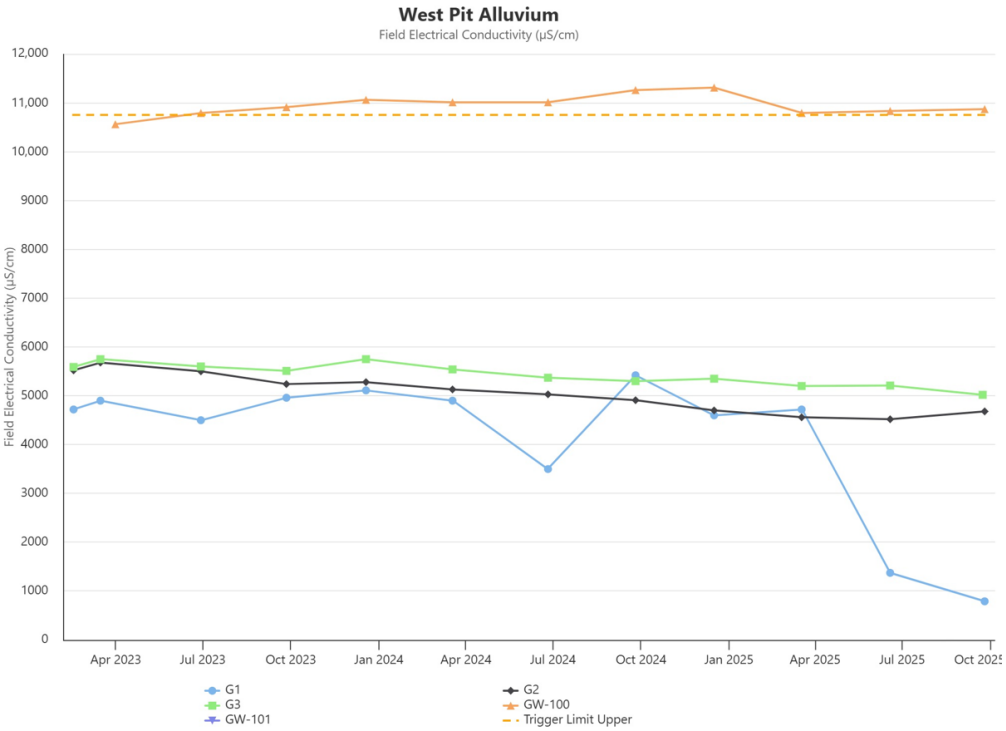

Figure 60 - West Pit Alluvium Electrical Conductivity Trend – Q3 2025

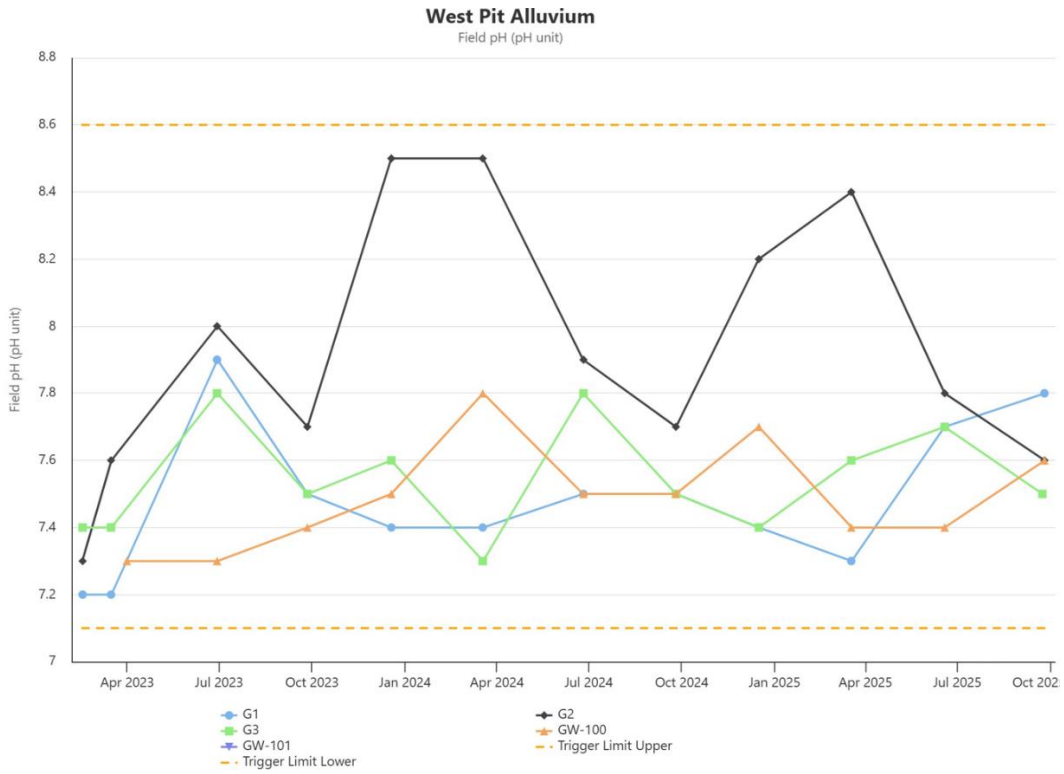

Figure 61 - West Pit Alluvium pH Trend – Q3 2025

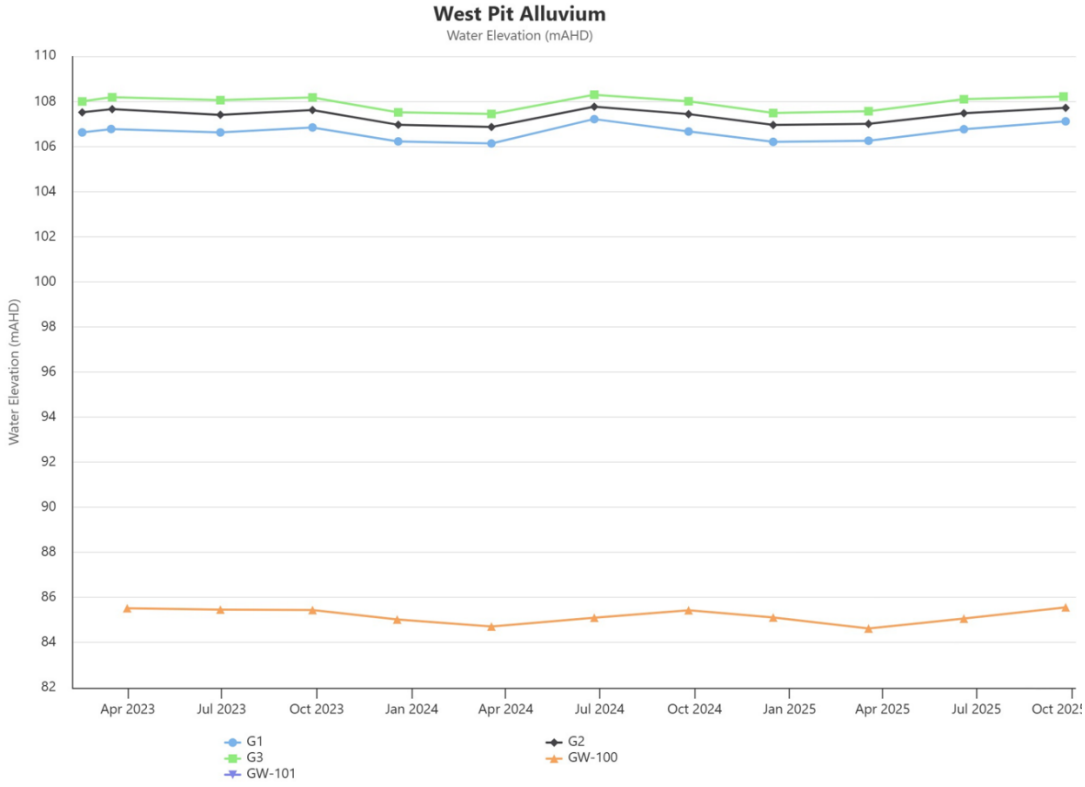

Figure 62 - West Pit Alluvium Water Elevation Trend – Q3 2025

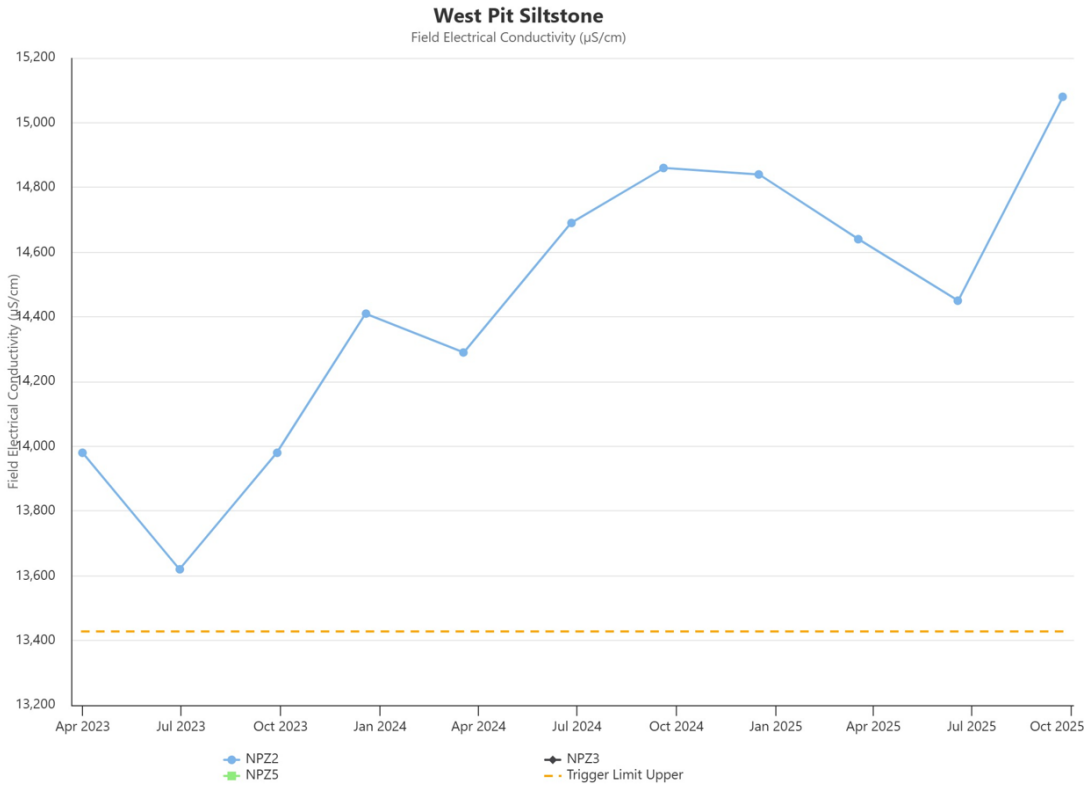

Figure 63 - West Pit Siltstone Electrical Conductivity Trend – Q3 2025

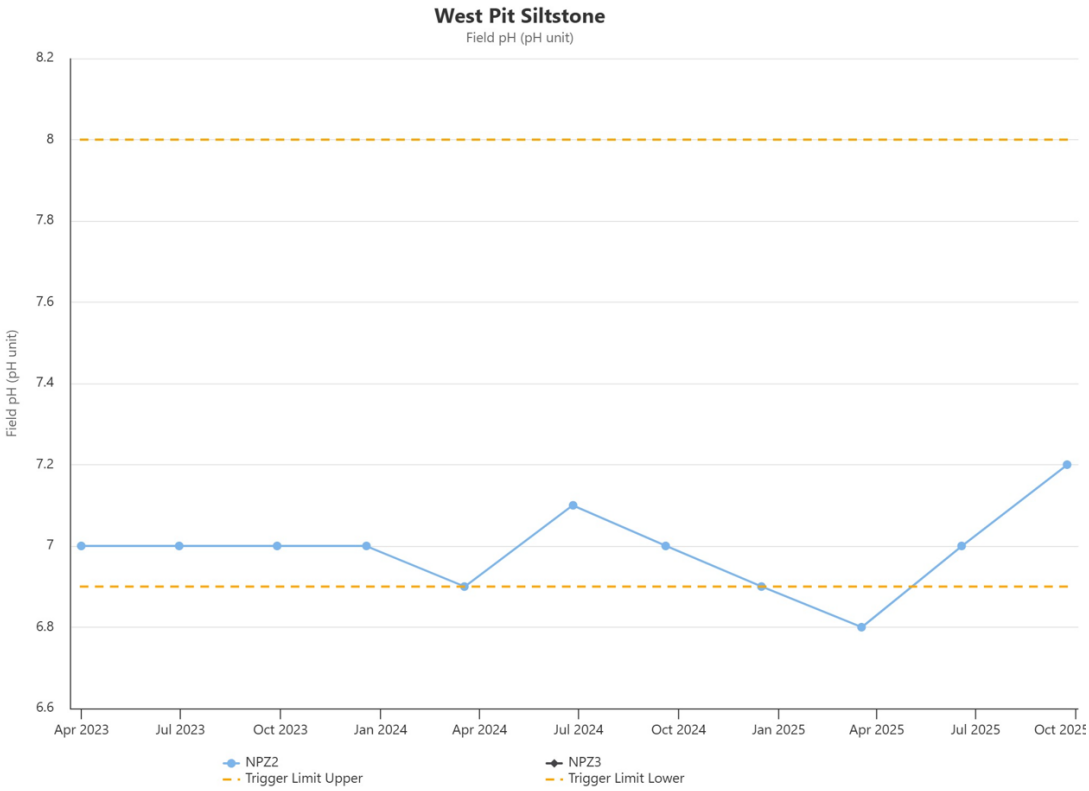

Figure 64 - West Pit Siltstone Field pH Trend – Q3 2025

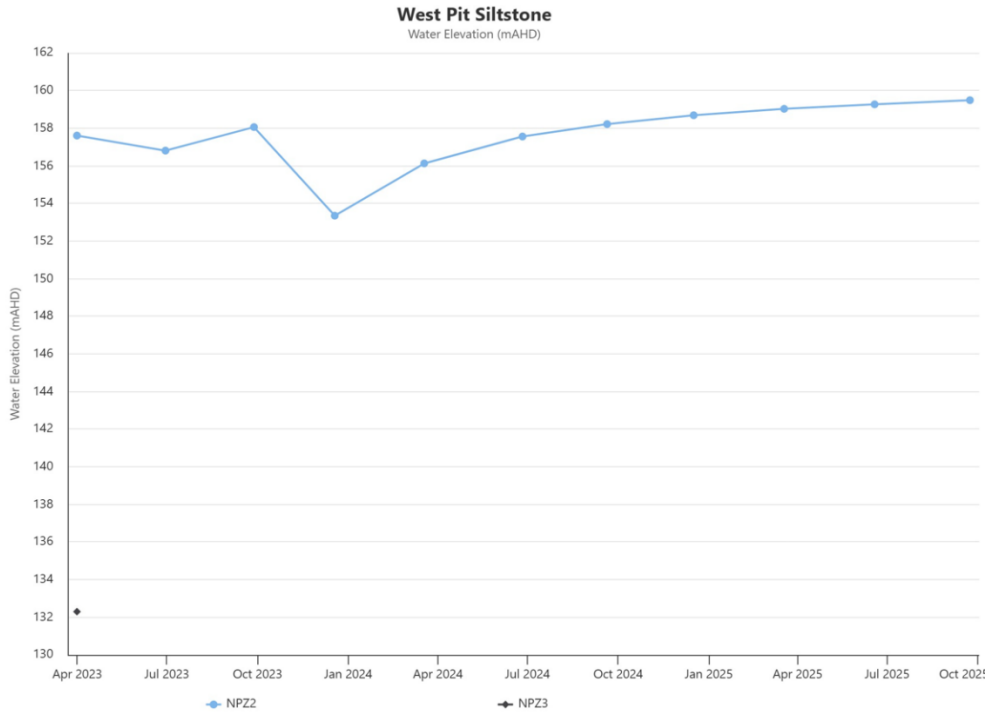

Figure 65 - West Pit Siltstone Water Elevation Trend - Q3 2025

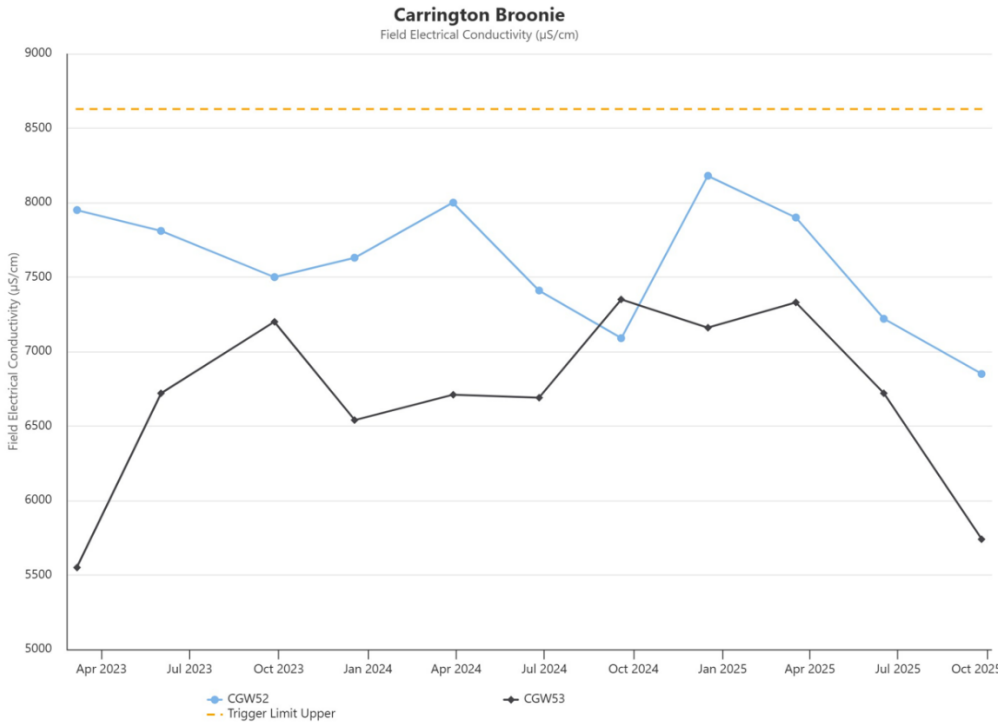

Figure 66 - Carrington Broonie Electrical Conductivity Trend – Q3 2025

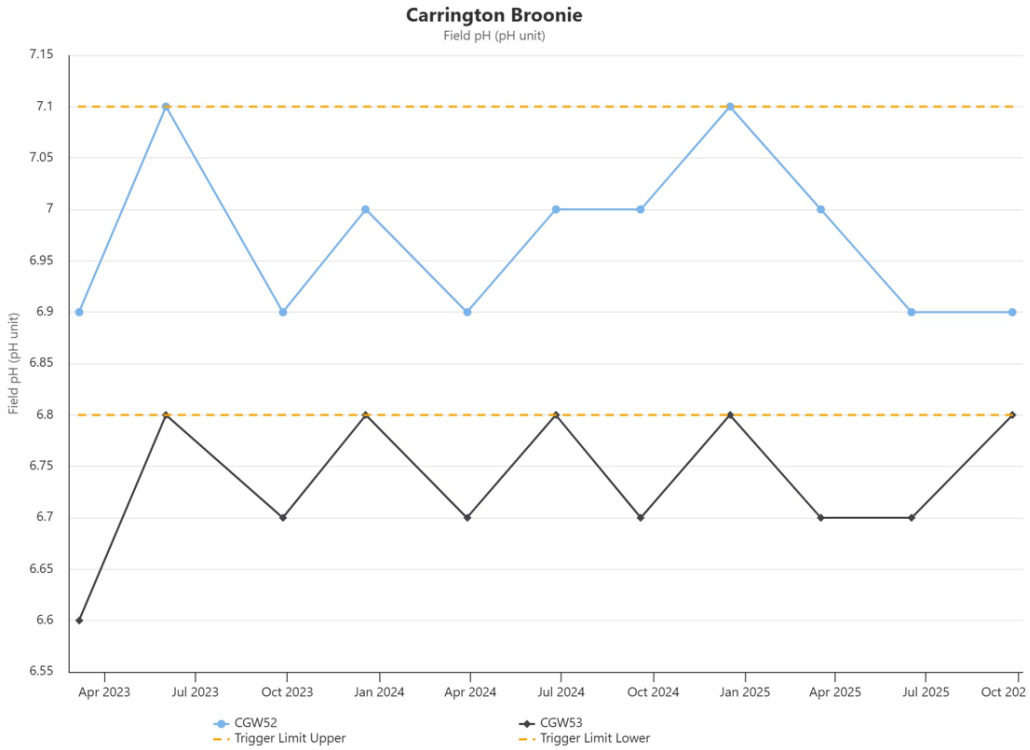

Figure 67 - Carrington Broonie Field pH Trend – Q3 2025

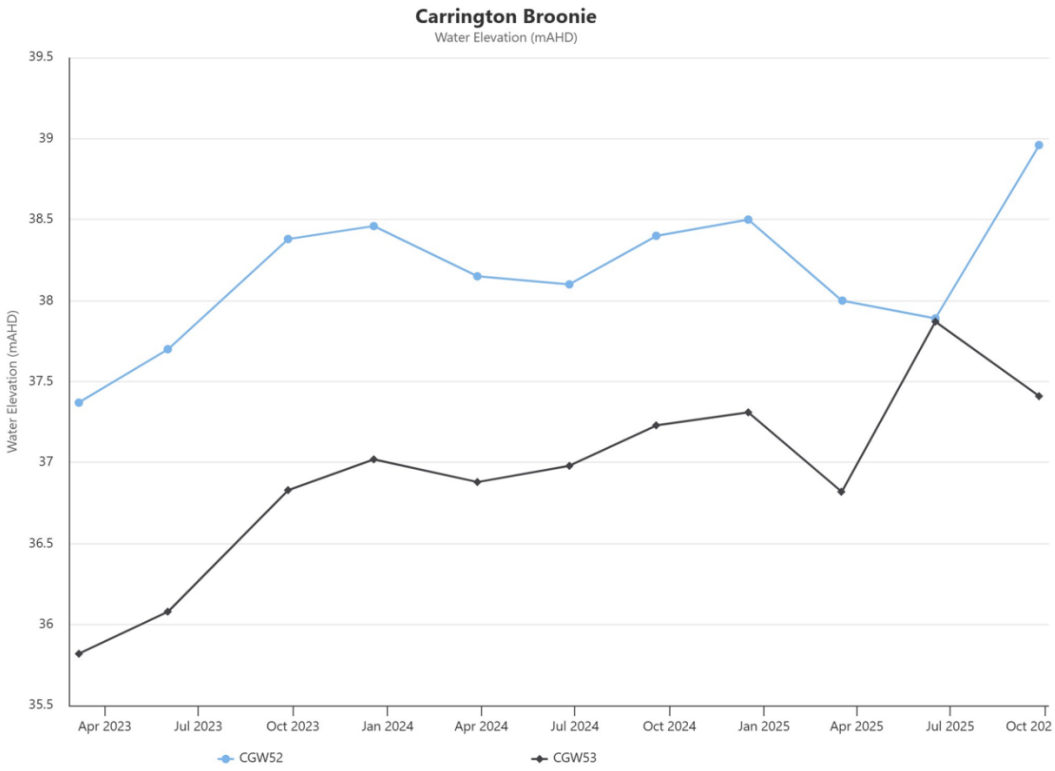

Figure 68 - Carrington Broonie Water Elevation Trend – Q3 2025

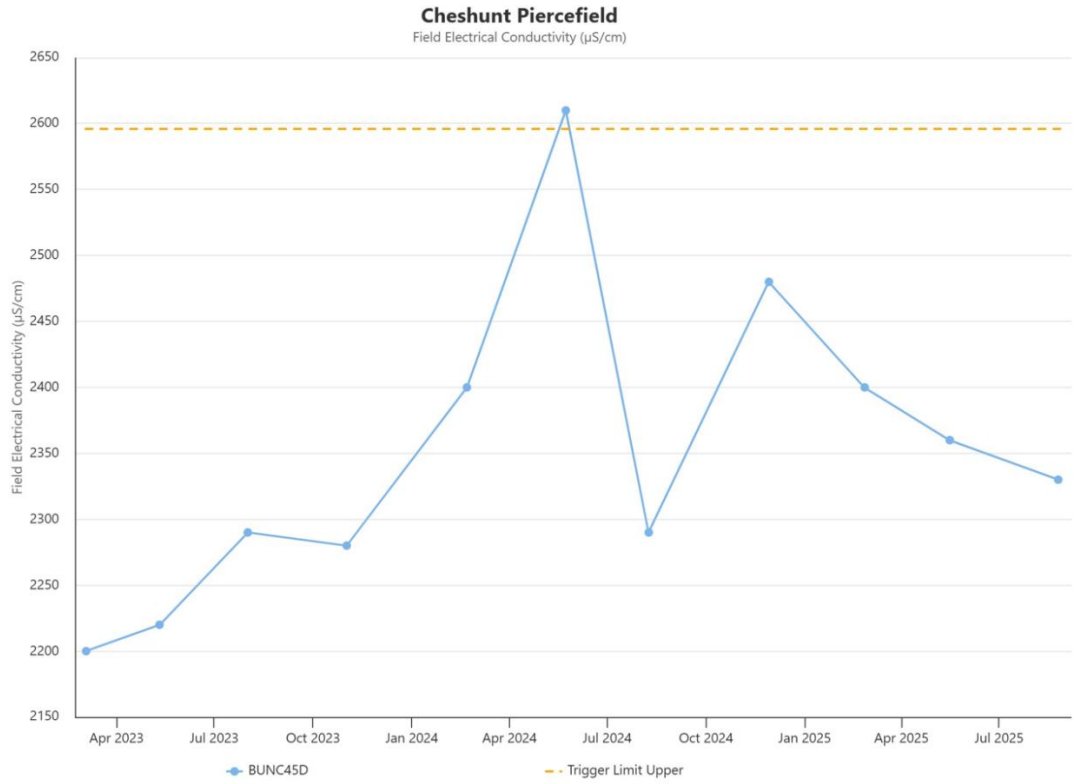

Figure 69 - Cheshunt Piercefield Electrical Conductivity Trend – Q3 2025

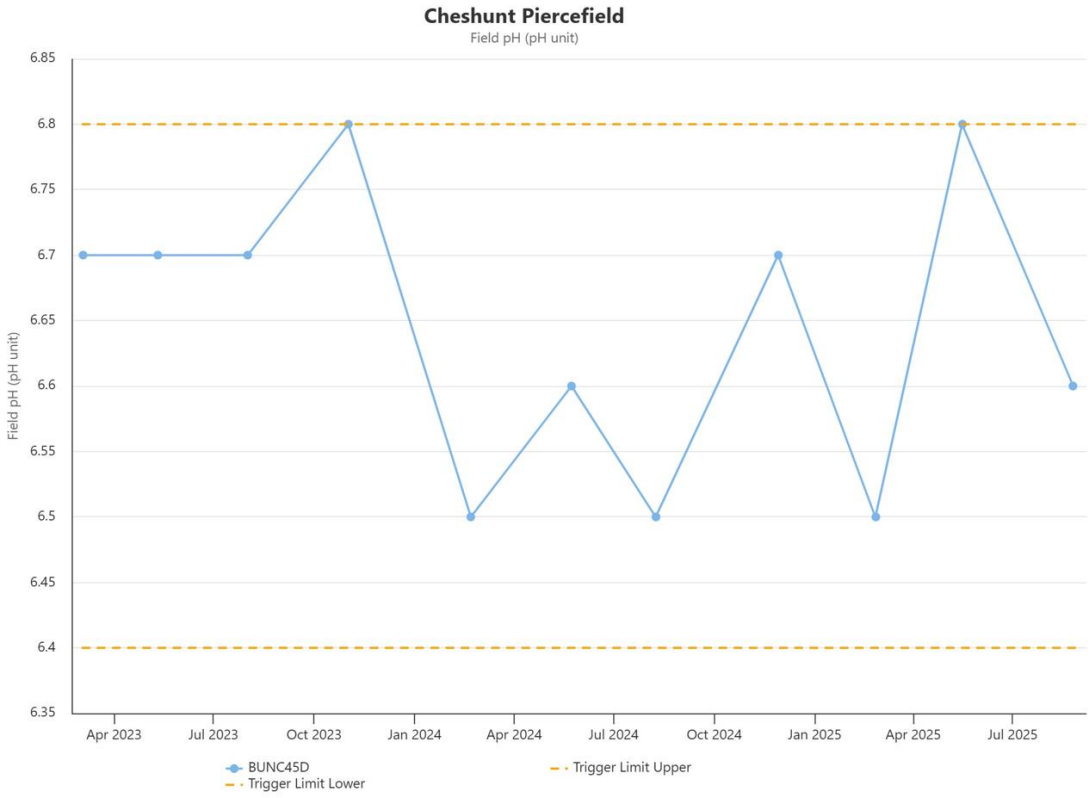

Figure 70 - Cheshunt Piercefield Field pH Trend – Q3 2025

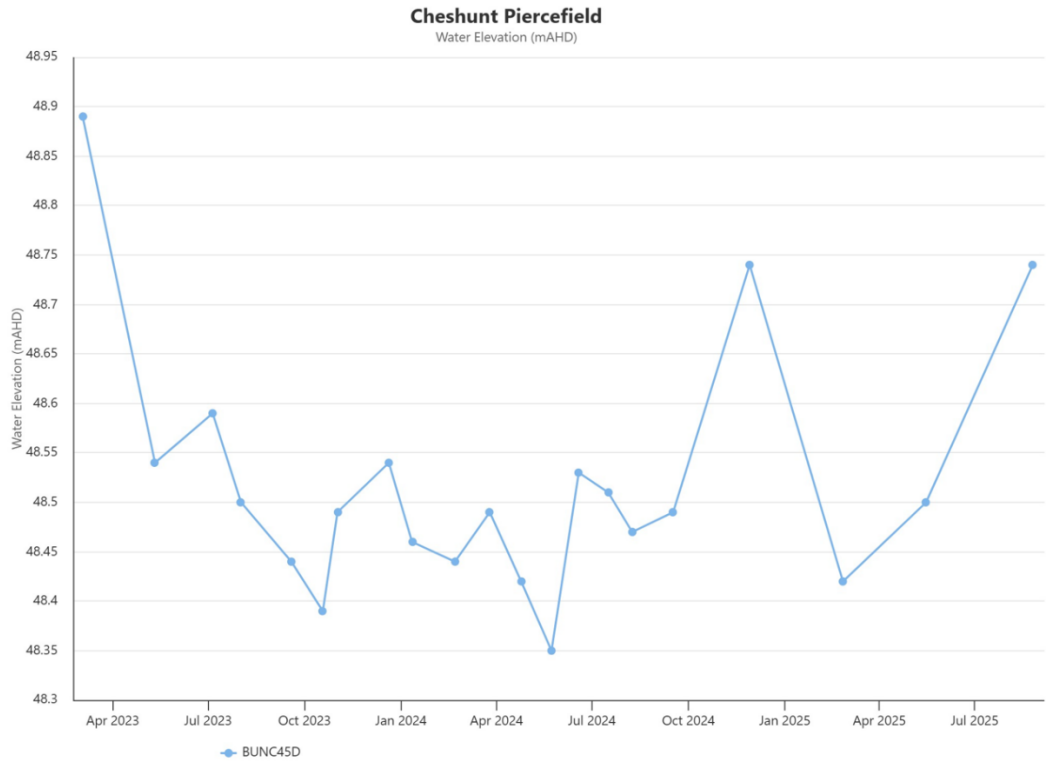

Figure 71 - Cheshunt Piercefield Water Elevation Trend – Q3 2025

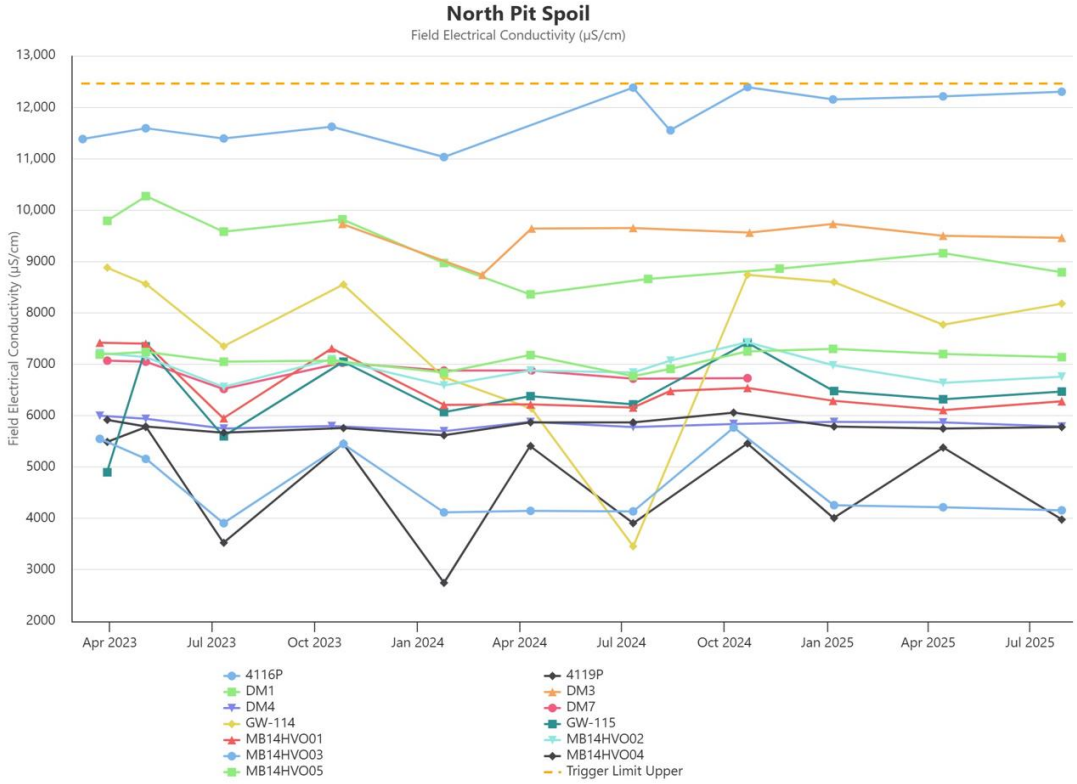

Figure 72 - North Pit Spoil Electrical Conductivity Trend – Q3 2025

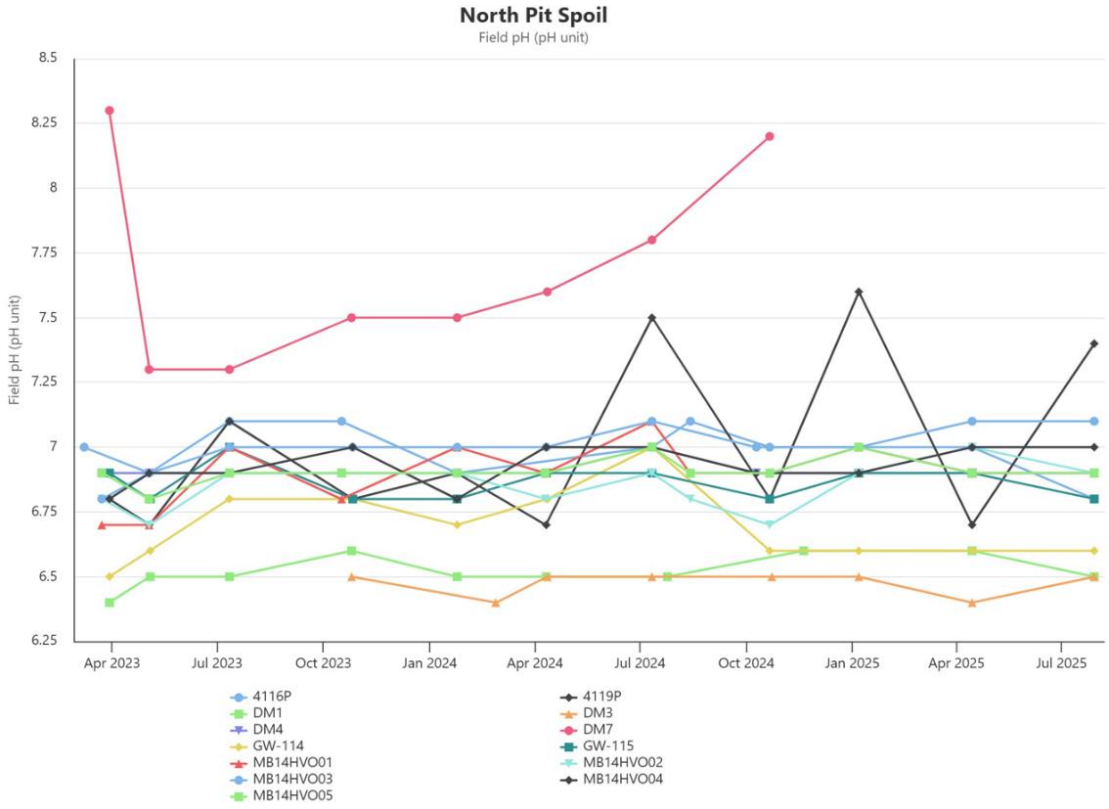

Figure 73 - North Pit Spoil Field pH Trend – Q3 2025

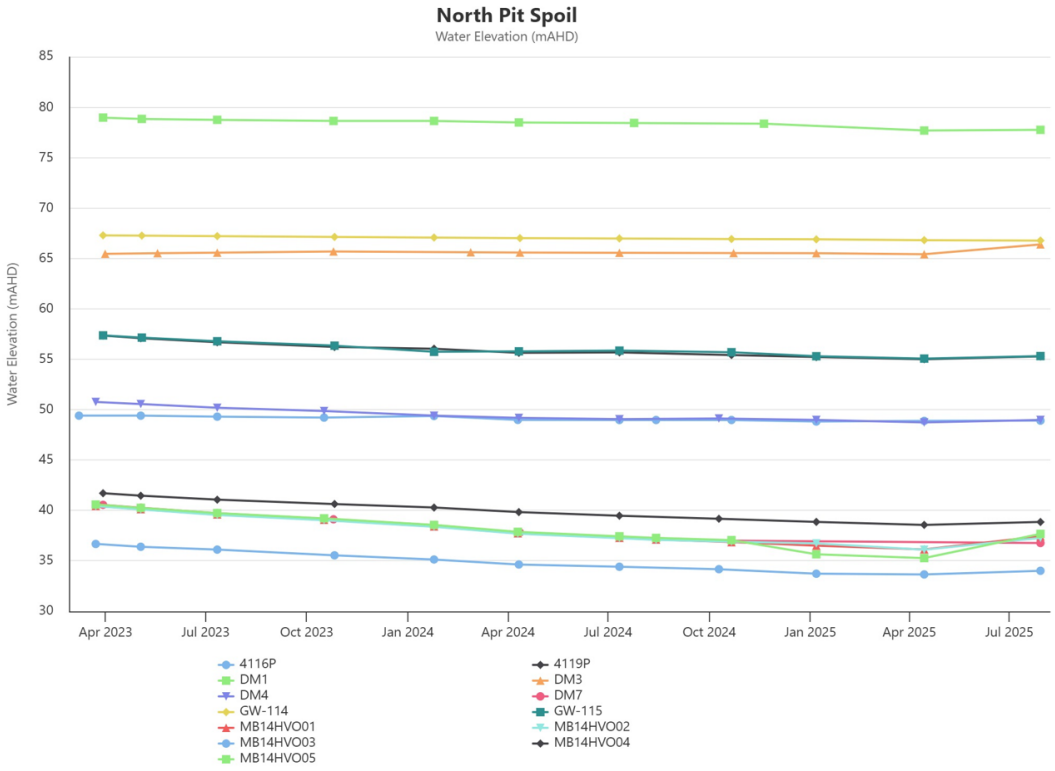

Figure 74 - North Pit Spoil Water Elevation Trend – Q3 2025

