MALABAR

Maxwell Underground Mine

Environmental Monitoring Data

Quarter 4 2023

1 INTRODUCTION

This report has been compiled to present environmental monitoring data for the Maxwell Underground Mine (the project) in accordance with:

- Schedule 2, Condition E17 (a) (vii) of SSD-9526; and
- Condition 5 of EPBC 2018/8287. Specifically this requires the inclusion of hydrographs for all monitoring bores and an explanation of what the data means in relation to the groundwater performance measures specified in the State development consent (SSD 9526).

This report covers the reporting period 1 October to 31 December 2023. Summaries of historic environmental monitoring data (prior to this report) can be found on the Malabar Resources website.

2 MONITORING RESULTS

Deposited dust monitoring results are provided in **Table 1**.

Continuous TEOM PM_{10} monitoring results are provided in **Figure 1**.

Continuous TEOM $PM_{2.5}$ monitoring results are provided in **Figure 1**.

Mine storage surface water quality monitoring results are provided in **Table 2**.

Downstream surface water quality monitoring results are provided in **Table 3**.

Surface water quality field measurements from Saddlers Creek are compared to trigger levels in **Table 4**.

Surface water quality laboratory results from Saddlers Creek are compared to trigger levels in **Table 5**.

Groundwater quality results for Maxwell Infrastructure bores are provided in **Table 6**.

Groundwater quality monthly field measurements for Maxwell Infrastructure bore DS1 are provided in **Table 7**.

Groundwater quality results for Maxwell Underground bores are provided in **Table 8**.

Groundwater level results are provided in **Table 9**.

Locations of monitoring sites are shown in **Appendix 1** to **Appendix 3**.

The consultant hydrogeologist report providing the requirements of Condition 5 of EPBC 2018/8287, inclusive of hydrographs for all monitoring bores, and an explanation of the data relative to the groundwater performance measures in SSD 9526, is provided in **Appendix 4**.

Noise and blast monitoring results are not presented in this report as they are contained within the monthly reports required by the Environment Protection Licence and can be downloaded from the Malabar Resources website.

Table 1. Deposited dust monitoring results for reporting period

Gauge	Insoluble Solids Result ($g/m^2/month$)			Annual Mean Limit ($g/m^2/month$)	Rolling Annual Average to end of reporting period ($g/m^2/month$)
	Oct	Nov	Dec		
2175	1.4	2.5	1.4	4	***1.7***
2230	1.6	2.6	1.7	4	***1.9***
2235	1.5	2.0	1.7	4	***2.0***
2247	1.4	2.5	1.4	4	***1.6***

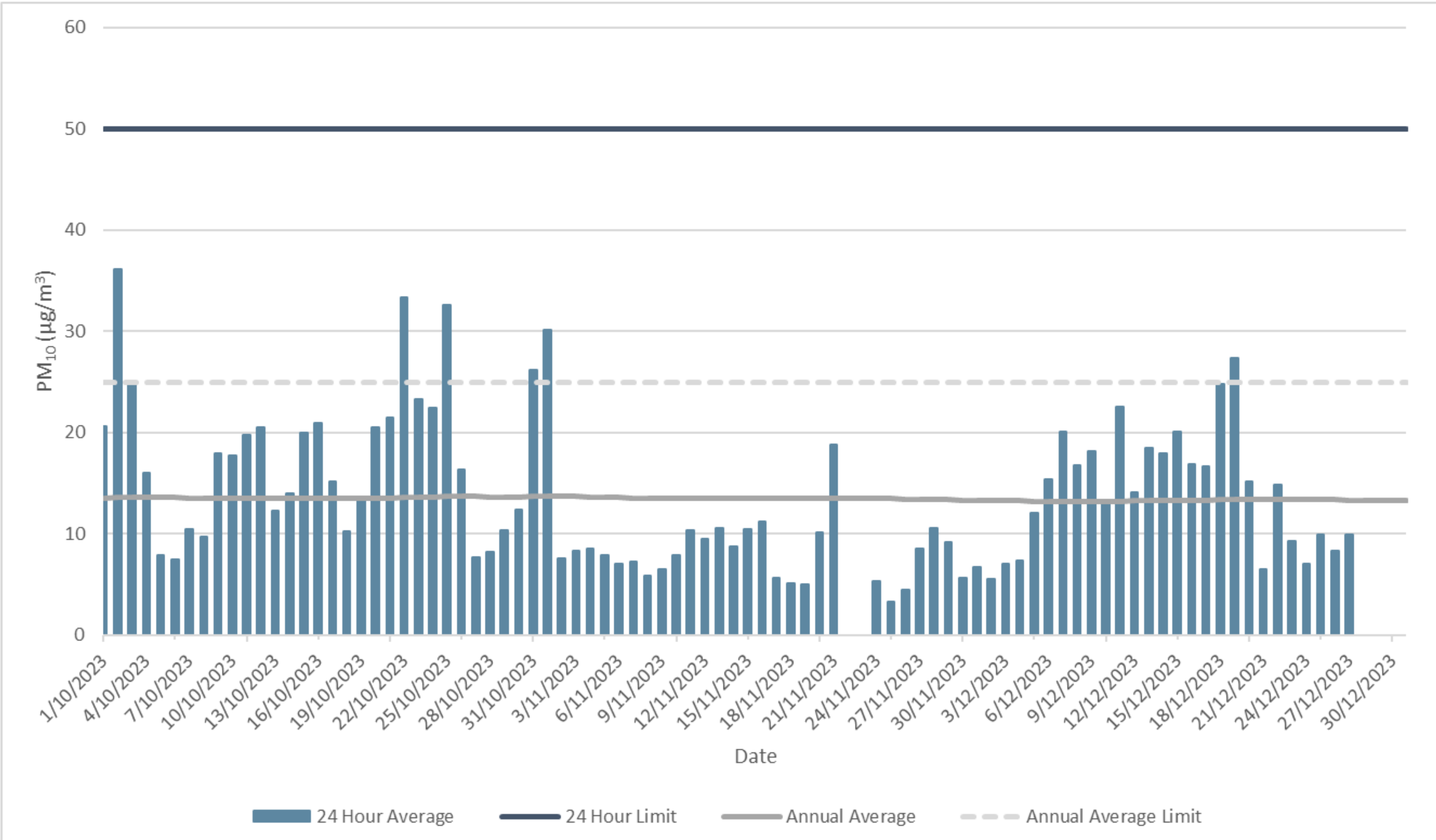

Figure 1. TEOM-1 PM_{10} monitoring results for Quarter 4 2023.

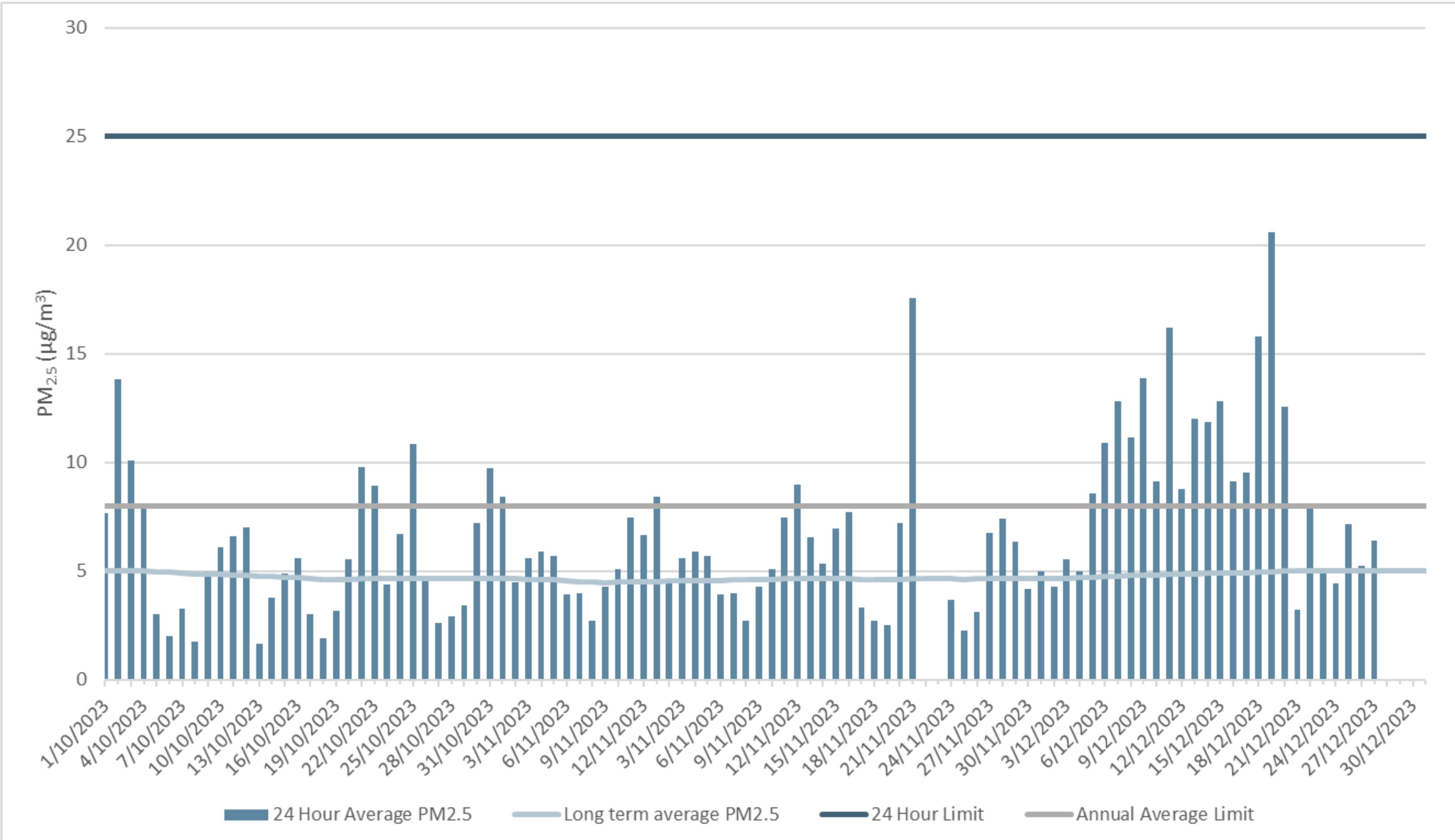

Figure 2. TEOM-1 $PM_{2.5}$ monitoring results for Quarter 4 2023.

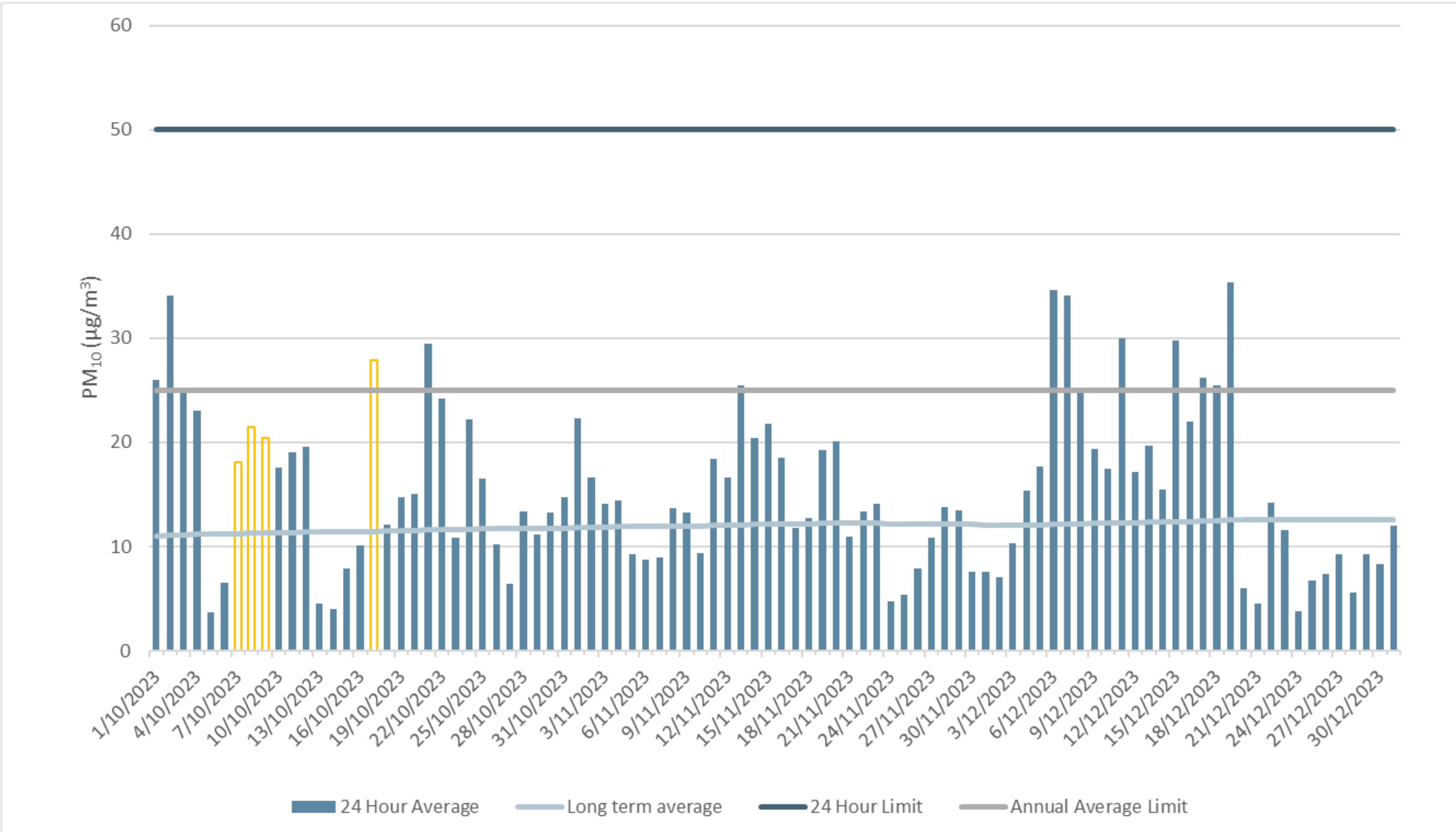

Figure 3. TEOM-2 PM_{10} monitoring results for Quarter 4 2023. Refer to notes for explanation of data gaps as shown by orange bars.

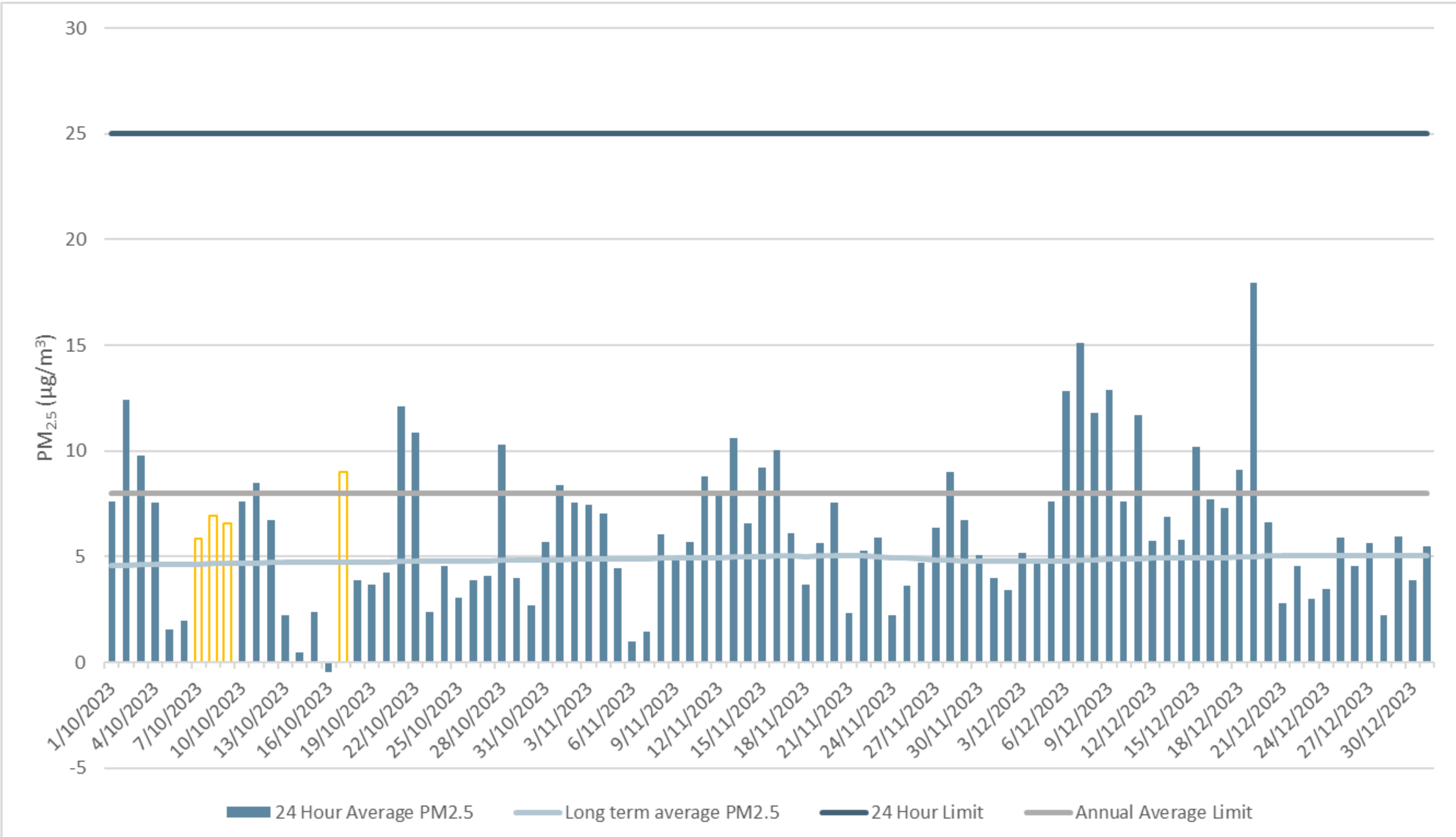

Figure 4. TEOM-2 $PM_{2.5}$ monitoring results for Quarter 4 2023. Refer to notes for explanation of data gaps as shown by orange bars.

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Notes:

- Monitoring of PM_{10} and $PM_{2.5}$ commenced at TEOM-2 on 12 December 2021.
- All 24-hour averages during the reporting period were below the 24-hour criteria for both PM_{10} and $PM_{2.5}$ at both TEOM-1 and TEOM-2. The results of the investigations into any exceedances of the criteria (if required) are provided in the Annual Review.
- Gaps in data are due to maintenance and scheduled calibration by monitoring contractor, plus occasionally issues such as power cuts and equipment failure. Note that values close to zero may appear as gaps in data in the graphs.
- Where there is no TEOM-generated rolling 24-hour average value reported by the TEOM, in accordance with the monitoring contractors data validation process, where such events result in 75% or less of valid 1-hour data during that 24-hour period (midnight to midnight), the 1-hour data is used to calculate the 24-hour average. This process has been applied from Q1 2022. Prior to this the raw data from the TEOM is presented, ie if no valid 24-hour value is generated by the TEOM, no data is presented for that day.
- Specific significant data gaps for the reporting period are noted as follows:
  - TEOM-1: 22&23 November 2023 – there was insufficient data due issues experienced following the scheduled maintenance/quarterly calibration resulting in less than 75% of values in the 24-hour period hence there was insufficient data to calculate a valid 24-hour average in accordance with the Validation Procedure. The issue was investigated and resolved via an additional visit to the device, and a manual restart.
  - TEOM-1: 28–31 December 2023 – multiple power trips occurred between Christmas and New Year. Following multiple visits, by electricians and by Malabar to restart the power, the issue was diagnosed as the very high humidity following frequent rain and high temperatures; this was placing strain on the two air conditioning units within the monitoring compound and the TEOM monitoring enclosure; this resulted in one or both of the air conditioning units tripping. In part to resolve the issue, the two air conditioning units were placed on separate circuits; the tripping continued to a lesser extent, but eventually stopped w/e 12 January 2024 once the humidity levels dropped. In parallel a new air conditioning unit was purchased for the TEOM enclosure with a plan to install it upon delivery.
  - TEOM-2: 7–10 October 2023. The power to the TEOM tripped. The site was visited by Malabar's appointed electrician and diagnosed as an incorrectly installed circuit breaker (as inherited from Anglo American). As requested in the September CCC meeting, data gaps are filled with results from the Jerrys Plains Upper Hunter Air Quality Monitoring Network site situated across the road (1.7km to the southeast). $PM_{2.5}$ is not recorded at this location, hence $PM_{2.5}$ concentrations are calculated by applying the long term 24-hour average PM_{10} to $PM_{2.5}$ ratio as measured at TEOM-1 to the 24-hour concentration of PM_{10} at TEOM-2.

Table 2. All mine water storage monitoring locations: laboratory water quality monitoring results for Quarter 4 2023 compared to year-to-date averages. See notes for further details.

Site	Month	Bicarbonate ($CaCO_3$) (mg/L)	Calcium (mg/L)	Chloride (mg/L)	EC (µS/cm)	Magnesium (mg/L)	pH	Potassium (mg/L)	Sodium (mg/L)	Sulphate (SO_4) (mg/L)	TSS (mg/L)	TDS (mg/L)
Access Rd Dam (2081)	Dec	136	535	861	7230	570	8.6	76	677	3390	12	6780
	Avg	**114**	**402**	**726**	**6358**	**459**	**8.7**	**58**	**579**	**2930**	**9.3**	**5670**
DC2 Dam (2109)	Dec	642	352	3510	17200	852	8.1	18	3330	5920	5.0	15900
	Avg	**503**	**214**	**2078**	**11470**	**505**	**7.9**	**13**	**2028**	**3510**	**8.3**	**9228**
Rail Loop Dam (2114)	Dec	191	495	909	7370	530	7.6	59	697	3500	5.0	6800
	Avg	**175**	**319**	**655**	**5360**	**354**	**7.6**	**37**	**531**	**2303**	**8.0**	**4648**
Industrial Dam (1969)	Dec	154	356	557	4970	353	8.5	48	435	2180	5.0	4270
	Avg	**139**	**261**	**447**	**3900**	**269**	**8.4**	**35**	**348**	**1763**	**7.3**	**3348**
OPC Dam	Dec	123	277	599	4910	320	8.7	39	418	2070	16	4170
	Avg	**124**	**201**	**369**	**3120**	**201**	**8.4**	**23**	**269**	**1302**	**12**	**2628**
V Notch	Dec	405	553	1530	10400	562	7.9	38	1810	4220	5.0	9260
	Avg	**388**	**529**	**1706**	**11483**	**547**	**7.8**	**25**	**1849**	**4425**	**7.6**	**10095**
ES Void	Dec	232	618	856	7500	619	8.0	82	666	3850	9.0	7320
	Avg	**244**	**571**	**832**	**7555**	**595**	**7.9**	**78**	**639**	**3803**	**6.8**	**7058**
MEA Dam	Dec*											
	Avg*											
Mine Water Dam	Dec	230	215	959	6280	308	8.3	38	799	2080	14	5380
	Avg	**289**	**289**	**913**	**6563**	**369**	**8.2**	**45**	**735**	**2457**	**14**	**5437**
	Dec	137	483	873	7700	629	8.4	81	676	4240	5.0	8350

Site	Month	Bicarbonate ($CaCO_3$) (mg/L)	Calcium (mg/L)	Chloride (mg/L)	EC (µS/cm)	Magnesium (mg/L)	pH	Potassium (mg/L)	Sodium (mg/L)	Sulphate (SO_4) (mg/L)	TSS (mg/L)	TDS (mg/L)
Treated Water Dam	***Avg***	**137**	**483**	**873**	**7700**	**629**	**8.4**	**81**	**676**	**4240**	**5.0**	**8350**
MEA Sedimentation Dam	Dec	207	222	800	5560	270	8.3	32	711	1940	15	4830
	Avg	**310**	**261**	**883**	**6070**	**330**	**8.2**	**37**	**743**	**2290**	**20**	**5060**

Notes:

The year-to-date value consists of an average of the quarterly sample for the current quarter plus the three previous quarters, as per the Water Management Plan. The exceptions are for the V Notch dam, where samples are taken monthly as is required by the EPL and for the ES Void where monthly samples were additionally taken from October 2021 to December 2022 to inform the design of the water treatment plant for the underground mine and hence are included here for completeness.

The MEA Dam, Mine Water Dam, Treated Water Dam and MEA Sedimentation Dam were progressively constructed and commissioned during 2023. Samples were taken when water was available and safe access permitted.

*The MEA Dam had no water at the time of the scheduled monitoring or previous.

Table 3. All downstream surface water monitoring locations: surface water quality scheduled and sediment dams and; plus mine water dams (overflow events only) laboratory monitoring results for Quarter 4 2023 compared to rolling year-to-date averages. See notes for further details. No creeks were flowing during scheduled sampling in 2023 and there were no uncontrolled releases from the sediment dams and mine water dams; hence no results are presented in this Table.

Site	Month	Antimony	Arsenic	Bicarbonate ($CaCO_3$)	Calcium	Chloride	EC	Magnesium	Molybdenum	Potassium	Selenium	Sodium	Sulphate (SO_4)	TSS	TDS	Turbidity
Saddlers U/S	Oct*															
	Avg*															
W3	Oct*															
	Avg*															
SW1/ Saddlers U/S	Oct*															
	Avg*															
Saddlers D/S (W4-Bowfield)	Oct*															
	Avg*															
MEA D/S	Oct*															
	Avg*															
Saltwater D/S	Oct*															
	Avg*															
SW3	Oct*															
	Avg*															
Sediment dams and mine water dams	Oct*															
	Avg*															

***Notes**

In addition to quarterly scheduled sampling, the Maxwell Underground Mine Water Management Plan requires sampling and analysis following 25mm or more of rain over a 24-hour period (defined as midnight to midnight and as recorded at the Drayton South meteorological recording station (AWS-2)). The results from any such post-rainfall events have been included in the year-to-date averages.

The quarterly field measurements of pH, EC, redox potential and temperature are recorded to enable subsequent evaluation in case of need and are not included in the quarterly reporting.

The Transport and Services Corridor sediment dams (Access Road Dam 1, 2, 3 and 4) were progressively constructed and commissioned during 2023. The requirement for the sampling and analysis for these variables is required within 24 hours of commencement of an overflow from a sedimentation dam or mine water dam (taken to be defined as an uncontrolled release from those dams). During the reporting period there were no overflows from such dams and hence there are no results in Table 3.

All results are in mg/L except Conductivity (µS/cm), pH (in pH units) and turbidity (nephelometric turbidity units).

The following will be reported in the Annual Review:

- Comparison of water quality results from Saddlers Creek against Water Quality Trigger Values
- Results from the automatic weather stations (AWS-1 and AWS-2)
- Results of the stream health monitoring.

Following an investigation into the high EC readings at site Saddlers Upstream (U/S) in Q3 2023 it was found that due to a change in sampling personnel, the requirement (Section 5.3 of the Water Management Plan) to only sample waterways that are flowing was not occurring (ie samples were of stagnant (ie non-flowing) water). This was reflective of the regional drought conditions. It was determined that all samples taken in 2023 were of stagnant water; and hence should not be used for comparison against trigger values and hence are not presented in this report. Going forward, samples are only taken if water is flowing.

Table 4. Surface water scheduled field measurements at sites along Saddlers Creek for Q1 2023 to Q4 2023 and comparison against trigger levels. If an exceedance of the trigger level occurs (median over three consecutive samples), this is highlighted in red. TLTS = too low to sample. No sites were flowing during scheduled or post-rainfall sampling in 2023, and hence there are no results presented in the Table.

Site		Field result											
		pH				EC				Turbidity			
	Units	pH				μS/cm				NTU			
	Trigger	6.5–8.5				7,600				64			
		Q1 2023	Q2 2023	Q3 2023		Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2022	Q1 2023	Q2 2023	Q3 2023
W3*													
Saddlers D/S (W4 – Bowfield)*													
MEA D/S*													
Saddlers U/S*													
Saltwater D/S*													
SW1/ Saddlers*													
SW2*													
SW3*													

* As is explained in the Notes to Table 3, all surface water samples taken in 2023 were of stagnant water. Hence there are no results in Table 3. Going forward, samples will only be taken in creeks when they are flowing.

Table 5. Surface water laboratory results at sites along Saddlers Creek (scheduled and post-rainfall sampling) from Q4 2022 to Q3 2023 and comparison against trigger levels. If an exceedance of the trigger level occurs (median over three consecutive samples), this is highlighted in red. Refer also to Notes at end of Table 5. No sites were flowing in 2023 hence no results are presented in this Table.

Site	Sample date	Sampling type	Laboratory result													
			Sb	As (V)	As (III)	CaCO3	Ca	Cl	Mg	Mb	K	Se	Na	SO4	TSS	TDS
Units			mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger			9[c]	13[c]	24[b] [c]	[a]	[a]	[a]	[a]	34[c]	[a]	11[c]	[a]	[a]	50	4900
W3	27/1/23	Scheduled*														
	23/2/23	Rainfall*														
	13/4/23	Scheduled*														
	11/7/23	Scheduled*														
	18/10/23	Scheduled*														
Saddlers D/S	27/1/23	Scheduled*														
	23/2/23	Rainfall*														
	13/4/23	Scheduled*														
	11/7/23	Scheduled*														
	18/10/23	Scheduled*														
MEA D/S	27/1/23	Scheduled*														
	23/2/23	Rainfall*														
	13/4/23	Scheduled*														
	11/7/23	Scheduled*														
	18/10/23	Scheduled*														

Site	Sample date	Sampling type	Laboratory result													
			Sb	As (V)	As (III)	CaCO3	Ca	Cl	Mg	Mb	K	Se	Na	SO4	TSS	TDS
Units			mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger			9[c]	13[c]	24 [b] [c]	[a]	[a]	[a]	[a]	34[c]	[a]	11[c]	[a]	[a]	50	4900
Saddlers U/S	27/1/23	Scheduled*														
	23/2/23	Rainfall*														
	13/4/23	Scheduled*														
	11/7/23	Scheduled*														
	18/10/23	Scheduled*														
Saltwater D/S	27/1/23	Scheduled*														
	23/2/23	Rainfall*														
	13/4/23	Scheduled*														
	11/7/23	Scheduled*														
	18/10/23	Scheduled*														
SW1/ Saddlers D/S	27/1/23	Scheduled*														
	23/2/23	Rainfall*														
	13/4/23	Scheduled*														
	11/7/23	Scheduled*														
	18/10/23	Scheduled*														
SW2	-	-	Sampling location to be established – see notes													
SW3	27/1/23	Scheduled*														

Site	Sample date	Sampling type	Laboratory result													
			Sb	As (V)	As (III)	CaCO3	Ca	Cl	Mg	Mb	K	Se	Na	SO4	TSS	TDS
Units			mg/L	mg/L mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Trigger			9[(c)]	13[(c)]	24 [(b)] [(c)]	[(a)]	[(a)]	[(a)]	[(a)]	34[(c)]	[(a)]	11[(c)]	[(a)]	[(a)]	50	4900
	23/2/23	Rainfall*														
	13/4/23	Scheduled*														
	11/7/23	Scheduled*														
	18/10/23	Scheduled*														

Notes.
(a) No trigger; for interpretation purposes only. (b) Result is a combination of As (V) and As (III) (c) Trigger set as a preliminary guideline value.
In accordance with the Surface Water Management Plan, results from Saddlers Creek (median over three consecutive samples) will be compared to the relevant trigger levels. Trigger values are values that trigger further investigation or management action.

* As is explained in the Notes to Table 3, all surface water samples taken in 2023 were of stagnant water. Hence there are no results in Table 3. Going forward, samples will only be taken in creeks when they are flowing.

Table 6. Maxwell Infrastructure Groundwater quality biennial monitoring results for Quarter 4 2023 (rolling year to date average shown Jan 23 – Dec 23). See notes for further details. NS = Not sampled (next scheduled sampling is Q1 2024 or not possible to sample – see Notes).

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as CaCO3	Total Alkalinity	Carbonate Alkalinity as CO3	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead
R4241	0.010	0.0010	569	569	1.0	0.29	239	1,030	0.0010	0.0010	5,170	6,253	0.78	0.0010
Average	***0.010***	***0.0010***	***565***	***565***	***1.0***	***0.23***	***211***	***946***	***0.0015***	***0.0010***	***5,130***	***-***	***0.63***	***0.0010***
F1162	0.010	0.0010	1,010	1,010	1.0	0.11	65	216	0.0020	0.0010	2,459	-	0.050	0.0010
Average	***0.010***	**0.0010**	**973**	***973***	***1.0***	**0.11**	**65**	**193**	**0.0025**	**0.0010**	**2,463**	**-**	***0.14***	**0.0010**
F1164	0.010	0.0010	753	753	1.0	0.24	186	981	0.0020	0.0010	5,300	-	5.2	0.0010
Average	***0.010***	**0.0010**	**738**	***738***	**1.0**	**0.20**	**153**	**923**	**0.0025**	**0.0010**	**4,628**	**-**	***6.7***	**0.0010**
GW01D	0.010	0.0010	598	598	1.0	0.38	473	1,410	0.0010	0.0010	5,450	5,680	1.2	0.0010
Average	***0.010***	***0.0010***	***555***	***555***	***1.0***	***0.30***	***423***	***1,355***	***0.0010***	***0.0090***	***5,455***	***-***	***0.61***	***0.0010***
GW01S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	9,260	NS	NS
Average	***0.010***	***0.0010***	***653***	***653***	***1.0***	***0.17***	***226***	***1,820***	***0.0010***	***0.017***	***6,713***	***-***	***0.050***	***0.0010***
GW02D	0.020	0.0010	2,000	2,000	1.0	0.35	76	1,610	0.0010	0.0020	12,600	10,500	0.020	0.0010
Average	***0.015***	***0.0010***	***1,950***	***1,950***	***1.0***	***0.30***	***65***	***1,560***	***0.0010***	***0.0020***	***12,725***	***-***	***0.14***	***0.0010***
GW02S	0.010	0.0010	879	879	1.0	0.22	437	1,070	0.0010	0.0010	7,150	9,480	4.7	0.0010
Average	***0.010***	***0.0010***	***846***	***846***	***1.0***	***0.17***	***411***	***1,013***	***0.0010***	***0.0010***	***6,935***	***-***	***2.6***	***0.0010***

Table 6 continued

Site	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value	Selenium	Silver	Sodium	Sulfate as SO4 – Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
R4241	362	0.12	0.0040	0.0060	6.9	Min: 6.0, Max: 8.5	0.010	0.0010	616	1,260	44	4,050	0.0070
Average	***336***	***0.16***	***0.0045***	***0.011***	***6.9***	***-***	***0.010***	***0.0010***	***575***	***1,300***	***58***	***3,760***	***0.0060***
F1162	46	0.17	0.0070	0.016	6.8	-	0.010	0.0010	139	4.0	77	849	0.0050
Average	***45***	***0.17***	***0.0040***	***0.011***	***6.8***	***-***	***0.010***	***0.0010***	***136***	***2.5***	***60***	***846***	***0.0050***
F1164	243	0.44	0.0020	0.0050	6.7	-	0.010	0.0010	722	865	59	3,510	0.0050
Average	***214***	***0.48***	***0.0020***	***0.0065***	***6.8***	***-***	**0.010**	***0.0010***	**668**	**694**	**63**	**3,095**	**0.0050**
GW01D	202	0.24	0.0010	0.046	6.6	Min: 6.0, Max: 8.5	0.010	0.0010	630	748	13	4,170	0.014
Average	***175***	***0.20***	***0.0025***	***0.17***	***6.8***	***-***	***0.010***	***0.0010***	***559***	***680***	***17***	***3,955***	***0.037***
GW01S	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***225***	***0.12***	***0.0010***	***0.015***	***6.6***	***-***	***0.10***	***0.0010***	***846***	***657***	***363***	***4,690***	***0.041***
GW02D	21	0.66	0.0050	0.54	7.0	Min: 6.0, Max: 8.5	0.010	0.0010	3,690	3,800	2,520	11,300	0.017
Average	***18***	***0.55***	***0.0050***	***0.27***	***7.0***	*****	***0.010***	***0.0010***	***3,360***	***3,860***	***3,110***	***10,900***	***0.013***
GW02S	460	2.0	0.0010	0.025	6.6	Min: 6.0, Max: 8.5	0.010	0.0010	1,120	2,610	1,480	5,930	0.060
Average	***423***	***2.1***	***0.0010***	***0.021***	***6.7***	***-***	***0.010***	***0.0010***	***1,085***	***2,700***	***870***	***5,745***	***0.034***

Table 7. DS1 monitoring bore: Laboratory groundwater quality monthly monitoring results for Quarter 4 2023 (rolling year to date average shown Jan 23 – Dec 23). See notes for further details. NS = Not sampled.

