

**Hera Mine**  
**MONTHLY ENVIRONMENTAL MONITORING SUMMARY**  
**REPORT**

**EPL 20179**  
**"The Peak"**  
**Burthong Rd,Nymagee**  
**NSW 2831**

**June 2021**

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## **1. INTENT**

This monthly environmental monitoring report is a requirement under section 66(6) of the NSW Protection of the Environment Operations Act 1997 (POEO Act), in which holders of an environment protection licence make their pollution monitoring data publicly available. This report is intended to keep the community, stakeholders, and regulators informed of the Hera mine's environmental performance and to maintain a transparent and accountable reporting system.

## **2. SCOPE**

This report covers all of Hera's environmental monitoring conditions covered for June 2021. These conditions, where applicable, are measured against Hera's Environmental Protection Licence (EPL), development consent conditions and Australian Standards to determine Hera's compliance.

These conditions include;

- Weather Conditions
- Surface Water Monitoring results
- Ground Water Monitoring results
- Noise Monitoring results
- Blasting monitoring results
- Air Quality Monitoring results
- Gold Room Stack Monitoring
- Concentrate Transport

## **3. DEFINITIONS**

mm/s – the peak of the vibration in millimetres per second

Insoluble Solids – the insoluble portion of the dust deposition

Total Lead – Including dissolved lead in the liquid portion and the lead particulates in the filter paper following laboratory analysis

g/m<sup>2</sup>/month – grams per square meter per month

dB (L) – decibel (linear maximum)

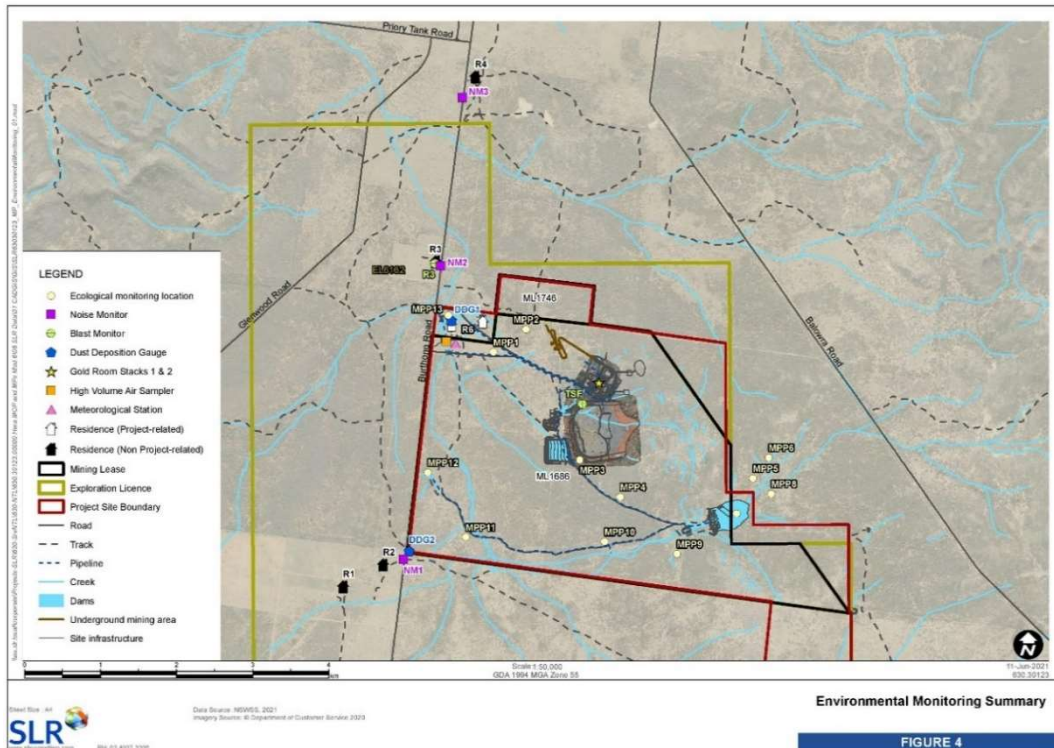
dB LAeq (15 minute) – Decibel (linear weighted average over 15 minutes)

CN Free – Free Cyanide (hydrogen cyanide and cyanide ions in solution)

