MALABAR

Maxwell Underground Mine
Environmental Monitoring Data
Quarter 2 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 January to 31 March 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 Quarter 2 2023.

Gauge	Insoluble Solids Result (g/m^2/month)			Annual Mean Limit (g/m^2/month)	Rolling Annual Average to end of March 2023 (g/m^2/month)
	April	May	June		
2175	1.5	1.3	1.5	4	1.8
2230	1.6	1.6	1.9	4	1.5
2235	1.3	1.6	1.8	4	1.7
2247	1.2	1.4	1.6	4	1.4

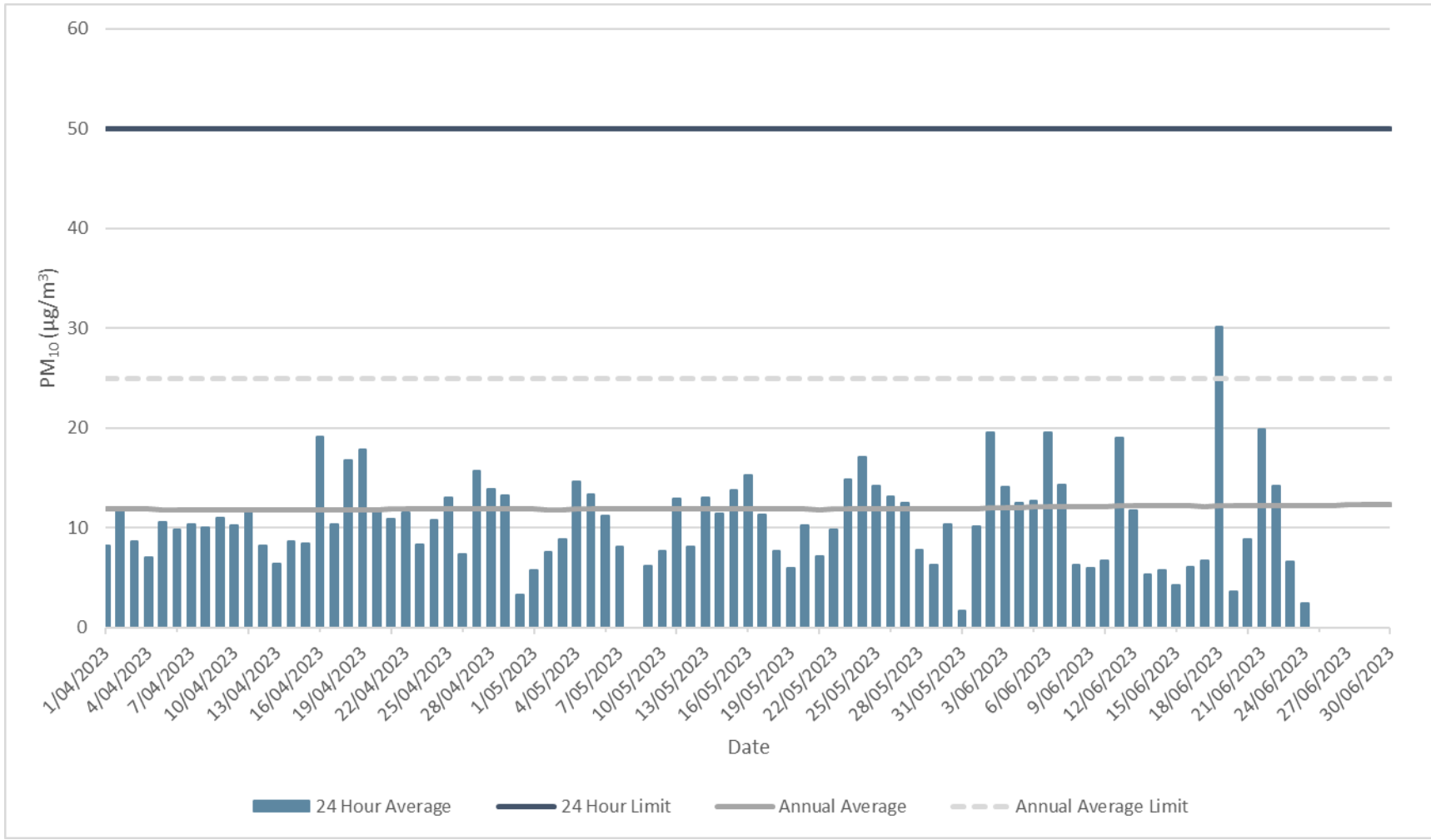


Figure 1. TEOM-1 PM_{10} monitoring results for Quarter 2 2023.

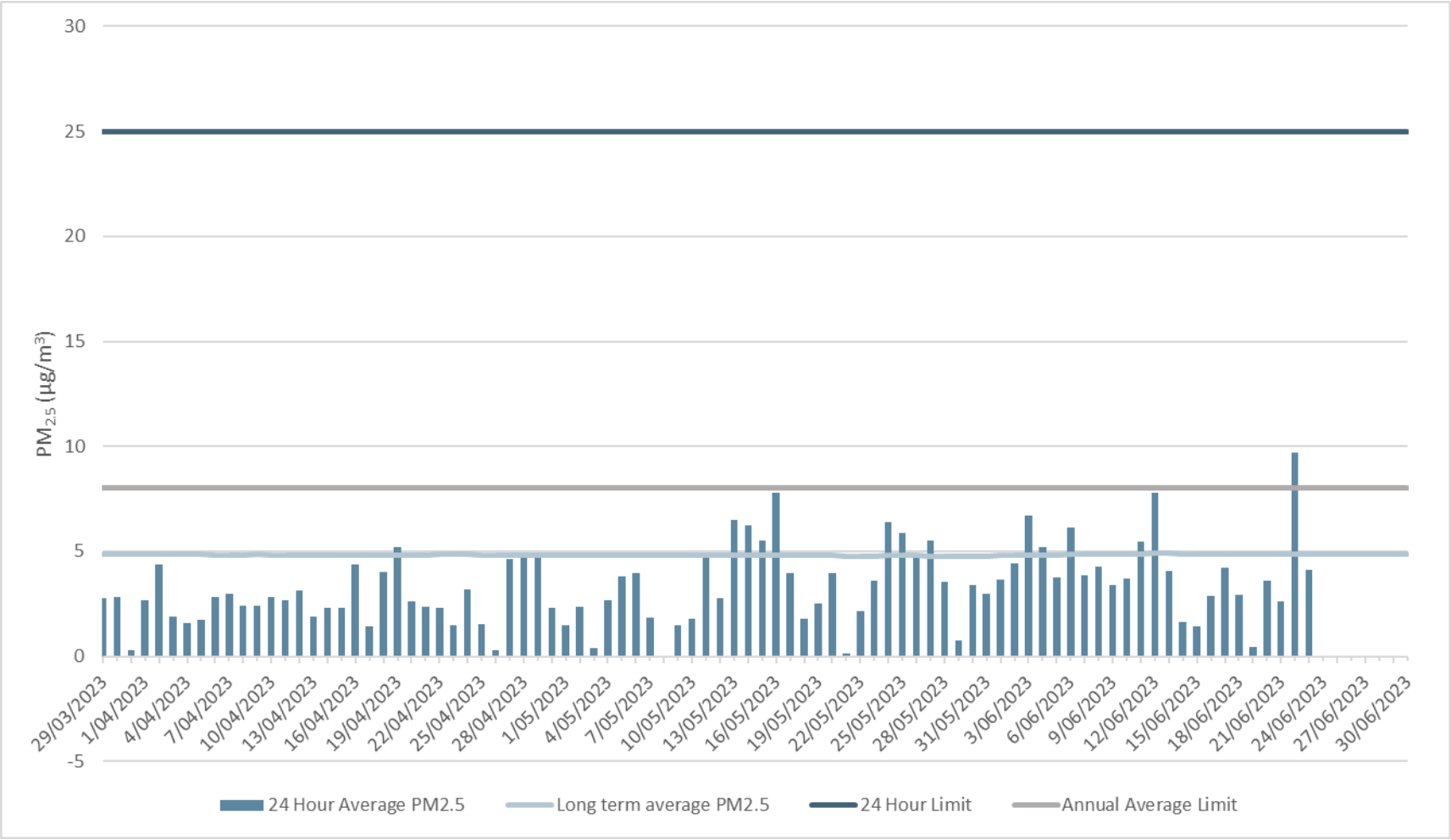


Figure 2. TEOM-1 $PM_{2.5}$ monitoring results for Quarter 2 2023.

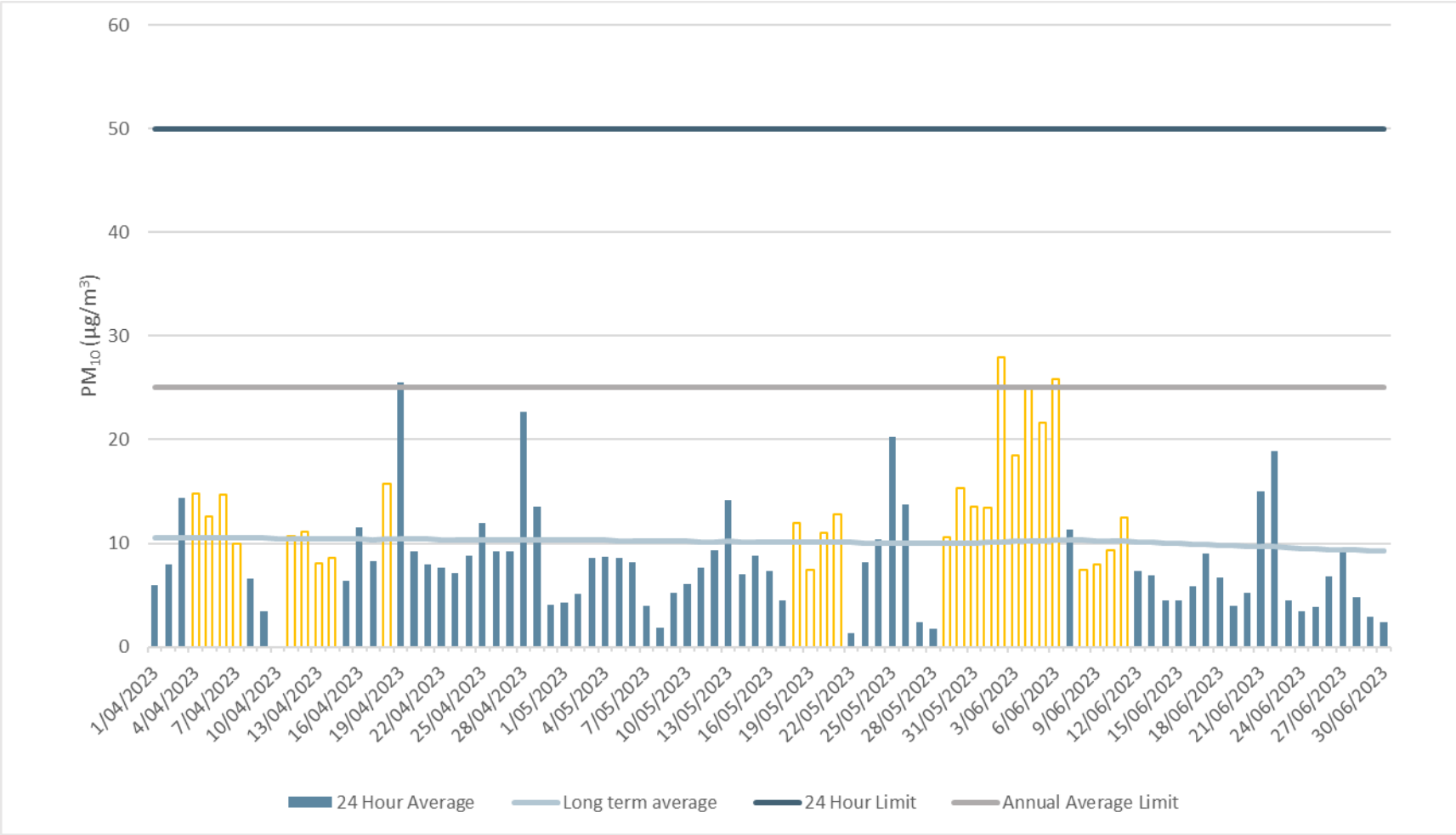


Figure 3. TEOM-2 PM_{10} monitoring results for Quarter 2 2023. Refer to notes for explanation of data gaps as shown by orange bars.

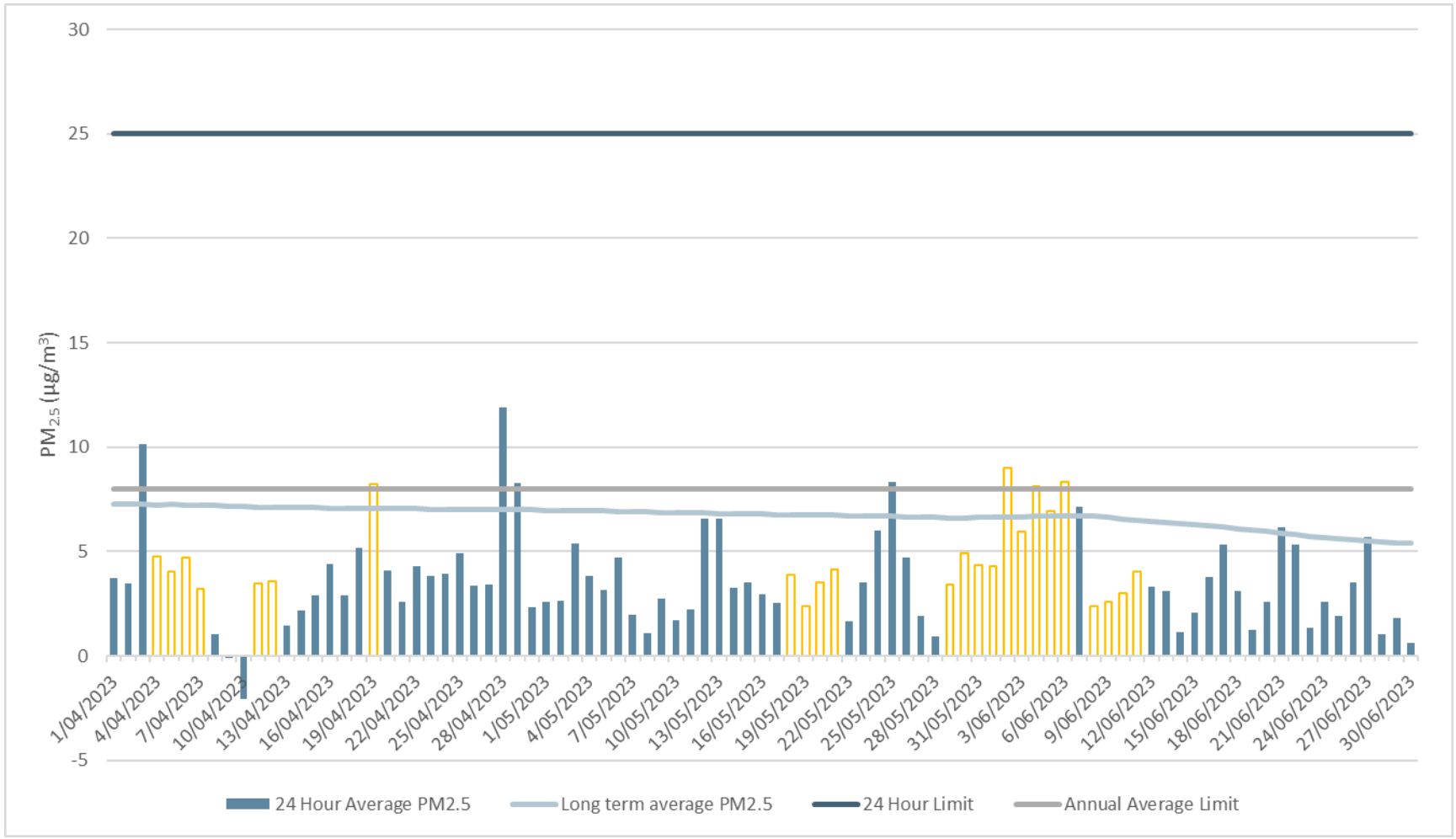


Figure 4. TEOM-2 $PM_{2.5}$ monitoring results for Quarter 1 2023.

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 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 Malabar's data validation process, where such events result in >75% 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 has been presented, ie if not 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: 8 May 2023 – the scheduled 3-monthly calibration resulted 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.
  - TEOM-1: 25–30 June 2023 – a 'frozen' TEOM datalogger occurred requiring a manual restart.
  - TEOM-2: Missing 24-hour averages: 9 days in April, 7 days in May, 10 days in June 2023. Diagnosed as being due to failing air con unit (was tripping) which resulted in overheating of the TEOM; this was initially confused with a parallel issue with the communications, potentially. Explanation: email alerts were being received that the TEOM was offline, the following day however data was coming through so it was assumed to not be an urgent issue as data was coming through. Later interrogation of the data found that there were gaps during the periods the TEOM overheated (usually during the day).
  - On 5 June 2023, the air con unit was replaced with a new one. In addition, the Malabar TEOM that was previously with the equipment manufacturer (Lear Siegler) in the US for repair (as reported during CCC meetings) was returned to site and swapped out for the hire unit.

Table 2. All mine water storage monitoring locations: laboratory water quality monitoring results for Quarter 2 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)	Jun	107	358	667	6400	437	8.4	54	565	3100	10	5110
	Avg	**78**	**290**	**602**	**5200**	**344**	**8.8**	**43**	**465**	**2438**	**6.3**	**4535**
DC2 Dam (2109)	Jun	507	187	1680	10200	414	7.9	11	1700	3190	5.0	6750
	Avg	**318**	**114**	**987**	**5920**	**224**	**7.6**	**8.3**	**915**	**1701**	**12**	**4191**
Rail Loop Dam (2114)	Jun	166	283	663	5740	344	7.9	30	573	2550	15	4190
	Avg	**177**	**167**	**386**	**3180**	**173**	**7.8**	**14**	**324**	**1210**	**8.8**	**2410**
Industrial Dam (1969)	Jun	136	232	427	3300	243	8.2	29	325	1860	5.0	2820
	Avg	**118**	**184**	**346**	**2943**	**191**	**8.4**	**23**	**266**	**1336**	**9.0**	**2585**
OPC Dam	Jun	137	217	367	2880	207	8.4	18	285	1560	12.0	2440
	Avg	**124**	**109**	**154**	**1538**	**94**	**8.4**	**9**	**129**	**666**	**9.5**	**1203**
V Notch	Jun	356	510	1460	10400	479	7.9	20	1590	4340	5.0	8320
	Avg	**412**	**470**	**1611**	**10607**	**475**	**7.7**	**15**	**1660**	**4535**	**7.8**	**9321**
ES Void	Jun	244	570	839	8090	604	7.9	78	646	4000	8.0	6820
	Avg	**249**	**546**	**812**	**7543**	**580**	**8.0**	**77**	**616**	**3793**	**7.5**	**7098**

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.

Table 2 excludes mine water storages yet to be constructed (MEA Dam, Mine Water Dam, Treated Water Dam, MEA Sedimentation Dam).

Table 3. All downstream surface water monitoring locations: laboratory surface water quality scheduled monitoring results for Quarter 2 2023 compared to year-to-date averages. See notes for further details.

Site	Month	Antimony	Arsenic	Bicarbonate ($CaCO_3$)	Calcium	Chloride	EC	Magnesium	Molybdenum	Potassium	Selenium	Sodium	Sulphate (SO_4)	TSS	TDS	Turbidity
Saddlers U/S	Apr	0.0010	0.0010	516	133	2740	9530	427	0.0010	10	0.010	1230	1250	5.0	6710	3.2
	Avg	**0.0010**	**0.0010**	**453**	**181**	**1840**	**7352**	**315**	**0.0010**	**8.0**	**0.010**	**930**	**1108.0**	**6.8**	**5094**	**6.5**
W3	Apr	Dry														
	Avg	**0.0010**	**0.0010**	**53**	**7.0**	**48**	**286**	**9.0**	**0.0010**	**5.3**	**0.010**	**34**	**14**	**12**	**219**	**41**
SW1/ Saddlers U/S	Apr	0.0010	0.0010	516	133	2740	9530	427	0.0010	10	0.010	1230	1250.0	5.0	6710	3.2
	Avg	**0.0010**	**0.0010**	**453**	**181**	**1840**	**7352**	**315**	**0.0010**	**8.0**	**0.010**	**930**	**1108**	**6.8**	**5094**	**6.5**
Saddlers D/S (W4-Bowfield)	Apr	0.0010	0.0010	1040	75	2320	8300	197	0.0010	9.0	0.010	1360	275	5.0	4880	2.8
	Avg	**0.0010**	**0.0010**	**589**	**56**	**1422**	**5236**	**137**	**0.0010**	**7.5**	**0.010**	**861**	**205**	**10**	**3048**	**24**
MEA D/S	Apr	0.0010	0.0030	78	11	41	285	6.0	0.0010	12	0.010	30	8.0	40	212	46
	Avg	**0.0010**	**0.0014**	**53**	**8.4**	**25**	**190**	**4.4**	**0.0010**	**8.2**	**0.010**	**20**	**5.8**	**26**	**190**	**63**
Saltwater D/S	Apr	Dry														
	Avg	**0.0010**	**0.0015**	**65**	**13**	**16**	**177**	**5.5**	**0.0010**	**14**	**0.010**	**8.5**	**10**	**116**	**202**	**65**
SW3	Apr	Dry														
	Avg	**0.0010**	**0.0010**	**90**	**23**	**28**	**282**	**9.0**	**0.0010**	**8.7**	**0.010**	**16**	**7.0**	**18**	**224**	**63**
Transport and Services Corridor sediment dams	See notes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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 location of the Transport and Services Corridor sediment dams (eg SW2) are to be confirmed as they are yet to be constructed/commissioned hence monitoring has not yet commenced.

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.

Table 4. Surface water scheduled field measurements at sites along Saddlers Creek for Q3 2022 to Q2 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.

Site		Field result											
		pH				EC				Turbidity			
	Units	pH				µS/cm				NTU			
	Trigger	6.5–8.5				7,600				64			
		Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2022	Q4 2022	Q1 2023	Q2 2023
W3		TLTS	TLTS	Dry	Dry	TLTS	TLTS	Dry	Dry	TLTS	TLTS	Dry	Dry
Saddlers D/S (W4 – Bowfield)		8.2	7.9	8.3	8.2	4,370	1,184	8,160	7,900	6.5	24	2.7	2.0
MEA D/S		8.2	8.5	9.1	8.8	119	258	232	295	135	100	29	55
Saddlers U/S		8.0	7.8	7.8	8.3	6,009	2,950	8,820	9180	3.0	13	5.5	3.5
Saltwater D/S		7.3	6.9	Dry	Dry	206	158	Dry	Dry	50	82	Dry	Dry
SW1/ Saddlers		7.8	7.8	8.0	8.0	6,001	1,013	1,080	1,060	6.4	68	2.0	1.2
SW2	Not yet operational	-	-	-	-	-	-	-	-	-	-	-	-
SW3		8.1	6.9	Dry	Dry	355	355	Dry	Dry	88	59	Dry	Dry

Notes

- Any exceedances of trigger values will only be investigated if they occur after construction commences.

- Turbidity results presented are laboratory results; from Q2 2022, a field meter has been used to determine turbidity; this enables direct comparison against the field trigger values for turbidity.
- Trigger for turbidity calculated by WRM Water based on the 80th percentile of the entire laboratory NTU dataset to end of 2021.

Table 5. Surface water laboratory results at sites along Saddlers Creek (scheduled and post-rainfall sampling) from Q2 2022 to Q1 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.

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	4/7/22	Rainfall	0.0010	0.0010	0.0010	41	5.0	32	6.0	0.0010	6.0	0.010	22	8.0	16	143
	6/7/22	Rainfall	0.0010	0.0010	0.0010	67	10	71	12	0.0010	5.0	0.010	47	26	5.0	319
	13/7/22	Scheduled	Too low to sample													
	10/10/22	Rainfall	Too low to sample													
	27/10/22	Scheduled	Too low to sample													
	14/11/22	Rainfall	0.0010	0.0010	0.0010	50	6.0	42	9.0	0.0010	5.0	0.010	32	9.0	15	195
	27/1/23	Scheduled	Dry													
	23/2/23	Rainfall	Dry													
	12/4/23	Scheduled	Dry													
Saddlers D/S (W4 – Bowfield)	5/4/22	Scheduled	0.0010	0.0010	0.0010	344	42	591	68	0.0010	8.0	0.010	368	138	5.0	1440
	4/7/22	Rainfall	No access, too wet													
	6/7/22	Rainfall	No access, too wet													

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
	25/7/22	Scheduled	0.0010	0.0010	0.0010	500	75	1170	146	0.0010	8.0	0.010	755	254	5.0	2590
	10/10/22	Rainfall	0.0010	0.0010	0.0010	72	14	79	15	0.0010	5.0	0.010	60	53	28	474
	28/10/22	Scheduled	0.0010	0.0010	0.0010	189	28	301	38	0.0010	6.0	0.010	181	89	12	806
	14/11/22	Rainfall	No access, too wet													
	27/1/23	Scheduled	0.0010	0.0010	0.0010	899	80	2420	210	0.0010	9.0	0.010	1360	287	5.0	4680
	23/2/23	Rainfall	0.0010	0.0010	0.0010	834	66	2240	213	0.0010	8.0	0.010	1450	272	5.0	4860
	13/4/23	Scheduled	0.0010	0.0010	0.0010	1040	75	2320	197	0.0010	9.0	0.010	1360	275	5.0	4880
MEA D/S	4/7/22	Rainfall	No access, too wet													
	6/7/22	Rainfall	No access, too wet													
	27/7/22	Scheduled	0.0010	0.0010	0.0010	34	6.0	10	3.0	0.0010	7.0	0.010	10	10	12	204
	10/10/22	Rainfall	No access, too wet													
	27/10/22	Scheduled	0.0010	0.0010	0.0010	28	5.0	14	3.0	0.0010	5.0	0.010	11	1.0	34	185
	14/11/22	Rainfall	No access, too wet													
	27/1/23	Scheduled	0.0010	0.0010	0.0010	57	10	29	6.0	0.0010	9.0	0.010	24	4.0	17	191
	23/2/23	Rainfall	0.0010	0.0010	0.0010	67	10	30	4.0	0.0010	8.0	0.010	23	6.0	26	159
	12/4/23	Scheduled	78	11	41	6.0	0.0010	12	0.010	30	8.0	40	212	78	11	41

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	4/7/22	Rainfall	No access, too wet													
	6/7/22	Rainfall	No access, too wet													
	27/7/22	Scheduled	0.0010	0.0010	0.0010	490	289	1090	262	0.0010	9.0	0.010	752	1360	5.0	4160
	10/10/22	Rainfall	No access, too wet													
	27/10/22	Scheduled	0.0010	0.0010	0.0010	355	131	679	126	0.0010	6.0	0.010	396	622	14	2200
	14/11/22	Rainfall	No access, too wet													
	27/1/23	Scheduled	0.0010	0.0010	0.0010	488	218	2440	389	0.0010	9.0	0.010	1190	1320	5.0	6400
	23/2/23	Rainfall	0.0010	0.0010	0.0010	415	132	2250	369	0.0010	6.0	0.010	1080	988	5.0	6000
	12/4/23	Scheduled	0.0010	0.0010	0.0010	516	133	2740	427	0.0010	10	0.010	1230	1250	5.0	6710
Saltwater D/S	4/7/22	Rainfall	No access, too wet													
	6/7/22	Rainfall	No access, too wet													
	1/8/22	Scheduled	0.0010	0.0010	0.0010	60	13	25	6.0	0.0010	19	0.010	10	10	58	189
	10/10/22	Rainfall	No access, too wet													
	27/10/22	Scheduled	0.0010	0.0020	0.0010	70	13	7.0	5.0	0.0010	9.0	0.010	7.0	10	174	215
	14/11/22	Rainfall	No access, too wet													
	27/1/23	Scheduled	Dry													
	23/2/23	Rainfall	Dry													

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
	12/4/23	Scheduled	Dry													
SW1/ Saddlers D/S	4/7/22	Rainfall	No access, too wet													
	6/7/22	Rainfall	No access, too wet													
	1/8/22	Scheduled	0.0010	0.0010	0.0010	606	98	1600	145	0.0010	7.0	0.010	1030	203	11	3340
	10/10/22	Rainfall	No access, too wet													
	28/10/22	Scheduled	0.0010	0.0010	0.0010	174	23	270	23	0.0010	6.0	0.010	162	22	8.0	708
	14/11/22	Rainfall	No access, too wet													
	27/1/23	Scheduled	0.0010	0.0010	0.0010	798	122	3580	219	0.0010	6.0	0.010	1900	325	5.0	6460
	23/2/23	Rainfall	0.0010	0.0010	0.0010	594	86	3890	292	0.0010	8.0	0.010	2100	384	19	7970
	13/4/23	Scheduled	0.0010	0.0010	0.0010	1040	75	2320	197	0.0010	9.0	0.010	1360	275	5.0	4880
SW2	-	-	Location to be established – see notes													
SW3	4/7/22	Rainfall	No access, too wet													
	6/7/22	Rainfall	No access, too wet													
	13/7/22	Scheduled	0.0010	0.0010	0.0010	115	32	24	11	0.0010	10	0.0010	11	1.0	9.0	258
	10/10/22	Rainfall	No access, too wet													
	27/10/22	Scheduled	0.0010	0.0010	0.0010	103	26	43	11	0.0010	8.0	0.010	25	10	11	260
	14/11/22	Rainfall	0.0010	0.0010	0.0010	53	12	17	5.0	0.0010	8.0	0.010	12	10	34	155

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
	27/1/23	Scheduled	Dry													
	23/2/23	Rainfall	Dry													
	12/4/23	Scheduled	Dry													

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.

(d) Saddlers Creek did not flow in 2023; all scheduled samples taken were in stagnant pools hence results are not compared with trigger values. From 2024 samples will only be taken when creeks are flowing.

Table 6. Maxwell Infrastructure Groundwater quality biennial monitoring results for Quarter 2 2022 (rolling year to date average shown). See notes for further details. NS = Not sampled (next scheduled sampling is Q4 2022).

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	561	561	1.0	0.16	182	861	0.0020	0.0010	4010	6253	0.47	0.0010
Average	***0.010***	***0.0010***	***591***	***591***	***1.0***	***0.13***	***176***	***766***	***0.0013***	***0.0010***	***4326***	***-***	***0.48***	***0.0010***
F1162	0.010	0.0010	936	936	1.0	0.10	64	169	0.0030	0.0010	2400	-	0.23	0.0010
Average	***0.010***	**0.0010**	**809**	***809***	***1.0***	**0.11**	**87**	**449**	**0.0030**	**0.0010**	**3040**	**-**	***5.0***	**0.0010**
F1164	0.010	0.0010	722	722	1.0	0.16	119	864	0.0030	0.0010	3840	-	8.23	0.0010
Average	***0.010***	**0.0020**	**617**	***617***	**1.0**	**0.12**	**104**	**755**	**0.0025**	**0.0010**	**3590**	**-**	***16***	**0.0010**
GW01D	0.010	0.0010	512	512	1.0	0.22	372	1300	0.0010	0.017	5540	5680	0.050	0.0010
Average	***0.010***	***0.0010***	***505***	***505***	***1.0***	***0.25***	***376***	***1215***	***0.0010***	***0.0095***	***5410***	***-***	***0.24***	***0.0010***
GW01S	0.010	0.0010	653	653	1.0	0.17	226	1820	0.0010	0.017	7330	9260	0.050	0.0010
Average	***0.023***	***0.0010***	***424***	***424***	***1.0***	***0.12***	***162***	***1234***	***0.0010***	***0.024***	***4891***	***-***	***0.070***	***0.0010***
GW02D	0.010	0.0010	1900	1900	1.0	0.24	54	1510	0.0010	0.0020	13400	10500	0.070	0.0010
Average	***0.010***	***0.0010***	***1897***	***1897***	***1.0***	***0.24***	***60***	***1353***	***0.0010***	***0.0043***	***10756***	***-***	***0.057***	***0.0010***
GW02S	0.010	0.0010	813	813	1.0	0.11	385	956	0.0010	0.0010	7360	9480	0.42	0.0010
Average	***0.010***	***0.0010***	***789***	***789***	***1.0***	***0.10***	***334***	***875***	***0.0010***	***0.0010***	***8967***	***-***	***0.88***	***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	309	0.19	0.0050	0.016	7.0	Min: 6.0, Max: 8.5	0.010	0.0010	533	1340	71	3470	0.0050
Average	***268***	***0.25***	***0.0023***	***0.0087***	***7.0***	***-***	***0.010***	***0.0010***	***468***	***1136***	***65***	***3250***	***0.0090***
F1162	43	0.18	0.0010	0.0050	7.0	-	0.010	0.0010	133	1.0	43	842	0.0050
Average	***93***	***0.40***	***0.0010***	***0.0045***	***7.0***	***-***	***0.010***	***0.0010***	***318***	***199***	***69***	***1521***	***0.0090***
F1164	185	0.52	0.0020	0.0080	7.0	-	0.010	0.0010	614	523	66	2680	0.0050
Average	***148***	***0.62***	***0.0025***	***0.0085***	***6.9***	***-***	**0.010**	***0.0010***	**509**	**432**	**117**	**2325**	**0.0050**
GW01D	147	0.17	0.0040	0.29	7.4	Min: 6.0, Max: 8.5	0.010	0.0010	487	612	20	3740	0.060
Average	***149***	***0.21***	***0.0048***	***0.40***	***7.2***	***-***	***0.010***	***0.0010***	***497***	***603***	***24***	***3645***	***0.046***
GW01S	225	0.12	0.0010	0.015	6.8	Min: 6.0, Max: 8.5	0.10	0.0010	846	657	363	4690	0.041
Average	***158***	***0.046***	***0.0013***	***0.017***	***6.9***	***-***	***0.13***	***0.0010***	***646***	***430***	***735***	***3348***	***0.046***
GW02D	15	0.43	0.0050	0.010	7.2	Min: 6.0, Max: 8.5	0.010	0.0010	3030	3920	3700	10500	0.0090
Average	***15***	***0.60***	***0.0067***	***0.014***	***7.0***	*******	***0.010***	***0.0010***	***3023***	***3477***	***2071***	***8577***	***0.0070***
GW02S	391	2.32	0.0010	0.016	6.9	Min: 6.0, Max: 8.5	0.010	0.0010	1050	2790	259	5560	0.0080
Average	***339***	***1.99***	***0.0013***	***0.018***	***7.0***	***-***	***0.010***	***0.0010***	***955***	***2393***	***834***	***6737***	***0.012***

Table 7. DS1 monitoring bore: Laboratory groundwater quality monthly monitoring results for Quarter 2 2023 (rolling year to date average shown). See notes for further details. NS = Not sampled.

