



Drainage Services Department

Port Shelter Sewerage, Stage 3 – Sewerage Works at Po Toi O

Quarterly EM&A Report (Period from June to August 2023)

Prepared by

SGS Hong Kong Limited

Certified by:

A handwritten signature in black ink, consisting of a large, stylized 'H' and 'J'.

Johnathan Ho

Verified by:

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F.C. Tsang

Environmental Team Leader Independent Environmental Checker



Drainage Services Department
Port Shelter Sewerage, Stage 3 – Sewerage
Works at Po Toi O
Quarterly EM&A Report
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SGS Hong Kong Limited

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1. EXECUTIVE SUMMARY

- 1.1 This Quarterly Environmental Monitoring & Audit (EM&A) report presents the EM&A works performed in the period between June to August 2023 for “Port Shelter Sewerage, Stage 3 – Sewerage works at Po Toi O”.
- 1.2 The impact stage EM&A Programme for the Project includes air quality, noise, water quality, waste, ecology, fisheries, landscape and visual and built heritage monitoring. The recommended environmental mitigation measures were implemented on site and regular inspections were carried out to ensure that the environmental conditions are acceptable.
- 1.3 The EM&A programme was carried out by the ET in accordance with the EM&A Manual requirements. It is concluded from the EM&A works that adequate environmental mitigation measures have been implemented by the contractor where appropriate in the reporting quarter.
- 1.4 The construction commencement date of the project was revised on 27 April 2021. The construction commencement date of provision of village sewerage to the unsewered areas of Po Toi O has been revised from 1 March 2021 to 16 June 2021, and the construction commencement date of village sewerage construction of the local sewage treatment plant (STP) has been revised from 10 May 2021 to 16 June 2021. In view of the revised construction commencement date, the EM&A programme was subsequently suspended from 28 April 2021 until 16 June 2021.

Exceedance of Action and Limit Level

- 1.5 There was no action or limit level exceedance record of construction noise and air quality was recorded in the reporting quarter.

Implementation of Mitigation Measures


- 1.6 Construction phase weekly site inspections were carried out to confirm the implementation measures undertaken by the Contractor in the reporting quarter. The status of implementation of mitigation measures during the reporting quarter is shown in **Appendix E**.

Record of Complaints

- 1.7 No complaints, notification of summons and successful prosecution was received in the reporting period. No public engagement activity was conducted in the reporting quarter.
- 1.8 No air quality, noise and water complaints during 0700 – 1900 hours on normal weekdays was received in the reporting quarter.

Record of Notification of Summons and Successful Prosecutions

- 1.9 No notification of summons and successful prosecution was received in the reporting period. No public engagement activity was conducted in the reporting quarter.

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2. INTRODUCTION

Project Info

- 2.1 Société Générale de Surveillance (SGS) Hong Kong Limited has been appointed by Drainage Services Department (DSD) as the Environmental Team (ET) to undertake the EM&A programme during construction phase of the Project in accordance to the approved EM&A Manual for the proposed sewerage works in Po Toi O (hereafter as “The Project”), an environmental enhancement project that aims to improve environmental hygiene of the Po Toi O area.
- 2.2 The Quarterly EM&A Report is prepared in accordance with the section 13.6 of the EM&A Manual. This Quarterly EM&A Report presents the monitoring works conducted from 1 June to 31 August 2023. The purpose of this report is to summarize the findings in the EM&A of the project over the reporting quarter.

Project Organization

- 2.3 The project organization chart, key personnel contact names and numbers and lines of communication with respect to the onsite environmental management performance is shown in **Appendix C**.

Environmental Status in the Reporting Quarter

- 2.4 During the reporting quarter, construction works at Po Toi O undertaken include:


- Major activities in the reporting quarter:

1. Construction of village sewer;
2. Slope works.
3. Construction of temporary working platform

- Major activities in the upcoming quarter:

1. Construction of village sewer;
2. Slope works.
3. Construction of temporary working platform
4. Construction of cofferdam and HDD works

- 2.5 The Construction Works Programme of the Project is provided in **Appendix D**.

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3. SUMMARY OF EM&A MONITORING REQUIREMENTS

3.1 In accordance with the EM&A Manual, environmental parameters including air quality, noise have been monitored in the reporting quarter. The specific parameters, monitoring frequency and the respective Action and Limit levels are given in **Table 3-1**. Locations of the monitoring stations are provided in **Appendix A**.