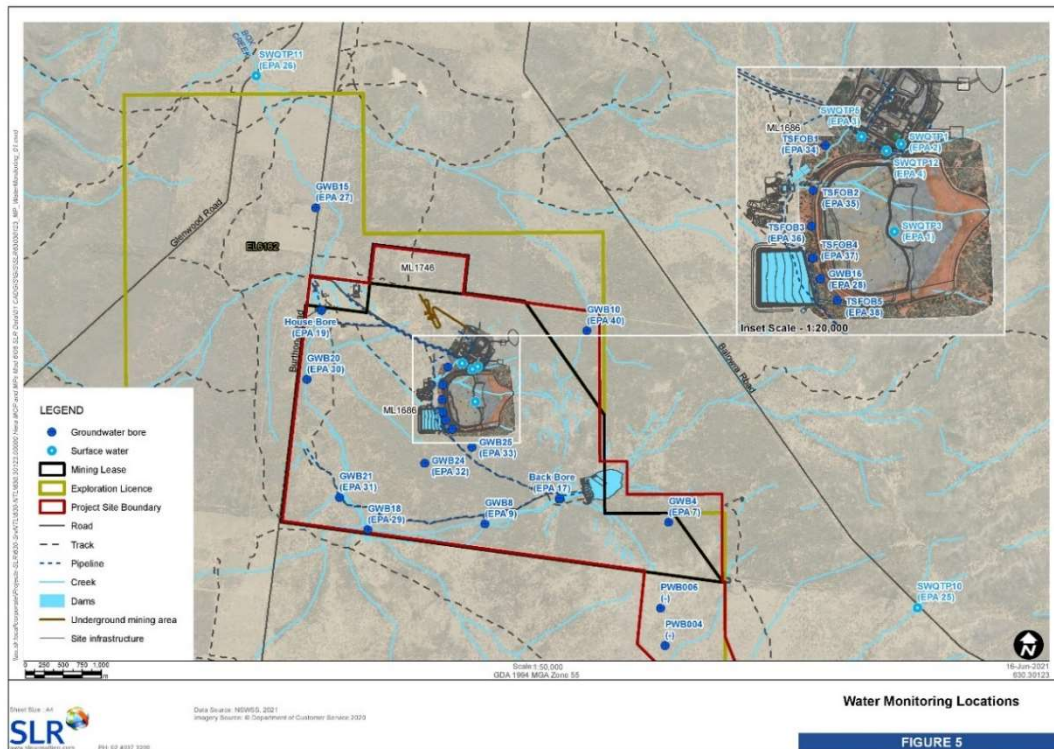
CN WAD – Weak Acid Dissociable Cyanide (includes cyanide species liberated at moderate pH of 4.5)

