

Report Period 

1/03/2023

31/03/2023

**Monthly Monitoring Summary
for Hodgson Quarries and Plant Pty Ltd
Roberts Road Sand Quarry, Maroota,
NSW**

Site Monitoring Locations



Groundwater Levels

Groundwater levels are currently monitored in nine boreholes located on the site. Groundwater levels are manually measured for depth each month using a groundwater dipper. Data is downloaded from groundwater loggers where present. MW1 logger was installed prior to 2015; the remaining loggers were installed in 2017.

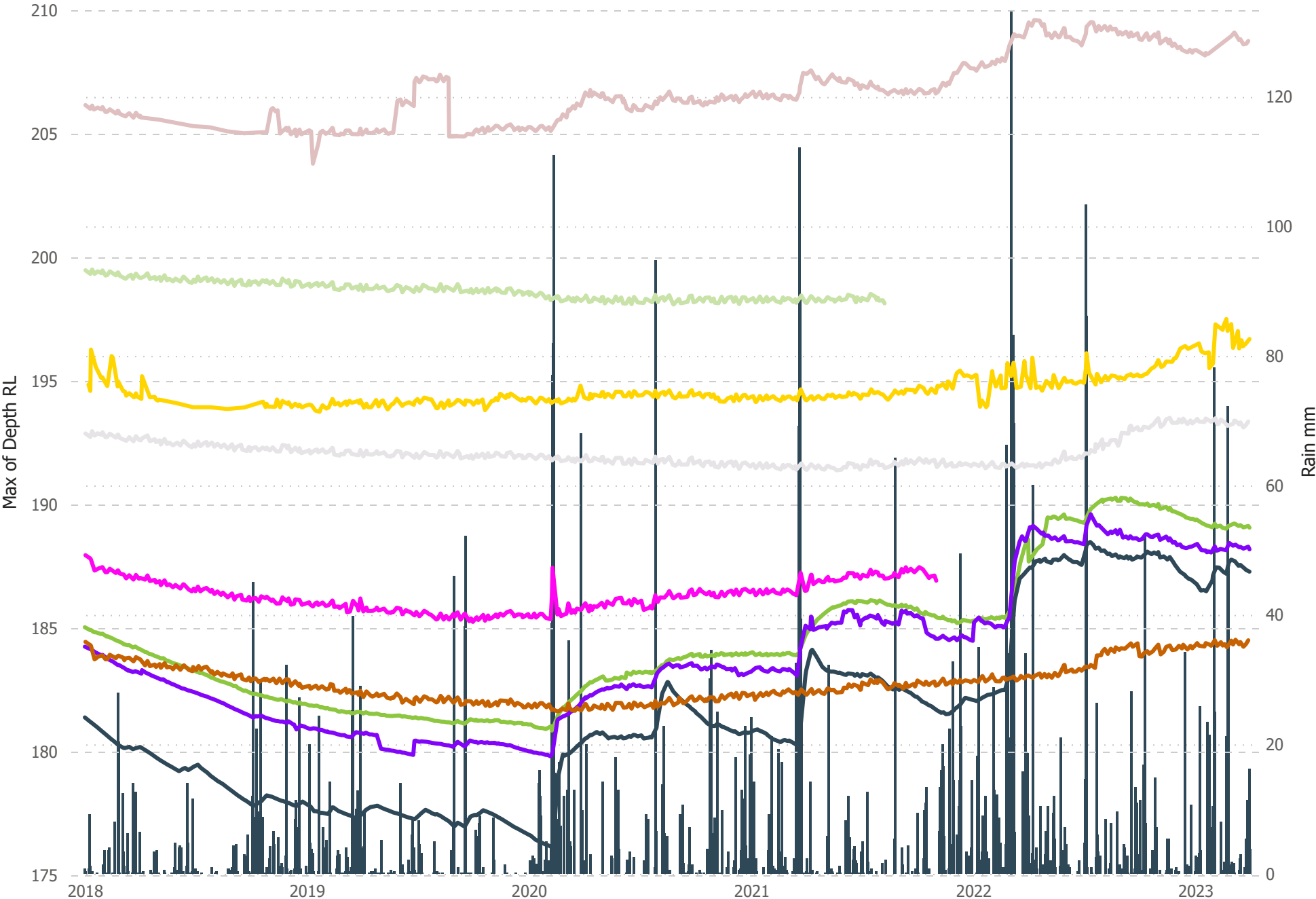
Graph 1 displays the depths as of January 2017. Graph 2 shows depths in the past month. Following anomalous readings from the MW5 logger, the bore was investigated and discovered to have collapsed. The logger was relocated to a functioning bore and the bore abandoned and replaced by nearby MW8.

MW1 and MW12 were taken away for repairs during April 2018 and returned in October 2018, hence the gap in reporting on the following graphs.

Due to rain gauge malfunctions, rainfall was not recorded in 2020 until a new weather station was installed onsite 29th May 2020. Where available, daily rainfall received in the interim has been sourced from the Bureau of Meteorology.

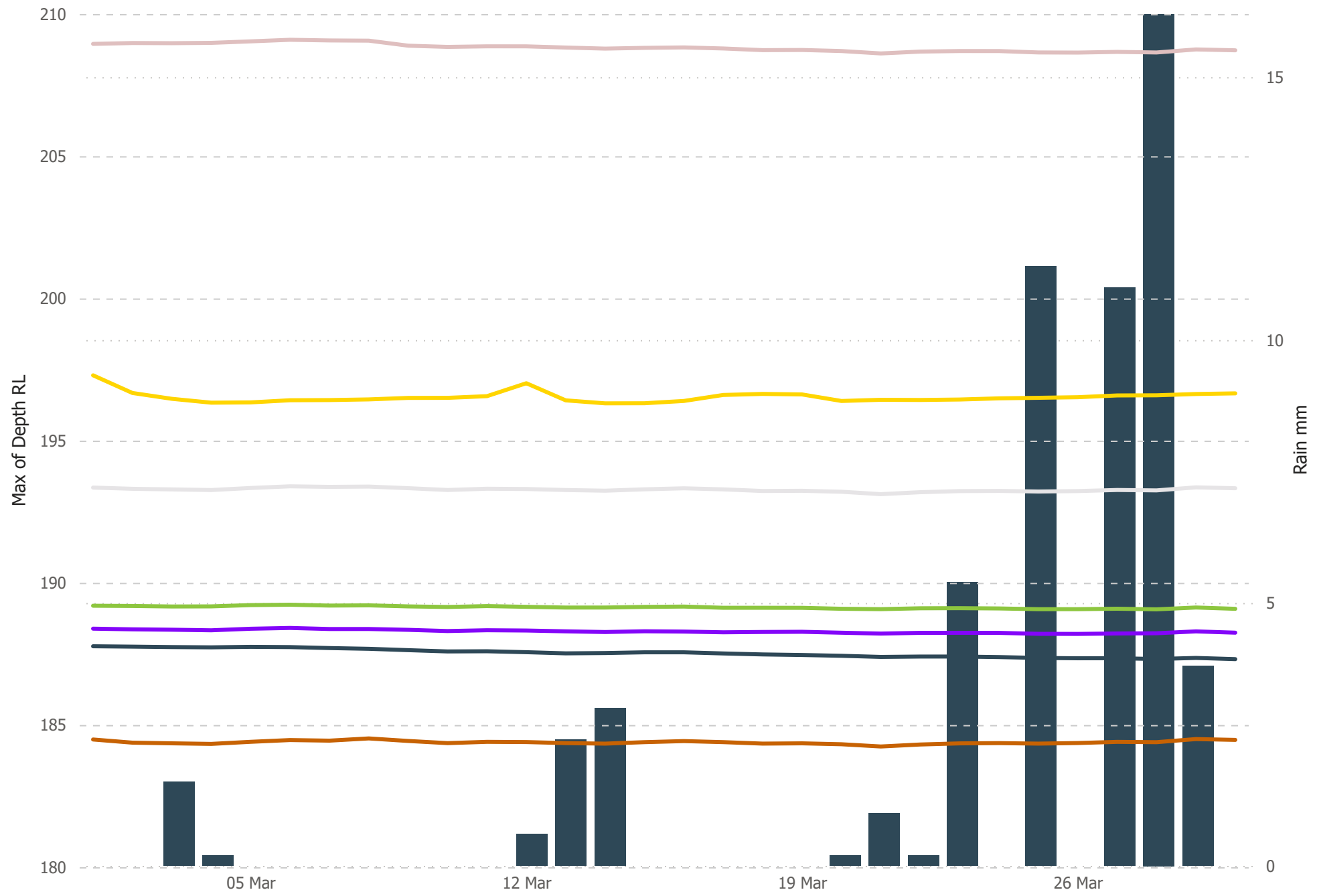
Graph 1: All Groundwater Depths with Rainfall from 1/1/2017

