

**Report Period** 

1/09/2023

29/09/2023

**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.

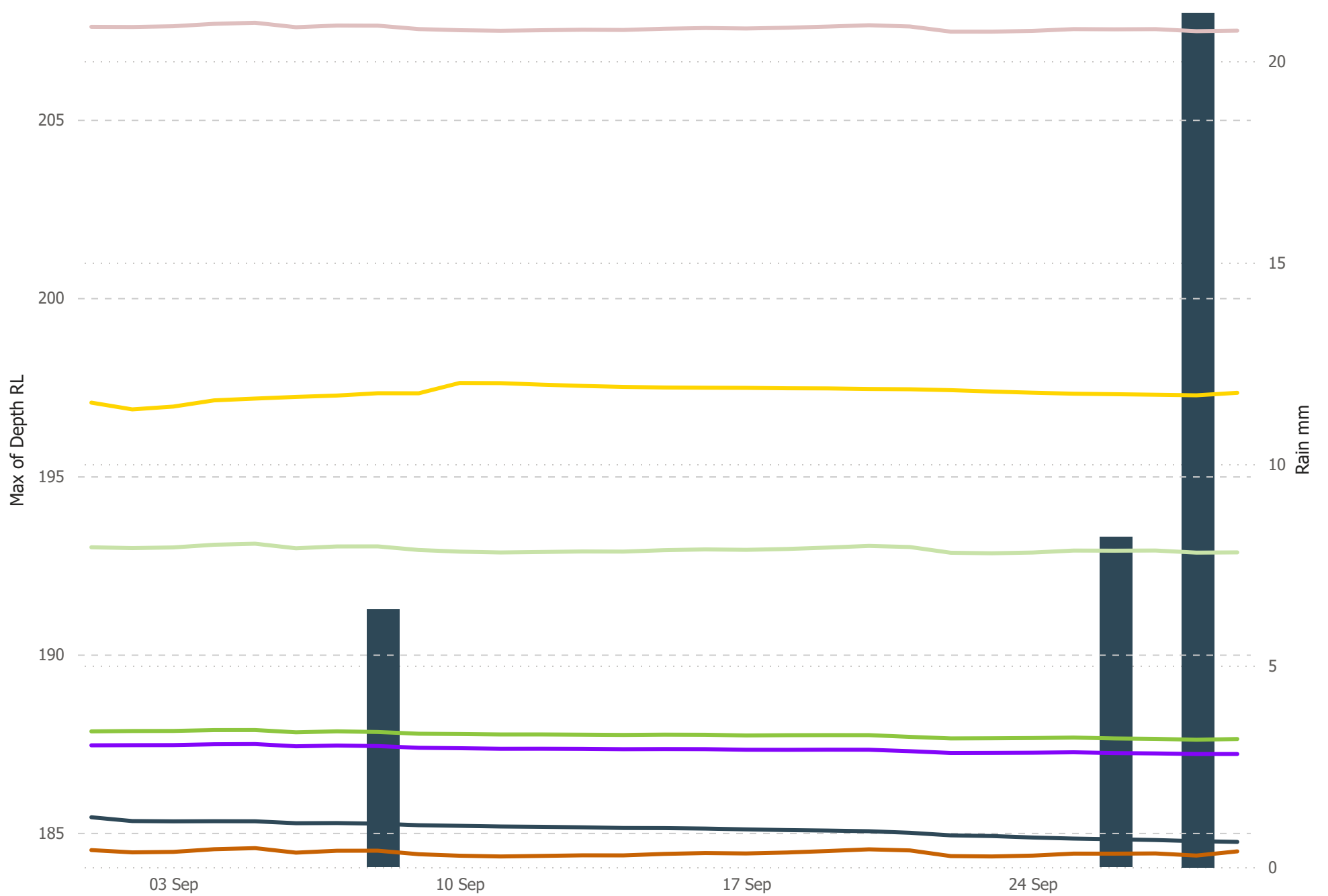
MW1 and MW12 were taken away for repairs during April 2018 and returned in October 2018, hence the gap in reporting on the following graphs.

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.

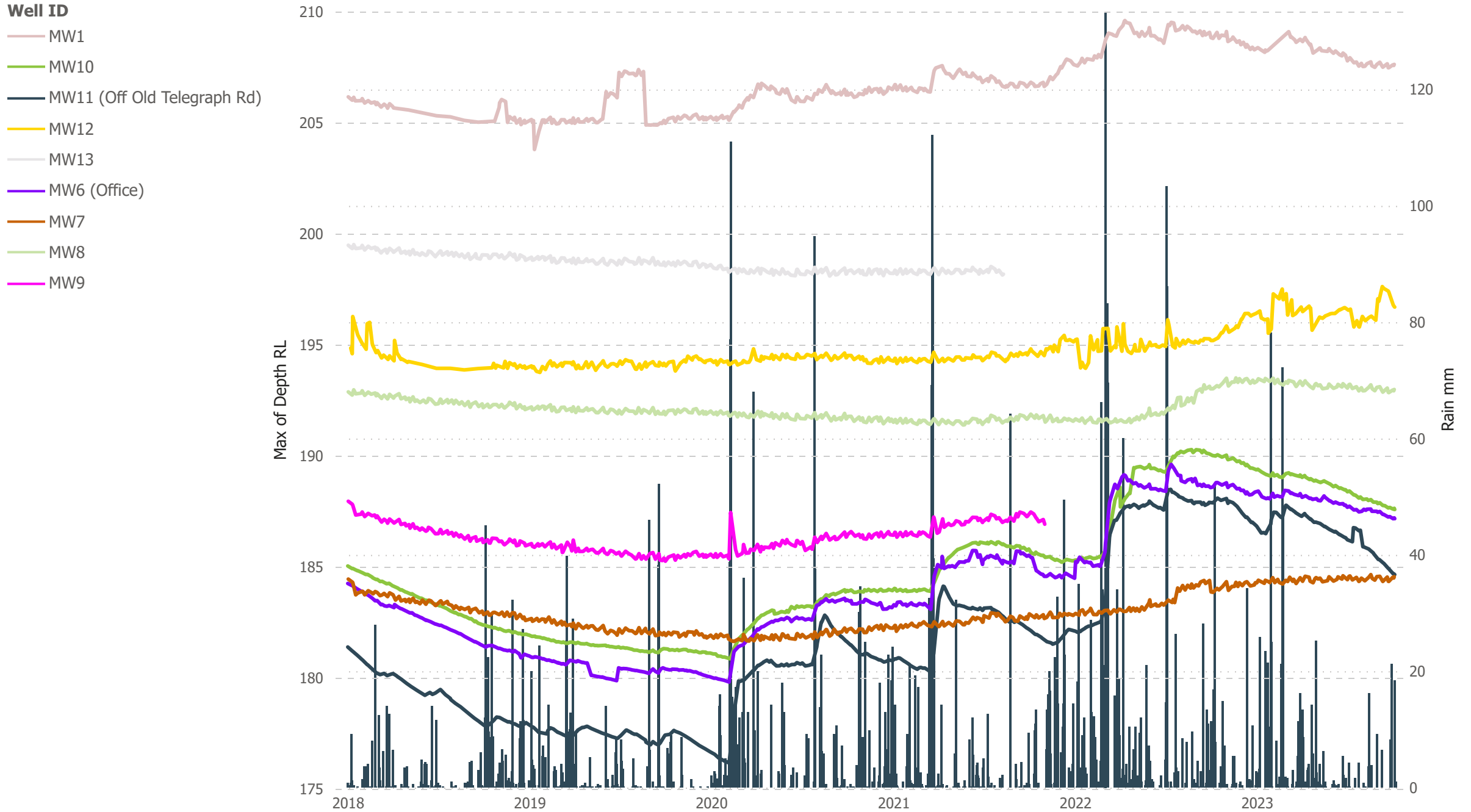
**Graph 2: All Groundwater Depths with Rainfall this month**