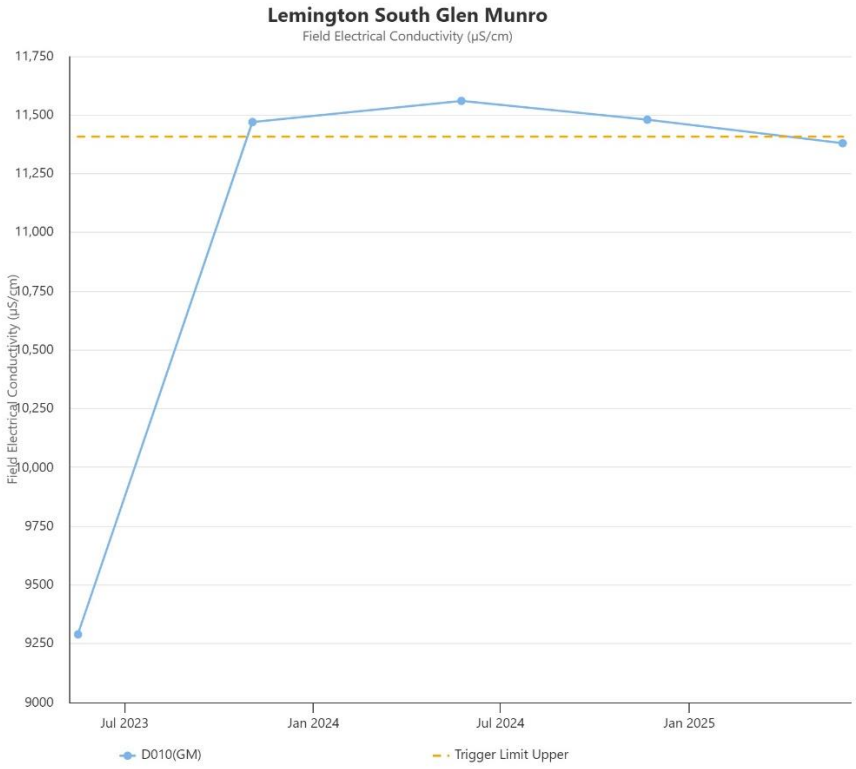

Figure 75 - Lemington South Glen Munro Electrical Conductivity Trend – Q3 2025

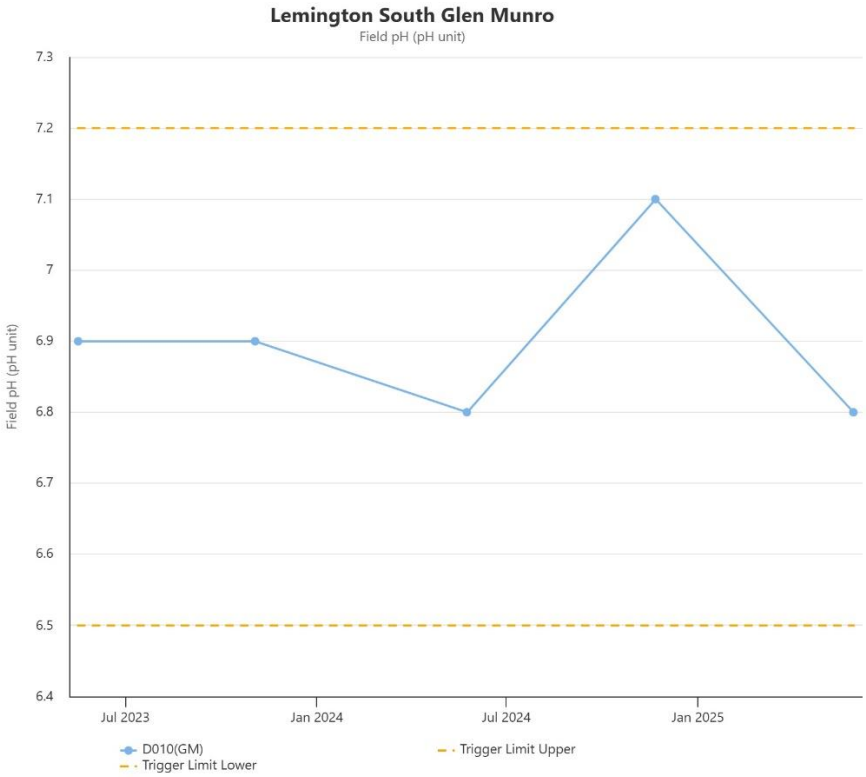

Figure 76 - Lemington South Glen Munro Field pH Trend – Q3 2025

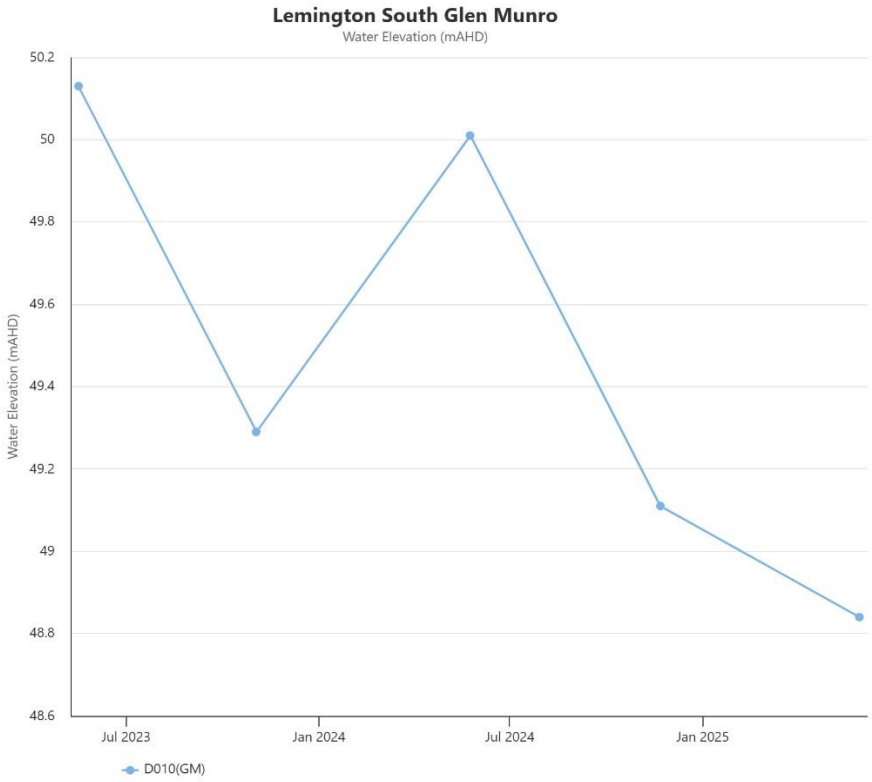

Figure 77 - Lemington South Glen Munro Water Elevation Trend – Q3 2025

3.4.1 | GROUNDWATER TRIGGER TRACKING

Internal trigger limits have been developed to assess monitoring data on an on-going basis and to highlight potentially adverse groundwater impacts. The process for evaluating monitoring results against the internal triggers and subsequent responses is outlined in the HVO Water Management Plan.

Groundwater trigger tracking results are summarised below in Table 3.

Table 3 - Groundwater Trigger Tracking Q3 2025

Site	Date	Trigger Limit Breached	Response Action
BZ3-3	25/08/2025	pH – twenty -one consecutive readings below the lower pH trigger level of 6.5 since November 2019	Bore BZ3-3, located between Cheshunt Pit and the Hunter River, had an increasing pH trend between June 2006 (6.0) and August 2012 (7.1) followed by a decreasing trend between December 2012 (7.1) and November 2022 (6.1) then remained stable to August 2025. The Q3 2025 reading of 6.2 (August) is within the historical range. The 2019 Groundwater Annual Review (SLR, 2020) recommended further investigation of the bore condition and construction to confirm the geology being monitored in all of the 'BZ' bores in the Cheshunt area to understand the cause of the variability in the trends between the bores. Comprehensive water quality analysis was undertaken in August 2022. The results indicated the declining pH trend was not due to connectivity to spoil water via the nearby fault.