- Well ID**
- MW1
 - MW10
 - MW11 (Off Old Telegraph Rd)
 - MW12
 - MW13
 - MW6 (Office)
 - MW7
 - MW8
 - MW9



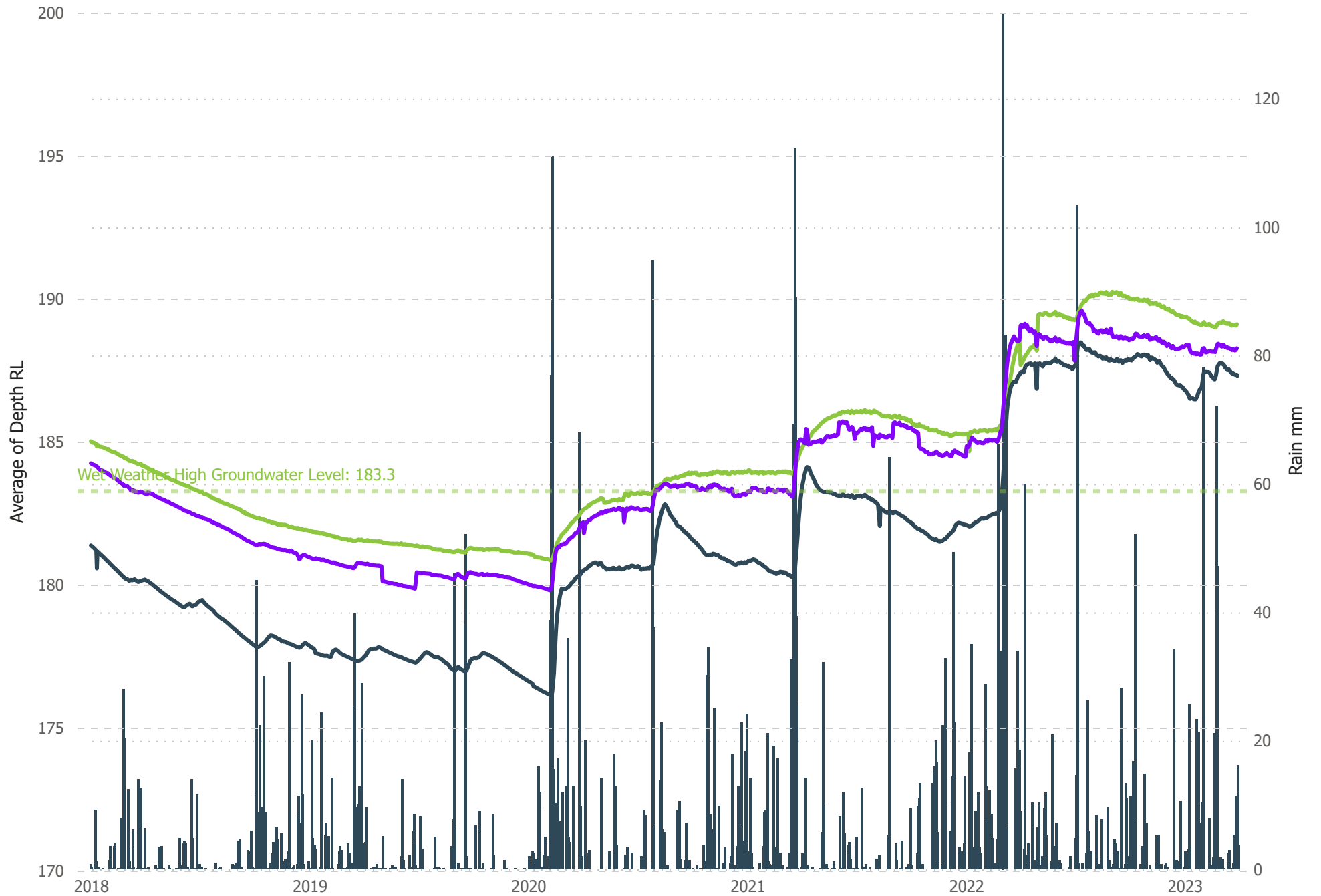
Graph 2: All Groundwater Depths with Rainfall this month

- Well ID**
- MW1
 - MW10
 - MW11 (Off Old Telegraph Rd)
 - MW12
 - MW6 (Office)
 - MW7
 - MW8

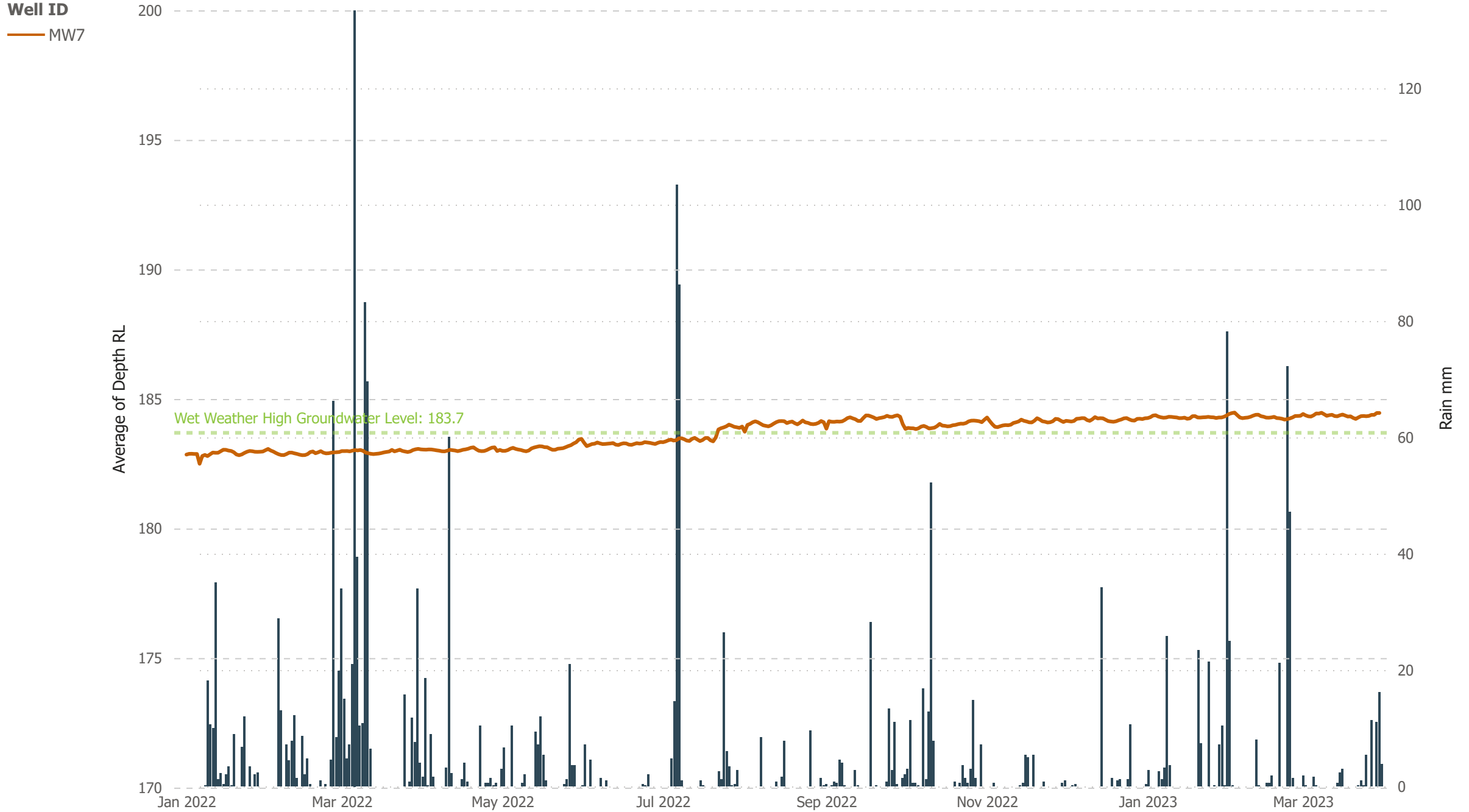


Graph 3: All Groundwater Depths with Rainfall in Maroota Sand

- Well ID**
- MW10
 - MW11 (Off Old Telegraph Rd)
 - MW6 (Office)