**Well ID**

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

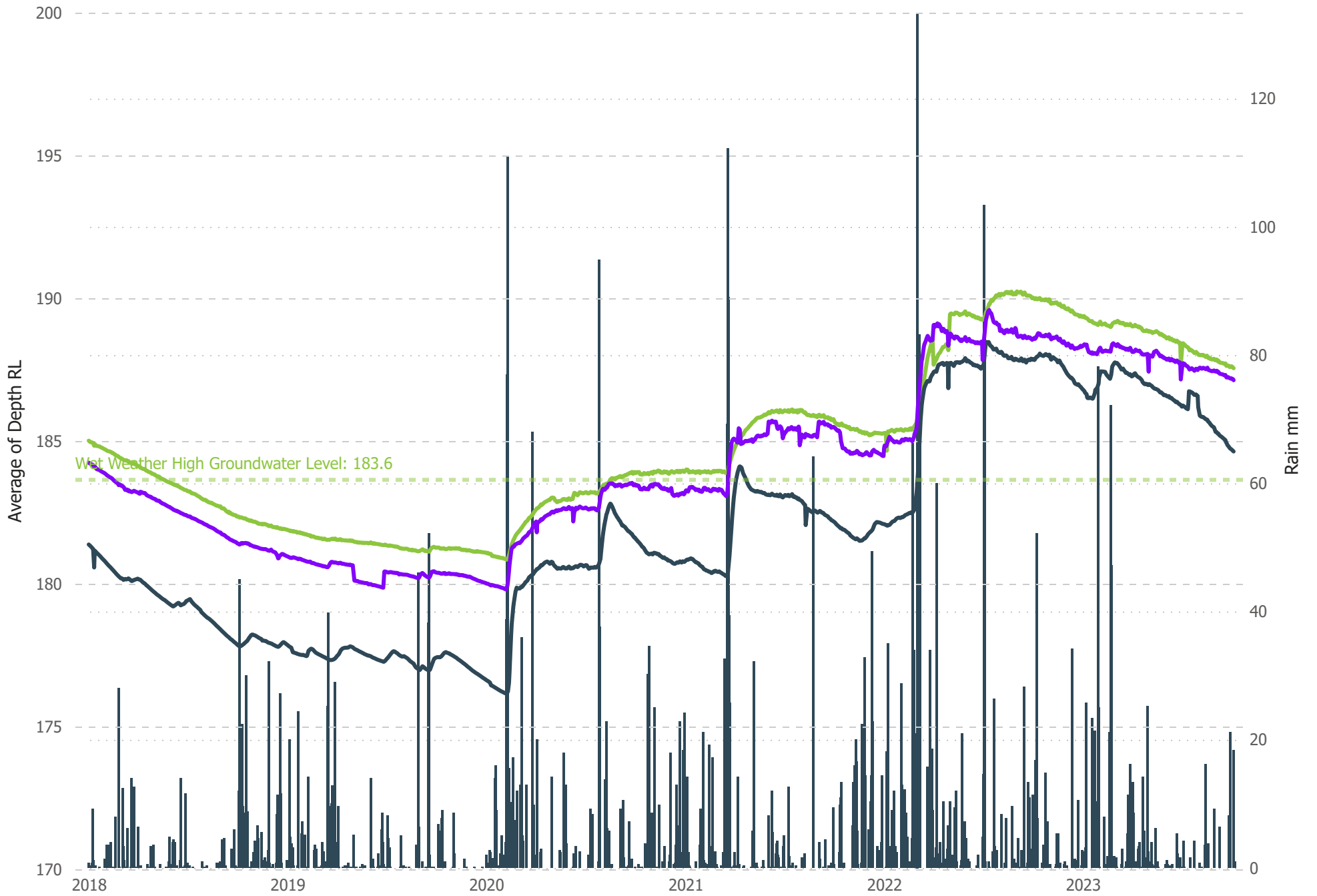


**Graph 1: All Groundwater Depths with Rainfall from 1/1/2017**

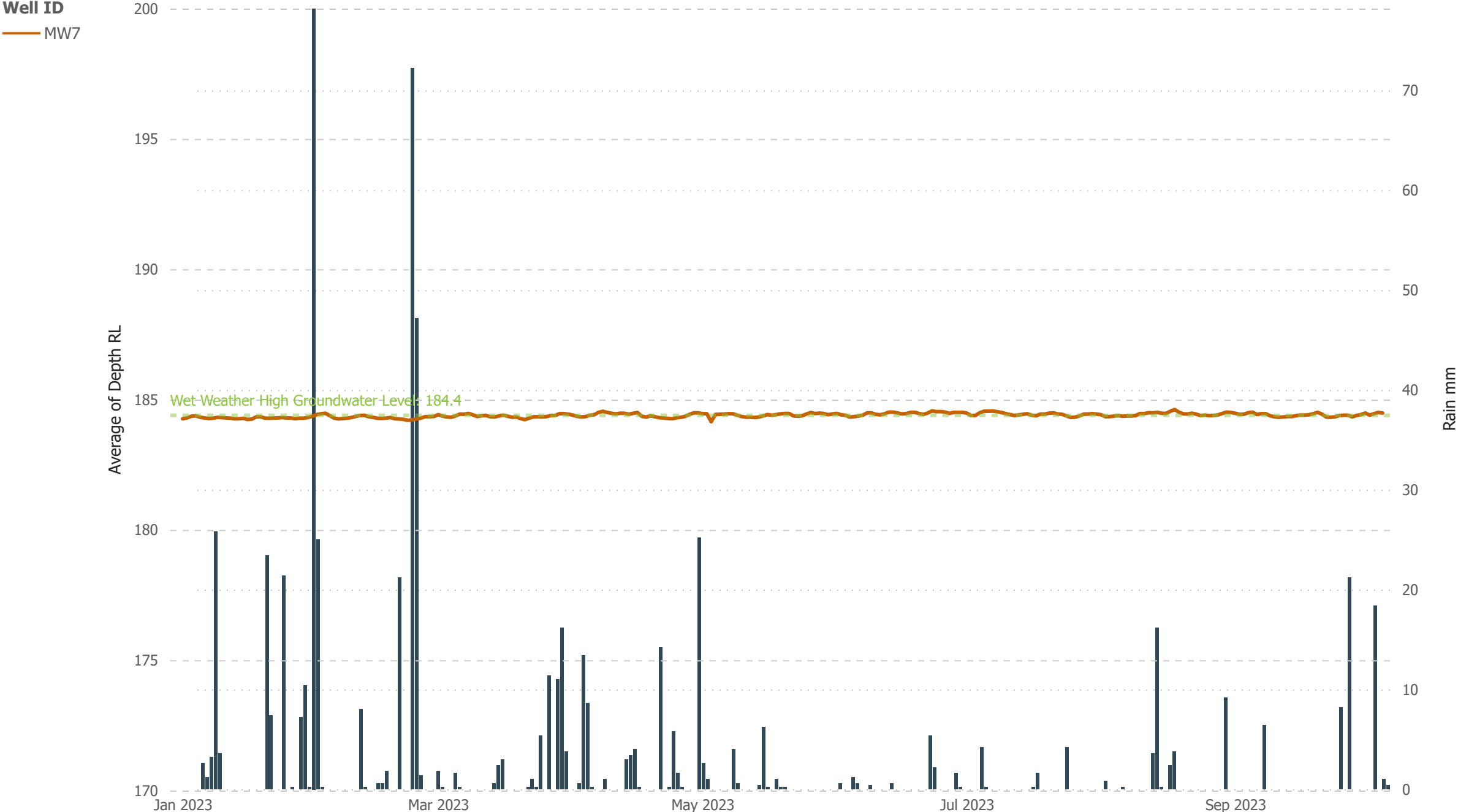


**Graph 3: All Groundwater Depths with Rainfall in Maroota Sand**

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

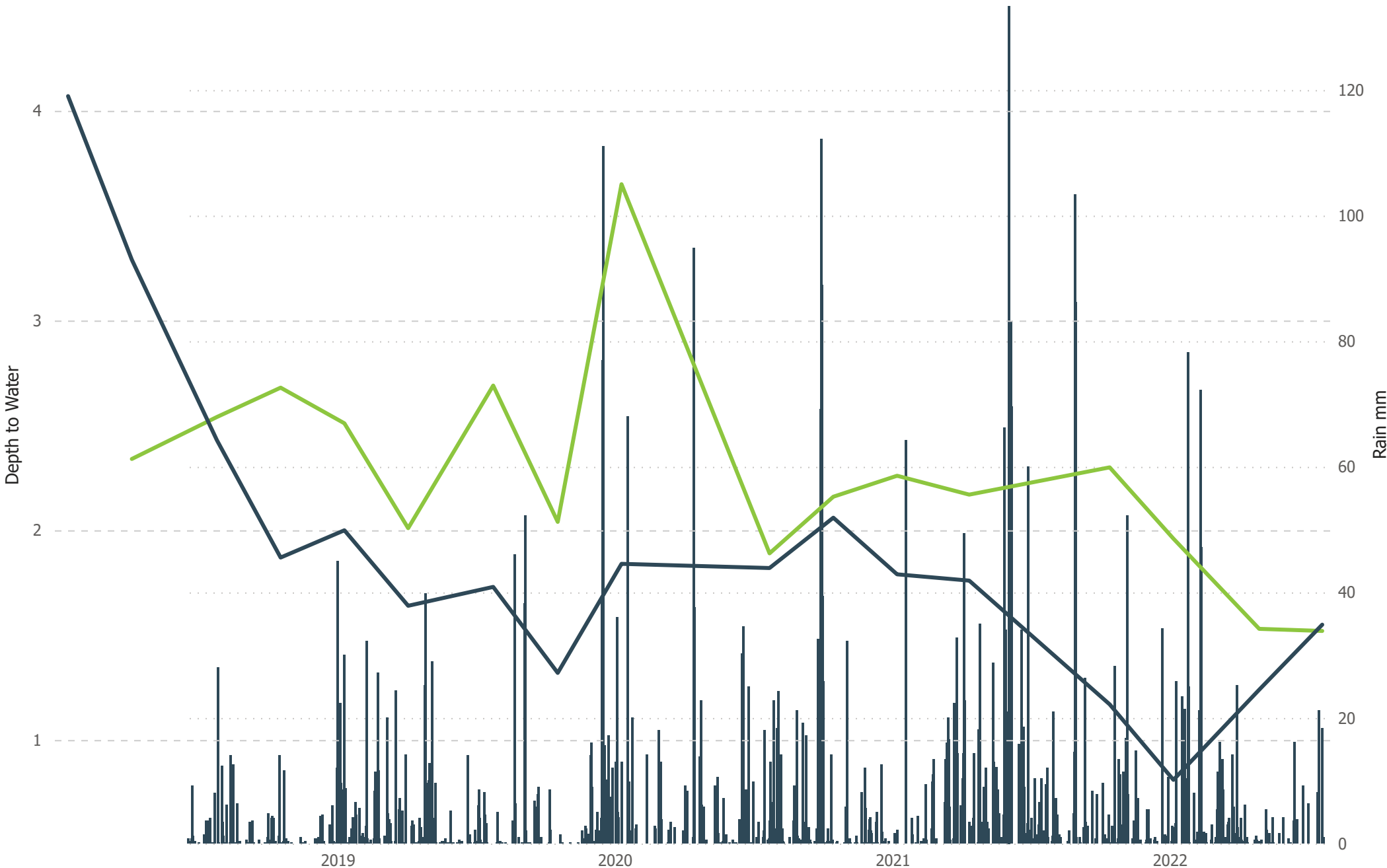


**Graph 4: All Groundwater Depths with Rainfall in Hawkesbury Sandstone**



**Graph 5: Surface Water Depths with Rainfall**

**Sample**  
— Dam 1 - Process  