Date of sample	pH value	Electrical conductivity	Total Dissolved Solids @180°C	Salinity (g/kg)
13/10/2023	6.2	8,390	7,280	4.7
10/11/2023	6.2	8,510	7,380	4.7
08/12/2023	6.3	8,320	7,060	4.6
Average	***6.3***	***8,327***	***6,947***	***4.6***

Table 8. **Maxwell <u>Underground</u> Groundwater quality biennial monitoring results for Quarter 4 2023 (rolling year to date average shown Jan 23–Dec 23). See notes for further details. NS = Not sampled (as sampling is twice a year, next is due Q1 2024 or not possible to sample – see Notes).**

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as CaCO3	Total Alkalinity	Carbonate Alkalinity as CO3	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead
DD1005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6,530	-	NS	NS
Average	***0.010***	***0.0010***	***952***	***952***	***1.0***	***0.20***	***92***	***1,455***	***0.0010***	***0.024***	***6,163***	***-***	***0.050***	***0.0010***
DD1014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	9,250	-	NS	NS
Average	***0.010***	***0.0010***	***1,045***	***1,045***	***1.0***	***0.35***	***53***	***2,565***	***0.0010***	***0.0010***	***9,157***	***-***	***0.46***	***0.0010***
DD1015	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
DD1016	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6,210	-	NS	NS
Average	***0.010***	***0.0010***	***1,125***	***1,125***	***1.0***	***0.24***	***156***	***1,525***	***0.0010***	***0.0010***	***6,273***	***-***	***1.8***	***0.0010***
DD1025	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	14,200	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
DD1027	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1,195	-	NS	NS
Average	***0.030***	***0.0010***	***363***	***363***	***1.0***	***0.14***	***19***	***141***	***0.0010***	***0.0010***	***1,200***	***-***	***0.90***	***0.0010***
DD1032	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6,590	7,170	NS	NS
Average	***0.010***	***0.0010***	***1,130***	***1,130***	***1.0***	***0.24***	***12***	***1,525***	***0.0010***	***0.0010***	***6,540***	***-***	***0.16***	***0.0010***
DD1043	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7,930	-	NS	NS
Average	***0.010***	***0.0010***	***2,285***	***2,285***	***1.0***	***0.45***	***40***	***1,400***	***0.0010***	***0.0010***	***7,777***	***-***	***0.090***	***0.0010***
DD1052	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7,450	-	NS	NS

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as CaCO3	Total Alkalinity	Carbonate Alkalinity as CO3	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead
Average	***0.085***	***0.0010***	***908***	***958***	***51***	***0.26***	***5.0***	***1,870***	***0.0030***	***0.0010***	***7,270***	***-***	***0.050***	***0.0010***
DD1057	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	10,100	-	NS	NS
Average	***0.010***	***0.0010***	***3,830***	***3,830***	***1.0***	***0.23***	***11***	***1,505***	***0.0025***	***0.0010***	***9,950***	***-***	***1.2***	***0.0010***
MB03	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
MB1A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4,180	-	NS	NS
Average	***0.010***	***0.0010***	***647***	***647***	***1.0***	***0.075***	***115***	***684***	***0.0010***	***0.0040***	***3,408***	***-***	***0.050***	***0.0010***
MB1R	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5,760	-	NS	NS
Average	***0.010***	***0.0010***	***1,250***	***1,250***	***1.0***	***0.17***	***57***	***1,300***	***0.0010***	***0.0010***	***5,917***	***-***	***0.095***	***0.0010***
MB1W	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6,270	-	NS	NS
Average	***0.010***	***0.0010***	***1,265***	***1,265***	***1.0***	***0.17***	***55***	***1,215***	***0.0010***	***0.0010***	***6,013***	***-***	***0.070***	***0.0010***
MB2A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7,040	-	NS	NS
Average	***0.010***	***0.0010***	***709***	***709***	***1.0***	***0.23***	***75***	***1,760***	***0.0010***	***0.0010***	***6,023***	***-***	***0.050***	***0.0010***
MB2R	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6,440	-	NS	NS
Average	***0.010***	***0.0010***	***1,195***	***1,195***	***1.0***	***0.23***	***35***	***1,465***	***0.0010***	***0.0010***	***6,380***	***-***	***0.050***	***0.0010***
MB3A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	8,040	9,009	NS	NS
Average	***0.010***	***0.0010***	***837***	***837***	***1.0***	***0.25***	***42***	***2,200***	***0.0010***	***0.0045***	***8,193***	***-***	***0.055***	***0.0010***
MB3R	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6,250	6,327	NS	NS
Average	***0.010***	***0.0010***	***748***	***748***	***1.0***	***0.18***	***155***	***1,450***	***0.0015***	***0.63***	***6,213***	***-***	***0.050***	***0.0010***

Site	Aluminium	Arsenic	Bicarbonate Alkalinity as CaCO3	Total Alkalinity	Carbonate Alkalinity as CO3	Boron	Calcium	Chloride	Chromium	Copper	Electrical conductivity	EC trigger value	Iron	Lead
MB4A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	9,126	-	NS	NS
Average	***0.010***	***0.0010***	***324***	***324***	***1.0***	***0.050***	***63***	***118***	***0.0010***	***0.0015***	***3,701***	***-***	***0.050***	***0.0010***
MB4C	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2,441	-	NS	NS
Average	***0.010***	***0.0010***	***597***	***597***	***1.0***	***0.13***	***14***	***536***	***0.0010***	***0.0010***	***2,498***	***-***	***0.050***	***0.0010***
MW1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5,420	-	NS	NS
Average	***0.010***	***0.0010***	***620***	***620***	***1.0***	***0.21***	***64***	***1,230***	***0.0030***	***0.0095***	***5,943***	***-***	***0.050***	***0.0010***
MW2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6,500	-	NS	NS
Average	***0.010***	***0.0010***	***692***	***692***	***1.0***	***0.22***	***53***	***1,230***	***0.0020***	***0.0025***	***5,230***	***-***	***0.050***	***0.0010***
MW3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
MB04	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	***10,900***	-	NS	NS
Average	***0.010***	***0.0010***	***1,370***	***1,370***	***1.0***	***0.18***	***175***	***3,060***	***0.0010***	***0.0010***	***11,000***	***-***	***0.050***	***0.0010***
MB05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	***6,020***	-	NS	NS
Average	***0.010***	***0.0010***	***622***	***622***	***1.0***	***0.15***	***124***	***1,580***	***0.0010***	***0.0010***	***6,025***	***-***	***0.050***	***0.0010***
MB06D	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	***8,440***	-	NS	NS
Average	***0.010***	***0.0040***	***4,030***	***4,030***	***1.0***	***0.29***	***35***	***740***	***0.0010***	***0.0010***	***8,385***	***-***	***0.060***	***0.0010***
MB06S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	***5,190***	-	NS	NS
Average	***0.010***	***0.031***	***2,070***	***2,070***	***1.0***	***0.26***	***34***	***580***	***0.0010***	***0.0010***	***5,170***	***-***	***0.050***	***0.0010***
MB07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	***7,790***	-	NS	NS
Average	***0.010***	***0.0010***	***742***	***742***	***1.0***	***0.23***	***138***	***1,950***	***0.0010***	***0.0010***	***7,875***	***-***	***0.050***	***0.0010***

Table 8. continued

Site	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value	Selenium	Silver	Sodium	Sulfate as SO4 - Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
DD1005	NS	NS	NS	NS	7.2	-	NS	NS	NS	NS	NS	NS	NS
Average	***192***	***0.0075***	***0.0090***	***0.015***	***7.0***	***-***	***0.010***	***0.0010***	***994***	***216***	***29***	***3,525***	***0.0085***
DD1014	NS	NS	NS	NS	7.4	-	NS	NS	NS	NS	NS	NS	NS
Average	***35***	***0.024***	***0.0010***	***0.0020***	***7.3***	***-***	***0.010***	***0.0010***	***2,015***	***211***	***17***	***5,430***	***0.0050***
DD1015	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
DD1016	NS	NS	NS	NS	7.0	-	NS	NS	NS	NS	NS	NS	NS
Average	***297***	***0.15***	***0.0010***	***0.0010***	***6.8***	***-***	***0.010***	***0.0010***	***820***	***92***	***10***	***3,825***	***0.0080***
DD1025	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
DD1027	NS	NS	NS	NS	6.4	-	NS	NS	NS	NS	NS	NS	NS
Average	***38***	***0.027***	***0.0010***	***0.0030***	***6.4***	***-***	***0.010***	***0.0010***	***186***	***47***	***8.0***	***704***	***0.0050***
DD1032	NS	NS	NS	NS	7.5	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***5.0***	***0.017***	***0.0010***	***0.0010***	***7.4***	***-***	***0.010***	***0.0010***	***1,510***	***47***	***9.0***	***3,970***	***0.0050***
DD1043	NS	NS	NS	NS	7.0	-	NS	NS	NS	NS	NS	NS	NS
Average	***26***	***0.025***	***0.0015***	***0.0045***	***7.2***	***-***	***0.010***	***0.0010***	***1,865***	***136***	***22***	***4,985***	***0.0075***

Table 8. continued

Site	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value	Selenium	Silver	Sodium	Sulfate as SO4 - Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
DD1052	NS	NS	NS	NS	8.1	-	NS	NS	NS	NS	NS	NS	NS
Average	***3.0***	***0.036***	***0.0025***	***0.0080***	***8.3***	***-***	***0.010***	***0.0010***	***1,565***	***61***	***8.5***	***4,110***	***0.0050***
DD1057	NS	NS	NS	NS	7.6	-	NS	NS	NS	NS	NS	NS	NS
Average	***5.5***	***0.032***	***0.0065***	***0.0030***	***7.5***	***-***	***0.010***	***0.0010***	***2,785***	***1.0***	***27***	***6,940***	***0.0050***
MB03	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
MB1A	NS	NS	NS	NS	7.4	-	NS	NS	NS	NS	NS	NS	NS
Average	***94***	***0.0020***	***0.0020***	***0.0045***	***7.4***	***-***	***0.010***	***0.0010***	***428***	***78***	***169***	***1,840***	***0.0095***
MB1R	NS	NS	NS	NS	7.2	-	NS	NS	NS	NS	NS	NS	NS
Average	***56***	***0.014***	***0.0010***	***0.0010***	***7.2***	***-***	***0.010***	***0.0010***	***1,260***	***87***	***10***	***3,575***	***0.0050***
MB1W	NS	NS	NS	NS	7.2	-	NS	NS	NS	NS	NS	NS	NS
Average	***55***	***0.024***	***0.0010***	***0.0015***	***7.4***	***-***	***0.010***	***0.0010***	***1,260***	***73***	***13***	***3,525***	***0.0055***
MB2A	NS	NS	NS	NS	7.5	-	NS	NS	NS	NS	NS	NS	NS
Average	***182***	***0.25***	***0.0025***	***0.0010***	***7.5***	***-***	***0.010***	***0.0010***	***1,215***	***356***	***15***	***4,175***	***0.0050***
MB2R	NS	NS	NS	NS	7.7	-	NS	NS	NS	NS	NS	NS	NS
Average	***51***	***0.0015***	***0.0010***	***0.0010***	***7.7***	***-***	***0.010***	***0.0010***	***1,355***	***1.0***	***23***	***3,875***	***0.0050***

Table 8. continued

Site	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value	Selenium	Silver	Sodium	Sulfate as SO4 - Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
MB3A	NS	NS	NS	NS	7.6	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***226***	***0.024***	***0.0025***	***0.0020***	***7.6***	***-***	***0.010***	***0.0010***	***1,540***	***601***	***5.0***	***5,090***	***0.0050***
MB3R	NS	NS	NS	NS	7.6	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***319***	***0.27***	***0.0015***	***0.069***	***7.4***	***-***	***0.010***	***0.0010***	***780***	***518***	***11***	***4,145***	***0.026***
MB4A	NS	NS	NS	NS	7.2	-	NS	NS	NS	NS	NS	NS	NS
Average	***43***	***0.0010***	***0.0010***	***0.0010***	***7.2***	***-***	***0.010***	***0.0010***	***73***	***35***	***58***	***536***	***0.0050***
MB4C	NS	NS	NS	NS	8.1	-	NS	NS	NS	NS	NS	NS	NS
Average	***27***	***0.0015***	***0.0010***	***0.0010***	***8.0***	***-***	***0.010***	***0.0010***	***502***	***18***	***9.0***	***1,390***	***0.0050***
MW1	NS	NS	NS	NS	7.6	-	NS	NS	NS	NS	NS	NS	NS
Average	***222***	***0.0010***	***0.0010***	***0.0010***	***7.3***	***-***	***0.010***	***0.0010***	***684***	***319***	***1,010***	***3,210***	***0.0050***
MW2	NS	NS	NS	NS	7.5	-	NS	NS	NS	NS	NS	NS	NS
Average	***117***	***0.0015***	***0.0015***	***0.026***	***7.5***	***-***	***0.010***	***0.0010***	***904***	***87***	***1,755***	***2,840***	***0.015***
MW3	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	-	***-***	***-***	***-***	***-***	***-***
MB04	NS	NS	NS	NS	**6.9**	-	NS	NS	NS	NS	NS	NS	NS
Average	**353**	**0.26**	**0.0010**	**0.0040**	**7.0**	**-**	**0.010**	0.0010	**1,650**	**376**	**96**	**6,460**	**0.014**

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Table 8. continued

Site	Magnesium	Manganese	Molybdenum	Nickel	pH value	pH trigger value	Selenium	Silver	Sodium	Sulfate as SO4 - Turbidimetric	Suspended Solids (SS)	Total Dissolved Solids @180°C	Zinc
MB05	NS	NS	NS	NS	**7.5**	-	NS	NS	NS	NS	NS	NS	NS
Average	**175**	**0.19**	**0.016**	**0.0020**	**7.6**	-	**0.010**	0.0010	**995**	**255**	**14,800**	**3,870**	**0.0050**
MB06D	NS	NS	NS	NS	7.7	-	NS	NS	NS	NS	NS	NS	NS
Average	**22**	***0.46***	***0.018***	***0.015***	***7.7***	-	***0.010***	***0.0010***	***2,180***	***73***	***20***	***5,670***	***0.0050***
MB06S	NS	NS	NS	NS	7.9	-	NS	NS	NS	NS	NS	NS	NS
Average	***36***	***0.14***	***0.015***	***0.019***	***7.7***	-	***0.010***	***0.0010***	***1,200***	***209***	***66***	***3,390***	***0.011***
MB07	NS	NS	NS	NS	7.0	-	NS	NS	NS	NS	NS	NS	NS
Average	***354***	***0.0040***	***0.0010***	***0.0010***	***7.1***	-	***0.010***	***0.0010***	***1,080***	***616***	***400***	***4,800***	***0.0050***

Notes

The Maxwell Underground Mine Water Management Plan (WMP) requires:

- the monthly recording of reduced standing water levels in all bores (standpipes either manually or using loggers and VWPs)
- quarterly recording (field measurement) of all standpipes for pH, EC, redox potential and temperature; and
- biennial sampling and analysis of all standpipes for TDS, TSS, major cations (Ca, Mg, Na), major anions (chloride, sulfate, carbonate, bicarbonate), total alkalinity, and total and dissolved metals (Al, As, B, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Se, Ag & Zn).

The year-to-date averages includes samples taken on a biennial basis. The exception is for DS1 for which monthly samples are taken as per the EPL for pH, EC, TDS and salinity, and hence the average presented is the average of all samples taken during each of the past 12 months for those variables.

All results are in mg/L except Conductivity (µS/cm), pH (in pH units) and salinity (g/kg). Dissolved metal concentration (mg/L) are presented in **Table 6 and Table 8.** Plots of total and dissolved metal concentrations are shown in **Appendix 4**. Dissolved concentrations are the most applicable to groundwater quality evaluation and indications to change in trend and are presented here. EC and pH recordings are from field measurements, the remainder are from laboratory analysis.

See **Appendix 4** for an assessment against trigger levels.

Table 9. All groundwater bores: Reduced standing groundwater levels (mAHD) during Quarter 4 2023 compared to the rolling year-to-date average (Jan 23–Dec 23).

Site (with seam names for VWPs)	Oct	Nov	Dec	Rolling average	Type of bore	Type of measurement as of Dec 23
DS1	223.94	223.94	223.94	223.94	Standpipe	Manual
R4241	176.84	176.75	176.68 (1)	176.98	Standpipe	Logger
F1162	144.05	144.12	144.14 (1)	143.81	Standpipe	Logger
F1164	143.28	143.37	143.40 (1)	142.96	Standpipe	Logger
GW01D	200.59	200.37	200.23 (1)	202.19	Standpipe	Logger
GW01S	198.76	198.77	198.75 (1)	199.84	Standpipe	Logger
GW02D	135.81	135.89	135.94 (1)	136.15	Standpipe	Logger
GW02S	190.56	190.42	190.32 (1)	191.22	Standpipe	Logger
GW04	149.68	149.76	149.75 (1)	149.42	Standpipe	Logger
BLK6R12 – VW1 (WB)	162.21	162.08	161.99	162.47	VWP	Logger
BLK6R12 – VW2 (RB)	148.44	148.45	148.46	148.25	VWP	Logger
BLK6R12 – VW3 (WN)	122.51	122.43	122.34	122.78	VWP	Logger
BLK6R12 – VW4 (BK)	123.83	123.76	123.66	123.93	VWP	Logger
DD1005	143.70	143.71	143.66	143.69	Standpipe	Logger
DD1014	136.10	136.15	136.13	136.05	Standpipe	Logger
DD1015	(2)	(2)	(2)	(2)	Standpipe	Logger
DD1016	142.04	142.06	142.05	141.97	Standpipe	Logger
DD1025	(3)	(3)	(3)	(3)	Standpipe	Logger
DD1027	(4)	(4)	(4)	135.95 (4)	Standpipe	Logger
DD1032	128.30	128.30	128.28	128.32	Standpipe	Logger
DD1043	128.56	128.45	128.32	128.80	Standpipe	Logger
DD1052	119.46	122.54	119.25	119.53	Standpipe	Logger

Site (with seam names for VWPs)	Oct	Nov	Dec	Rolling average	Type of bore	Type of measurement as of Dec 23
DD1057	123.33	123.37	123.38	123.37	Standpipe	Logger
MB03	114.83 (5)	114.80 (5)	114.76 (5)	114.82 (5)	Standpipe	Logger
MB04	128.81	128.68	128.53	129.05	Standpipe	Logger
MB05	93.85	93.90	94.04	93.78	Standpipe	Logger
MB06D	121.41	121.43	121.45	121.39	Standpipe	Logger
MB06S	119.01	119.06	119.12	118.99	Standpipe	Logger
MB07	123.58	123.52	123.44	123.64	Standpipe	Logger
MB1-Alluvial	73.01	72.95	72.89	73.29	Standpipe	Logger
MB1-Redbank	75.34	75.22	75.21	75.50	Standpipe	Logger
MB1-Whybrow	74.67	74.59	74.55	74.79	Standpipe	Logger
MB2-Alluvial	113.56	113.53	113.48	113.60	Standpipe	Logger
MB2-Regolith	115.60	115.56	115.53	115.90	Standpipe	Logger
MB3-Alluvial	129.32	129.38	129.28	129.71	Standpipe	Logger
MB3-Regolith	129.06	128.93	128.81	129.21	Standpipe	Logger
MB4-Alluvial	70.54	70.49	70.46	70.77	Standpipe	Logger
MB4-Coal	70.43	70.40	70.36	70.54	Standpipe	Logger
MW1	121.12	121.04	120.95	121.27	Standpipe	Logger
MW2	112.68	112.62	112.56	112.72	Standpipe	Logger
MW3	(6)	(6)	(6)	(6)	Standpipe	Manual
RBD1 – VW1 (WB)	149.01	148.93	148.82	149.19	VWP	Logger
RBD1 – VW2 (RB)	145.44	145.32	145.21	145.87	VWP	Logger
RBD1 – VW3 (WN)	128.51	128.40	128.19	128.68	VWP	Logger
RBD1 – VW4 (BK)	89.16	89.06	88.93	89.24	VWP	Logger
RD1189 – VWP1 (WH)	184.56	184.48	184.30	184.87	VWP	Logger

Site (with seam names for VWPs)	Oct	Nov	Dec	Rolling average	Type of bore	Type of measurement as of Dec 23
RD1189 – VWP2 (AZZBF)	(7)	(7)	(7)	(7)	VWP	Logger
RD1189 – VWP3 (WW12)	147.57	147.69	147.74	146.75	VWP	Logger
RD1189 – VWP4 (Mt Arthur seam)	141.06	141.14	141.10	141.12	VWP	Logger
RD1189 – VWP5 (PF2)	(7)	(7)	(7)	(7)	VWP	Logger
RD1189 – VWP6 (BY)	135.22	134.91	134.71	135.55	VWP	Logger
RD1189 – VWP7 (WY)	(7)	(7)	(7)	(7)	VWP	Logger
RD1192- VWP1 (WB)	152.80	152.80	152.77	152.85	VWP	Logger
RD1192- VWP2 (RB)	135.58	135.52	135.45	135.57	VWP	Logger
RD1192-VWP3 (BK)	152.52	152.63	152.72	152.26	VWP	Logger
MB1VWP (VWP1) (INT)	75.50	75.42	75.32	75.77	VWP	Logger
MB1VWP (VWP2) (INT)	86.79	86.77	86.72	86.83	VWP	Logger
MB1VWP (VWP3) (INT)	95.31	95.38	95.33	95.34	VWP	Logger
MB1VWP (VWP4) (WB)	96.51	96.35	96.02	96.46	VWP	Logger
MB1VWP (VWP5) (WN)	100.00	99.95	100.00	99.76	VWP	Logger
WND16 (VWP1) (WB)	112.90	112.89	112.55	113.08	VWP	Logger
WND16 (VWP2) (WN)	(8)	(8)	(8)	(8)	VWP	Logger

Site (with seam names for VWPs)	Oct	Nov	Dec	Rolling average	Type of bore	Type of measurement as of Dec 23
WND16 (VWP3) (BK)	(8)	(8)	(8)	(8)	VWP	Logger
WND16 (VWP4) (BK)	109.54	109.49	109.46	109.50	VWP	Logger
WND26 (VWP1) (WY)	136.74	136.71	136.70	136.83	VWP	Logger
WND26 (VWP2) (RB)	134.34	134.35	134.35	133.90	VWP	Logger
WND26 (VWP3) (WB)	141.25	141.13	141.11	140.78	VWP	Logger
WND26 (VWP4) (WN)	(8)	(8)	(8)	(8)	VWP	Logger

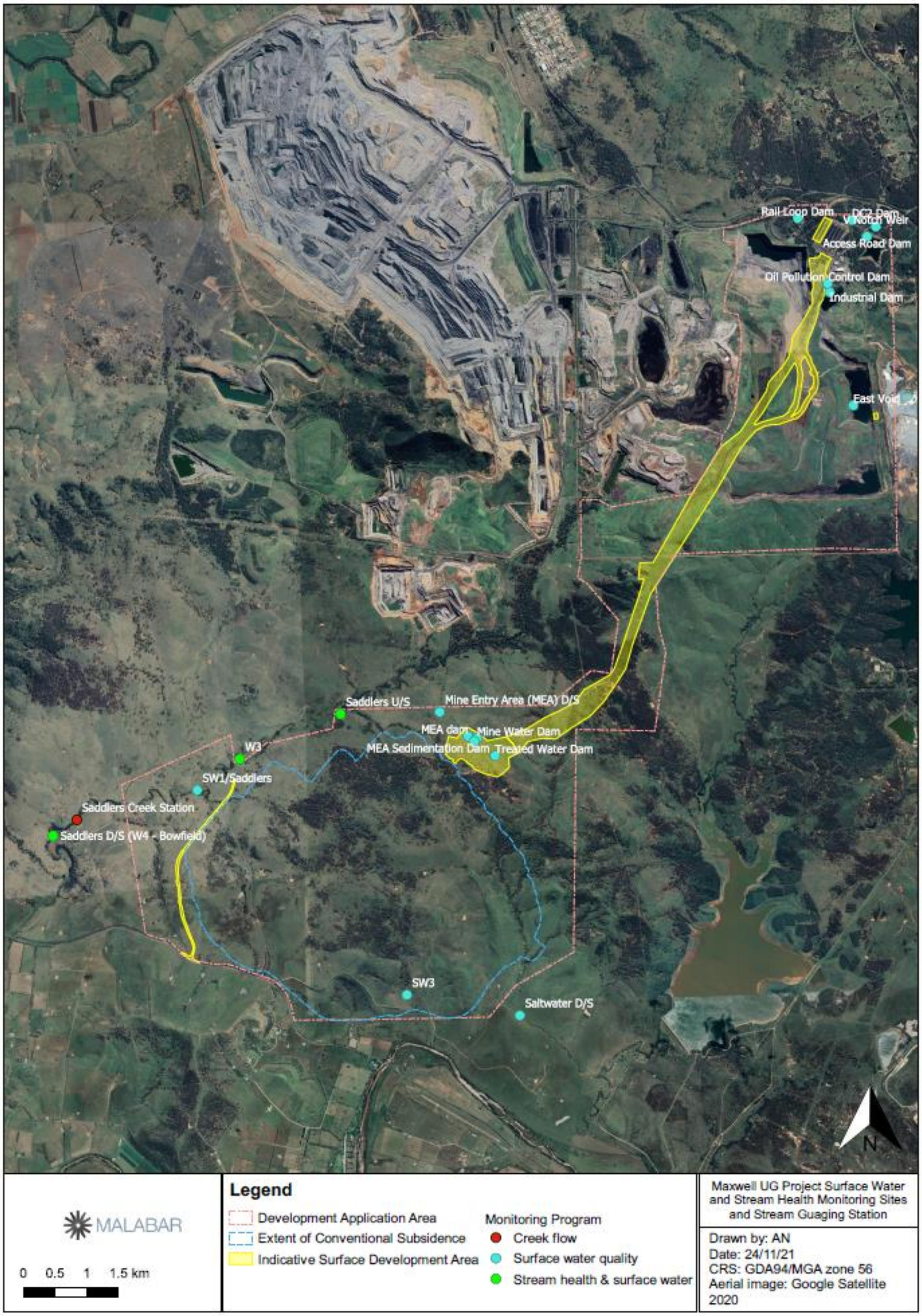
Notes

1. Measurements up to 08/12/2023. All remaining data to be downloaded as part of Q1-2024.
2. DD1015 is reported blocked during the reporting period; DD1027 is deemed to bring no significant value to future groundwater assessments as it monitors the Edderton Seam which is not targeted by the Maxwell UG Mine. As per the recommendations in the 2022 Annual Review, these monitoring locations will be removed from the reporting, once the next version of the Management Plan is approved.
3. DD1025 was decommissioned in December 2022 for safety reasons (to prevent inrush to the upcoming underground mining operations). As per the recommendations in the 2022 Annual Review, it is proposed that this site will be replaced by a replacement bore] for the purposes of the TARP assessment in Appendix A, once a revised GWMP has been approved.
4. Data only received up to 14/07/2023. Bore not accessible.
5. Bore reported as dry during monitoring period. Readings reflects stagnant water level in bore and not true water level.
6. MW3 are recorded dry during the reporting period. As per the recommendations in the 2022 Annual Review, it is proposed that MW3 will be removed from the reporting, once the next version of the Management Plan is approved.
7. Groundwater levels at RD1189 VWP2, VWP7 & VWP8 appear unstable hence are not reported. As per the recommendations in the 2022 Annual Review, these monitoring datasets will be removed from the reporting, once the next version of the Management Plan is approved.
8. The following VWPs wires are considered disabled: WND16-VWP2 and WND16-VWP3 (unstable and disabled respectively), WND26-VWP4 (disabled).

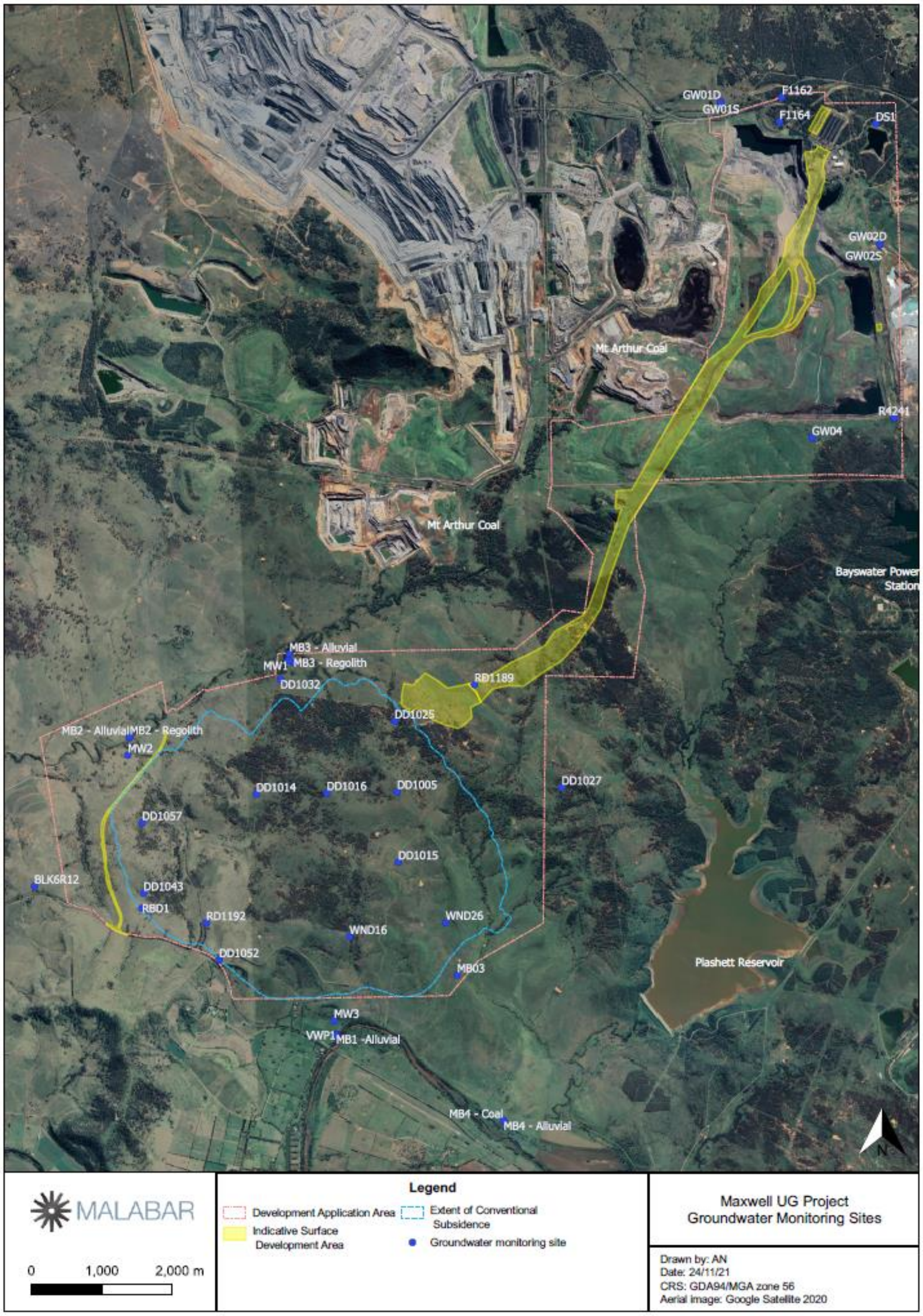
Acronyms: DD = diamond drill hole. mAHD = meters above Australian Height Datum (the elevation of the water level is calculated by subtracting the Depth to Water from the reference elevation). n/a = not available. NS = not sampled. RH = rotary drill hole. VWP = Vibrating wire piezometer and logger. Seam acronyms: BK = Blakefield seam; BY = Bayswater seam; MA = Mt Arthur seam; PF = Piercefield seam; INT = Interburden; WB = Wambo seam; RB = Redbank Creek seam; WA = tbc; WH = Woodlands Hill seam; WN = Whynot seam; WY = Wynn seam. WW = Warkworth seam; ZZ = indicates that the seam is intruded or heat affected.

APPENDIX 1 – AIR QUALITY MONITORING LOCATIONS

APPENDIX 2 – SURFACE WATER MONITORING LOCATIONS



APPENDIX 3 – GROUNDWATER MONITORING LOCATIONS



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APPENDIX 4 – CONSULTANT HYDROGEOLOGIST REPORT PROVIDING HYDROGRAPHS AND DATA ANALYSIS

Maxwell Underground Mine

Groundwater Monitoring Report – Quarter 4 – 2023

Malabar Resources Pty Ltd

PMB9 Thomas Mitchell Drive
Muswellbrook NSW 2333

Prepared by:

SLR Consulting Australia

Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street, North Sydney NSW 2060, Australia

SLR Project No.: 630.030945.00001

Client Reference No.: ANE145 Maxwell Quarterly Groundwater Reviews 2023

7 February 2024

Revision: 1

Making Sustainability Happen

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1	7 February 2024	Raymond Minnaar	Shaun Troon	Shaun Troon

Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Malabar Resources Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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Appendices

Appendix A **Trigger Action Response Plan & Groundwater Level Triggers**

Appendix B **Groundwater and Trigger Levels**

Appendix C **Groundwater Quality and Trigger Levels (only sites within the TARP)**

Acronyms and Abbreviations

Cbased	Cbased Environmental Pty Ltd
EC	Electrical Conductivity
GWMP	Groundwater Management Plan
mAHD	Metres *above* Australian Height Datum
Malabar	Malabar Resources Pty Ltd
mbgl	Metres below ground level
mbTOC	Metres below top of casing
MI	Maxwell Infrastructure
MU	Maxwell Underground
SLR	SLR Consulting Australia Pty Ltd
TARP	Trigger Action Response Plan
VWP	Vibrating Wire Piezometer

1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) was engaged by Malabar Resources Pty Ltd (Malabar) to perform a quarterly groundwater review of data collected by Cbased Environmental Pty Ltd (CBased) for the Maxwell Underground (MUG) and Maxwell Infrastructure (MI) referred to as the Maxwell Project. The quarterly groundwater assessment will support the annual review compliance reporting conducted by Malabar Resources for the site and acts as an early warning procedure for any performance trigger exceedances.

This quarterly report provides an overview of the groundwater data collected at the relevant monitoring bores for the period October – December 2023 and assesses this data against the Trigger Action Response Plan (TARP) threshold level presented in the Groundwater Management Plan (GWMP) contained within the Maxwell Water Management Plan (February 2023) for the Maxwell Underground Project and updated TARP Trigger Criteria from the MUG Annual Review 2022. The Maxwell Project and groundwater monitoring network is illustrated in **Figure 1**.

1.1 Groundwater Data Gaps

The following outlines any data gaps in groundwater levels or quality identified for the review period:

- Groundwater levels and quality results for private bores were not available and therefore not presented.

1.2 Groundwater Monitoring Parameters and Frequency

The groundwater monitoring parameters and the frequency of monitoring as per the GWMP is presented below:

- Standpipes
  - Reduced standing water level (for bores with no data logger) – monthly manual measurements.
    - Automatic dataloggers have been installed in the monitoring standpipes/ bores and no monthly manual groundwater level measurements are taken from August 2023 onwards.
  - pH, electrical conductivity, redox potential, temperature – quarterly.
  - Total dissolved solids, total suspended solids, major cations/anions, total alkalinity, dissolved and total metals – biennial (twice yearly).
- DS1 (in accordance with EPL 1323 Condition U1.1)
  - Reduced standing water level, pH, electrical conductivity, total dissolved solids, salinity – monthly.
- Data loggers and VWPs
  - Reduced standing water level – downloaded quarterly.

1.3 Additional Groundwater Monitoring Bores

Five additional monitoring bores were drilled between December 2022 and February 2023. Bores MB04, MB05, MB06-S, MB06-D, and MB07 have been included in the monitoring activities for 2023. Changes to the monitoring network to include the inclusion of these new monitoring bores and removal of damaged/ dry bores will be discussed in the site's 2023 Annual Review.

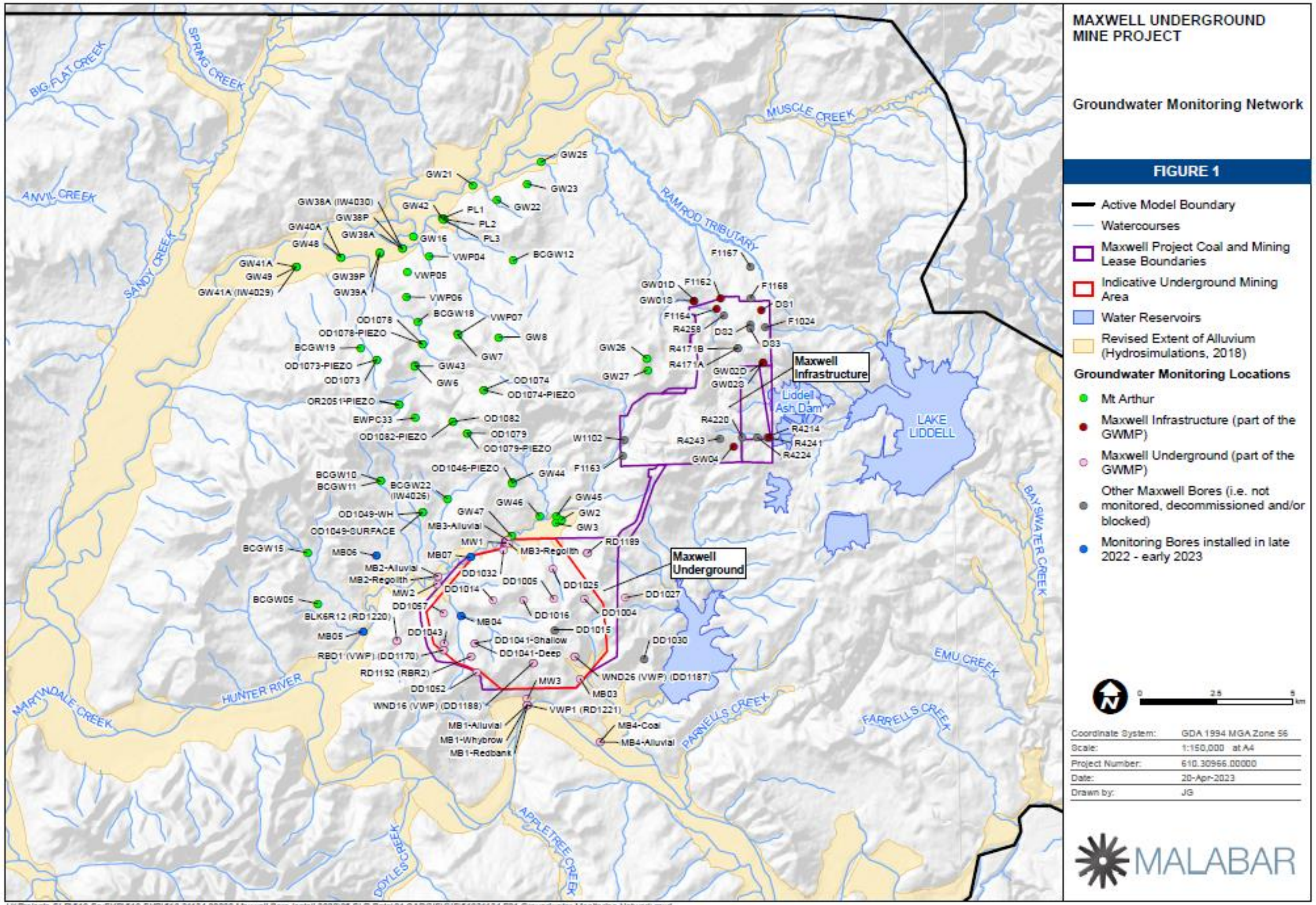


Figure 1: Malabar Project and groundwater monitoring network

2.0 Groundwater Level Trigger Review

This section addresses the compliance of groundwater levels at MUG and MI during the reporting period in relation to a trigger analysis.

All groundwater level monitoring bores and VWPs in the vicinity of the Maxwell Project, and their available completion details, are listed in **Table 1** below.

Table 2 outlines groundwater level trigger exceedances during the review period at each of the monitored bore locations as per the approved trigger criteria presented in **Appendix A**. Hydrographs for all groundwater monitoring locations including those with approved groundwater level trigger levels are presented in **Appendix B**.

Section 2.0 discusses briefly any groundwater level exceedances observed during the reporting period only, as identified in **Table 2**.

Table 1: Groundwater Monitoring Bore Network – Maxwell Project

Monitoring bore or VWP ID	Easting [1] (GDA94)	Northing [1] (GDA94)	Geology	Bore screen or VWP sensor depth (mBGL)	Status
Maxwell Infrastructure - MI (standpipe)					
DS1	305592	6420380	Shallow bedrock aquifer	15	Open
F1162	301045	6420755	Greta Coal Measures	274	Open
F1164	304223	6420406	Greta Coal Measures	190.5	Open
R4241	305793	6416224	Jurassic Volcanics	150	Open
GW01S	303386	6420691	Base Regolith	12–15	Open
GW01D	303391	6420683	Greta Coal Measures	29–32	Open
GW02S	305592	6420380	Base Regolith	8–14	Open
GW02D	301045	6420755	Greta Coal Measures	69–72	Open
GW04	304223	6420406	Permian Sequence	101–104	Open
Maxwell Underground (MUG) – standpipes					
MB1 - Redbank	297930	6407453	Redbank Seam	51–57	Open
MB1 - Whybrow	297928	6407448	Whybrow Seam	25–28	Open
MB1A	297933	6407459	Hunter River Alluvium	8–11	Open
MB2R	295004	6411675	Regolith	20–29	Open
MB2A	294998	6411669	Saddlers Creek Alluvium	5–7	Open
MB3R	297328	6412729	Regolith	27–30	Open
MB3A	297269	6412850	Saddlers Creek Alluvium (upslope)	8.5–14.5	Open
MB4 - Coal	300302	6406234	JPS-Coal	42–47	Open

Monitoring bore or VWP ID	Easting [1] (GDA94)	Northing [1] (GDA94)	Geology	Bore screen or VWP sensor depth (mBGL)	Status
MB4A	300307	6406231	Hunter River Alluvium	10–18	Open
MB03	299649	6408297	Saltwater Creek Alluvium	5–8	Open
MW1	297254	6412760	Saddlers Creek Alluvium (upslope)	6–9	Open
MW2	294977	6411419	Saddlers Creek Alluvium	4–9.5	Open
MW3	297904	6407652	Hunter River Alluvium	2.9–6.9	Problem [2]
MB04	295755	6410371	Unnamed Creek Regolith	10-13	Open
MB05	292546.7	6409857	Saddlers Creek alluvium	1.8-3.8	Open
MB06_S	292980.2	6412335	Woodland Hill Overburden	29-32	Open
MB06_D	292980.2	6412335	Bowfield Seam	95-101	Open
MB07	296070.3	6412297	Saddlers Creek Alluvium	3-5.5	Open
DD1005	298799	6410901	Blakefield Overburden	138.6	Open
DD1014	296799	6410864	Blakefield Overburden	90.5	Open
DD1015	298815	6409900	Blakefield Overburden	162.5	Problem [3]
DD1016	297801	6410882	Blakefield Overburden	126.4	Open
DD1025	298764	6411901	Blakefield Overburden	44.6	Decommissioned [4]
DD1027	301133	6410960	Edderton Seam	252.8	Open
DD1032	297143	6412495	Piercefield Overburden	276.5	Open
DD1043	295200	6409458	Woodlands Hill Overburden	182–203	Open
DD1052	296274	6408513	Whynot Seam Overburden	105–127	Open
DD1057	295181	6410458	Arrowfield Overburden	164–188	Open
Maxwell Underground (MUG) – Vibrating Wire Piezometers (VWPs)					
RD1189 (SD1_DD001)	299896	6412419	Woodlands Hill Seam	78.9	Open
			AZZBF	145.5	Problem [5]
			WW12	186.2	Open
			MAL	230	Open
			PF2	255.5	Problem [5]
			BY2	315	Open
			WY2	322	Problem [5]
	296092	6409038	Wambo Seam	61.2	Open

Monitoring bore or VWP ID	Easting [1] (GDA94)	Northing [1] (GDA94)	Geology	Bore screen or VWP sensor depth (mBGL)	Status
RD1192 (RBR2)			Redbank Seam	80	Open
			Blakefield Seam	148.5	Open
BLK6R12 (RD1220)	293653	6409558	WB2 Seam	25	Open
			Redbank Seam	40.5	Open
			Whynot Seam	86.5	Open
			Blakefield Seam	148.5	Open
VWP1 (RD1221) (RDW006A)	297926	6407444	Interburden	21	Open
			Interburden	40	Open
			Interburden	73	Open
			Whybrow Seam	87	Open
			Whynot Seam	109.2	Open
			Blakefield Seam	138	Problem [6]
RBD1 (DD1170)	295178	6409246	Whybrow Seam	24.65	Open
			Redbank Seam	33.55	Open
			Whynot Seam	79.5	Open
			Blakefield Seam	103.3	Open
WND16 (DD1188)	298122	6408842	Wambo Seam	33.75	Open
			Whynot Seam	59.25	Problem [7]
			Blakefield Seam	90.15	Problem [7]
			Blakefield Seam	110.5	Open
WND26 (DD1187)	299487	6409044	Whybrow Seam	77.3	Open
			Redbank Seam	84.6	Open
			Wambo Seam	123.45	Open
			Whynot Seam	144.25	Problem [7]

1 Coordinates in metres (GDA 1994 MGA Zone 56).

2 MW3 are recorded dry during the reporting period. As per the recommendations in the 2022 Annual Review, it is proposed that MW3 will be removed from the reporting, once the next version of the Management Plan is approved.