Date of sample	pH value	Electrical conductivity	Total Dissolved Solids @180°C	Salinity (g/kg)
19/04/2023	6.3	8220	7150	4.6
30/05/2023	6.3	7980	5670	4.4
19/06/2023	6.3	8450	6790	4.7
Average	***6.3***	***8150***	***6796***	***4.5***

Table 8. Maxwell Underground Groundwater quality biennial monitoring results for Quarter 2 2023 (rolling year to date average shown). See notes for further details (under the new Maxwell Underground Mine Water Management Plan, sampling changed from quarterly to biennial). NS = Not sampled (as sampling is twice a year, next is due Q3 2023).

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	NS	-	NS	NS
Average	***0.010***	***0.0010***	***895***	***895***	***1.0***	***0.17***	***98***	***1265***	***0.0010***	***0.020***	***5950***	***-***	***0.050***	***0.0010***
DD1014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0015***	***925***	***935***	***11***	***0.34***	***68***	***2755***	***0.0010***	***0.0025***	***9790***	***-***	***0.29***	***0.0065***
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	NS	-	NS	NS
Average	***0.010***	***0.0010***	***1080***	***1080***	***1.0***	***0.22***	***155***	***1450***	***0.0010***	***0.0010***	***6390***	***-***	***1.88***	***0.0010***
DD1025	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	14,200	NS	NS
Average	***0.010***	***0.0010***	***1100***	***1100***	***1.0***	***0.14***	***260***	***4060***	***0.0010***	***0.33***	***13700***	***-***	***0.050***	***0.0010***
DD1027	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.030***	***0.0010***	***355***	***355***	***1.0***	***0.13***	***21***	***141***	***0.0010***	***0.0015***	***1130***	***-***	***0.52***	***0.0015***
DD1032	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***1100***	***1100***	***1.0***	***0.22***	***14***	***1410***	***0.0010***	***0.0010***	***6685***	***-***	***0.26***	***0.0010***
DD1043	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.015***	***0.0010***	***2095***	***2095***	***1.0***	***0.23***	***41***	***1325***	***0.0010***	***0.0015***	***7320***	***-***	***0.20***	***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
DD1052	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.095***	***0.0010***	***803***	***909***	***106***	***0.26***	***5.0***	***1825***	***0.0015***	***0.0010***	***7350***	***-***	***0.050***	***0.0010***
DD1057	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.015***	***0.0020***	***3685***	***3685***	***1.0***	***0.050***	***11***	***1475***	***0.0020***	***0.0010***	***10005***	***-***	***1.0***	***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	NS	-	NS	NS
Average	***0.010***	***0.0010***	***620***	***620***	***1.0***	***0.065***	***82***	***356***	***0.0050***	***0.0050***	***2195***	***-***	***0.050***	***0.0010***
MB1R	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***1175***	***1175***	***1.0***	***0.16***	***60***	***1245***	***0.0010***	***0.0010***	***6105***	***-***	***0.19***	***0.0010***
MB1W	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***1220***	***1220***	***1.0***	***0.17***	***60***	***1185***	***0.0010***	***0.0010***	***5925***	***-***	***0.050***	***0.0010***
MB2A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***628***	***628***	***1.0***	***0.22***	***107***	***2485***	***0.0010***	***0.0010***	***8890***	***-***	***0.050***	***0.0010***
MB2R	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***1170***	***1170***	***1.0***	***0.23***	***37***	***1430***	***0.0010***	***0.0010***	***6570***	***-***	***0.050***	***0.0010***
MB3A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***803***	***805***	***2.5***	***0.23***	***46***	***1940***	***0.0010***	***0.0080***	***8595***	***-***	***0.050***	***0.0010***
MB3R	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	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	***0.010***	***0.0010***	***726***	***726***	***1.0***	***0.16***	***166***	***1330***	***0.0080***	***0.0035***	***6340***	***-***	***0.050***	***0.0010***
MB4A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***468***	***468***	***1.0***	***0.085***	***42***	***335***	***0.0010***	***0.0010***	***1776***	***-***	***0.050***	***0.0010***
MB4C	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***436***	***436***	***1.0***	***0.085***	***45***	***352***	***0.0010***	***0.0020***	***1790***	***-***	***0.050***	***0.0010***
MW1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***599***	***607***	***8.5***	***0.19***	***77***	***1235***	***0.0045***	***0.009***	***5595***	***-***	***0.050***	***0.0010***
MW2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	***0.010***	***0.0010***	***619***	***619***	***1.0***	***0.21***	***38***	***997***	***0.0020***	***0.0095***	***3905***	***-***	***0.050***	***0.0010***
MW3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	-	NS	NS
Average	-	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	-	***-***

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	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***190***	***0.0030***	***0.0095***	***0.012***	***7.7***	***-***	***0.010***	***0.0010***	***984***	***223***	***16***	***3375***	***0.0070***
DD1014	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***38***	***0.025***	***0.0010***	***0.0015***	***8.0***	***-***	***0.010***	***0.0010***	***2165***	***217***	***17***	***5700***	***0.0090***
DD1015	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
DD1016	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***290***	***0.15***	***0.0010***	***0.0010***	***7.0***	***-***	***0.010***	***0.0010***	***820***	***95***	***12***	***3850***	***0.0050***
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	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***38***	***0.026***	***0.0010***	***0.0030***	***7.2***	***-***	***0.010***	***0.0010***	***183***	***46***	***11***	***680***	***0.012***
DD1032	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***5***	***0.015***	***0.0010***	***0.0010***	***8.0***	***-***	***0.010***	***0.0010***	***1525***	***40***	***57***	***3915***	***0.0050***
DD1043	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***24***	***0.029***	***0.0010***	***0.0010***	***7.1***	***-***	***0.010***	***0.0010***	***1700***	***130***	***25***	***4595***	***0.034***

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	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***3.0***	***0.027***	***0.0010***	***0.0055***	***8.6***	***-***	***0.010***	***0.0010***	***1460***	***47***	***14***	***4070***	***0.0050***
DD1057	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***5.5***	***0.030***	***0.0030***	***0.0020***	***7.7***	***-***	***0.010***	***0.0010***	***2520***	***1.0***	***43***	***6640***	***0.0050***
MB03	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***	***-***
MB1A	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***61***	***0.0010***	***0.0025***	***0.0030***	***7.8***	***-***	***0.010***	***0.0010***	***325***	***62***	***71***	***2435***	***0.0050***
MB1R	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***54***	***0.016***	***0.0010***	***0.0010***	***7.3***	***-***	***0.010***	***0.0015***	***1235***	***87***	***13***	***2390***	***0.0070***
MB1W	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***52***	***0.0060***	***0.0010***	***0.0010***	***7.6***	***-***	***0.010***	***0.0010***	***1215***	***66***	***14***	***3535***	***0.010***
MB2A	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***243***	***0.40***	***0.0025***	***0.0030***	***7.4***	***-***	***0.010***	***0.0010***	***1400***	***374***	***13***	***5000***	***0.015***
MB2R	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***51***	***0.0025***	***0.0010***	***0.0010***	***7.8***	***-***	***0.010***	***0.0010***	***1340***	***1.0***	***21***	***3715***	***0.0055***

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	NS	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***229***	***0.0015***	***0.0025***	***0.0035***	***8.0***	***-***	***0.010***	***0.0010***	***1560***	***627***	***5.0***	***5075***	***0.0050***
MB3R	NS	NS	NS	NS	NS	Min: 6.0, Max: 8.5	NS	NS	NS	NS	NS	NS	NS
Average	***316***	***0.29***	***0.0010***	***0.021***	***8.0***	***-***	***0.010***	***0.0010***	***776***	***481***	***11***	***4095***	***0.015***
MB4A	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***36***	***0.011***	***0.0010***	***0.0010***	***7.6***	***-***	***0.010***	***0.0010***	***288***	***28***	***19***	***996***	***0.0050***
MB4C	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***39***	***0.0035***	***0.0010***	***0.0015***	***7.6***	***-***	***0.010***	***0.0010***	***284***	***29***	***21***	***992***	***0.0065***
MW1	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***244***	***0.0010***	***0.0015***	***0.0015***	***8.1***	***-***	***0.010***	***0.0010***	***739***	***366***	***792***	***3510***	***0.0050***
MW2	NS	NS	NS	NS	NS	-	NS	NS	NS	NS	NS	NS	NS
Average	***84***	***0.0015***	***0.0020***	***0.011***	***7.8***	***-***	***0.010***	***0.0010***	***761***	***79***	***889***	***2315***	***0.0050***
MW3	**NS**	**NS**	**NS**	**NS**	**NS**	**-**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Average	***-***	***-***	-	***-***	***-***	***-***	***-***	-	***-***	***-***	***-***	***-***	***-***

Notes

The Maxwell Underground Mine Water Management Plan (WMP) was implemented for Q3 2021 and supercedes the requirements of the Maxwell Infrastructure WMP. The 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).

Of these, the following are new or amended variables required by the new MUG WMP:

- monthly rather than quarterly recording of reduced standing water levels where there are no loggers (however the long-term plan is to install loggers in all bores); for those with loggers and for the VWPs the data is downloaded quarterly;
- quarterly recording (field measurement) of redox potential and temperature (previously not required);
- biennial sampling and analysis for carbonate and total alkalinity (previously not required); these were added to the table for Q4 2021 given the first sampling under the new plan occurred in Dec 2021;
- removal of the requirement to record barium (Ba), beryllium (Be), cadmium (Cd), cobalt (Co), potassium (K), vanadium (V), nitrite as N, nitrate as N, mercury (Hg), ammonia as N, total Kjeldahl nitrogen as N, total phosphorus (P) and reactive phosphorus as P.
- removal of bores DD1030, DD1034-A and B, DD1041 A and B.

Sampling for the MI bores under the previous Maxwell Infrastructure WMP transitioned to the new Maxwell Underground Mine WMP.

The year-to-date averages includes samples taken on a quarterly basis until the implementation of the new Maxwell Underground Mine WMP, which requires biennial sampling. 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**, Table 7, Table 8.** Plots of total and dissolved metal concentrations are shown in **Appendix 5**. Dissolved concentrations are the most applicable to groundwater quality evaluation and indications to change in trend and are presented here.

Trigger levels

As presented in SLR (2023, 2023a) Q1 – 2023 and Q2 – 2023 quarterly reports, observed groundwater levels, EC and pH at monitoring bores part of the TARP remain within “Normal Condition” during the reporting period.

Table 9. All groundwater bores: Reduced standing groundwater levels (mAHD) during Quarter 2 2023 compared to the rolling year-to-date average.

Site (with seam names for VWPs)	Apr	May	Jun	Rolling average	Type of bore	Type of measurement as of Jun 23
DS1	223.94	223.94	223.94	223.94	Standpipe	Manual
R4241	177.09	177.05	177.01	177.12	Standpipe	Logger
F1162	143.42	143.54	143.66	143.51	Standpipe	Logger
F1164	142.40	142.56	142.68	142.45	Standpipe	Logger
GW01D	202.38	201.94	201.63	203.64	Standpipe	Logger
GW01S	200.22	199.86	199.58	201.04	Standpipe	Logger
GW02D	136.02	136.07	136.14	136.35	Standpipe	Logger
GW02S	191.61	191.39	191.22	192.39	Standpipe	Logger
GW04	149.19	149.34	149.38	149.13	Standpipe	Logger
BLK6R12 – VW1 (WB)	162.63	162.57	162.46	162.12	VWP	Logger
BLK6R12 – VW2 (RB)	148.11	148.21	148.26	147.96	VWP	Logger
BLK6R12 – VW3 (WN)	122.97	122.91	122.82	122.82	VWP	Logger
BLK6R12 – VW4 (BK)	124.08	124.10	124.04	123.33	VWP	Logger
DD1005	143.95	(1)	(1)	144.01	Standpipe	Manual
DD1014	135.94	135.96	136.03	135.94	Standpipe	Logger
DD1015	(2)	(2)	(2)	(2)	Standpipe	Logger
DD1016	141.89	141.92	141.94	141.90	Standpipe	Logger
DD1025	(3)	(3)	(3)	(3)	Standpipe	Logger
DD1027	135.92	136.07	136.21	135.89	Standpipe	Logger
DD1032	128.32	128.37	128.35	128.36	Standpipe	Logger
DD1043	129.12	129.02	128.93	129.14	Standpipe	Logger
DD1052	121.52	NS	NS	118.88	Standpipe	Manual

Site (with seam names for VWPs)	Apr	May	Jun	Rolling average	Type of bore	Type of measurement as of Jun 23
DD1057	124.08	124.15	124.14	123.41	Standpipe	Logger
MB03	114.81	114.85	114.84	114.93	Standpipe	Logger
MB04	129.36	129.27	129.18	129.32	Standpipe	Logger
MB05	(4)	(4)	(4)	(4)	Standpipe	Logger
MB06D	121.38	121.39	121.40	121.39	Standpipe	Logger
MB06S	118.88	118.93	118.97	118.93	Standpipe	Logger
MB07	123.75	123.74	123.74	123.74	Standpipe	Logger
MB1-Alluvial	73.43	73.35	73.34	73.97	Standpipe	Logger
MB1-Redbank	75.64	75.71	75.76	75.74	Standpipe	Logger
MB1-Whybrow	75.06	75.00	74.97	75.01	Standpipe	Logger
MB2-Alluvial	113.60	113.60	113.61	113.73	Standpipe	Logger
MB2-Regolith	115.44	115.43	115.43	115.90	Standpipe	Logger
MB3-Alluvial	129.91	129.88	129.80	130.21	Standpipe	Logger
MB3-Regolith	129.33	129.32	129.26	129.66	Standpipe	Logger
MB4-Alluvial	70.88	70.78	70.75	71.80	Standpipe	Logger
MB4-Coal	70.67	70.67	70.65	70.74	Standpipe	Logger
MW1	129.23	129.17	129.11	129.93	Standpipe	Logger
MW2	113.15	(1)	(1)	113.40	Standpipe	Logger
MW3	(5)	(5)	(5)	(5)	Standpipe	Manual
RBD1 – VW1 (WB)	149.33	149.32	(6)	148.91	VWP	Logger
RBD1 – VW2 (RB)	146.17	146.08	(6)	145.12	VWP	Logger
RBD1 – VW3 (WN)	128.79	128.79	(6)	129.00	VWP	Logger
RBD1 – VW4 (BK)	89.43	89.46	(6)	88.92	VWP	Logger
RD1189 – VWP1 (WH)	185.11	184.98	185.01	184.79	VWP	Logger

Site (with seam names for VWPs)	Apr	May	Jun	Rolling average	Type of bore	Type of measurement as of Jun 23
RD1189 – VWP2 (AZZBF)	(7)	(7)	(7)	(7)	VWP	Logger
RD1189 – VWP3 (WW12)	146.53	146.98	147.18	144.59	VWP	Logger
RD1189 – VWP4 (Mt Arthur seam)	141.22	141.27	140.95	141.13	VWP	Logger
RD1189 – VWP5 (PF2)	(7)	(7)	(7)	(7)	VWP	Logger
RD1189 – VWP6 (BY)	135.81	135.80	135.92	135.79	VWP	Logger
RD1189 – VWP7 (WY)	(7)	(7)	(7)	(7)	VWP	Logger
RD1192- VWP1 (WB)	152.80	152.76	152.62	152.21	VWP	Logger
RD1192- VWP2 (RB)	135.68	135.75	135.76	134.84	VWP	Logger
RD1192-VWP3 (BK)	152.17	152.30	152.46	151.68	VWP	Logger
MB1VWP (VWP1) (INT)	75.94	75.89	75.86	76.26	VWP	Logger
MB1VWP (VWP2) (INT)	86.83	86.85	86.86	86.97	VWP	Logger
MB1VWP (VWP3) (INT)	95.33	95.37	95.39	95.40	VWP	Logger
MB1VWP (VWP4) (WB)	96.51	96.55	96.56	96.66	VWP	Logger
MB1VWP (VWP5) (WN) (8)	99.83	99.88	99.11	99.45	VWP	Logger
WND16 (VWP1) (WB)	113.56 (9)	(9)	(9)	112.97	VWP	Logger
WND16 (VWP2) (WN)	(10)	(10)	(10)	(10)	VWP	Logger

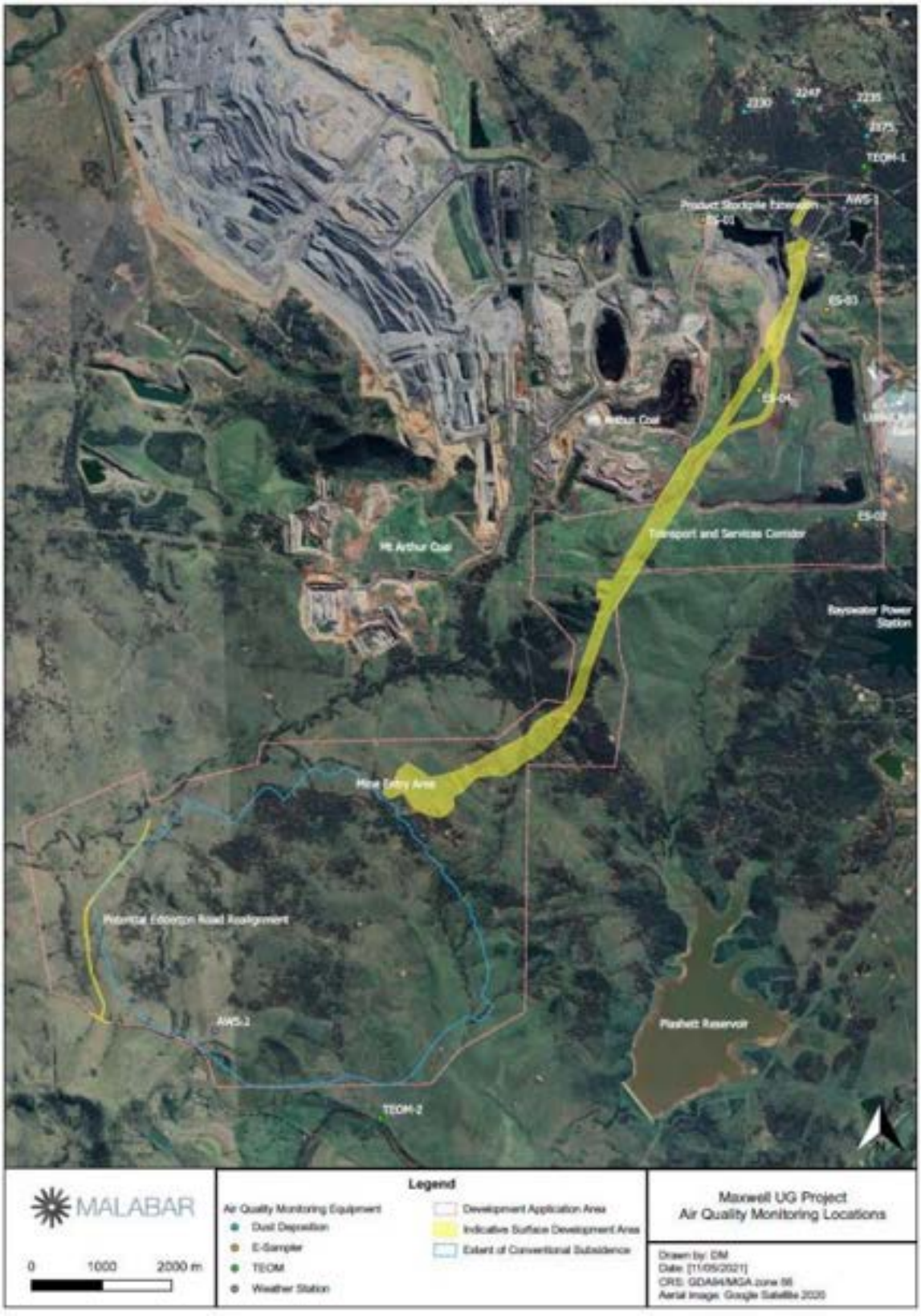
Site (with seam names for VWPs)	Apr	May	Jun	Rolling average	Type of bore	Type of measurement as of Jun 23
WND16 (VWP3) (BK)	(10)	(10)	(10)	(10)	VWP	Logger
WND16 (VWP4) (BK)	109.47 (9)	(9)	(9)	109.41	VWP	Logger
WND26 (VWP1) (WY)	136.93	136.99	136.94	136.28	VWP	Logger
WND26 (VWP2) (RB)	133.66	133.86	133.99	132.61	VWP	Logger
WND26 (VWP3) (WB)	140.58	140.92	140.76	139.53	VWP	Logger
WND26 (VWP4) (WN)	(10)	(10)	(10)	(10)	VWP	Logger

Notes

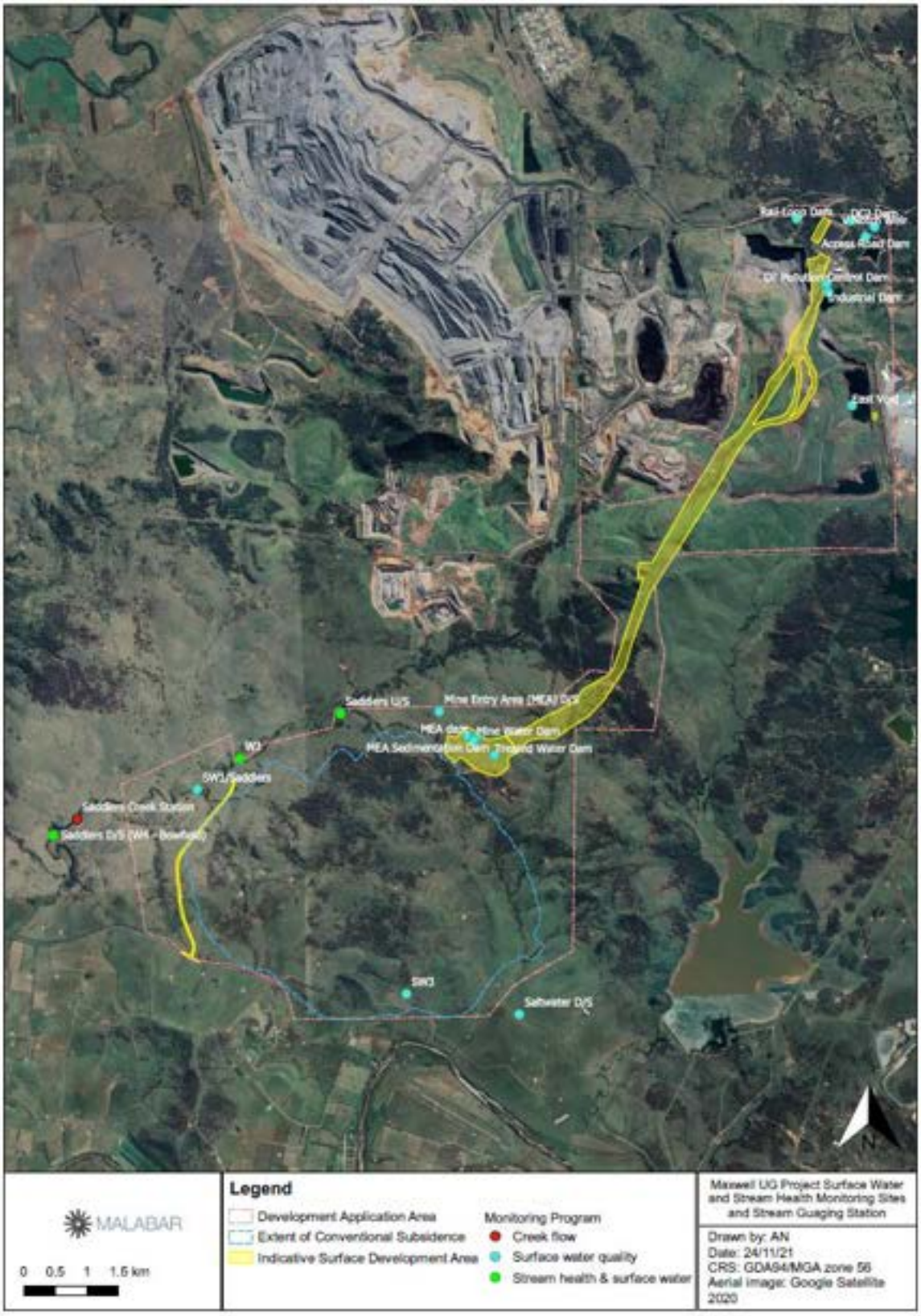
1. No measurements recorded during this period as manual groundwater level measurements for Maxwell Underground bores are made quarterly.
2. DD1015 is reported blocked during the reporting period; DD1027 is deemed to bring no significant value to future groundwater assessments as it monitors the Edderton 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. MB05 installation verification in-field requested and to be completed during Q3-2023.
5. 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.
6. RBD1 last recorded data 19/05/2023 due to low battery. Battery replacement requested. Rolling average up to 19/05/2023.
7. 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.
8. VWP1 sensor 6 indicates no data and not reported.
9. WND16 last recorded data 09/04/2023. Battery replaced in July 2023.
10. The following VWPs wires are considered disabled: RD1192-VWP1 (no data past August 2011), MB1 (VWP5 only – unstable), 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

APPENDIX 4 – CONSULTANT HYDROGEOLOGIST REPORT PROVIDING HYDROGRAPHS AND DATA ANALYSIS

Maxwell Underground Mine

Groundwater Monitoring Report – Quarter 2 – 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

18 October 2023

Revision: 1

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1	18 October 2023	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.

Table of Contents

Tables in Text

Figures in Text

Appendices

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 April – June 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 are reviewed annually, no groundwater data were available for private bores and therefore not presented for this review period.

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.
  - 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.

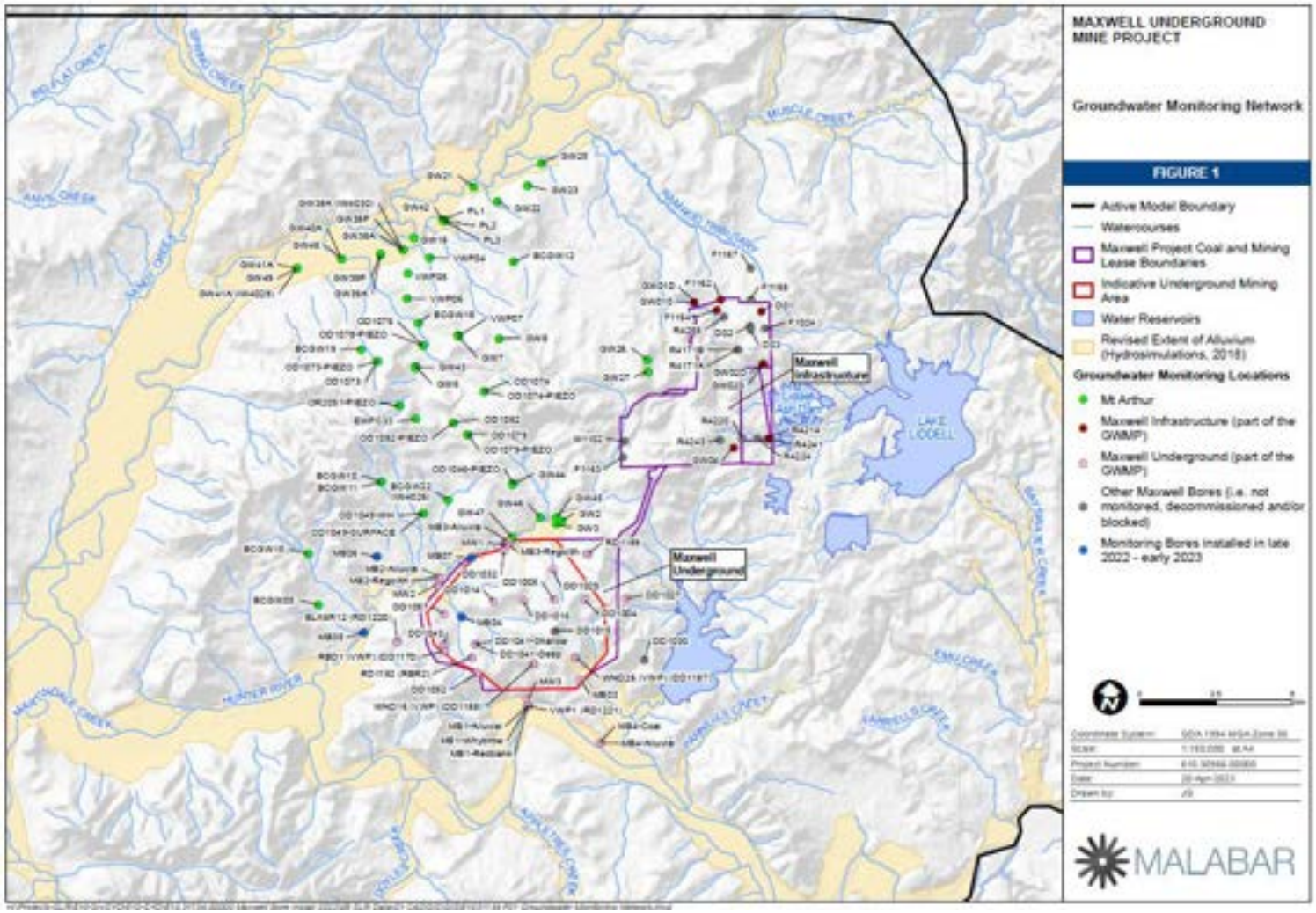


Figure 1: Malabar Project and groundwater monitoring network

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

Monitoring bore or VWP ID	Easting[1] (GDA94)	Northing[1] (GDA94)	Geology	Bore screen or VWP sensor depth (mBGL)	Status
			WY2	322	Problem [5]
RD1192 (RBR2)	296092	6409038	Wambo Seam	61.2	Open
			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 –Decommisioned/ 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 Q1-2023			Current Monitoring Period Q2-2023		
		Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 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	N	N	N	N	N	N
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*

N:Normal Level TARP Level 1 TARP Level 2

"" 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 DD1032, 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 were no TARP Level 1 groundwater level trigger exceedances over the reporting period.

2.3 TARP Level 2

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).
- 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 during Q1-2023.
- No data logger data was received from DD1005.
- The average groundwater level for DD1032 is very close to the TARP level most likely due to below average rainfall conditions being experienced at site.

3.0 Groundwater Quality Trigger Review

Approved 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**.

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 January-March 2023

Bore	Period [month sampled]	Q1 2023			Q2 2023		
		EC (µS/cm)	pH lower	pH upper	EC (µS/cm)	pH lower	pH upper
R4241	Q1-2023 [Jun 23 – Lab & field]	N	N	N	N	N	N
GW01S	Q1-2023 [Jun 23 – Lab & field]	N	N	N	N	N	N
GW01D	Q1-2023 [Mar 23 – Lab & field]	N	N	N	N	N	N
GW02S	Q1-2023 [Mar 23 – Lab & field]	N	N	N	N	N	N
GW02D	Q1-2023 [Mar 23 – Lab & field]	Y	N	N	Y	N	N
DD1025	*Decommissioned*	-	-	-	-	-	-
DD1032	Q1-2023 [Jan 23 – Field]	N	N	N	N	N	N
MB3-Alluvial	Q1-2023 [Jan 23 – Field]	N	N	N	N	N	N
MB3-Regolith	Q1-2023 [Jan 23 – Field]	N	N	N	N	N	N

N: Normal Level TARP Level 1 TARP Level 2

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

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

- GW02S – The laboratory EC value of 13,000 µS/cm reported in December 2022, seems to be an isolated exceedance of the TARP threshold, as field and laboratory results in Q1-2023 and Q2-2023 were within close range to the long-term average.
- GW02D – Mud noticed on GW02D logger in January 2023 and June 2023, and field observations noticed sample water was brown in colour and turbid. Groundwater levels ranged between 66.78 mbgl and 67.04 mbgl between January and March 2023, with total depth of borehole at 69.48 mbTOC. Groundwater levels close to the bottom of the bore, mud observed on the logger, and turbidity observations during Q1-2023 may have resulted in increased EC observations and may not be attributed to site activities. The EC value has exceeded the TARP threshold for 2 consecutive

periods (Q1-2023 and Q2-2023) and continual monitoring is recommended. The GWMP requires further action after three consecutive exceedances.