— Dam 2 - Tailings





## **Weather Station Monitoring**

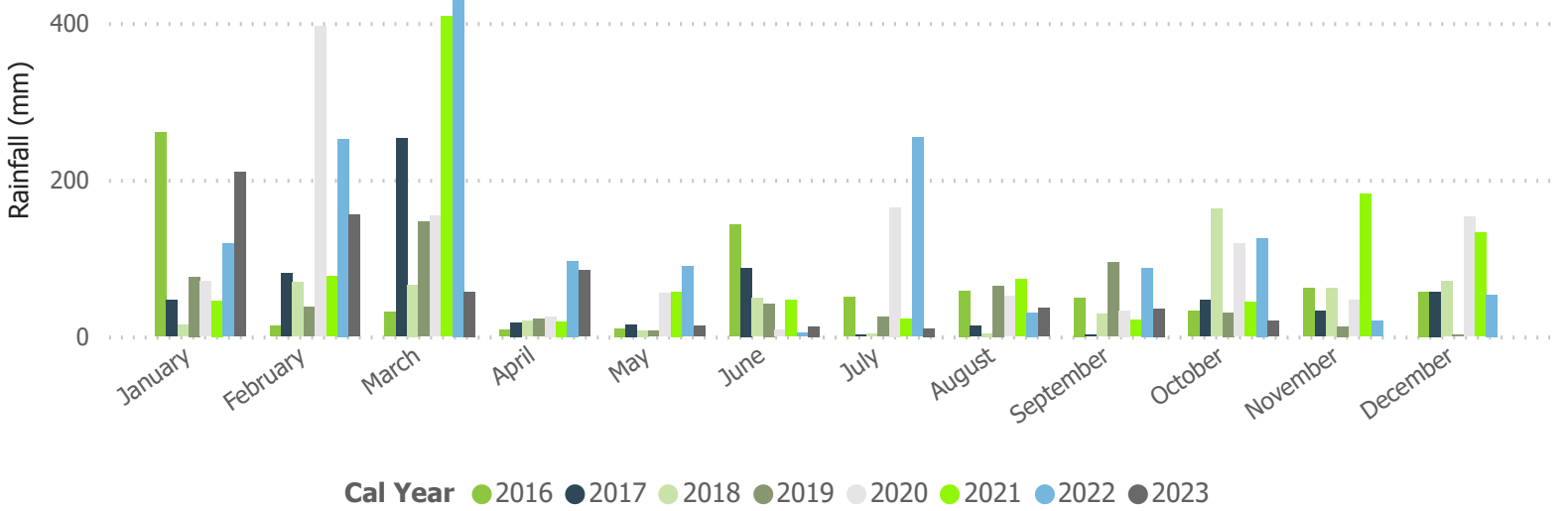
Due to gauge malfunctions, rainfall was not recorded in 2020 until a new weather station was installed onsite 29th May 2020. Where available, daily rainfall received in the interim was been sourced from the Bureau of Meteorology. Temperature monitoring during that period also shows gaps in the data.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