TSS – Total Suspended Solids

**4. MAPS**



**Figure 1** Hera Monitoring Locations



**Figure 2** Hera Water Monitoring Locations

**5. MONITORING RESULTS**

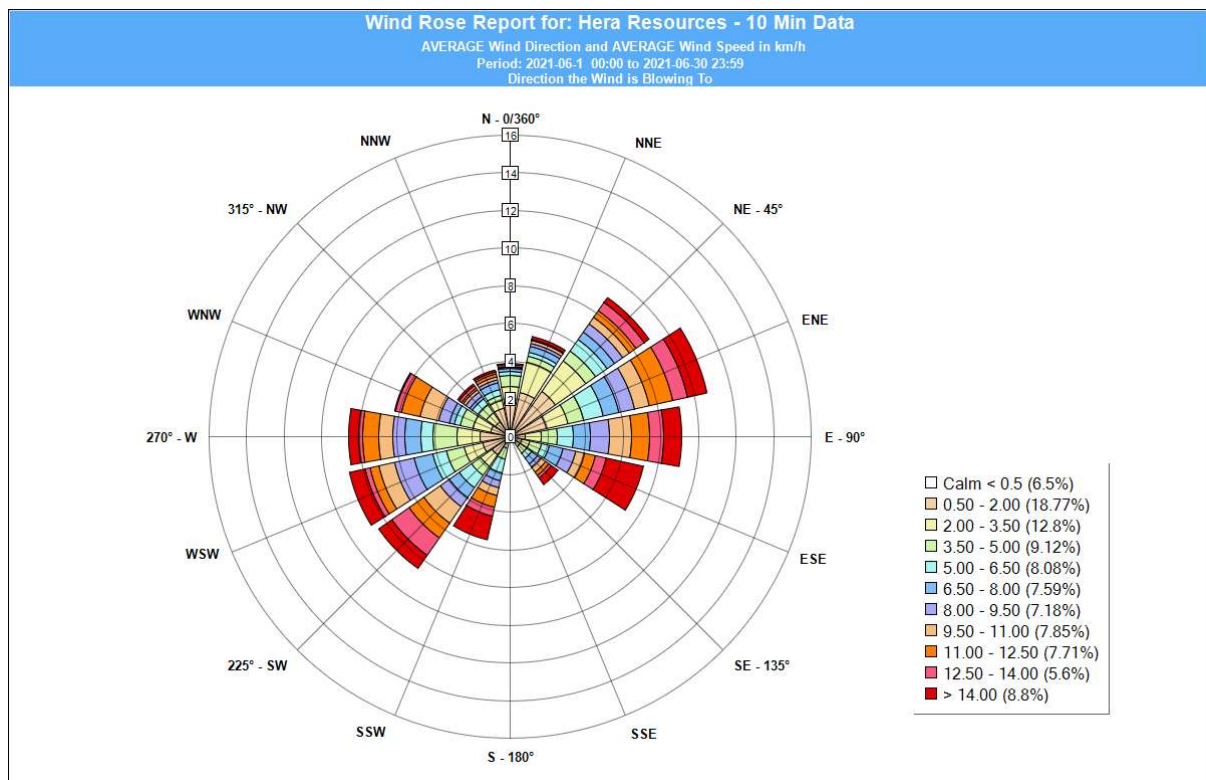
**5.1. WEATHER**

The meteorology monitoring data is acquired through Hera’s weather station located on the Hera Mine site, approx. 4km south of the town of Nymagee, NSW, Refer **Figure 1**.

Meteorological monitoring is conducted on a continuous basis. **Table 1** shows a summary of the data collected by the weather station this month. **Figure 3** is the wind rose for the month of May.

**Table 1.** Summary of meteorological data for the month.

Parameter	No. of measurements for month	Min. value	Mean value	Median value	Max. value	Total
Air Temperature (°C)	Continuous	-2.44	9.30	10.08	42.41	
Wind Speed (m/s)	Continuous	0.00	6.51	5.47	27.64	
Sigma Theta (°)	Continuous	2.19	19.88	16.26	99.44	
Rainfall (mm)	Continuous	0.00	0.02	0.00	31.40	82.8
Relative Humidity (%)	Continuous	41.78	84.06	90.65	99.89	



**Figure 3** –Wind Rose Hera June 2021

**5.2. WATER**

Water monitoring involves collecting water samples from several locations around site. The water samples are submitted to a NATA accredited laboratory for physical and chemical analysis. Analysis of pH and electrical conductivity are obtained in the field using a handheld monitor.

**Surface Water Monitoring**

Hera has 6 licence points associated with surface water. Four of these points are located within the mining lease and two are located off the mining lease, with one upstream and another downstream of the lease, refer **Figure 2**.

**Table 2** shows a summary of the surface water quality results for June 2021 for licence points 1 and 2. Licence points 3, 4, 25 and 26 did not discharge during June. No exceedances were recorded for the month.

**Table 2** Surface Water Monitoring Results

Monitoring point	WAD Cyanide (mg/L)			
	Minimum	Average	Maximum	EPL 90 <sup>th</sup> percentile concentration criteria
TSF Thickener discharge (EPA Point 1)	0	0.07	2	20
Process Water Dam (EPA Point 2)	0	1.30	14	20

**Groundwater Monitoring**

Hera has 17 licence points associated with groundwater. These points are located around the Project Area, (refer **Figure 2**) and are a combination of observation bores, productions bores and piezometers. Monitoring is conducted quarterly and was completed during June (refer **Table 3**). The quarterly monitoring is included in this report.