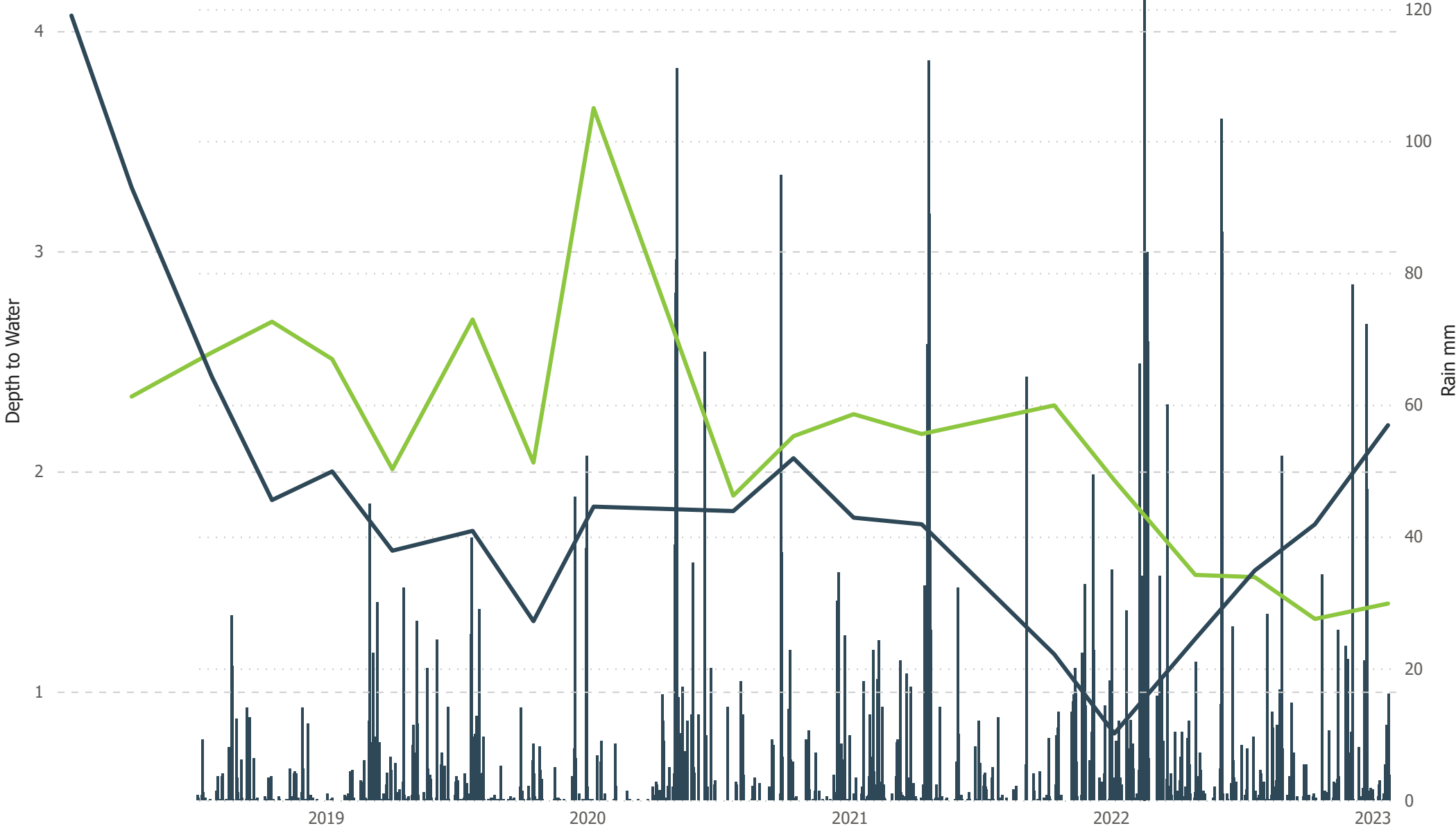


Graph 4: All Groundwater Depths with Rainfall in Hawkesbury Sandstone



Graph 5: Surface Water Depths with Rainfall

Sample
— Dam 1 - Process
— Dam 2 - Tailings



Weather Station Monitoring

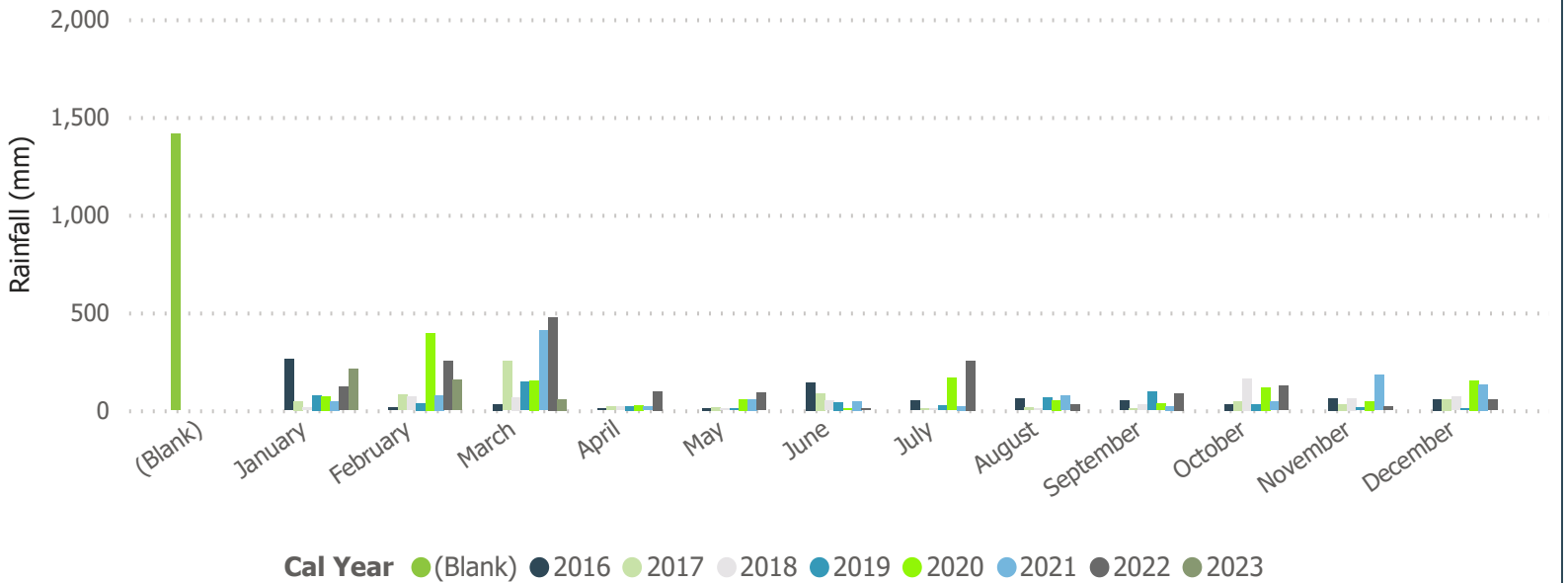
Due to gauge malfunctions, rainfall was not recorded in 2020 until a new weather station was installed onsite 29th May 2020. Where available, daily rainfall received in the interim was been sourced from the Bureau of Meteorology. Temperature monitoring during that period also shows gaps in the data. For modelling and reporting, Bureau of Meteorology averages were used