# Weather Trends

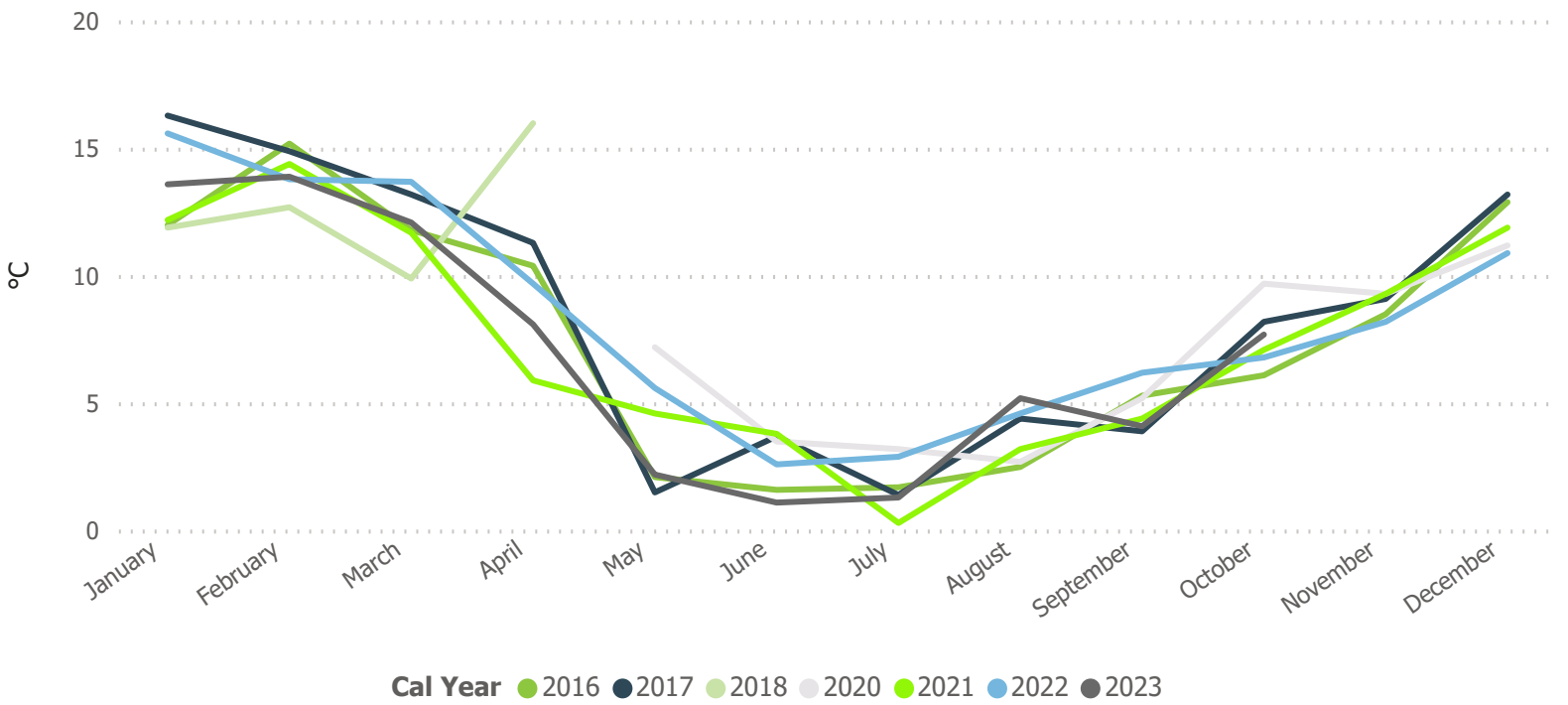
1/01/2016

31/10/2023

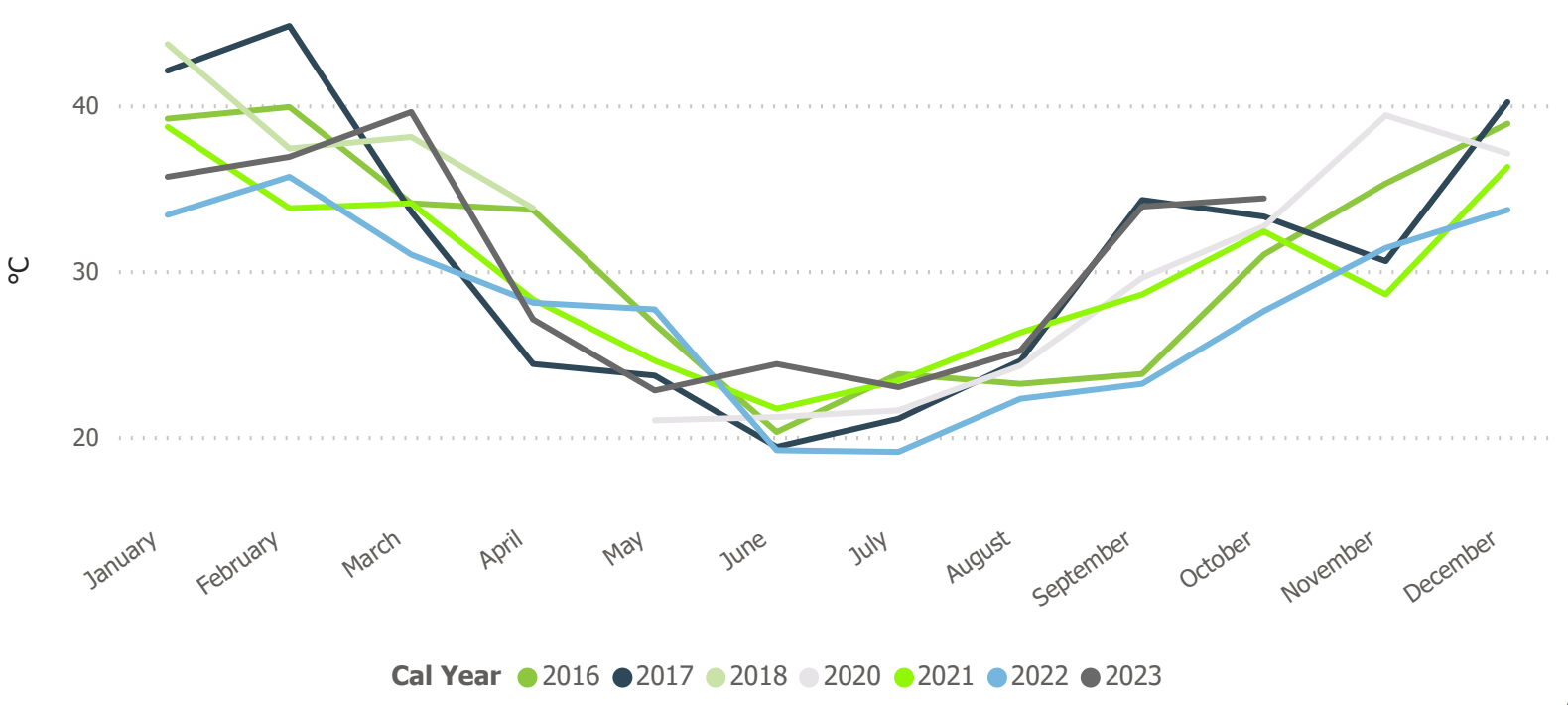
## Precipitation



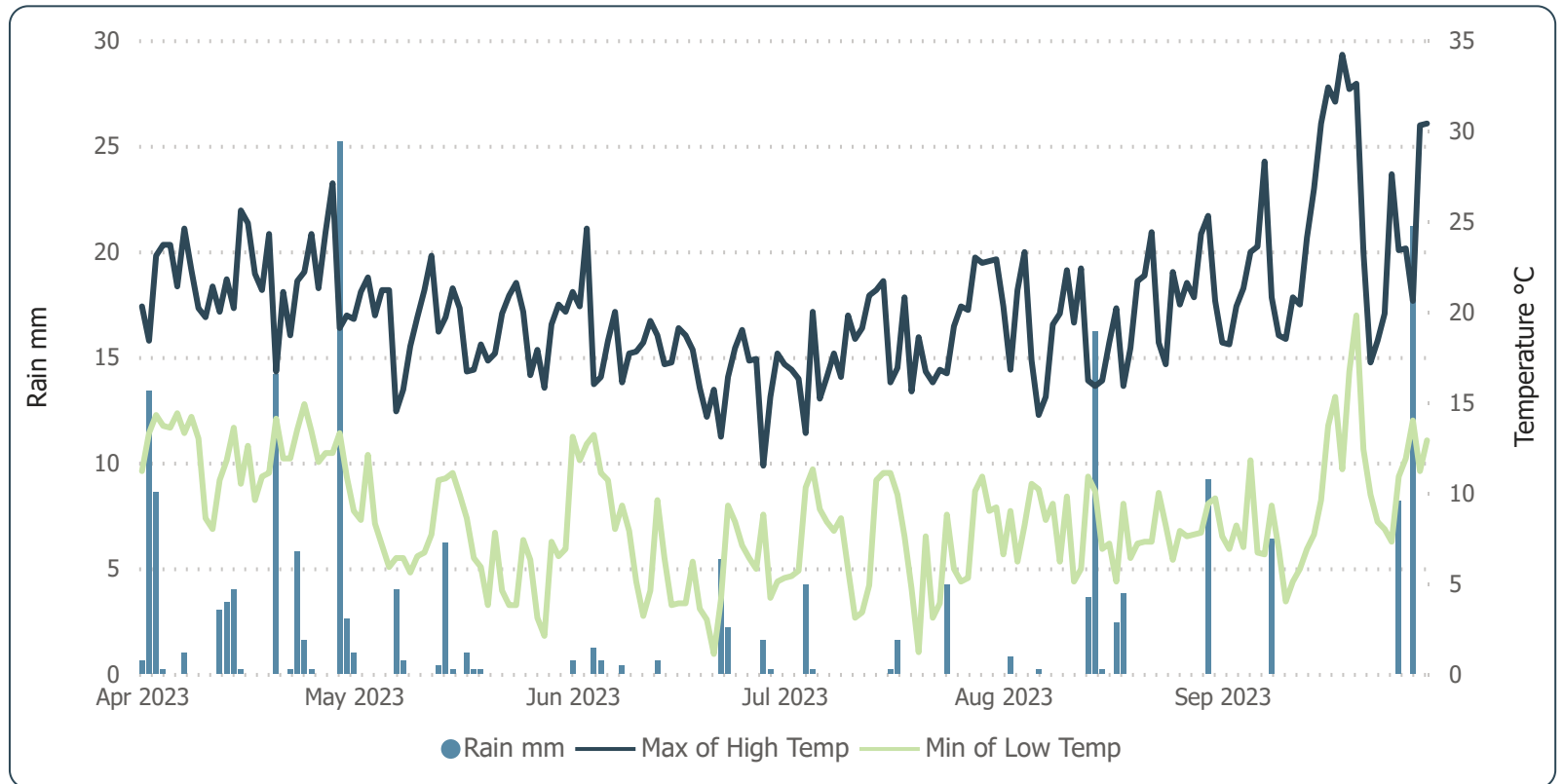
## Minimum Temperature



## Maximum Temperature



## Weather Detail for last 6



### Precipitation mm

Cal Year	April	May	June	July	August	September	Total
2023	84.2	13.8	12.8	10.4	36.4	35.8	<b>193.4</b>
<b>Total</b>	<b>84.2</b>	<b>13.8</b>	<b>12.8</b>	<b>10.4</b>	<b>36.4</b>	<b>35.8</b>	<b>193.4</b>