Table 3-1 Summary of Impact EM&A Requirements

Parameters ²	Descriptions	Locations ¹	Frequencies	Action Level	Limit Level
Air Quality	24-hour TSP	AMS1N	At least once every 6 days	153 µg/m ³	260 µg/m ³
	24-hour TSP	AMS2N1		179 µg/m ³	
	24-hour TSP	AMS3N		158 µg/m ³	
	24-hour TSP	AMS4N		144 µg/m ³	
	1-hour TSP	AMS1N		319 µg/m ³	500 µg/m ³
	1-hour TSP	AMS2N1		279 µg/m ³	
	1-hour TSP	AMS3N		303 µg/m ³	
	1-hour TSP	AMS4N		278 µg/m ³	
Noise	Leq, 30 minutes	NMS1N	At least once per week	When one documented complaint is received from any one of the noise sensitive receivers	75 dB(A)*
	Leq, 30 minutes	NMS2N1			
	Leq, 30 minutes	NMS3N			
	Leq, 30 minutes	NMS4N			

Notes:


1- Due to several limitations (i.e. EM&A approved monitoring stations not accessible) identified at the air quality and noise monitoring stations in the Approved EM&A Manual for the Project, the monitoring location AMS1 – AMS4 & NMS1 – NMS4 were replaced by alternative monitoring location AMS1N – AMS4N & NMS1N – NMS4N, which was approved by ER and IEC.

2- Marine construction was not commenced within the reporting quarter; hence impact EM&A requirement for water quality monitoring is not included in this table.

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Environmental Mitigation Measures

- 3.2 Environmental mitigation measures have been recommended in the EM&A Manual. Summary implementation status of the environmental mitigation measures is provided in **Appendix E**.

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4. SUMMARY OF EM&A MONITORING RESULTS


4.1 In accordance with the EM&A Manual, impact monitoring has been conducted in the reporting quarter. Meteorological data for the reporting quarter have been extracted from Hong Kong Observatory and present in **Appendix F**. Monitoring data with graphical presentation for the reporting quarter are show in **Appendix G**. A summary on the monitoring results is presented in **Table 4.1**.

Table 4-1 Summary of Monitoring Data

Parameter ¹	Monitoring Location	Minimum	Maximum	Average
Air Quality				
24-hour TSP	AMS1N	27 µg/m ³	67 µg/m ³	43.9 µg/m ³
24-hour TSP	AMS2N1	28 µg/m ³	159 µg/m ³	74.5 µg/m ³
24-hour TSP	AMS3N	24 µg/m ³	83 µg/m ³	46 µg/m ³
24-hour TSP	AMS4N	25 µg/m ³	88 µg/m ³	43.2 µg/m ³
1-hour TSP	AMS1N	27 µg/m ³	84 µg/m ³	46.7 µg/m ³
1-hour TSP	AMS2N1	30 µg/m ³	191 µg/m ³	80.1 µg/m ³
1-hour TSP	AMS3N	22 µg/m ³	99 µg/m ³	50.3 µg/m ³
1-hour TSP	AMS4N	25 µg/m ³	107 µg/m ³	47.3 µg/m ³
Construction Noise				
Leq(30min)	NMS1N	45.4 dB(A)	71.1 dB(A)	64.6 dB(A)
Leq(30min)	NMS2N1	55.9 dB(A)	69.5 dB(A)	63.8 dB(A)
Leq(30min)	NMS3N	52.2 dB(A)	62.4 dB(A)	58.6 dB(A)
Leq(30min)	NMS4N	48.7 dB(A)	57.5 dB(A)	53.6 dB(A)

Remarks:

1. Marine construction was not commenced within the reporting quarter; hence no water quality monitoring data summarized in this table.
2. A correction of +3 dB(A) was made to the free field measurements

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Other Influencing Factors of the Monitoring Results

Air quality monitoring

- 4.2 Major emission sources during air quality monitoring in the reporting quarter were mainly vehicle emission from Po Toi O Chuen Road and nearby residents' activities.

Noise monitoring

- 4.3 Major noise sources during noise monitoring in the reporting quarter were mainly road traffic noise.