3 DD1015 is reported blocked during the reporting period; DD1027 is deemed to bring no significant value to future groundwater assessments as it monitors the Edderton Seam which is not targeted by the Maxwell UG Mine. As per the recommendations in the 2022 Annual Review, these monitoring locations will be removed from the reporting, once the next version of the Management Plan is approved.

4 DD1025 was decommissioned in December 2022 for safety reasons (to prevent inrush to the upcoming underground mining operations). As per the recommendations in the 2022 Annual Review, it is proposed that this site will be replaced by a replacement bore] for the purposes of the TARP assessment in Appendix A, once a revised GWMP has been approved.

5 Groundwater levels at RD1189 VWP2, VWP7 & VWP9 appear unstable hence are not reported. As per the recommendations in the 2022 Annual Review, these monitoring datasets will be removed from the reporting, once the next version of the Management Plan is approved.

6 VWP1 sensor 6 indicates no data and not reported.

7 The following VWPs wires are considered disabled: WND16-VWP2 and WND16-VWP3 (unstable and disabled respectively), WND26-VWP4 (disabled).

VWP – vibrating wire piezometer *mBGL – metres below ground level* *EX – Existing*

A – Alluvium *R – Regolith* *JPS – Jerry's Plain Subgroup*

Open – Functional for pressure/water level measurements and/or quality sampling

Closed –Decommissioned/ To be removed

Problem – Blocked/Dry/Issue detected during monitoring period

Table 2: Groundwater Level Trigger Exceedances – shallow and deep open standpipe bores

Bore	TARP Level [mAHD]	Previous Monitoring Period Q3-2023			Current Monitoring Period Q4-2023		
		Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23
Maxwell Infrastructure		**Water Management Plan (Feb 2023)**					
R4241	173.6	N	N	N	N	N	N
GWD01D	198.2	N	N	N	N	N	N
GWD01S	197.0	N	N	N	N	N	N
GWD02D	135.7	N	N	N	N	N	N
GWD02S	187.7	N	N	N	N	N	N
Maxwell Underground		**Water Management Plan (Feb 2023) & Annual Review 2022**					
DD1025	157.3	*Decommissioned*			*Decommissioned*		
DD1032	130.6	Y	Y	Y	Y	Y	Y
MB3-Alluvial	127.7	N	N	N	N	N	N
MB3-Regolith	127.3	N	N	N	N	N	N

LX: maximum trigger level exceedances recorded *#: not applicable*

mAHD – metres above Australian Height Datum

N:Normal Level TARP Level 1 TARP Level 2

Y: "Yes", short-term exceedance, less than 3 consecutive exceedances.

"" no groundwater level data available for this period*

2.1 Normal Level

Groundwater levels at the Maxwell Infrastructure groundwater monitoring sites R4241, GW01D, GW01S, GW02D, GW02S (**Appendix B**) and at the Maxwell Underground sites MB3-Alluvial and MB3-Regolith (**Appendix B**) are observed above the groundwater trigger level over the reporting period hence are within the Normal Level of the TARP criteria (**Appendix A**).

2.2 TARP Level 1

There was one TARP Level 1 groundwater level trigger exceedance over the reporting period – this was for DD1032. Historic data indicates a steady decline in groundwater levels at this site due to below average rainfall conditions. Past quarterly groundwater monitoring reports noted that the groundwater levels were consistently close to the TARP trigger level and triggered the TARP Level 1 groundwater level trigger exceedance during Q3-2023. As the exceedance is not expected to be related to site activities, given that as of end of the monitoring period the drift for the Woodlands Hill mine has only progressed 165m deep, no additional actions are judged to be required other than continued continuous monitoring.

Following a Level 1 exceedance, if the trigger exceedances are not caused by site activities and have not resulted in an exceedance of a Water Performance Measure in Table 4 of Development Consent for SSD 9526, then the GMMP requires a review of the monitoring frequency. DD1032 has been installed with a datalogger and records readings daily and this is considered appropriate to evaluate groundwater levels. It is recommended that the TARP trigger level be reviewed in the upcoming Annual Review 2023. The Annual Review 2022 recommended a change to 128.3 mAHD and is subject to approval of an updated GWMP. The groundwater levels have historically been close to the TARP trigger level and it is recommended this level be updated as it was based on the 5th percentile of monitoring data at the previous level determination.

2.3 TARP Level 2

A TARP Level 2 exceedance is defined as where a Level 1 trigger review indicates trigger exceedances are caused by site activities and this has resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526. There were no TARP Level 2 groundwater level trigger exceedances over the reporting period.

2.4 General Observations

- Mud noticed on GW02D logger in January 2023 and water level is very close to bottom of the borehole (~ 2 m). The logger for GW02D was cleaned and repositioned up by 44 cm on the 20th of November 2023.
- MB03 and MW3 were reported as dry during January 2023.
- DD1025 was decommissioned in December 2022 for safety reasons (i.e., to prevent inrush to the upcoming underground mining operations) and no measurements were made from Q1-2023.

3.0 Groundwater Quality Trigger Review

Trigger Action Response Plan (TARP) levels are defined for five sites for the Maxwell Infrastructure area and four sites for the Maxwell Underground area (Malabar Resources, Nov 2021) and presented in **Appendix A**. In accordance with the approved GWMP, the TARP levels were reviewed as part of the 2022 Annual Review. Where appropriate, proposed revisions to the TARP levels were provided in the 2022 Annual Review and have been used here. It should be noted that any proposed amendments to the TARP approved levels are subject to approval via an amended GWMP.

An assessment of groundwater quality (EC and pH) at each of the monitored bore locations against the TARP threshold levels has been completed. EC and pH plots for groundwater monitoring locations with approved groundwater quality trigger levels are presented in **Appendix C**. During the reporting period, EC and pH recorded at the groundwater monitoring sites were within the TARP Normal Level threshold.

A summary of the groundwater quality (electrical conductivity and pH) trigger levels during the reporting period at the monitored bores are presented in **Table 3**.

No groundwater quality results were available for the private bores for the reporting period. Results for the private bores are reviewed annually.

Table 3: Trigger Exceedances for pH and EC for the period October - December 2023

Bore	Period [month sampled]	Q3 2023			Q4 2023		
		EC (µS/cm)	pH lower	pH upper	EC (µS/cm)	pH lower	pH upper
R4241	Q3-2023 [Sep 23 – Field]	N	N	N	N	N	N
GW01S	Q3-2023 [Sep 23 – Field]	N	N	N	*	*	*
GW01D	Q3-2023 [Sep 23 – Field]	Y	N	N	N	N	N
GW02S	Q3-2023 [Sep 23 – Field]	N	N	N	N	N	N
GW02D	Q3-2023 [Sep 23 – Field]	Y	N	N	Y	N	N
DD1025	*Decommissioned*	-	-	-	-	-	-
DD1032	Q3-2023 [Jul 23 – Laboratory]	N	N	N	N	N	N
MB3-Alluvial	Q3-2023 [Jul 23 – Laboratory]	N	N	N	N	N	N
MB3-Regolith	Q3-2023 [Jul 23 – Laboratory]	Y	N	N	N	N	N

N: Normal Level TARP Level 1 TARP Level 2

Y: "Yes", short-term exceedance, less than 3 consecutive exceedances.

"" no groundwater quality data available for this period*

3.1 Normal Level

Groundwater quality at the Maxwell Infrastructure groundwater monitoring sites R4241, GW01D, GW01S, GW02S, GW02D (**Appendix C**) and at the Maxwell Underground sites DD1032, MB3-Alluvial and MB3-Regolith (**Appendix C**) are observed below the trigger level over the reporting period hence are within the Normal Level of the TARP criteria (**Appendix A** - **Table A1**).

3.2 TARP Level 1

There were no TARP Level 1 groundwater quality trigger exceedances over the reporting period.

3.3 TARP Level 2

There were no TARP Level 2 groundwater quality trigger exceedances over the reporting period.

3.4 General Observations

- GW02D had an EC value of 13,200 µS/cm (Field measured) in September 2023 and 13,500 µS/cm (Laboratory measured) / 12,600 µS/cm (Field measured) in December

2023, and exceeded the groundwater quality trigger level for EC (10,500 µS/cm). This is only a single short-term exceedance for 2 consecutive quarters. Continual monitoring is recommended as per the GWMP and additional action is only required after three consecutive exceedances.

- GW01S could not be sampled during Q4-2023 due to water level being too deep for sampling equipment.

4.0 Recommendations

Based on the trigger exceedances assessed in **Section 2.0** and **Section 3.0** and the TARP criteria presented in **Appendix A**, the following actions are recommended:

4.1 Actions – Trigger Assessment

- Continue the monitoring programme, reporting groundwater level and quality data in the next groundwater quarterly review report in March 2024.
- For all sites with a Normal Level in place for groundwater levels, continue monitoring groundwater trends against TARP trigger levels.
- For all sites with a Normal Level in place for groundwater quality, continue monitoring pH and EC against TARP trigger levels.
- For all sites with a single exceedance of the TARP trigger levels continual monitoring is recommended per the GWMP. Once a Level 1 TARP trigger level is confirmed the GMWP requires additional action.
- There were one TARP Level 1 groundwater level trigger exceedances over the reporting period for DD1032. Historic data indicates a steady decline in groundwater levels due to below average rainfall conditions. Past quarterly groundwater monitoring reports noted that the groundwater levels were consistently close to the TARP trigger level. Additional monitoring is required according to the GWMP. As the exceedance is not expected to be related to site activities, no additional actions are required other than continual monitoring. The GMMP required changes to the monitoring frequency where required. DD1032 has been installed with a datalogger and records readings daily and this is considered appropriate to evaluate groundwater levels. It is recommended that the TARP trigger level be reviewed in the upcoming Annual Review 2023. The Annual Review 2022 recommended a change to 128.3 mAHD and is subject to approval of an updated GWMP. The groundwater levels have historically been close to the TARP trigger level and it is recommended this level be updated as it was based on the 5th percentile of monitoring data at the previous level determination.

4.2 Actions – Reporting

- Reference levels for future reviews to calculate groundwater drawdown at all monitoring bores should be established.
- Following the decommission of DD1025 in December 2022, it is planned to incorporate an existing groundwater monitoring bore in the TARP assessment as a replacement to DD1025.

4.3 Actions – Monitoring and Sampling

- Incorporate any mine dewatering volume into the quarterly groundwater monitoring database and reporting as this data will be useful when interpreting groundwater level responses due to mining activities.

5.0 Closing

SLR was engaged by Malabar to perform a quarterly groundwater review of data collected by Cbased for the Maxwell Project. This quarterly report provides an overview of the groundwater data collected at the relevant monitoring bores for the period July 2023 - September 2023 and assesses this data against the TARP Trigger Criteria presented in the GWMP contained within the Water Management Plan for the Maxwell Underground Project and proposed updated TARP Trigger Criteria from the MUG Annual Review 2022.

There were one TARP Level 1 groundwater level trigger exceedances over the reporting period for DD1032. Historic data indicates a steady decline in groundwater levels due to below average rainfall conditions. Past quarterly groundwater monitoring reports noted that the groundwater levels were consistently close to the TARP trigger level. Additional monitoring is required according to the GWMP. As the exceedance is not expected to be related to site activities, no additional actions are required other than continual monitoring. The GMMP required changes to the monitoring frequency where required. DD1032 has been installed with a datalogger and records readings daily and this is considered appropriate to evaluate groundwater levels. It is recommended that the TARP trigger level be reviewed in the upcoming Annual Review 2023. The Annual Review 2022 recommended a change to 128.3 mAHD and is subject to approval of an updated GWMP. The groundwater levels have historically been close to the TARP trigger level and it is recommended this level be updated as it was based on the 5th percentile of monitoring data at the previous level determination.

Sincerely,

SLR Consulting Australia

Raymond Minnaar
Associate Consultant - Hydrology & Hydrogeology

Shaun Troon
Principal Hydrogeologist - South East Australia Lead

6.0 References

Malabar Resources, 2023. Water Management Plan. MXC_MP_EC_08 (6 February 2023), Version 4, Review 0.

Malabar Resources, 2021b. Maxwell Underground Project Environmental Monitoring Data Quarter 4 2021. December 2021.

Malabar Resources, 2022. Maxwell Underground Coal Mine Project. Annual Review 2022. March 2022.

SLR, 2022. Maxwell Project – Quarterly Groundwater Monitoring Report April – June 2022. Prepared for Malabar Resources, Report No: 610.30966.00000-M01-v2.0

SLR, 2022a. Maxwell Project – Quarterly Groundwater Monitoring Report July – September 2022. Prepared for Malabar Resources, Report No: 610.30966.00000-M02-v1.0

SLR, 2022b. Maxwell Project – Quarterly Groundwater Monitoring Report October - December 2022. Prepared for Malabar Resources, Report No: 610.30966.00000-M02-v1.0

7.0 Feedback

At SLR, we are committed to delivering professional quality service to our clients. We are constantly looking for ways to improve the quality of our deliverables and our service to our clients. Client feedback is a valuable tool in helping us prioritise services and resources according to our client needs.

To achieve this, your feedback on the team's performance, deliverables and service are valuable and SLR welcome all feedback via https://www.slrconsulting.com/en/feedback. We recognise the value of your time and we will make a $10 donation to our 2023 Charity Partner - Lifeline, for every completed form.

Appendix A Trigger Action Response Plan & Groundwater Level Triggers

Maxwell Underground Mine

Groundwater Monitoring Report – Quarter 4 – 2023

Malabar Resources Pty Ltd

SLR Project No.: 630.030945.00001

7 February 2024

Table A-1: Trigger Action Response Plan for the Maxwell Project monitoring bores – Groundwater Levels and Quality

Status	Trigger	Action	Response
Maxwell Infrastructure			
Normal	Groundwater level and quality below Maxwell Infrastructure Stage 1 groundwater triggers (*Table A3*).	Continue to minimise the long-term catchment areas of the mine voids and transfer water to and from voids. Continue water balance monitoring, groundwater monitoring, and assessment.	None
Level 1	Three consecutive groundwater level, pH or EC results exceed Maxwell Infrastructure Stage 1 groundwater triggers (*Table A3*).	A suitably qualified hydrogeologist reviews groundwater level or quality data to determine if trigger exceedances are caused by site activities and whether this has resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526.	If trigger exceedances are not caused by site activities and have not resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526, then review monitoring frequency. If trigger exceedances are caused by site activities and resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526, then undertake Level 2 Actions.
Level 2	Investigation following Level 1 trigger review indicates trigger exceedances are caused by site activities and this has resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526.	Undertake actions recommended by suitably qualified hydrogeologist which may include update to the groundwater model and/or review of monitoring program.	Report non-compliance. Undertake adaptive management strategies.
Maxwell Underground			
Normal	Groundwater level and quality below Maxwell Underground Stage 1 groundwater level triggers (*Table A3*).	Continue groundwater monitoring, and assessment.	None
Level 1	Three consecutive groundwater level, pH or EC results exceed Maxwell Underground Stage 1 groundwater level triggers (*Table A3*).	A suitably qualified hydrogeologist reviews groundwater level or quality data to determine if trigger exceedances are as a result of activities at the site and whether this has resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526.	If trigger exceedances are not caused by site activities and have not resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526, then review monitoring frequency.

Status	Trigger	Action	Response
			If trigger exceedances are caused by site activities and resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526, then undertake Level 2 Actions.
Level 2	Investigation following Level 1 trigger review indicates trigger exceedances are caused by activities at the Project and this has resulted in an exceedance of a Water Management Performance Measure in Table 4 of Development Consent SSD 9526.	Undertake actions recommended by suitably qualified hydrogeologist which may include update to the groundwater model and/or review of monitoring program.	Report non-compliance. Undertake adaptive management strategies. In consultation with suitably qualified hydrogeologist and other relevant specialists, undertake repair, mitigate and/or offset any adverse groundwater impacts of the development.

Table A-2: Trigger Action Response Plan for Privately-owned bores - Groundwater Levels and Quality

Status	Trigger	Action	Response
Groundwater levels			
Normal	Drawdown at privately-owned bores less than 2 m. No complaints about potential impacts of the site on privately- owned bores.	Continue regular monitoring and review of potentially impacted private bores (*refer to Section 5.2.2 of the GWMP*).	None
Level 1	Drawdown at privately-owned bores more than 2 m and/or complaint about potential impacts of the site on private bores.	A suitably qualified hydrogeologist reviews groundwater data to determine if 2 m drawdown is as a result of activities at the site (and/or MAC). Collect relevant data on privately-owned bores that are the subject of the complaint. Suitably qualified hydrogeologist to determine if privately-owned bore the subject of the complaint has been adversely and directly impacted as a result of the development (other than an impact that is minor or negligible).	If drawdown is not as a result of activities at the Project (and/or MAC) then review monitoring frequency. If privately-owned bore the subject of the complaint has not been adversely and directly impacted as a result of the development (other than an impact that is minor or negligible) then review monitoring frequency. If drawdown, or impacts the subject of the complaint, are due to site activities then undertake Level 2 actions.
Level 2	Investigation following Level 1 trigger review indicates drawdown is as a result of activities at the site.	Notify relevant bore owner and implement compensatory water supply actions. Undertake any other actions recommended by suitably qualified hydrogeologist which may include update to the groundwater model and/or review of monitoring program.	Review groundwater monitoring program.
Groundwater quality			
Normal	No change in beneficial use category	Continue regular monitoring and review of potentially impacted private bores (refer to *Section 5.2.2 of the GWMP*).	None
Level 1	Two consecutive monitoring results indicate a change in beneficial use category.	A suitably qualified hydrogeologist reviews groundwater data to determine if change in water quality is caused by activities at the site.	If a privately-owned bore has not been adversely and directly impacted as a result of the activities at the site, then review monitoring frequency. If change in water quality is changed by activities at the site, then undertake Level 2 actions.

Status	Trigger	Action	Response
Level 2	Investigation following Level 1 trigger review indicates change in water quality is caused by activities at the site.	Implement compensatory water supply actions. Undertake any other actions recommended by suitably qualified hydrogeologist which may include update to the groundwater model and/or review of monitoring program.	Review groundwater monitoring program.

Table A-3: Summary of groundwater level and quality triggers for alluvium and hard rock aquifers (Maxwell Project) – (GWMP – Malabar Resources, Feb 2023) and Annual Review 2022

Bore	Groundwater level, trigger level (mAHD)	pH trigger level - minimum	pH trigger level - maximum	EC trigger level (µS/cm)
Maxwell Infrastructure				
R4241	173.6	6.0	8.5	6,253
GW01D	198.2	6.0	8.5	5,680
GW01S	197.0	6.0	8.5	9,260
GW02D	135.7	6.0	8.5	10,500
GW02S	187.7	6.0	8.5	9,480
Maxwell Underground				
DD1025	157.3 (155.1 #)	6.0	8.5	14,200
DD1032	130.6 (128.3 #)	6.0	8.5	7,170
MB3-A	127.7	6.0	8.5	9,009
MB3-R	127.3	6.0	8.5	6,327

 # Proposed levels in 2022 Annual Review and subject to approval of the GWMP

Table A-4: Groundwater Quality Categories: Electrical Conductivity - (GWMP – Malabar Resources, Nov 2021)

Beneficial use	Quality Range	Description
Marginal Potable	800 – 2,350 µS/cm (500 - 1,500 mg/L TDS)*	At the upper level this water is at the limit of potable water, but is suitable for watering of livestock, irrigation and other general uses
Irrigation	2,350 – 7,800 µS/cm (1,500 - 5,000 mg/L TDS)*	At the upper level, this water requires shandying for use as irrigation water or to be suitable for selective irrigation and watering of livestock
Saline	7,800 – 22,000 µS/cm (5,000 - 14,000 mg/L TDS)*	Generally unsuitable for most uses. It may be suitable for a diminishing range of salt-tolerant livestock up to about 6,500mg/L [~10,150 µS/cm] and some industrial uses
Highly Saline	>22,000 µS/cm (14,000 mg/L TDS)*	Suitable for coarse industrial processes up to about 20,000 mg/L [~31,000 µS/cm].

** Approximate EC ranges derived from TDS ranges, with conversion factor of 1.5625 applied. Source: National Land and Water Resources Audit (Murray Darling Basin Commission, 2005).*

Appendix B Groundwater and Trigger Levels

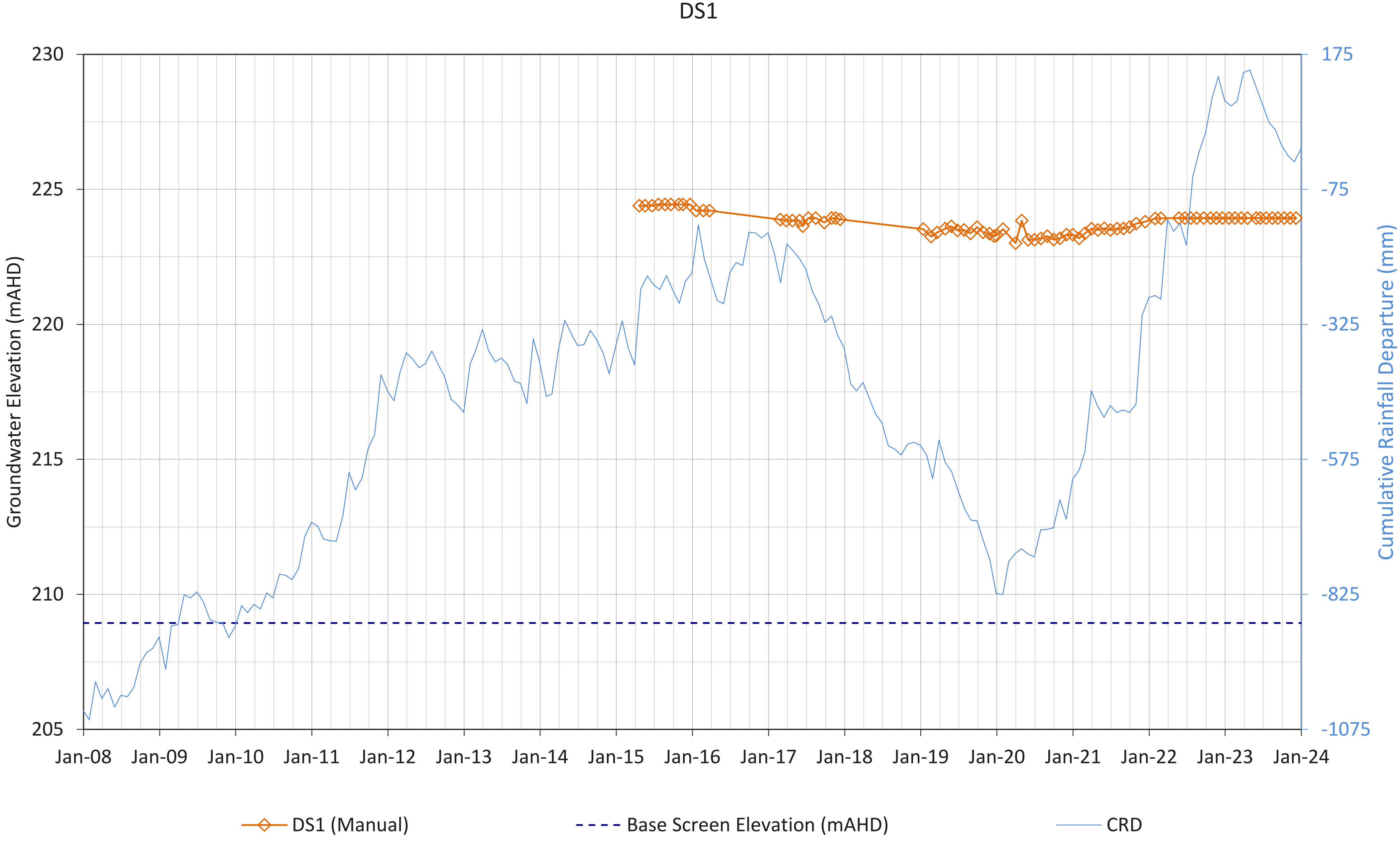
Maxwell Underground Mine

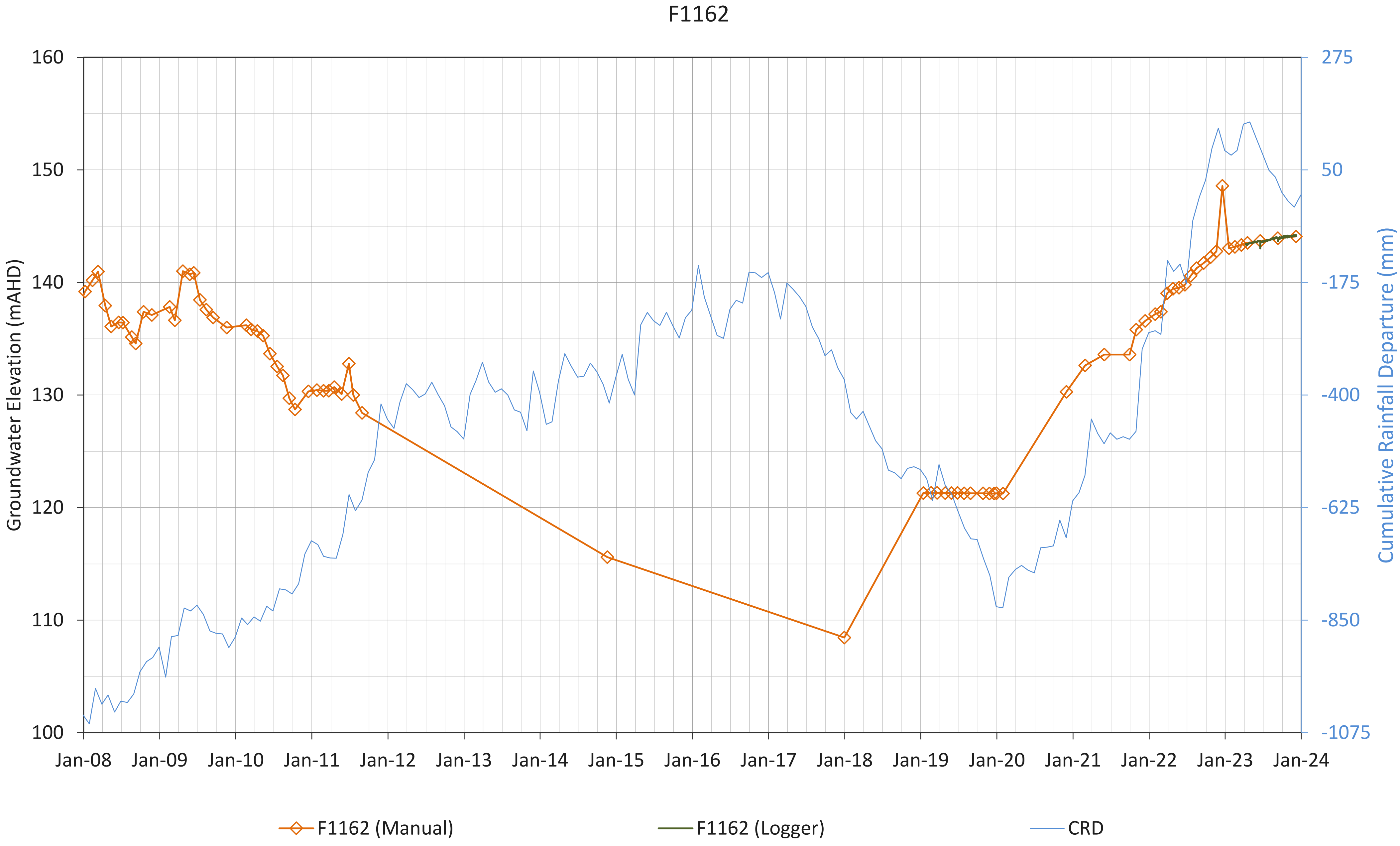
Groundwater Monitoring Report – Quarter 4 – 2023

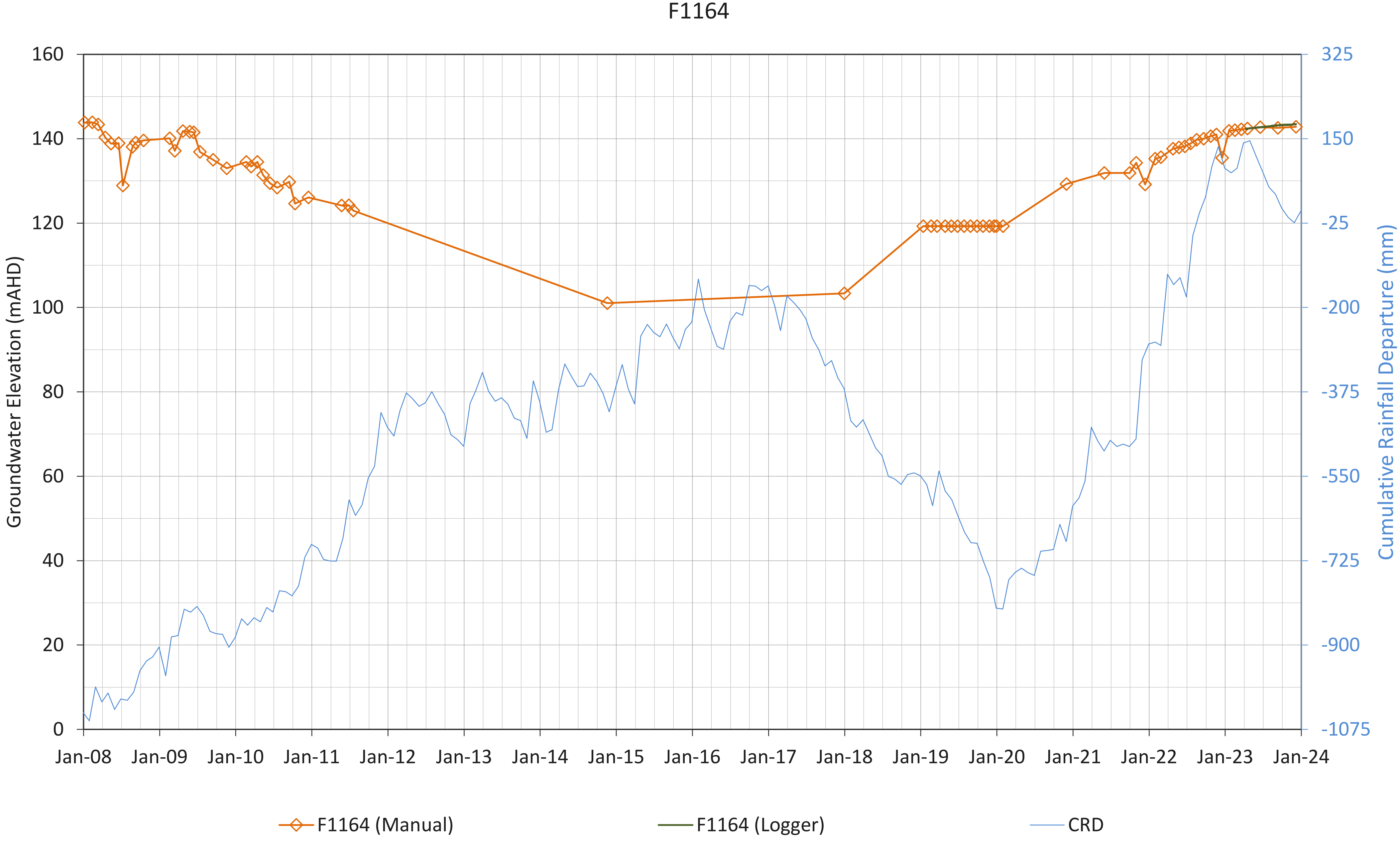
Malabar Resources Pty Ltd

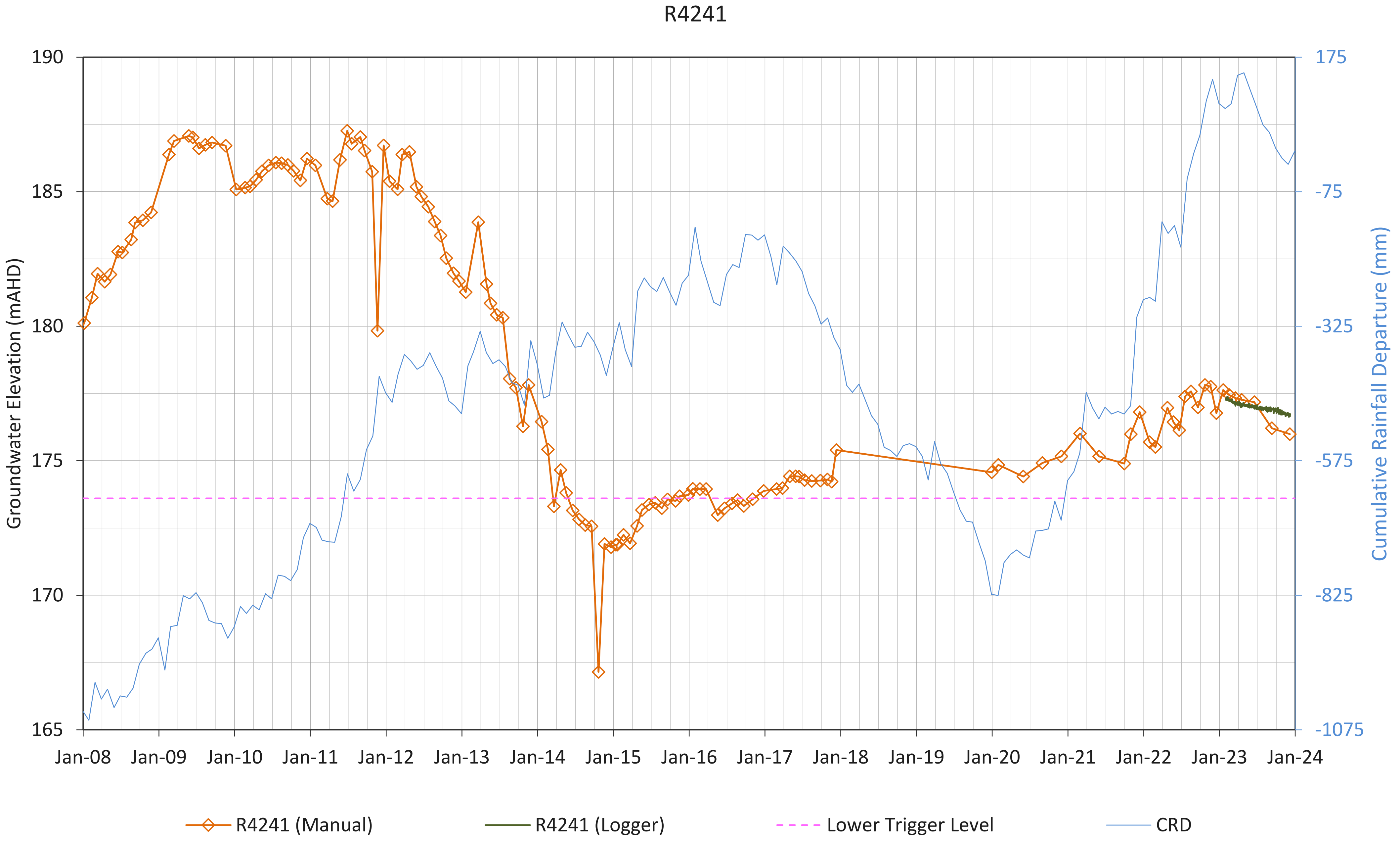
SLR Project No.: 630.030945.00001

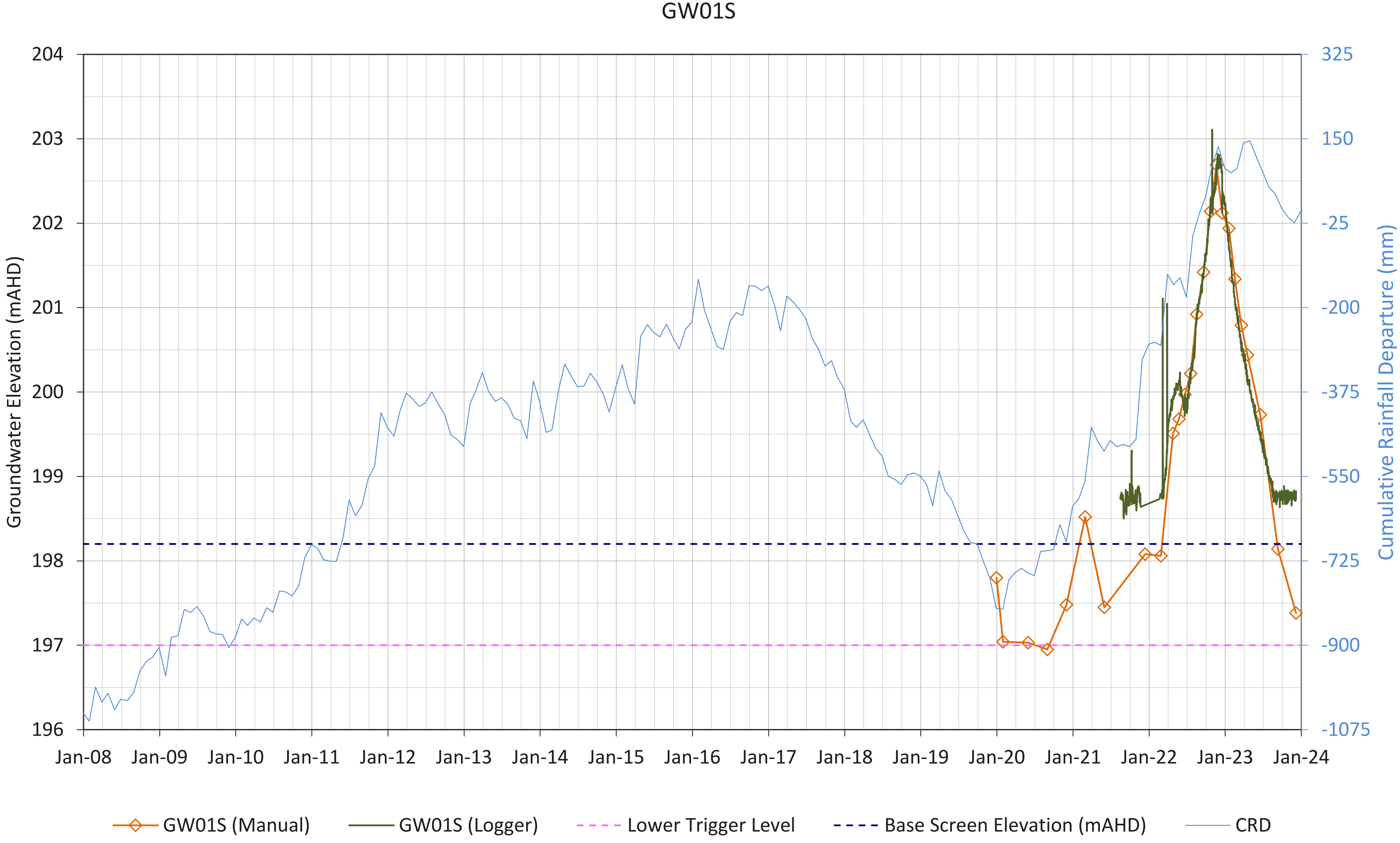
7 February 2024

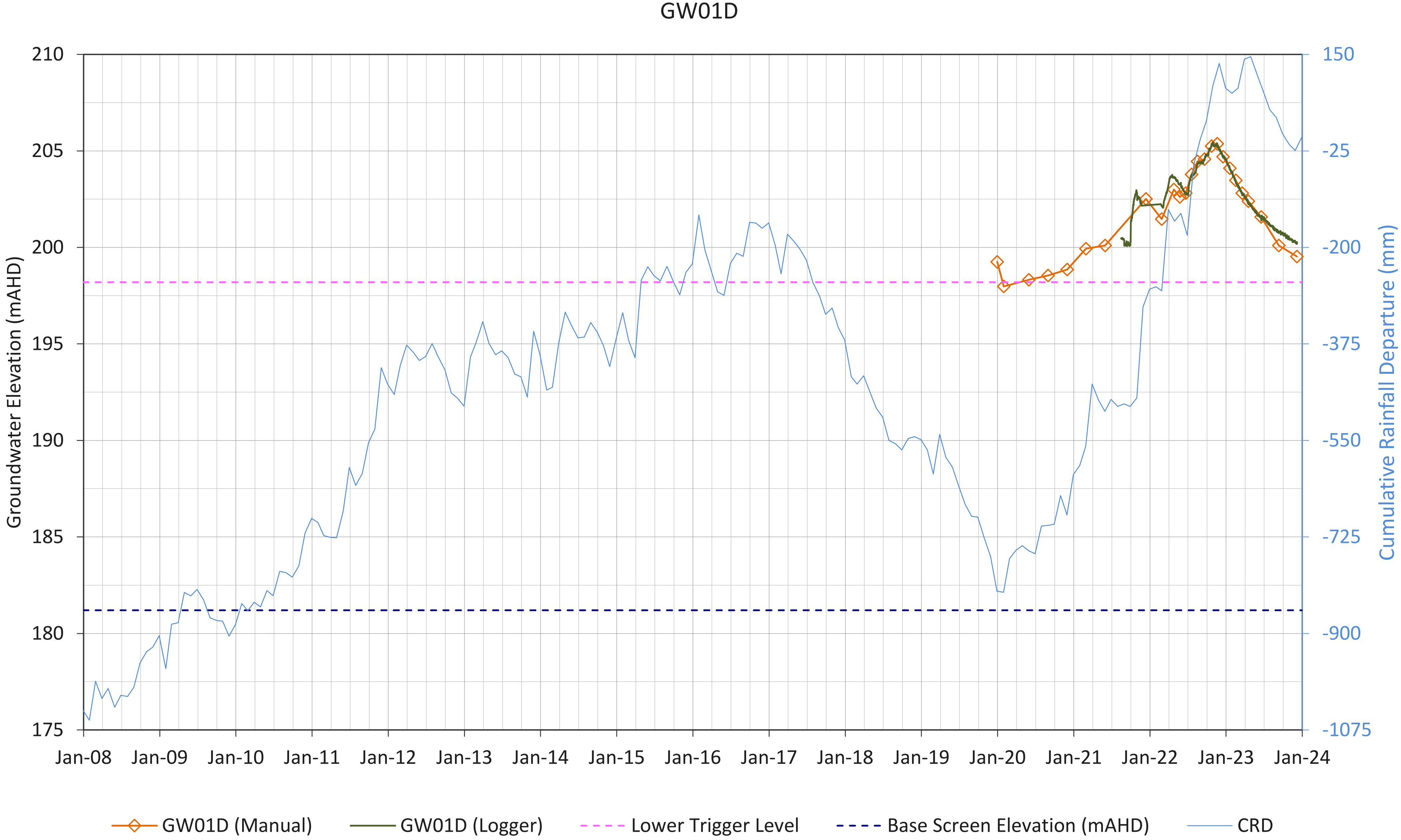

DS1
230
225
220
215
210
205
175
-75
-325
-575
-825
-1075
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DS1 (Manual)
Base Screen Elevation (mAHD)
CRD