### Minimum Temperature °C

Cal Year	April	May	June	July	August	September	Total
2023	8.1	2.2	1.1	1.3	5.2	4.1	<b>1.1</b>
<b>Total</b>	<b>8.1</b>	<b>2.2</b>	<b>1.1</b>	<b>1.3</b>	<b>5.2</b>	<b>4.1</b>	<b>1.1</b>

### Average Temperature °C

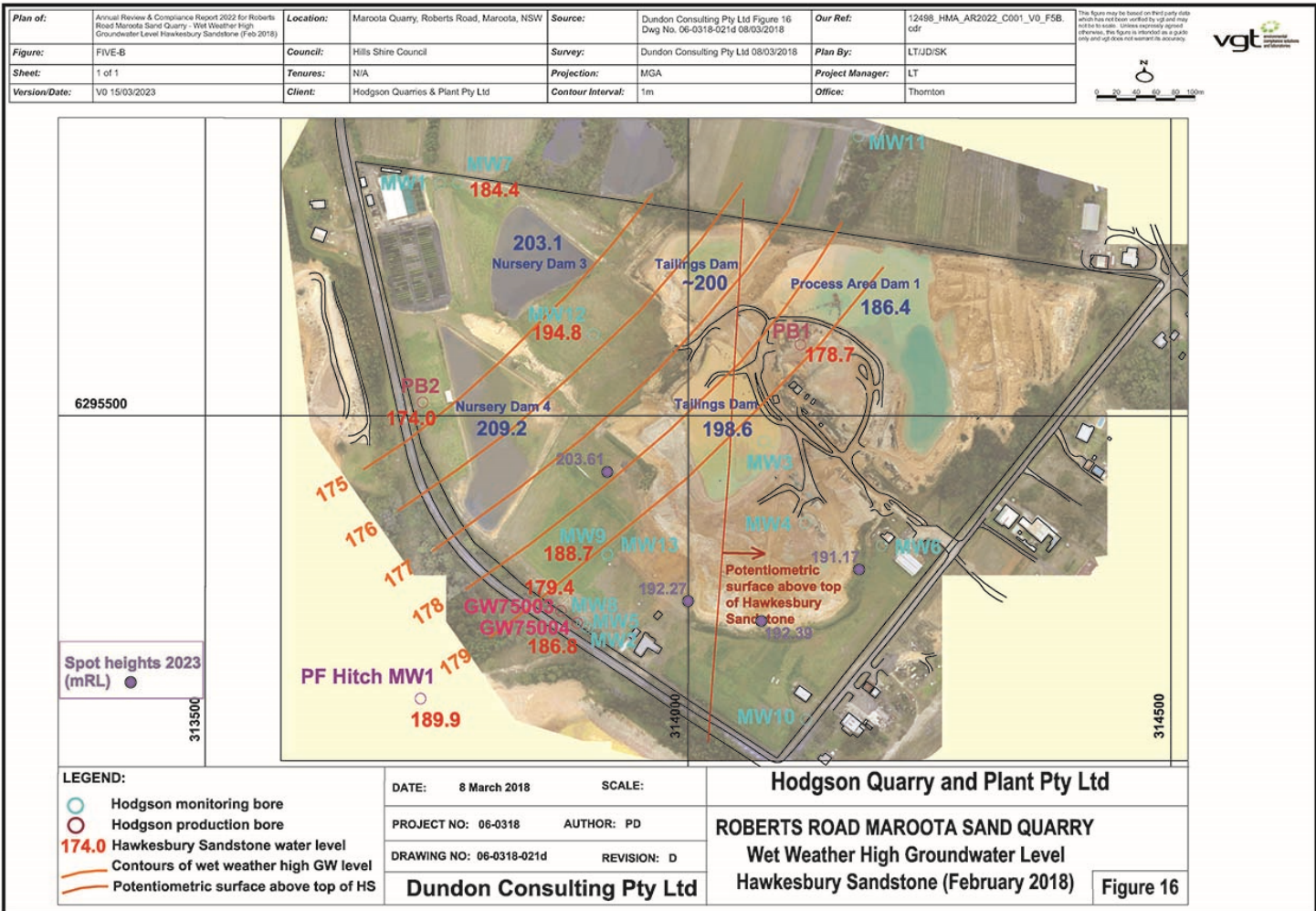
Cal Year	April	May	June	July	August	September	Total
2023	16.5	12.6	11.7	12.4	13.1	16.6	<b>13.8</b>
<b>Total</b>	<b>16.5</b>	<b>12.6</b>	<b>11.7</b>	<b>12.4</b>	<b>13.1</b>	<b>16.6</b>	<b>13.8</b>

### Maximum Temperature °C

Cal Year	April	May	June	July	August	September	Total
2023	27.1	22.8	24.4	23.0	25.2	33.9	<b>33.9</b>
<b>Total</b>	<b>27.1</b>	<b>22.8</b>	<b>24.4</b>	<b>23.0</b>	<b>25.2</b>	<b>33.9</b>	<b>33.9</b>