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 July 2023.
- 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.

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 April – June 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 updated TARP Trigger Criteria from the MUG Annual Review 2022.

There were no TARP Level 1 or Level 2 groundwater level and quality trigger exceedances over the reporting period for all TARP sites.

Sincerely,

SLR Consulting Australia

Raymond Minnaar
Associate Consultant - Hydrology & Hydrogeology

Shaun Troon
Principal Hydrogeologist - South East Australia Lead

6.0 References

Malabar Resources, 2021. Water Management Plan. MXP_MP_EC_08 (25th November 2021), Version 1, Review 2.

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 2 – 2023

Malabar Resources Pty Ltd

SLR Project No.: 630.030945.00001

18 October 2023

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, Nov 2021) 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	155.1 #	6.0	8.5	14,200
DD1032	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

 # Changed in 2022 Annual Review

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

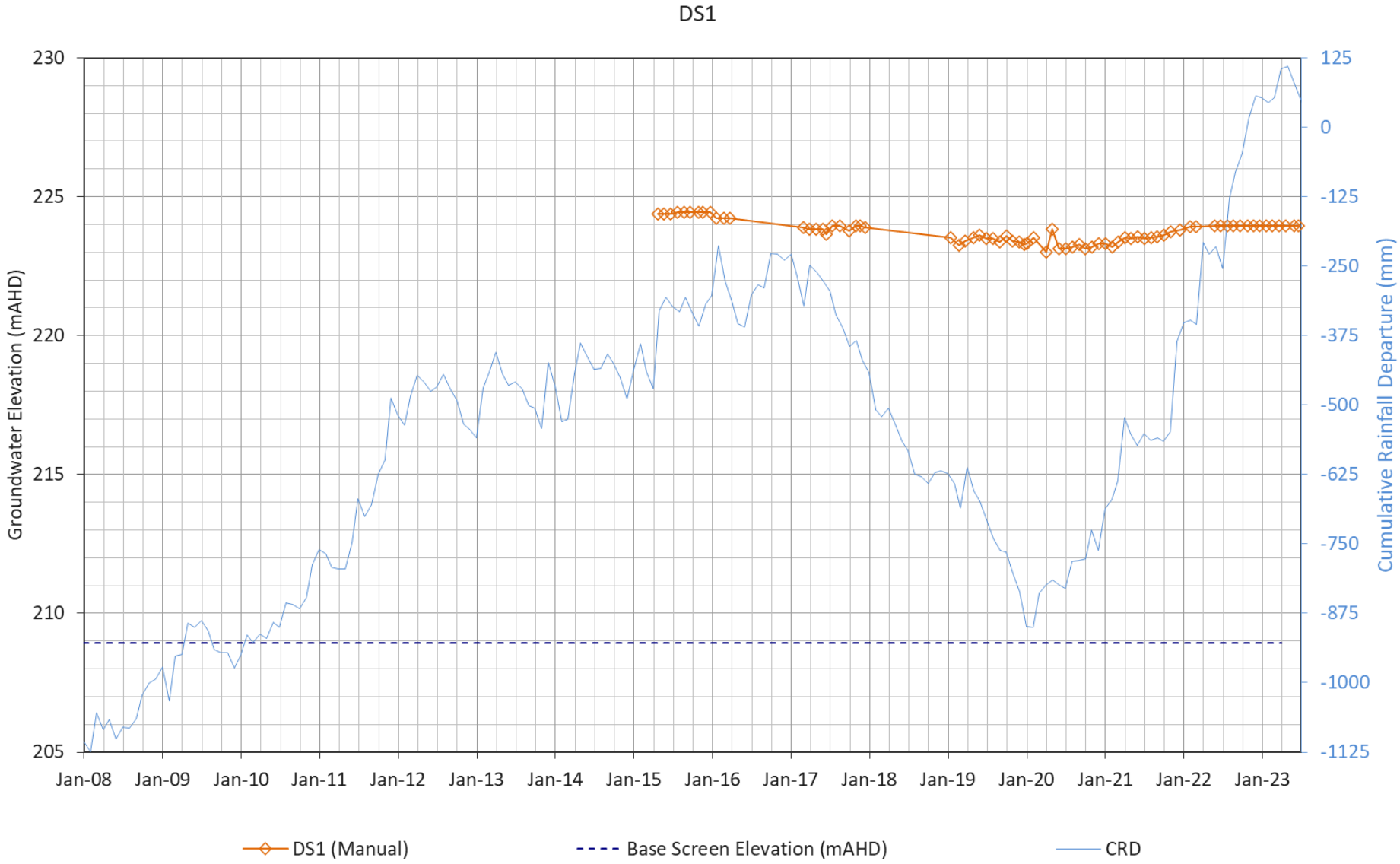
Maxwell Underground Mine

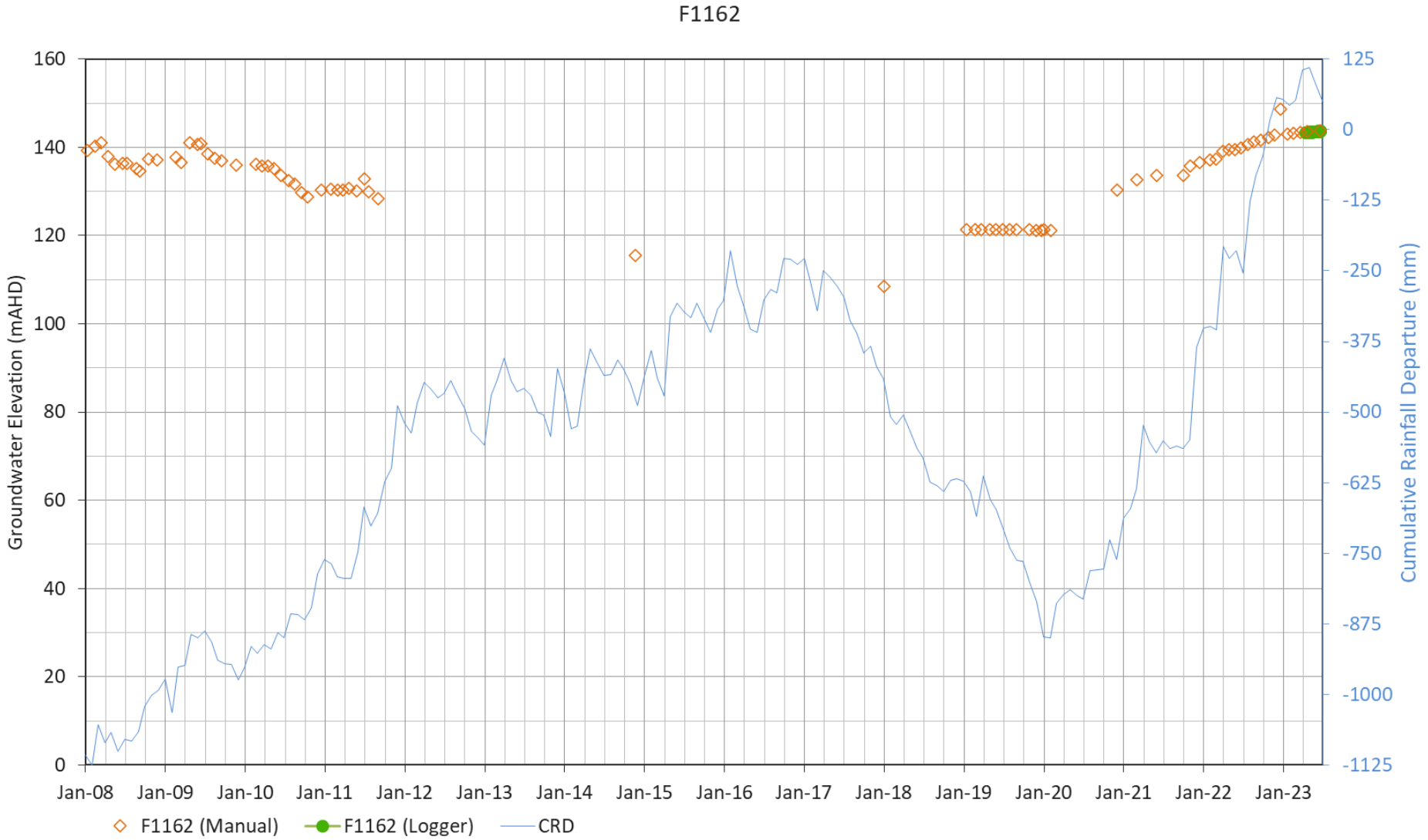
Groundwater Monitoring Report – Quarter 2 – 2023

Malabar Resources Pty Ltd

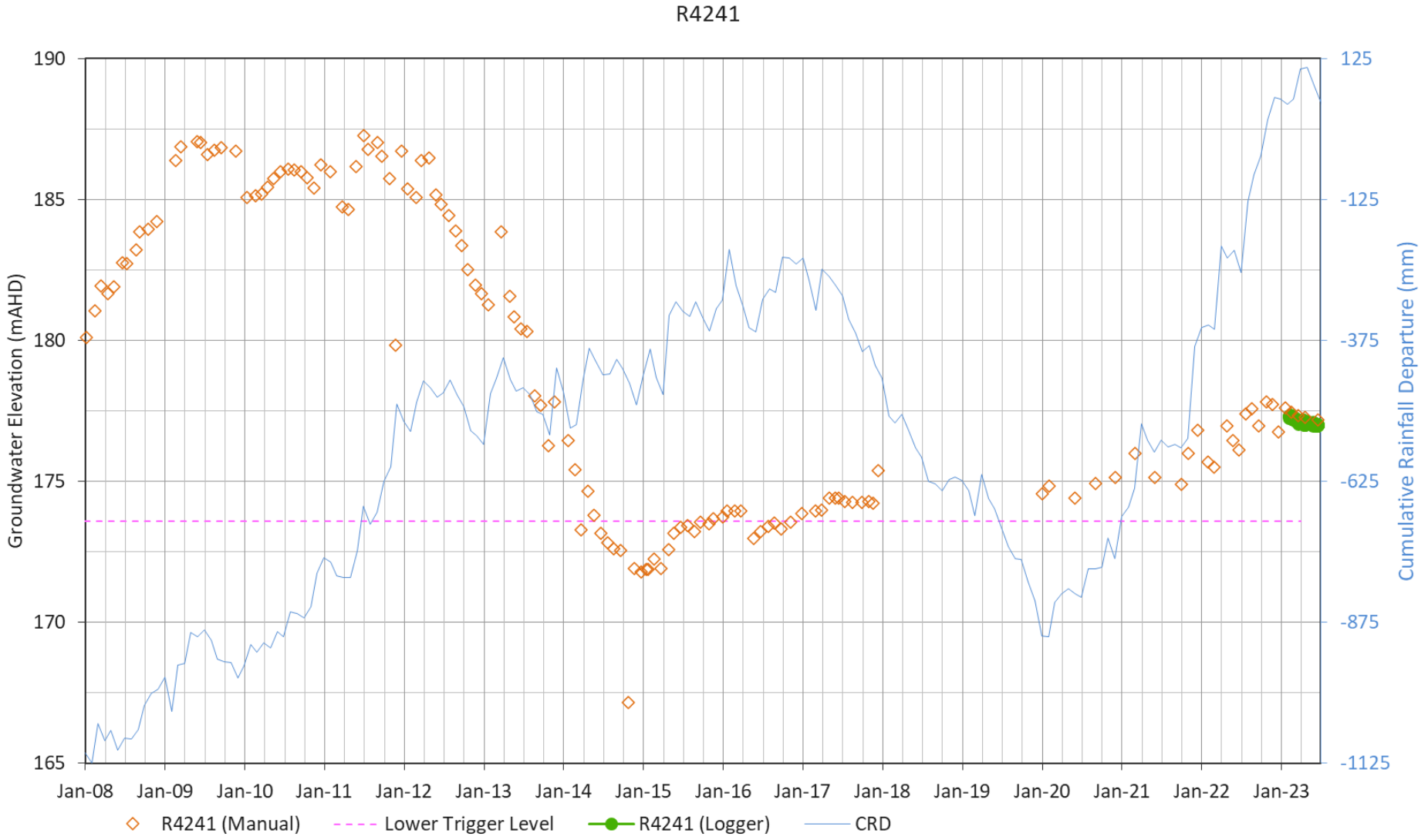
SLR Project No.: 630.030945.00001

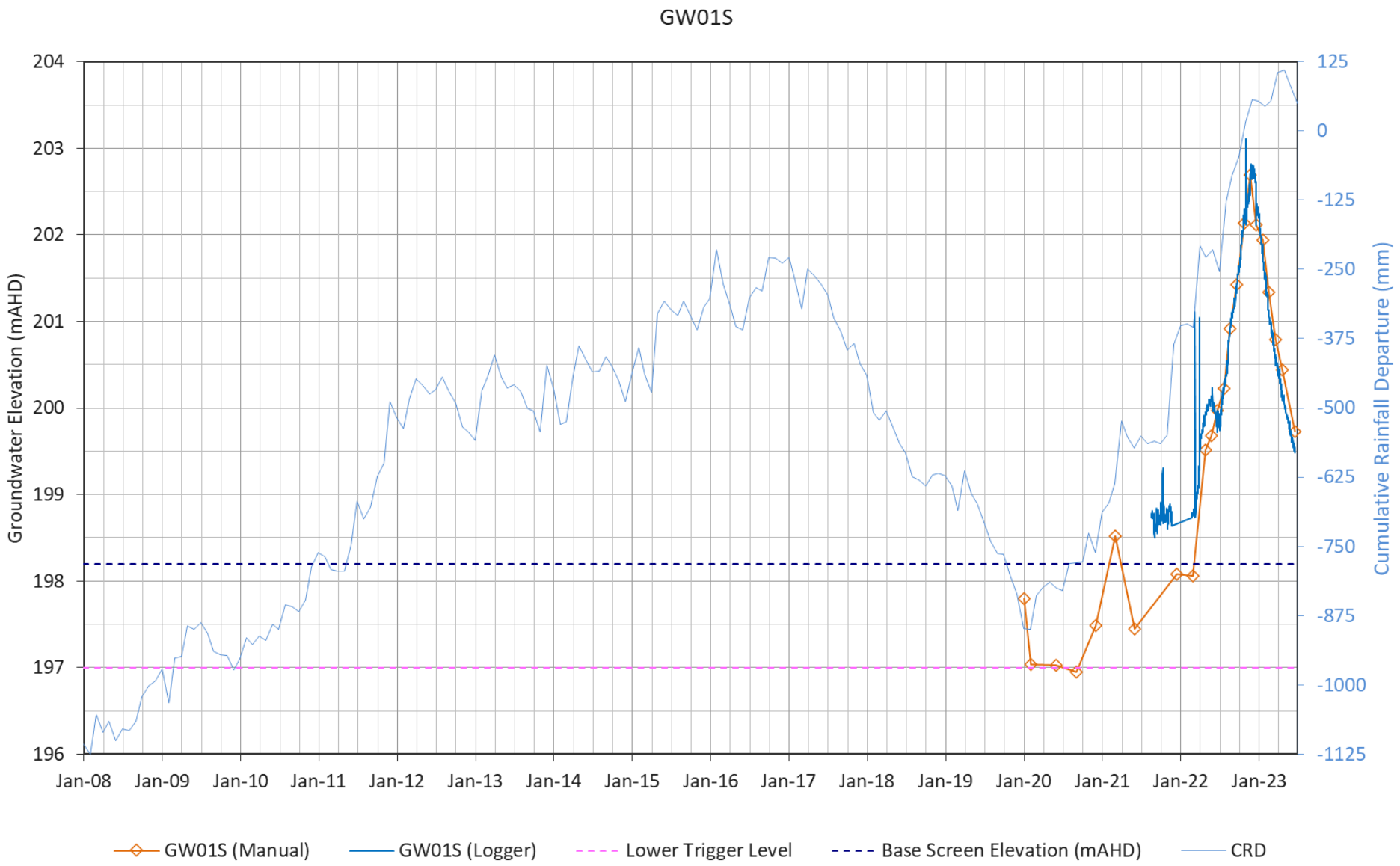
18 October 2023


DS1
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
230
225
220
215
210
205
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
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
DS1 (Manual)
Base Screen Elevation (mAHD)
CRD

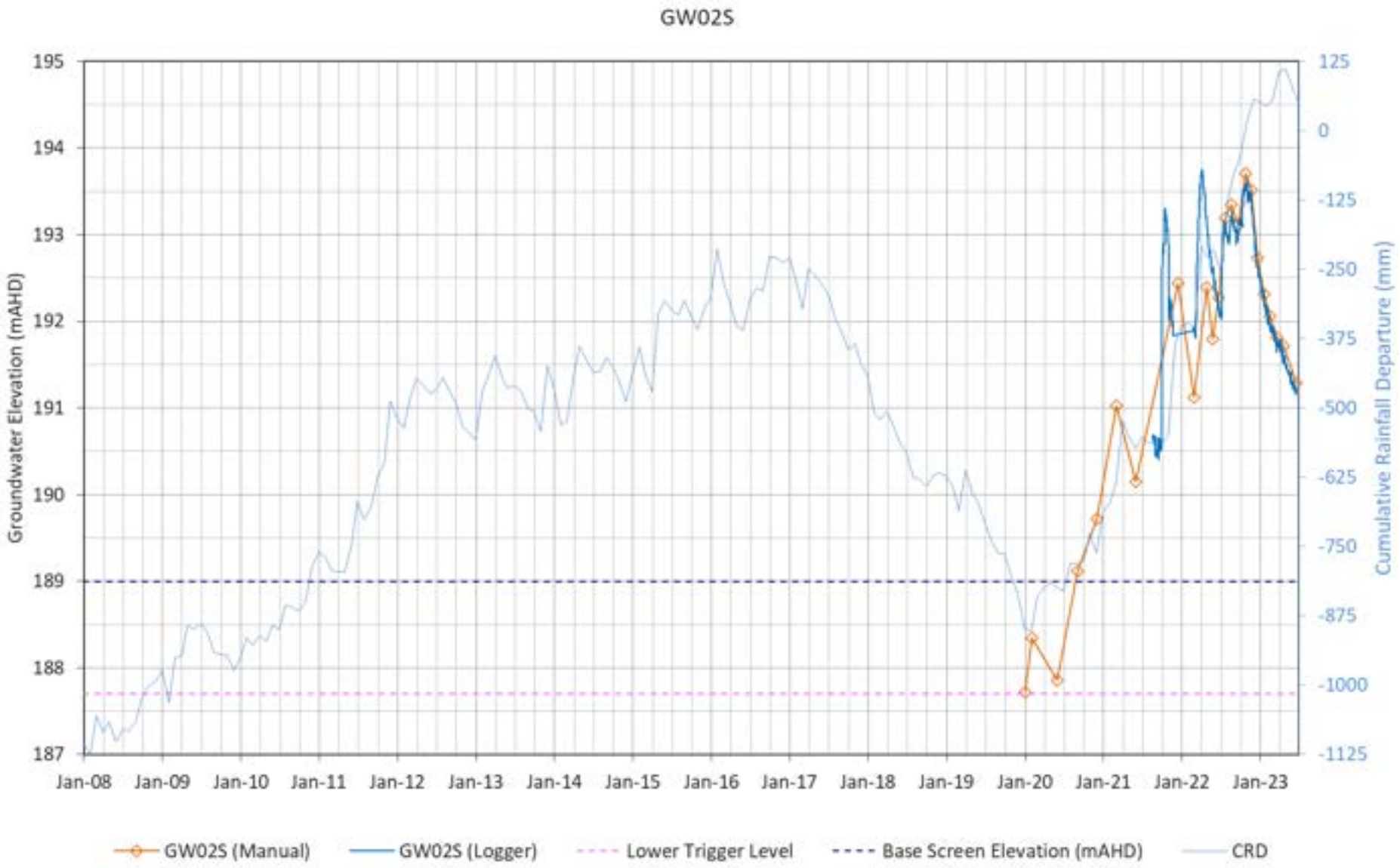

F1162
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
160
140
120
100
80
60
40
20
0
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
F1162 (Manual)
F1162 (Logger)
CRD

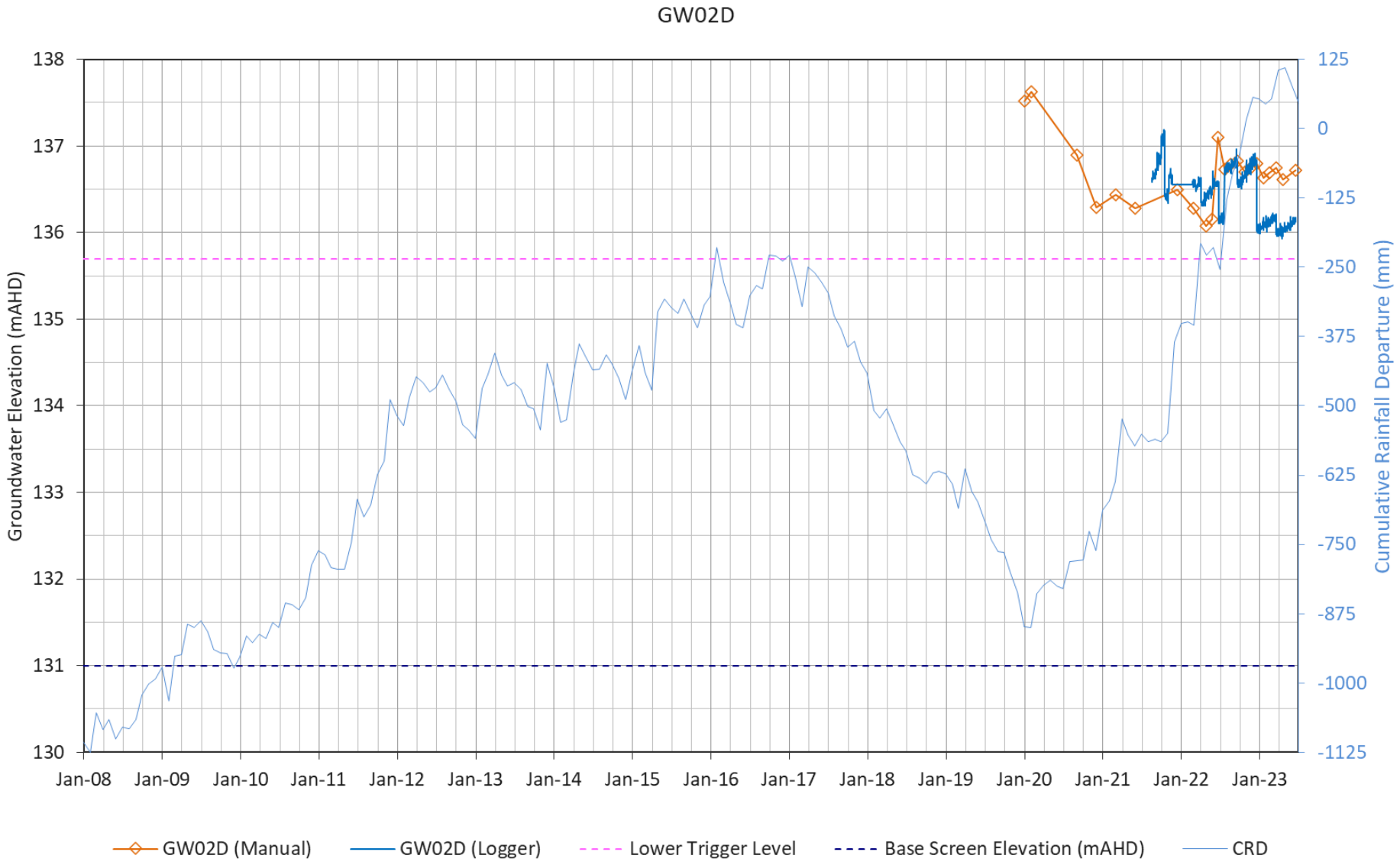

F1164
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
160
140
120
100
80
60
40
20
0
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
F1164 (Manual)
F1164 (Logger)
CRD

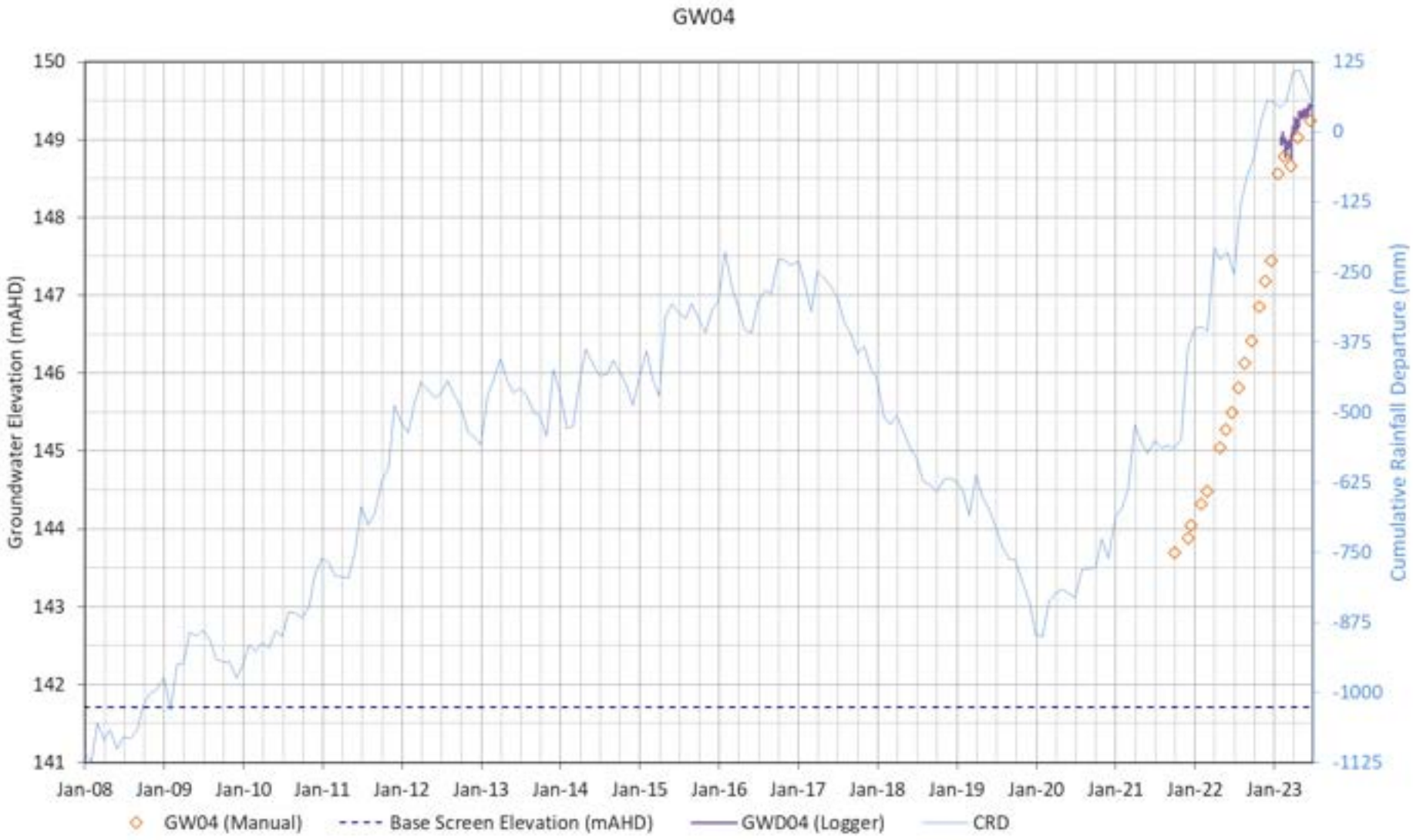

R4241
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
190
185
180
175
170
165
125
-125
-375
-625
-875
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
R4241 (Manual)
Lower Trigger Level
R4241 (Logger)
CRD


GW01S
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
204
203
202
201
200
199
198
197
196
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
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
GW01S (Manual)
GW01S (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

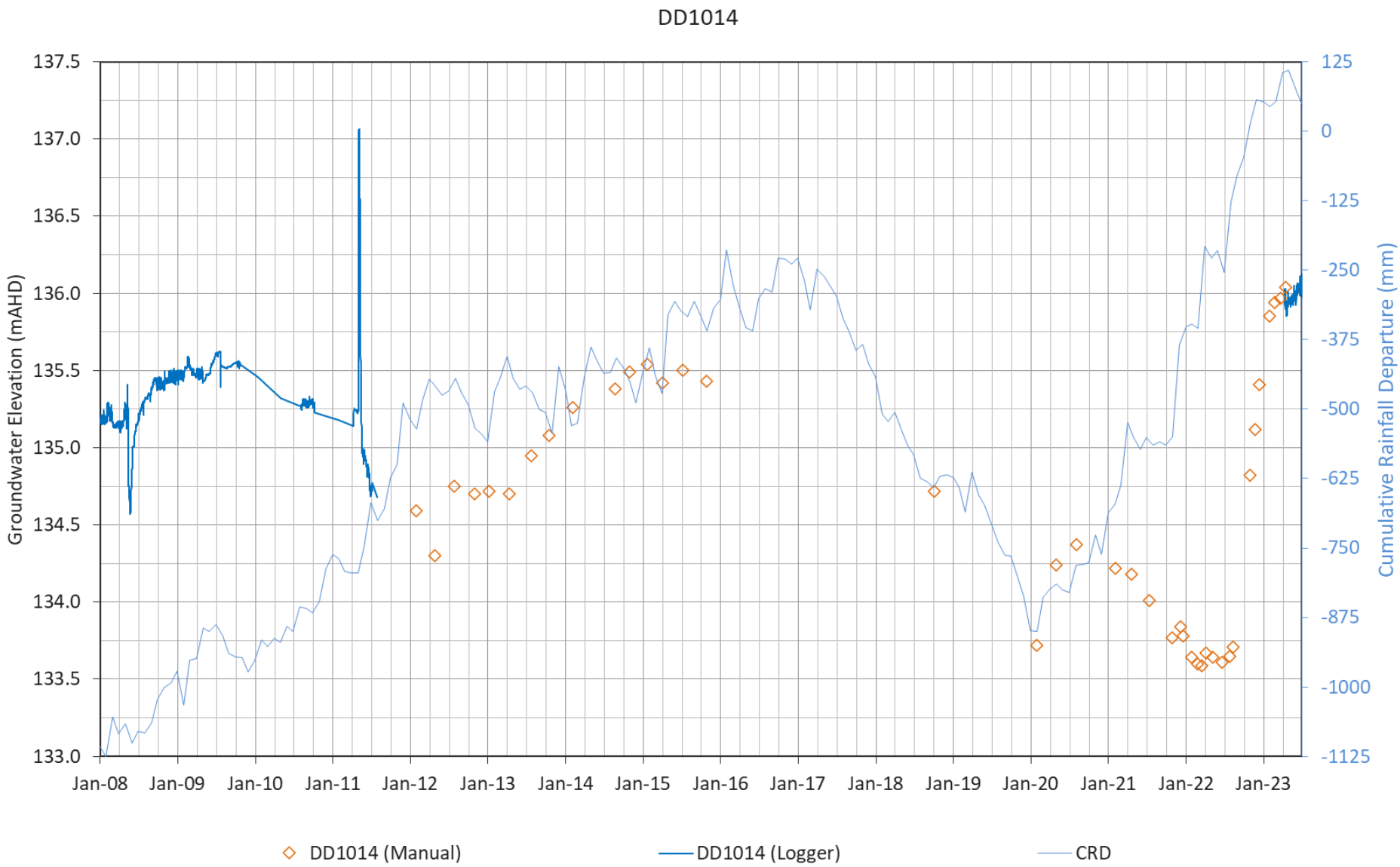

GW01D
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
210
205
200
195
190
185
180
175
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
GW01D (Manual)
GW01D (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