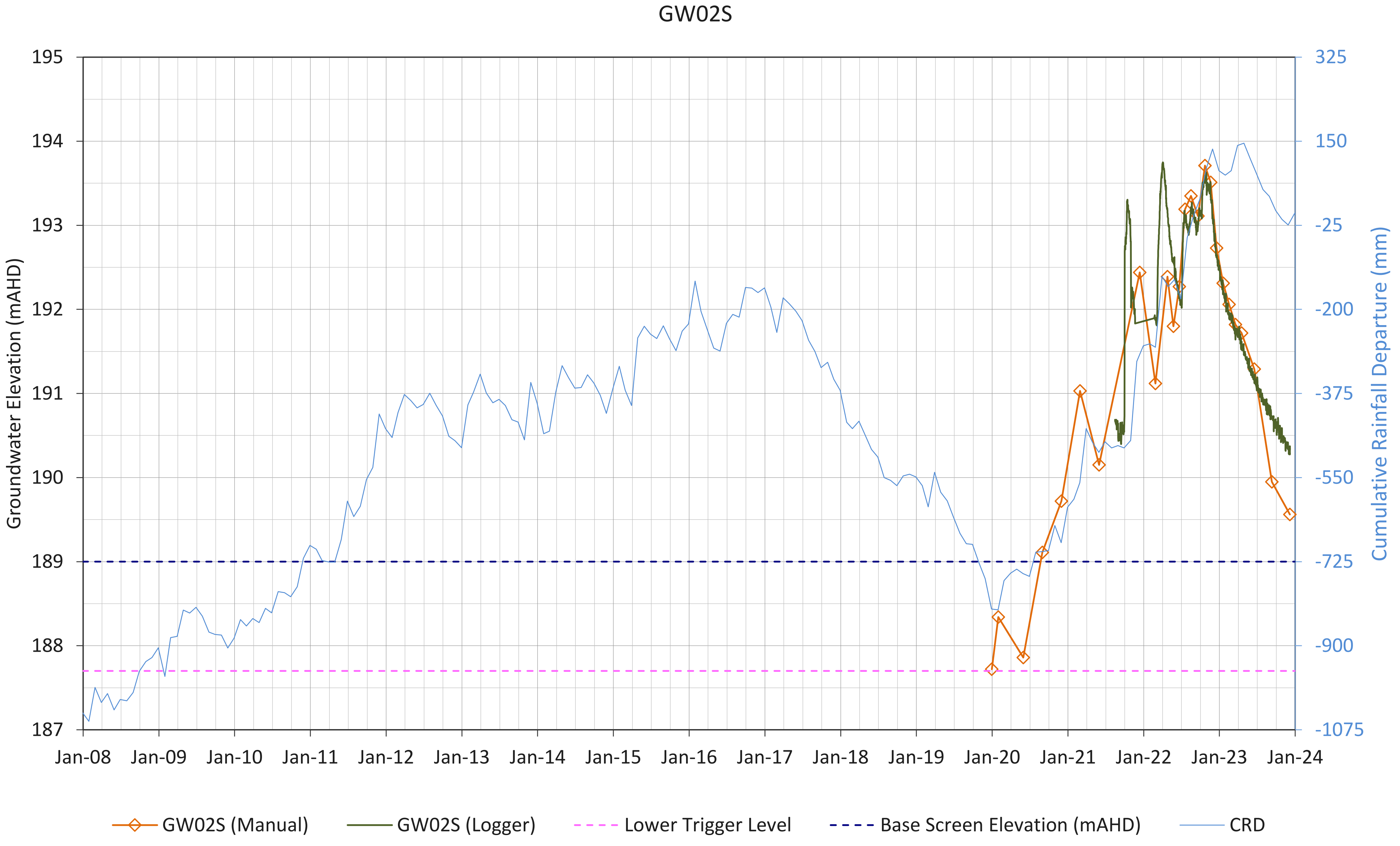

F1162
Groundwater Elevation (mAHD)
160
150
140
130
120
110
100
Cumulative Rainfall Departure (mm)
275
50
-175
-400
-625
-850
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
F1162 (Manual)
F1162 (Logger)
CRD

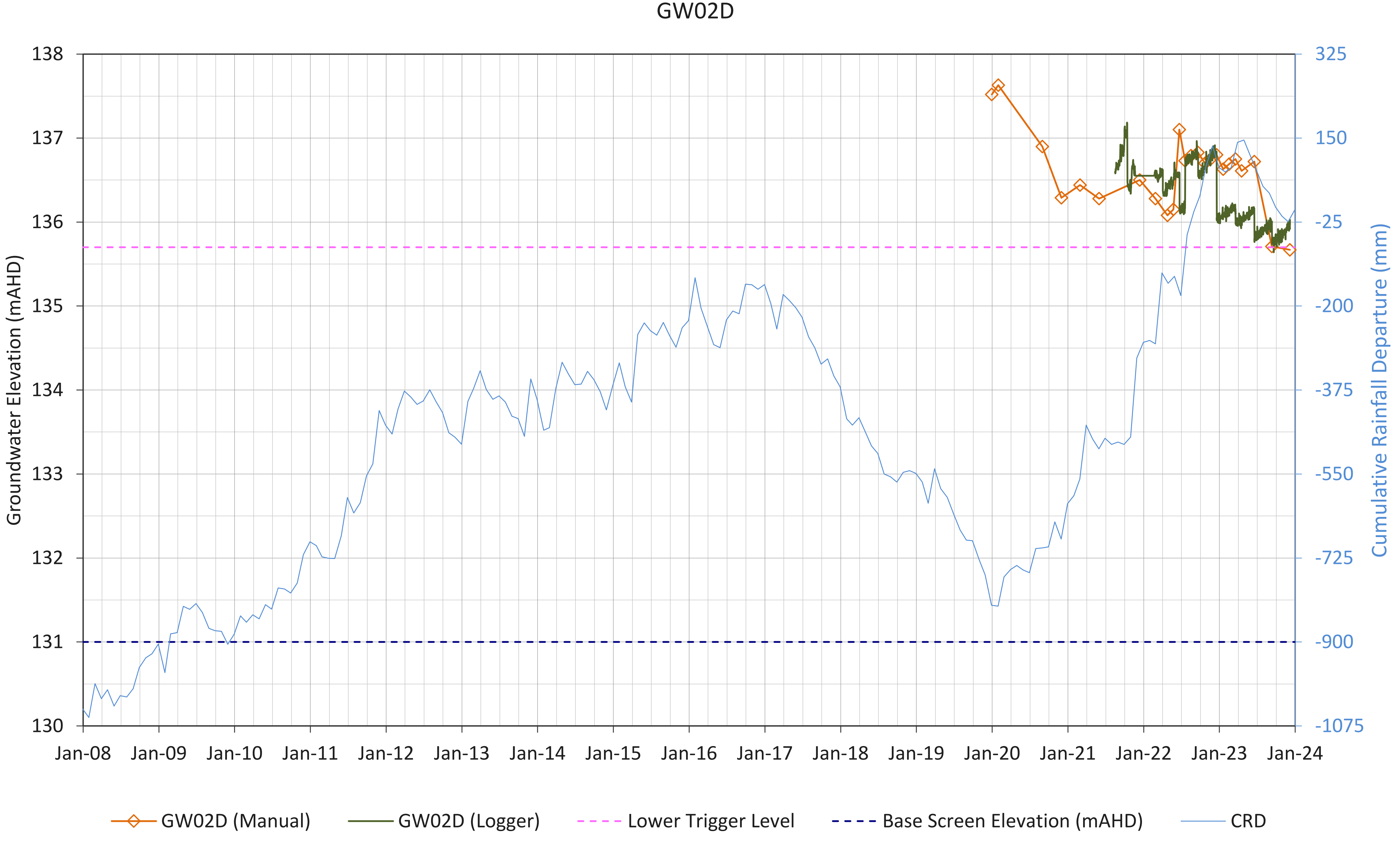

F1164
160
140
120
100
80
60
40
20
0
Groundwater Elevation (mAHD)
325
150
-25
-200
-375
-550
-725
-900
-1075
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
F1164 (Manual)
F1164 (Logger)
CRD

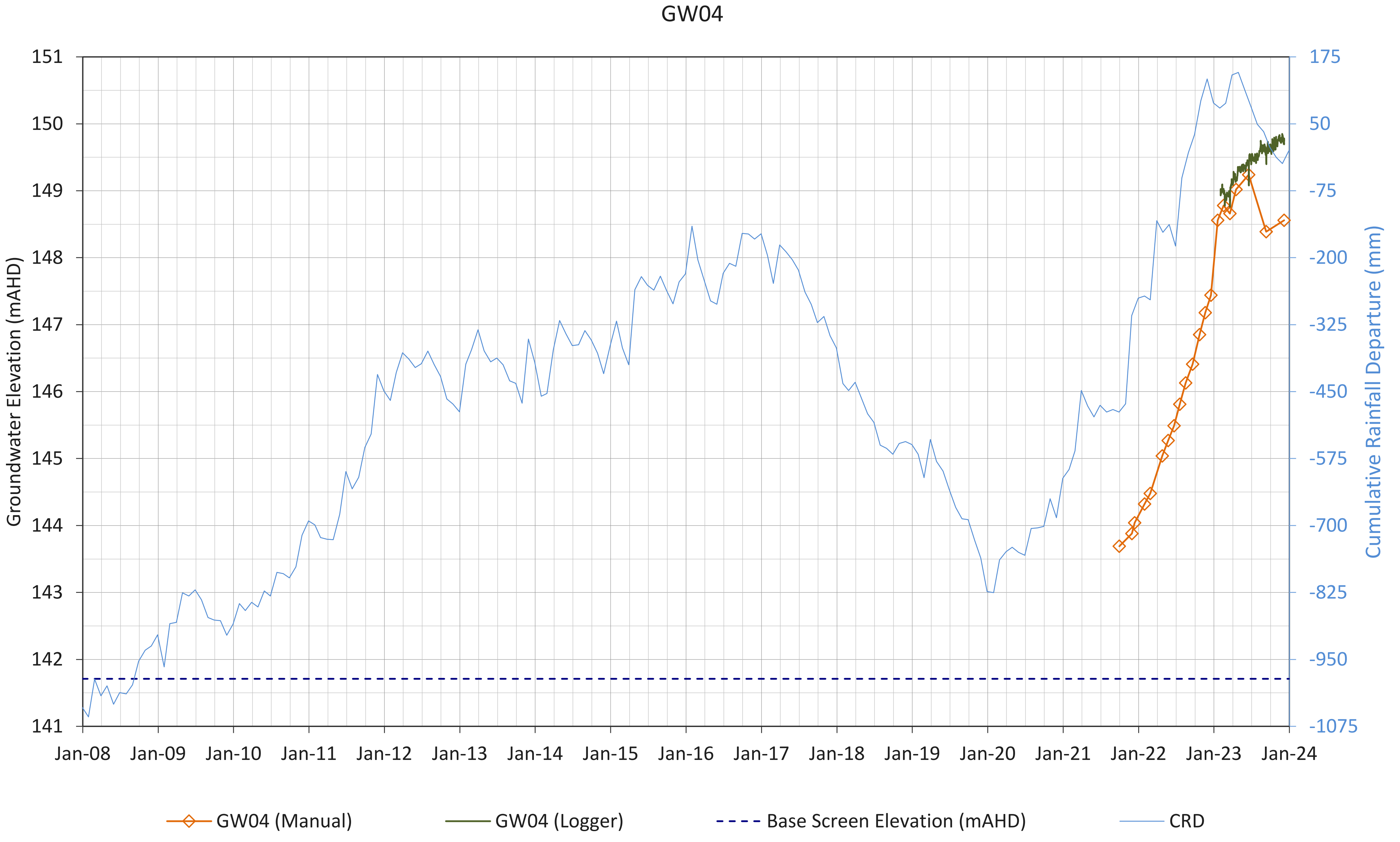

R4241
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
190
185
180
175
170
165
175
-75
-325
-575
-825
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
R4241 (Manual)
R4241 (Logger)
Lower Trigger Level
CRD

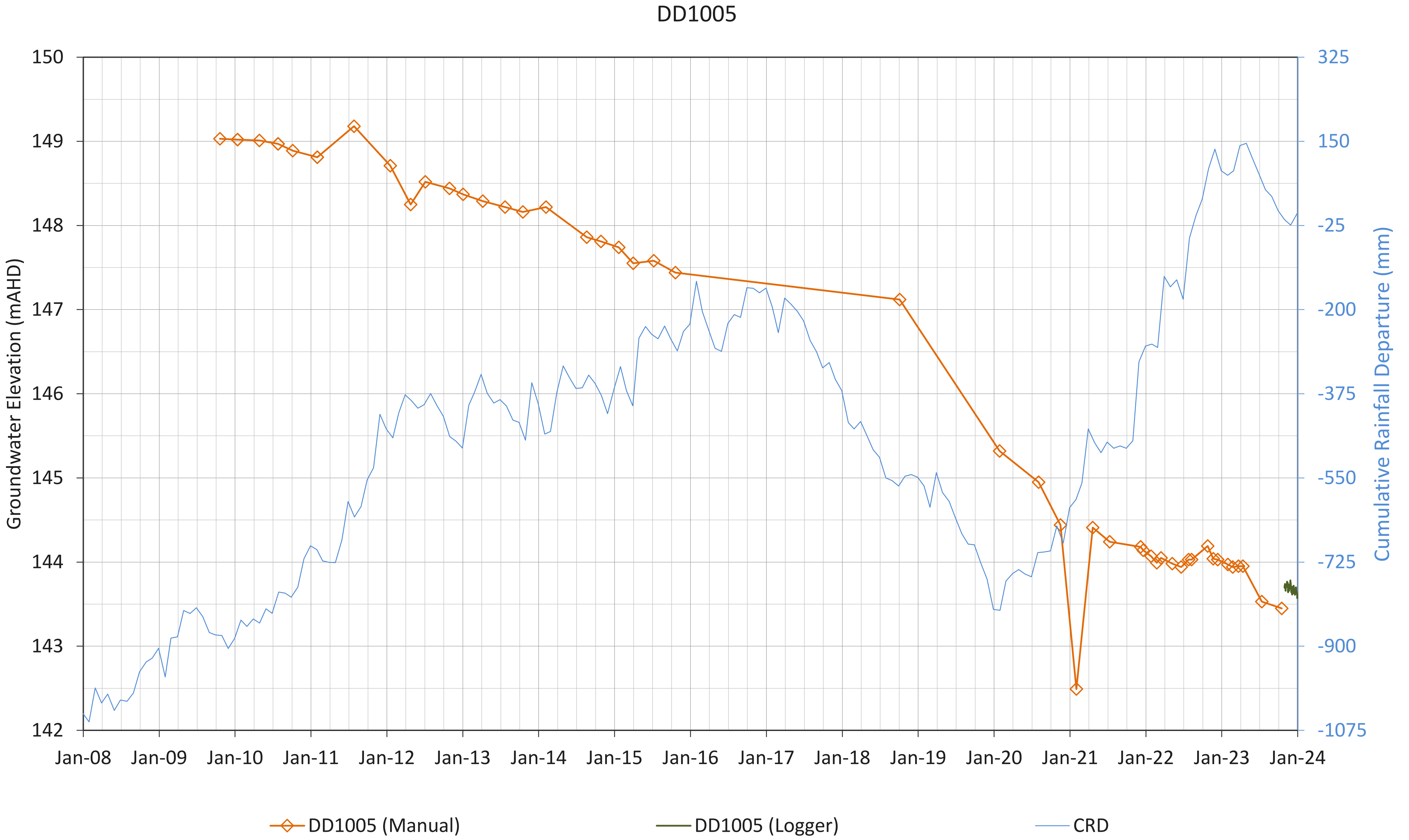

GW01S
Groundwater Elevation (mAHD)
204
203
202
201
200
199
198
197
196
Cumulative Rainfall Departure (mm)
325
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
GW01S (Manual)
GW01S (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

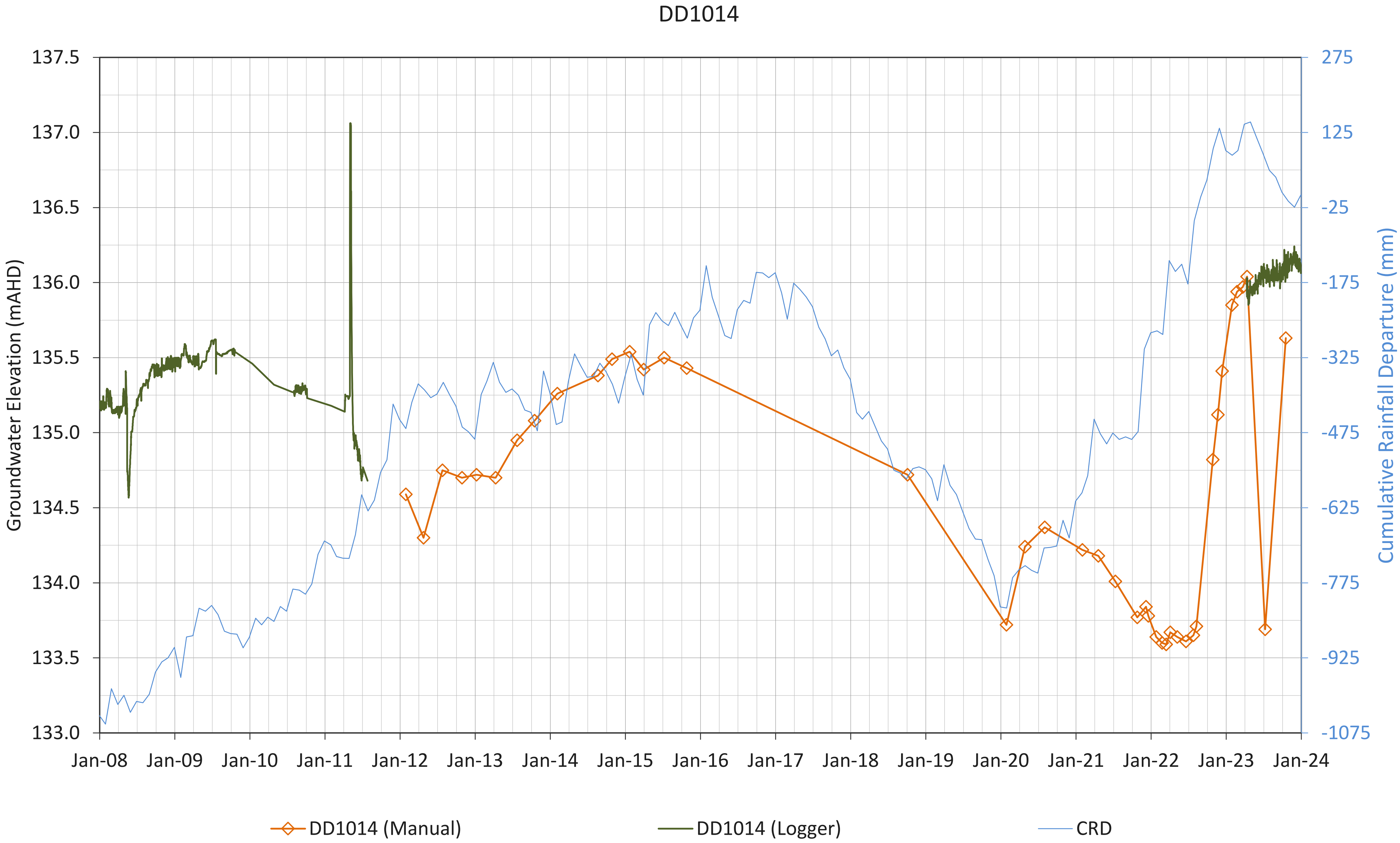

GW01D
210
205
200
195
190
185
180
175
Groundwater Elevation (mAHD)
150
-25
-200
-375
-550
-725
-900
-1075
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
GW01D (Manual)
GW01D (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

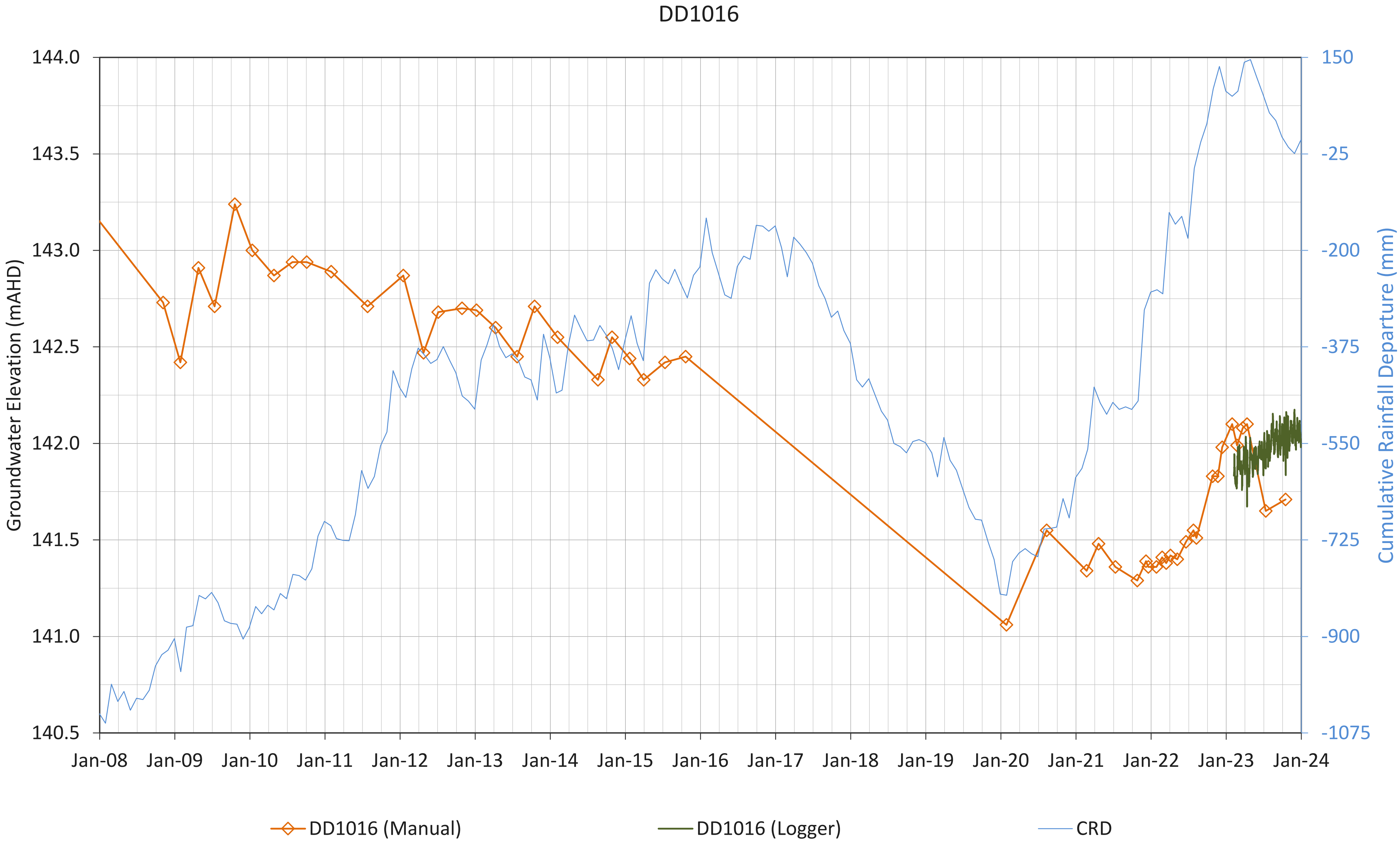

GW02S
195
194
193
192
191
190
189
188
187
325
150
-25
-200
-375
-550
-725
-900
-1075
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
GW02S (Manual)
GW02S (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

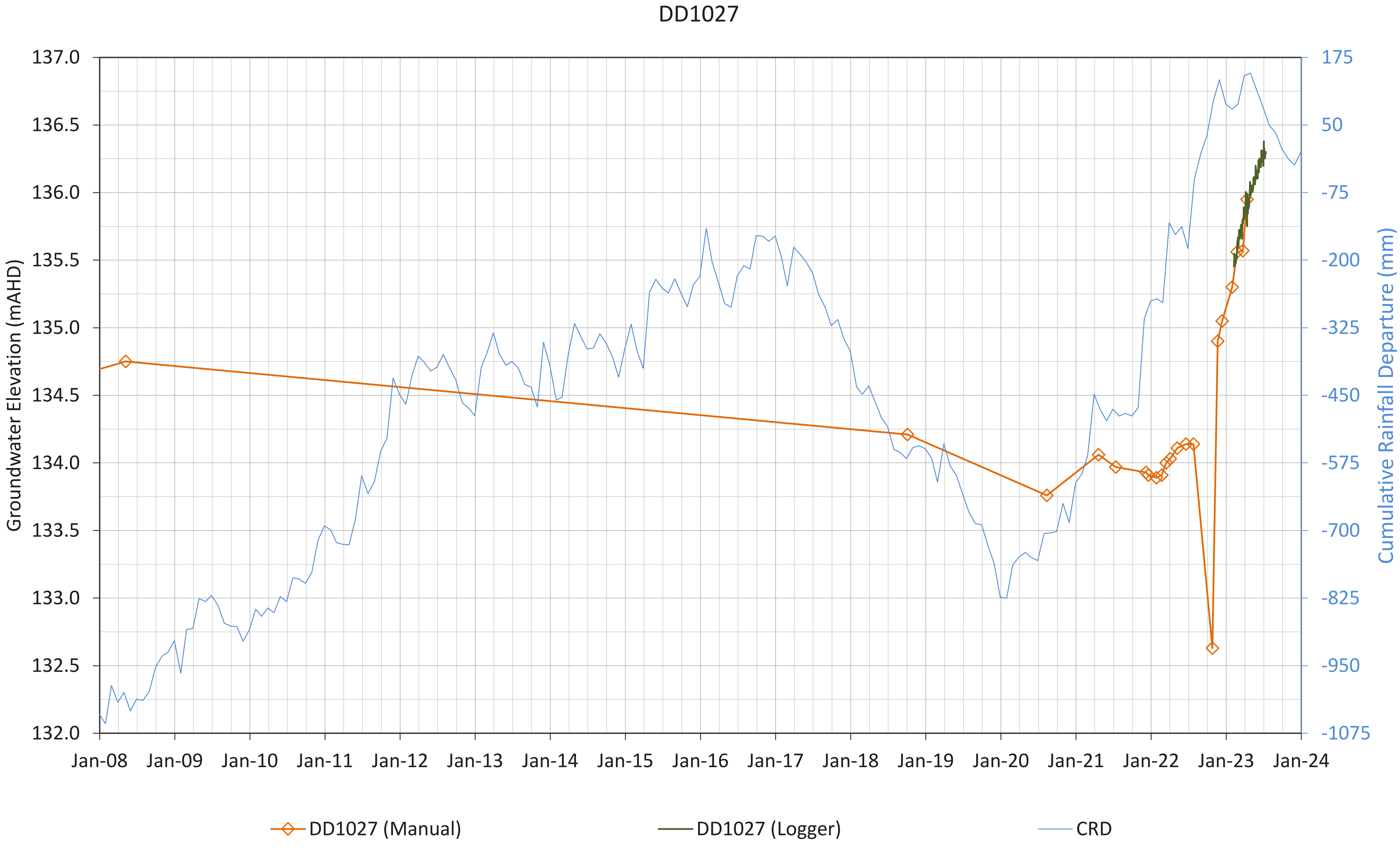

GW02D
Groundwater Elevation (mAHD)
138
137
136
135
134
133
132
131
130
Cumulative Rainfall Departure (mm)
325
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
GW02D (Manual)
GW02D (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

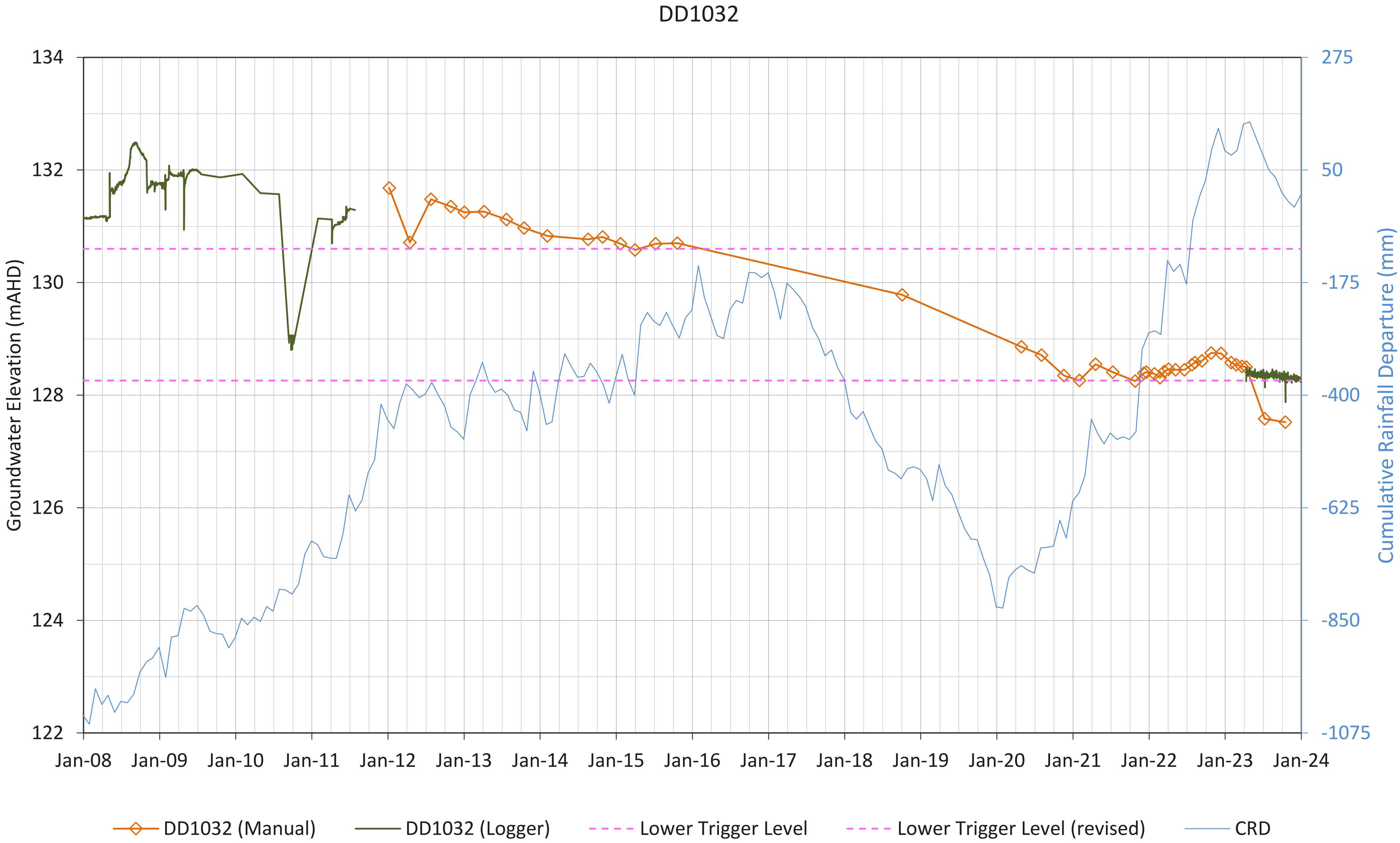

GW04
Groundwater Elevation (mAHD)
151
150
149
148
147
146
145
144
143
142
141
Cumulative Rainfall Departure (mm)
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
GW04 (Manual)
GW04 (Logger)
Base Screen Elevation (mAHD)
CRD

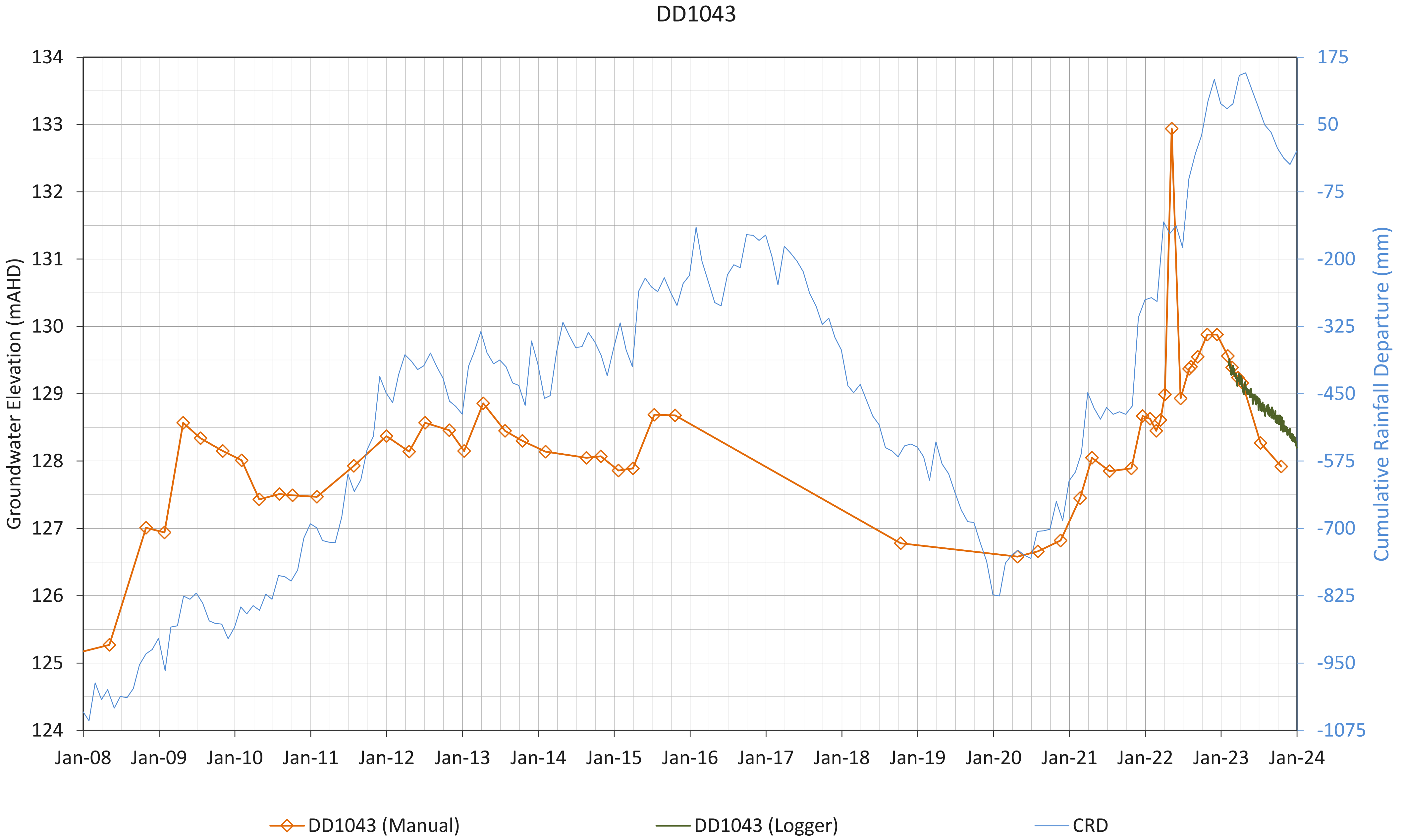

DD1005
150
149
148
147
146
145
144
143
142
325
150
-25
-200
-375
-550
-725
-900
-1075
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DD1005 (Manual)
DD1005 (Logger)
CRD


DD1014
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
137.5
137.0
136.5
136.0
135.5
135.0
134.5
134.0
133.5
133.0
275
125
-25
-175
-325
-475
-625
-775
-925
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DD1014 (Manual)
DD1014 (Logger)
CRD


DD1016
Groundwater Elevation (mAHD)
144.0
143.5
143.0
142.5
142.0
141.5
141.0
140.5
Cumulative Rainfall Departure (mm)
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DD1016 (Manual)
DD1016 (Logger)
CRD


DD1027
137.0
136.5
136.0
135.5
135.0
134.5
134.0
133.5
133.0
132.5
132.0
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DD1027 (Manual)
DD1027 (Logger)
CRD


DD1032
134
132
130
128
126
124
122
275
50
-175
-400
-625
-850
-1075
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DD1032 (Manual)
DD1032 (Logger)
Lower Trigger Level
Lower Trigger Level (revised)
CRD


DD1043
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
134
133
132
131
130
129
128
127
126
125
124
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DD1043 (Manual)
DD1043 (Logger)
CRD