CGW51a	25/09/2025	pH – thirteen consecutive readings above the upper pH trigger level of 7.4 since September	Bore CGW51a, located between Carrington Pit and the Hunter River, recorded pH ranging between 6.8 (November 2006) and 8.3 (December 2023), with an increasing trend from September 2019 to December 2023 followed by a stable trend during 2024 and into late 2025. The Q3 2025 reading of 7.6 is within the historical range. The 2019 Groundwater Network Review (SLR, 2019a) noted the bore is screened within alluvium and weathered coal measures. As a result, groundwater within the bore is representative of both alluvial and weathered coal measures groundwater. Due to the potential for mixing, it was recommended the bore be decommissioned and replaced with a new bore as the current bore does not provide representative results from one groundwater unit.

GW-100	25/09/2025	EC – ten consecutive readings above the upper EC trigger level of 10,751 µS/cm since January 2023	Bore GW-100 is located approximately 1.8 km south of Plashett Reservoir and 2.4 km west of West Pit and intersects alluvium. Historic EC readings range from 9,570 µS/cm in September 2019 to 11,510 µS/cm in December 2017. EC remained relatively stable until December 2022, following which there has been an increasing trend until December 2024 coinciding with the declining groundwater levels in response to below average rainfall. EC levels remained relatively stable over Q1 to Q3 and groundwater levels recorded and upward trend across all three quarters. The Q3 EC reading recorded in September 2025 was 10,870 µS/cm which is within the historical range.
NPz2	23/09/2025	EC – thirteen consecutive readings above the EC trigger level of 13,428 µS/cm since September 2022	Bore NPz2, located approximately 4.5 km northeast of Plashett Reservoir and 1 km northwest of the West Pit mine area, has a screened interval between 57–60 mbgl within interburden underlying coal seams. EC readings range from 12.590 µS/cm (December 2014) and 19,400 µS/cm (December 2009). EC levels have remained relatively stable since March 2013. The Q3 reading of 15,080 µS/cm is consistent with historical concentrations. SLR (2020) previously recommended removing NPz2 from the compliance network as the bore location and construction does not provide information on potential impacts related to site activities but should remain in the operational network for future assessments and post closure monitoring.

4 | BLASTING

HVO maintains a network of blast monitoring units located at nearby privately owned residences and function as regulatory compliance monitors. The location of these monitors can be found in **Figure 78**. Blasting criteria for HVO are summarised in **Table 4**.

Table 4 – Blasting Criteria

Airblast Overpressure (dBL)	Comments
115	5% of the total number of blasts in a 12-month period
120	0% of blasts
Ground Vibration (mm/s)	**Comments**
5	5% of the total number of blasts in a 12-month period