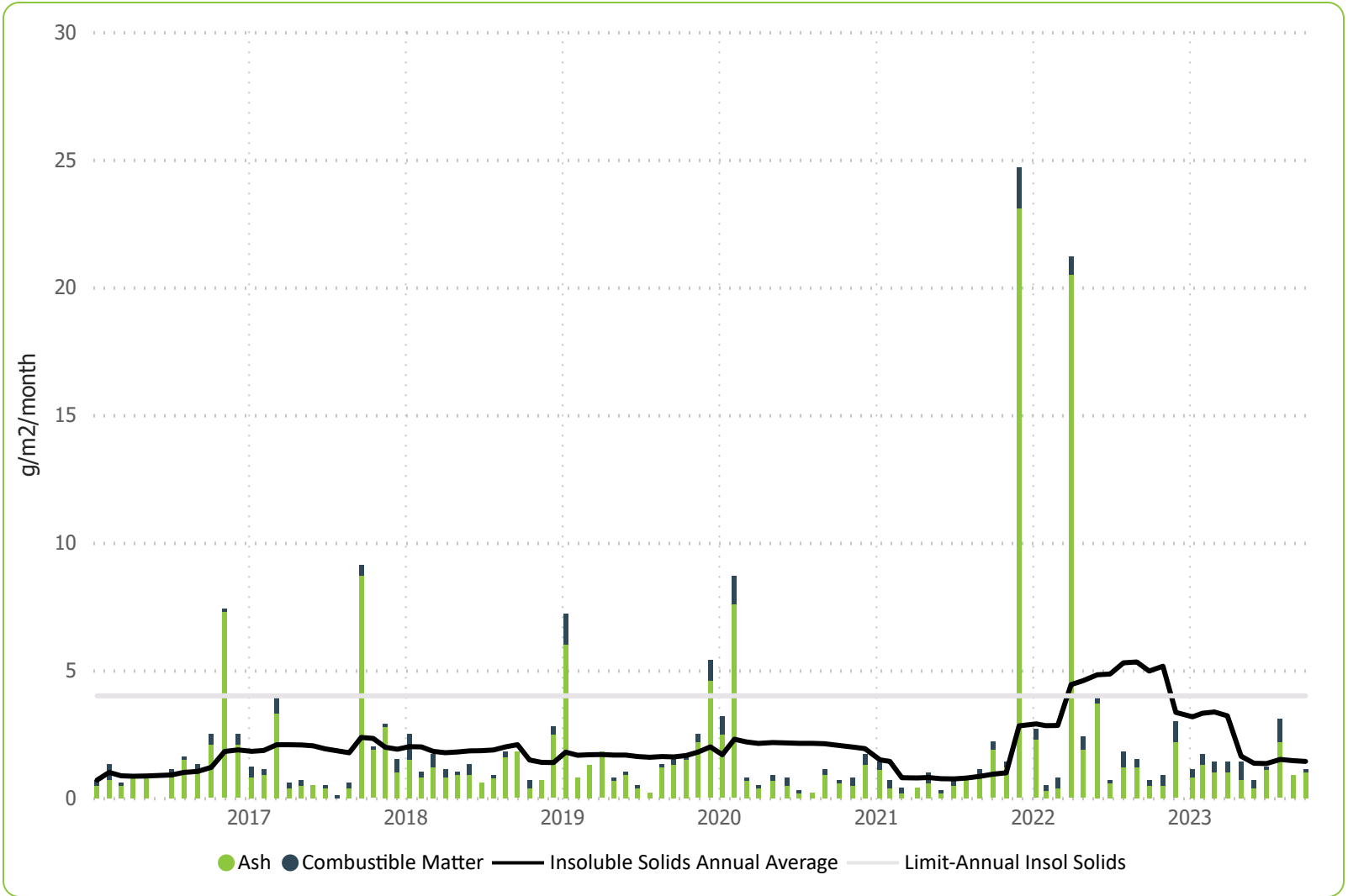


# **Depositional Dust and Particulate Matter Monitoring**

# Depositional Dusts last 12 months

D1 Gate ▼

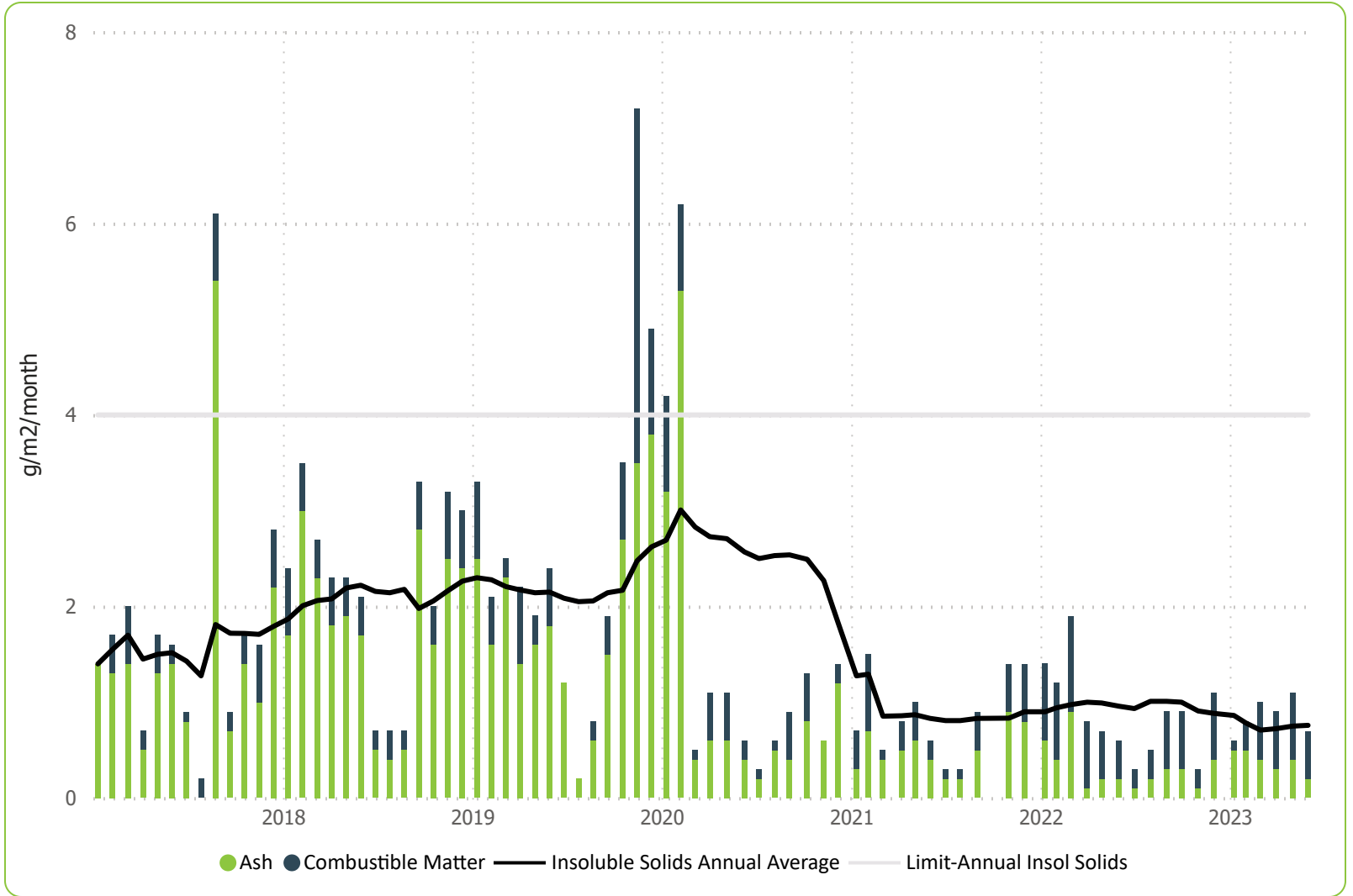
**Insoluble Solids  
Annual Average  
g/m<sup>2</sup>/month**



Date On	Comments	Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
30/09/22	Sampled by Melissa Mass.	1/11/22	32	0.9	0.5	0.4	114
1/11/22	Sampled by Melissa Mass.	1/12/22	30	3.0	2.2	0.8	27
1/12/22	Sampled by Melissa Mass.	9/1/23	39	1.1	0.8	0.3	91
9/01/23		1/2/23	23	1.7	1.3	0.4	114
1/02/23	Sampled by M.Mass	1/3/23	28	1.4	1.0	0.4	115
1/03/23	Sampled by M.Mass	31/3/23	30	1.4	1.0	0.4	59
31/03/23	Sampled by M.Mass	2/5/23	32	1.4	0.7	0.7	86
2/05/23	Sampled by M.Mass.	1/6/23	30	0.7	0.4	0.3	18
1/06/23	Sampled by M.Mass.	30/6/23	29	1.2	1.1	0.1	16
30/06/23		1/8/23	32	3.1	2.2	0.9	14
1/08/23		1/9/23	31	0.9	0.9	0.0	41
1/09/23		29/9/23	28	1.1	1.0	0.1	31



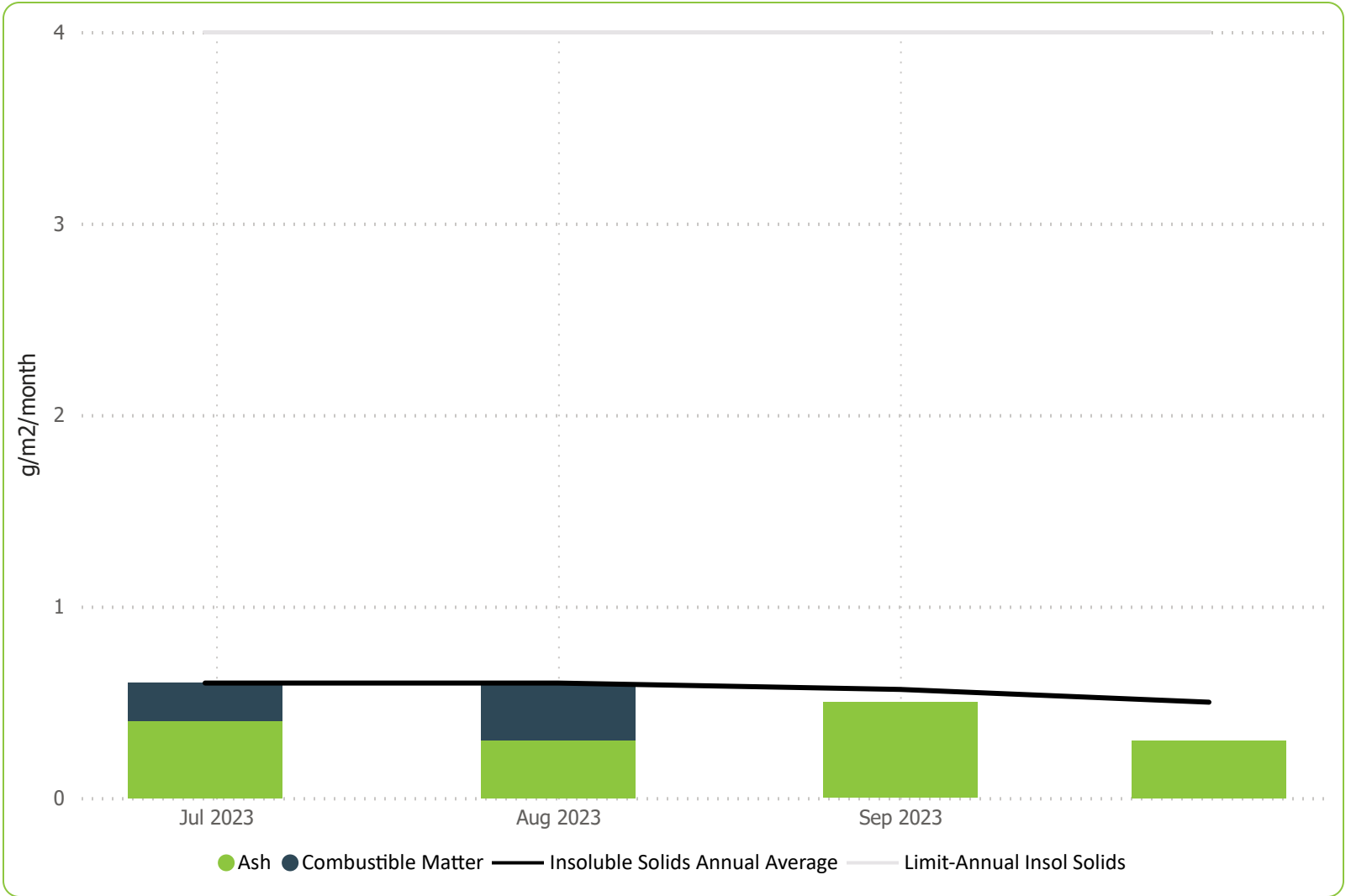
**Insoluble Solids  
Annual Average  
g/m2/month**