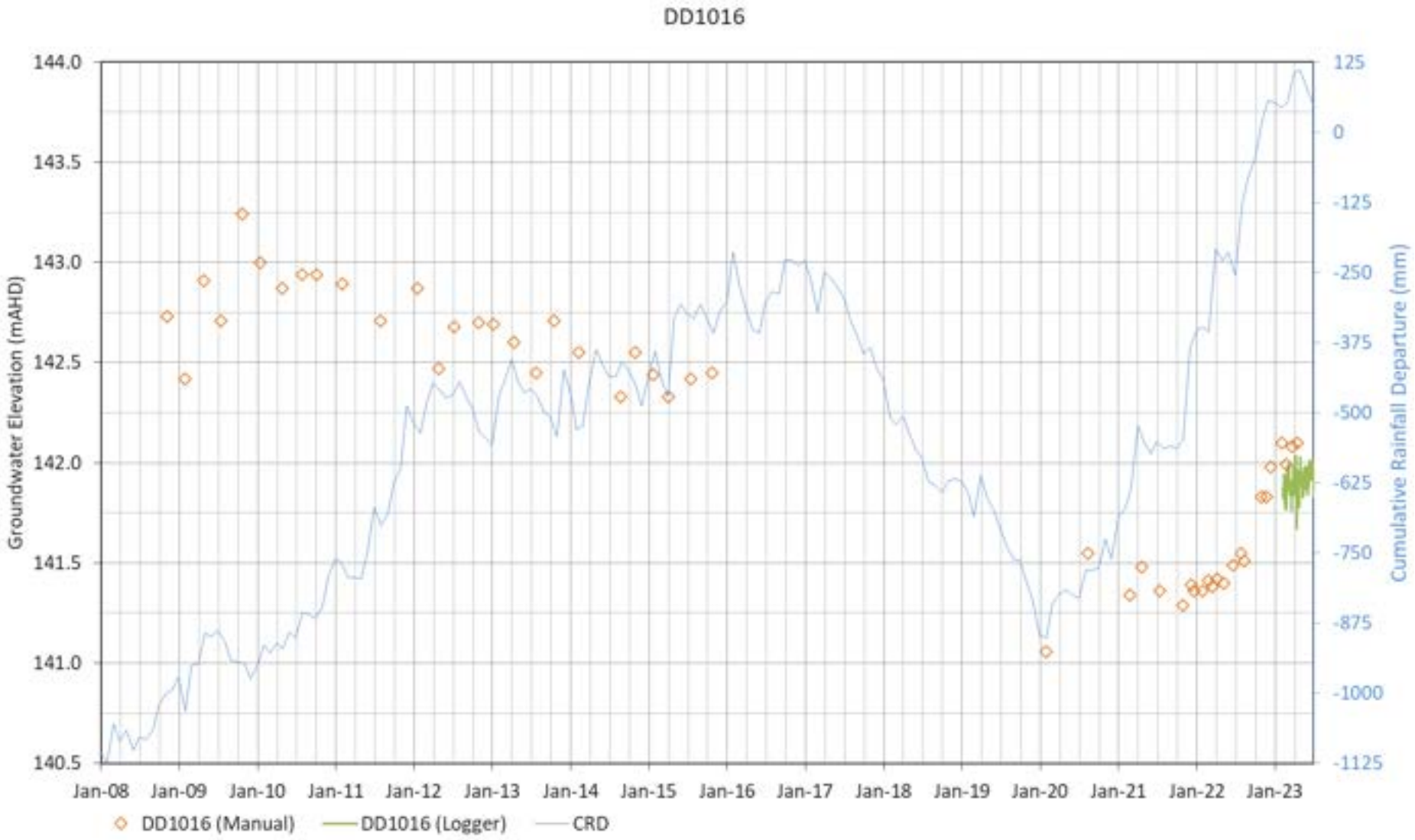

GW02S
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
195
194
193
192
191
190
189
188
187
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
GW02S (Manual)
GW02S (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

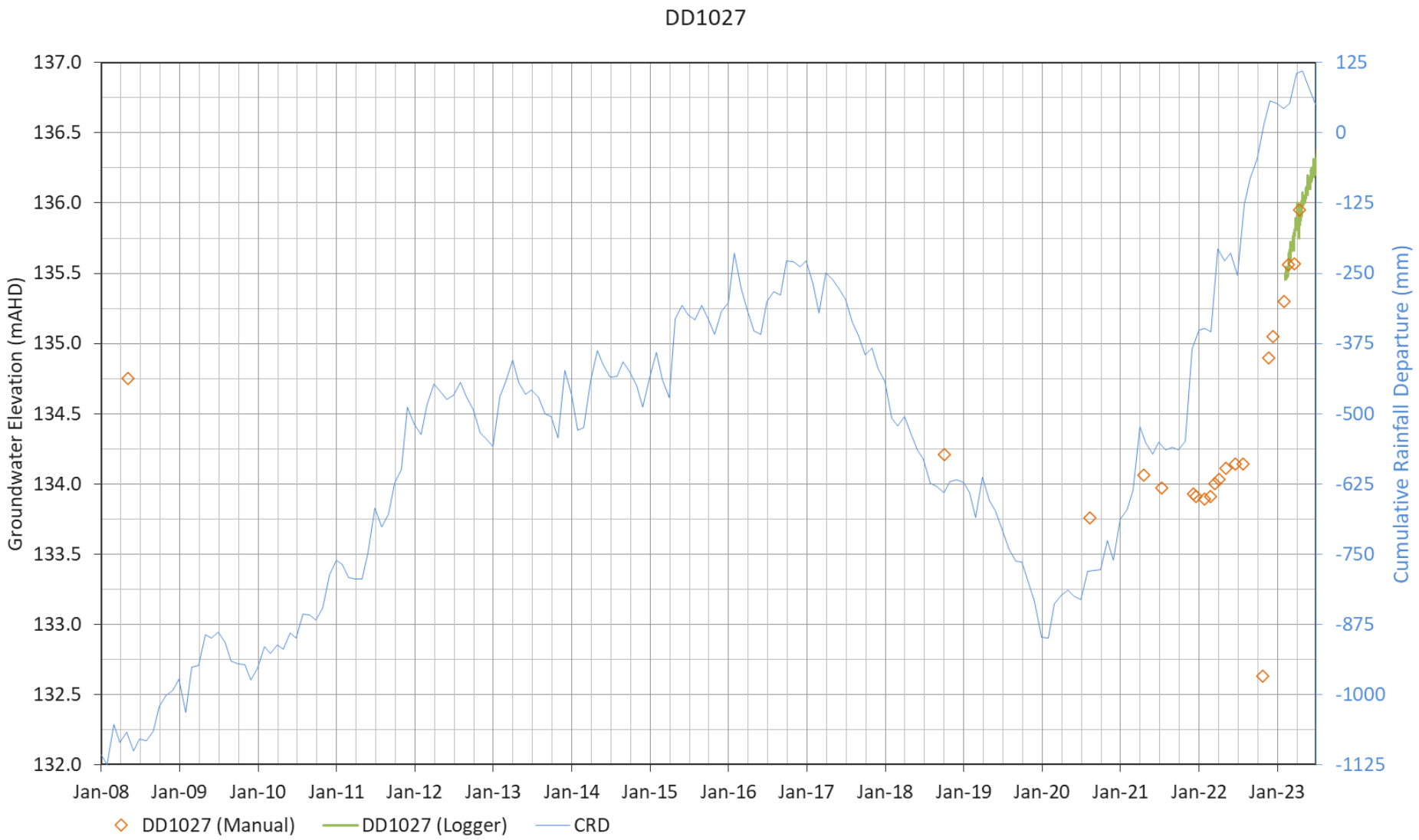

GW02D
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
138
137
136
135
134
133
132
131
130
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
GW02D (Manual)
GW02D (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD


GW04
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
150
149
148
147
146
145
144
143
142
141
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
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
GW04 (Manual)
Base Screen Elevation (mAHD)
GWD04 (Logger)
CRD

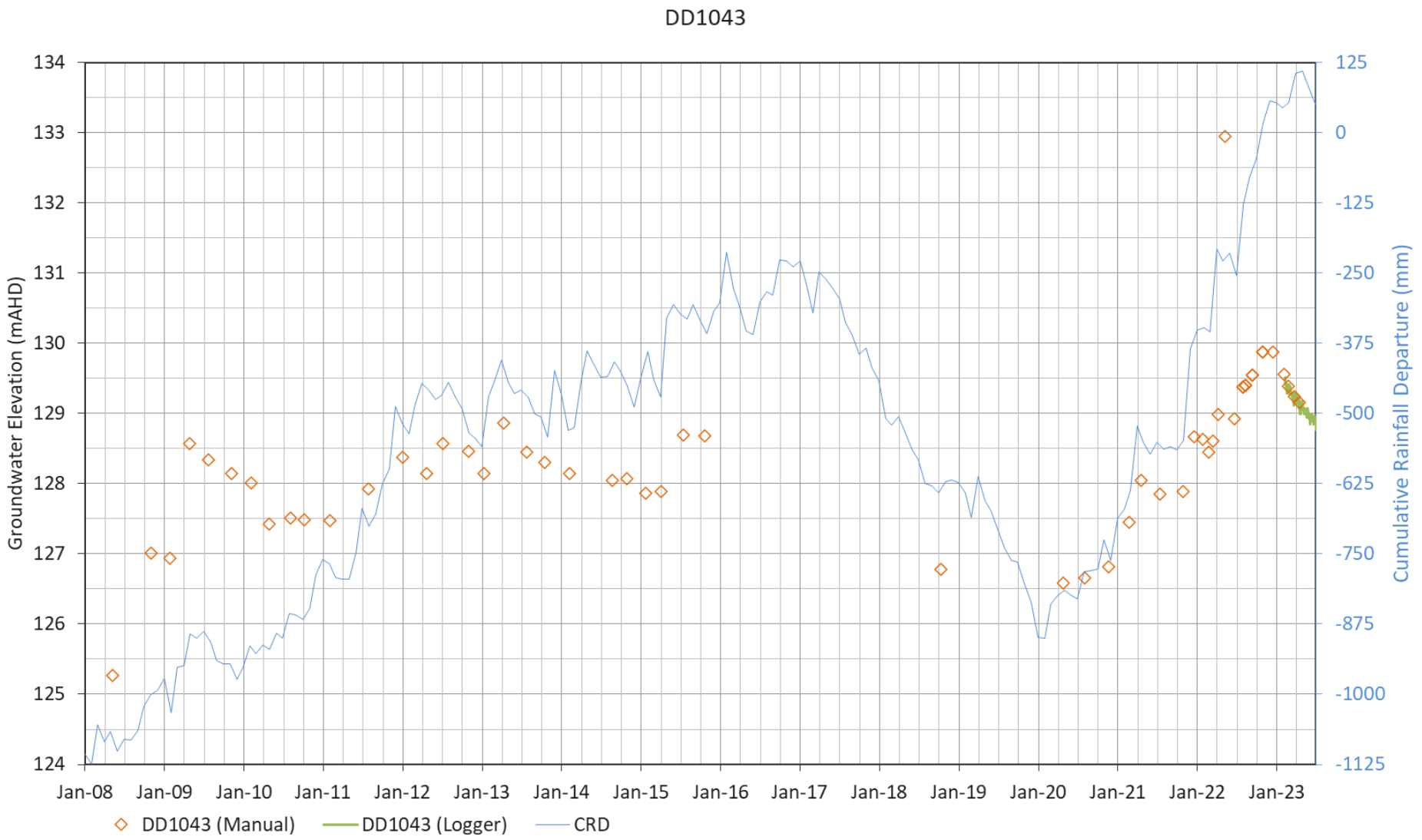

DD1005
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
150
149
148
147
146
145
144
143
142
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1005 (Manual)
CRD

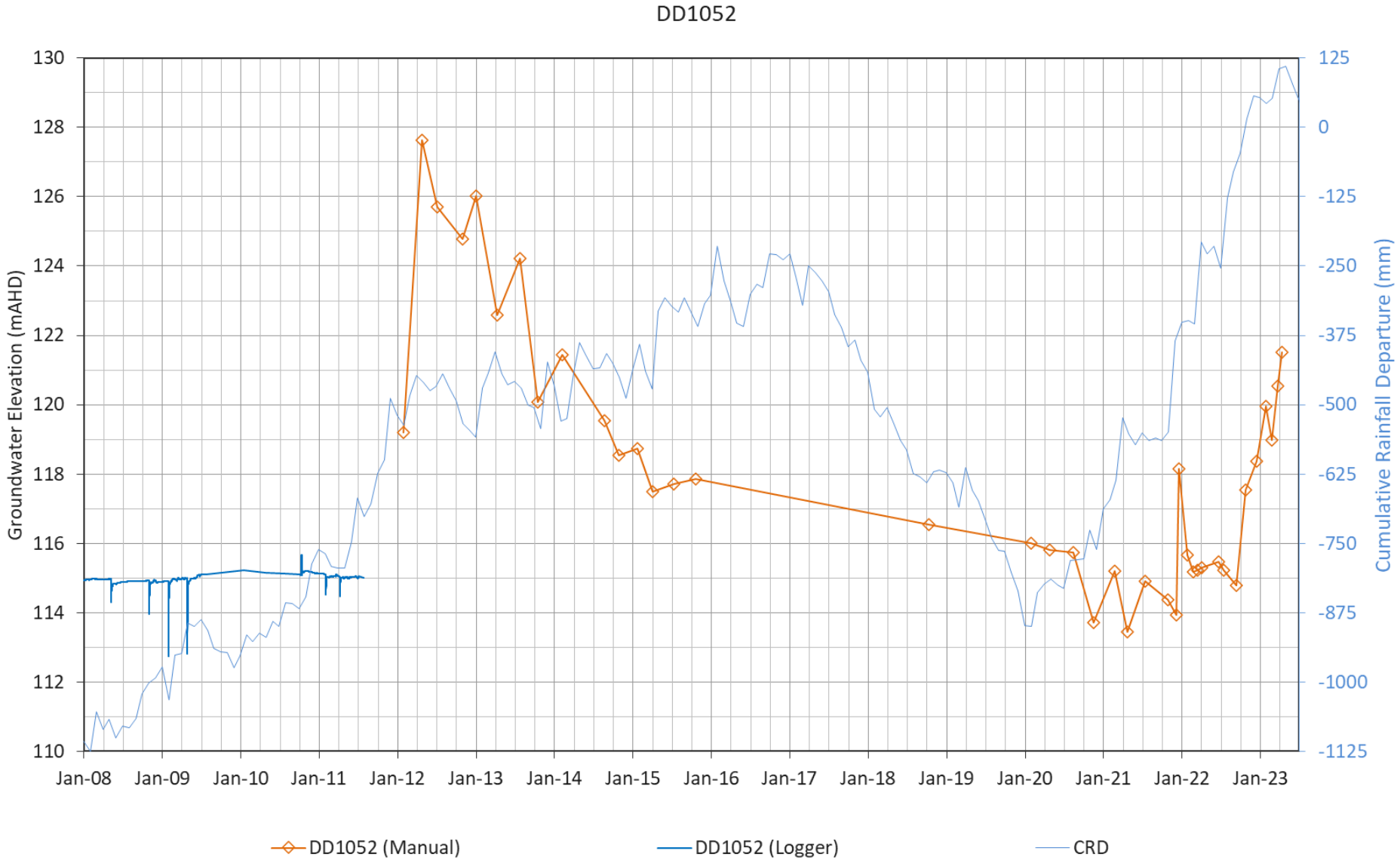

DD1014
Groundwater Elevation (mAHD)
137.5
137.0
136.5
136.0
135.5
135.0
134.5
134.0
133.5
133.0
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1014 (Manual)
DD1014 (Logger)
CRD

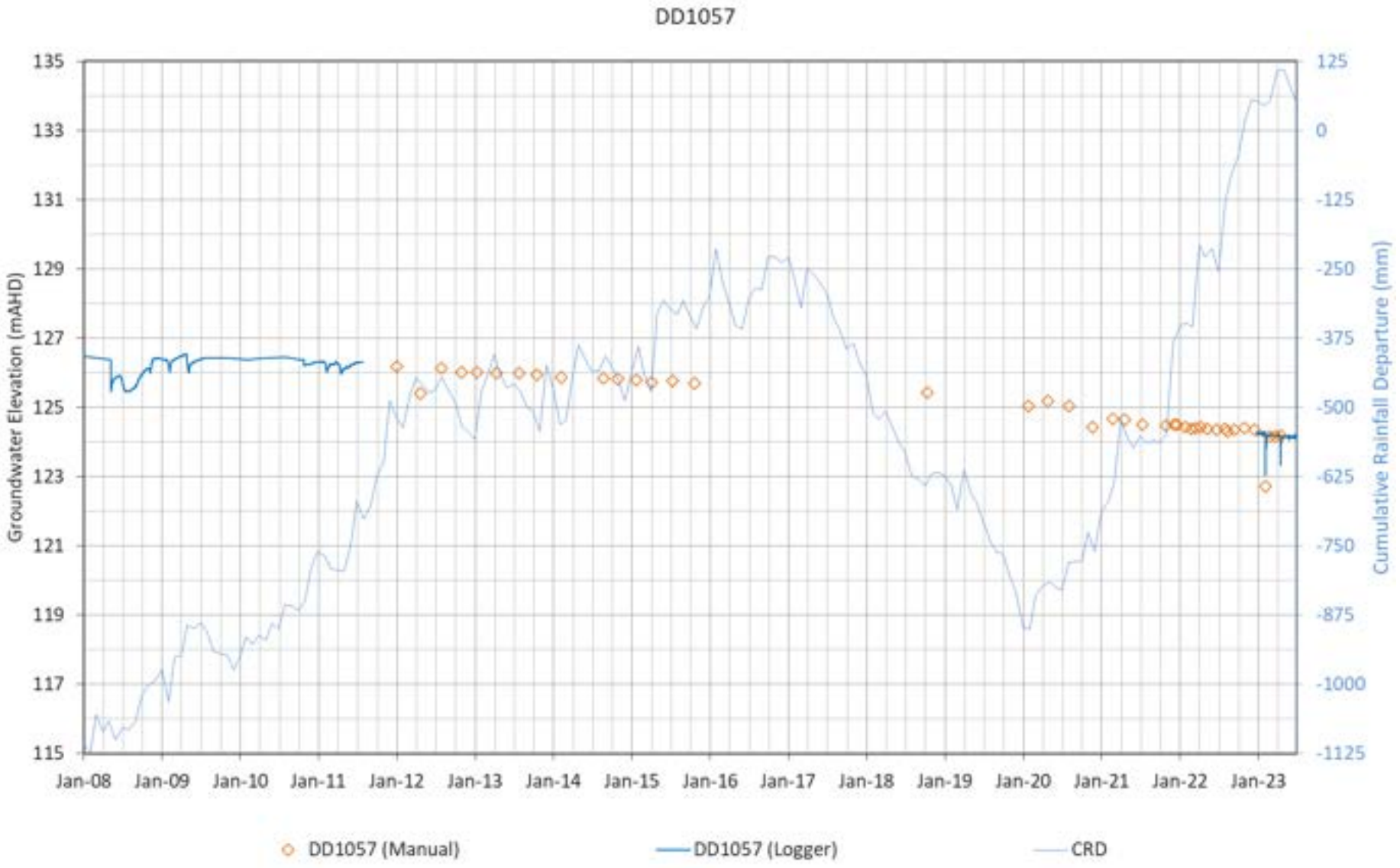

DD1016
Groundwater Elevation (mAHD)
144.0
143.5
143.0
142.5
142.0
141.5
141.0
140.5
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1016 (Manual)
DD1016 (Logger)
CRD

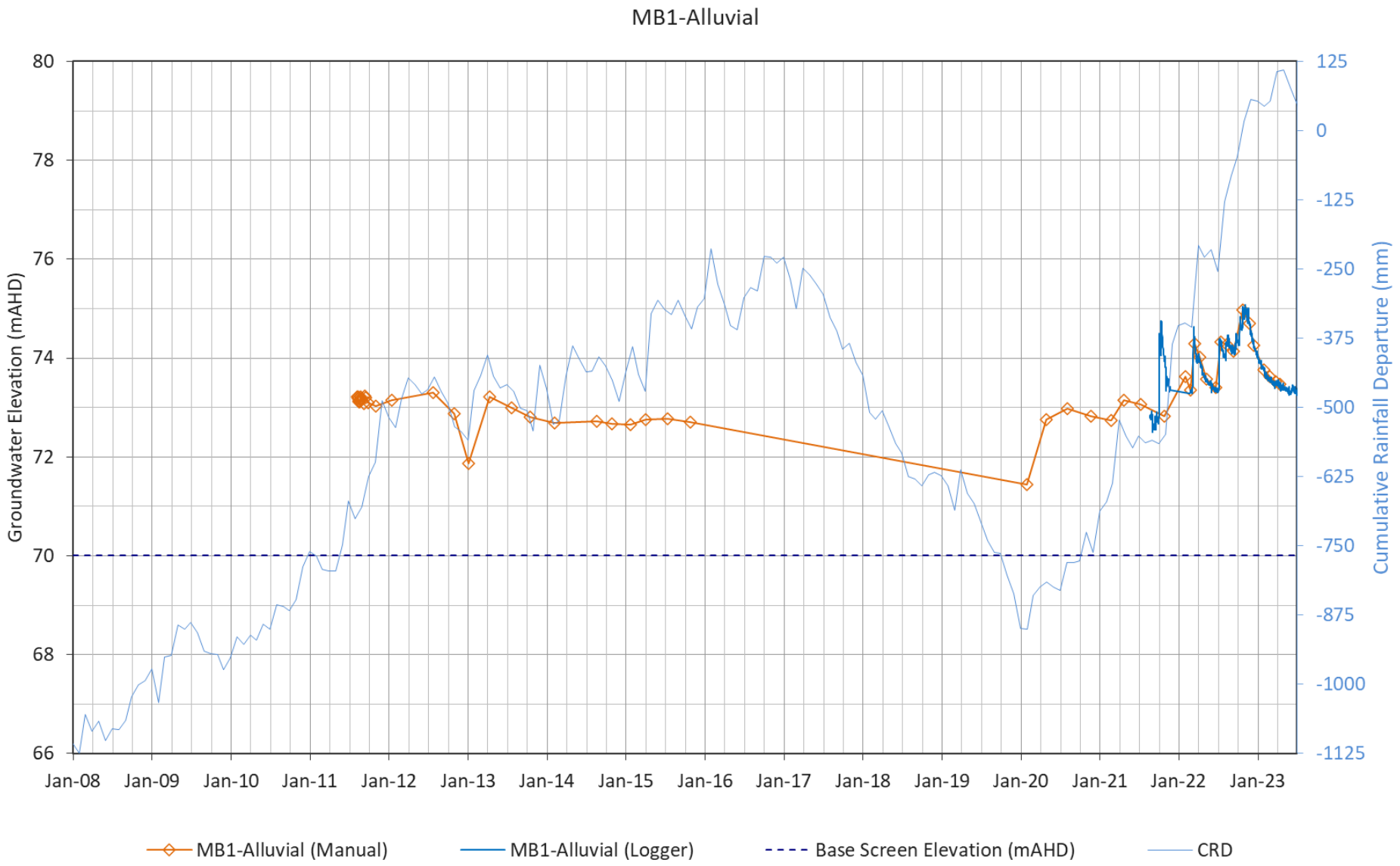

DD1027
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
137.0
136.5
136.0
135.5
135.0
134.5
134.0
133.5
133.0
132.5
132.0
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1027 (Manual)
DD1027 (Logger)
CRD

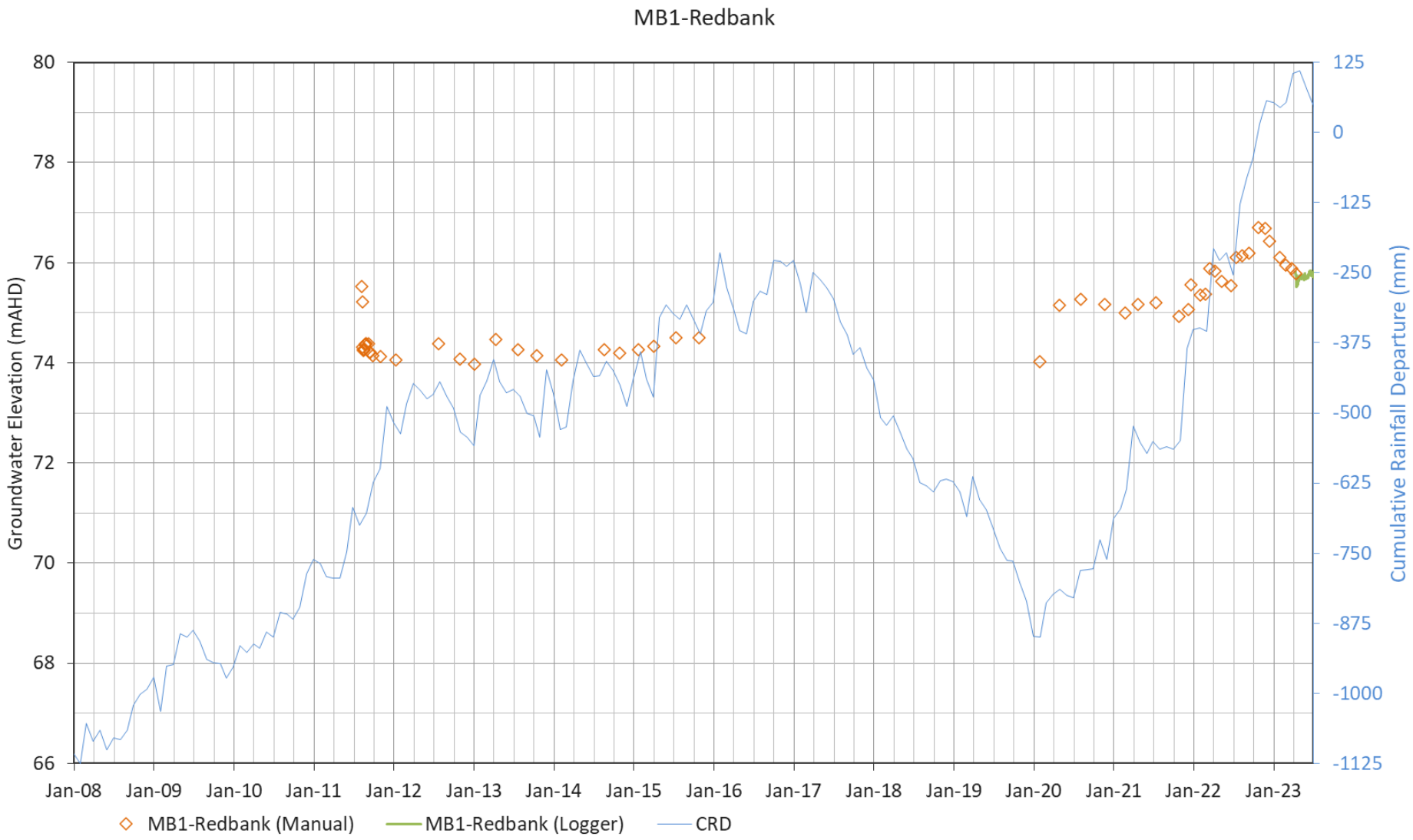

DD1032
Groundwater Elevation (mAHD)
134.0
132.0
130.0
128.0
126.0
124.0
122.0
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1032 (Manual)
DD1032 (Logger)
Lower Trigger Level (revised)
CRD

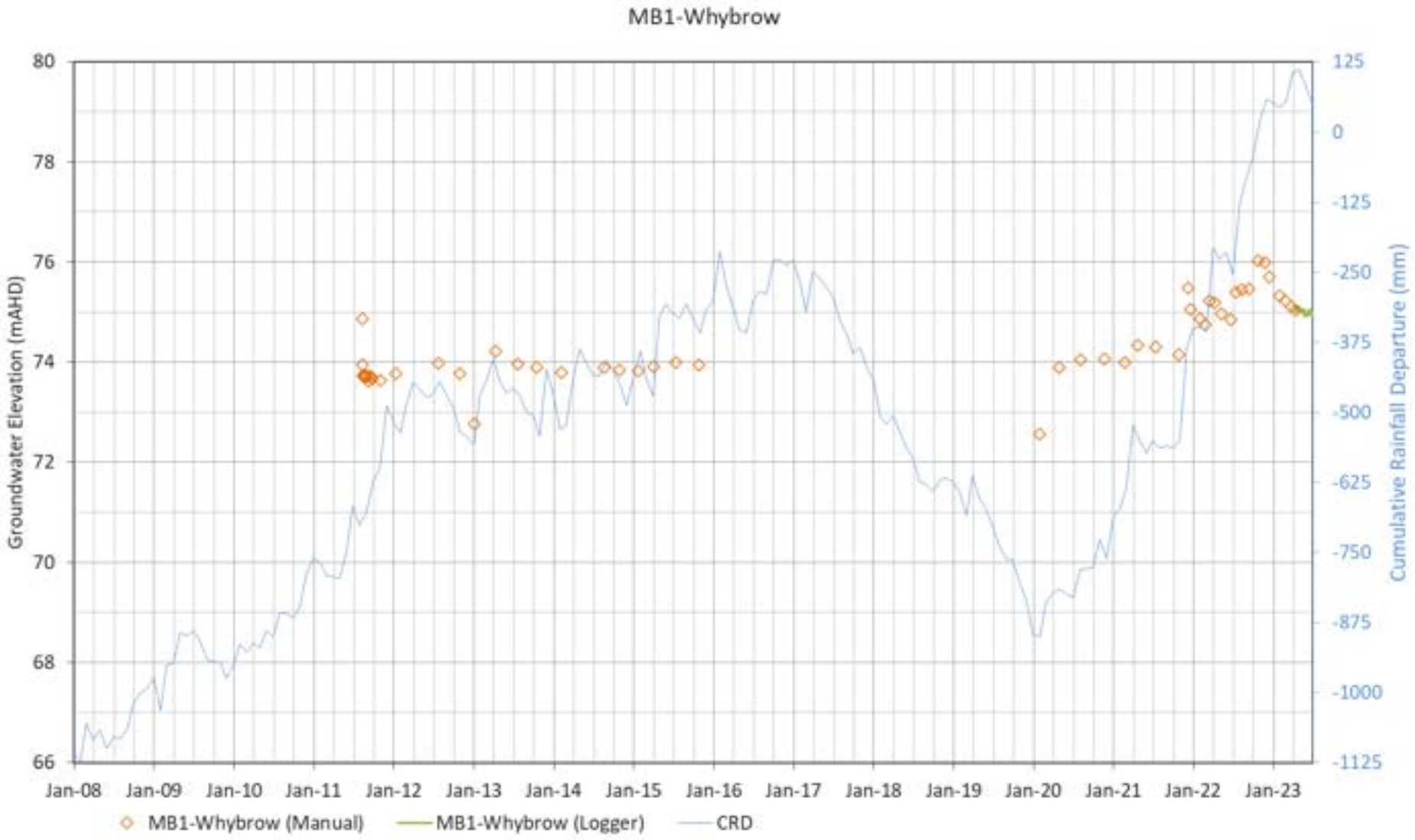

DD1043
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
134
133
132
131
130
129
128
127
126
125
124
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1043 (Manual)
DD1043 (Logger)
CRD

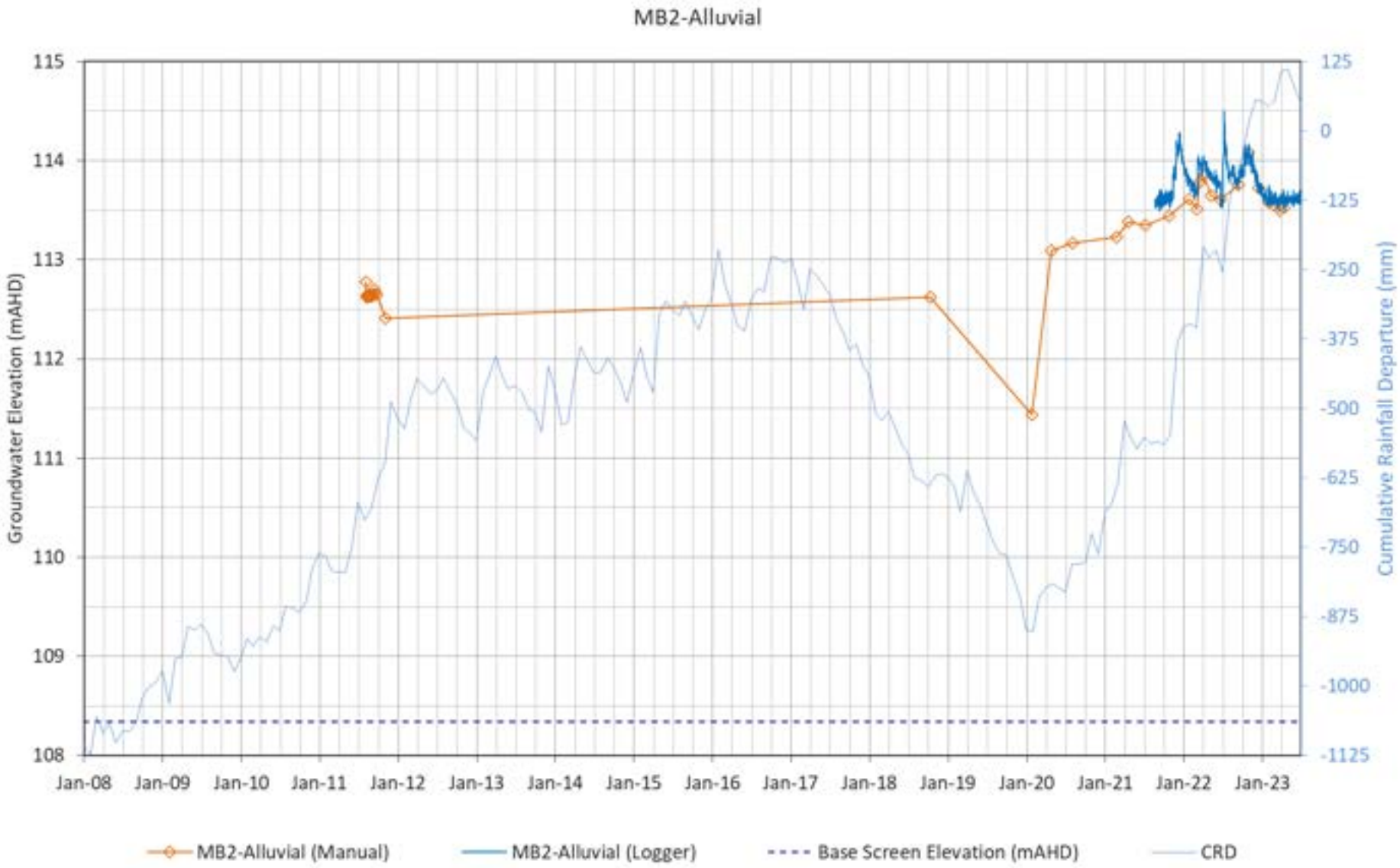

DD1052
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
130
128
126
124
122
120
118
116
114
112
110
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1052 (Manual)
DD1052 (Logger)
CRD