Weather Trends

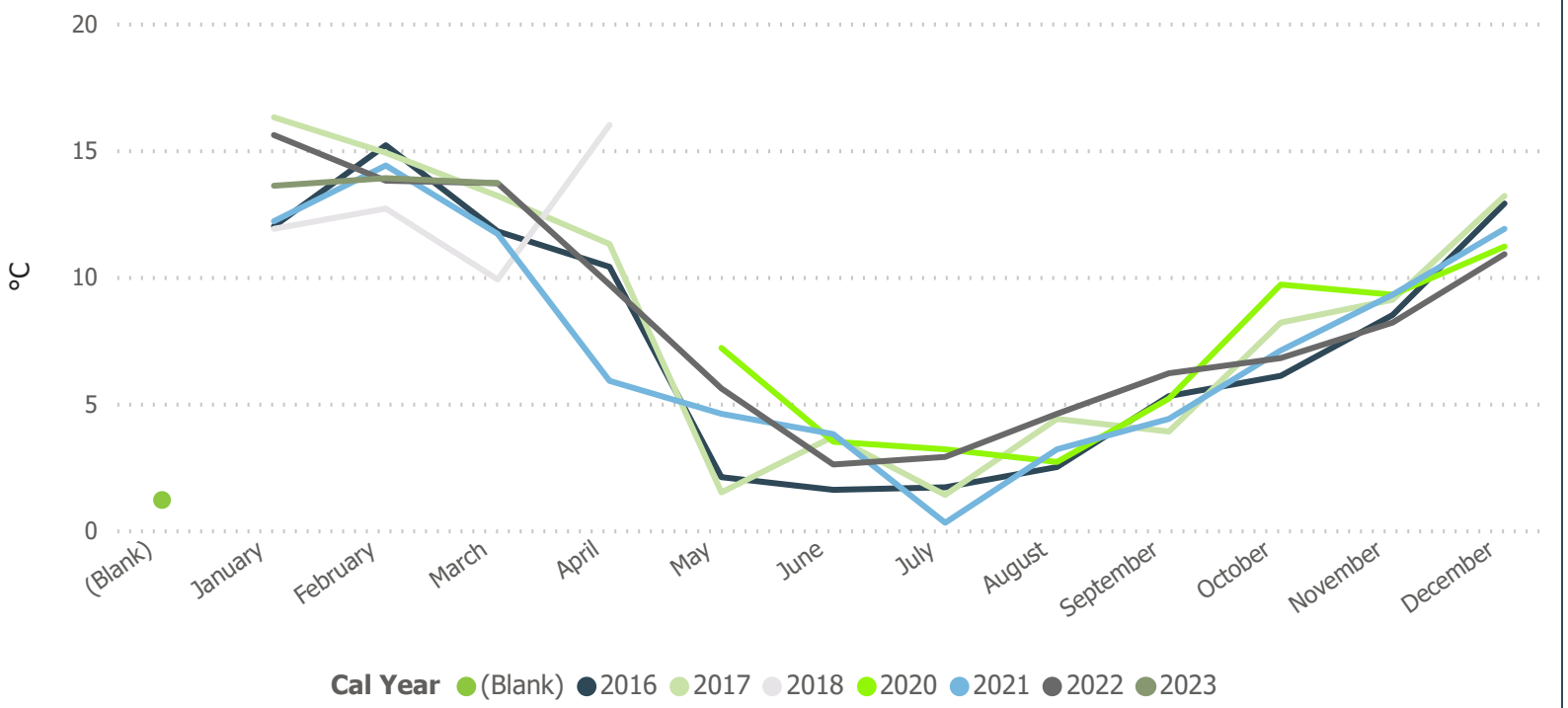
1/01/2016

30/03/2023

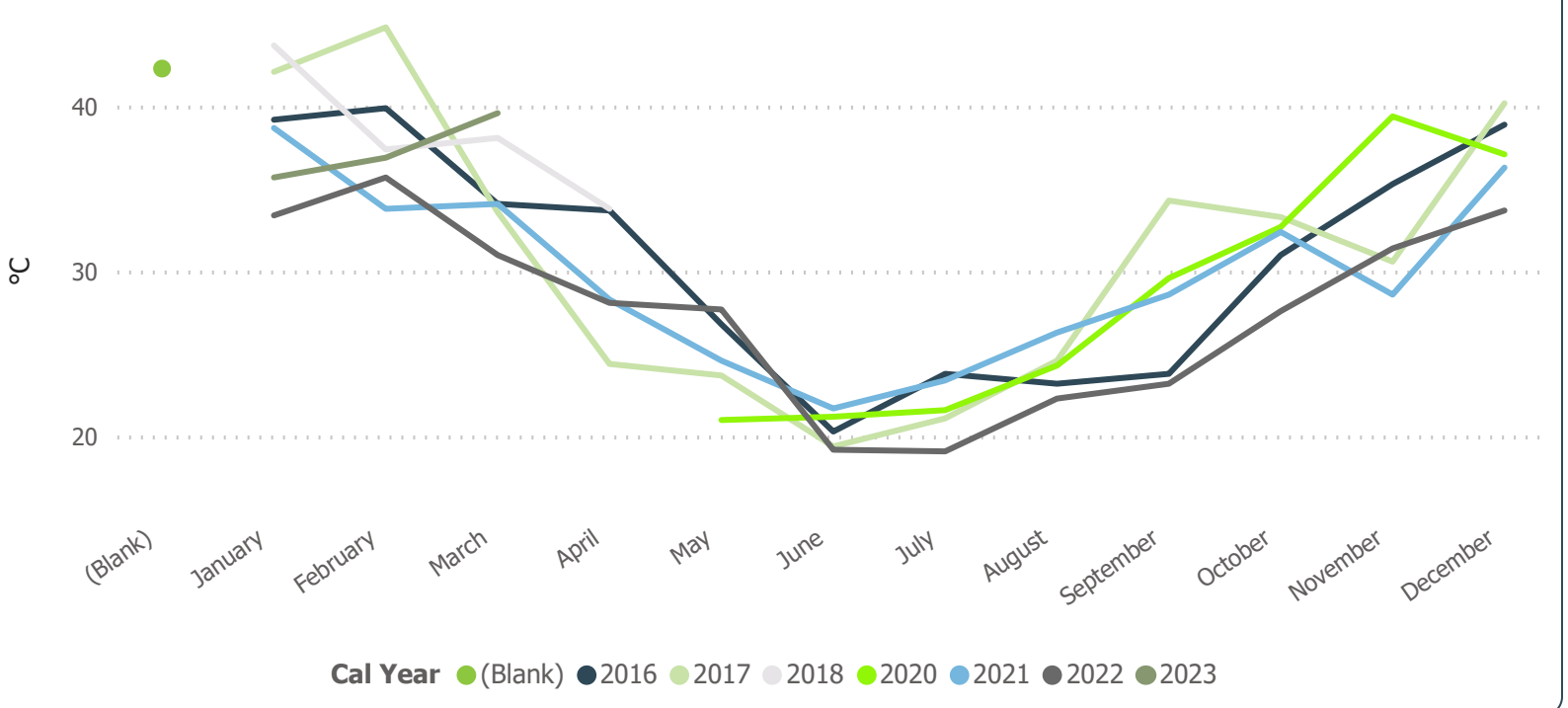
Precipitation



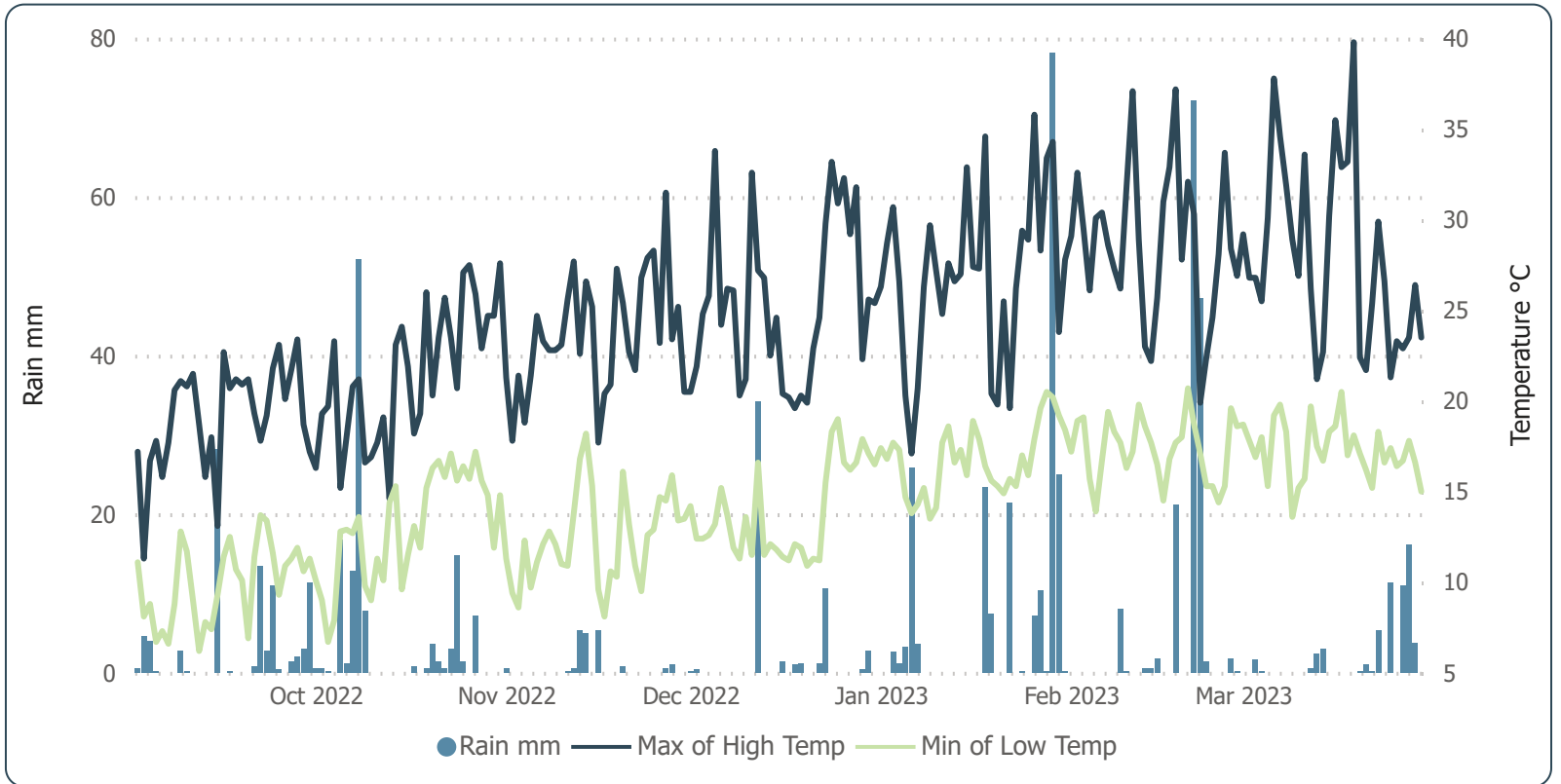
Minimum Temperature



Maximum Temperature



Weather Detail for last 6 months



Precipitation mm

Cal Year	January	February	March	September	October	November	December	Total
2022				87.0	125.6	19.6	53.4	285.6
2023	210.0	155.2	57.0					422.2
Total	210.0	155.2	57.0	87.0	125.6	19.6	53.4	707.8