10	0% of blasts

4.1 | BLAST MONITORING RESULTS

Twenty-Four (24) blasts were initiated at HVO during the reporting period. Blast monitoring results for the period are shown in **Table 5** and **Table 6**.

Table 5 – Overpressure Blast Monitoring Results for the reporting period

Date and Time	Moses Crossing (dBL)	Jerrys Plains Village (dBL)	Maison Dieu (dBL)	Warkworth (dBL)	Knodlers Lane (dBL)
1/09/2025 15:49	89.13	93.52	96.73	102.80	98.12
1/09/2025 15:50	92.70	92.29	93.16	95.41	94.57
2/09/2025 13:30	102.40	97.68	97.96	93.43	95.26
4/09/2025 11:01	86.76	85.49	90.83	102.03	91.12
4/09/2025 14:46	93.99	94.70	108.01	99.23	81.85
5/09/2025 13:07	95.32	84.05	91.02	93.59	83.14
6/09/2025 14:25	88.64	87.11	86.00	88.04	94.94
6/09/2025 14:28	85.37	85.98	84.72	83.95	100.02
8/09/2025 10:01	98.20	94.48	106.01	98.23	97.58
9/09/2025 13:39	101.91	100.99	99.06	96.80	94.54
11/09/2025 16:06	88.78	85.76	108.81	110.03	98.03
12/09/2025 16:02	93.68	93.82	96.35	104.59	103.9
15/09/2025 17:12	105.68	114.52	98.61	102.89	106.16
16/09/2025 16:24	106.01	107.83	109.24	111.21	95.19
17/09/2025 13:05	92.47	110.23	107.34	102.21	89.73
19/09/2025 13:08	100.31	89.88	97.31	100.12	92.19
20/09/2025 13:44	94.77	98.39	119.63	103.50	83.54
22/09/2025 14:14	95.75	96.46	102.39	93.51	82.65
23/09/2025 16:47	93.89	84.80	85.94	96.31	102.54
24/09/2025 17:18	85.23	95.60	101.94	101.56	96.62
24/09/2025 17:20	99.49	101.15	106.58	111.95	98.12
27/09/2025 12:00	84.06	91.38	102.22	96.87	94.57
27/09/2025 15:42	88.92	95.40	98.32	102.50	95.26
30/09/2025 14:50	109.28	97.55	79.82	96.63	91.12