**Table 3** Quarterly Groundwater Monitoring Results

Licence Point	Analyte (mg/L)													
	Sb	As	HCO <sub>3</sub> <sup>-</sup>	B	Cd	Ca	CO <sub>3</sub> -2	Cl	Cr	Cu	CN- (Free)	CN- (Total)	CN- (WAD)	EC (mS/cm)
7	<0.001	<0.001	741	0.47	<0.0001	220	<1	1180	<0.001	<0.001	<0.004	<0.004	<0.004	5.61
9	<0.001	<0.001	542	0.78	<0.0001	194	<1	976	<0.001	<0.001	<0.004	<0.004	<0.004	5.64
17	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service
19	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service
27	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access
28	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked
29	0.006	<0.001	342	0.48	<0.0001	36	<1	261	<0.001	0.002	<0.004	<0.004	<0.004	1.78
30	<0.001	0.003	621	2.11	<0.0001	72	<1	1390	<0.001	<0.001	<0.004	<0.004	<0.004	7.26
31	<0.001	<0.001	378	0.99	<0.0001	99	<1	1190	<0.001	<0.001	<0.004	<0.004	<0.004	5.75
32	<0.001	<0.001	717	1.04	<0.0001	211	<1	920	<0.001	0.001	<0.004	<0.004	<0.004	6.09
33	<0.001	<0.001	598	0.58	<0.0001	225	<1	873	<0.001	0.001	<0.004	<0.004	<0.004	5.1
34											Dry	Dry	Dry	Dry
35											Dry	Dry	Dry	Dry
36											Dry	Dry	Dry	Dry
37											Dry	Dry	Dry	Dry
38											Dry	Dry	Dry	Dry
40	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service
	Analyte (mg/L)													
	Fe	Pb	Mg	Hg	Mo	Ni	pH	K	Ag	Na	Sn*	TDS	Zn	SWL (m)
7	0.26	<0.001	223	<0.0001	<0.001	0.001	7.10	22	<0.001	663	<0.001	3460	0.008	55.86
9	1.87	<0.001	250	<0.0001	<0.001	0.018	7.36	31	<0.001	784	<0.001	3790	0.009	Tap
17	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service
19	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service
27	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access	No safe access
28	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked
29	<0.05	<0.001	50	<0.0001	0.003	0.002	7.47	15	<0.001	282	0.002	1010	0.012	73.05
30	0.08	<0.001	110	<0.0001	0.002	0.003	7.30	38	<0.001	1430	<0.001	4500	<0.005	65.87
31	<0.05	<0.001	150	<0.0001	<0.001	0.004	7.73	34	<0.001	952	<0.001	3420	0.041	Tap
32	2.34	<0.001	237	<0.0001	<0.001	0.061	7.14	33	<0.001	920	0.001	4270	0.025	Out of Service
33	0.56	<0.001	242	<0.0001	<0.001	0.004	7.16	24	<0.001	635	<0.001	3480	0.012	Tap
34														Dry
35														Dry
36														Dry
37														Dry
38														Dry
40	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service

### 5.3. NOISE

The Company has four licenced monitoring points (R1, R2, R3 and R4) located along the Burthong Road (**Figure 1**). The locations are strategically placed near the Hera Mine’s nearest neighbours. R1 and R2 are measured from the same point as both neighbours are in very close proximity to each other.

A noise assessment was carried out on the 11<sup>th</sup> and 12<sup>th</sup> of May 2021. Results from monitoring are found in **Table 4** of this report. The site was found to be fully compliant. The next annual noise monitoring is due to be undertaken in May 2022. Hera holds a Noise and Blast agreement with the Landholder of R3. The agreement has been provided to the EPA and the Department of Planning, Industry and Environment (DPIE).

**Table 4** Annual Noise Monitoring Results

Receiver	Date	Time	LA <sub>eq</sub> Limit (dB)	LA <sub>Max</sub> Limit (dB)	LA <sub>eq</sub> Site Contribution (dB)	LA <sub>Max</sub> Site Contribution (dB)
R1 – R2	12/5/2021	9:24	35	n/a	Inaudible	n/a
R3		9:46				
R4		10:06				
R1 – R2	11/5/2021	18:56				
R3		19:44				
R4		19:22				
R1 – R2	11/5/2021	22:00		45	Inaudible	< 35
R3		22:24				< 35
R4		22:49				<35

#### 5.4. BLAST MONITORING

The blast monitor is located adjacent to the dwelling on the nearest neighbour’s property (**Figure 1**).

Hera conducted a total of 53 blasts this month with the blast schedule undertaken at the beginning and end of the shift change, which is 6:30am and 6:30pm. The characteristics of each blast are presented in **Table 5**. No exceedances were recorded for the month.

Hera holds a Noise and Blast agreement with the Landholder of R3. The agreement has been provided to the EPA and DPIE.