Minimum Temperature °C

Cal Year	January	February	March	September	October	November	December	Total
2022				6.2	6.8	8.2	10.9	6.2
2023	13.6	13.9	13.7					13.6
Total	13.6	13.9	13.7	6.2	6.8	8.2	10.9	6.2

Average Temperature °C

Cal Year	January	February	March	September	October	November	December	Total
2022				14.0	16.7	17.7	19.1	16.9
2023	21.0	22.1	21.7					21.6
Total	21.0	22.1	21.7	14.0	16.7	17.7	19.1	18.9

Maximum Temperature °C

Cal Year	January	February	March	September	October	November	December	Total
2022				23.2	27.6	31.4	33.7	33.7
2023	35.7	36.9	39.6					39.6
Total	35.7	36.9	39.6	23.2	27.6	31.4	33.7	39.6

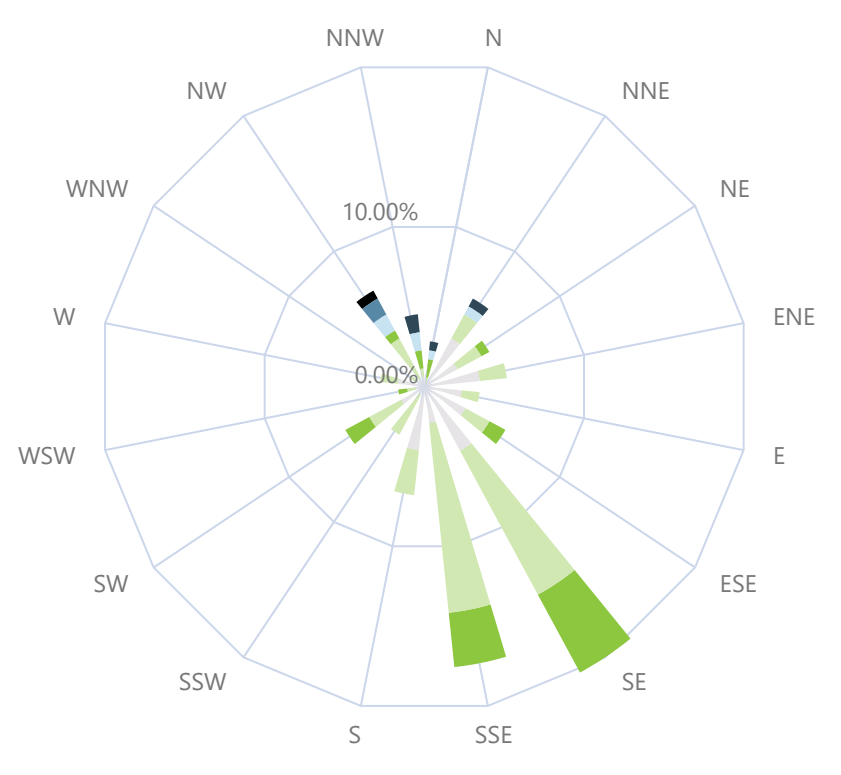
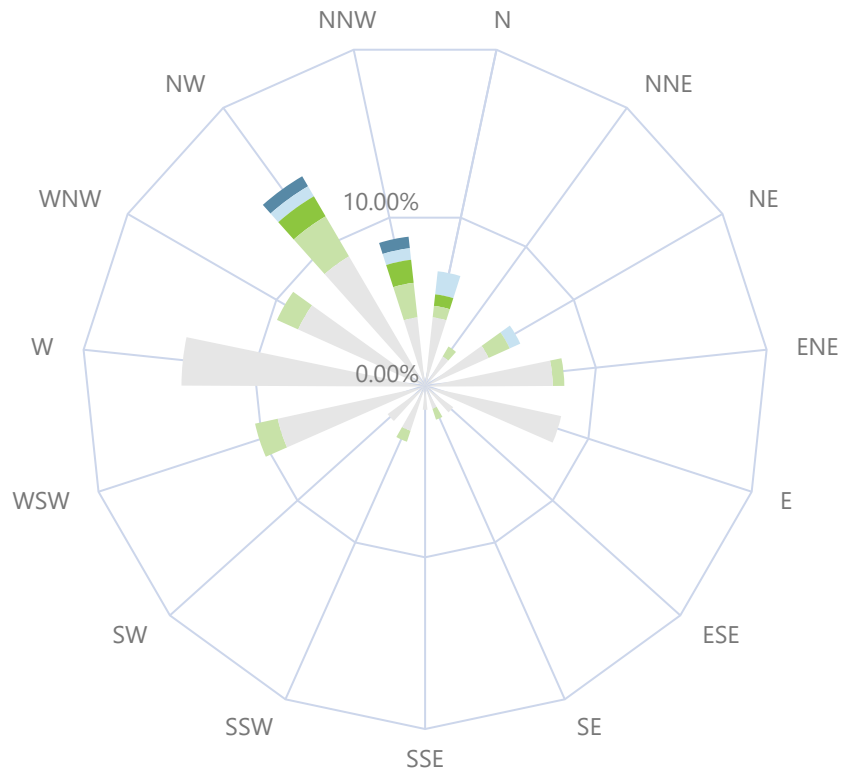
Wind Rose for Last 6 Months

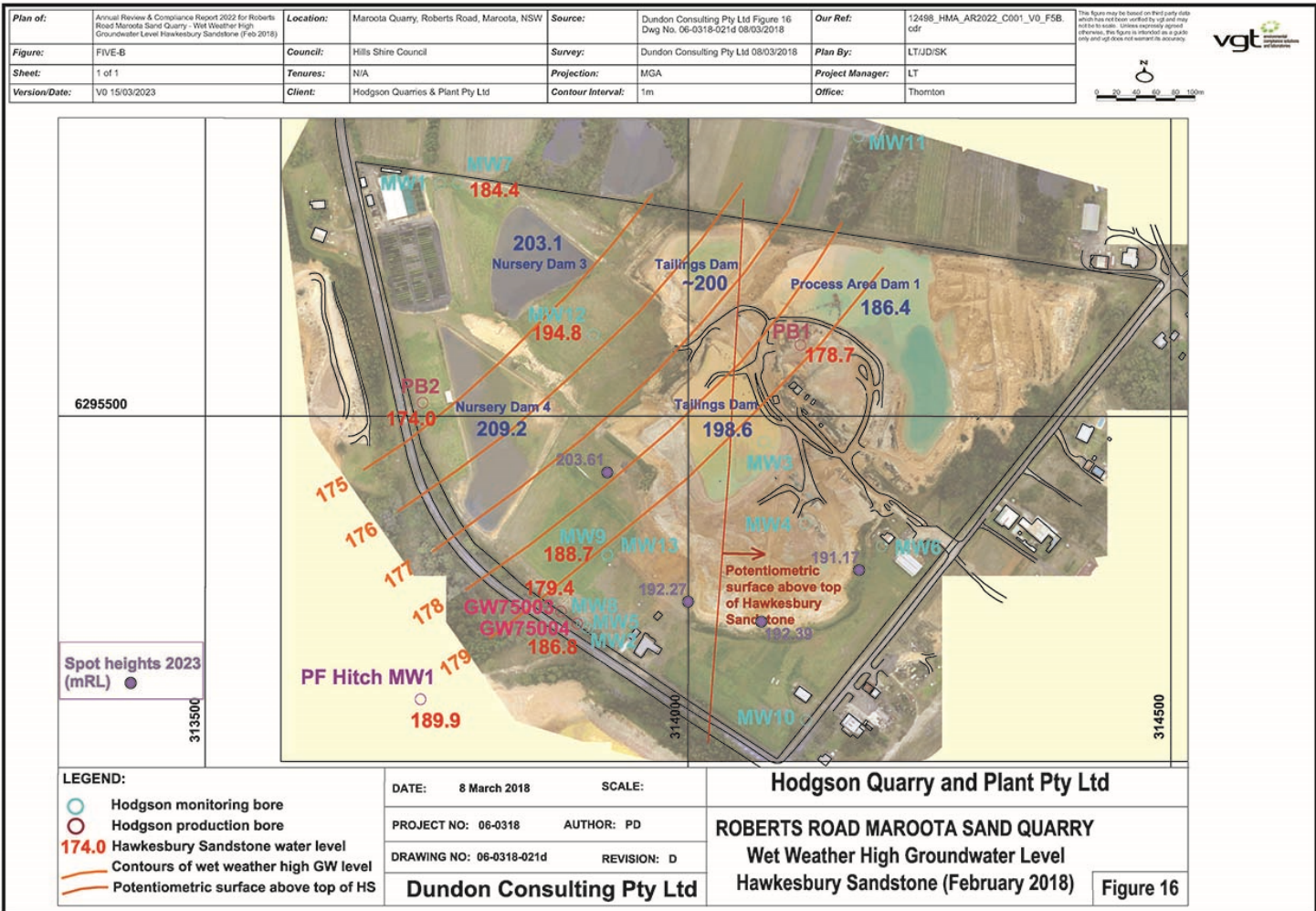
9 am

3 pm

Wind Speed Groups

> 0-5 km/h > 5-10 km/h > 10-15 km/h > 15-20 km/h > 20-25 Km/h > 25-30 Km/h > 30+ Km/h