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Monitoring Exceedances

4.4 Summary of the exceedances in the reporting quarter is tabulated in **Table 4.2**.

Monitoring Station	Parameter ¹	No. of Exceedance		Action Taken
		Action Level	Limit Level	
Air Quality				
AMS1N	24-hour TSP	0	0	N/A
AMS2N1	24-hour TSP	0	0	N/A
AMS3N	24-hour TSP	0	0	N/A
AMS4N	24-hour TSP	0	0	N/A
AMS1N	1-hour TSP	0	0	N/A
AMS2N1	1-hour TSP	0	0	N/A
AMS3N	1-hour TSP	0	0	N/A
AMS4N	1-hour TSP	0	0	N/A
Construction Noise				
NMS1N	Leq(30min)	0	0	N/A
NMS2N1	Leq(30min)	0	0	N/A
NMS3N	Leq(30min)	0	0	N/A
NMS4N	Leq(30min)	0	0	N/A

Remarks:

1. Marine construction was not commenced in the reporting quarter, no water quality monitoring was required in according to approved EM&A manual; hence no water quality monitoring data was recorded.

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1-hour TSP Monitoring


- 4.5 All 1-hour TSP monitoring was conducted as scheduled in the reporting quarter. No action/ limit level exceedance was recorded.

24-hour TSP Monitoring

- 4.6 All 24-hour TSP monitoring was conducted as scheduled in the reporting quarter. No action/ limit level exceedance was recorded.


Construction Noise Monitoring

- 4.7 All construction noise monitoring was conducted as scheduled in the reporting quarter. No action/ limit level exceedance was recorded.

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5. WASTE MANAGEMENT

- 5.1 As advised by the Contractor, 104 m³ of inert C&D material was generated and disposal to Tseung Kwan O Area 137 Fill Bank (TKO137FB) in the reporting quarter. For C&D wastes, 0 m³ of general refuse was disposed of at NENT landfill, 0 kg waste were collected by recycling contractors, and 0 kg of chemical wastes was collected by licensed Contractors in the reporting quarter.
- 5.2 The detailed summary of waste flow is show in **Appendix H**.

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6. ENVIRONMENTAL NON-CONFORMANCE

- 6.1 For this reporting quarter, no environmental complaint was received.
- 6.2 No non-compliance and environmental related prosecution or notification of summons was received. There was no breach of Action or Limit Levels for Air Quality and Noise monitoring in the reporting quarter.
- 6.3 Statistics on complaints, notifications of summons, successful prosecutions and public engagement activities are summarized in **Appendix I**.

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7. COMMENTS, RECOMMENDATIONS AND CONCLUSION

Comments


- 7.1 Based on the observations made during site audits and construction dust and noise monitoring results, no non-compliances and exceedances of air quality and noise limits were recorded.