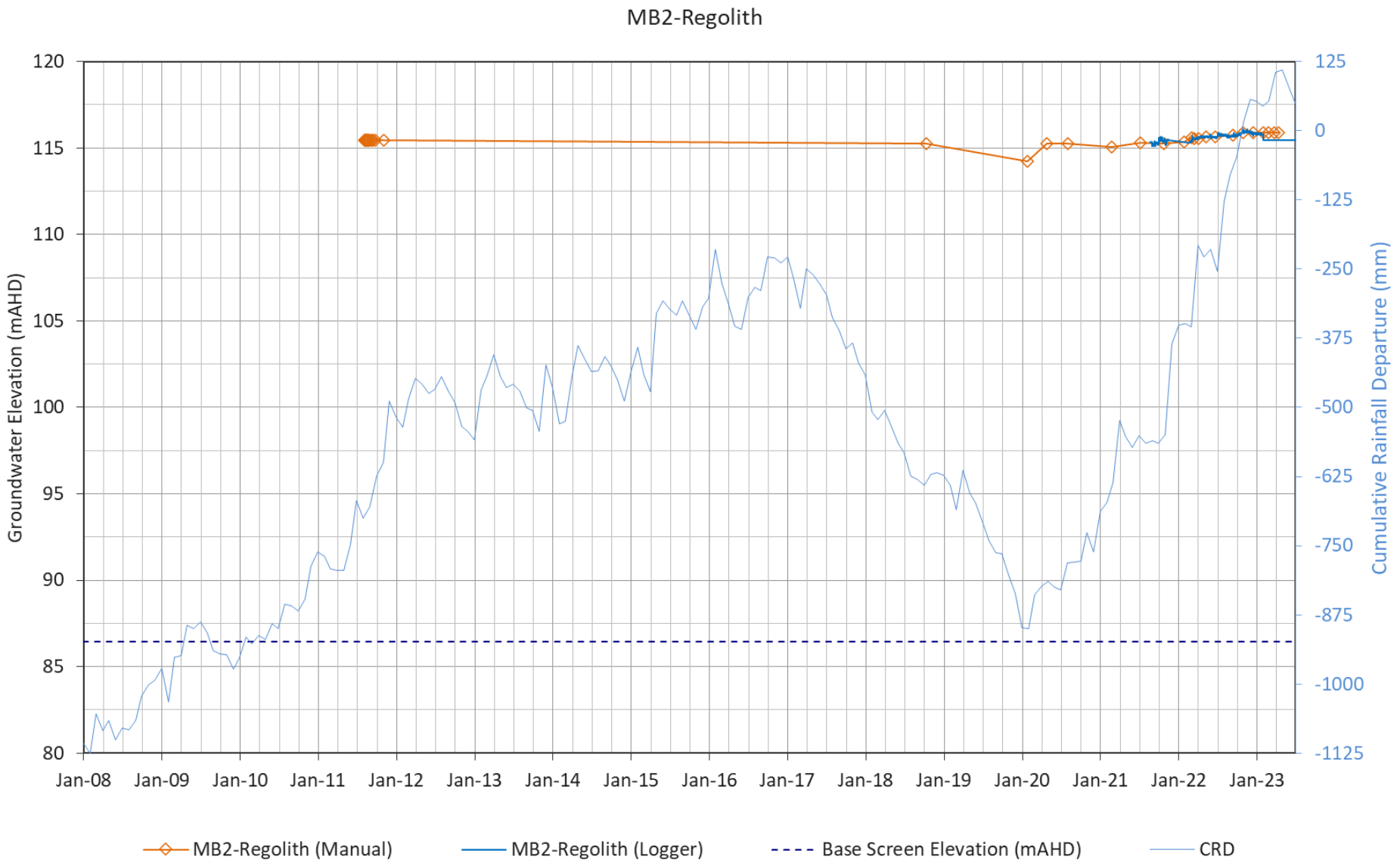

DD1057
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
135
133
131
129
127
125
123
121
119
117
115
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
DD1057 (Manual)
DD1057 (Logger)
CRD


MB1-Alluvial
Groundwater Elevation (mAHD)
80
78
76
74
72
70
68
66
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
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
MB1-Alluvial (Manual)
MB1-Alluvial (Logger)
Base Screen Elevation (mAHD)
CRD

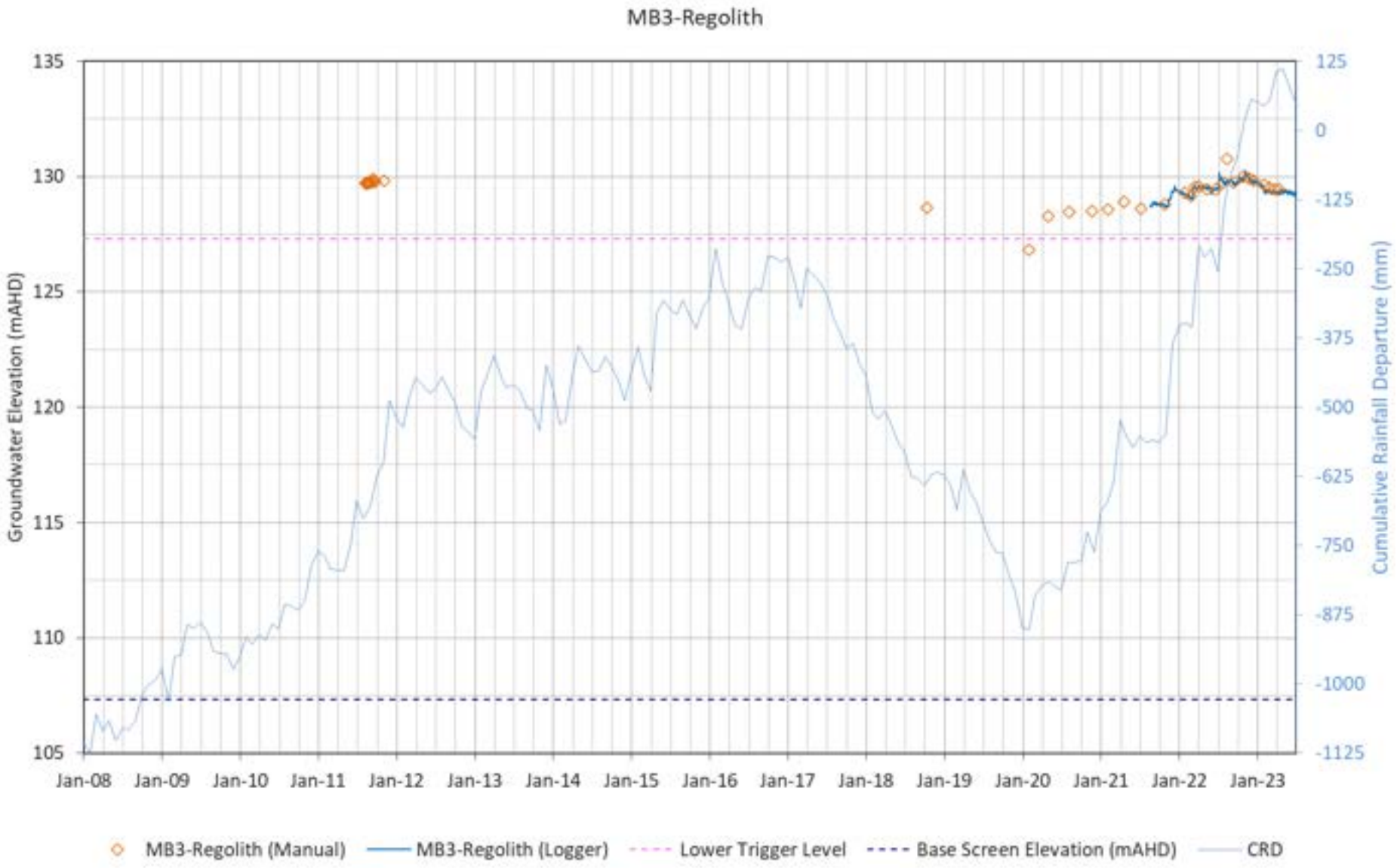

MB1-Redbank
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
80
78
76
74
72
70
68
66
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB1-Redbank (Manual)
MB1-Redbank (Logger)
CRD

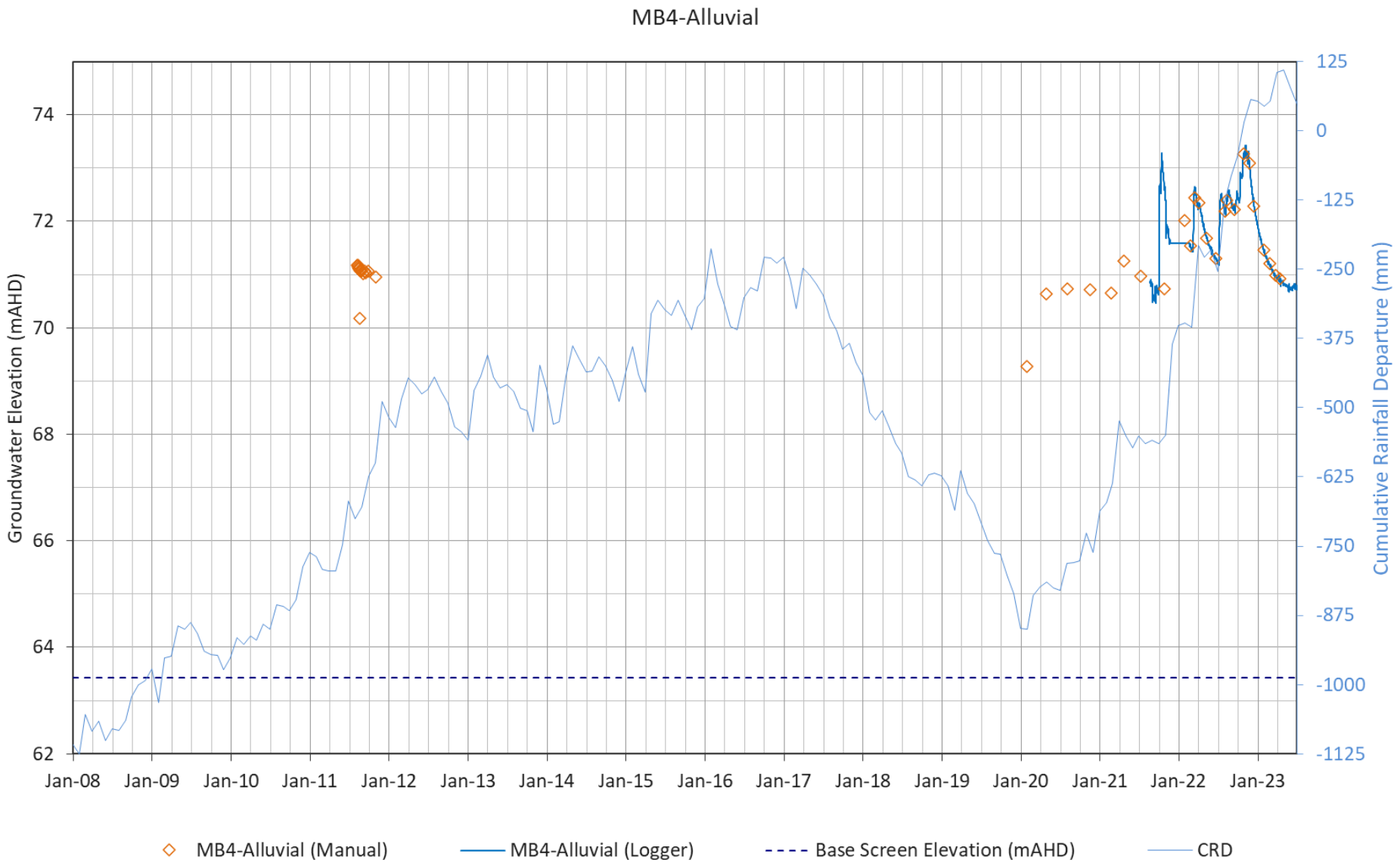

MB1-Whybrow
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
80
78
76
74
72
70
68
66
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB1-Whybrow (Manual)
MB1-Whybrow (Logger)
CRD

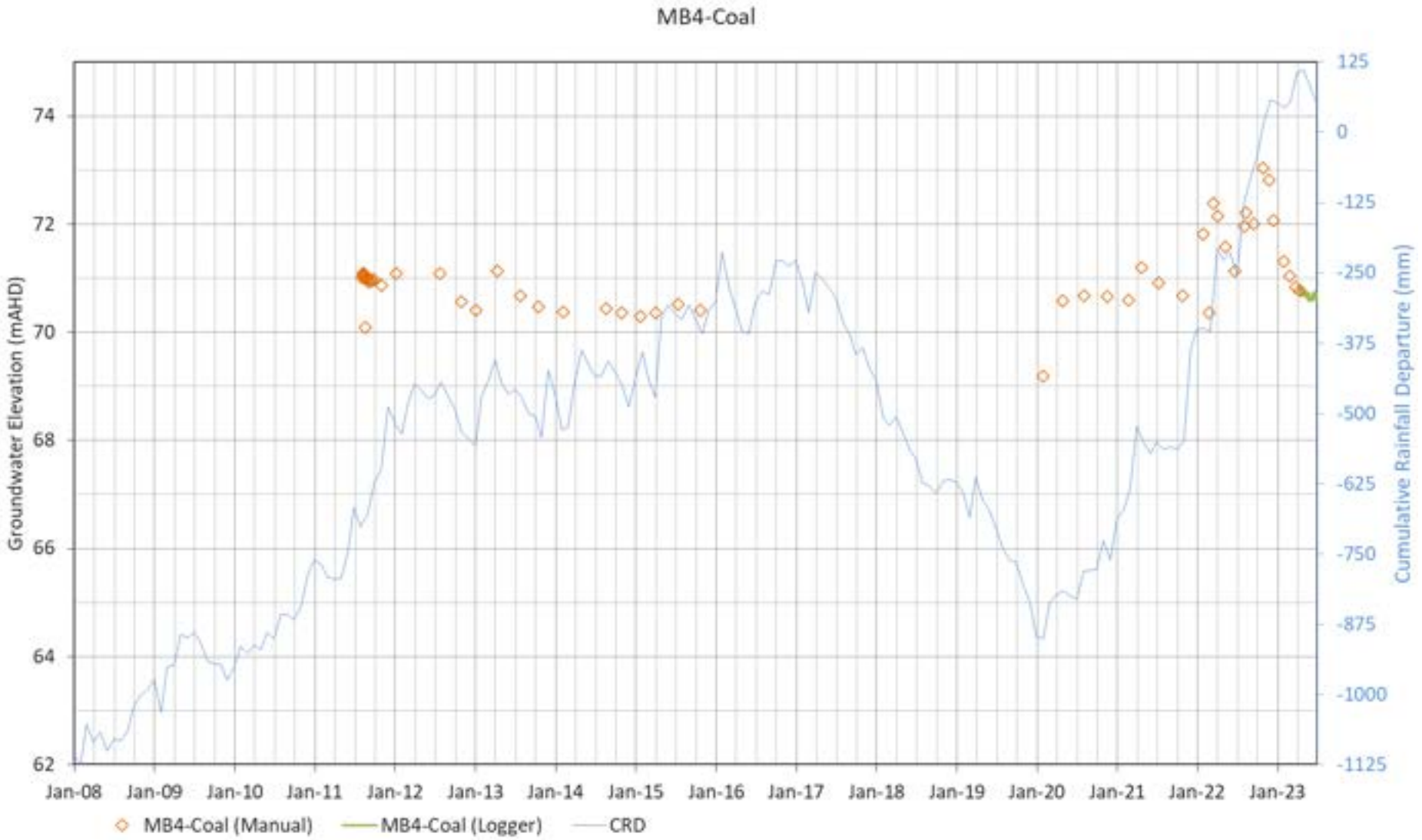

MB2-Alluvial
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
115
114
113
112
111
110
109
108
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB2-Alluvial (Manual)
MB2-Alluvial (Logger)
Base Screen Elevation (mAHD)
CRD

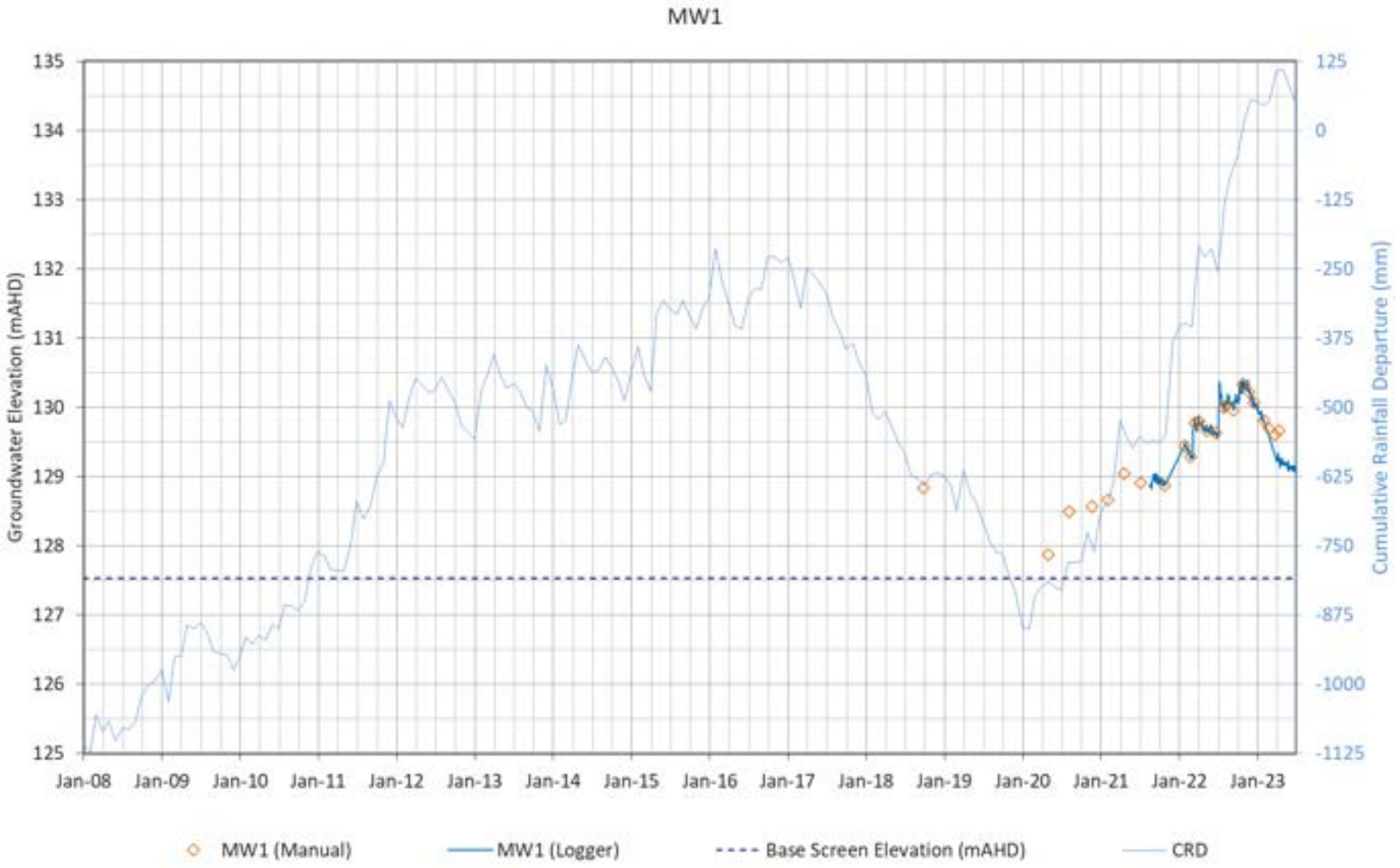

MB2-Regolith
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
120
115
110
105
100
95
90
85
80
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB2-Regolith (Manual)
MB2-Regolith (Logger)
Base Screen Elevation (mAHD)
CRD

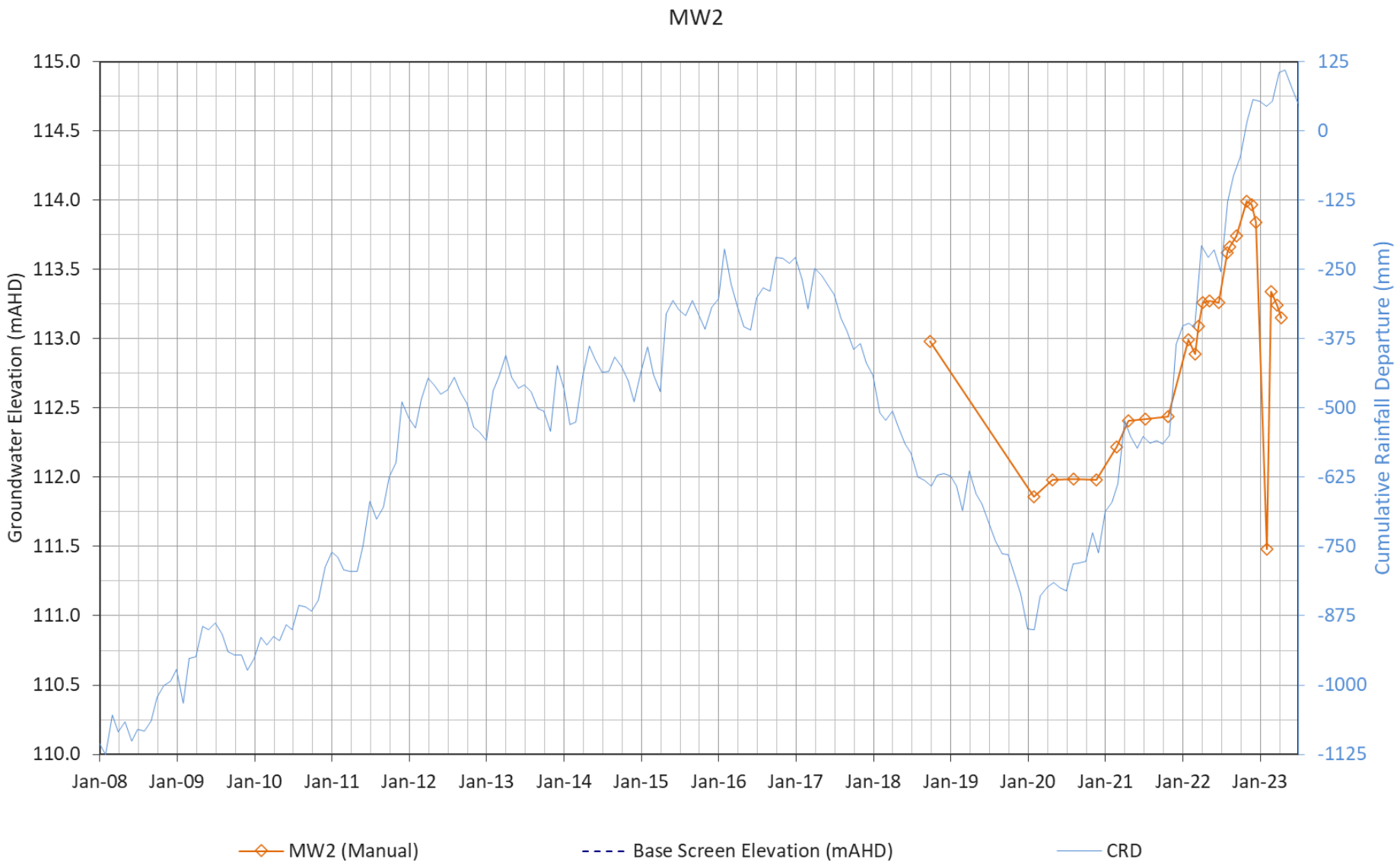

MB3-Alluvial
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
132
130
128
126
124
122
120
118
116
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB3-Alluvial (Manual)
MB3-Alluvial (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

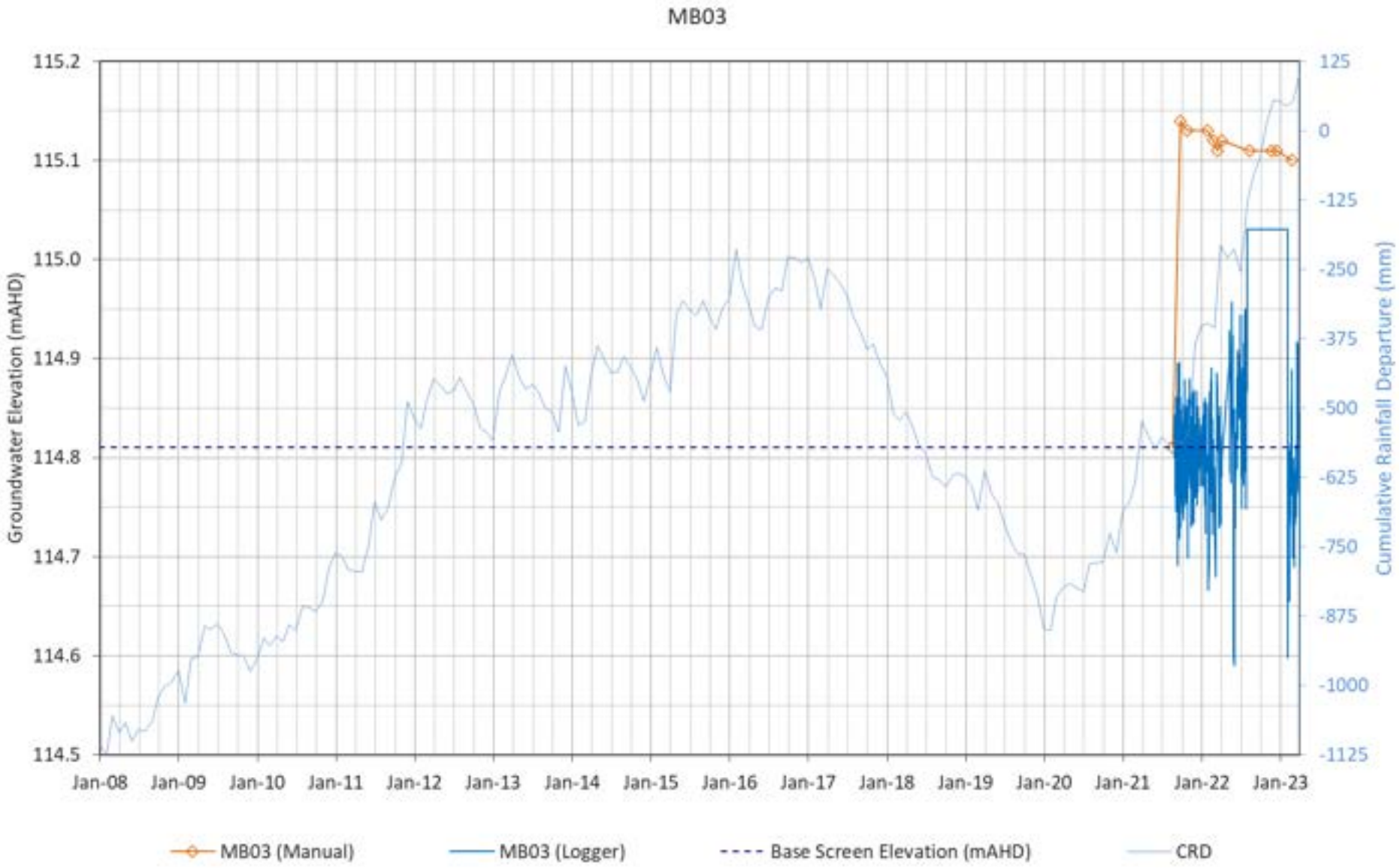

MB3-Regolith
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
135
130
125
120
115
110
105
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB3-Regolith (Manual)
MB3-Regolith (Logger)
Lower Trigger Level
Base Screen Elevation (mAHD)
CRD

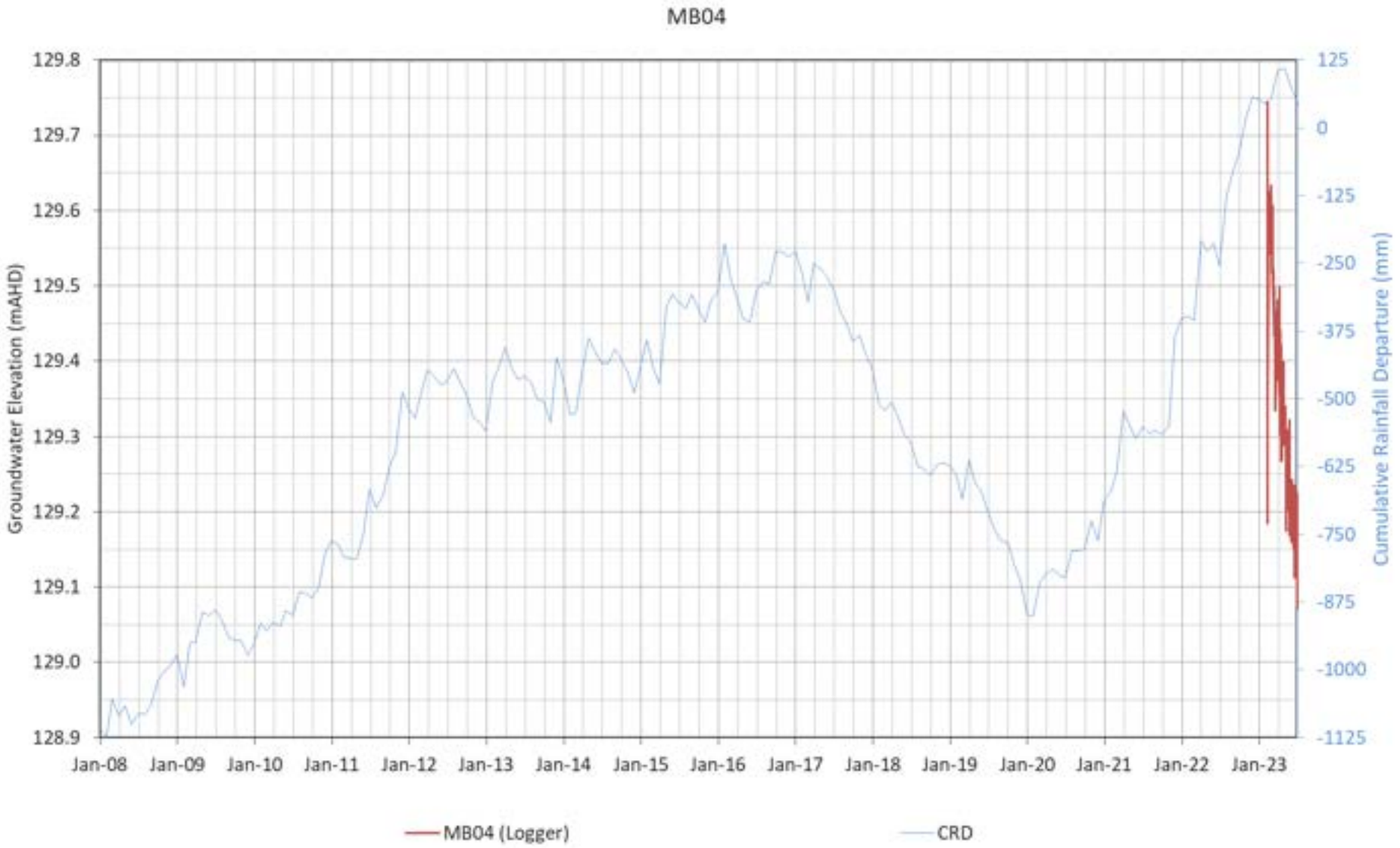

MB4-Alluvial
Groundwater Elevation (mAHD)
74
72
70
68
66
64
62
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB4-Alluvial (Manual)
MB4-Alluvial (Logger)
Base Screen Elevation (mAHD)
CRD