DD1052
Groundwater Elevation (mAHD)
130
128
126
124
122
120
118
116
114
112
110
Cumulative Rainfall Departure (mm)
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
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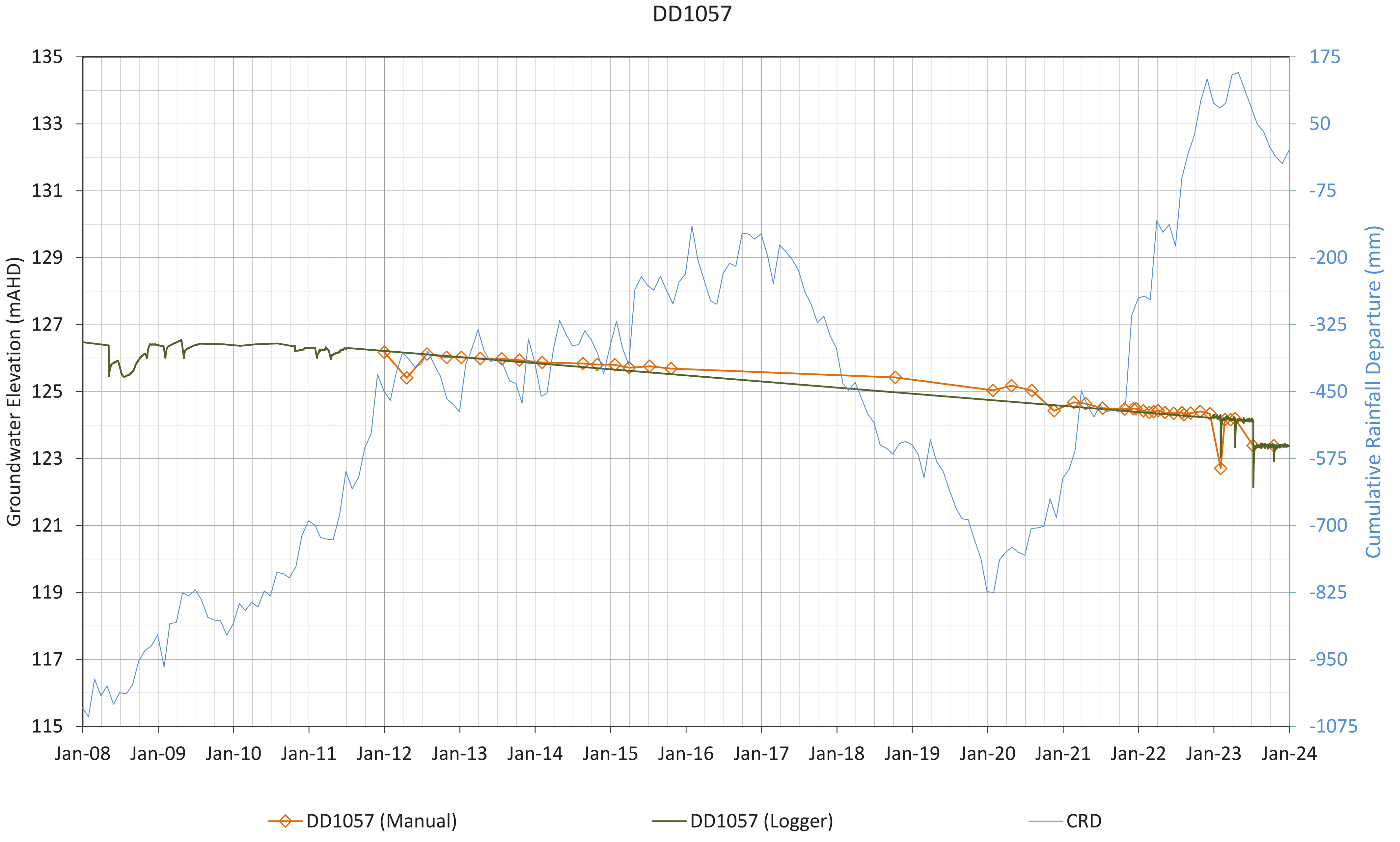
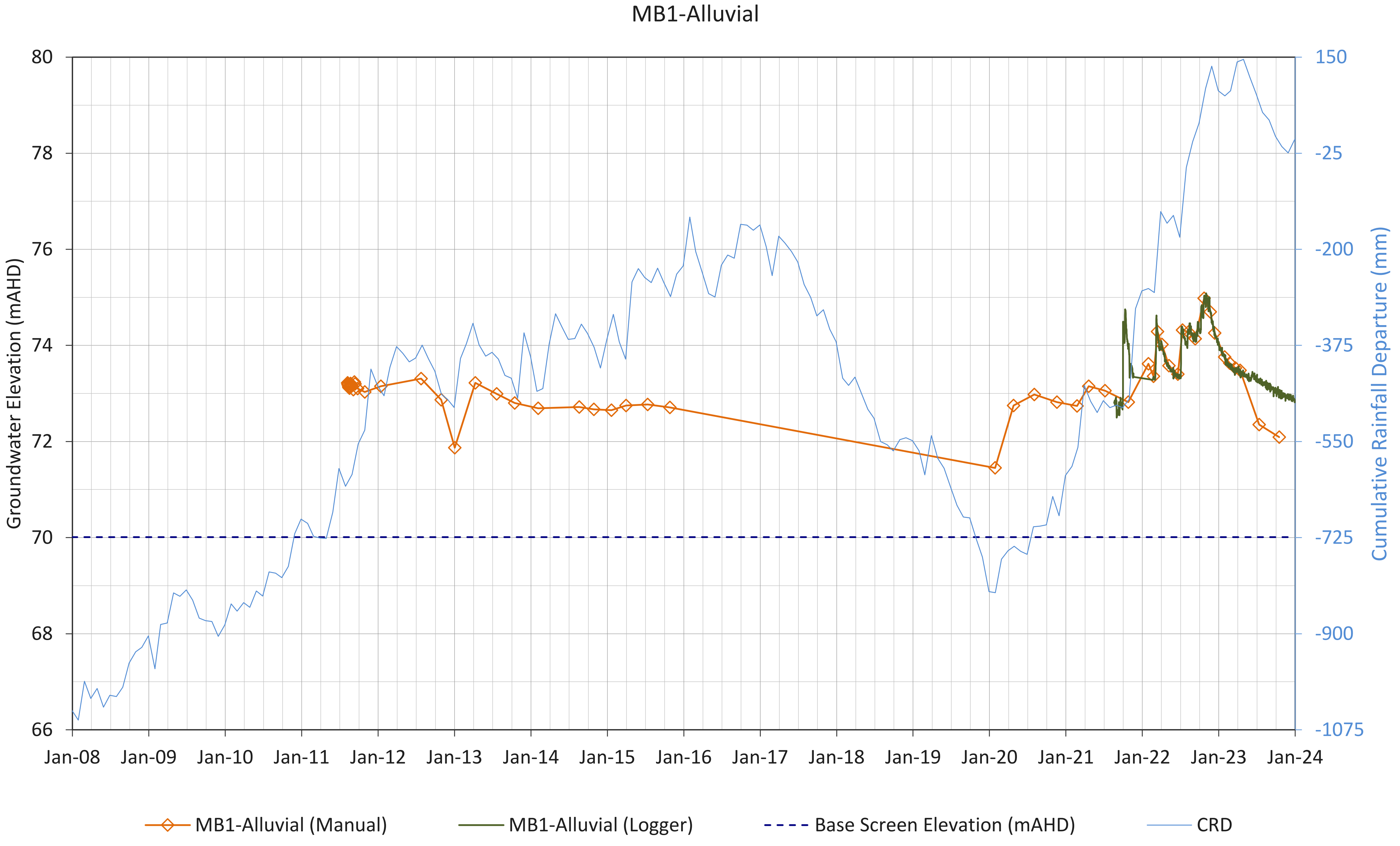
Jan-24
DD1052 (Manual)
DD1052 (Logger)
CRD


DD1057
135
133
131
129
127
125
123
121
119
117
115
Groundwater Elevation (mAHD)
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
DD1057 (Manual)
DD1057 (Logger)
CRD


MB1-Alluvial
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
80
78
76
74
72
70
68
66
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
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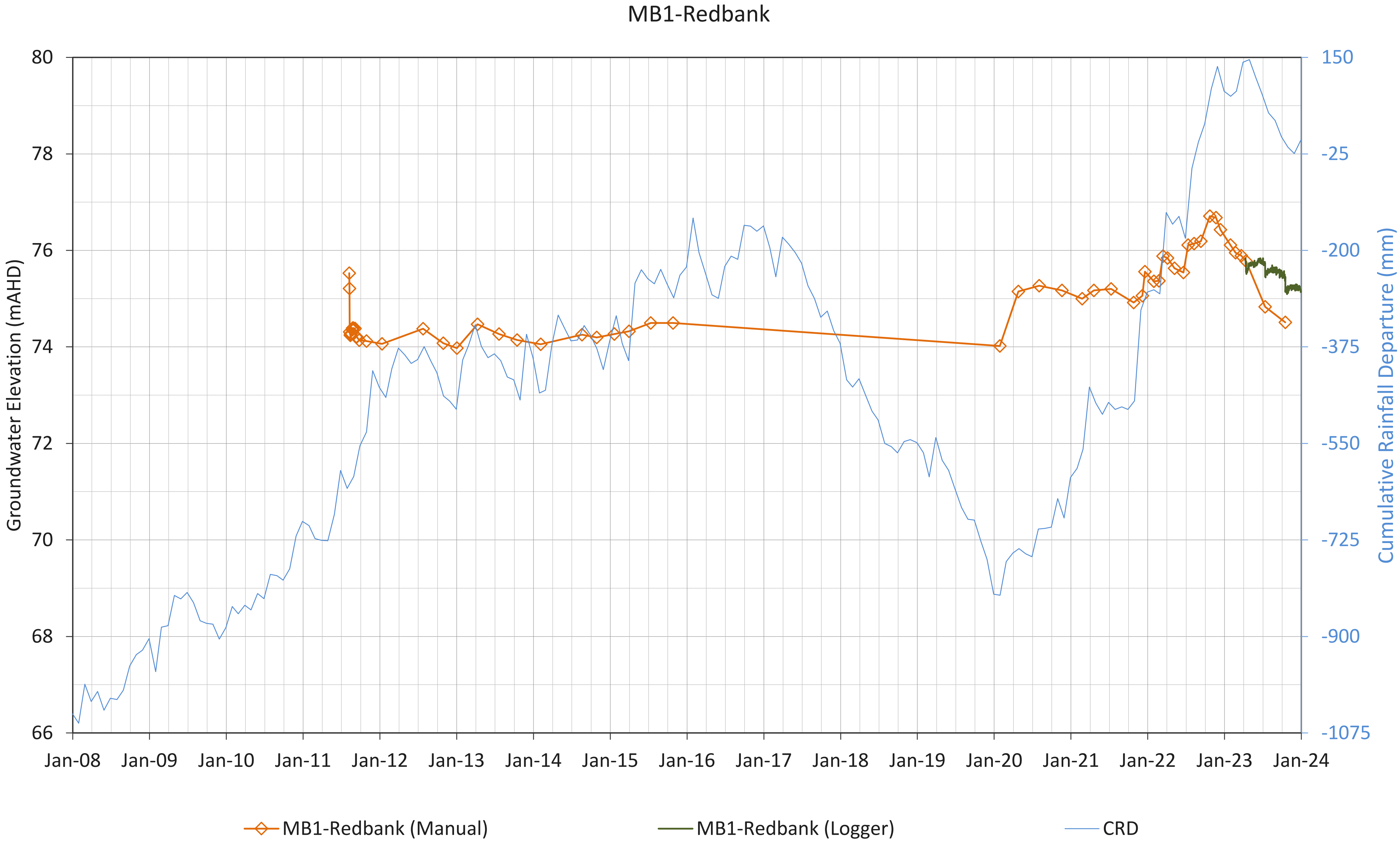
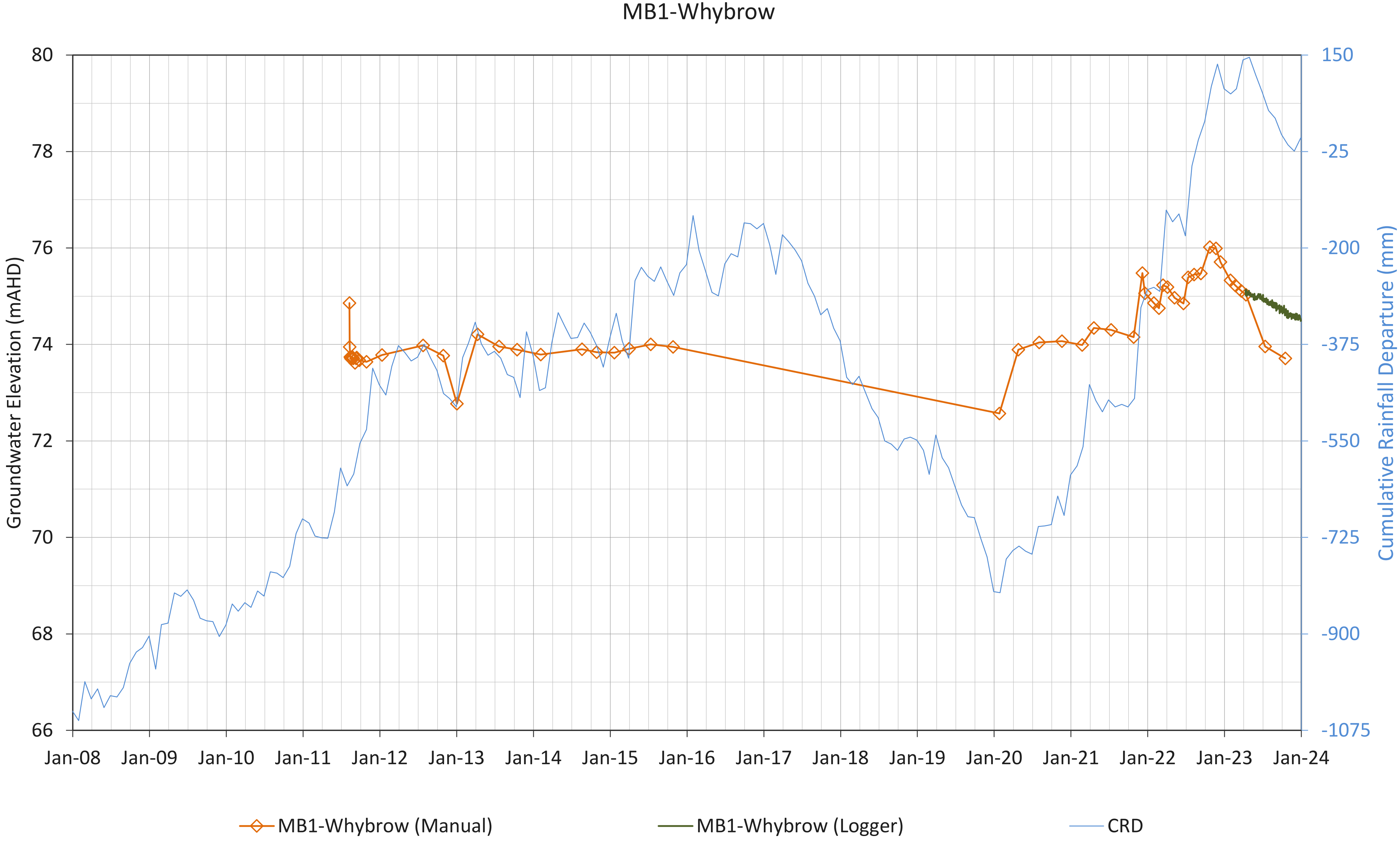
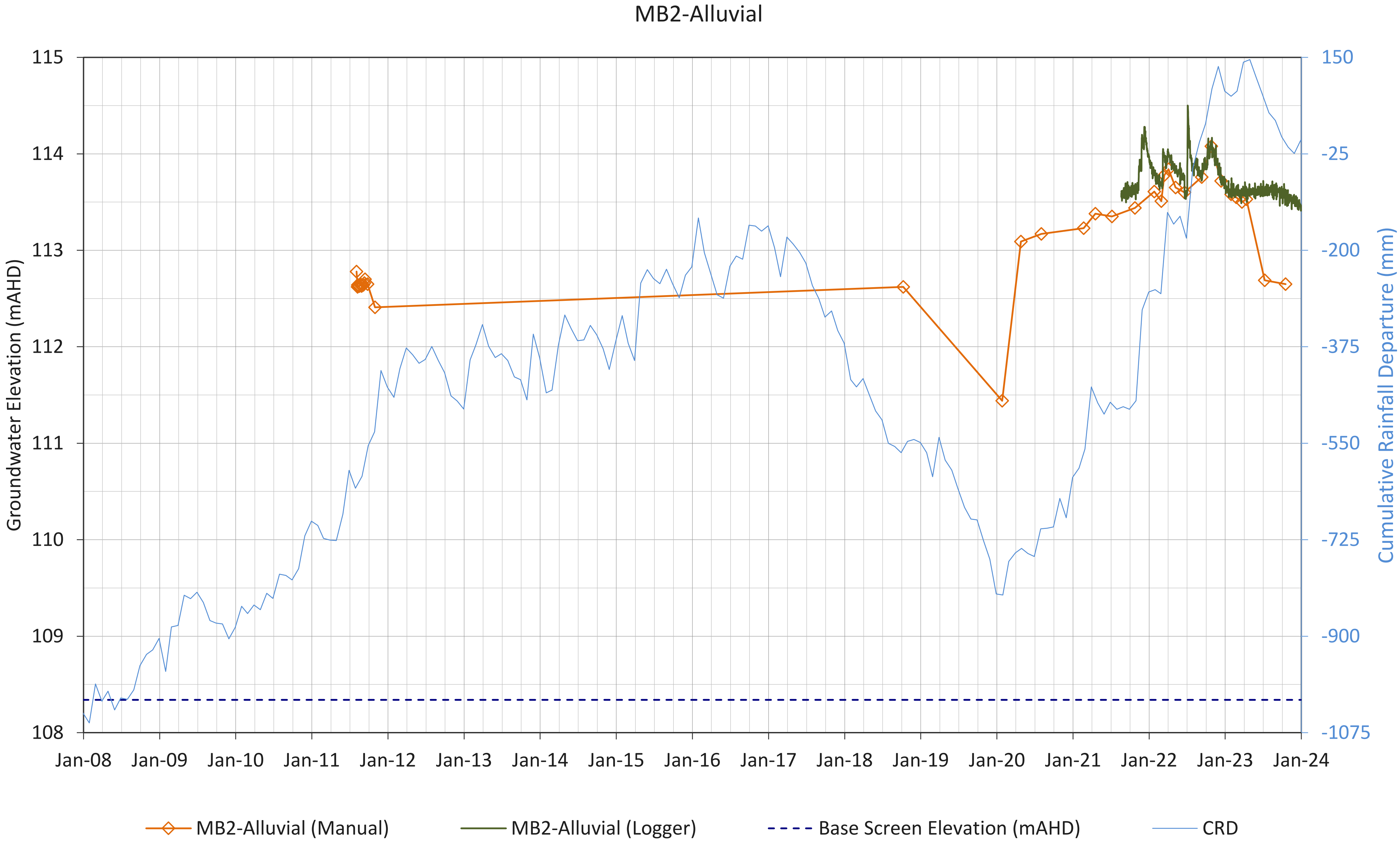
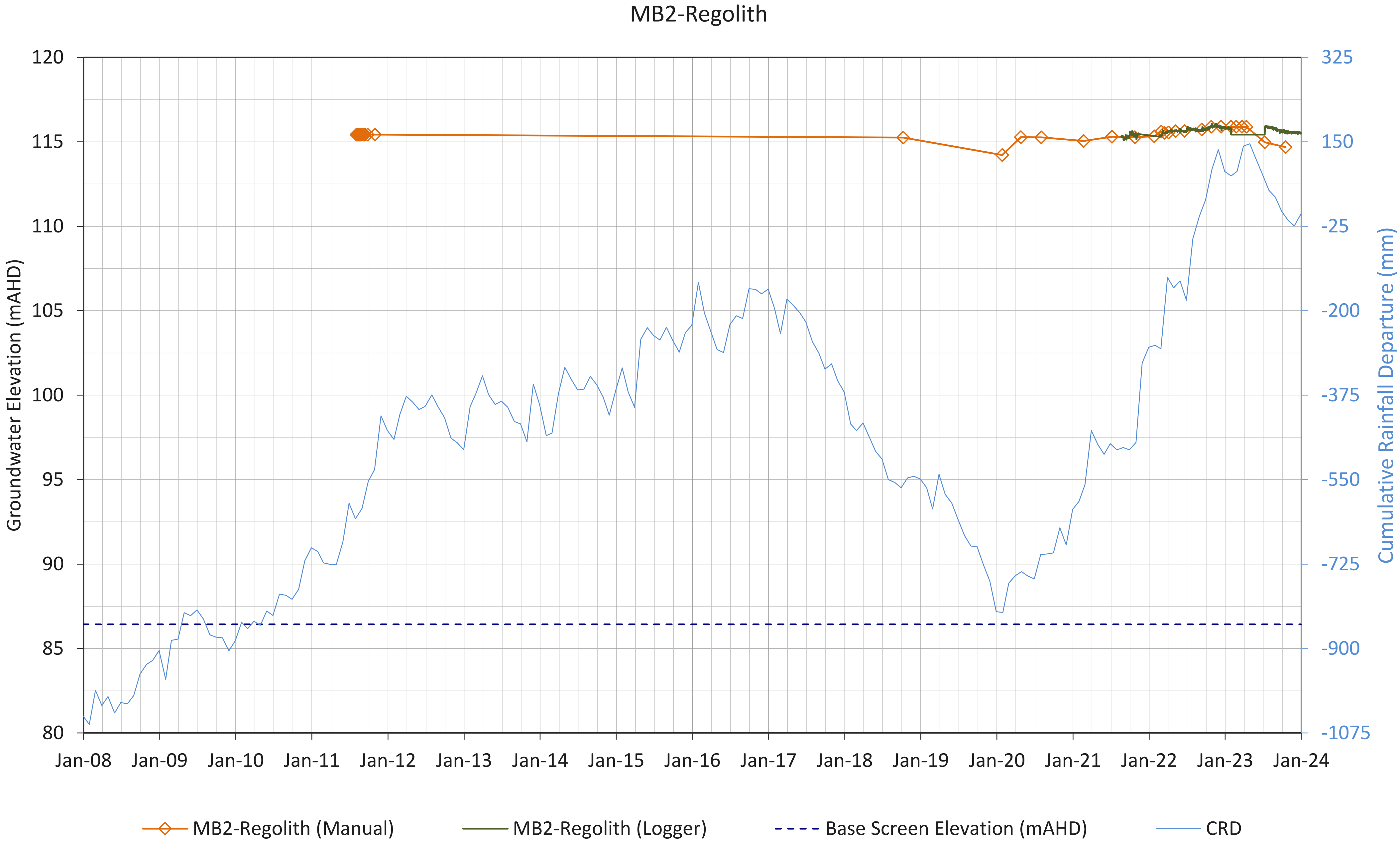
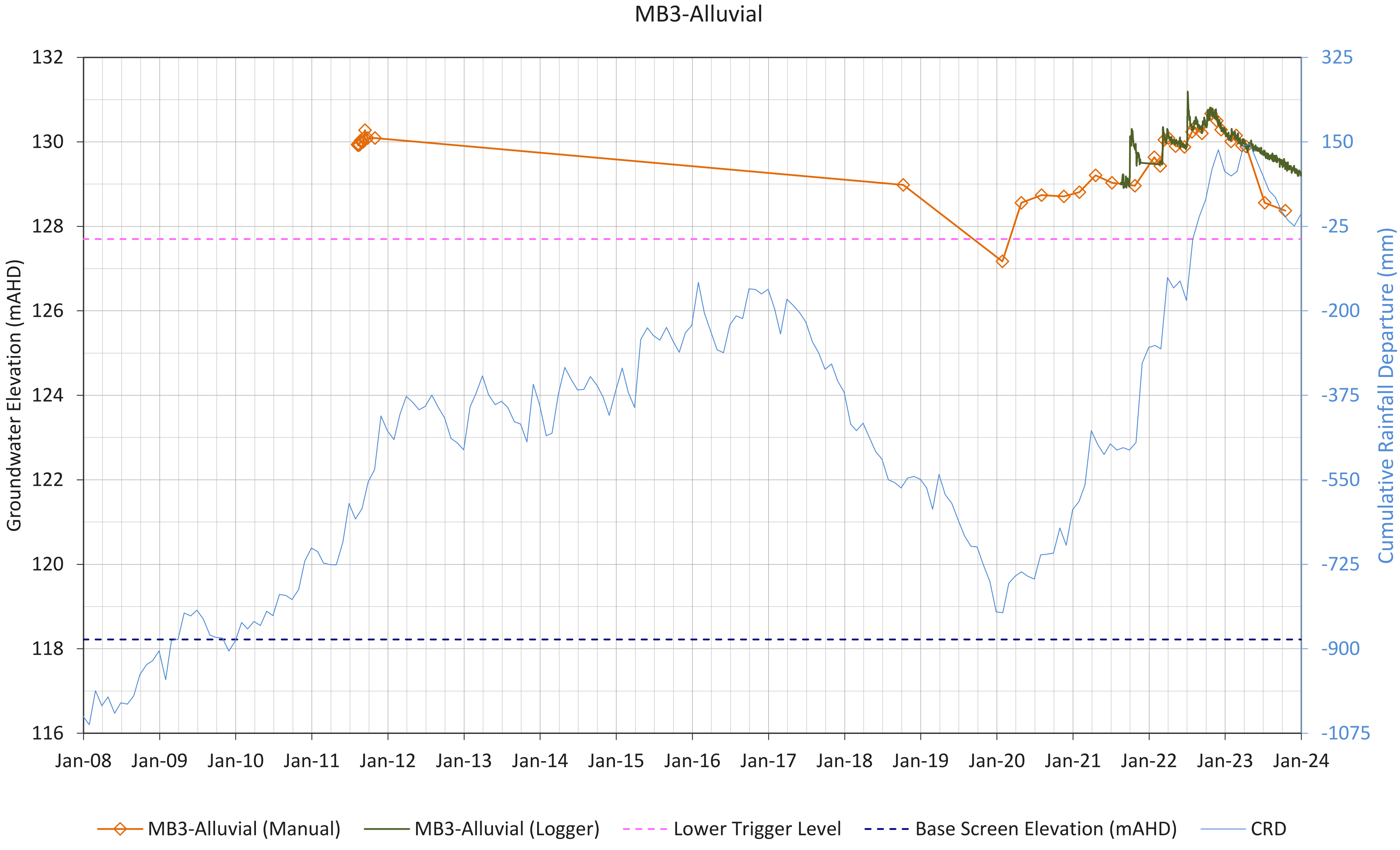
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB1-Alluvial (Manual)
MB1-Alluvial (Logger)
Base Screen Elevation (mAHD)
CRD

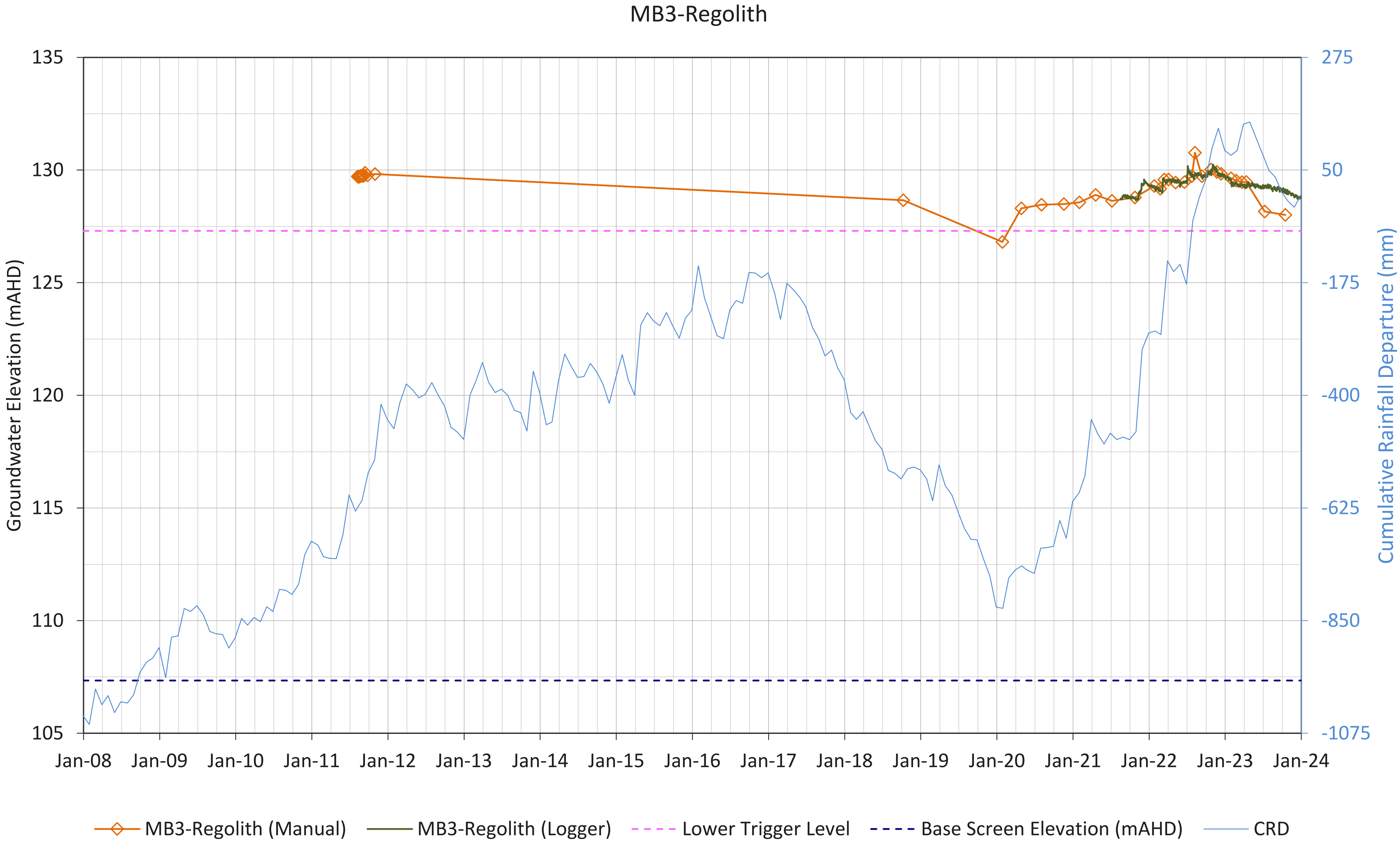

MB1-Redbank
Groundwater Elevation (mAHD)
80
78
76
74
72
70
68
66
Cumulative Rainfall Departure (mm)
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB1-Redbank (Manual)
MB1-Redbank (Logger)
CRD

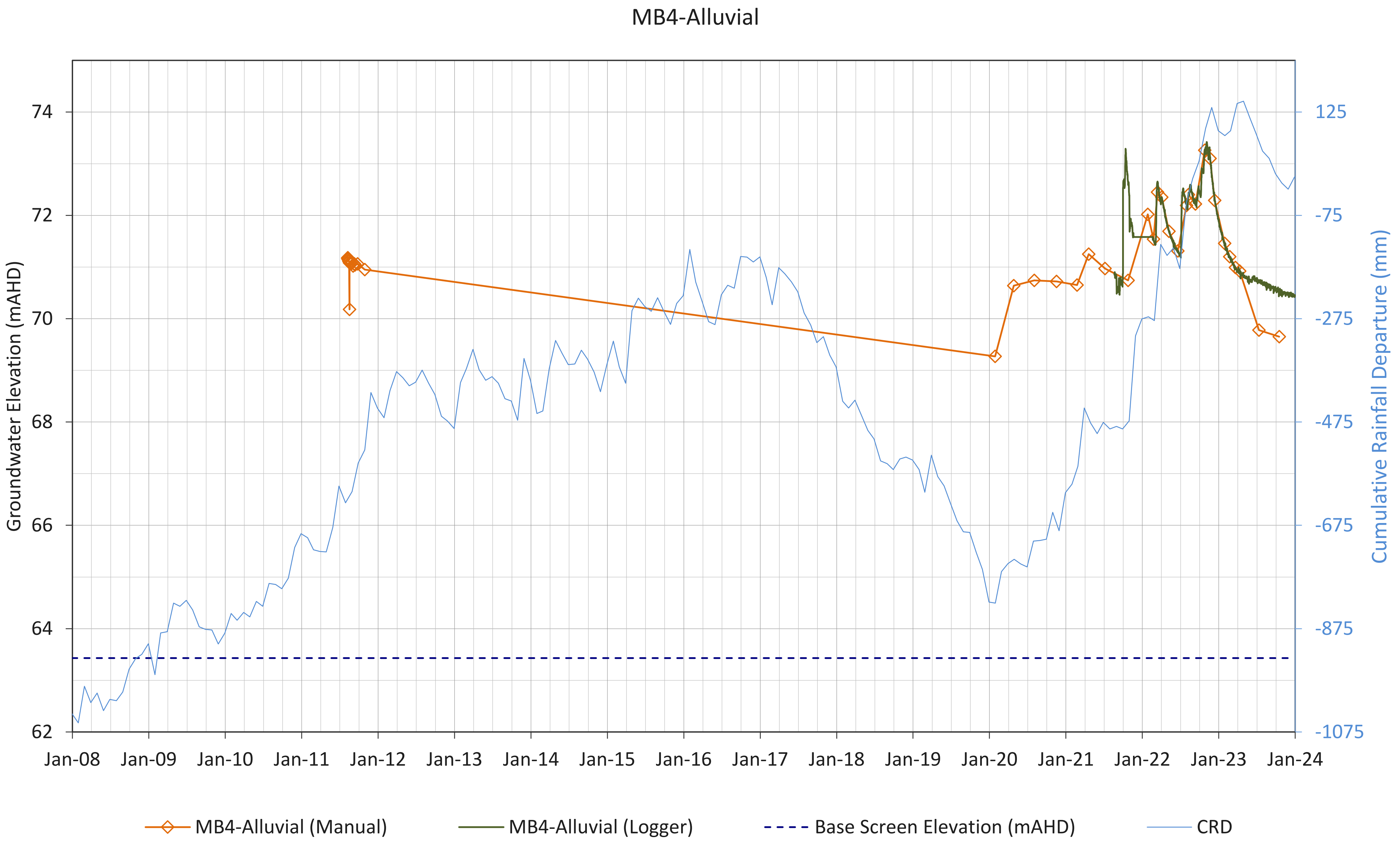

MB1-Whybrow
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
80
78
76
74
72
70
68
66
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB1-Whybrow (Manual)
MB1-Whybrow (Logger)
CRD

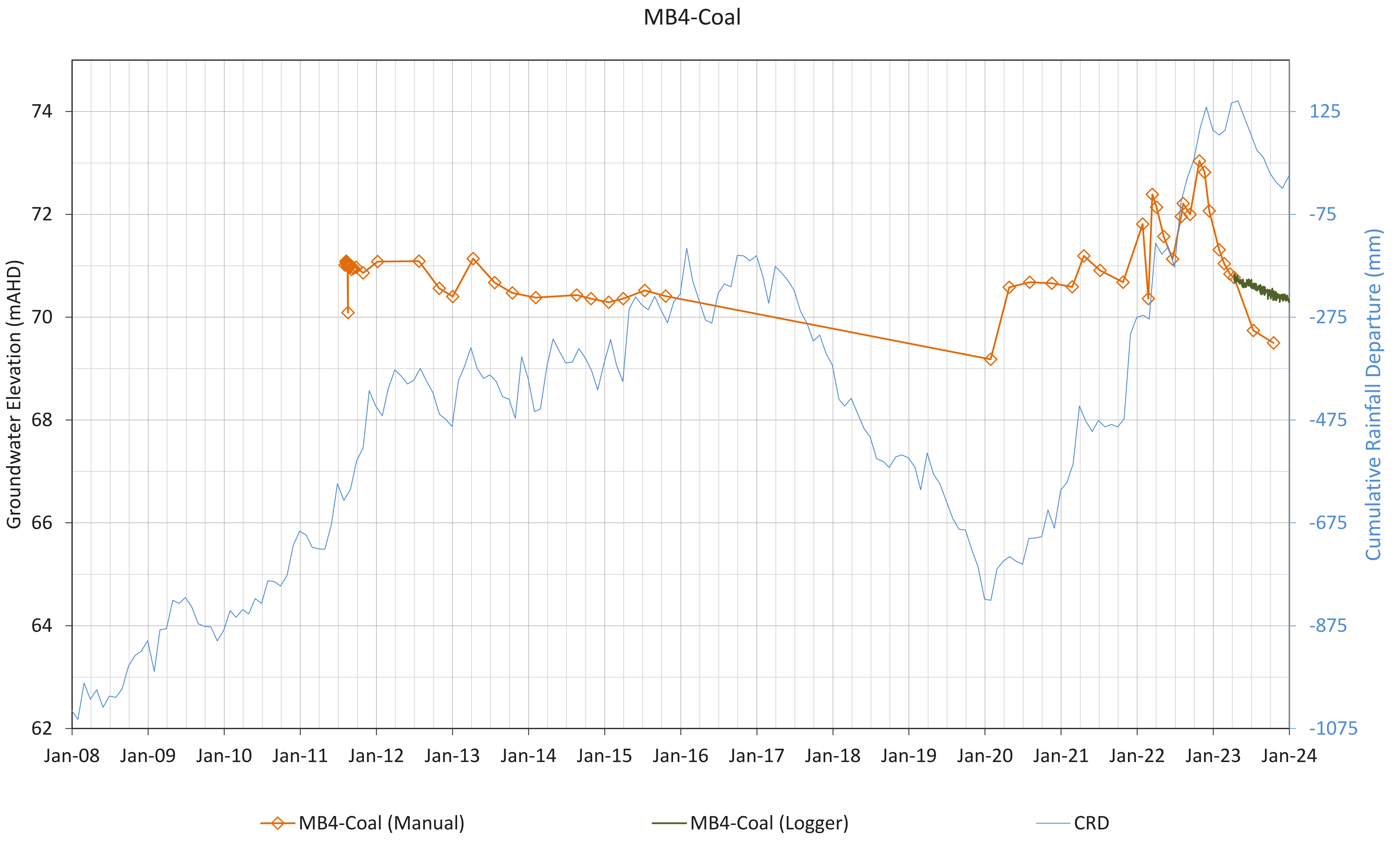

MB2-Alluvial
Groundwater Elevation (mAHD)
115
114
113
112
111
110
109
108
Cumulative Rainfall Departure (mm)
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB2-Alluvial (Manual)
MB2-Alluvial (Logger)
Base Screen Elevation (mAHD)
CRD