Recommendations

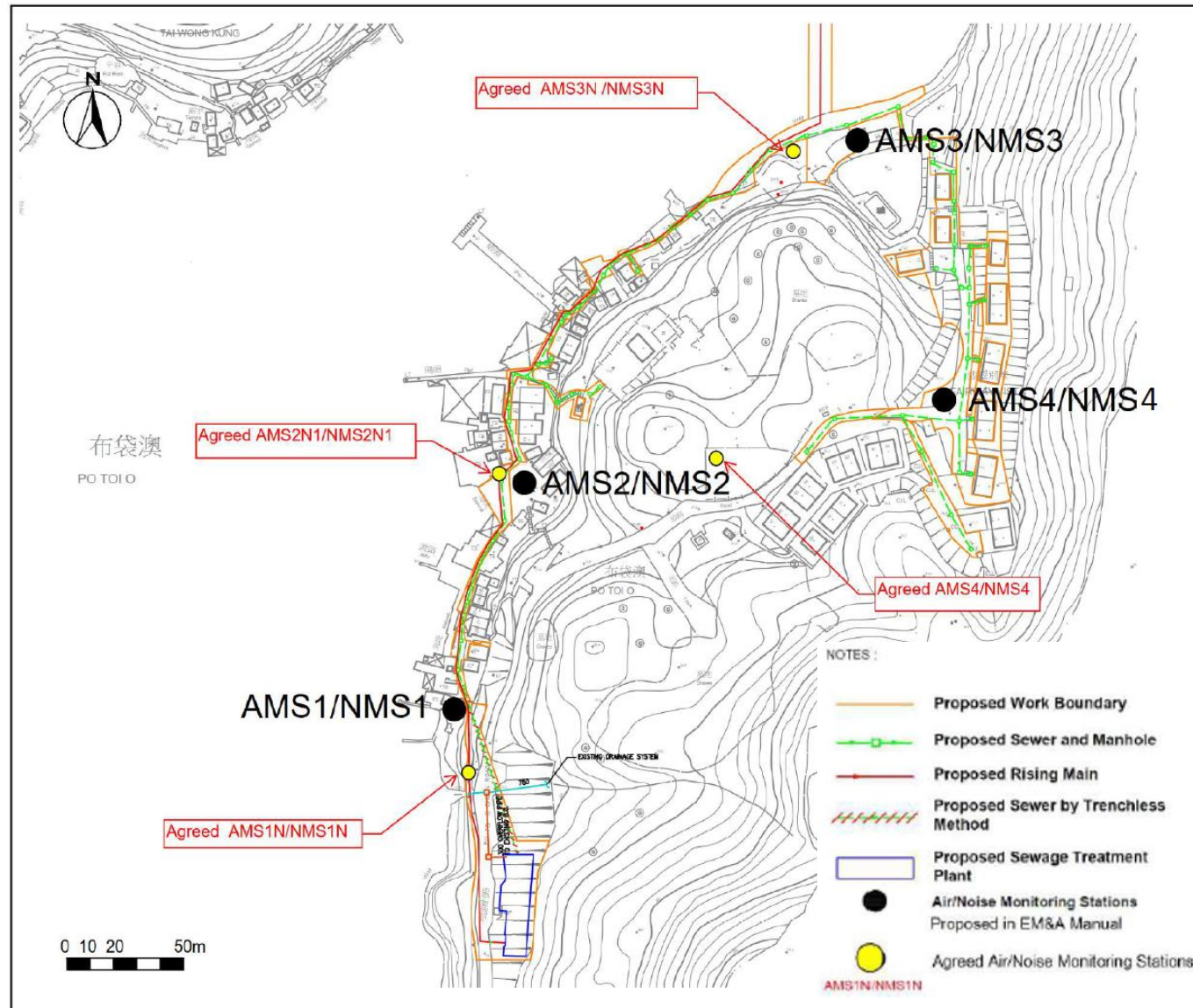
- 7.2 Reviewing the implementation of the recommended mitigation measures in the EM&A Manual, it was observed that they were effective and efficient in controlling the potential impacts due to construction of the project during the reporting quarterly. Review of the effectiveness and efficiency of the EM&A programme will continue, and recommendations will be provided to remediate any potential impacts due to the project and to improve the EM&A programme if deficiencies of the existing EM&A programme are identified.


Conclusion

- 7.3 The EM&A programme as recommended in the EM&A Manual has been undertaken since the construction works of Port Shelter Sewerage, Stage 3 – Sewerage works at Po Toi O works commenced on 1 March 2021.
- 7.4 Monitoring of air quality and noise with respect to the Project is underway. In particular, the 1-hour TSP, 24-hour TSP and noise level (as Leq, 30 minutes) under monitoring have been checked against established Action and Limit levels. There was no breach of Action and Limit Levels for 1-hour TSP, 24-hour TSP and noise monitoring in the reporting quarter.
- 7.5 No complaint was received during the reporting quarter.
- 7.6 No notifications of summons or successful prosecution were received during the reporting quarter.