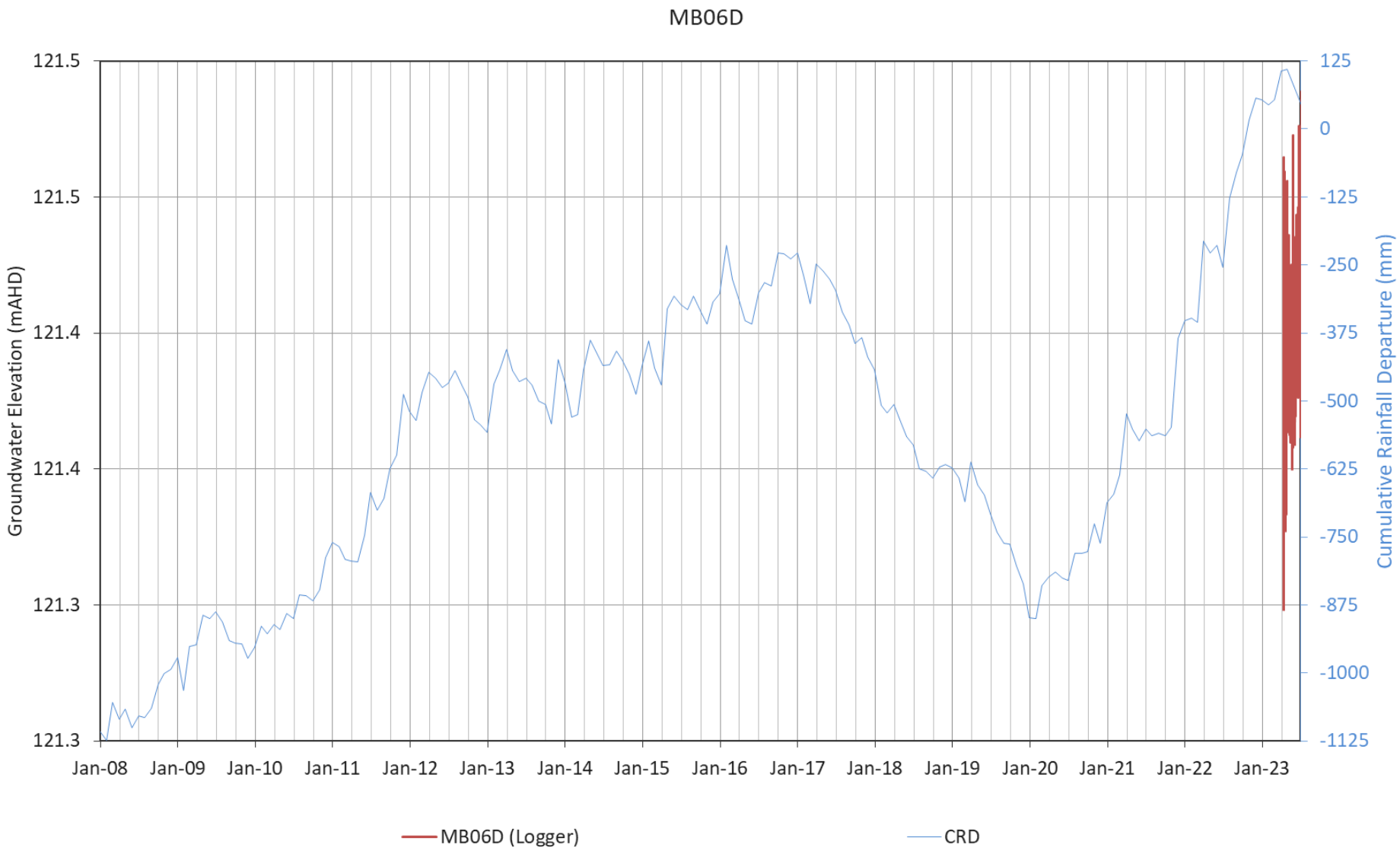

MB4-Coal
Groundwater Elevation (mAHD)
74
72
70
68
66
64
62
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB4-Coal (Manual)
MB4-Coal (Logger)
CRD

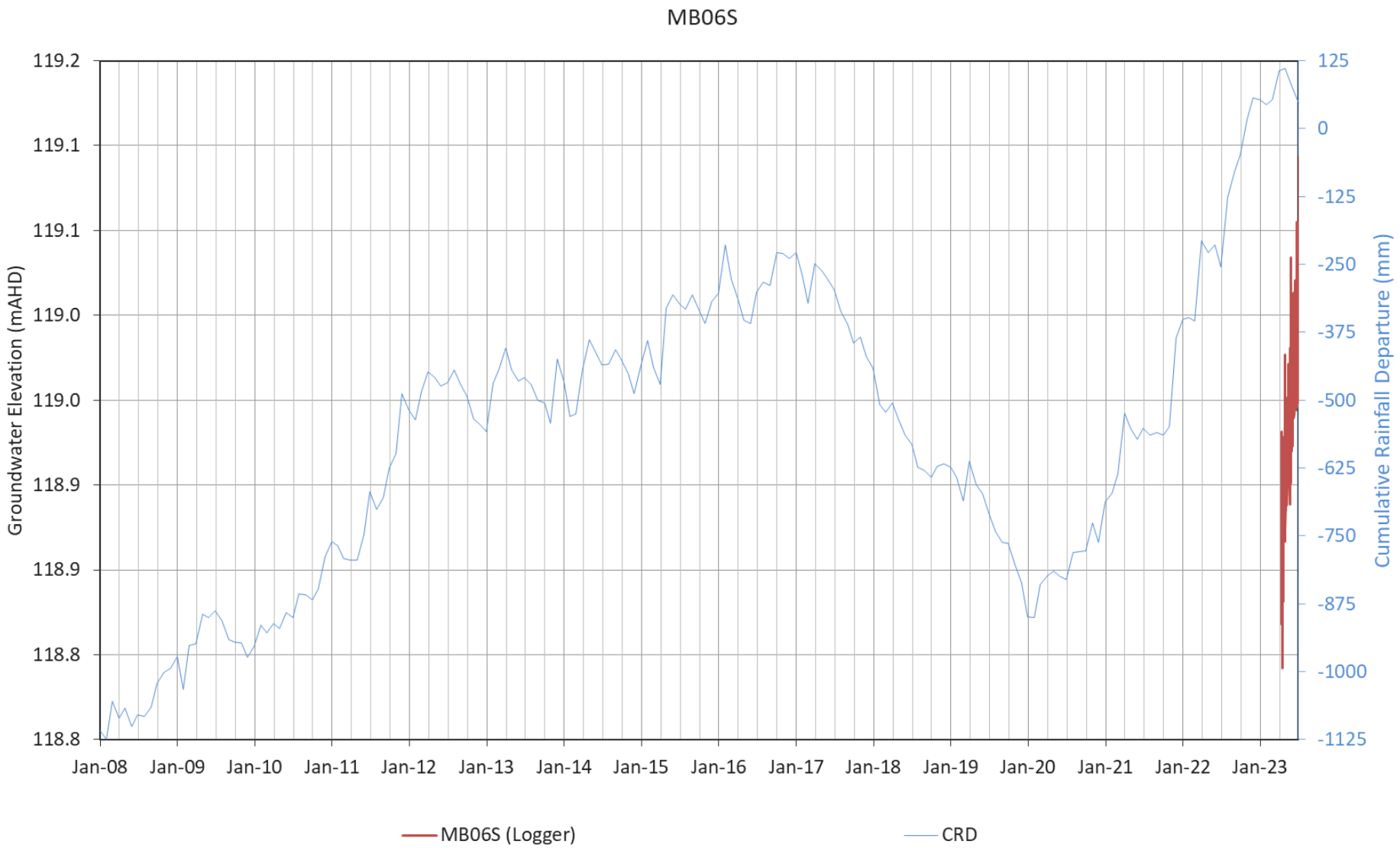

MW1
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
135
134
133
132
131
130
129
128
127
126
125
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MW1 (Manual)
MW1 (Logger)
Base Screen Elevation (mAHD)
CRD

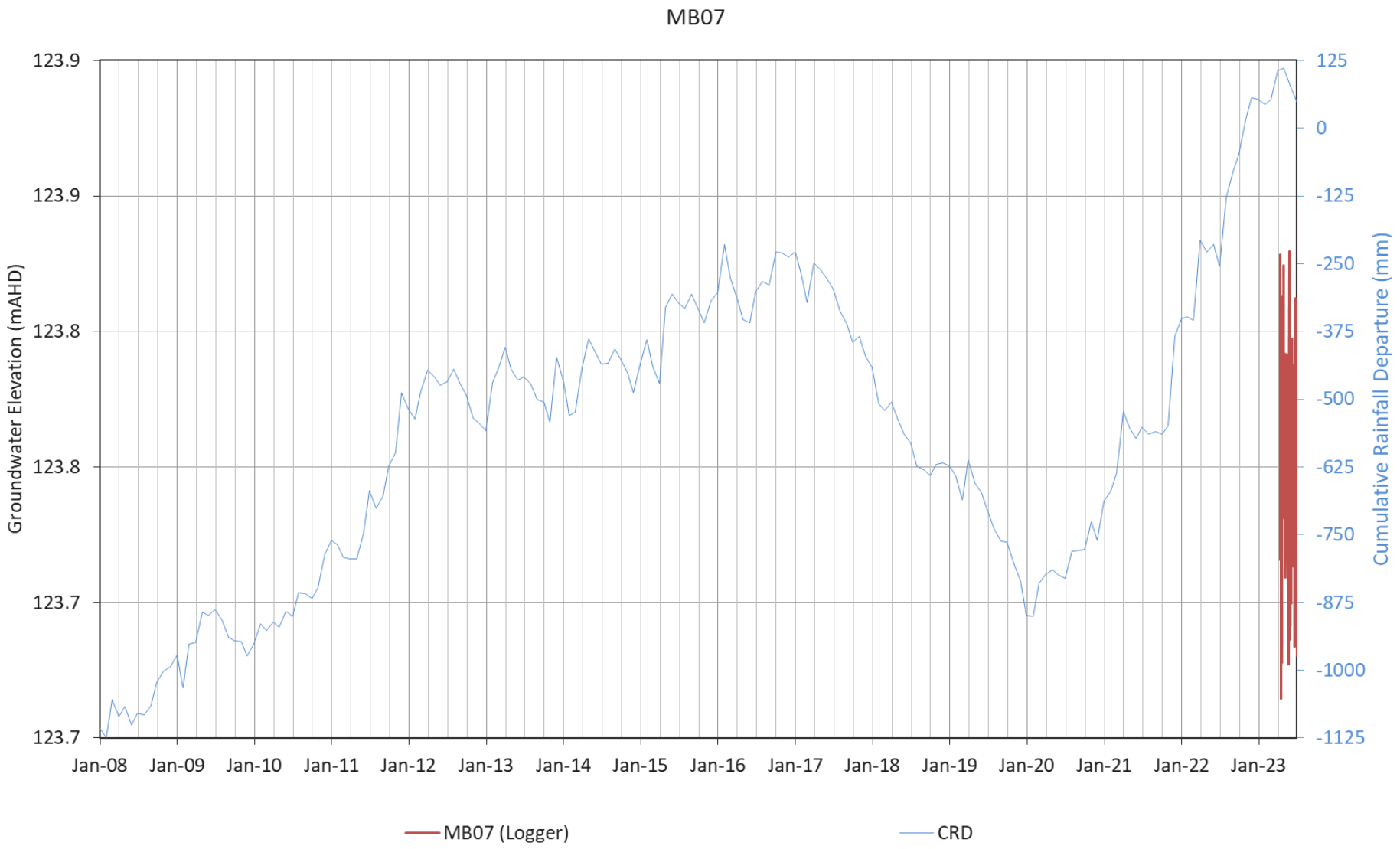

MW2
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
115.0
114.5
114.0
113.5
113.0
112.5
112.0
111.5
111.0
110.5
110.0
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MW2 (Manual)
Base Screen Elevation (mAHD)
CRD

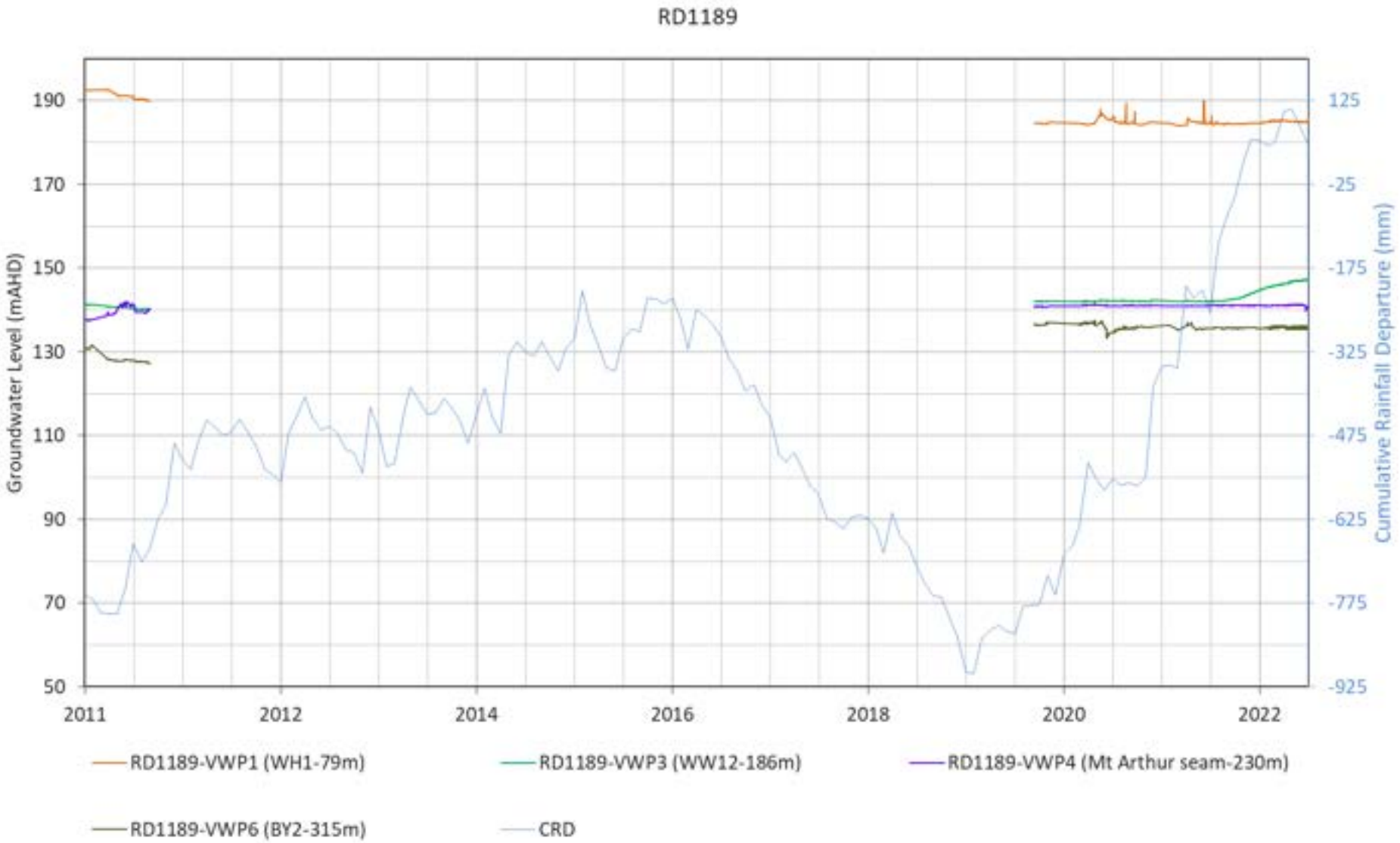

MB03
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
115.2
115.1
115.0
114.9
114.8
114.7
114.6
114.5
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB03 (Manual)
MB03 (Logger)
Base Screen Elevation (mAHD)
CRD

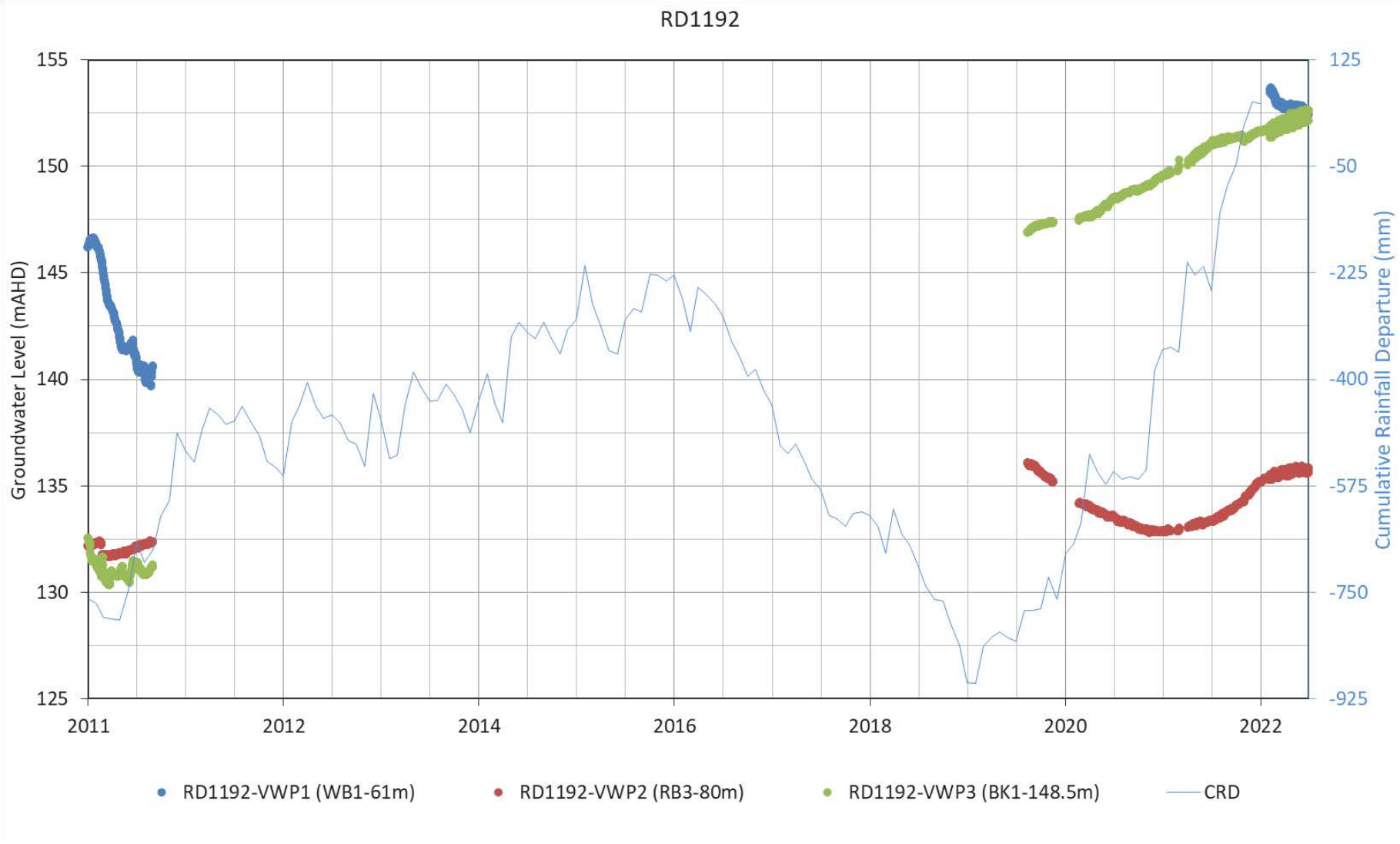

MB04
Groundwater Elevation (mAHD)
129.8
129.7
129.6
129.5
129.4
129.3
129.2
129.1
129.0
128.9
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB04 (Logger)
CRD

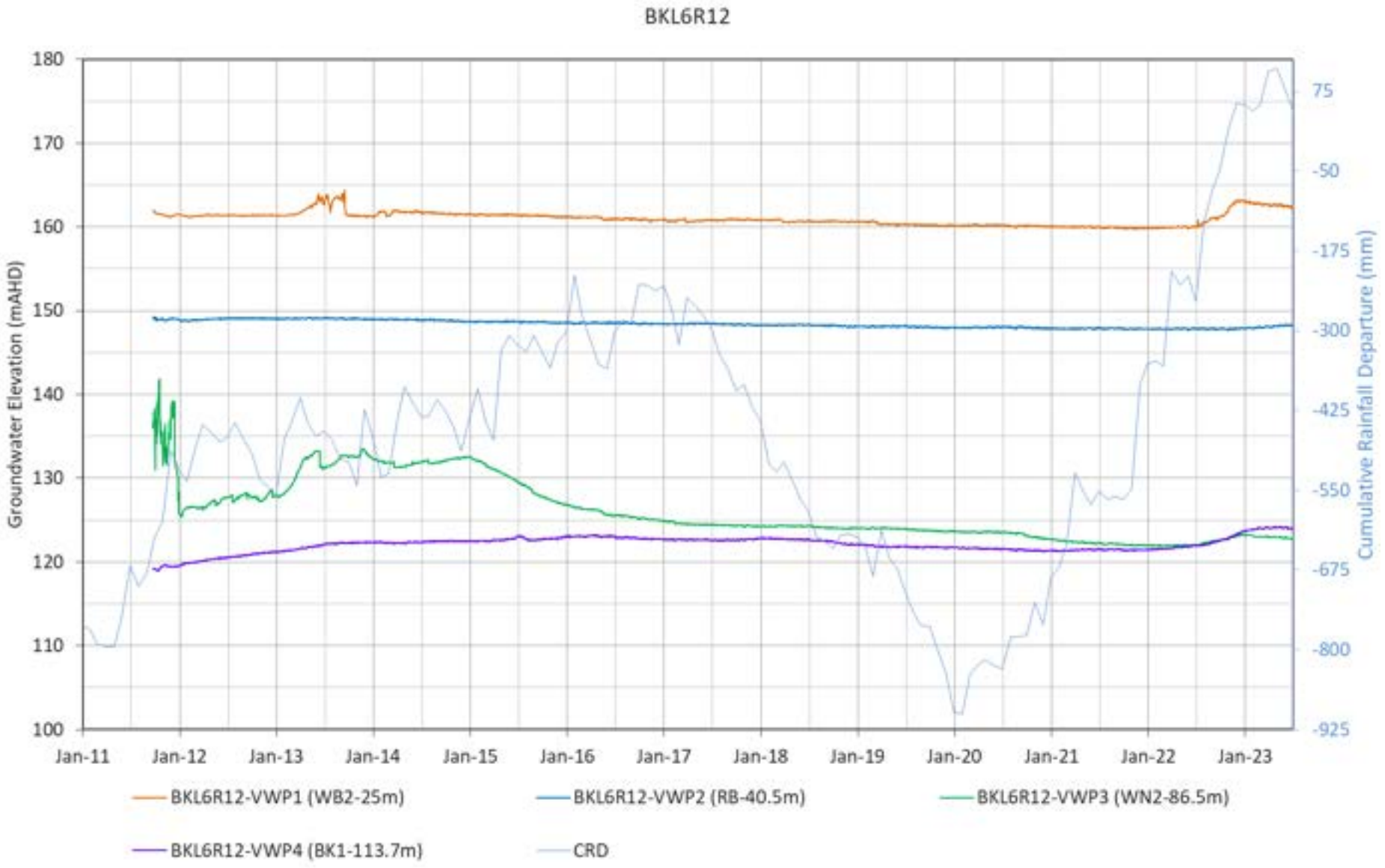

MB06D
Groundwater Elevation (mAHD)
121.5
121.5
121.4
121.4
121.3
121.3
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB06D (Logger)
CRD

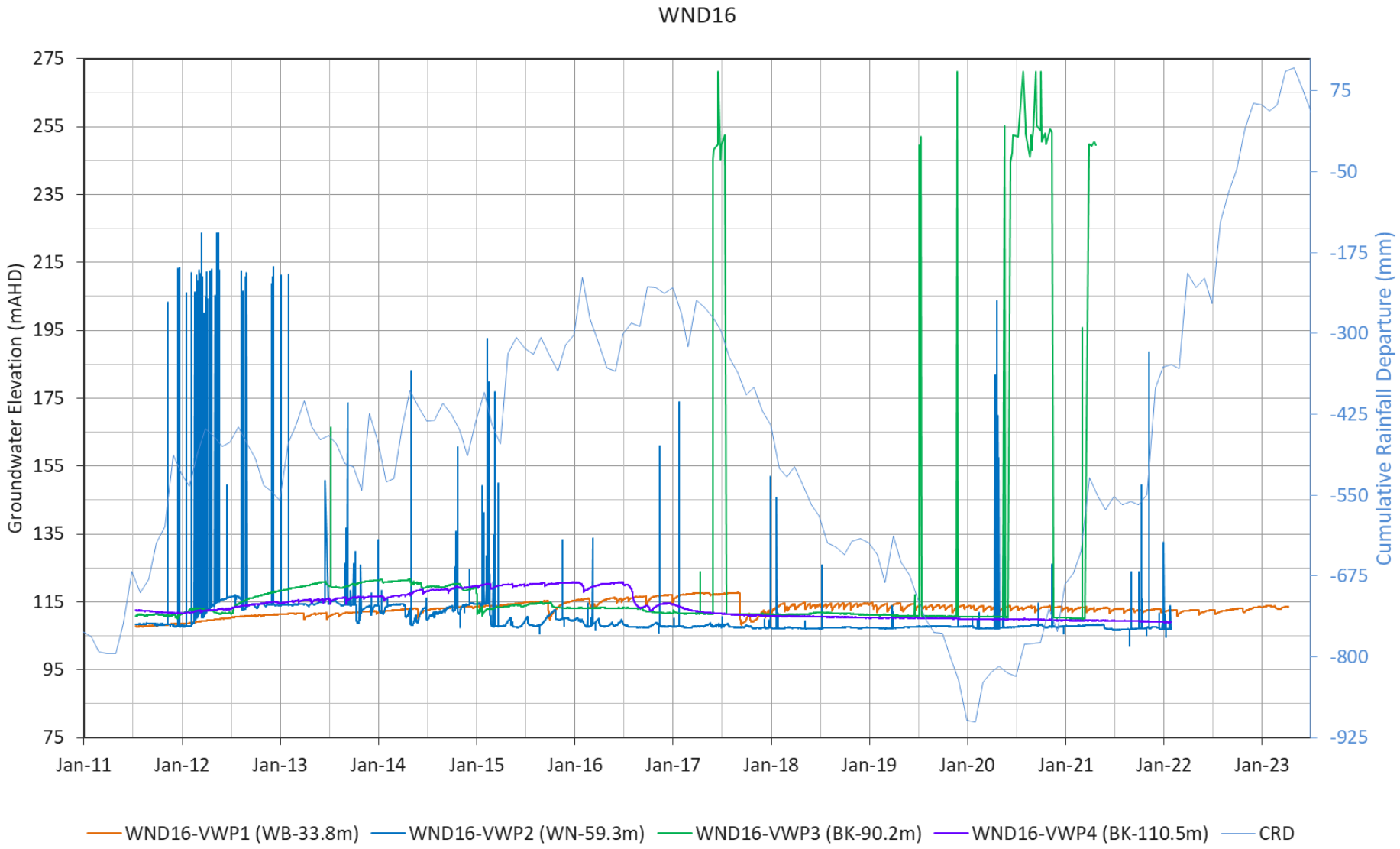

MB06S
Groundwater Elevation (mAHD)
119.2
119.1
119.1
119.0
119.0
118.9
118.9
118.8
118.8
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB06S (Logger)
CRD

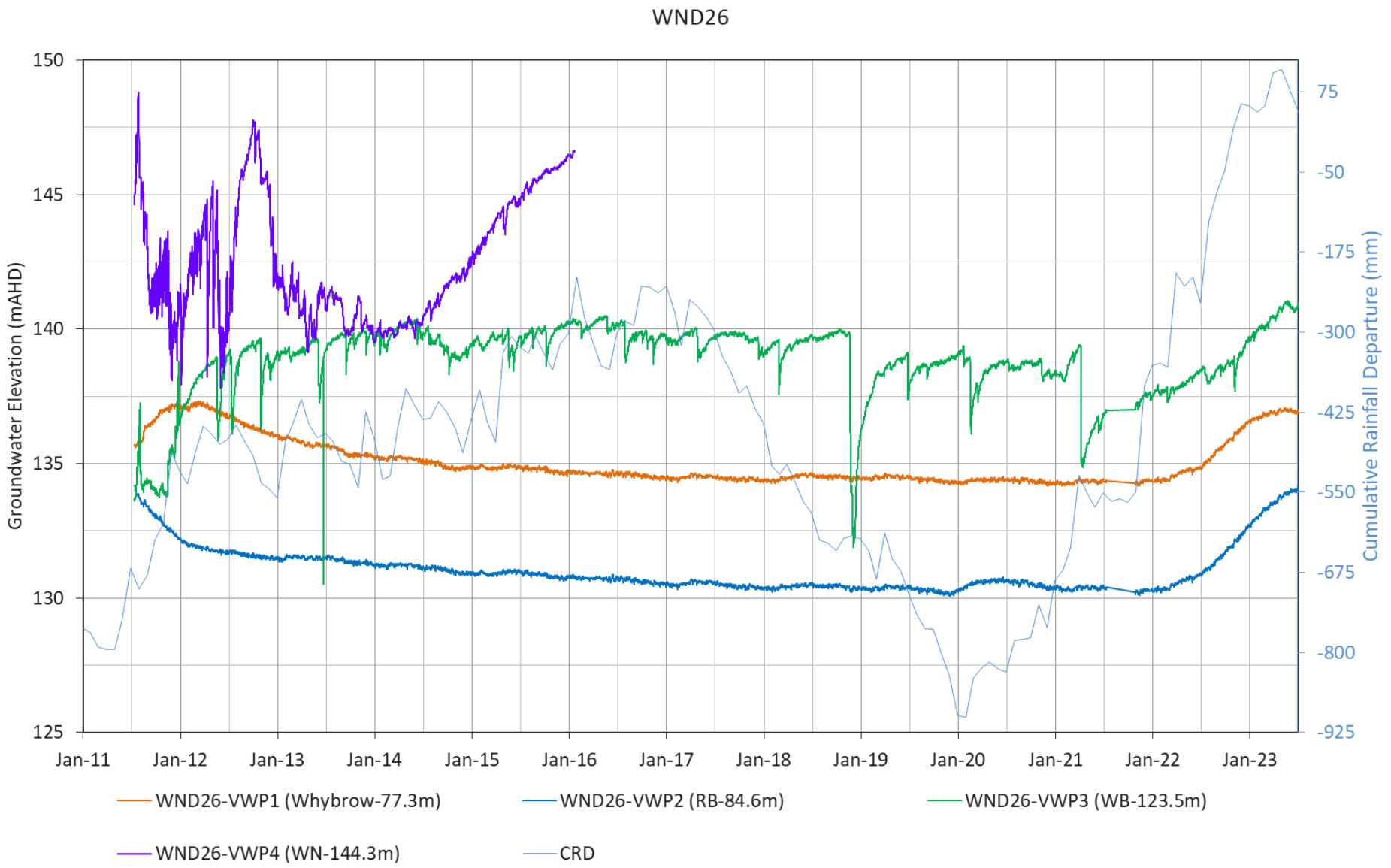

MB07
Groundwater Elevation (mAHD)
123.9
123.9
123.8
123.8
123.7
123.7
Cumulative Rainfall Departure (mm)
125
0
-125
-250
-375
-500
-625
-750
-875
-1000
-1125
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
MB07 (Logger)
CRD