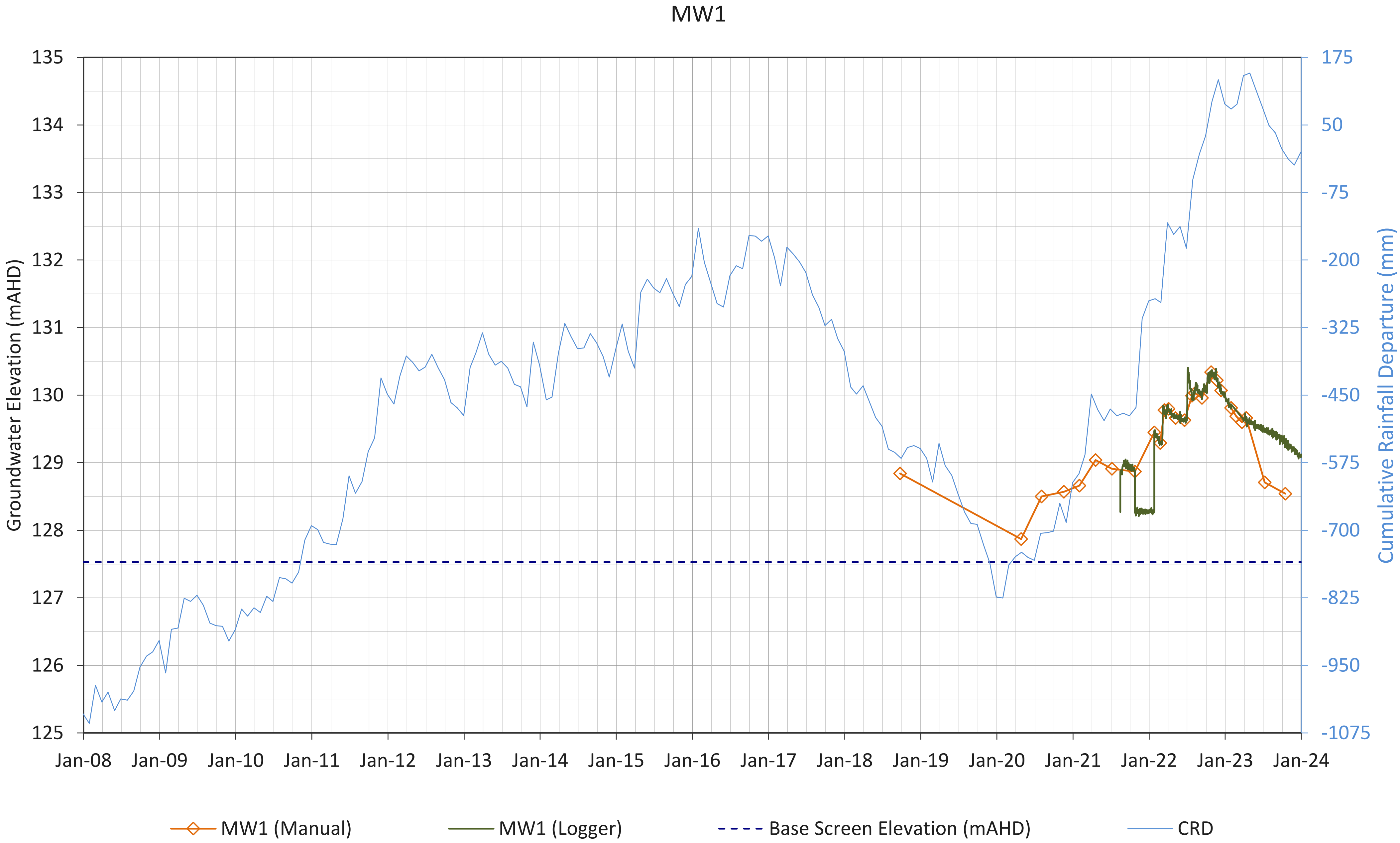

MB2-Regolith
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
120
115
110
105
100
95
90
85
80
325
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB2-Regolith (Manual)
MB2-Regolith (Logger)
Base Screen Elevation (mAHD)
CRD

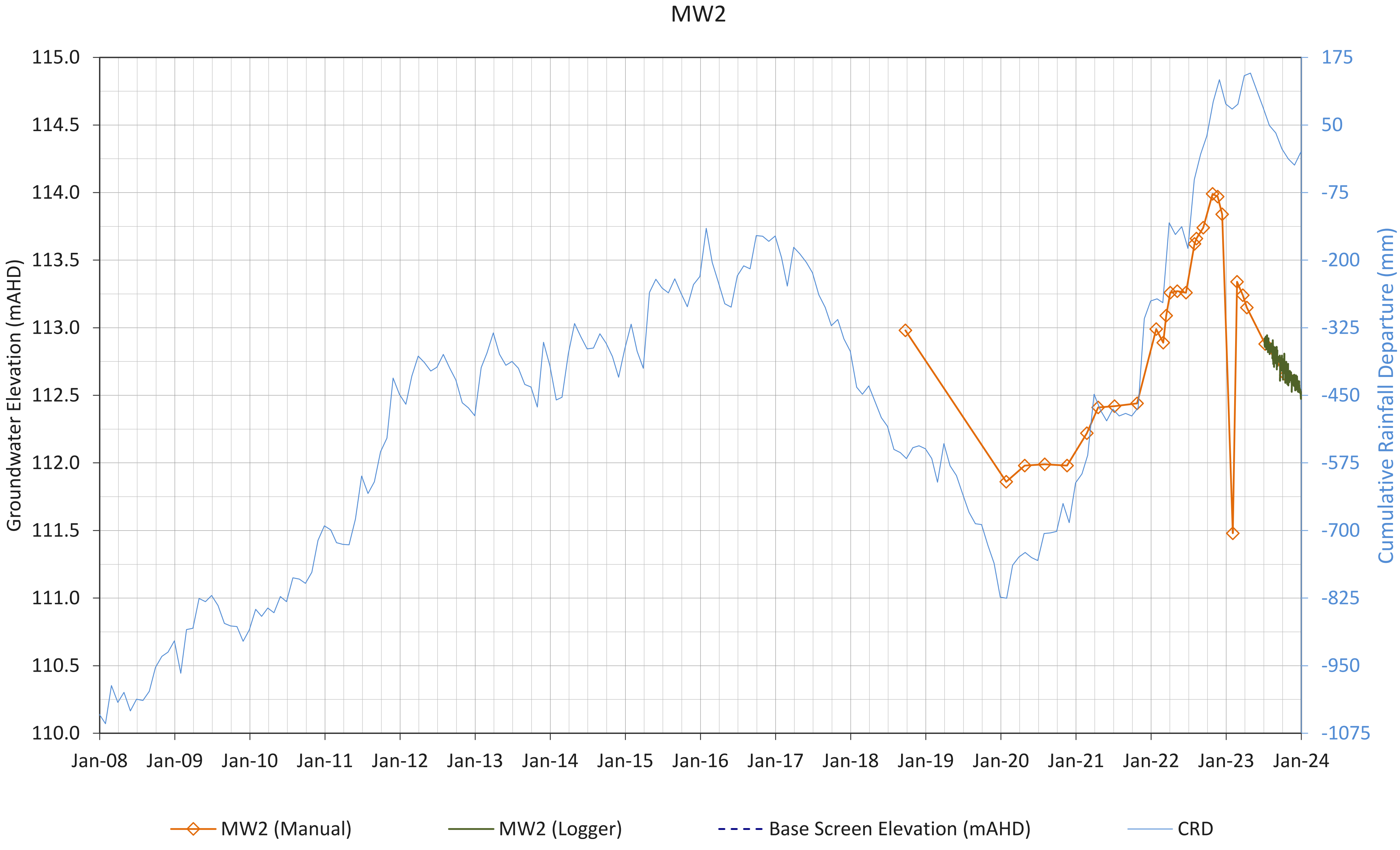

MB3-Alluvial
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
132
130
128
126
124
122
120
118
116
325
150
-25
-200
-375
-550
-725
-900
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB3-Alluvial (Manual)
MB3-Alluvial (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

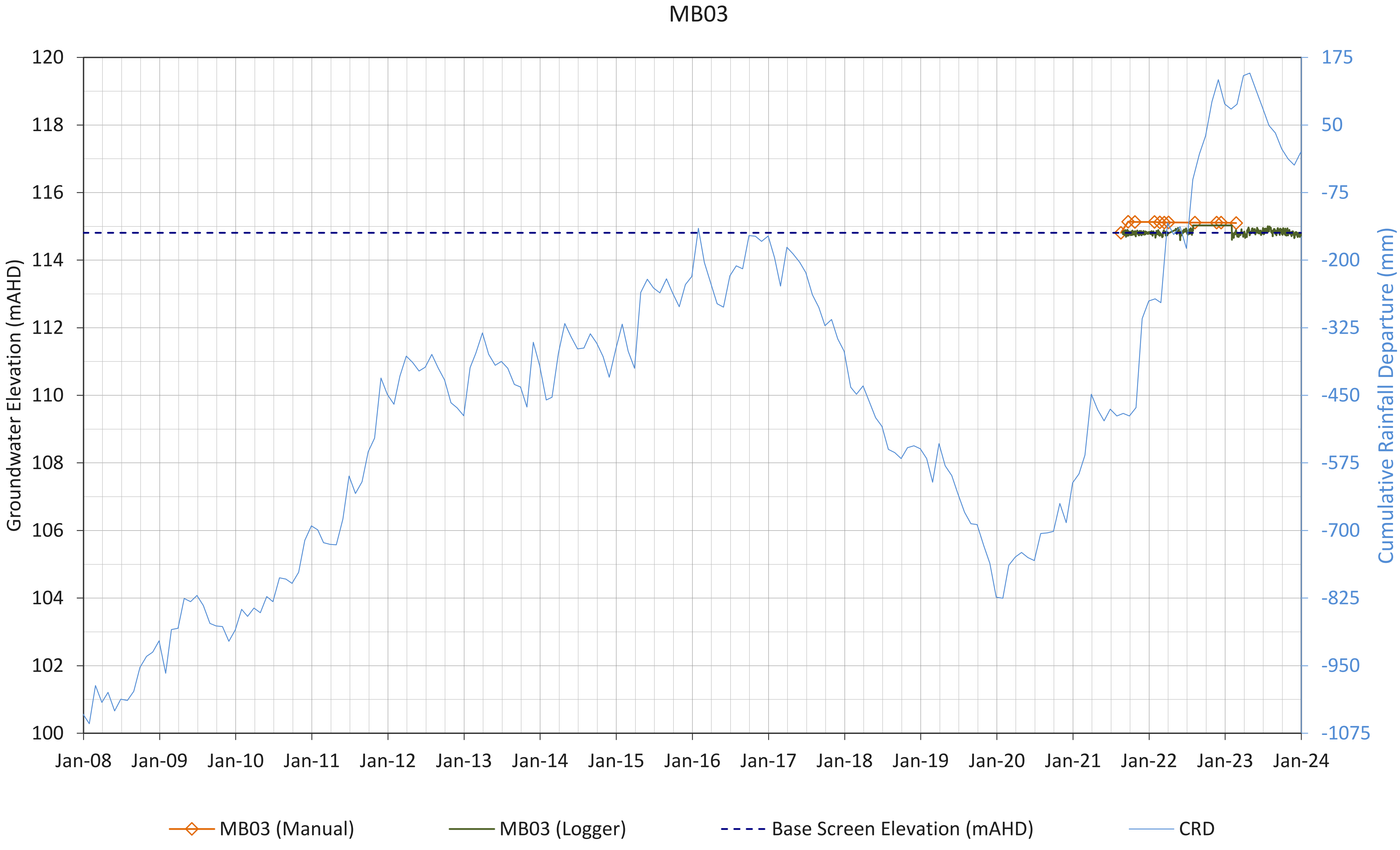

MB3-Regolith
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
135
130
125
120
115
110
105
275
50
-175
-400
-625
-850
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB3-Regolith (Manual)
MB3-Regolith (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

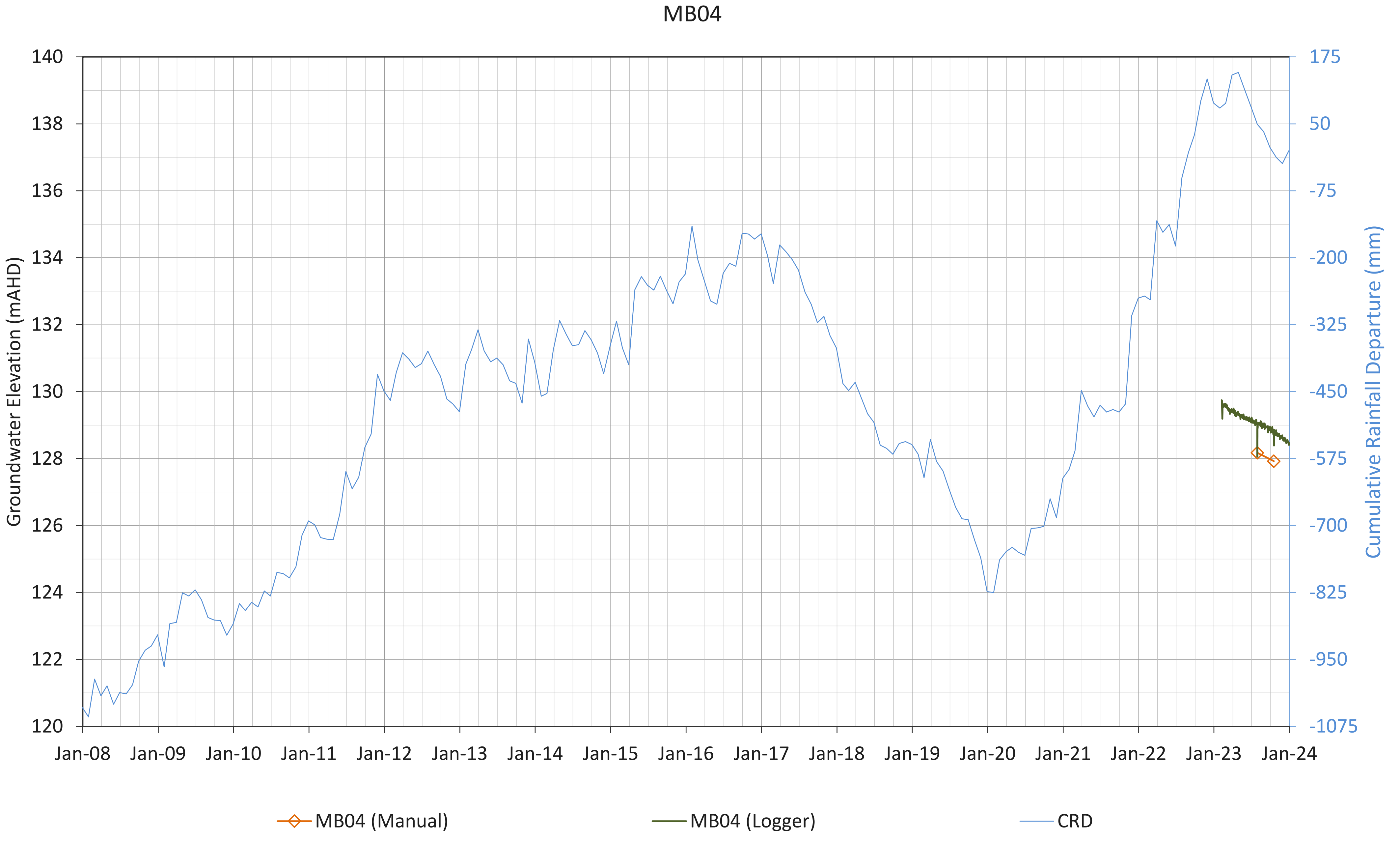

MB4-Alluvial
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
74
72
70
68
66
64
62
125
-75
-275
-475
-675
-875
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB4-Alluvial (Manual)
MB4-Alluvial (Logger)
Base Screen Elevation (mAHD)
CRD

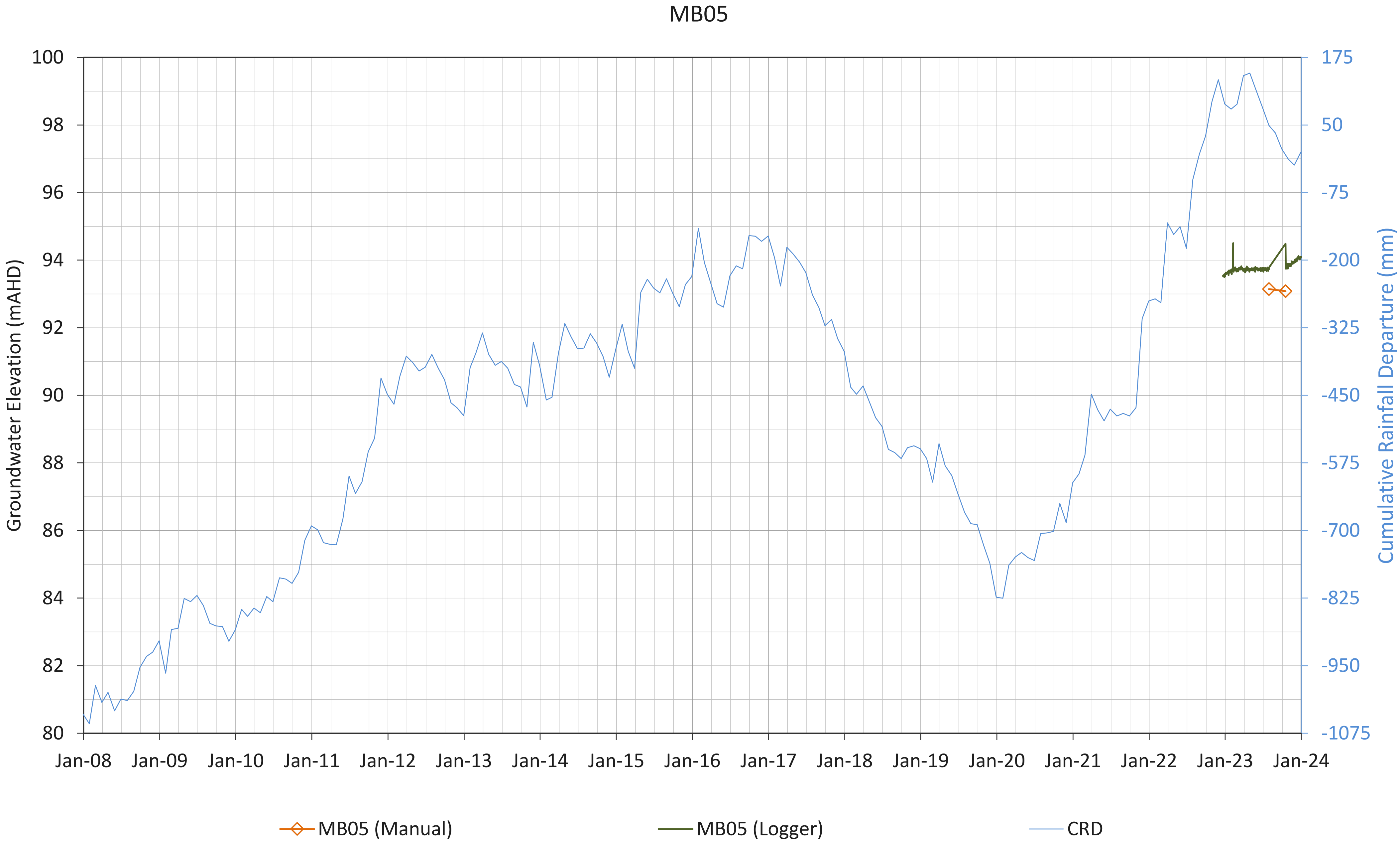

MB4-Coal
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
74
72
70
68
66
64
62
125
-75
-275
-475
-675
-875
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB4-Coal (Manual)
MB4-Coal (Logger)
CRD

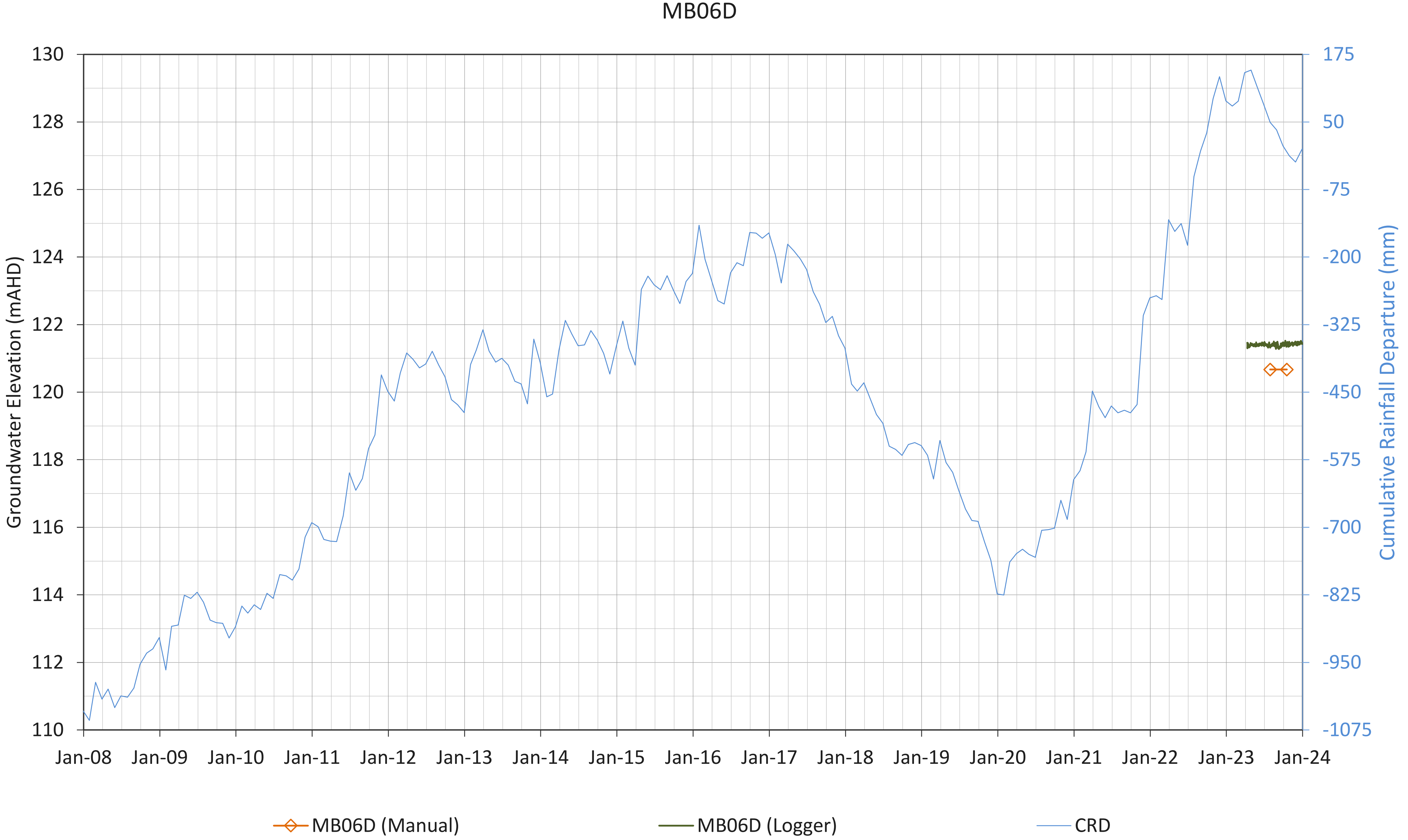

MW1
135
134
133
132
131
130
129
128
127
126
125
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MW1 (Manual)
MW1 (Logger)
Base Screen Elevation (mAHD)
CRD

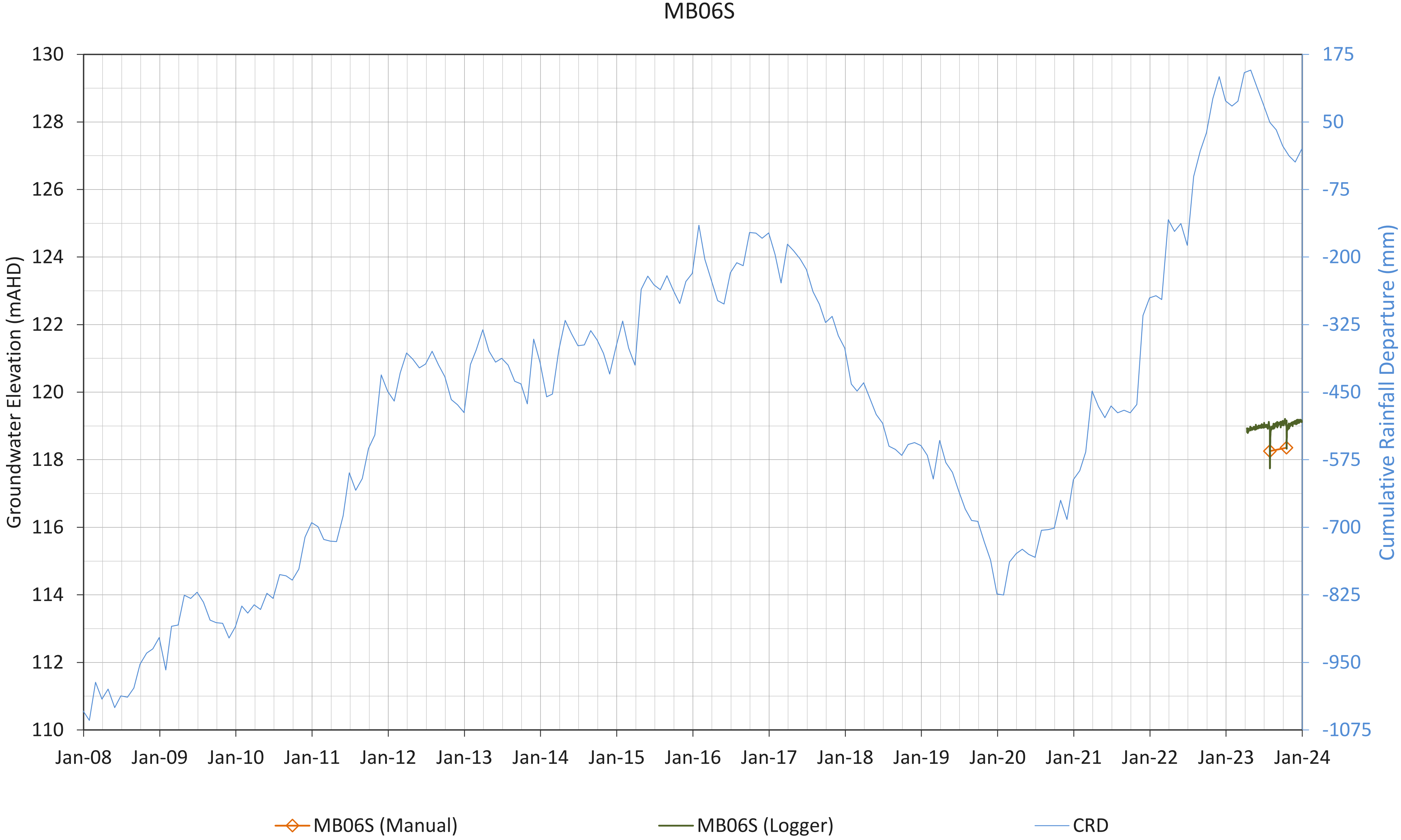

MW2
115.0
114.5
114.0
113.5
113.0
112.5
112.0
111.5
111.0
110.5
110.0
Groundwater Elevation (mAHD)
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MW2 (Manual)
MW2 (Logger)
Base Screen Elevation (mAHD)
CRD

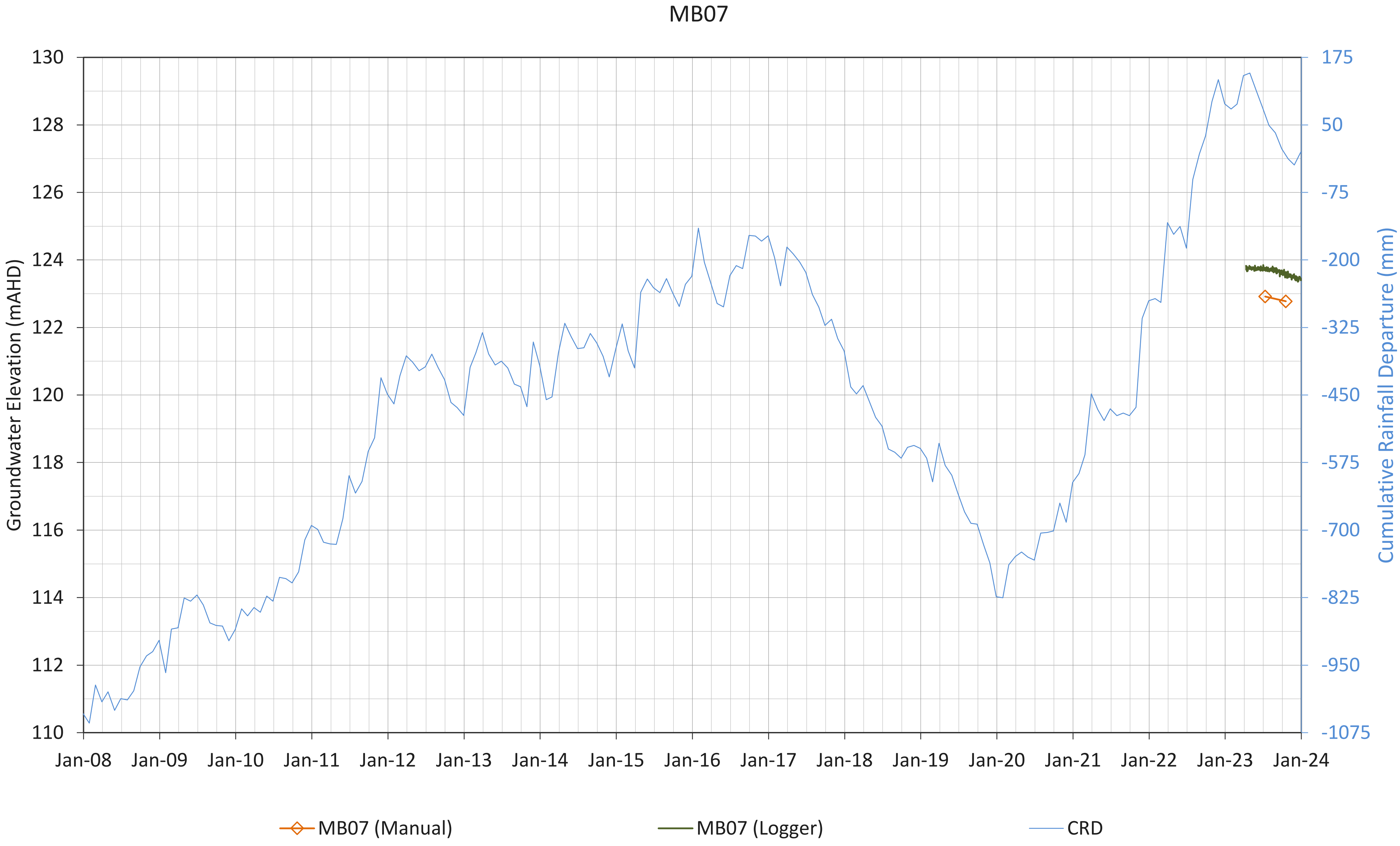

MB03
120
118
116
114
112
110
108
106
104
102
100
Groundwater Elevation (mAHD)
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Cumulative Rainfall Departure (mm)
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB03 (Manual)
MB03 (Logger)
Base Screen Elevation (mAHD)
CRD


MB04
Groundwater Elevation (mAHD)
140
138
136
134
132
130
128
126
124
122
120
Cumulative Rainfall Departure (mm)
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB04 (Manual)
MB04 (Logger)
CRD


MB05
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
100
98
96
94
92
90
88
86
84
82
80
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB05 (Manual)
MB05 (Logger)
CRD


MB06D
Groundwater Elevation (mAHD)
130
128
126
124
122
120
118
116
114
112
110
Cumulative Rainfall Departure (mm)
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB06D (Manual)
MB06D (Logger)
CRD


MB06S
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
130
128
126
124
122
120
118
116
114
112
110
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB06S (Manual)
MB06S (Logger)
CRD


MB07
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
130
128
126
124
122
120
118
116
114
112
110
175
50
-75
-200
-325
-450
-575
-700
-825
-950
-1075
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
MB07 (Manual)
MB07 (Logger)
CRD

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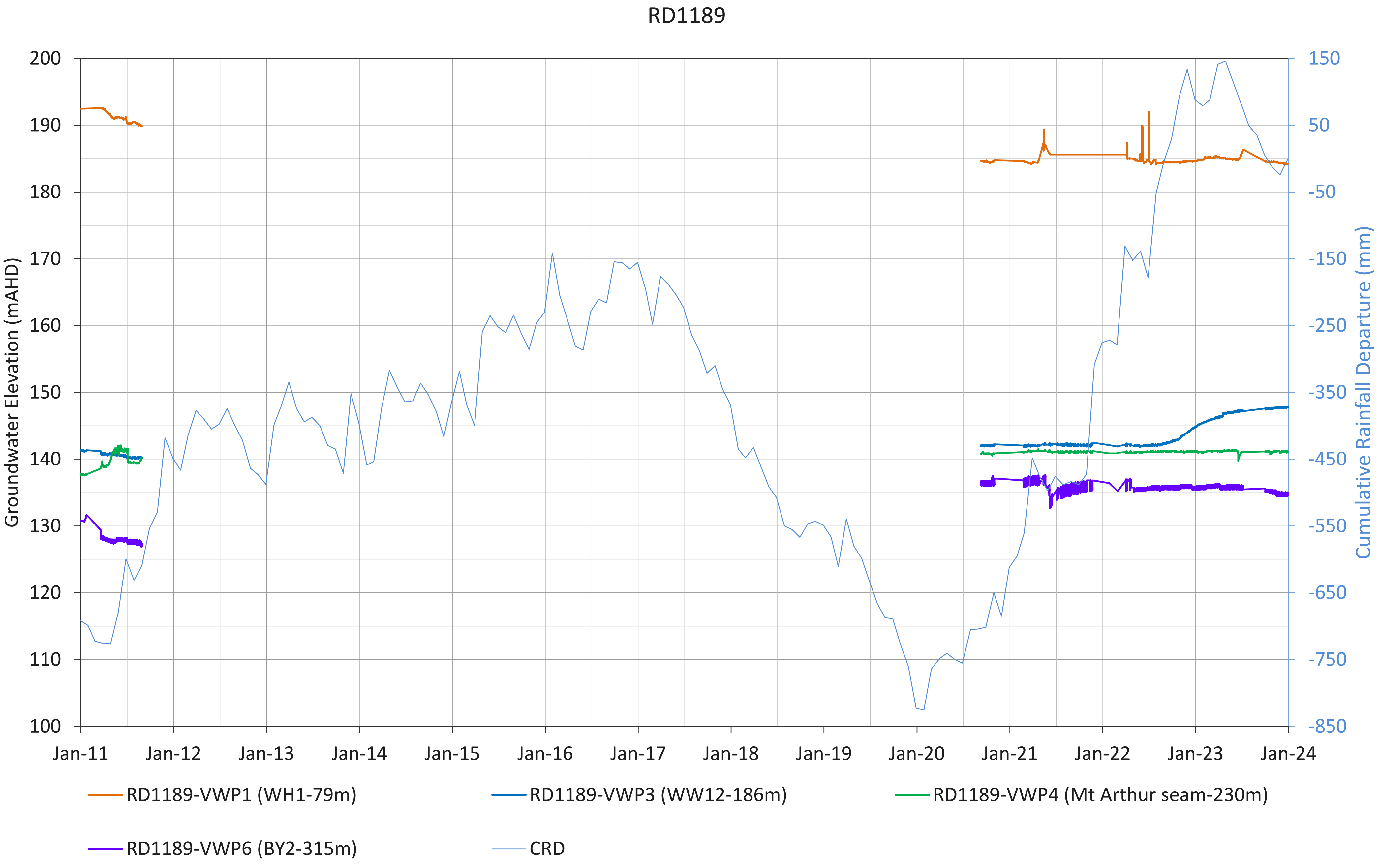
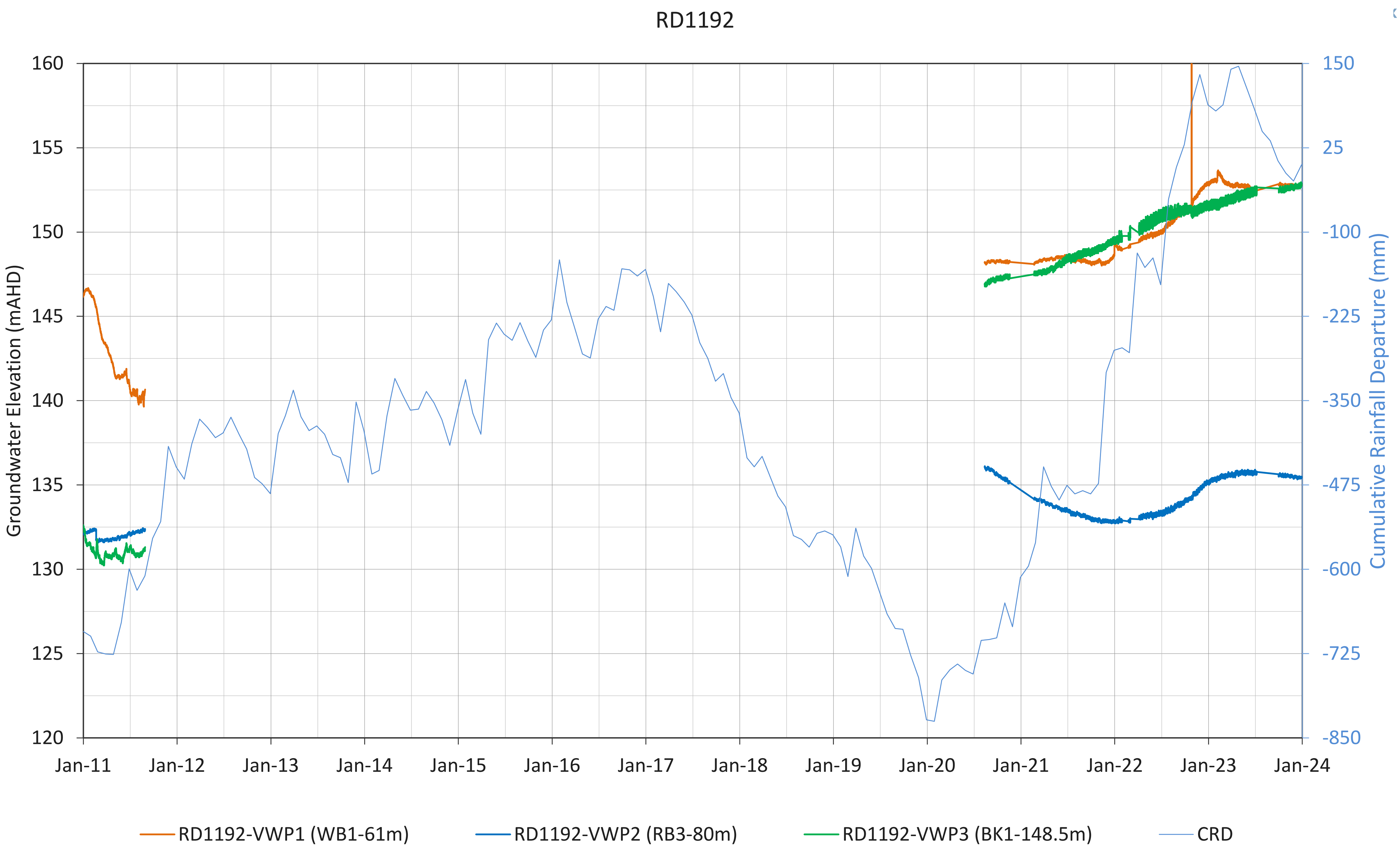
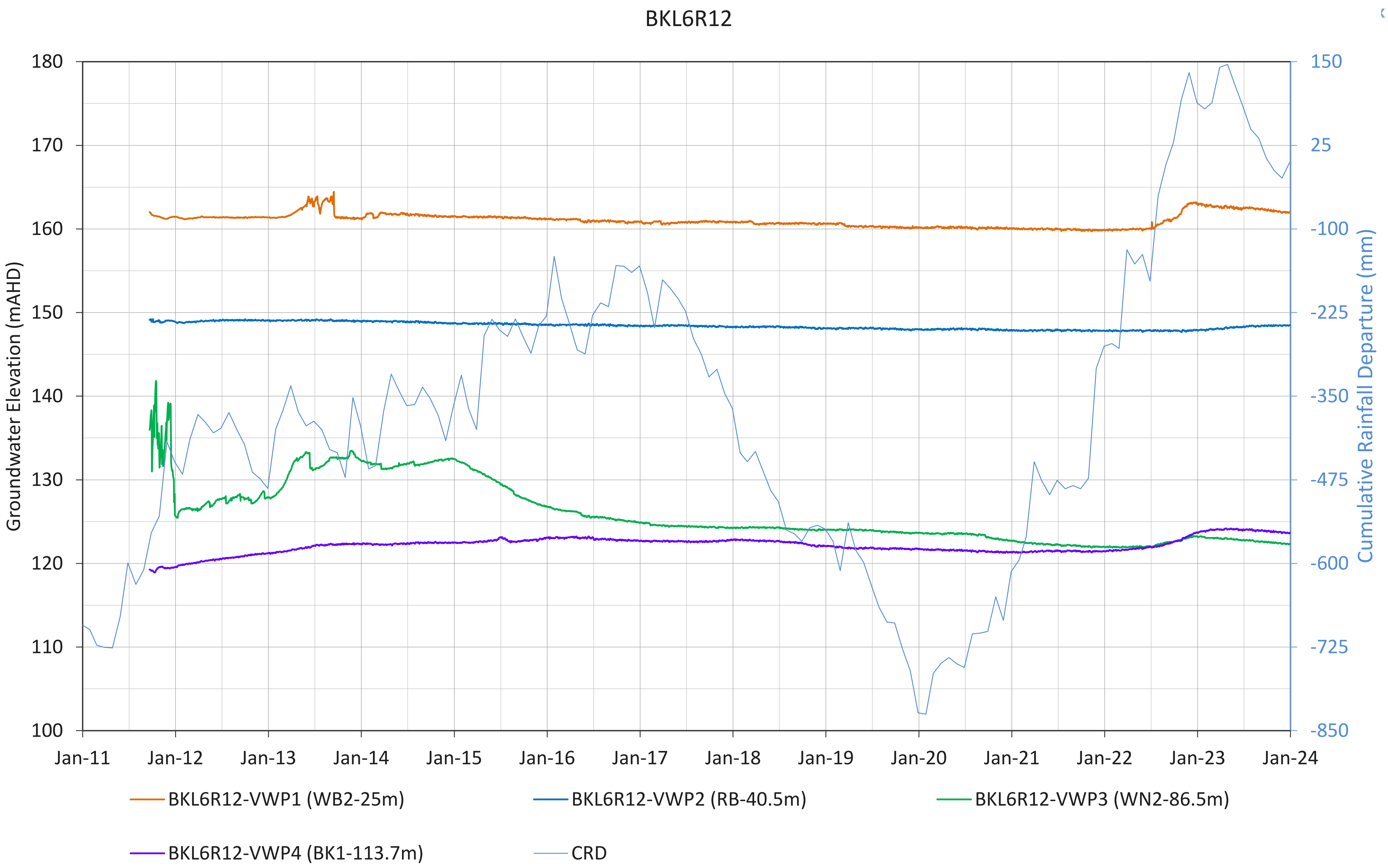
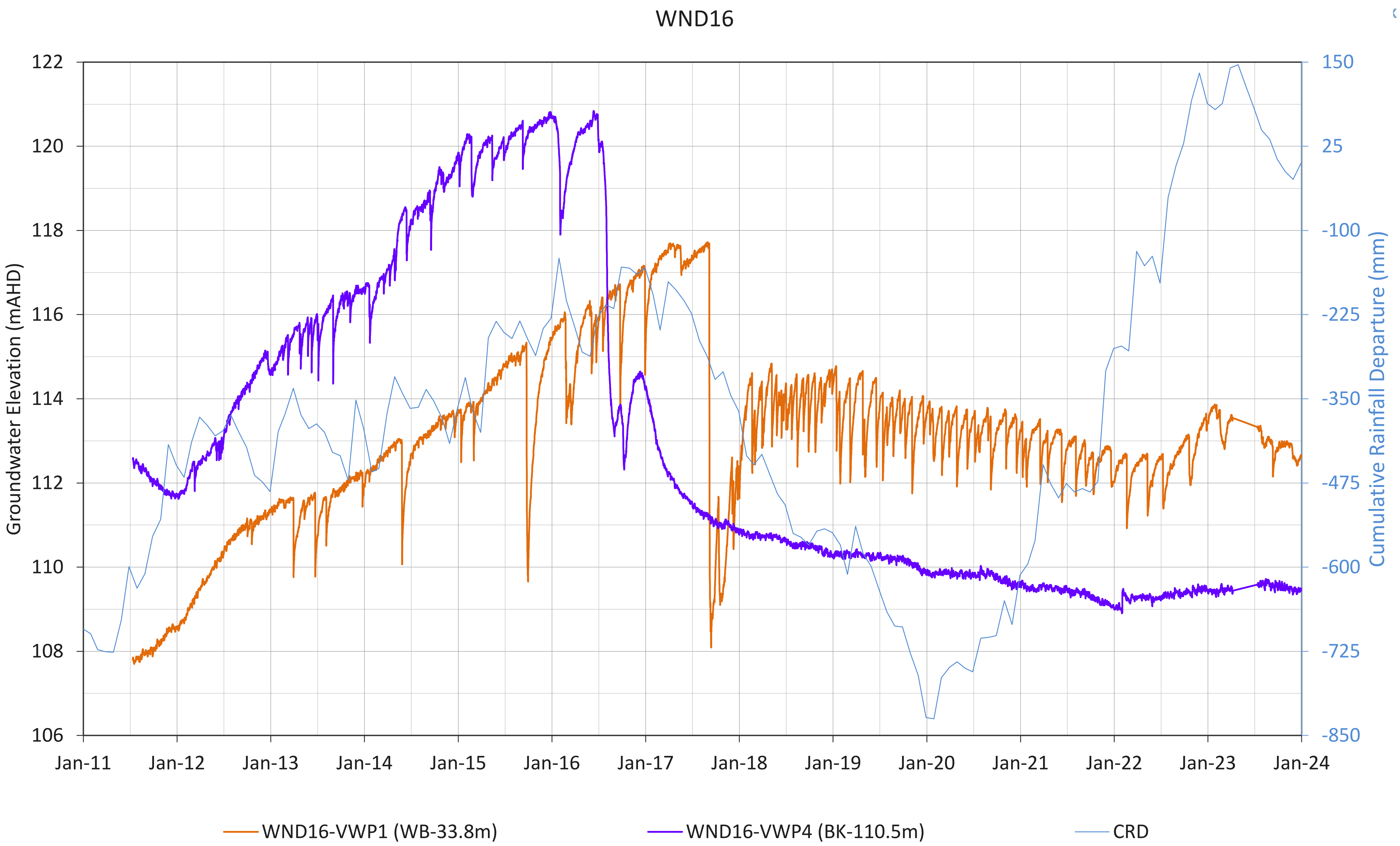