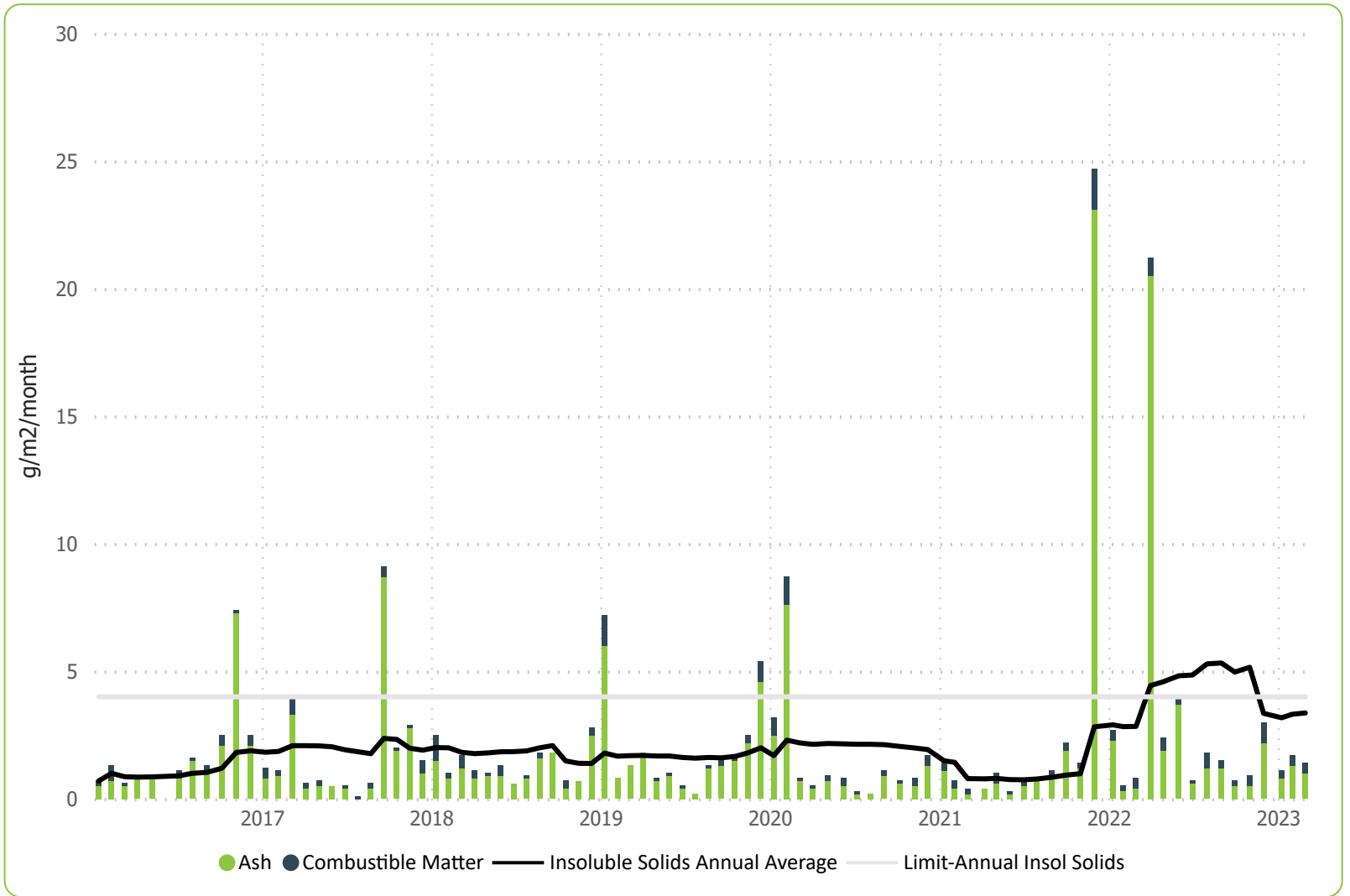


Depositional Dust and Particulate Matter Monitoring

Depositional Dusts last 12 months

D1 Gate ▼

**Insoluble Solids
Annual Average
g/m²/month**

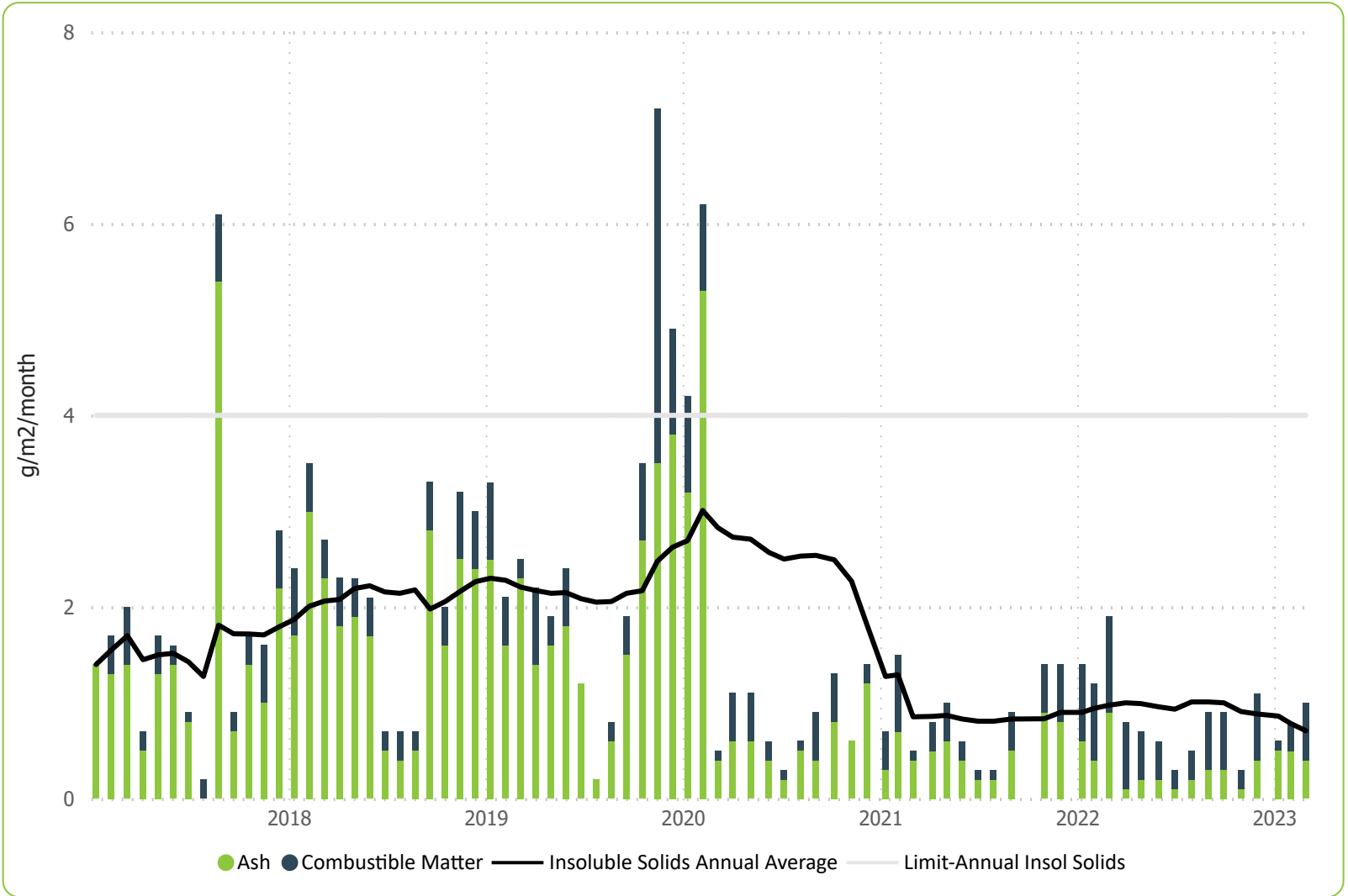


Date On	Comments
29/04/22	Sampled by Melissa Mass
1/06/22	Sampled by Melissa Mass
1/07/22	Sampled by Melissa Mass. Flooding rainfall event during July.
1/08/22	Sampled by Melissa Mass.
1/09/22	Sampled by Melissa Mass.
30/09/22	Sampled by Melissa Mass.
1/11/22	Sampled by Melissa Mass.
1/12/22	Sampled by Melissa Mass.
9/01/23	
1/02/23	Sampled by M.Mass
1/03/23	Sampled by M.Mass
31/03/23	Sampled by M.Mass

Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
1/6/22	33	4.0	3.7	0.3	98
1/7/22	30	0.7	0.6	0.1	7
1/8/22	31	1.8	1.2	0.6	114
1/9/22	31	1.5	1.2	0.3	32
30/9/22	29	0.7	0.5	0.2	64
1/11/22	32	0.9	0.5	0.4	114
1/12/22	30	3.0	2.2	0.8	27
9/1/23	39	1.1	0.8	0.3	91
1/2/23	23	1.7	1.3	0.4	114
1/3/23	28	1.4	1.0	0.4	115
31/3/23	30	1.4	1.0	0.4	59



**Insoluble Solids
Annual Average
g/m2/month**



Date On	Comments
29/04/22	Sampled by Melissa Mass
1/06/22	Sampled by Melissa Mass
1/07/22	Sampled by Melissa Mass. Flooding rainfall event during July.
1/08/22	Sampled by Melissa Mass.
1/09/22	Sampled by Melissa Mass.
30/09/22	Sampled by Melissa Mass.
1/11/22	Sampled by Melissa Mass.
1/12/22	Sampled by Melissa Mass.
9/01/23	
1/02/23	Sampled by M.Mass
1/03/23	Sampled by M.Mass. Not compliant - Clear sky/ 10m from obstacle
31/03/23	Sampled by M.Mass.

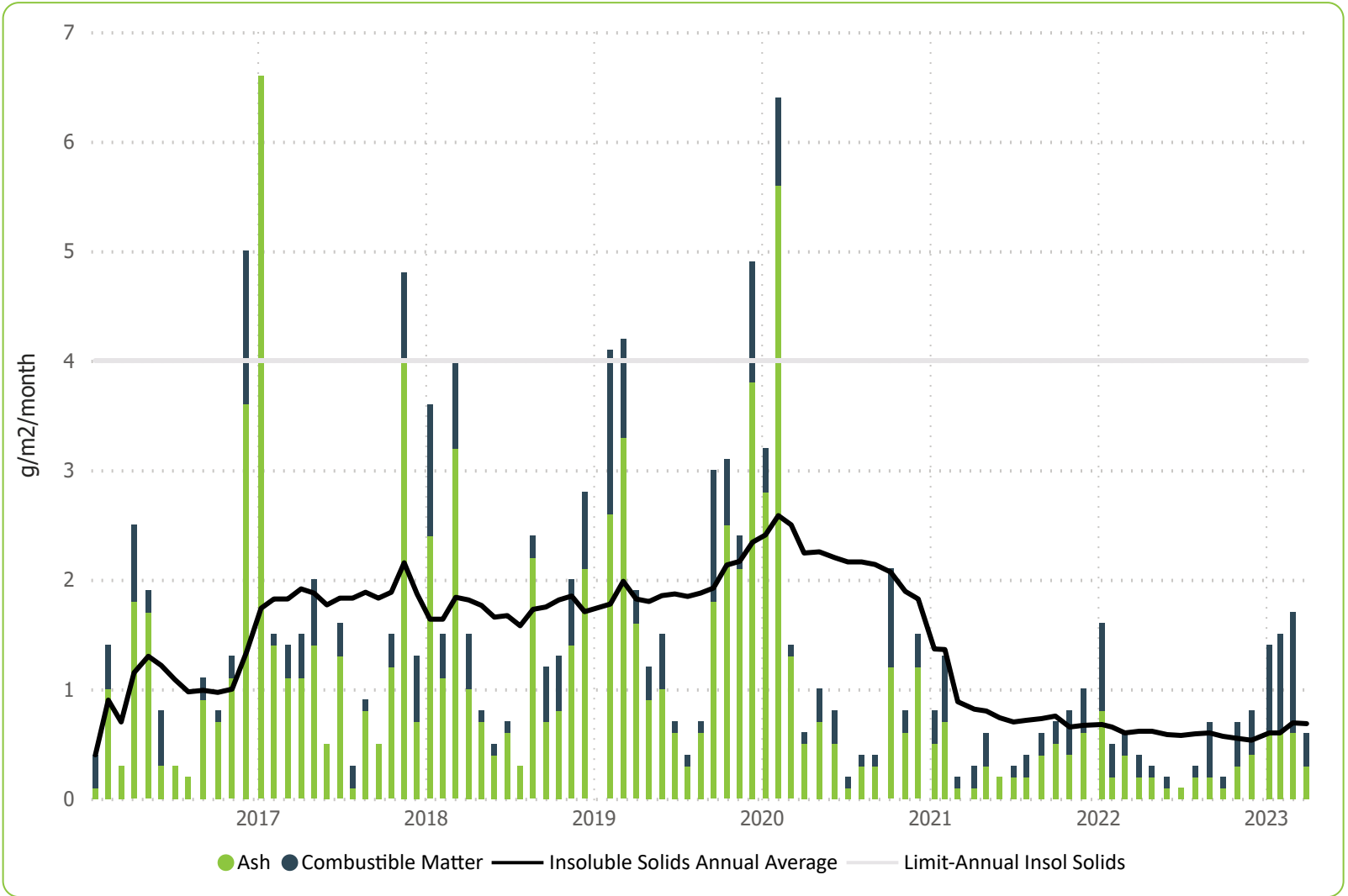
Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
1/6/22	33	0.6	0.2	0.4	85
1/7/22	30	0.3	0.1	0.2	4
1/8/22	31	0.5	0.2	0.3	115
1/9/22	31	0.9	0.3	0.6	26
30/9/22	29	0.9	0.3	0.6	72
1/11/22	32	0.3	0.1	0.2	114
1/12/22	30	1.1	0.4	0.7	20
9/1/23	39	0.6	0.5	0.1	68
1/2/23	23	0.8	0.5	0.3	114
1/3/23	28	1.0	0.4	0.6	114
31/3/23	30	0.9	0.3	0.6	47