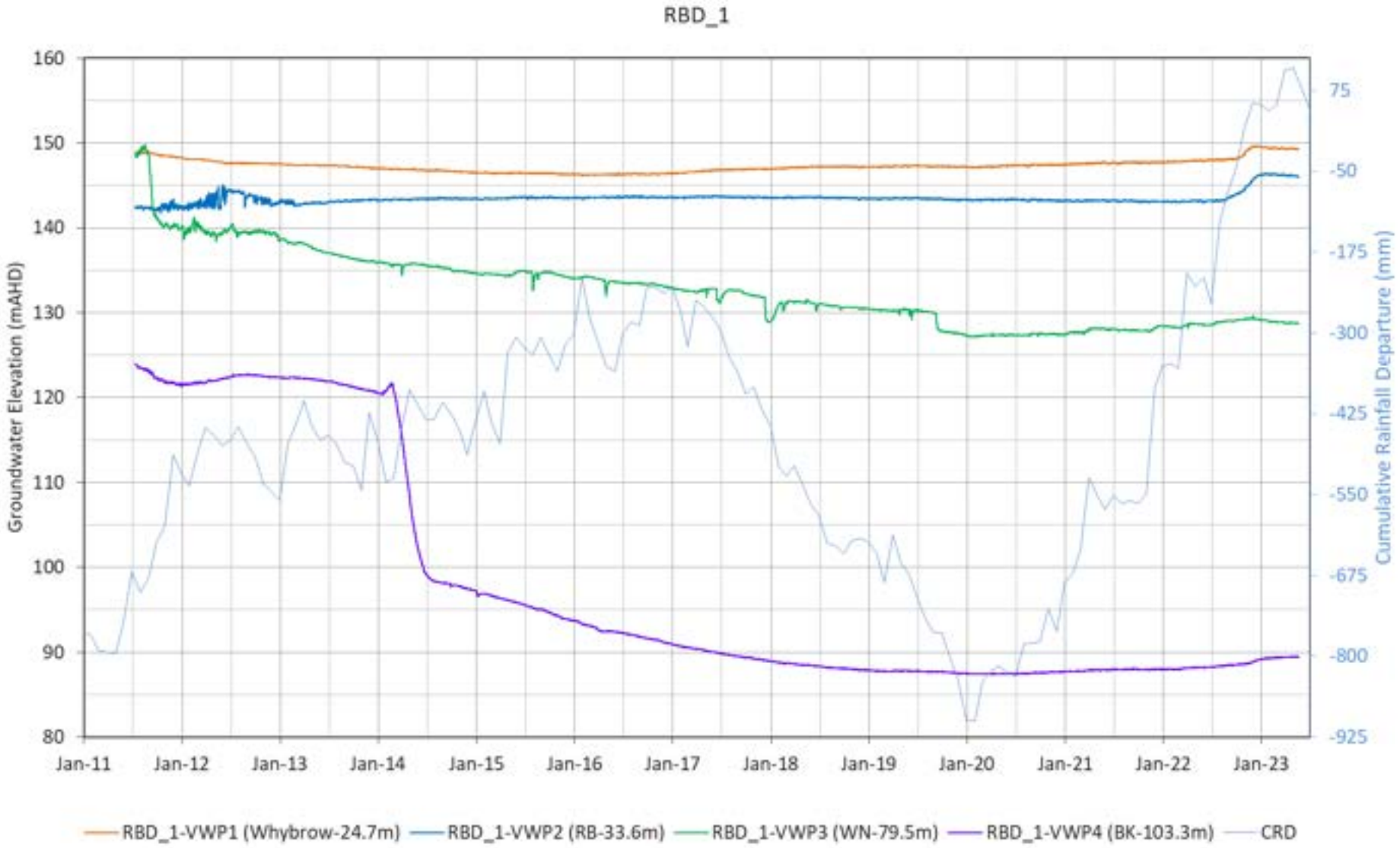

RD1189
Groundwater Level (mAHD)
190
170
150
130
110
90
70
50
Cumulative Rainfall Departure (mm)
125
-25
-175
-325
-475
-625
-775
-925
2011
2012
2014
2016
2018
2020
2022
RD1189-VWP1 (WH1-79m)
RD1189-VWP3 (WW12-186m)
RD1189-VWP4 (Mt Arthur seam-230m)
RD1189-VWP6 (BY2-315m)
CRD


RD1192
Groundwater Level (mAHD)
Cumulative Rainfall Departure (mm)
155
150
145
140
135
130
125
125
-50
-225
-400
-575
-750
-925
2011
2012
2014
2016
2018
2020
2022
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
75
-50
-175
-300
-425
-550
-675
-800
-925
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
BKL6R12-VWP1 (WB2-25m)
BKL6R12-VWP2 (RB-40.5m)
BKL6R12-VWP3 (WN2-86.5m)
BKL6R12-VWP4 (BK1-113.7m)
CRD


WND16
Groundwater Elevation (mAHD)
275
255
235
215
195
175
155
135
115
95
75
Cumulative Rainfall Departure (mm)
75
-50
-175
-300
-425
-550
-675
-800
-925
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
WND16-VWP1 (WB-33.8m)
WND16-VWP2 (WN-59.3m)
WND16-VWP3 (BK-90.2m)
WND16-VWP4 (BK-110.5m)
CRD


WND26
Groundwater Elevation (mAHD)
Cumulative Rainfall Departure (mm)
150
145
140
135
130
125
75
-50
-175
-300
-425
-550
-675
-800
-925
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
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
150
140
130
120
110
100
90
80
75
-50
-175
-300
-425
-550
-675
-800
-925
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
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

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

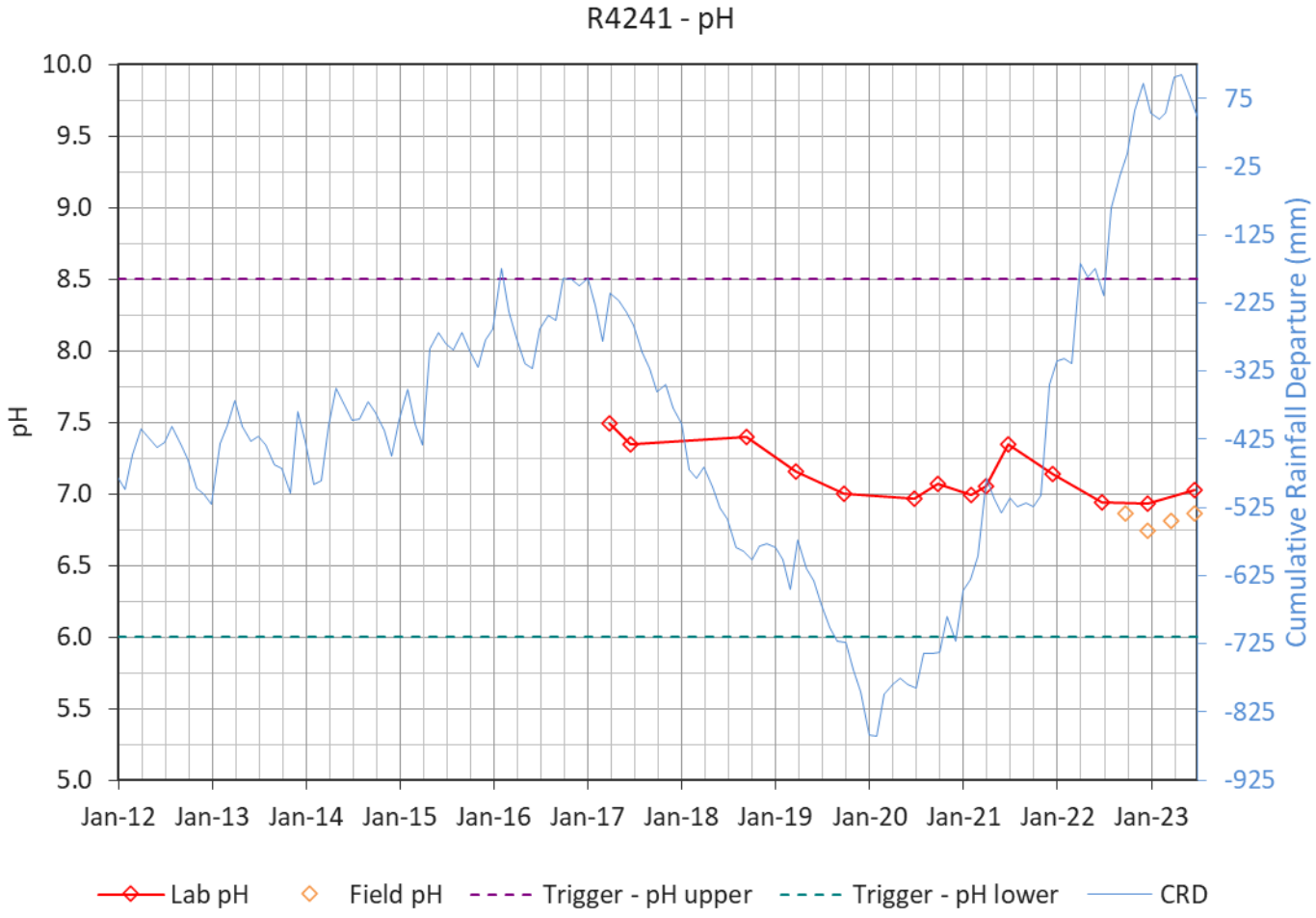
Maxwell Underground Mine

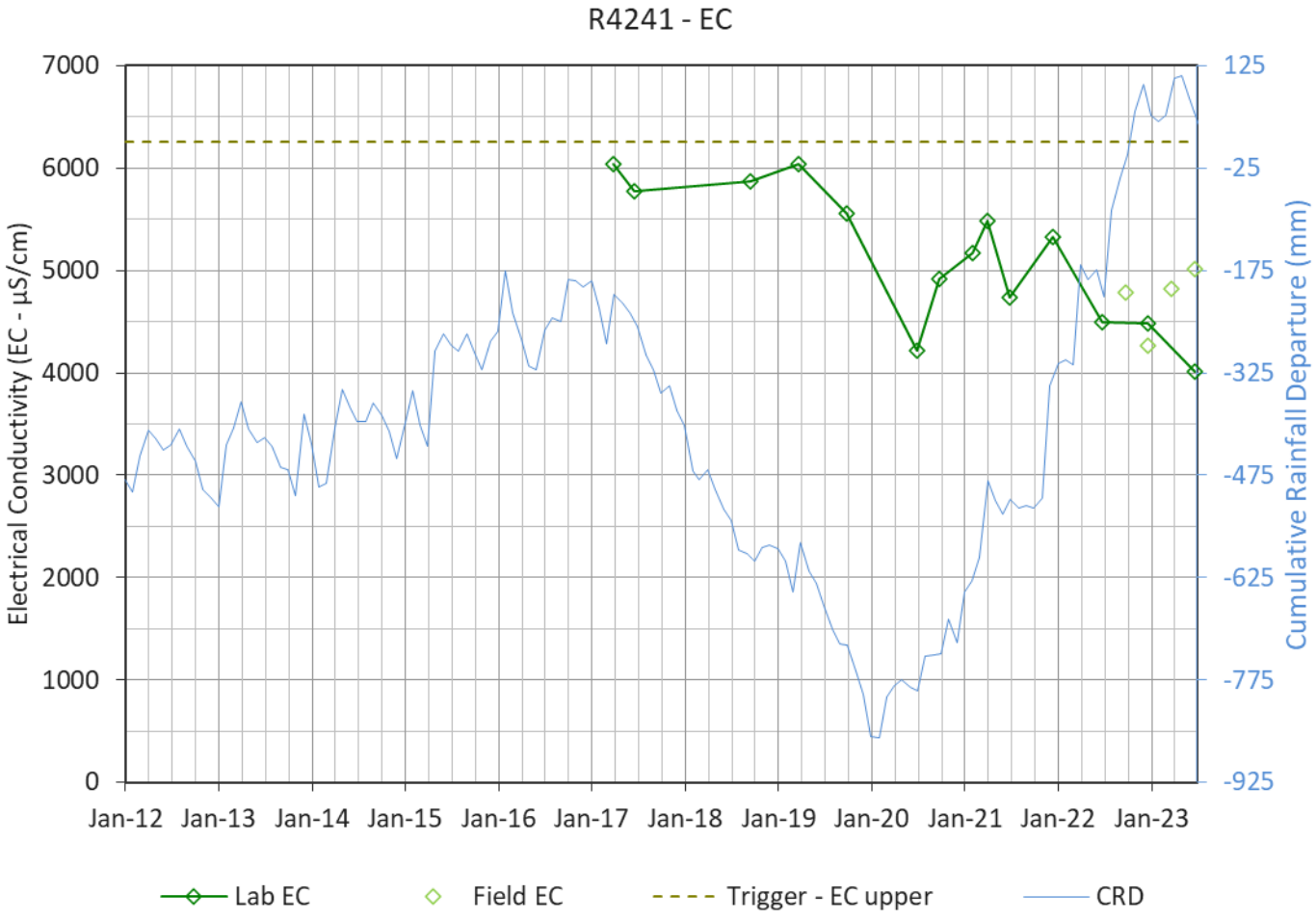
Groundwater Monitoring Report – Quarter 2 – 2023

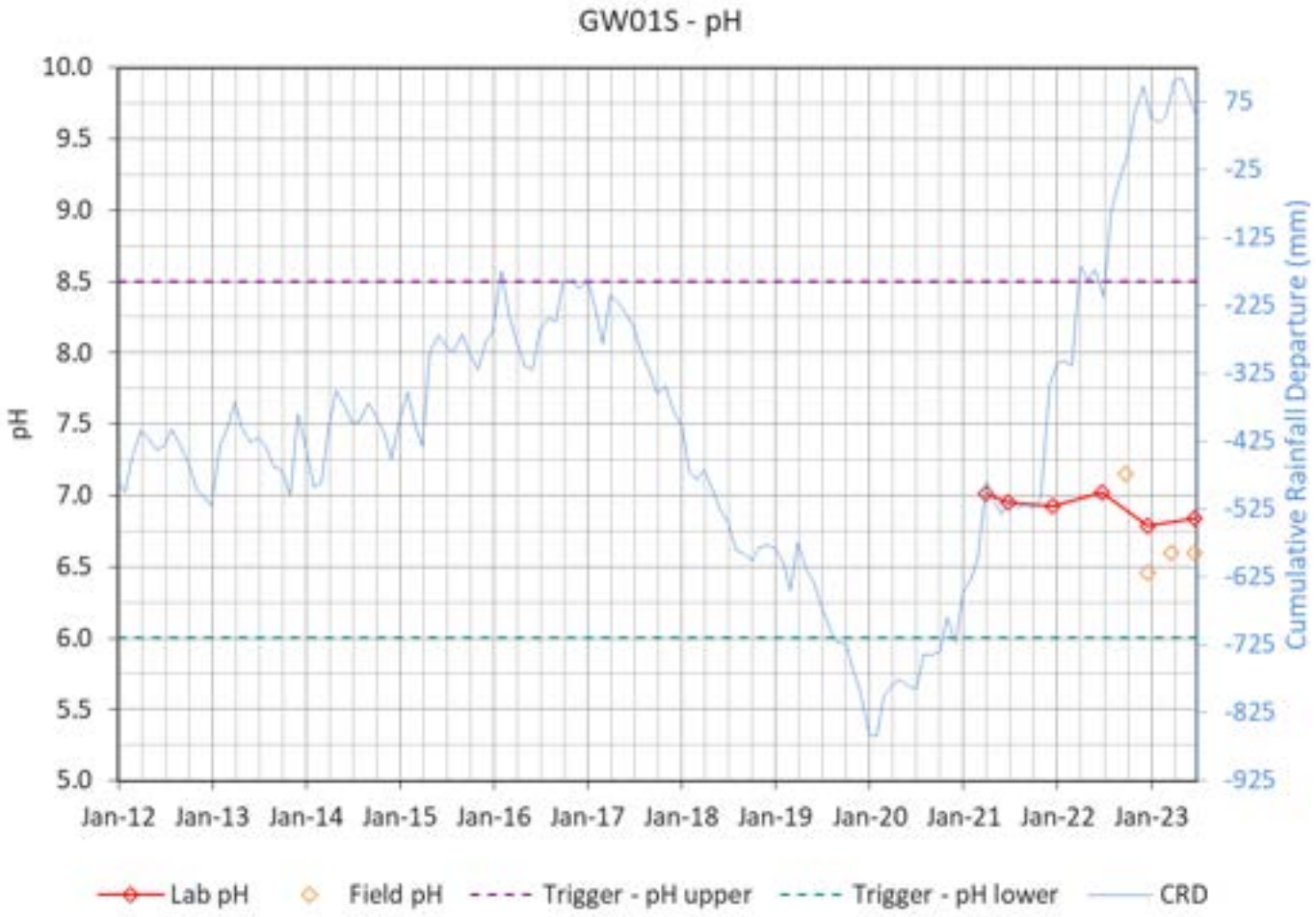
Malabar Resources Pty Ltd

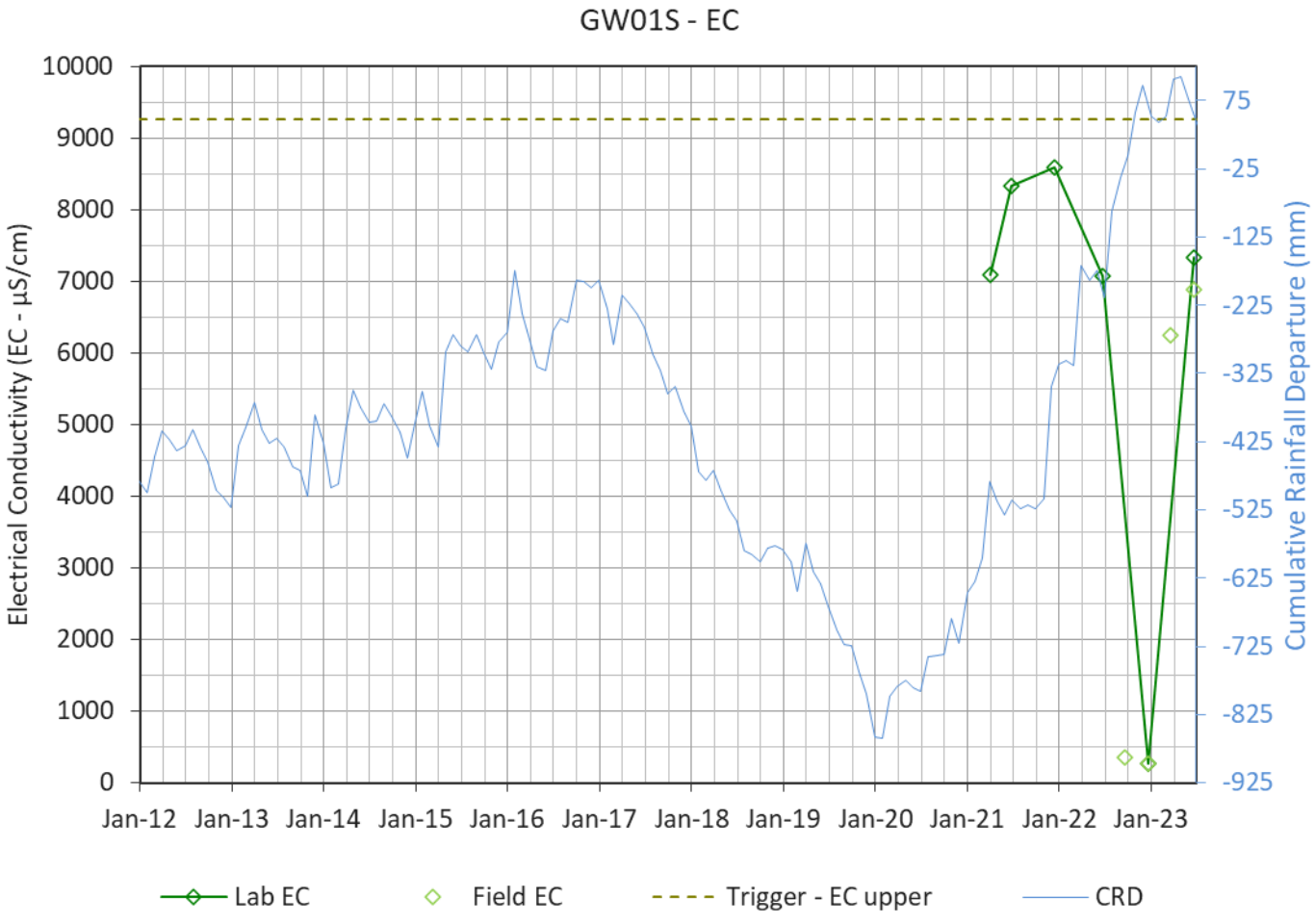
SLR Project No.: 630.030945.00001

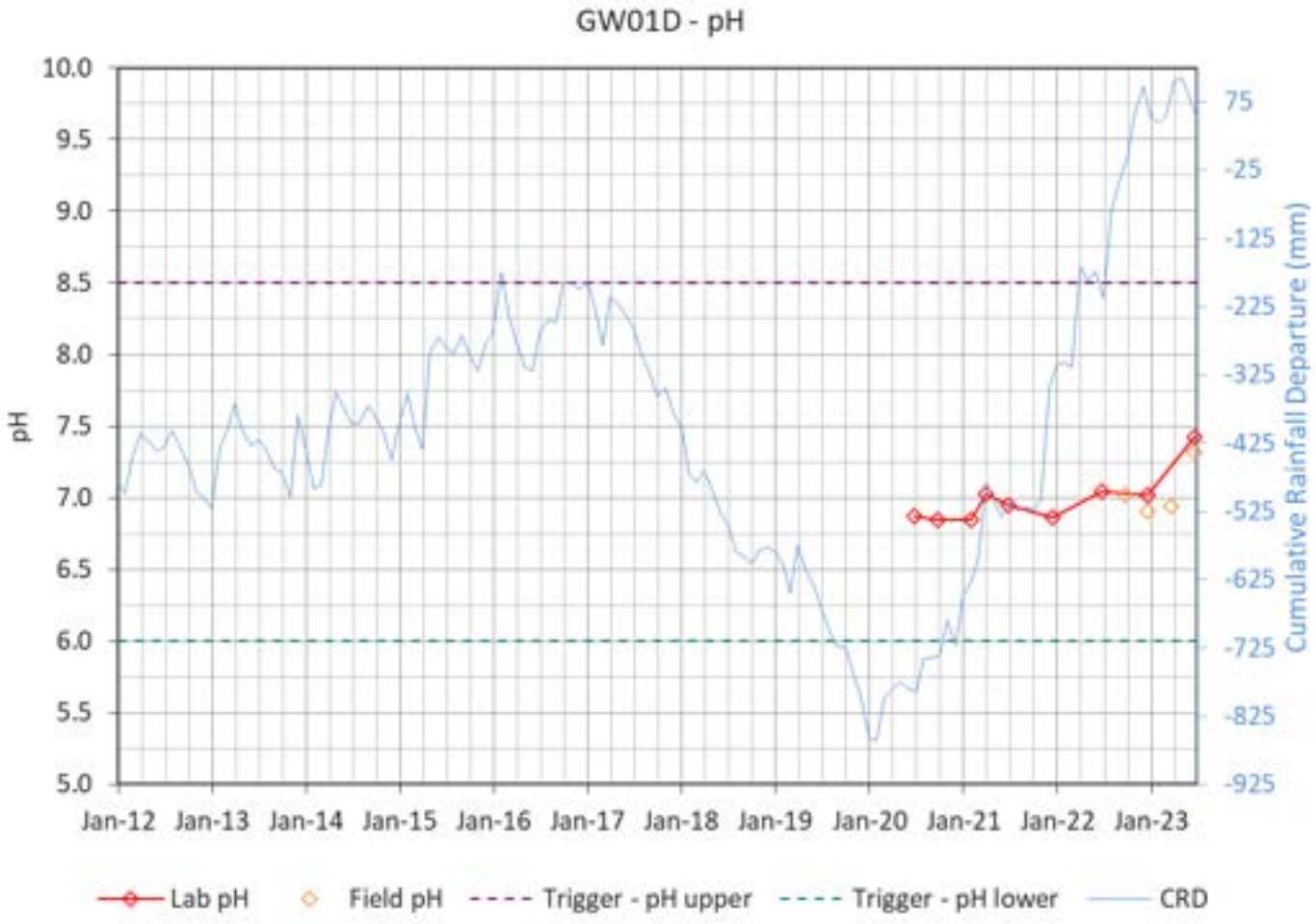
18 October 2023

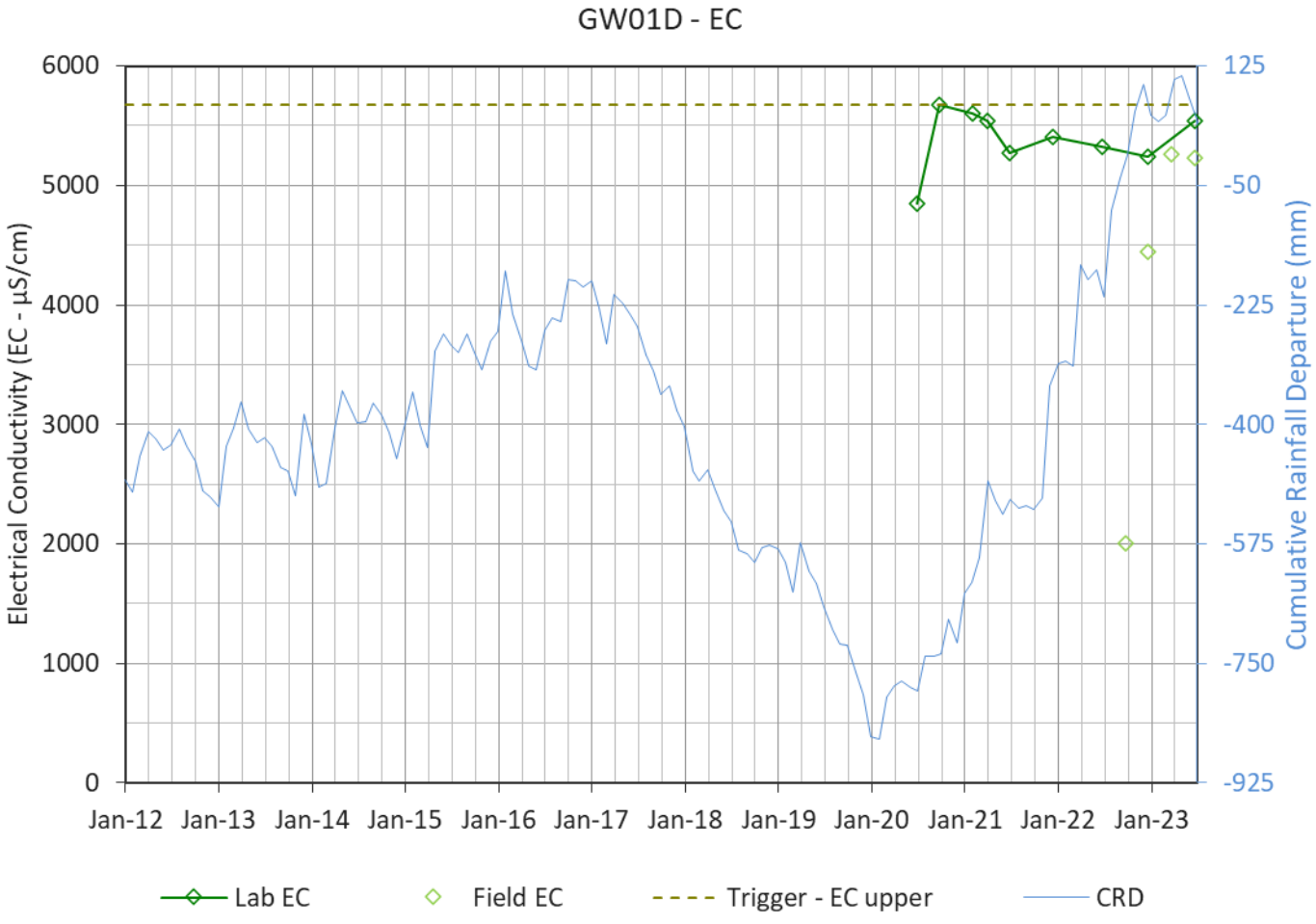

R4241 - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

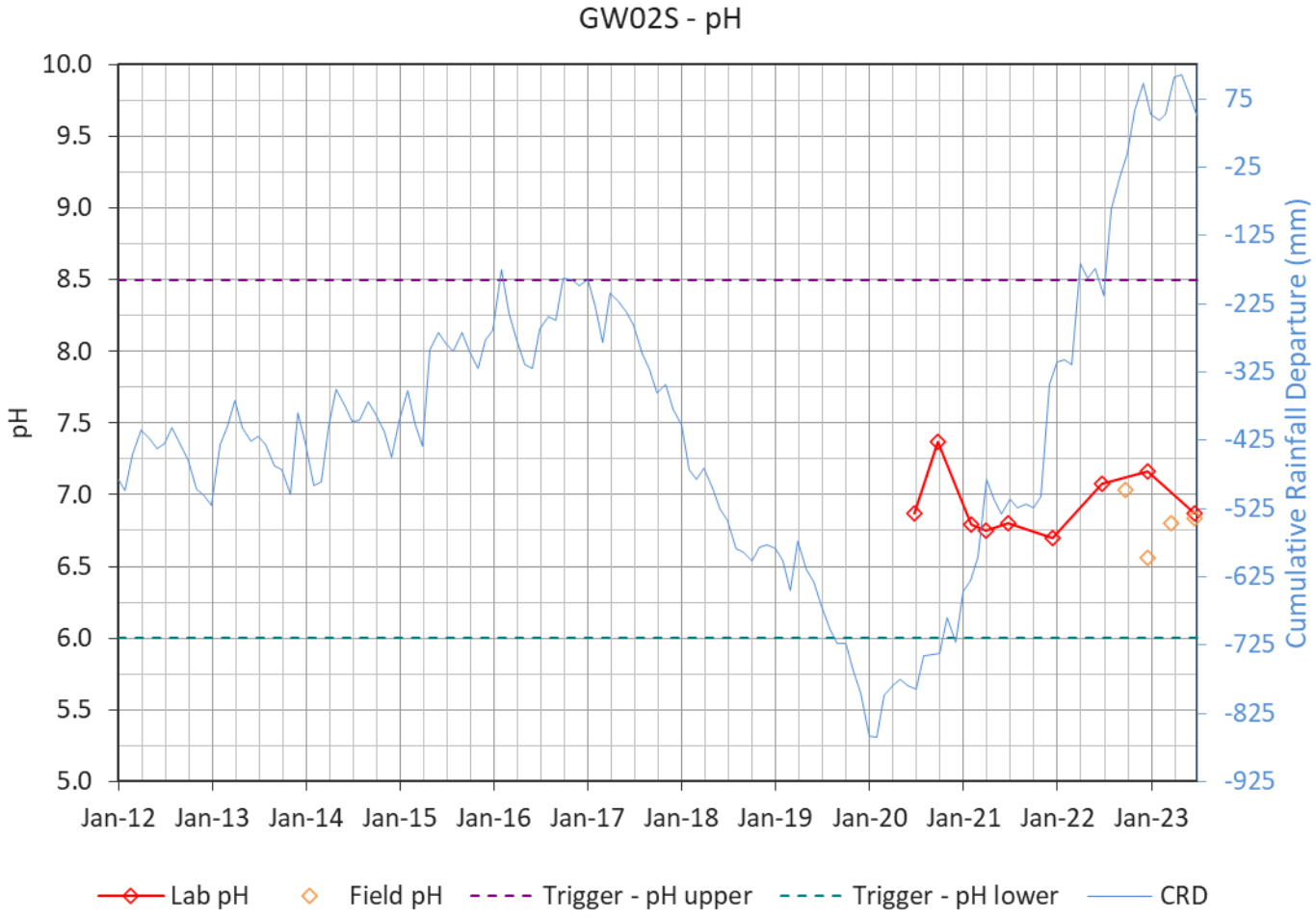

R4241 - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
7000
6000
5000
4000
3000
2000
1000
0
125
-25
-175
-325
-475
-625
-775
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab EC
Field EC
Trigger - EC upper
CRD