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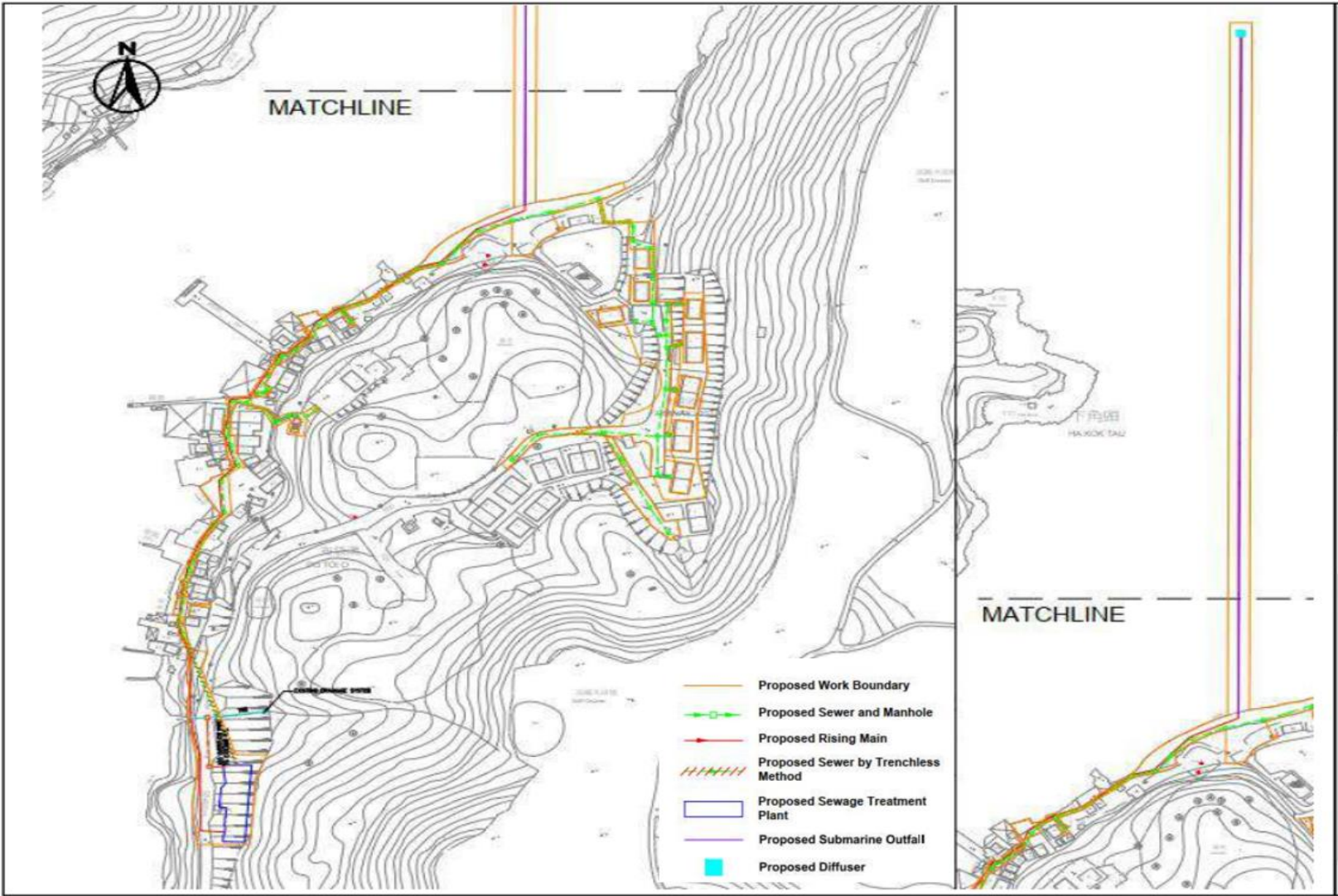
APPENDIX A - LOCATION OF THE MONITORING AND CONTROL STATIONS




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APPENDIX B - LAYOUT PLAN OF PROJECT AREA