Table 6 – Ground Vibration Blast Monitoring Results for the reporting period

Date and Time	Moses Crossing (mm/s)	Jerrys Plains Village (mm/s)	Maison Dieu (mm/s)	Warkworth (mm/s)	Knodlers Lane (mm/s)
1/09/2025 15:49	0.39	0.22	0.29	0.68	0.25
1/09/2025 15:50	0.35	0.22	0.28	0.70	0.20
2/09/2025 13:30	0.12	0.14	0.13	0.12	0.12
4/09/2025 11:01	0.07	0.09	0.10	0.09	0.12
4/09/2025 14:46	0.27	0.23	0.32	0.16	0.15
5/09/2025 13:07	0.15	0.10	0.18	0.34	0.13
6/09/2025 14:25	0.07	0.10	0.09	0.10	0.11
6/09/2025 14:28	0.12	0.11	0.10	0.10	0.11
8/09/2025 10:01	0.10	0.14	0.10	0.08	0.13
9/09/2025 13:39	0.11	0.11	0.12	0.16	0.11
11/09/2025 16:06	0.06	0.09	0.10	0.72	0.12
12/09/2025 16:02	0.28	0.13	0.21	0.35	0.14
15/09/2025 17:12	0.22	0.90	0.12	0.54	0.12
16/09/2025 16:24	0.06	0.09	0.10	0.17	0.11
17/09/2025 13:05	0.18	0.22	0.15	0.23	0.25
19/09/2025 13:08	0.09	0.10	0.10	0.15	0.03
20/09/2025 13:44	0.09	0.12	0.10	0.04	0.05
22/09/2025 14:14	0.14	0.17	0.16	0.34	0.11
23/09/2025 16:47	0.07	0.11	0.10	0.18	0.11
24/09/2025 17:18	0.08	0.11	0.09	0.29	0.25
24/09/2025 17:20	0.29	0.22	0.30	0.95	0.20
27/09/2025 12:00	0.08	0.08	0.09	0.12	0.12
27/09/2025 15:42	0.10	0.10	0.22	0.31	0.12
30/09/2025 14:50	0.13	0.12	0.08	0.55	0.15

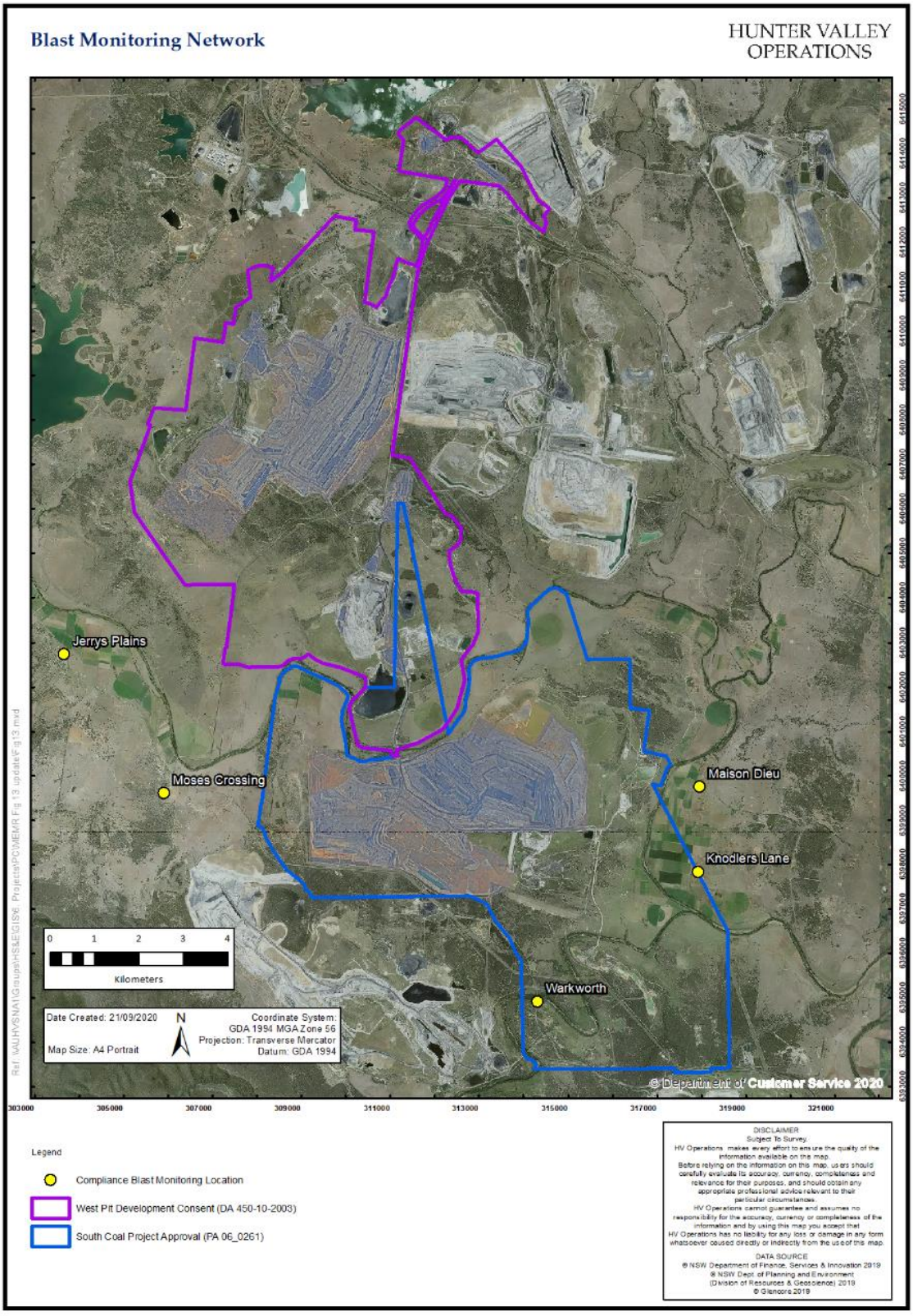

Figure 78 - Blast Monitoring Location Plan

5 | NOISE

Routine attended noise monitoring occurs at defined locations around HVO, as described in the HVO Noise Monitoring Programme. The noise monitoring aims to quantify and describe the acoustic environment around the site and compare results with specified limits. The attended noise monitoring locations are displayed in **Figure 79**.

5.1 | ATTENDED NOISE MONITORING RESULTS

Attended monitoring was conducted at receiver locations around HVO during the night period of the 23 September 2025.

Compliance with the HVO noise impact limits ensures compliance with the land acquisition criteria. Therefore, since no noise impact exceedances occurred for the reporting period the land acquisition assessment has not been presented. These will only be reported in instances of noise impact exceedances.

Monitoring results are detailed in **Table 7** and **Table 8**.

Table 7 - LAeq,15minute and 1minute HVO North Against Impact Assessment Criteria for the Reporting Period

Location	Start date and time	Wind		Stability class	Limits apply? [1]	HVO North limits, dB		HVO North levels, dB [2,3]		Exceedances, dB [1]	
		Speed m/s	Direction [4]			$L_{Aeq,15minute}$	$L_{A1,1min}$	$L_{Aeq,15minute}$ [2]	$L_{A1,1min}$	$L_{Aeq,15minute}$	$L_{A1,1min}$
Shearers Lane	23/09/2025 23:35	0.2	323	D	Yes	35	46	IA	IA	Nil	Nil
Knodlers Lane	24/09/2025 0:31	2.3	258	D	Yes	35	46	IA	IA	Nil	Nil
Maison Dieu	23/09/2025 23:58	1.0	323	F	Yes	35	46	IA	IA	Nil	Nil
Long Point (Dights Crossing)	24/09/2025 1:05	2.4	276	D	Yes	35	46	IA	IA	Nil	Nil
Kilburnie South (Moses Crossing)	24/09/2025 0:20	1.3	272	D	Yes	39	46	32	36	Nil	Nil
Jerrys Plains East	23/09/2025 23:54	1.0	323	F	Yes	39	46	32	35	N/A	N/A
Jerrys Plains Village	23/09/2025 22:24	1.0	168	D	Yes	40	46	35	43	Nil	Nil
Jerrys Plains West	23/09/2025 22:00	1.5	179	D	Yes	40	46	35	42	Nil	Nil

1. Noise emission limits are applicable if weather conditions were within parameters specified in Section 2.4. N/A in exceedance column indicates that limits were not applicable due to weather conditions.

2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.

3. Site-only LA1,1minute based on measured site-only LAmax as detailed in Section 3.2.

4. Degrees magnetic north, "-" indicates calm conditions.

Table 8 - LAeq,15minute and 1minute HVO South Against Impact Assessment Criteria for the Reporting Period

Location	Start date and time	Wind		Stability class	Limits apply? [1]	HVO South limits, dB		HVO South levels, dB [2,3]		Exceedances, dB [1]	
		Speed m/s	Direction [4]			$L_{Aeq,15minute}$	$L_{A1,1min}$	$L_{Aeq,15minute}$ [2]	$L_{A1,1min}$	$L_{Aeq,15minute}$	$L_{A1,1min}$
Shearers Lane	23/09/2025 23:35	0.2	323	D	Yes	41	45	40	41	N/A	N/A
Knodlers Lane	24/09/2025 0:31	2.3	258	D	Yes	40	45	34	38	N/A	N/A
Maison Dieu	23/09/2025 23:58	1.0	323	F	Yes	39	45	31	37	N/A	N/A
Long Point (Dights Crossing)	24/09/2025 1:05	2.4	276	D	Yes	37	45	IA	IA	N/A	N/A
Moses Crossing	24/09/2025 0:20	1.3	272	D	Yes	39	45	26	28	N/A	N/A
Jerrys Plains East	23/09/2025 23:54	1.0	323	F	Yes	38	45	IA	IA	N/A	N/A
Jerrys Plains Village	23/09/2025 22:24	1.0	168	D	Yes	35	45	IA	IA	N/A	N/A
Jerrys Plains West	23/09/2025 22:00	1.5	179	D	Yes	35	45	IA	IA	N/A	N/A
HVGC	23/09/2025 23:35	0.2	323	D	Yes	55	--	41	48	N/A	N/A

1. Noise emission limits are applicable if weather conditions were within parameters specified in Section 2.4. N/A in exceedance column indicates that limits were not applicable due to weather conditions.

2. Site-only LAeq,15minute, includes modifying factor penalties if applicable.

3. Site-only LA1,1minute based on measured site-only LAmax as detailed in Section 3.2.

4. Degrees magnetic north, "-" indicates calm conditions.

5.2 | LOW FREQUENCY ASSESSMENT

In accordance with the requirements of the EPA's Noise Policy for Industry (NPfI), the applicability of the low frequency modification penalty has been assessed. No penalties were applied for monitoring undertaken through the reporting period. The assessments for the low frequency noise are shown in **Table 9** and **Table 10**.