Depositional Dusts last 12 months

D3A Bundwall



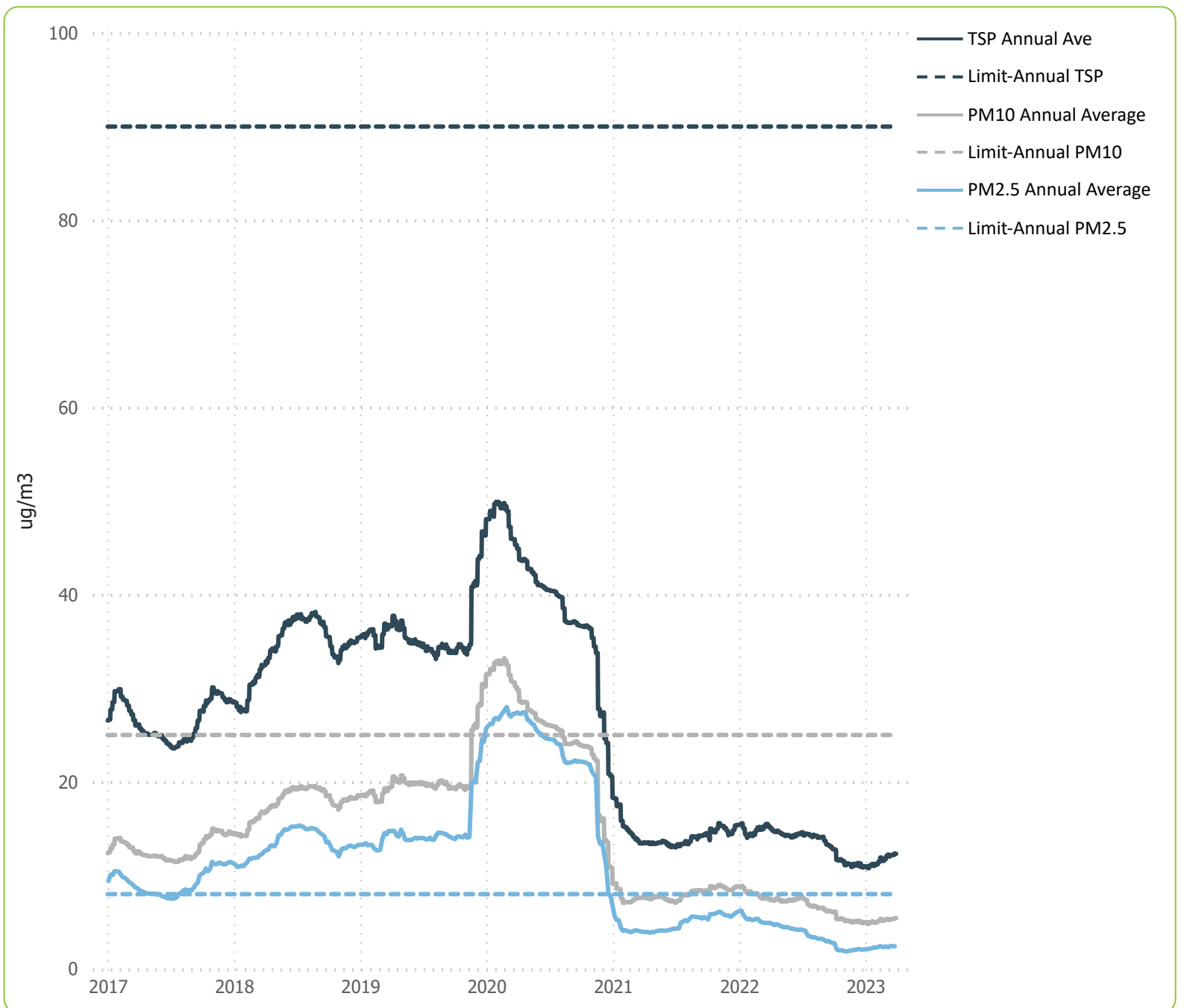
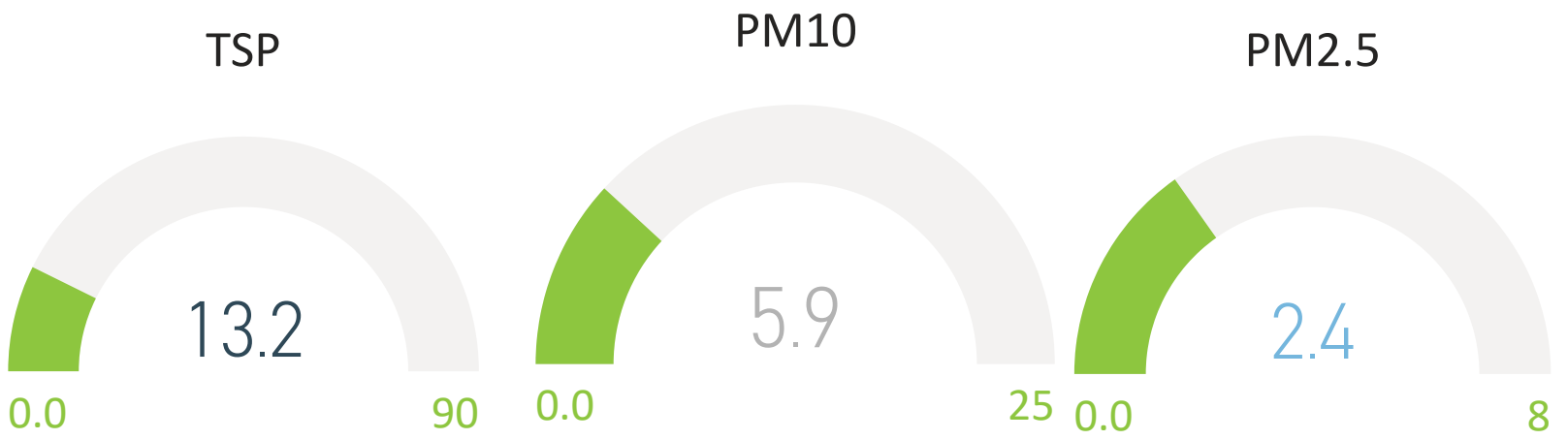
Insoluble Solids Annual Average g/m2/month



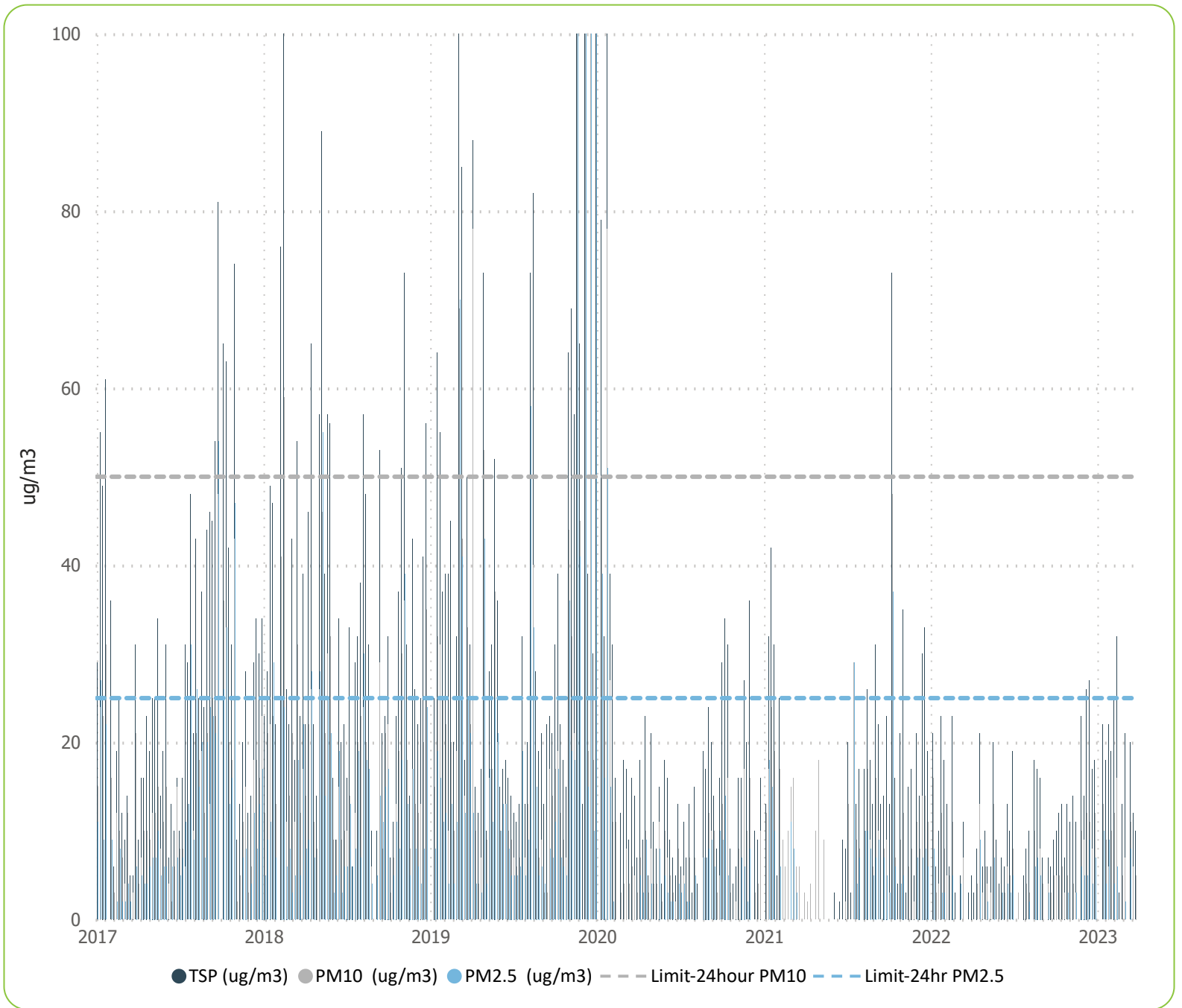
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1/11/22	Sampled by Melissa Mass.
1/12/22	Sampled by Melissa Mass.
9/01/23	
1/02/23	Sampled by M.Mass
1/03/23	Sampled by M.Mass
31/03/23	Sampled by M.Mass

Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
1/6/22	33	0.2	0.1	0.1	94
1/7/22	30	0.1	0.1	0.0	7
1/8/22	31	0.3	0.2	0.1	114
1/9/22	31	0.7	0.2	0.5	31
30/9/22	29	0.2	0.1	0.1	82
1/11/22	32	0.7	0.3	0.4	109
1/12/22	30	0.8	0.4	0.4	28
9/1/23	39	1.4	0.6	0.8	83
1/2/23	23	1.5	0.6	0.9	115
1/3/23	28	1.7	0.6	1.1	115
31/3/23	30	0.6	0.3	0.3	55

Particulate Matter Annual Averages ($\mu\text{g}/\text{m}^3$)



Particulate Matter 24 Hour Averages ($\mu\text{g}/\text{m}^3$)



PM10 24 hour exceedances (>50 $\mu\text{g}/\text{m}^3$)

Date PM10 (ug/m3) Sampling Comments

PM2.5 24 hour exceedances (>25 $\mu\text{g}/\text{m}^3$)

Date PM2.5 (ug/m3) Sampling Comments