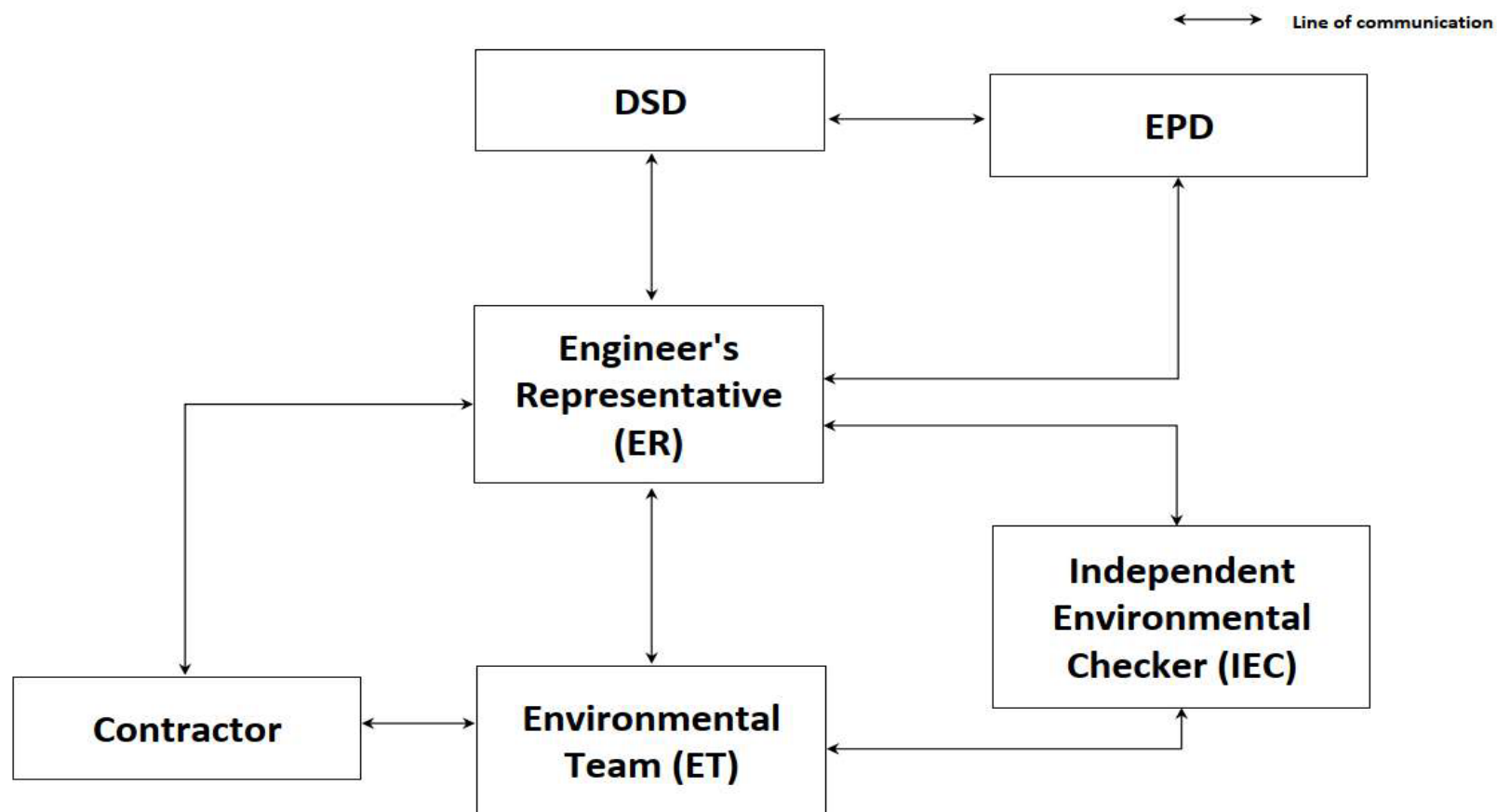
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APPENDIX C - PROJECT ORGANIZATION CHART & CONTACT INFORMATION OF KEY PERSONNEL

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Position	Party	Name	Telephone
Project Proponent	Drainage Services Department (DSD)	Mr. Gary Chung	2594 7227
Senior Resident Engineer (SRE)	Binnies Hong Kong Limited (Binnies)	Mr. Eugene Chan	6392 3809
Independent Environmental Checker (IEC)	Aurecon Hong Kong Limited (Aurecon)	Dr. F.C. Tsang	2698 8060
Environmental Team (ET)	Société Générale de Surveillance (SGS) Hong Kong Limited	Mr. Johnathan Ho	9236 5528
Environmental Officer	China Geo-engineering Corporation (CGC)	Mr. Terry Yuen	6175 5320
Hotline Telephone Number			6902 2820

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APPENDIX D – CONSTRUCTION WORK PROGRAMME




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ID	Task Name	Duration	Starting Date	Percentage of Completion	Completion Date	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	2021	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	2022	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	2023	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	2024	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
105																													
106	Construction of temporary working platform	111 days	Thu 15/12/22	0%	Fri 5/5/23																								
107	Preparation of MDN	99 days	Mon 5/6/23	0%	Fri 20/9/23																								
108	Construction of Cofferdam	50 days	Wed 25/10/23	0%	Thu 21/1/24																								
109	Pilot Drilling of HDD	26 days	Fri 20/10/23	0%	Mon 20/11/23																								
110	Enlargement of HDD and Pipe Installation	52 days	Tue 21/11/23	0%	Tue 29/3/24																								
111	Construction of diffuser manifold	74 days	Wed 24/1/24	0%	Fri 26/4/24																								
112	Removal of cofferdam at both the manifold and the entry pit (including removal of silt curtain after removal of cofferdam)	30 days	Thu 11/4/24	0%	Fri 17/5/24																								
113																													
114	Testing of Submarine Outfall	75 days	Sat 18/5/24	0%	Thu 15/8/24																								
115																													
117	Completion of Section 2	0 days	Thu 15/8/24	0%	Thu 15/8/24																								