Table 9 - Modifying Factor Assessment HVO North for the Reporting Period

Location	Start date and time	Measured HVO North L_{Aeq} dB	Limits apply? [1]	Intermittency modifying factor? [2]	Tonality modifying factor? [2]	Frequency of tonality	Low-frequency modifying factor? [2]	Exceedance of reference spectrum [2,3]	Total penalty dB [2,3]
Shearers Lane	23/09/2025 23:35	IA	Yes	No	No	N/A	No	N/A	Nil
Knodlers Lane	24/09/2025 0:31	IA	Yes	No	No	N/A	No	N/A	Nil
Maison Dieu	23/09/2025 23:58	IA	Yes	No	No	N/A	No	N/A	Nil
Long Point (Dights Crossing)	24/09/2025 1:05	IA	Yes	No	No	N/A	No	N/A	Nil
Moses Crossing	24/09/2025 0:20	32	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains East	23/09/2025 23:54	32	No	N/A	N/A	N/A	N/A	N/A	N/A
Jerrys Plains Village	23/09/2025 22:24	35	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains West	23/09/2025 22:00	35	Yes	No	No	N/A	No	N/A	Nil

1. Modifying factors are considered not applicable when noise limits are not applicable.

2. Yes/No denote modifying factor was or was not applied. N/A denotes assessment was 'not applicable' due to meteorological conditions or further assessment was not required.

3. Bold results indicate that application of NPfI modifying factor(s) is required.

Table 10 - Modifying Factor Assessment HVO South for the Reporting Period

Location	Start date and time	Measured HVO South LAeq dB	Limits apply? [1]	Intermittency modifying factor? [2]	Tonality modifying factor? [2]	Frequency of tonality [2]	Low frequency modifying factor? [2]	Exceedance of reference spectrum [2,3]	Total penalty dB [2,3]
Shearers Lane	23/09/2025 23:35	<25	Yes	No	No	N/A	No	N/A	Nil
Knodlers Lane	24/09/2025 00:31	<25	Yes	No	No	N/A	No	N/A	Nil
Maison Dieu	23/09/2025 23:58	28	Yes	No	No	N/A	No	N/A	Nil
Long Point (Dights Crossing)	24/09/2025 01:05	IA	No	N/A	N/A	N/A	N/A	N/A	N/A
Moses Crossing	24/09/2025 00:20	29	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains East	23/09/2025 23:54	31	No	N/A	N/A	N/A	N/A	N/A	N/A
Jerrys Plains Village	23/09/2025 22:24	<25	Yes	No	No	N/A	No	N/A	Nil
Jerrys Plains West	23/09/2025 22:00	IA	Yes	No	No	N/A	No	N/A	Nil
HVGC	23/09/2025 23:35	28	Yes	No	No	N/A	No	N/A	Nil

1. Modifying factors are considered not applicable when noise limits are not applicable.

2. Yes/No denote modifying factor was or was not applied. N/A denotes assessment was 'not applicable' due to meteorological conditions or further assessment was not required.

3. Bold results indicate that application of NPfI modifying factor(s) is required.

5.3 | REAL TIME NOISE MONITORING

HVO utilises a network of real-time directional noise monitors to manage noise impacts on a continuous basis, shown in **Figure 79**. Noise alarms are in place at five monitoring locations (Knodlers Lane, Maison Dieu, Jerrys Plains, Moses Crossing and Long Point) which alert HVO staff to elevated noise levels that require investigation.

HVO investigates and responds to noise alarms with appropriate modification to operations. Changes in response to a noise alarm can include replacing equipment with alternative units, changing or relocating tasks, or shutting down equipment. It should be noted that this assessment does not compliment or conflict with attended noise monitoring detailed in **Section 5.1**. Real time monitoring data includes non-mine noise sources such as animals, road traffic and weather.

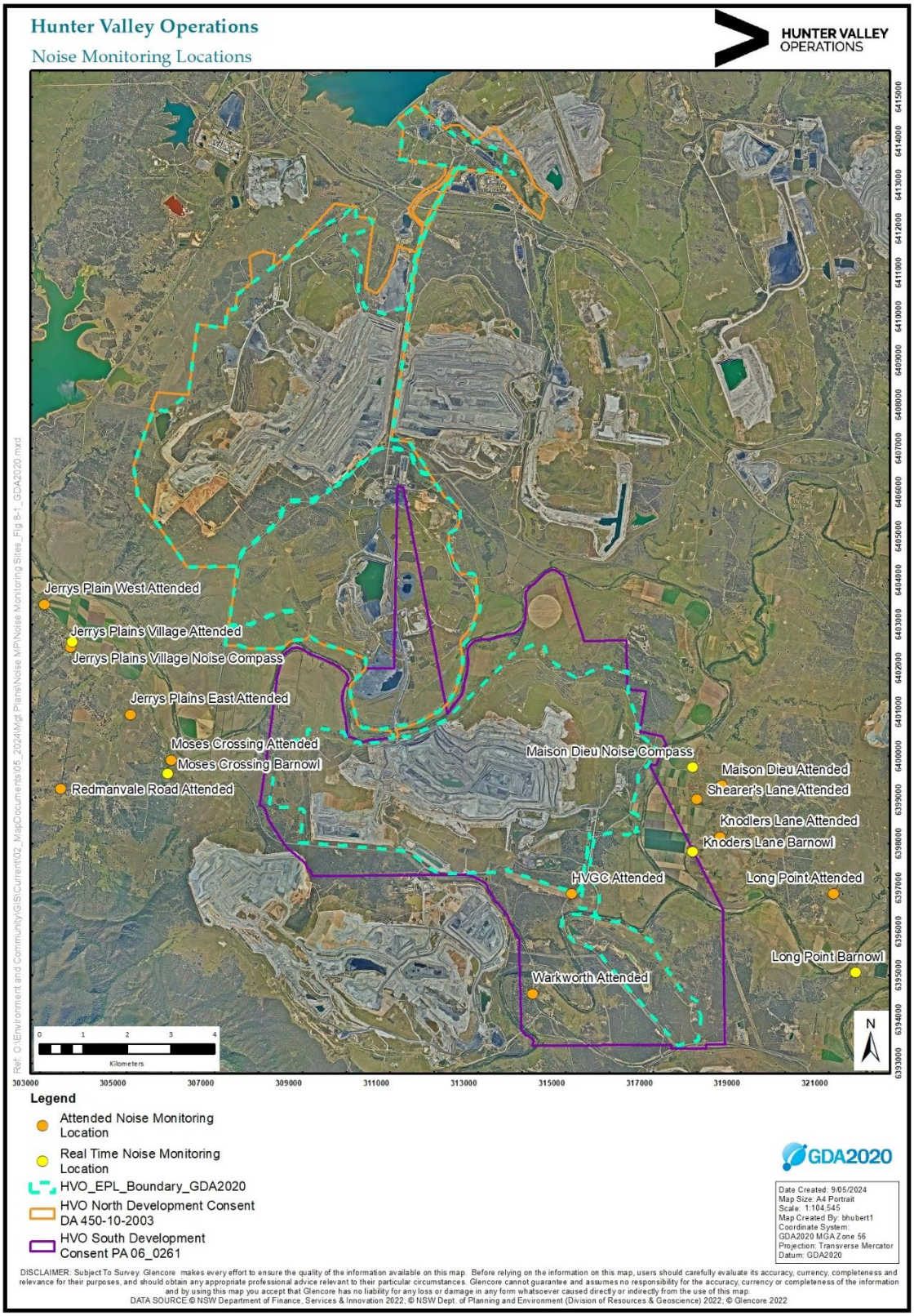

Figure 79 - Noise Monitoring Location Plan

6 | OPERATIONAL DOWNTIME

Real time monitoring and inspections for environmental factors recorded the following hours of equipment downtime during the reporting period:

- Four hundred and thirty-six point six (436.6) hours for dust, and
- Zero (0) hours for noise.

Operational downtime by equipment type is show in Figure 80. Note that these delays are instances where operations were completely stopped and does not include occasions where operations were changed/modified but not stopped (e.g. changed from exposed dump to in-pit dump).

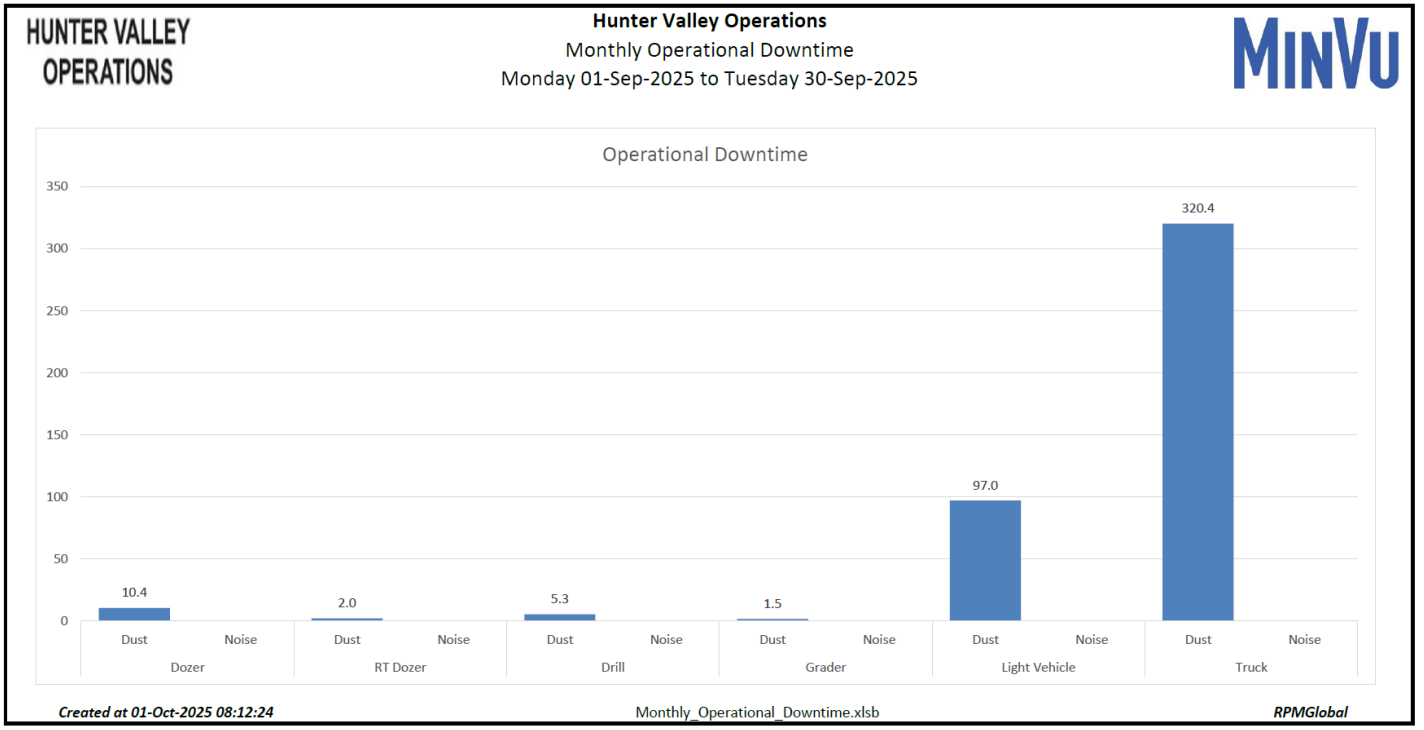

Figure 80 - Operational Downtime by Equipment Type for the Reporting Period

7 | REHABILITATION

The following activities related to rehabilitation were completed during the reporting period:

- 0.00 ha of land was released (became available for the application of topsoil);
- 0.25 ha of land was reshaped;
- 11.7 ha of land was topsoiled; and
- 0.00 ha of land was rehabilitated.