**Table 5.** Summary of blast monitoring results for the month at R3.

Date	Time	Time Period	Vibration(mm/s)	Overpressure (dB)
01/06/2021	06:43:35	NIGHT	0.16	74.8
02/06/2021	06:36:55	NIGHT	0.19	75.6
02/06/2021	06:39:30	NIGHT	0.07	74.8
02/06/2021	19:00:00	EVENING	0.13	75.6
04/06/2021	19:04:00	EVENING	0.17	74.8
04/06/2021	19:04:00	EVENING	0.17	74.8
04/06/2021	19:04:00	EVENING	0.17	74.8
05/06/2021	19:08:11	EVENING	0.19	78.1
05/06/2021	19:08:11	EVENING	0.19	78.1
06/06/2021	19:01:00	Sunday	0.10	83.8
06/06/2021	19:01:00	Sunday	0.10	83.8
07/06/2021	18:44:18	EVENING	0.21	73.1



08/06/2021	00:00:10	NIGHT	0.18	85.3
09/06/2021	18:34:00	EVENING	0.10	95.8
09/06/2021	18:34:00	EVENING	0.10	95.8
10/06/2021	07:00:00	DAY	0.08	88.9
10/06/2021	18:47:00	EVENING	0.06	74.8
11/06/2021	06:54:10	NIGHT	0.15	74.8
12/06/2021	07:05:25	DAY	0.19	75.6
12/06/2021	07:05:25	DAY	0.37	78.1
12/06/2021	07:05:25	DAY	0.37	78.1
12/06/2021	07:05:25	DAY	0.37	78.1
12/06/2021	18:00:10	EVENING	0.12	74.8
14/06/2021	14:05:35	PUBLIC HOLIDAY	0.37	75.6
14/06/2021	18:00:10	PUBLIC HOLIDAY	0.14	75.6
15/06/2021	18:51:25	EVENING	0.12	75.6
16/06/2021	06:51:00	NIGHT	0.06	74.8
17/06/2021	06:48:43	NIGHT	0.40	78.1
17/06/2021	06:48:43	NIGHT	0.40	78.1
18/06/2021	07:03:35	DAY	0.06	75.6
18/06/2021	19:00:00	EVENING	0.05	82.9
19/06/2021	06:53:40	NIGHT	0.05	79.6
19/06/2021	06:53:40	NIGHT	0.05	79.6
20/06/2021	06:45:00	Sunday	0.19	78.6
21/06/2021	06:41:40	NIGHT	0.19	75.6
22/06/2021	06:59:30	NIGHT	0.18	94.7
22/06/2021	07:00:27	DAY	0.22	78.1
22/06/2021	18:39:15	EVENING	0.10	75.6
23/06/2021	06:42:10	NIGHT	0.06	84.3
23/06/2021	06:50:05	NIGHT	0.06	88.1
23/06/2021	19:15:00	EVENING	0.09	88.5
24/06/2021	07:52:28	DAY	0.27	83.8
24/06/2021	07:52:28	DAY	0.27	83.8
25/06/2021	06:50:15	NIGHT	0.11	74.8
25/06/2021	19:15:00	EVENING	0.06	74.8
26/06/2021	17:06:43	DAY	0.33	78.1
27/06/2021	01:30:00	Sunday	0.17	76.9
27/06/2021	06:49:30	Sunday	0.18	75.6
29/06/2021	06:48:00	NIGHT	0.10	75.6
29/06/2021	06:53:40	NIGHT	0.10	74.8
30/06/2021	06:44:20	NIGHT	0.06	76.9
30/06/2021	14:04:05	DAY	0.15	82.3
30/06/2021	18:58:28	EVENING	0.24	76.9

### 5.5. AIR QUALITY

The Company has two High Volume Air Samplers (HVAS), designed to sample Particulate matter less than 10 µm (PM10) or Total Suspended Particulate (TSP) matter and two Dust Deposition Gauges (DDG). Refer to **Figure 1** for location of the sampling points.

Results for air quality monitoring conducted this month have been summarised in **Table 6**. No exceedances were recorded.

**Table 6.** Summary of air quality monitoring results for the month.

Pollutant	Unit	Limit	Averaging Period	Result
TSP	µg/m <sup>3</sup>	90	Annual	37.68
PM-10 (µg/m <sup>3</sup> )	µg/m <sup>3</sup>	25	Annual	15.31
2/6/2021	µg/m <sup>3</sup>	50	24 hour	16.30
8/6/2021	µg/m <sup>3</sup>	50	24 hour	3.4
14/6/2021	µg/m <sup>3</sup>	50	24 hour	11.40
20/6/2021	µg/m <sup>3</sup>	50	24 hour	<0.1
26/6/2021	µg/m <sup>3</sup>	50	24 hour	1.6
Deposited Dust (DDG1)	g/m <sup>2</sup> /month	4	Annual	1.83
Deposited Dust (DDG2)	g/m <sup>2</sup> /month	4	Annual	2.35

### 5.6. GOLD ROOM STACK MONITORING

Hera has two licenced gold room stack monitoring points (Error! Reference source not found.).