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APPENDIX E - IMPLETEMENTATION OF RECOMMENDED MITGATION MEASURES

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Air Quality Impact	A10	Good housekeeping to minimize dust generation, e.g. by properly handling and storing dusty materials.	✓	✓	✓
	A11	Adopt dust control measures, such as dust suppression using water spray on exposed soil at least 4 times a day, in areas with dusty construction activities and during material handling.	✓	✓	✓
	A12	Store cement bags in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags.	N/A	N/A	N/A
	A13	Maintain a reasonable height when dropping excavated materials to limit dust generation.	N/A	N/A	N/A
	A14	Limit vehicle speed within construction site and in Po Toi O to 10km/hr and confine vehicle movement in haul road.	✓	✓	✓
	A15	Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or covering with bitumen.	✓	✓	✓
	A16	Provide wheel washing at construction site exit to clean the vehicle body and wheel.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Air Quality Impact	A17	Cover materials on trucks before leaving the construction site to prevent debris from dropping during traffic movement or being blown away by wind	✓	✓	✓
	A18	Regular maintenance of plant equipment to prevent black smoke Emission.	✓	✓	✓
	A19	Throttle down or switch off unused machines or machine in intermittent use	✓	✓	✓
	A20	Minimize excavation area as far as possible.	✓	✓	✓
	A21	Store odorous excavated materials in covered containers and remove off-site as soon as possible within 24 hours.	✓	✓	✓
	A22	Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms.	✓	Obs.	✓
	A23	Hoarding of not less than 2.4 m high shall be erected from ground level to surround the construction site for sewage treatment plant along Po Toi O Chuen Road except for a construction site entrance or exit.	N/A	N/A	N/A
	A24	Carry out air quality monitoring throughout the construction period	Obs.	Obs.	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Noise Impact	N1	Use hand-held plant equipment or manual equipment within village area.	✓	✓	✓
	N2	For HDD, enclose the stationary plant equipment on three sides with cover. Only the side facing the sea shall be opened for heat exhaustion.	N/A	N/A	N/A
	N3	Generator should be placed at a fixed location at least 5-6m away from the NSRs and screened by noise barrier whenever excavation work must be carried out at their front doors.	✓	✓	✓
	N4	Avoid carrying out noisy activities at the same time. The work front of village sewer installation near NSRs PTO_N1 and PTO_N3 shall not be conducted concurrently with installation of Po Toi O Chuen Road sewer and horizontal directional drilling respectively.	✓	✓	✓
	N5	Vibratory poker shall only be operated 4m away from NSR and with noise barrier properly erected. Surfacing work within 4m from NSR shall be carried out by manual method.	✓	✓	✓
	N6	Schedule noisy activities to minimize exposure of nearby NSRs to high levels of construction noise.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
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Noise Impact	N7	Use Quality Powered Mechanical Equipment (QPME) which produces lower noise level.	✓	✓	✓
	N8	Erect 3m high mobile barriers with skid footing and a small cantilevered upper portion within a few meters of stationary plants and within about 5m of more mobile plant.	✓	✓	✓
	N9	Hand-held breaker shall be fitted with mufflers. A movable enclosure made up of plywood is proposed to surround both worker and breaker during breaking process. The internal wall of the enclosure should be laid with sound absorbent such as mineral wool.	✓	✓	✓
	N10	Regular maintenance of plant equipment to prevent noise emission due to impair.	✓	✓	✓
	N11	Position mobile noisy equipment in location and direction away from NSR.	✓	✓	✓
	N12	Use silencer or muffler on plant equipment and should be properly maintained.	✓	✓	✓
	N13	Throttle down or switch off unused machines or machine in intermittent use between work.	✓	✓	✓
	N14	Make good use of stockpiles or other structures for noise screening.	✓	✓	✓