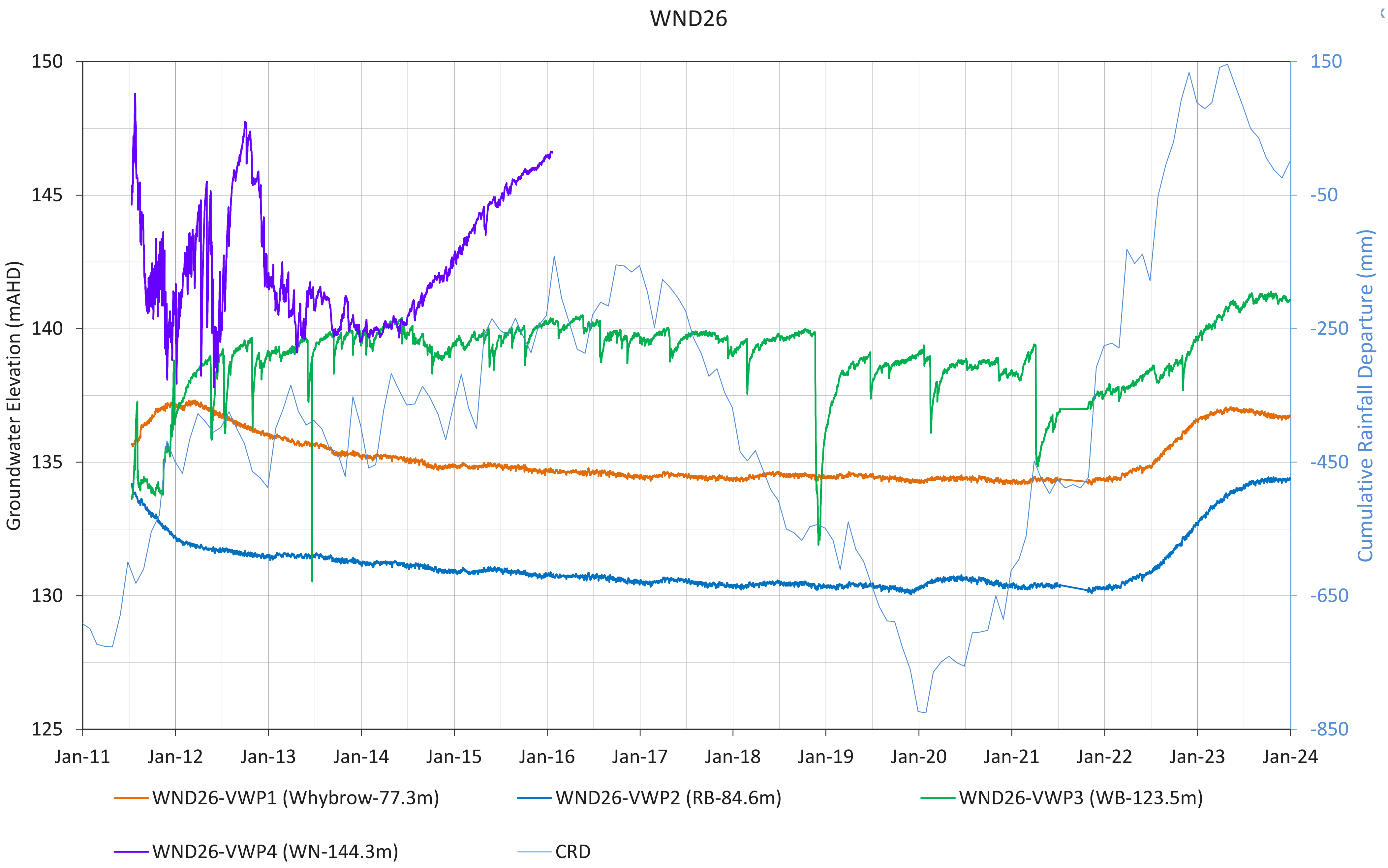
RD1189
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
200
190
180
170
160
150
140
130
120
110
100
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
RD1189-VWP1 (WH1-79m)
RD1189-VWP3 (WW12-186m)
RD1189-VWP4 (Mt Arthur seam-230m)
RD1189-VWP6 (BY2-315m)
CRD

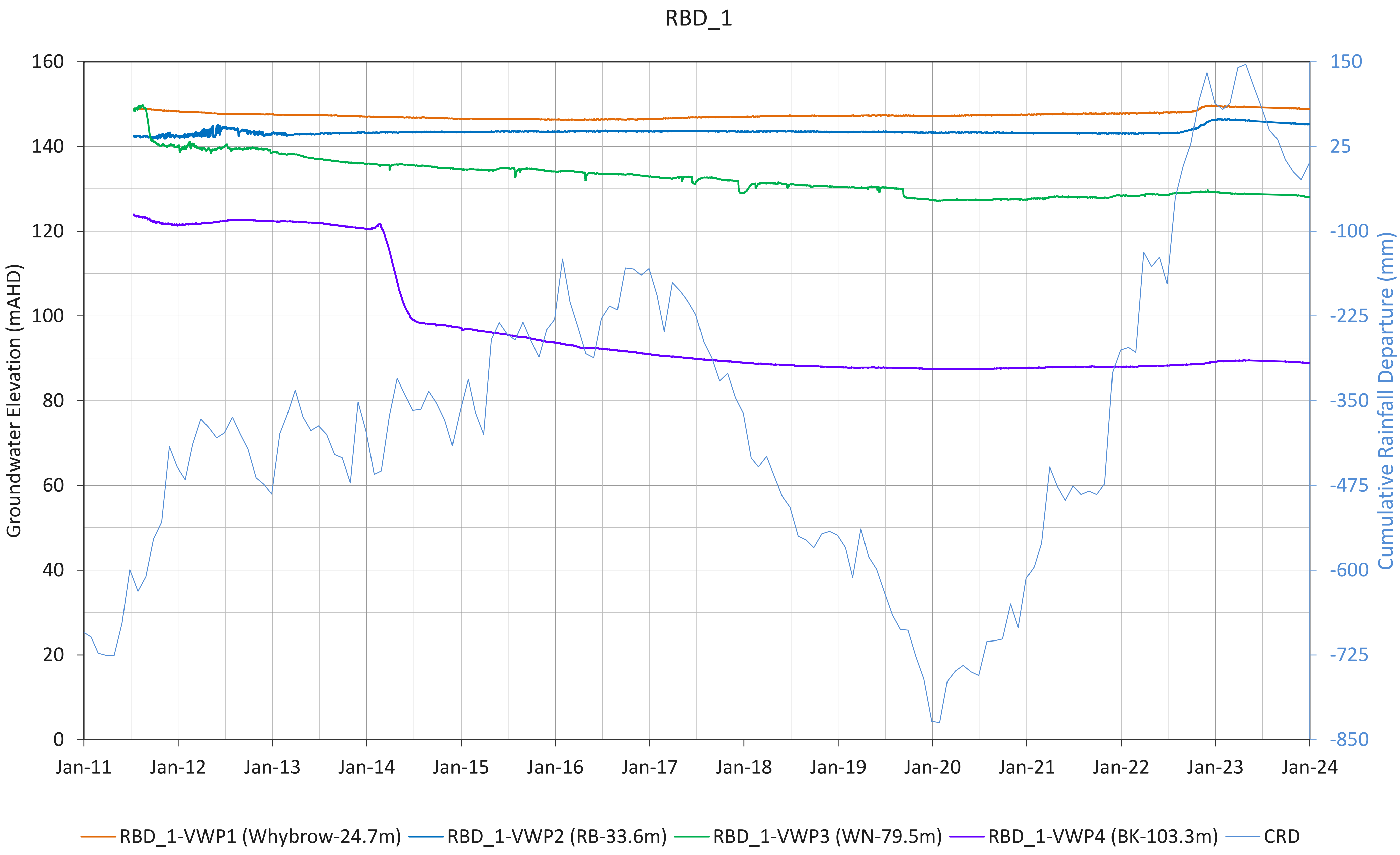

RD1192
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
160
155
150
145
140
135
130
125
120
150
25
-100
-225
-350
-475
-600
-725
-850
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
RD1192-VWP1 (WB1-61m)
RD1192-VWP2 (RB3-80m)
RD1192-VWP3 (BK1-148.5m)
CRD

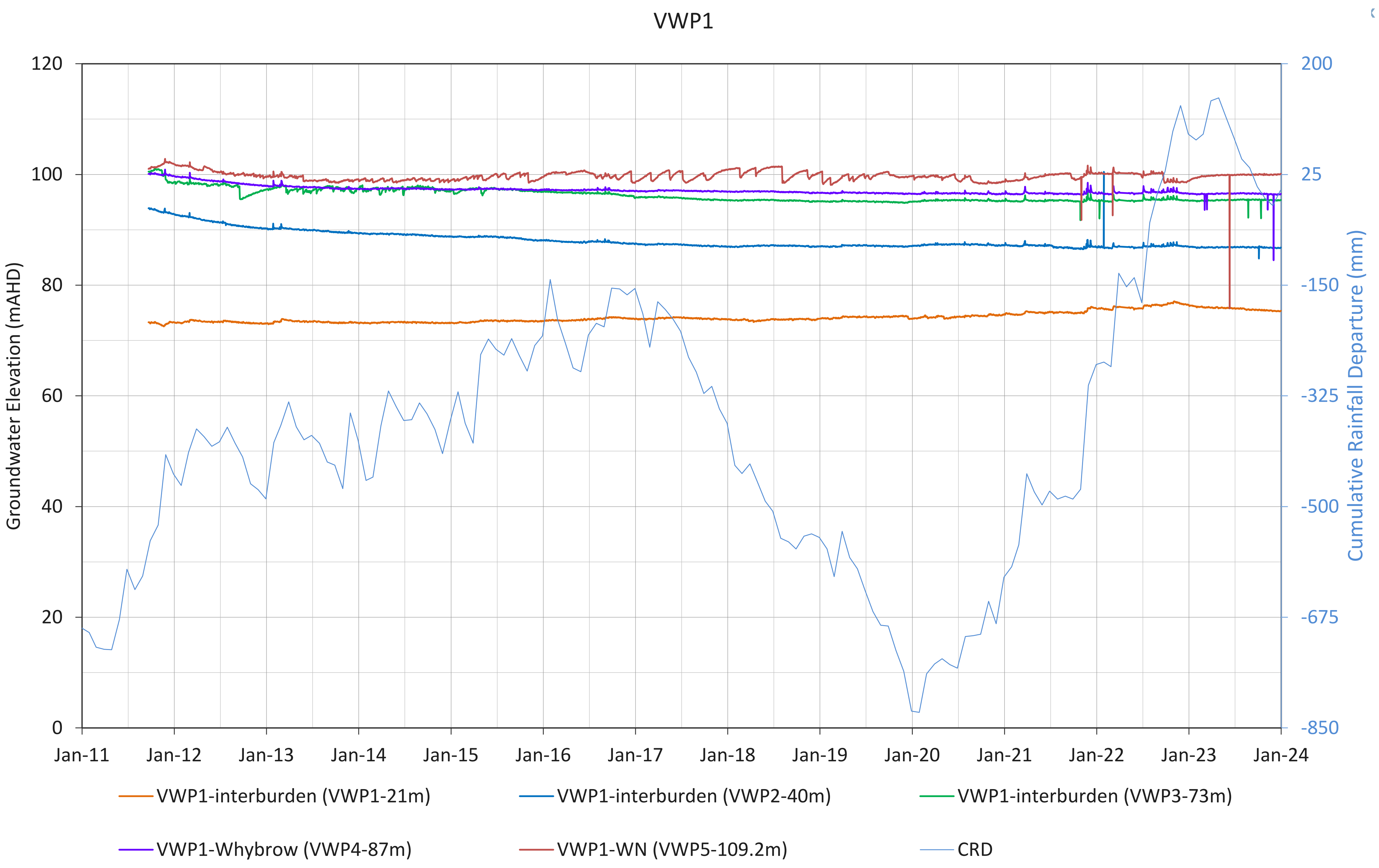


BKL6R12
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
180
170
160
150
140
130
120
110
100
150
25
-100
-225
-350
-475
-600
-725
-850
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
BKL6R12-VWP1 (WB2-25m)
BKL6R12-VWP2 (RB-40.5m)
BKL6R12-VWP3 (WN2-86.5m)
BKL6R12-VWP4 (BK1-113.7m)
CRD


WND16
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
122
120
118
116
114
112
110
108
106
150
25
-100
-225
-350
-475
-600
-725
-850
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
WND16-VWP1 (WB-33.8m)
WND16-VWP4 (BK-110.5m)
CRD


WND26
150
145
140
135
130
125
Groundwater Elevation (mAHD)
150
-50
-250
-450
-650
-850
Cumulative Rainfall Departure (mm)
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
WND26-VWP1 (Whybrow-77.3m)
WND26-VWP2 (RB-84.6m)
WND26-VWP3 (WB-123.5m)
WND26-VWP4 (WN-144.3m)
CRD


RBD_1
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
160
140
120
100
80
60
40
20
0
150
25
-100
-225
-350
-475
-600
-725
-850
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
RBD_1-VWP1 (Whybrow-24.7m)
RBD_1-VWP2 (RB-33.6m)
RBD_1-VWP3 (WN-79.5m)
RBD_1-VWP4 (BK-103.3m)
CRD



VWP1
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
120
100
80
60
40
20
0
200
25
-150
-325
-500
-675
-850
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
VWP1-interburden (VWP1-21m)
VWP1-interburden (VWP2-40m)
VWP1-interburden (VWP3-73m)
VWP1-Whybrow (VWP4-87m)
VWP1-WN (VWP5-109.2m)
CRD

Appendix C Groundwater Quality and Trigger Levels (only sites within the TARP)

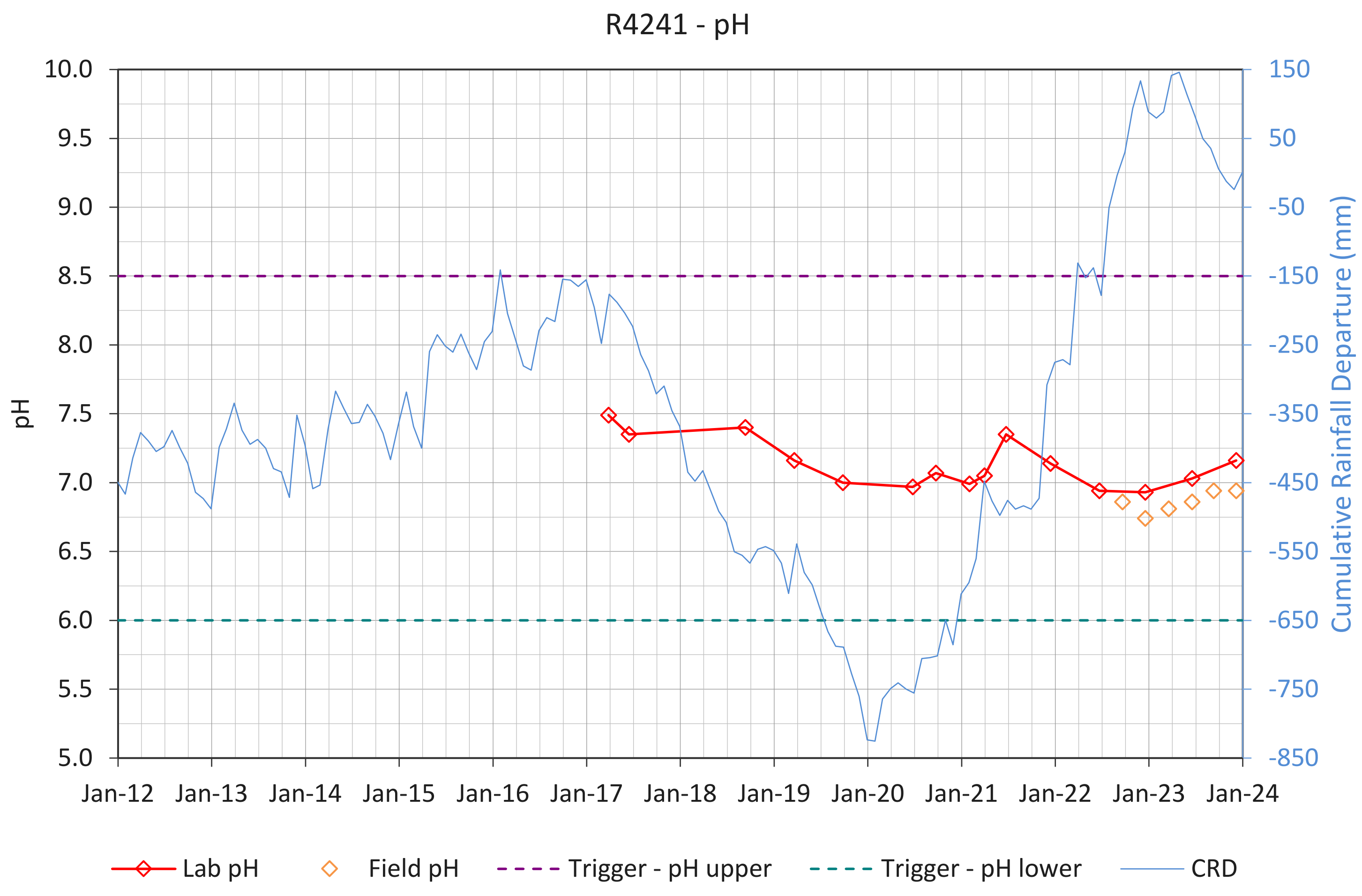
Maxwell Underground Mine

Groundwater Monitoring Report – Quarter 4 – 2023

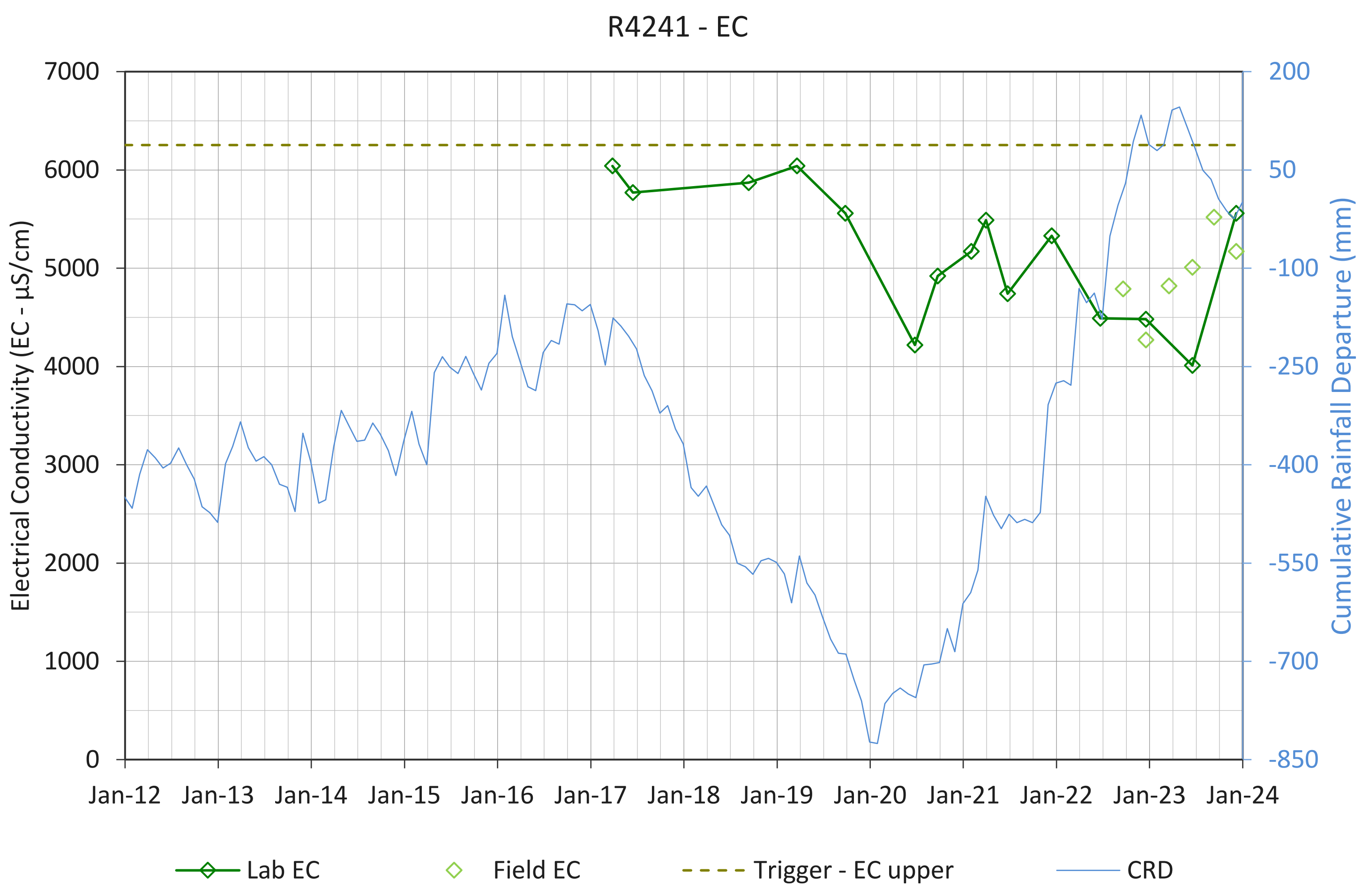
Malabar Resources Pty Ltd

SLR Project No.: 630.030945.00001

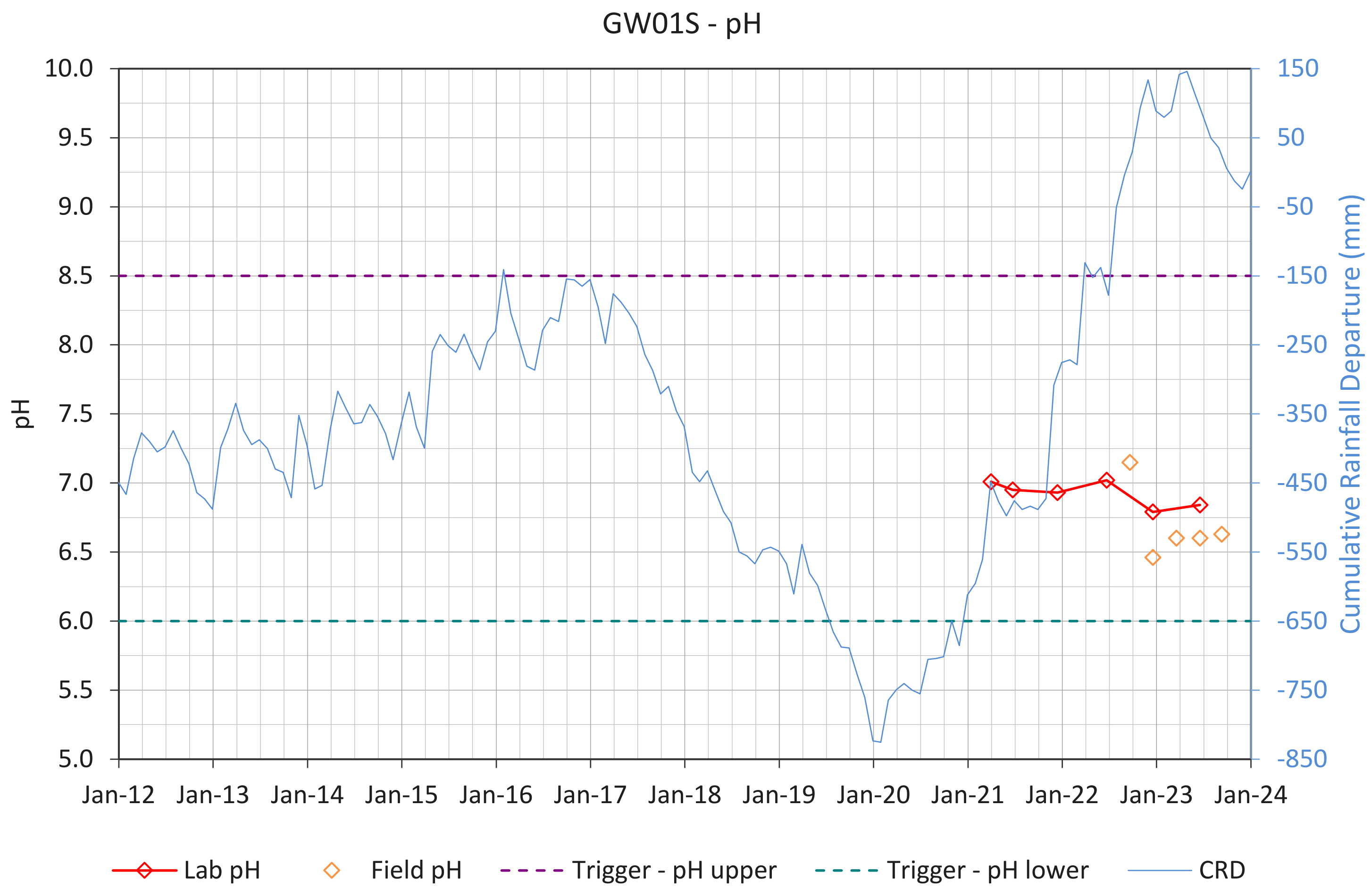
7 February 2024



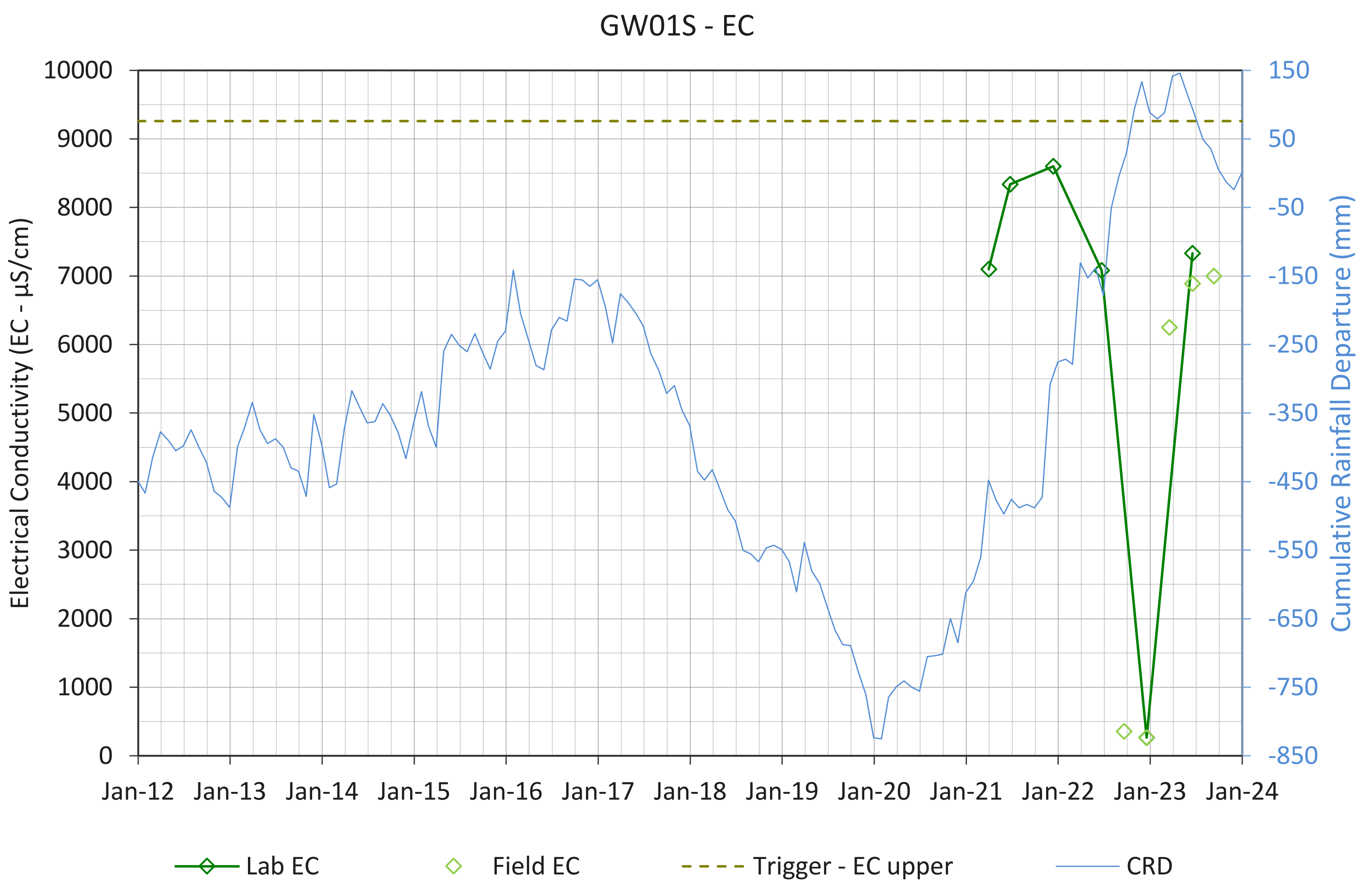
R4241 - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD



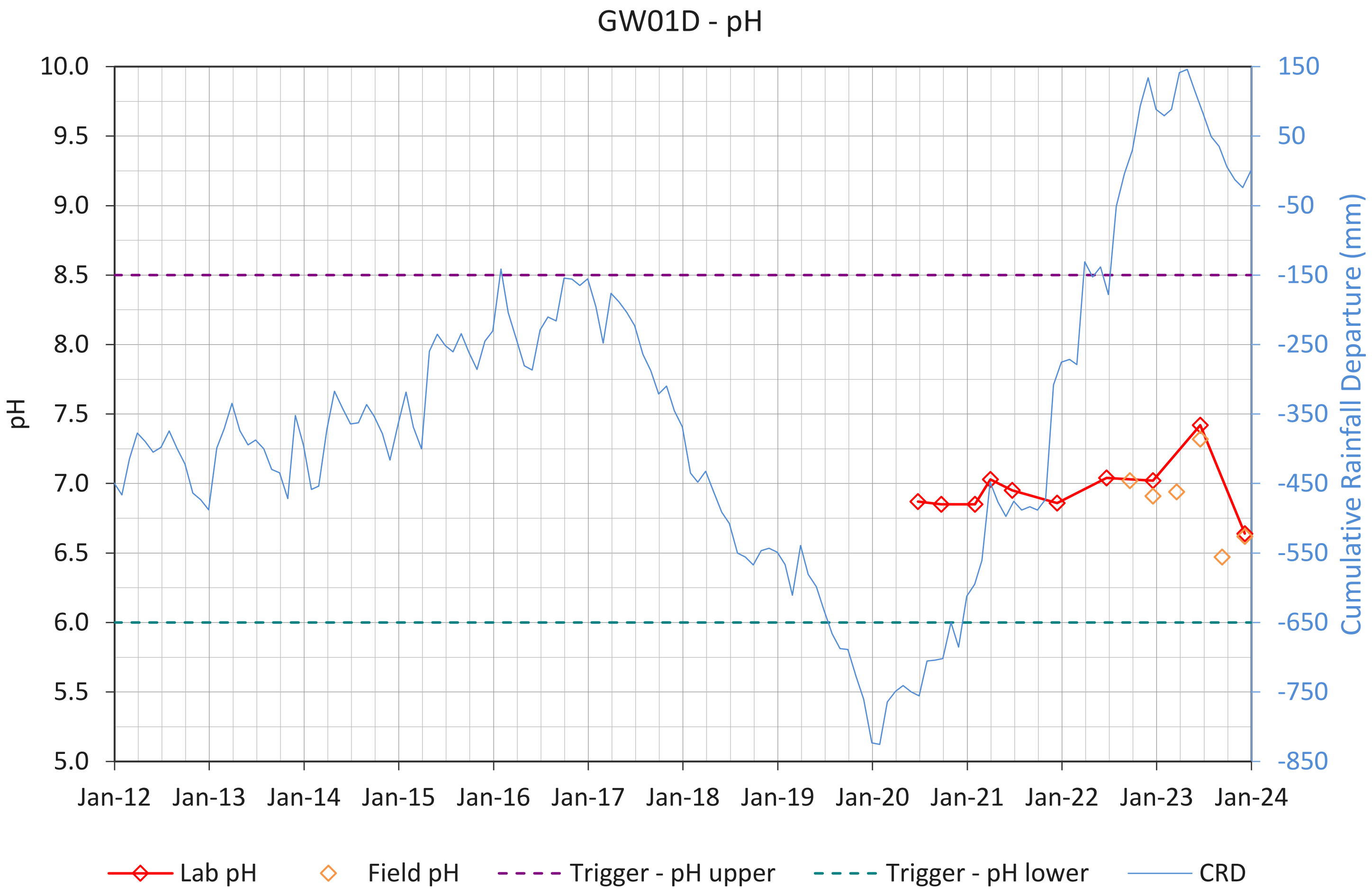
R4241 - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
7000
6000
5000
4000
3000
2000
1000
0
200
50
-100
-250
-400
-550
-700
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD

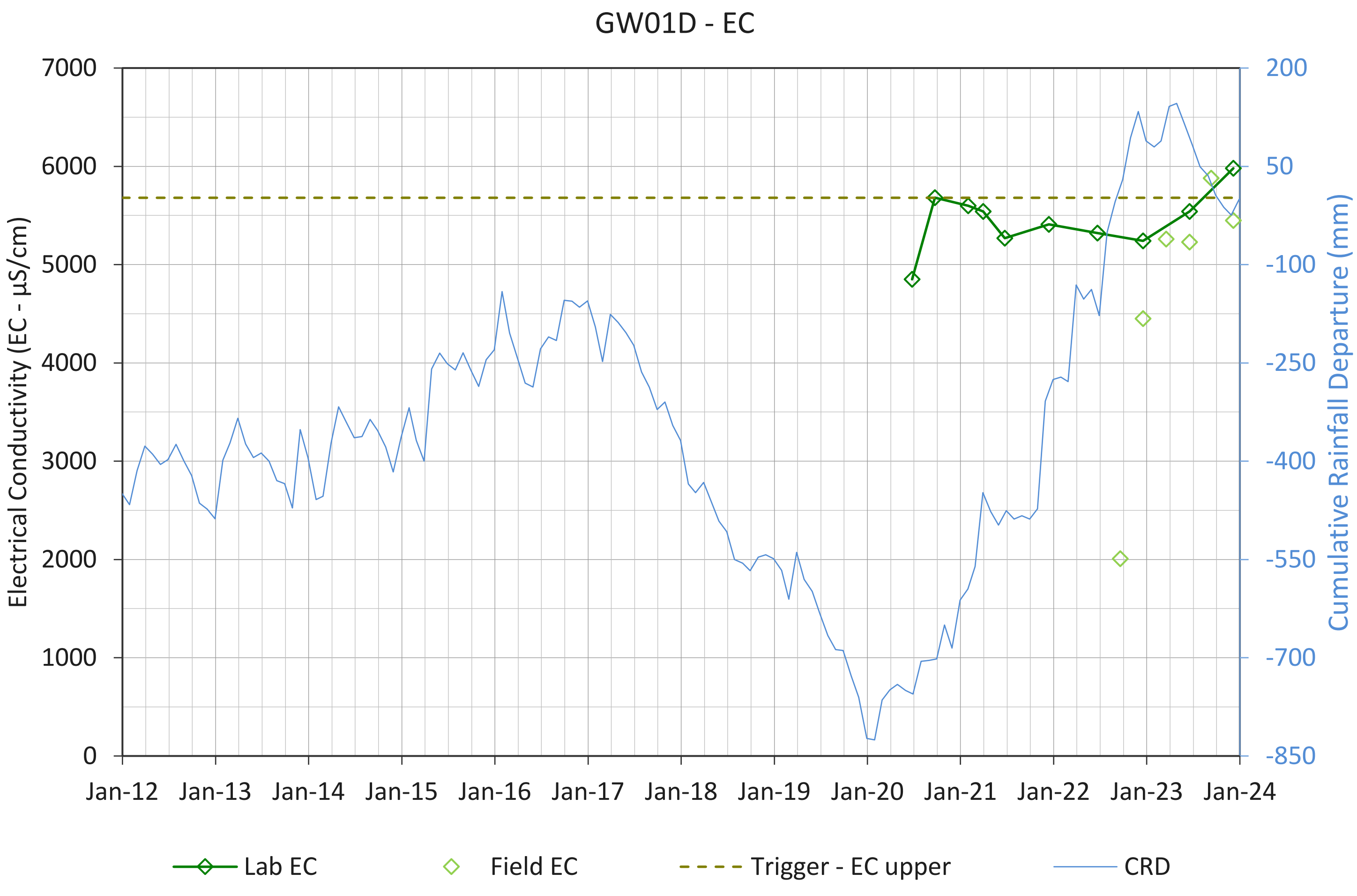


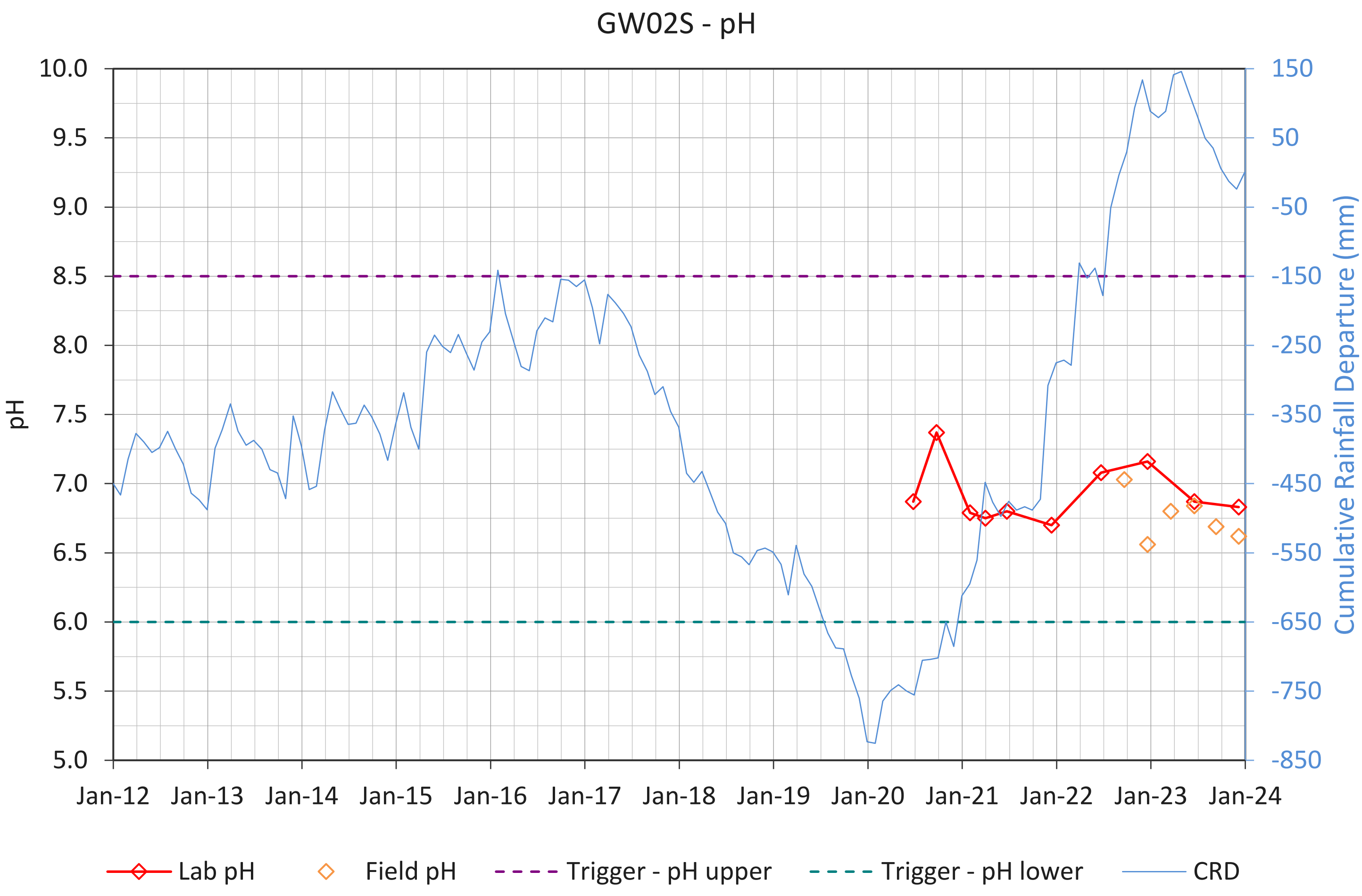
GW01S - pH
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
pH
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Cumulative Rainfall Departure (mm)
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

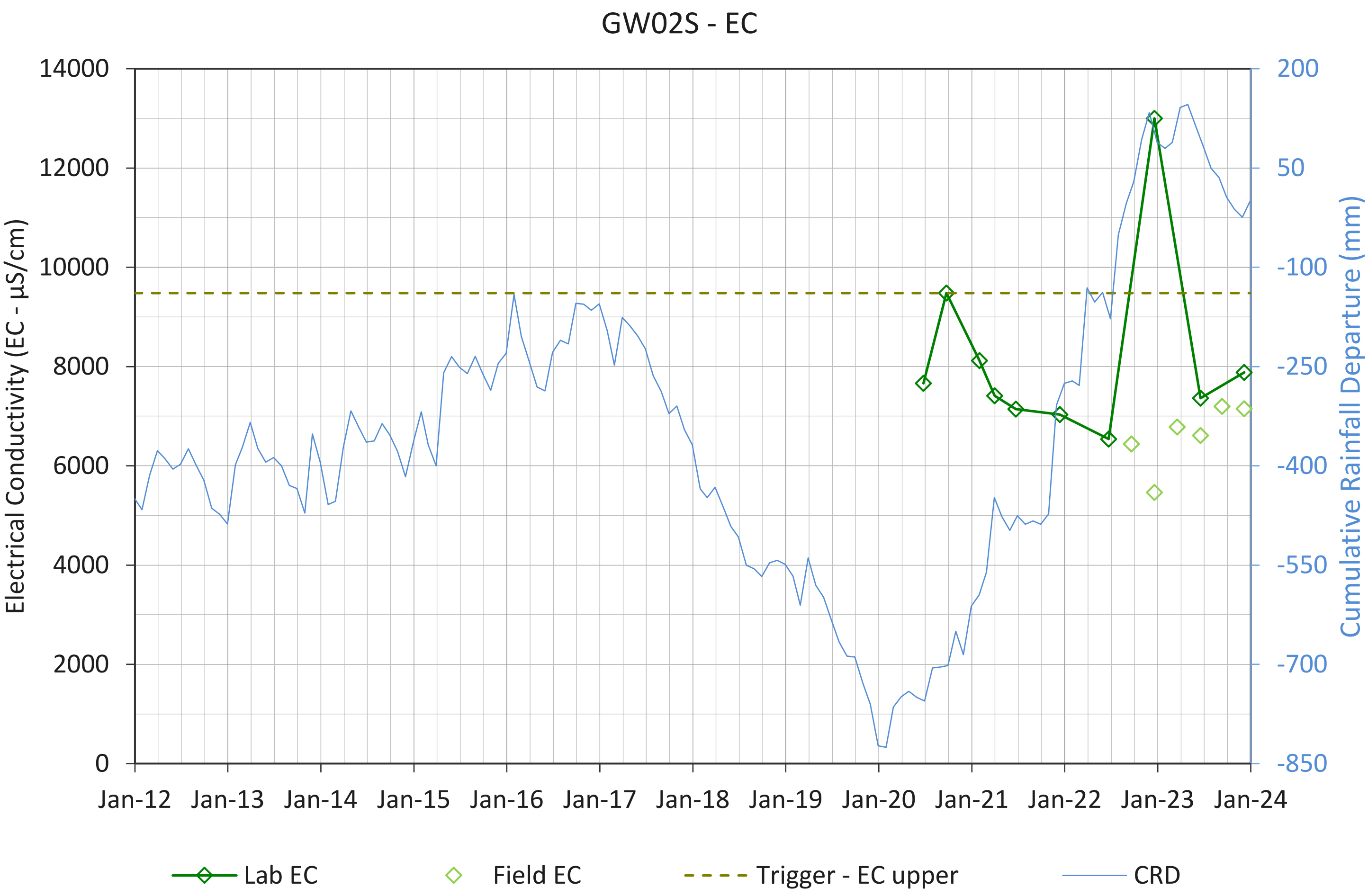


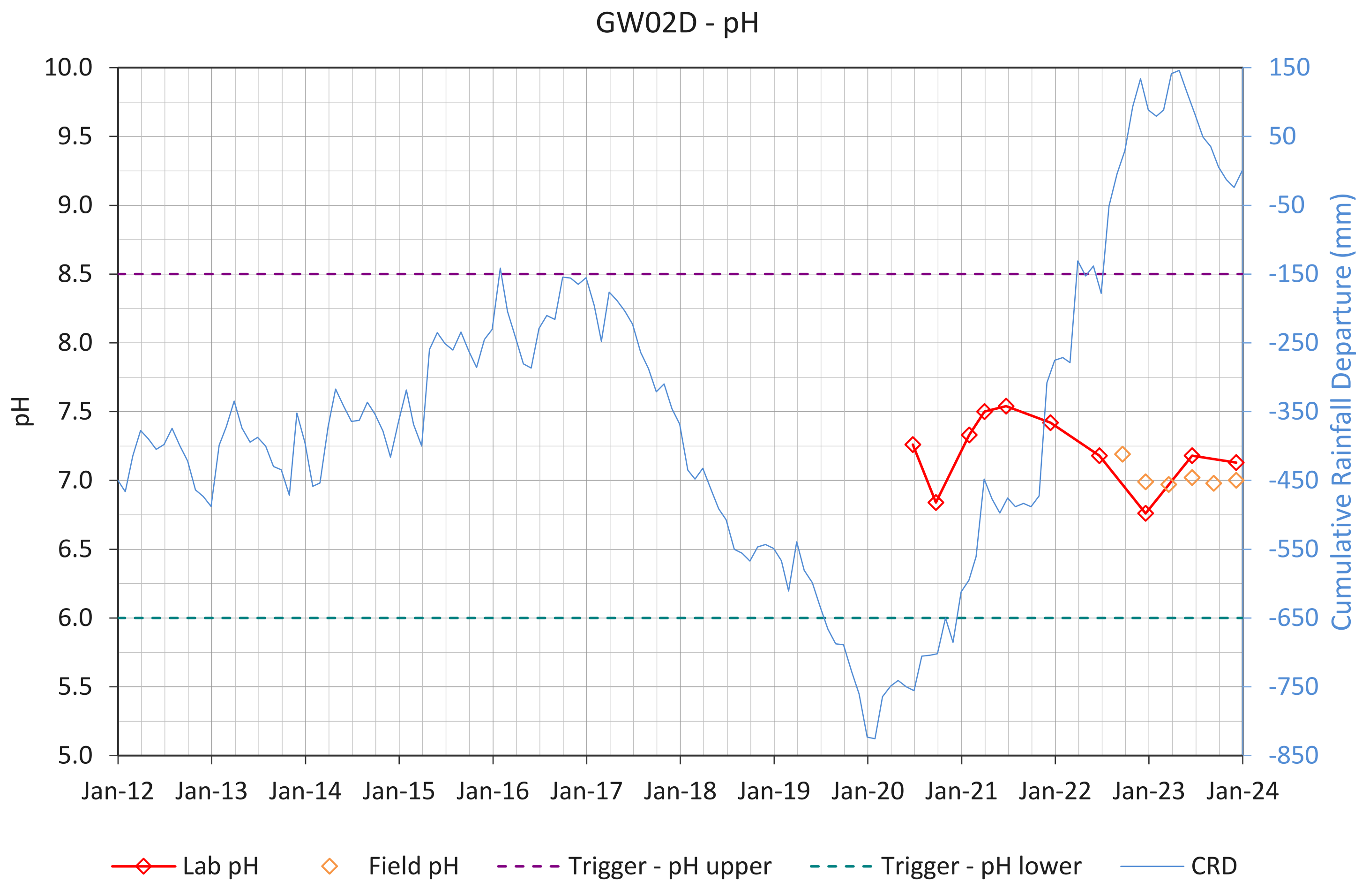
GW01S - EC
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Electrical Conductivity (EC - µS/cm)
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Cumulative Rainfall Departure (mm)
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD


GW01D - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

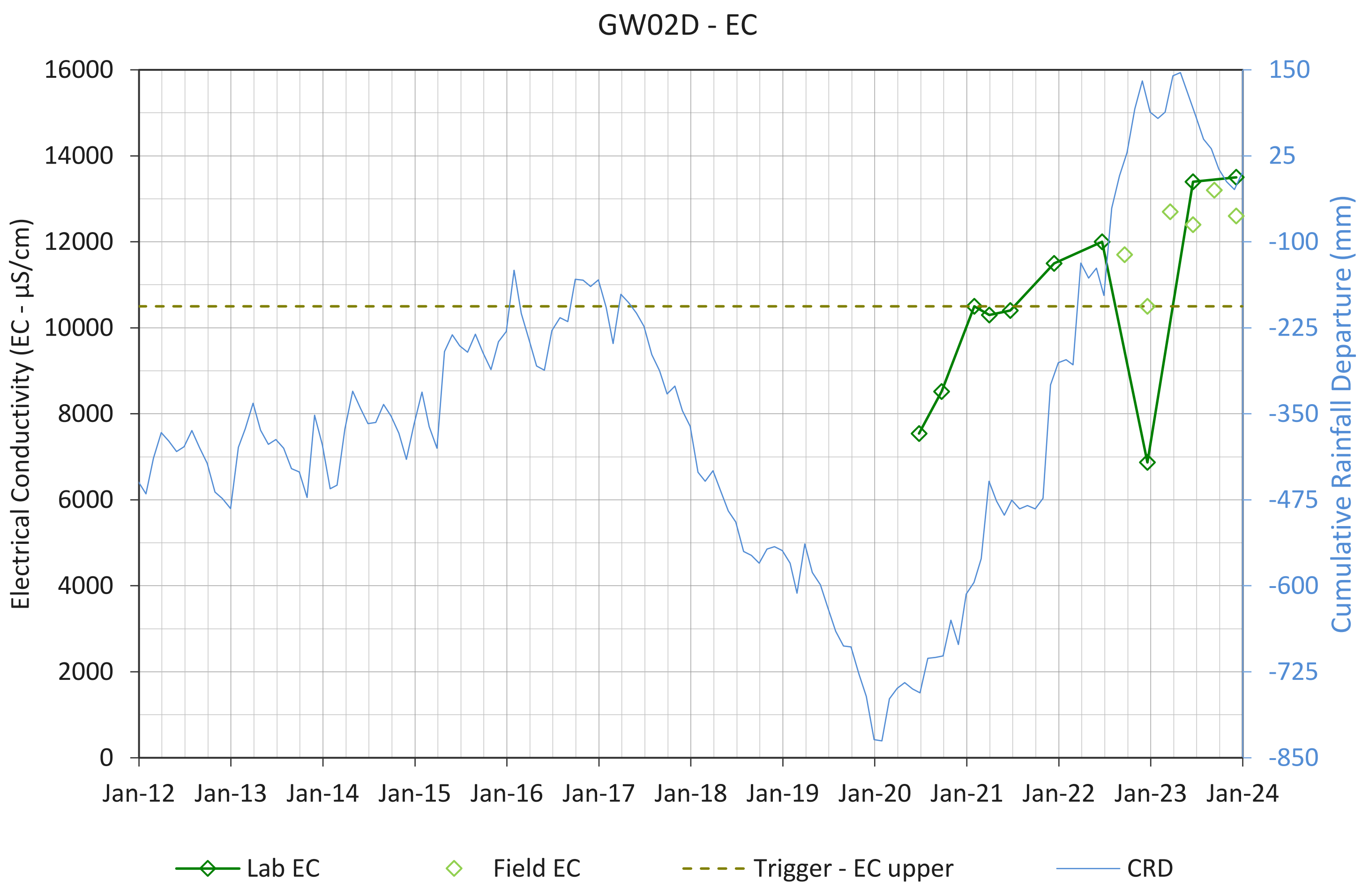

GW01D - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
7000
6000
5000
4000
3000
2000
1000
0
200
50
-100
-250
-400
-550
-700
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD


GW02S - pH
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
pH
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Cumulative Rainfall Departure (mm)
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

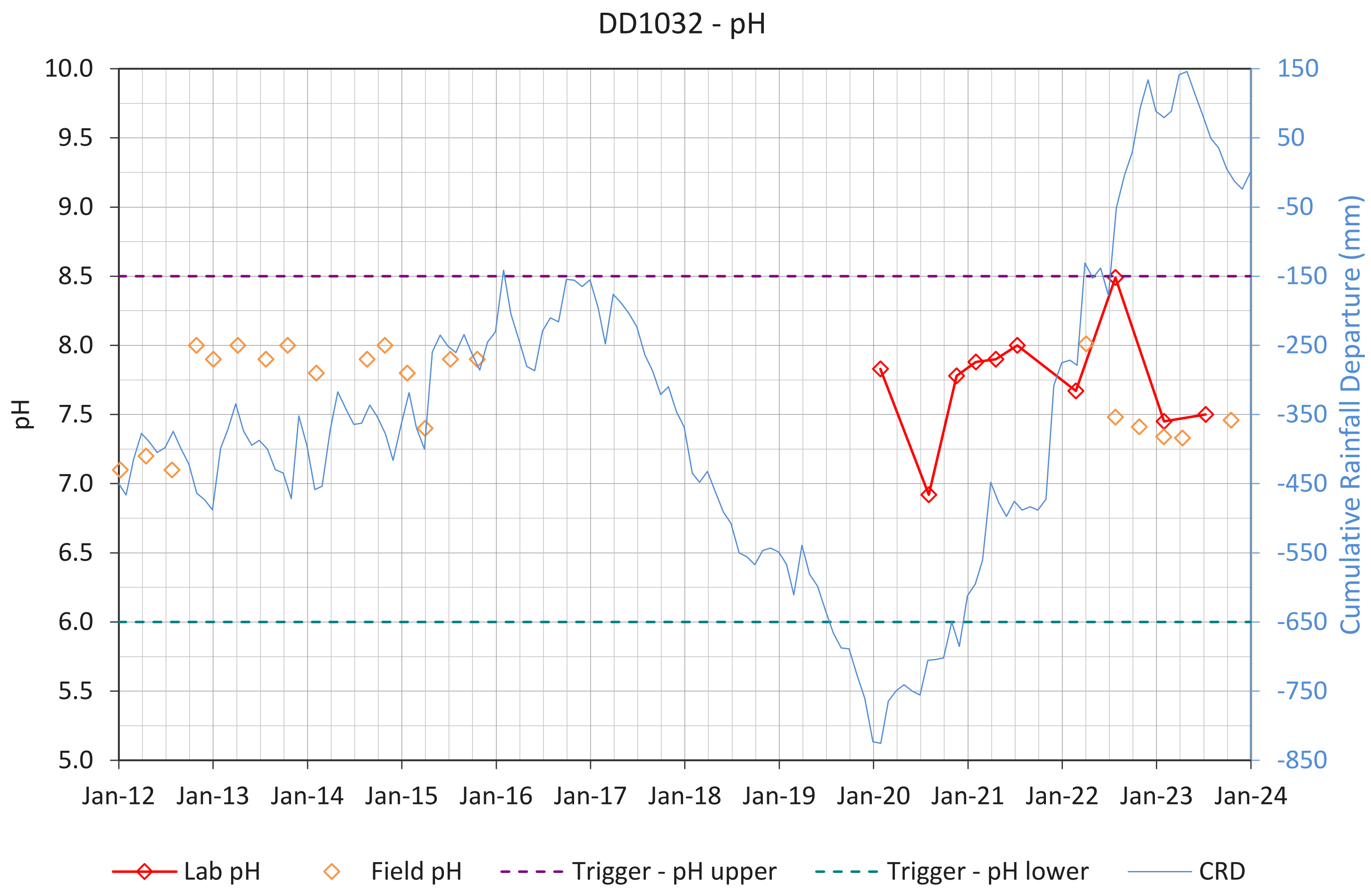

GW02S - EC
14000
12000
10000
8000
6000
4000
2000
0
Electrical Conductivity (EC - µS/cm)
200
50
-100
-250
-400
-550
-700
-850
Cumulative Rainfall Departure (mm)
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD



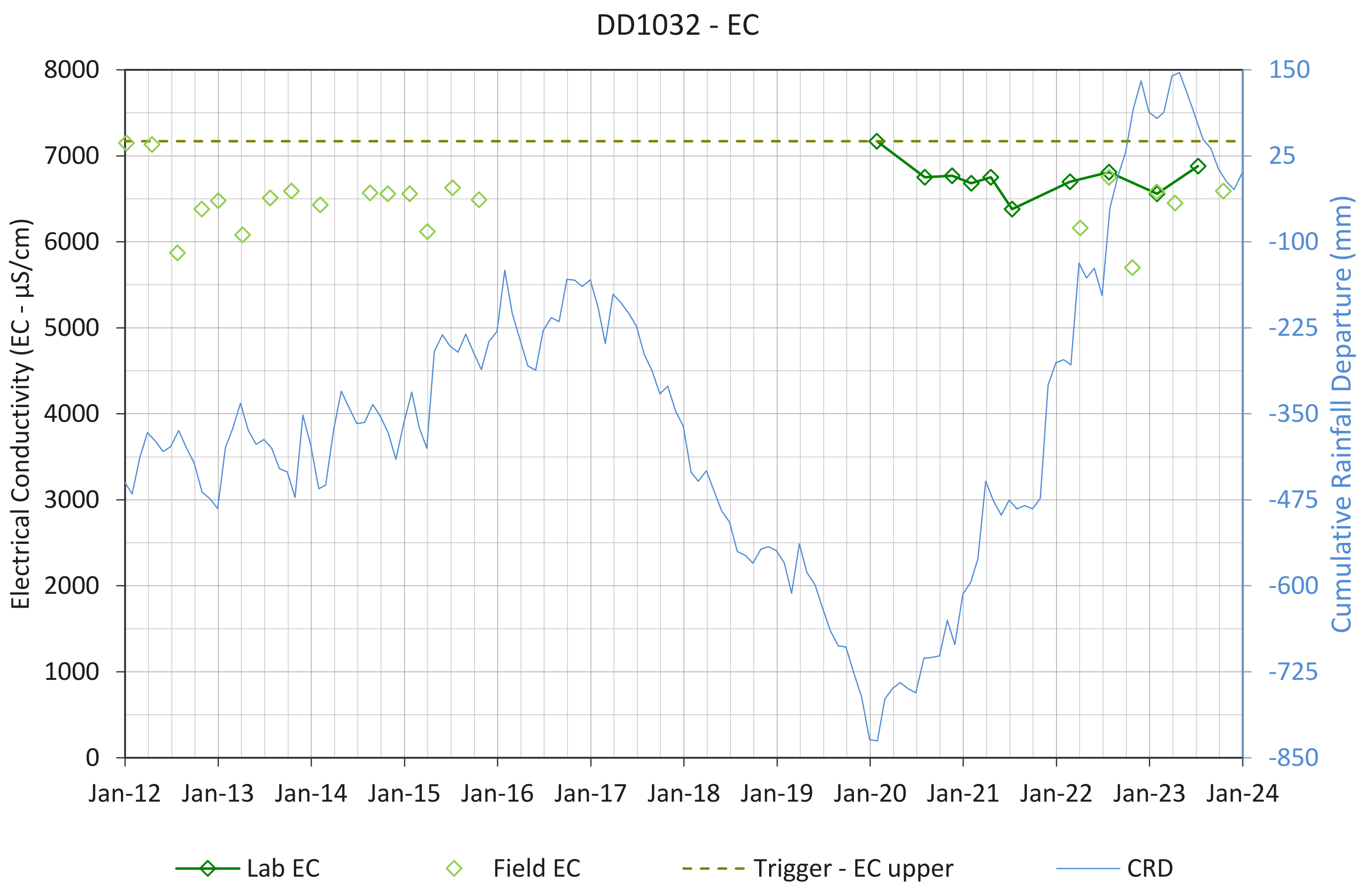
GW02D - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD



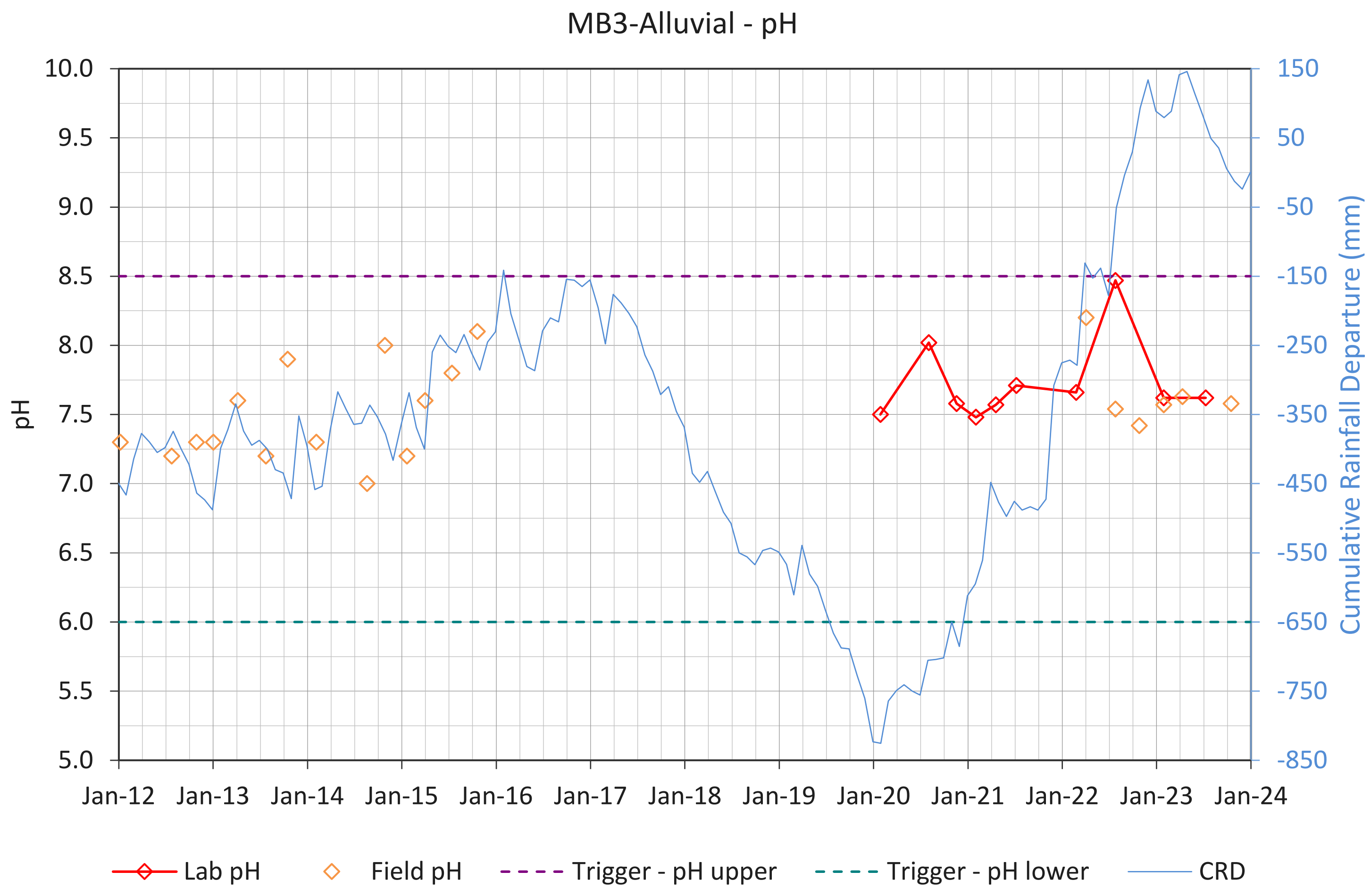
GW02D - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
16000
14000
12000
10000
8000
6000
4000
2000
0
150
25
-100
-225
-350
-475
-600
-725
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD



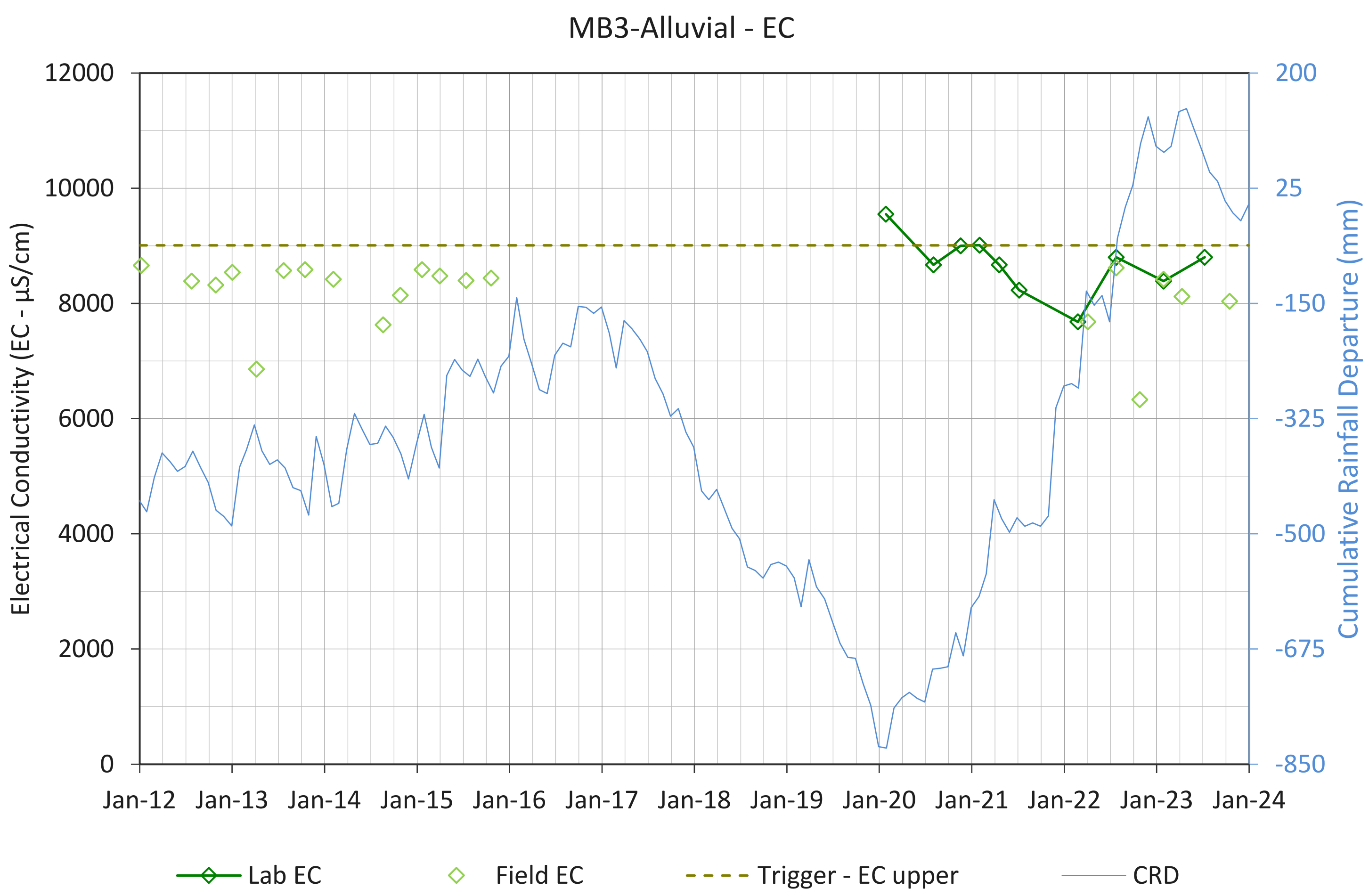
DD1032 - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD



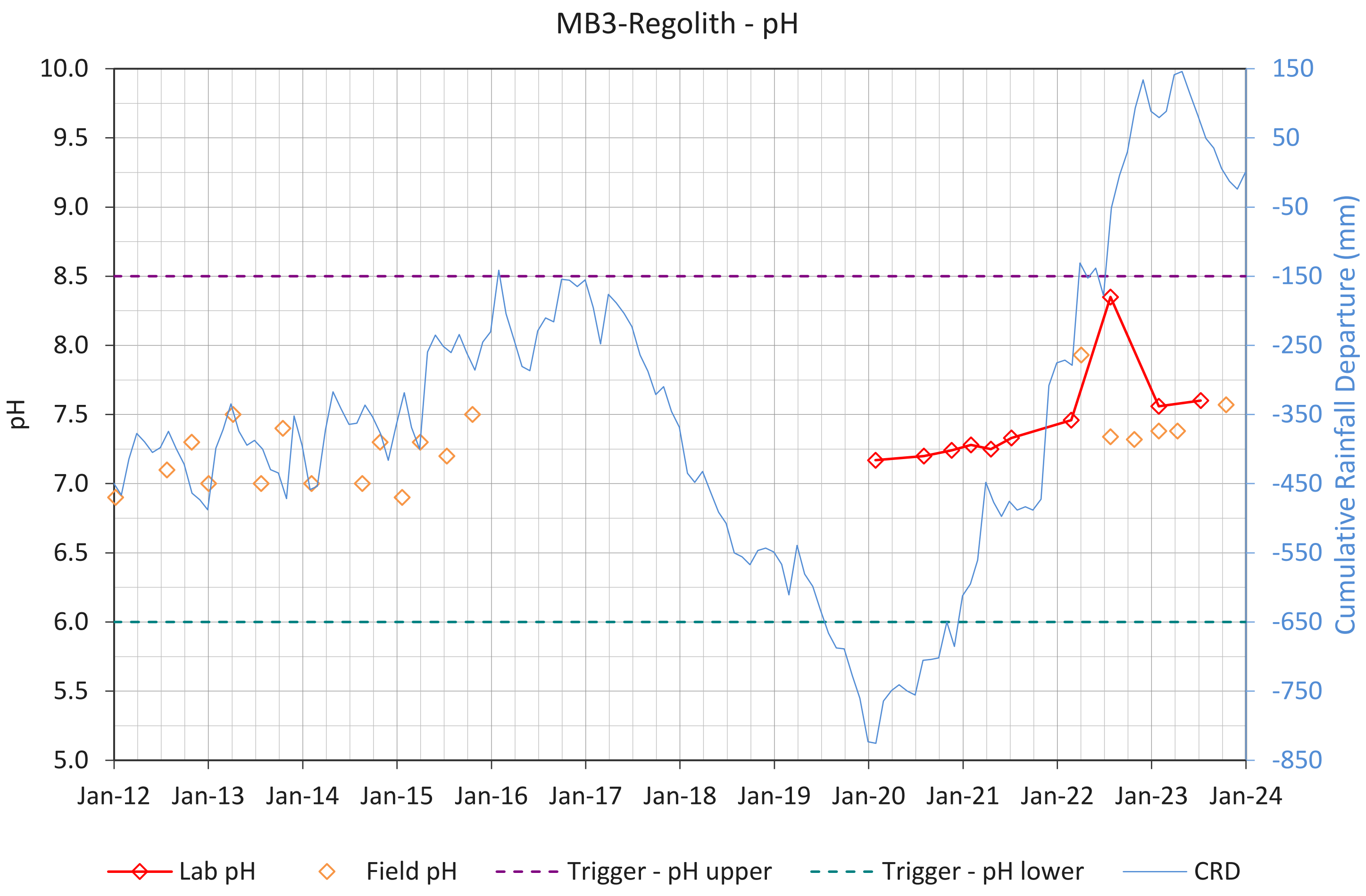
DD1032 - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
8000
7000
6000
5000
4000
3000
2000
1000
0
150
25
-100
-225
-350
-475
-600
-725
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD



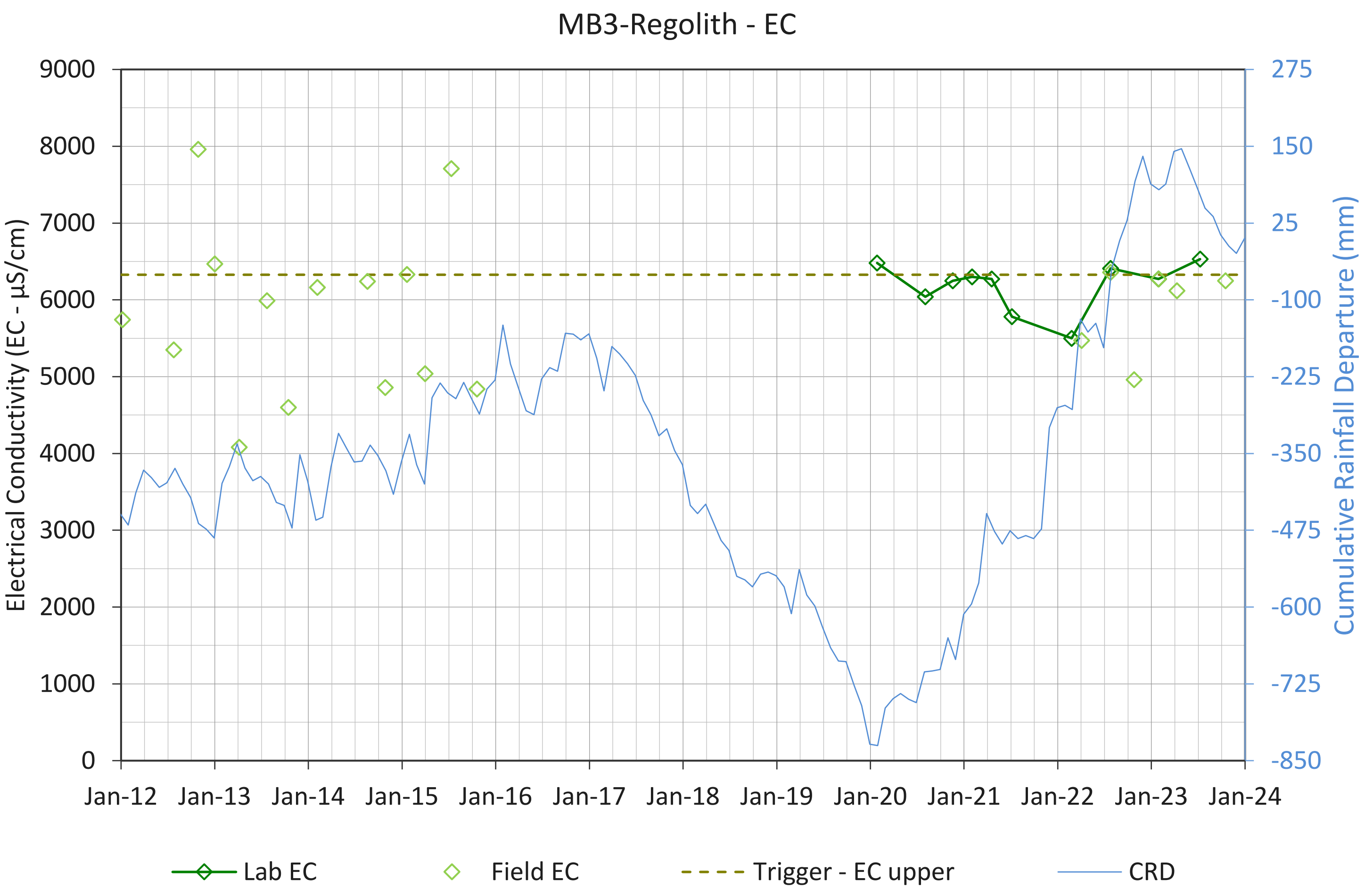
MB3-Alluvial - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD



MB3-Alluvial - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
12000
10000
8000
6000
4000
2000
0
200
25
-150
-325
-500
-675
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD



MB3-Regolith - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
150
50
-50
-150
-250
-350
-450
-550
-650
-750
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD



MB3-Regolith - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
275
150
25
-100
-225
-350
-475
-600
-725
-850
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Lab EC
Field EC
Trigger - EC upper
CRD

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