Year to date progress is shown in **Figure 81**.

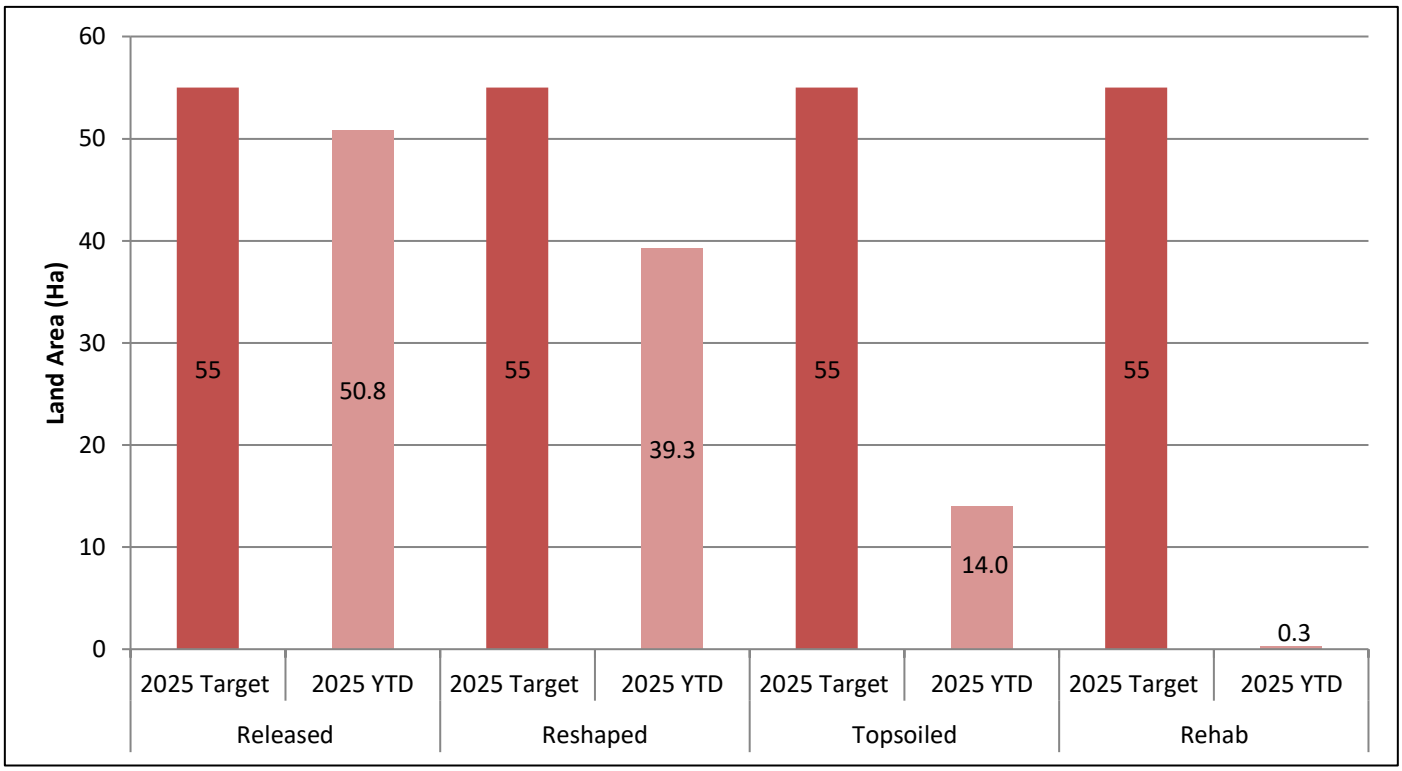

Figure 81 - Rehabilitation YTD September 2025

8 | COMPLAINTS

Two (2) community complaints were received during the reporting period. Details of complaints received during 2025 are shown in **Table 11**.

Table 11 - Complaints Summary 2025

Complaint Number	Date	Time	Complainant ID	Nature of Complaint	Mode of Complaint	Brief Description and Response
No community complaints were received during January						
No community complaints were received during February						
1	25 March	3:40pm	1	Blast	Community Hotline	• A resident of Jerrys Plains called the Community Complaints Hotline at 3:40pm regarding observed blast fume and concerns for health impacts • A member of the HVO environment and community team communicated with the resident via telephone confirming that a blast had been fired in the HVO Cheshunt Pit at at 3:31pm. The team member provided feedback and information regarding the blast including mitigation measures and confirmation that the visible plume did not leave site boundaries • A subsequent phone call was received from NSW EPA at 9.17am 26 March 2025 regarding a complaint they received from a community member regarding the same blast. The EPA requested further information which HVO provided
No community complaints were received during April						
2	6 May	8:20pm	2	Noise	Community Hotline	• A resident of Jerrys Plains called the Community Complaints Hotline at 8:20pm regarding noise • Noise results as well as meteorological data were checked prior to calling the resident

Complaint Number	Date	Time	Complainant ID	Nature of Complaint	Mode of Complaint	Brief Description and Response
						• HVO West Pit OCE communicated with the resident via telephone whereby the resident provided further feedback, including that the noise had since subsided • Noise monitoring results from the closest monitoring unit (Jerrys Plains ENC) prior to and at the time of the complaint were below the compliance limits
No community complaints were received during June						
No community complaints were received during July.						
3	21 August	1:58pm	1	Blast	Community Hotline	• A resident of Jerrys Plains called the Community Complaints Hotline at 1:58pm regarding blast noise and vibration • A member of the HVO environment and community team communicated with the resident via telephone confirming that a blast had been fired in the HVO Mitchell Pit at 1:22pm. The team member provided feedback and information regarding the blast including results from the Moses Crossing blast monitor (closest to the resident's house) which were below the relevant compliance limits for blast overpressure and vibration • A subsequent email was received from NSW EPA at 3:40pm on 21 August 2025 regarding a complaint they received from a community member regarding the same blast. HVO provided requested information on 29 August 2025.
4	15 September	6.20pm	2	Blast	Community Hotline	• A resident of Jerrys Plains called the Community Complaints Hotline at 6.20pm regarding blast noise and vibration experienced at 5:12pm

Complaint Number	Date	Time	Complainant ID	Nature of Complaint	Mode of Complaint	Brief Description and Response
						• HVO West Pit OCE contacted the resident at 6:51pm and discussed the nature of the complaint, confirming HVO had blasted in Mitchell Pit at that time. A member of the environment and community team contacted the resident the following day and discussed the results, noting they were within compliance limits. • Monitoring data from the Jerrys Plains Village blast monitor (closest to the resident's house) was emailed to the resident.
5	19 September	10.20am	Annonymous	Air Quality	Via EPA Environment Line	• The NSW EPA received an Environment Line report relating to the alleged emission of dust from HVO around 10:20am. The report alleged that a passerby observed dust blowing from haulage trucks as they drove past on Lemington Road. • HVO investigated the event and supplied a report to the EPA, noting compliance with air quality criterion at the time of the event.

9 | ENVIRONMENTAL INCIDENTS

No reportable environmental incident occurred during this reporting period.

APPENDIX A: METEOROLOGICAL DATA (HVO CORPORATE)

Date	Air Temp Max (°C)	Air Temp Min (°C)	Relative Humidity (Max %)	Relative Humidity (Min %)	Solar Radiation Maximum (W/Sq. M)	Average Wind Direction (°)	Average Wind Speed (m/sec)	Rainfall (mm)
1/09/2025	21.0	5.8	78.3	27.2	935.0	228.8	2.4	0.0
2/09/2025	20.9	6.1	92.5	31.4	781.7	217.2	1.0	0.0
3/09/2025	20.1	6.8	72.5	24.0	777.0	279.5	2.8	0.0
4/09/2025	22.5	8.4	65.7	20.4	861.0	263.4	2.7	0.0
5/09/2025	19.9	7.0	76.3	33.2	797.1	148.8	2.7	0.0
6/09/2025	20.3	9.1	81.7	41.6	881.0	121.0	2.3	0.0
7/09/2025	24.0	7.9	91.3	33.1	931.0	247.1	2.0	0.0
8/09/2025	25.0	13.0	66.3	35.9	1005.0	285.8	4.3	0.0
9/09/2025	22.6	14.3	94.5	49.1	647.2	282.2	3.8	14.8
10/09/2025	18.7	11.9	95.3	48.0	1269.0	209.5	2.5	15.0
11/09/2025	14.4	8.4	88.7	58.5	722.5	272.3	4.2	1.0
12/09/2025	19.0	7.8	95.1	35.4	962.0	271.2	2.1	0.0
13/09/2025	20.4	7.5	84.7	36.2	841.0	217.6	1.5	0.0
14/09/2025	23.0	8.1	84.7	30.6	861.0	284.7	3.1	0.0
15/09/2025	25.1	11.2	63.0	32.6	934.0	292.0	3.6	0.0
16/09/2025	26.0	15.4	55.9	32.6	1298.0	295.5	4.7	0.0
17/09/2025	25.3	13.8	54.6	35.8	1096.0	267.9	4.5	0.0
18/09/2025	21.1	8.8	83.5	35.2	853.0	196.0	1.2	0.0
19/09/2025	25.7	8.1	88.2	22.2	926.0	263.9	2.7	1.6
20/09/2025	22.0	10.9	90.9	28.4	1064.0	278.6	5.3	0.6
21/09/2025	20.6	7.3	71.2	31.0	899.0	284.2	3.8	0.0
22/09/2025	22.7	9.6	74.6	30.0	951.0	241.9	3.5	0.0
23/09/2025	19.1	7.8	67.2	24.3	913.0	128.6	1.5	0.0
24/09/2025	24.1	7.1	69.5	20.0	929.0	274.2	3.7	0.0
25/09/2025	24.5	9.5	66.4	20.4	952.0	286.7	4.1	0.0
26/09/2025	27.0	13.2	50.4	16.3	1080.0	287.4	4.5	0.0
27/09/2025	26.8	17.1	51.5	22.1	1138.0	273.2	2.9	0.0
28/09/2025	29.8	15.0	82.2	23.6	958.0	234.2	3.4	0.0
29/09/2025	23.9	13.9	89.7	38.0	1161.0	131.7	1.5	0.0
30/09/2025	30.2	13.2	93.1	18.3	903.0	207.8	1.9	0.0