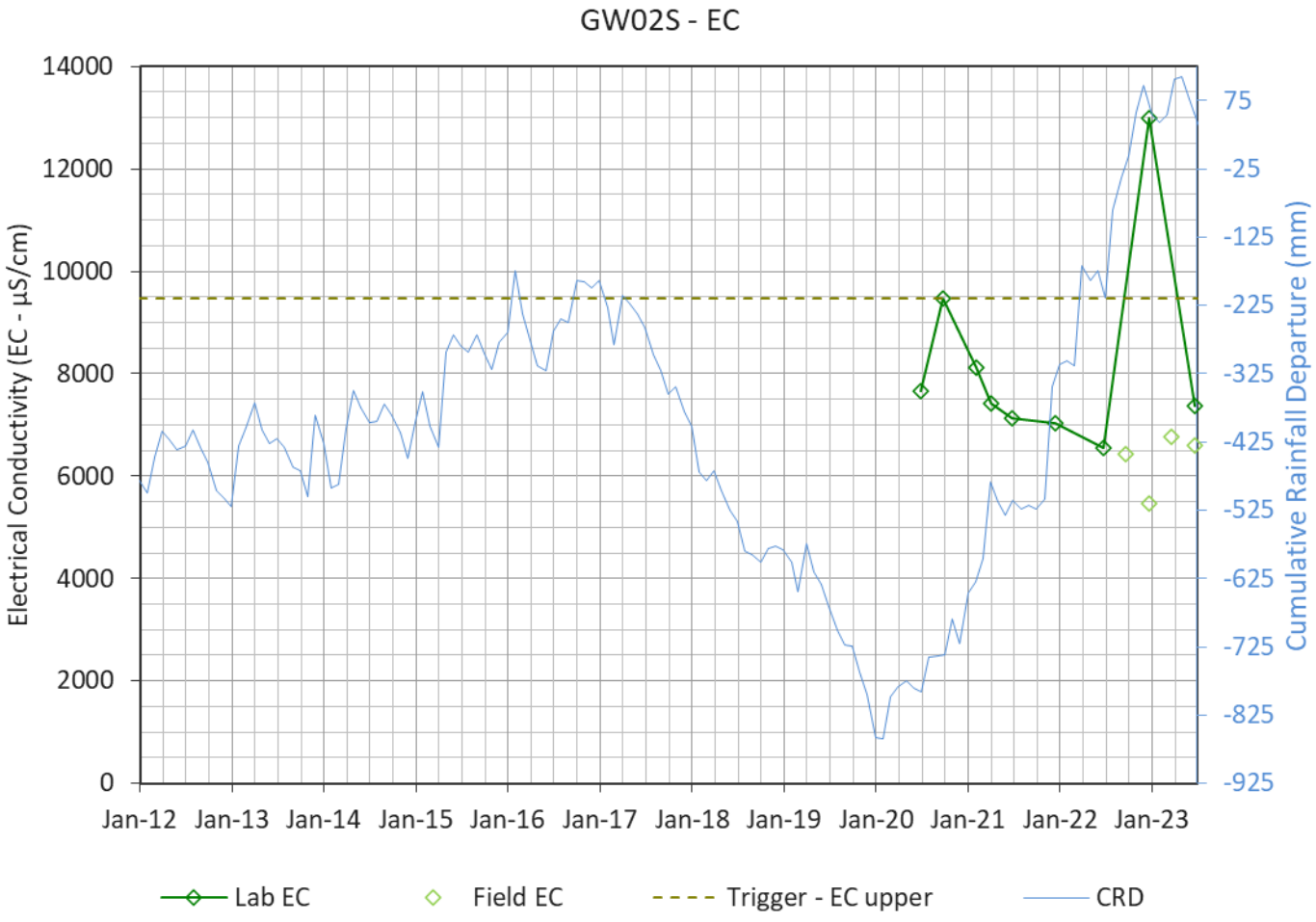

GW01S - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

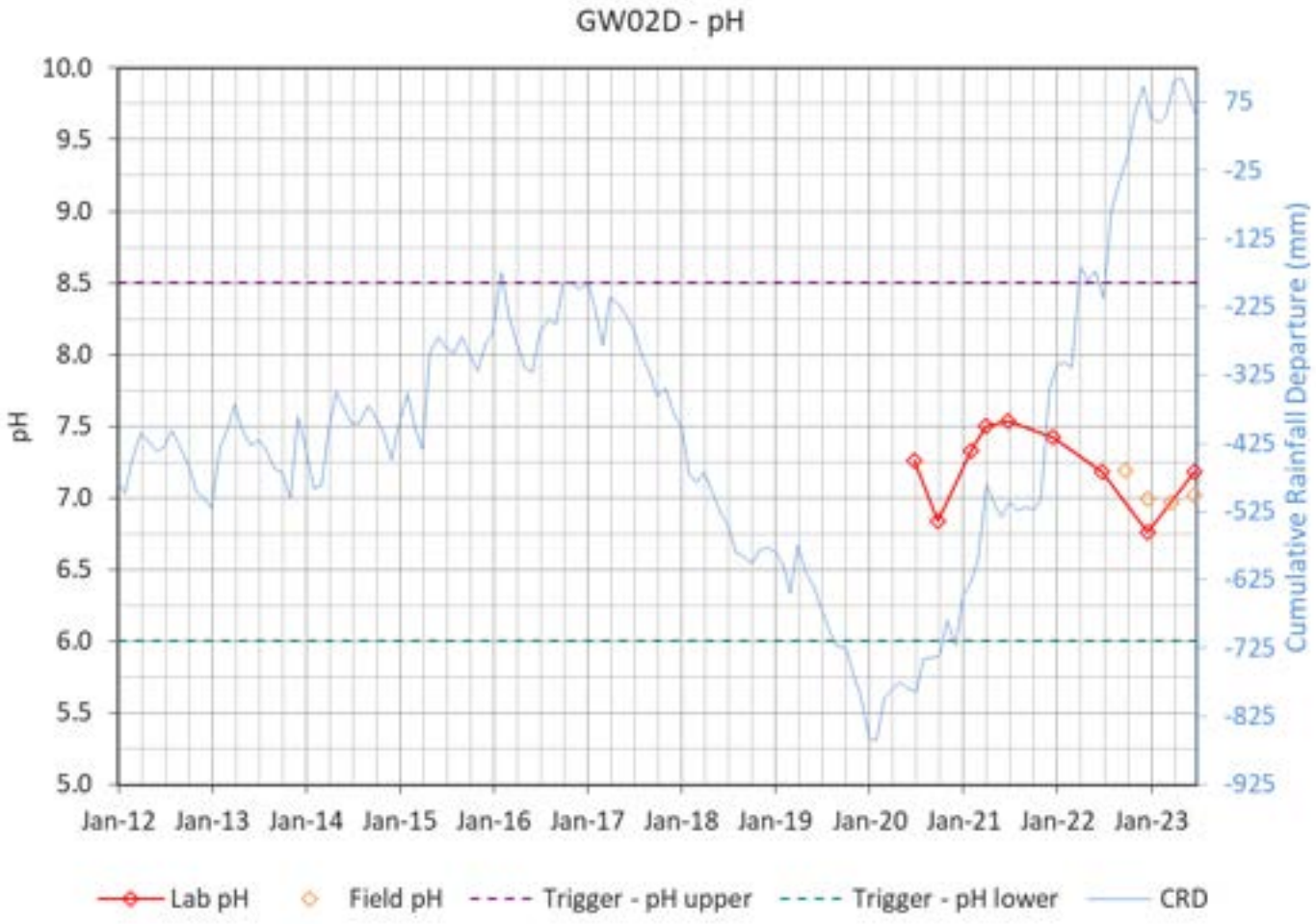

GW01S - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab EC
Field EC
Trigger - EC upper
CRD

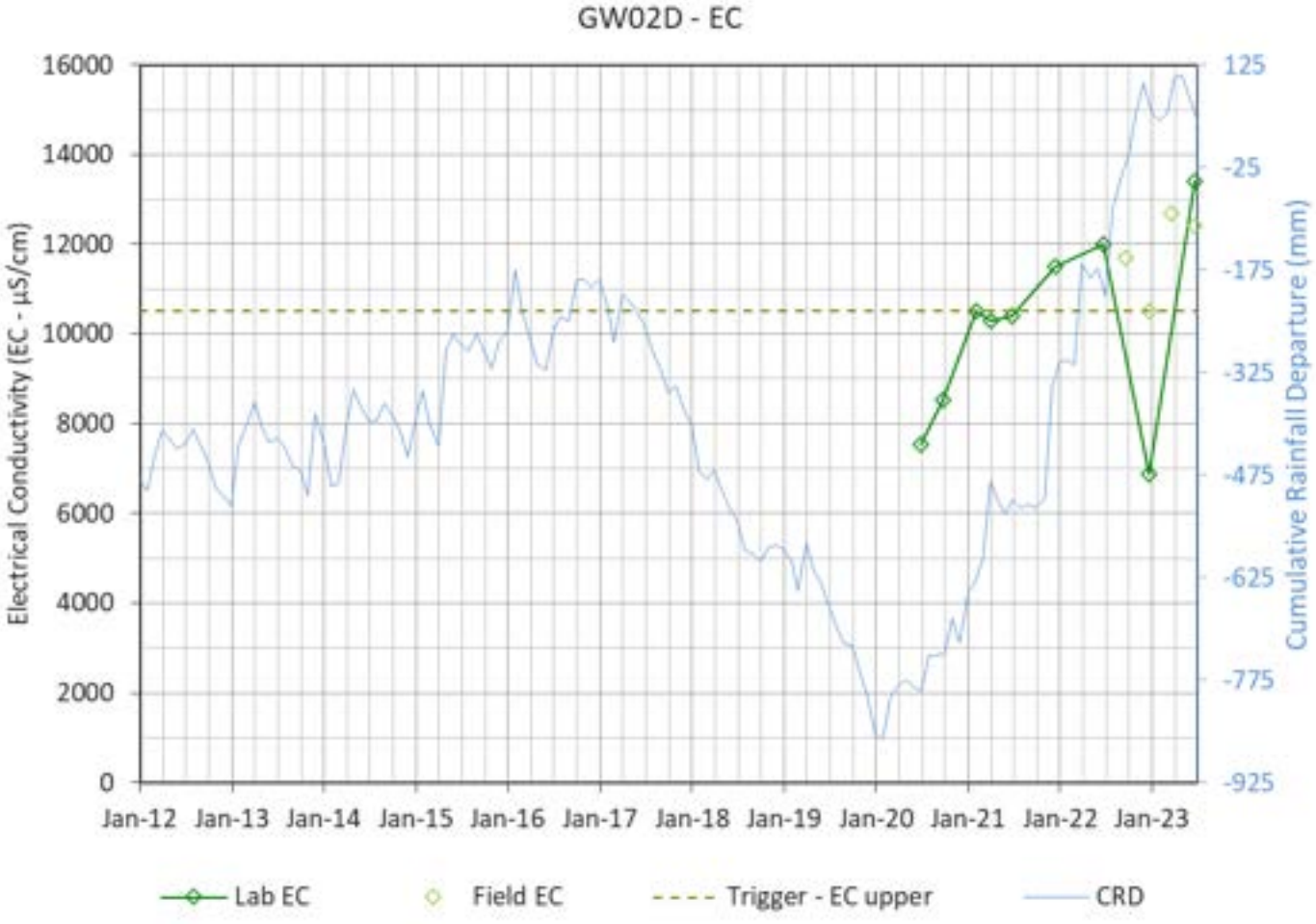

GW01D - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

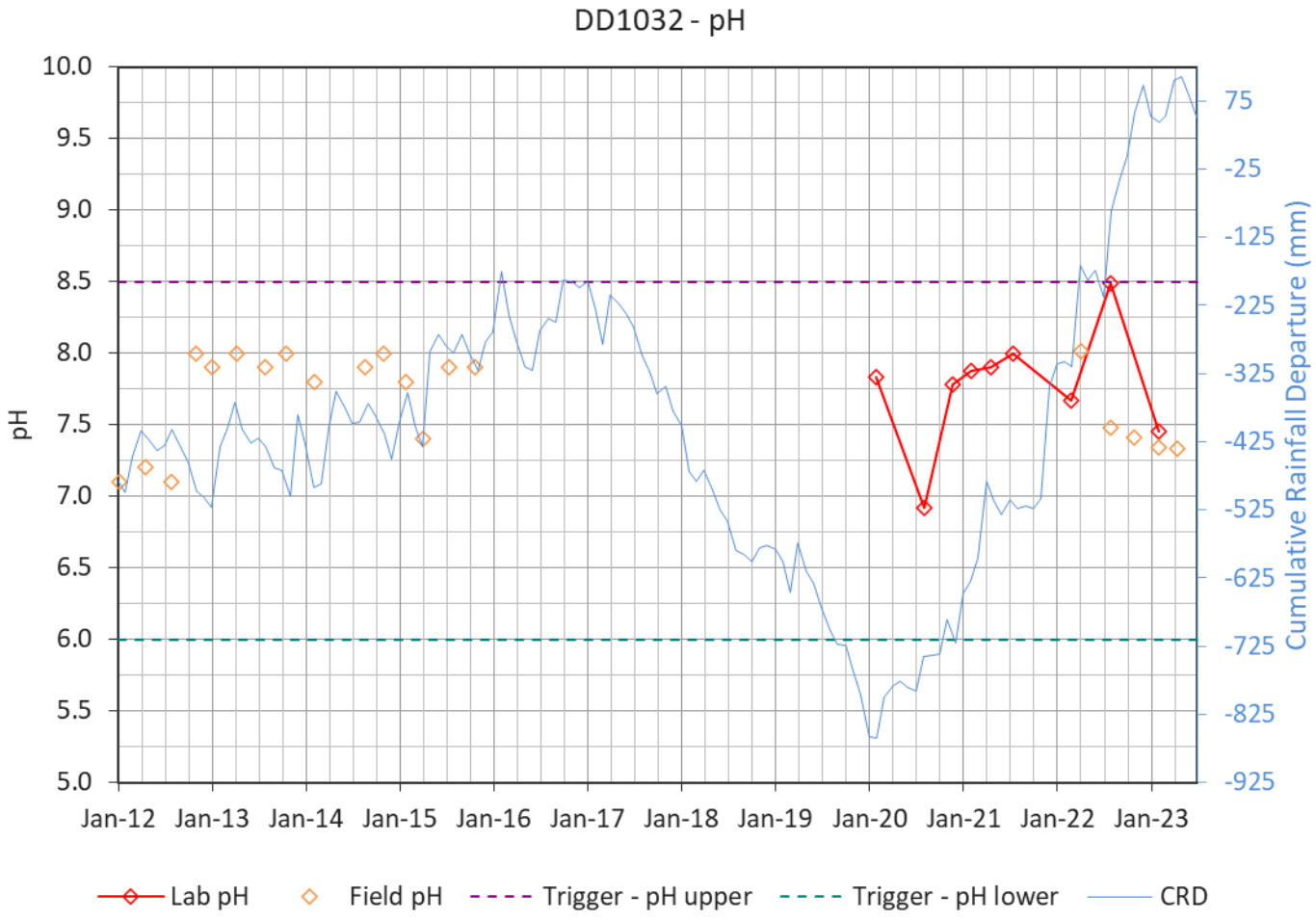

GW01D - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
6000
5000
4000
3000
2000
1000
0
125
-50
-225
-400
-575
-750
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab EC
Field EC
Trigger - EC upper
CRD

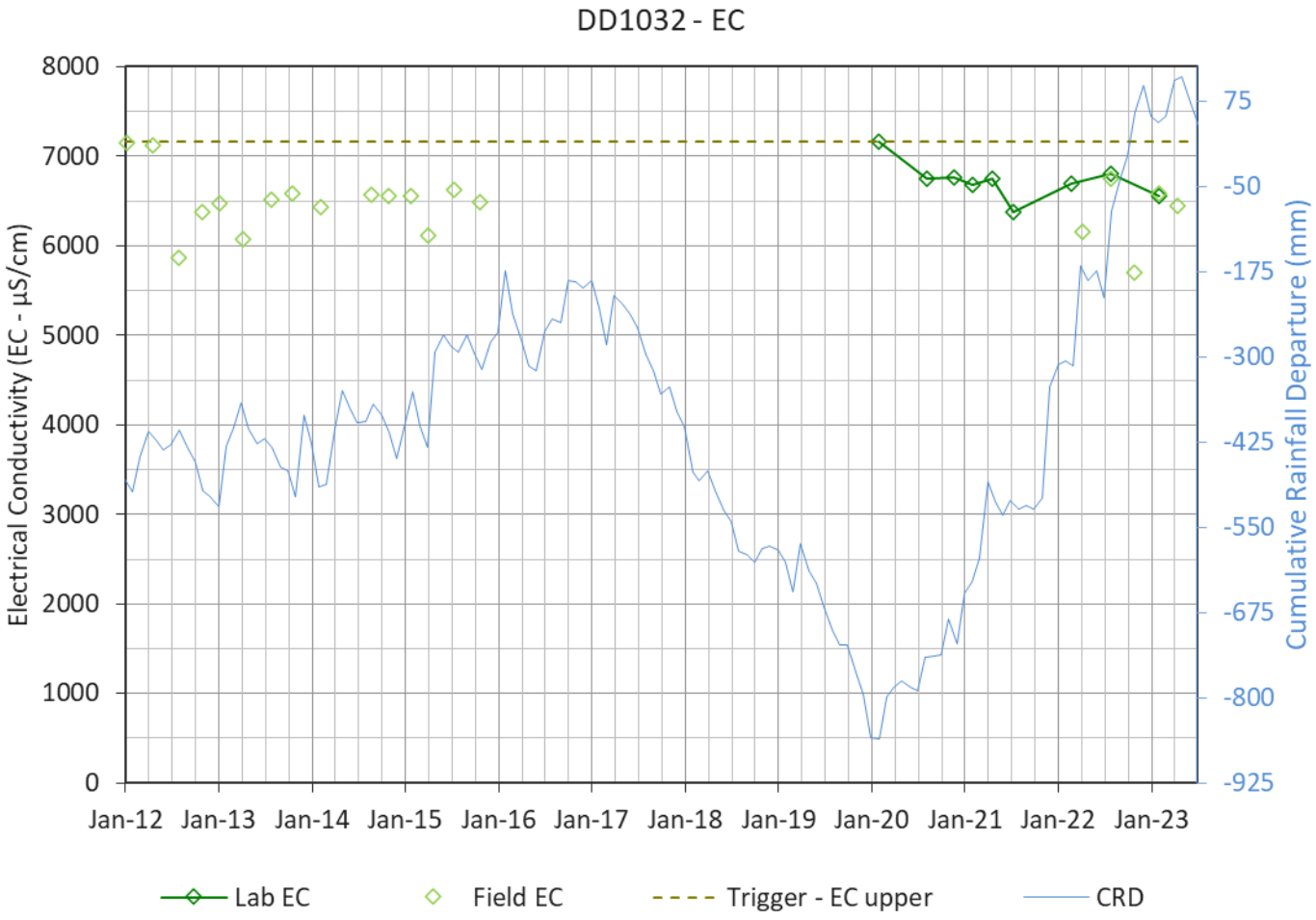

GW02S - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

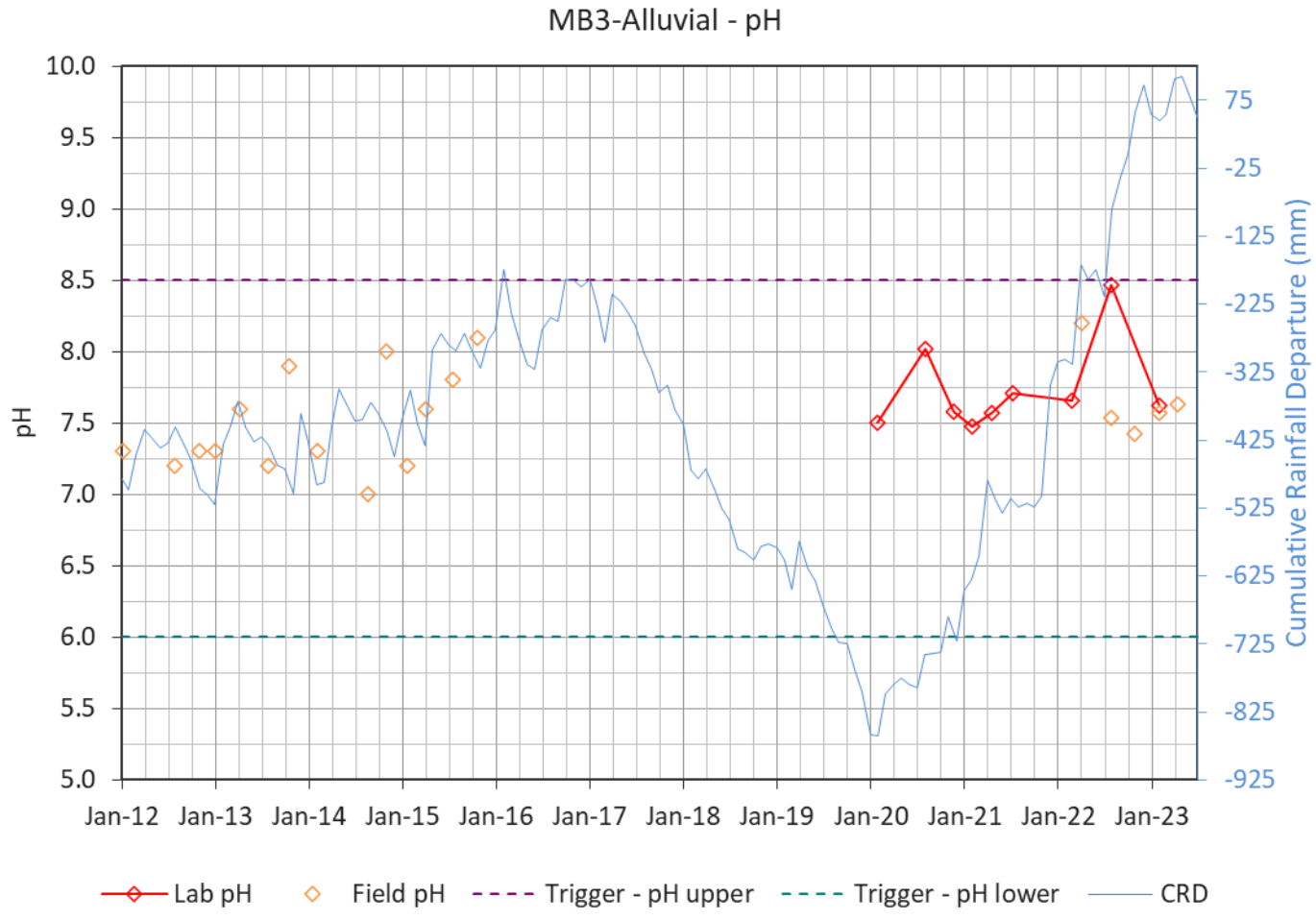

GW02S - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
14000
12000
10000
8000
6000
4000
2000
0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab EC
Field EC
Trigger - EC upper
CRD

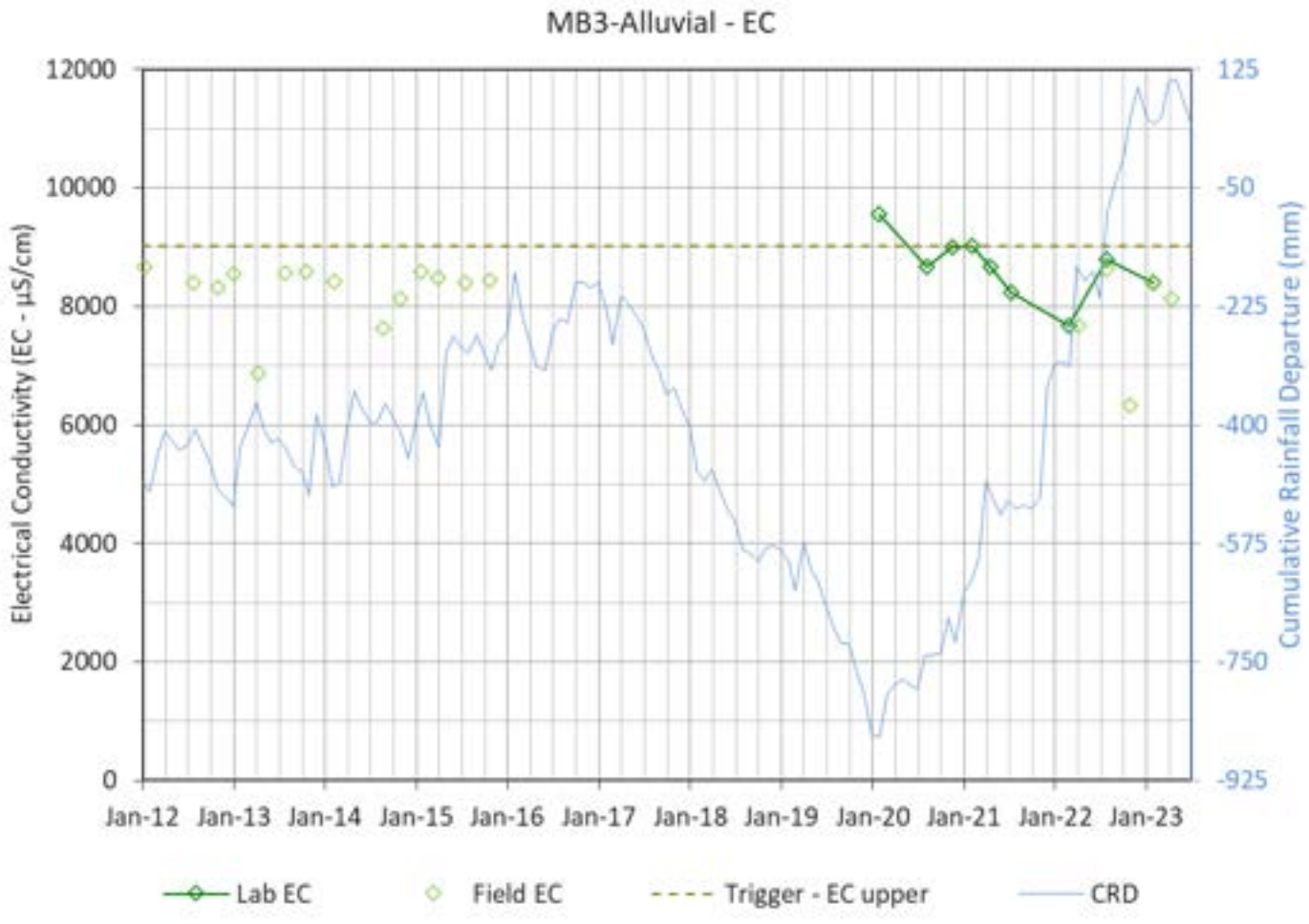

GW02D - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD

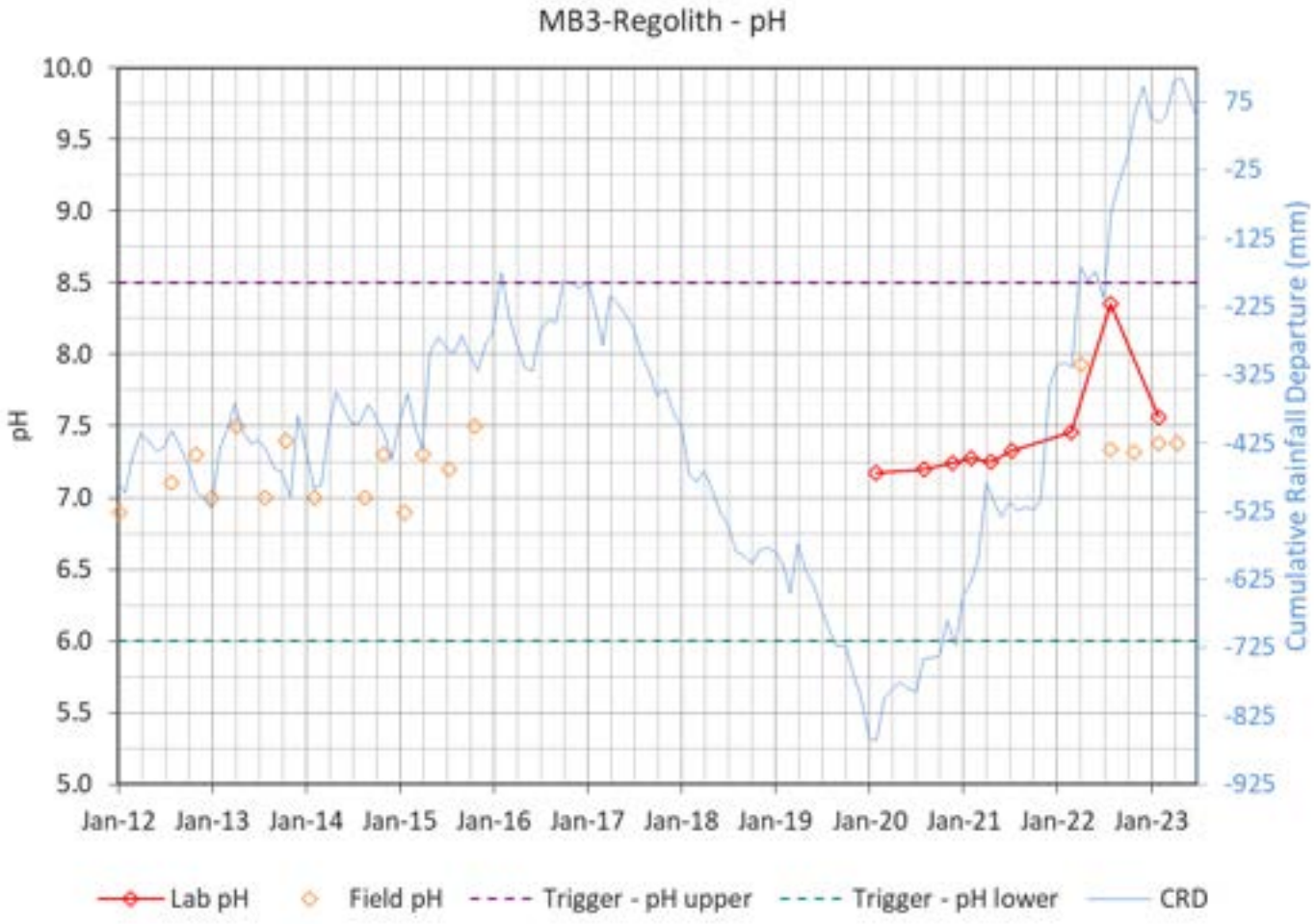

GW02D - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
16000
14000
12000
10000
8000
6000
4000
2000
0
125
-25
-175
-325
-475
-625
-775
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab EC
Field EC
Trigger - EC upper
CRD

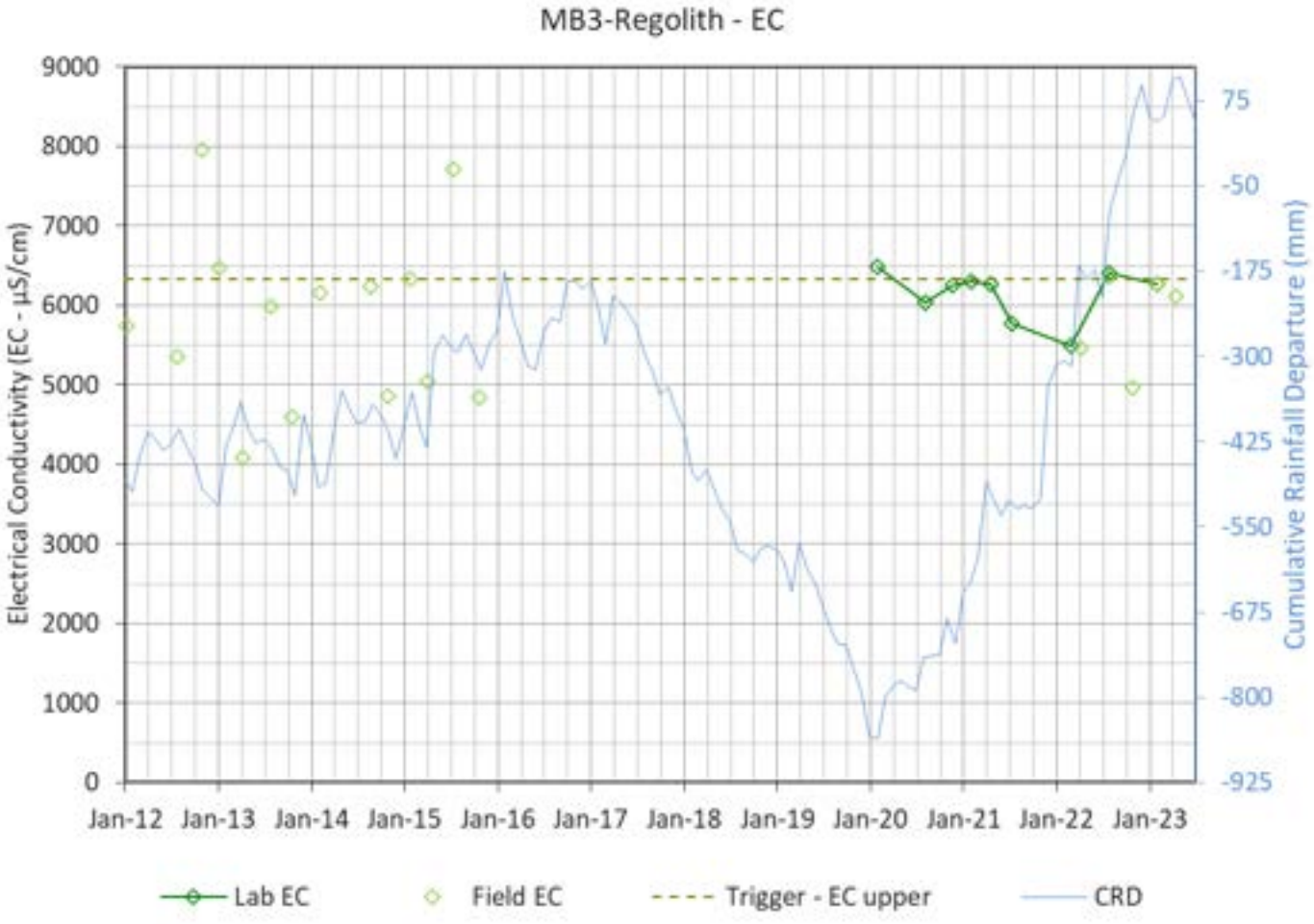

DD1032 - pH
pH
Cumulative Rainfall Departure (mm)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab pH
Field pH
Trigger - pH upper
Trigger - pH lower
CRD


DD1032 - EC
Electrical Conductivity (EC - µS/cm)
Cumulative Rainfall Departure (mm)
8000
7000
6000
5000
4000
3000
2000
1000
0
75
-50
-175
-300
-425
-550
-675
-800
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
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
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
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
125
-50
-225
-400
-575
-750
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
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
75
-25
-125
-225
-325
-425
-525
-625
-725
-825
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
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
75
-50
-175
-300
-425
-550
-675
-800
-925
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Lab EC
Field EC
Trigger - EC upper
CRD

Making Sustainability Happen