Date On	Comments
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
1/7/22	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
2/5/23	32	1.1	0.4	0.7	67
1/6/23	30	0.7	0.2	0.5	12

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



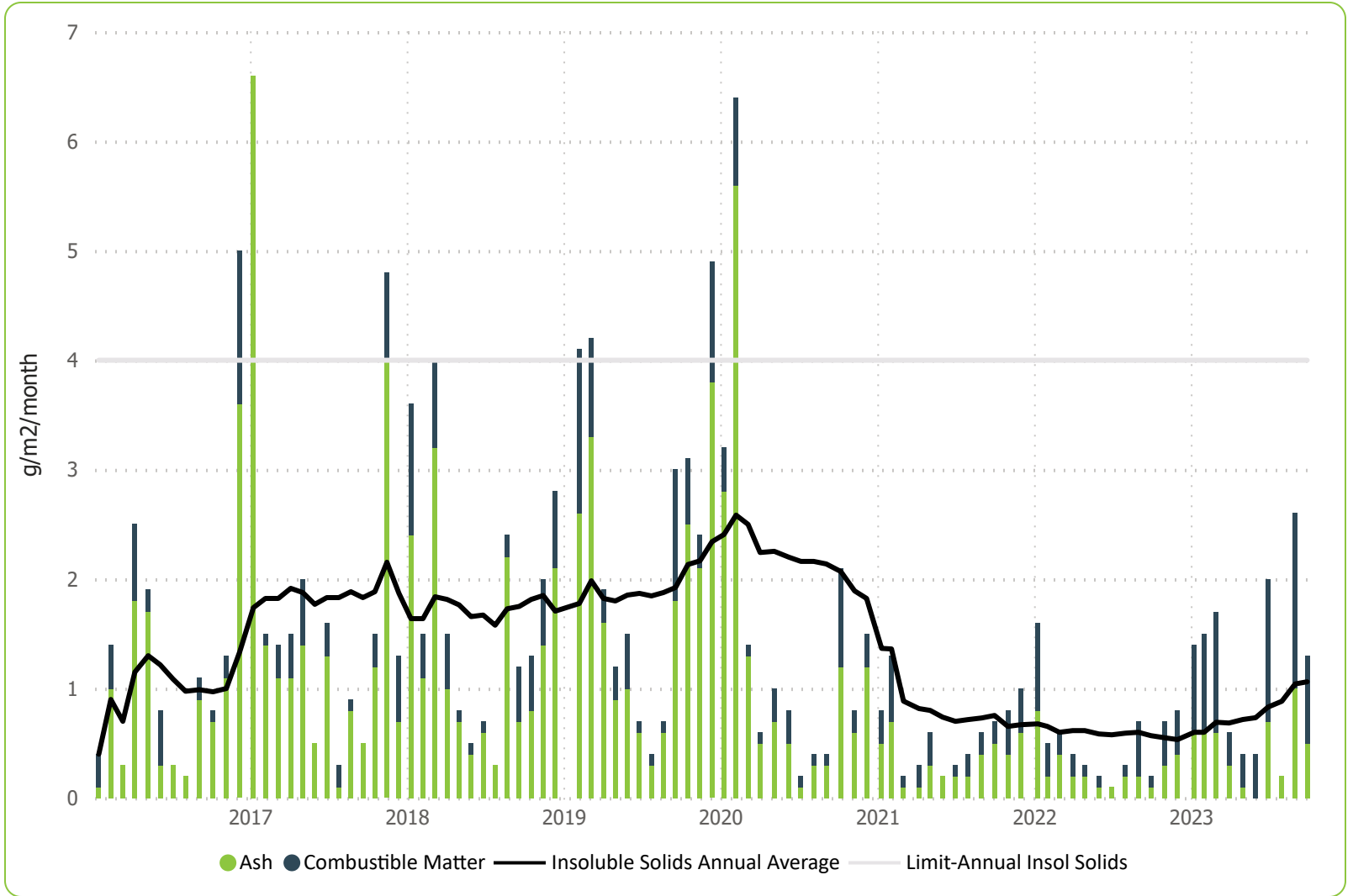
Date On	Comments	Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
1/06/23	Sampled by M.Mass.	30/6/23	29	0.6	0.4	0.2	9
30/06/23		1/8/23	32	0.6	0.3	0.3	3
1/08/23		1/9/23	31	0.5	0.5	0.0	32
1/09/23		29/9/23	28	0.3	0.3	0.0	28