Gold Room stack monitoring is conducted on an annual basis. Annual monitoring was conducted on 1 September 2020 and was included in the September 2020 monthly report.

The next annual monitoring is due to be undertaken in July 2021.

### 5.7. CONCENTRATE TRANSPORT

The Company is licenced to transport 60,000 tonnes of lead/zinc concentrate from site during daylight hours only. Hera is limited to eight truck movements per day averaged over a calendar month (two truck movements is defined as entering and

leaving the site). A summary of concentrate haulage operations is presented in **Table 7**.

**Table 7.** Summary of the concentrate truck movements from the Hera Mine to Hermidale rail siding for the month.

<b>Date</b>	<b>Load Time</b>	<b>Truck Dry Tonnes</b>
01-Jun-21	06:16:00	48.82
01-Jun-21	07:45:00	48.62
01-Jun-21	09:22:00	48.65
01-Jun-21	10:50:00	48.76
01-Jun-21	12:20:00	48.67
01-Jun-21	13:45:00	48.69
01-Jun-21	15:12:00	48.74
05-Jun-21	09:40:00	48.78
05-Jun-21	09:55:00	48.24
05-Jun-21	14:00:00	49.55
05-Jun-21	14:45:00	48.78
06-Jun-21	07:00:00	48.87
06-Jun-21	07:40:00	48.60
06-Jun-21	08:00:00	48.67
06-Jun-21	10:30:00	48.82
06-Jun-21	11:30:00	48.92
06-Jun-21	12:00:00	48.51
06-Jun-21	14:15:00	49.05
06-Jun-21	15:15:00	48.71
06-Jun-21	15:45:00	48.51
07-Jun-21	07:30:00	48.73
08-Jun-21	12:30:00	48.60
08-Jun-21	15:30:00	48.78
08-Jun-21	15:40:00	24.32
09-Jun-21	06:10:00	48.80
09-Jun-21	06:45:00	48.67
09-Jun-21	07:00:00	48.71
09-Jun-21	07:30:00	48.35
09-Jun-21	10:00:00	48.40
15-Jun-21	14:12:00	48.91
15-Jun-21	15:00:00	49.00
15-Jun-21	15:50:00	48.74
16-Jun-21	07:51:00	48.47
16-Jun-21	08:15:00	48.66
16-Jun-21	11:35:00	48.75

16-Jun-21	11:40:00	48.55
17-Jun-21	06:30:00	48.78
17-Jun-21	08:15:00	48.60
17-Jun-21	09:33:00	48.62
17-Jun-21	10:00:00	48.60
17-Jun-21	11:15:00	48.62
17-Jun-21	12:25:00	48.74
17-Jun-21	13:30:00	48.53
17-Jun-21	14:10:00	48.73
17-Jun-21	15:15:00	48.58
18-Jun-21	06:40:00	48.69
18-Jun-21	08:15:00	48.74
18-Jun-21	10:17:00	48.33
18-Jun-21	11:15:00	48.55
18-Jun-21	12:00:00	48.60
18-Jun-21	13:20:00	47.88
18-Jun-21	14:10:00	48.56
19-Jun-21	06:32:00	48.58
19-Jun-21	08:00:00	48.62
20-Jun-21	12:53:00	48.02
21-Jun-21	13:52:00	48.78
22-Jun-21	06:10:00	48.76
22-Jun-21	09:22:00	48.78
22-Jun-21	12:30:00	48.60
22-Jun-21	15:30:00	48.60
23-Jun-21	06:05:00	48.73
23-Jun-21	09:30:00	48.67
23-Jun-21	12:30:00	48.73
24-Jun-21	10:20:00	48.69
25-Jun-21	14:06:00	48.76
26-Jun-21	06:43:00	48.51
26-Jun-21	10:30:00	48.46
26-Jun-21	13:10:00	48.60
27-Jun-21	06:57:00	48.60
27-Jun-21	09:53:00	48.68
27-Jun-21	12:45:00	48.42
28-Jun-21	10:44:00	48.89
28-Jun-21	14:25:00	48.78
<b>Total Tonnes</b>		<b>3527.79</b>
<b>Average Truck Movements per day</b>		<b>4.87</b>

### 5.8. COMPLAINTS

No complaints were received this month, presented in **Table 8**. Summary of the complaints received this month

**Table 8.** Summary of the complaints received this month

Date	Complaint category
	Nil