# Depositional Dusts last 12 months

D3A Bundwall



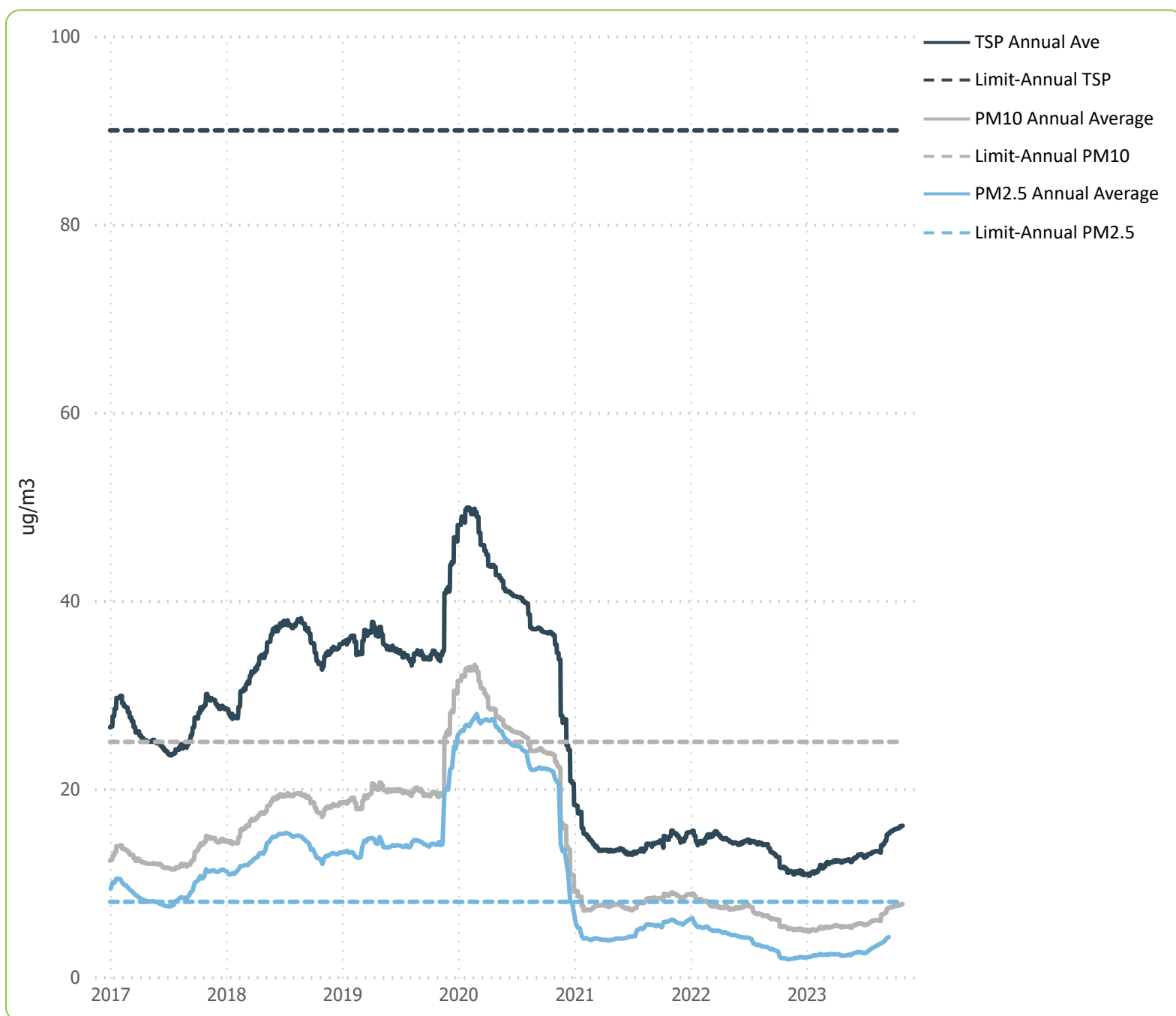
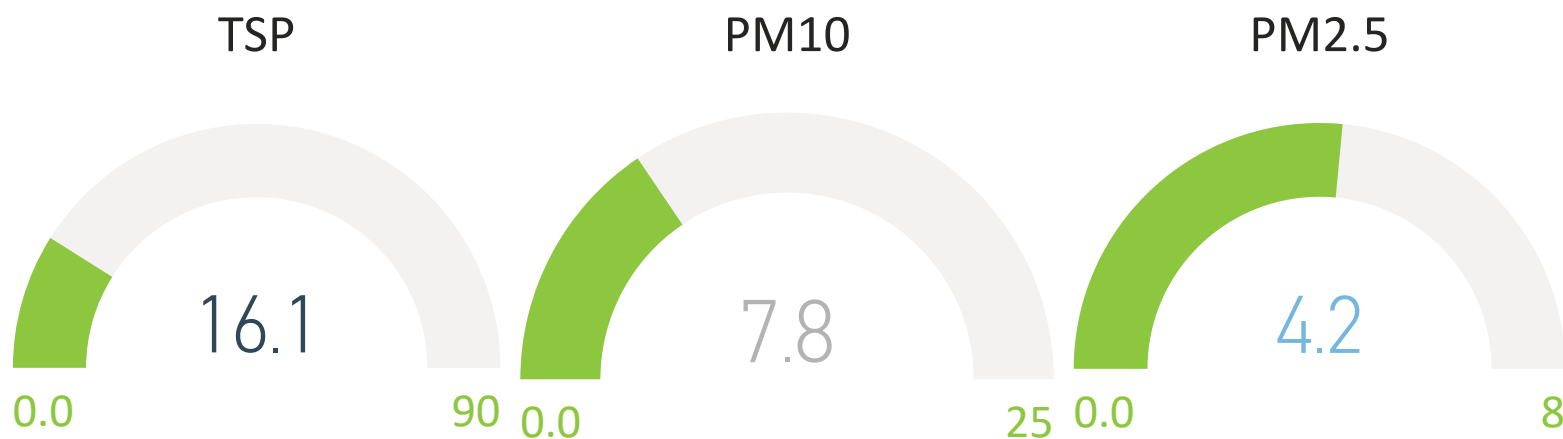
**Insoluble Solids  
Annual Average  
g/m2/month**



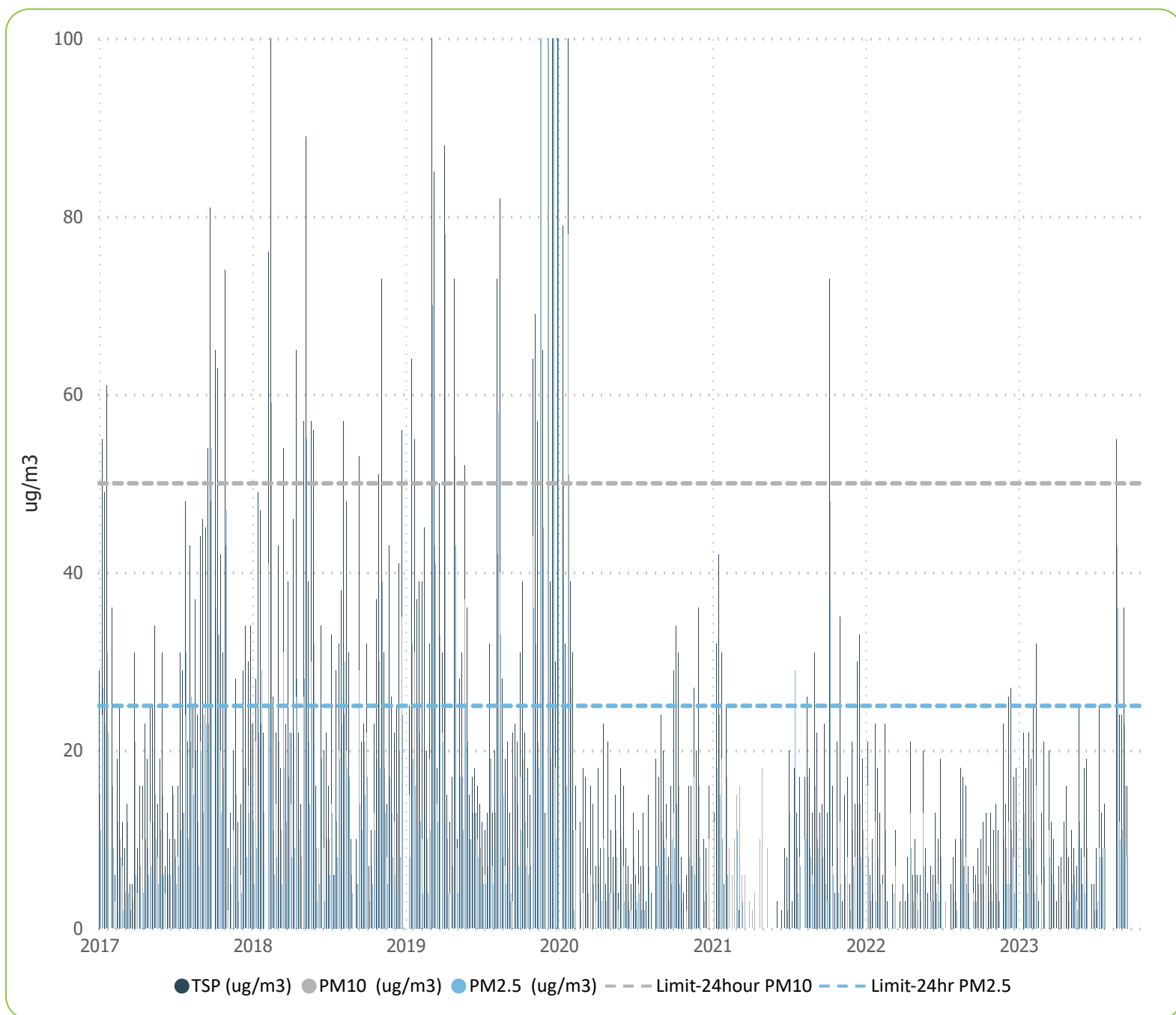
Date On	Comments	Date Sampled	Days On	Insoluble Solids	Ash	Combustible Matter	Calculated Rain
30/09/22	Sampled by Melissa Mass.	1/11/22	32	0.7	0.3	0.4	109
1/11/22	Sampled by Melissa Mass.	1/12/22	30	0.8	0.4	0.4	28
1/12/22	Sampled by Melissa Mass.	9/1/23	39	1.4	0.6	0.8	83
9/01/23		1/2/23	23	1.5	0.6	0.9	115
1/02/23	Sampled by M.Mass	1/3/23	28	1.7	0.6	1.1	115
1/03/23	Sampled by M.Mass	31/3/23	30	0.6	0.3	0.3	55
31/03/23	Sampled by M.Mass	2/5/23	32	0.4	0.1	0.3	82
2/05/23	Sampled by M.Mass.	1/6/23	30	0.4	0.0	0.4	19
1/06/23	Sampled by M.Mass.	30/6/23	29	2.0	0.7	1.3	16
30/06/23		1/8/23	32	0.2	0.2	0.0	13
1/08/23		1/9/23	31	2.6	1.0	1.6	40
1/09/23		29/9/23	28	1.3	0.5	0.8	35



# 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 ( $\text{ug}/\text{m}^3$ ) Sampling Comments

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

Date PM2.5 ( $\text{ug}/\text{m}^3$ ) Sampling Comments

24/8/23 36.00 RFS Back burning