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Noise Impact	N15	Mobile plant should be sited as far away from NSRs as possible	✓	✓	✓
	N16	Reduce the percentage on-time for some noisy PMEs	✓	✓	✓
	N17	Carry out noise monitoring	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
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Water Quality Impact	W1	Divert the water from outfall of W3 (stream near Fairway Vista) during open cut excavation for laying of gravity sewer nearby.	✓	✓	✓
	W2	Place sandbag along the upstream section of the stream near Fairway Vista and along rocky shore during open cut excavation for laying of gravity sewers/rising mains nearby.	✓	✓	✓
	W3	Intercept the water from u-channel at the foot of the slope where the STP will be built.	✓	✓	✓
	W4	Install cofferdam around the proposed excavation area for entry pit of HDD work to prevent falling of debris into the sea	N/A	N/A	N/A
	W5	Install sheet piles in marine waters by vibratory action.	N/A	N/A	N/A
	W6	Marine works (dredging, construction and installation works at diffuser location, backfilling) shall be carried out inside the watertight cofferdam. The cofferdam can only be removed after completion of work.	N/A	N/A	N/A
	W7	Dredging should be carried out by grab dredgers anchored outside the cofferdam. The marine sediment should be placed in sealed compartment of the marine barge.	N/A	N/A	N/A
	W8	Water removed from the cofferdam should be desilted before discharge back into the sea.	N/A	N/A	N/A

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Water Quality Impact	W9	Carry out water quality monitoring at water sensitive receivers before and during cofferdam installation works, throughout dredging works, and during cofferdam extraction works.	N/A	N/A	N/A
	W12	Set up sedimentation tank for settling suspended solids in wastewater before discharge into storm drains. Sand/silt removal facilities such as sand traps, silt traps and sedimentation basin should be provided with adequate capacity.	Obs.	✓	Obs.
	W13	Follow ProPECC PN 1/94 "Construction Site Drainage" as far as practicable	✓	✓	✓
	W14	Construct catchpits and perimeter channels prior to commencement of site formation works and earthworks	✓	Obs.	✓
	W15	Maintain silt removal facilities, channels, manholes before and after rainstorm.	Rem.	✓	✓
	W16	Remove silt and grit from silt trap at regular interval.	✓	✓	✓
	W17	Well design works program to minimize the work areas to minimize the soil exposure and site runoff.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Water Quality Impact	W18	Arrange soil excavation works outside rainy seasons (April to September) as far as possible. If this cannot be achieved, the following measures should be implemented:	✓	✓	✓
		Cover temporary exposed slope surfaces with impermeable materials, e.g. tarpaulin.	✓	✓	✓
		Protect temporary access roads by crushed stone or gravel.	✓	✓	✓
		Provide intercepting channels along crest/edge of excavation.	✓	✓	✓
	W19	Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or covering with bitumen.	✓	✓	✓
	W20	Prevent rainwater from entering trenches. Excavation of trenches should be dug and backfilled in short sections during rainy seasons. Remove silt in rainwater collected from the trenches or foundation excavations prior to discharge to storm drains.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Water Quality Impact	W21	Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms.	Rem.	Obs.	✓
	W22	Cover and temporary seal manholes to prevent silt, construction materials or debris and surface runoff from entering foul sewers.	✓	✓	✓
	W23	Remove waste from the construction site regularly.	✓	✓	✓
	W24	Apply discharge license for effluent discharge. Treat the discharge to comply with the requirement in TM-DSS.	✓	✓	✓
	W25	Reuse treated effluent onsite, e.g. dust suppression, wheel washing and general cleaning.	✓	✓	✓
	W26	Monitor effluent water quality.	✓	✓	✓
	W27	Register as chemical waste producer if chemical waste will be generated.	✓	✓	✓
	W28	Perform maintenance of vehicles and equipment that have oil leakage and spillage potential on hard standings within a bunded area with sumps and oil interceptors.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Water Quality Impact	W29	Dispose chemical waste in accordance to Waste Disposal Ordinance. Follow the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> , examples as follows:	✓	✓	✓
		Store chemical wastes with suitable containers to avoid leakage or spillage during storage, handling and transport.	✓	✓	✓
		Label chemical waste containers according to the CoP to notify and warn the waste handlers.	✓	✓	✓
		Store chemical wastes at designated safe location with adequate space.	✓	Obs.	✓
	W30	Provide sufficient chemical toilets with regular maintenance by registered waste collector where necessary.	✓	✓	✓
	W31	Provide a drip tray/container underneath the bentonite recycling system.	N/A	N/A	N/A
	W32	Carry out regular site inspection to audit the implementation of mitigation measures.	✓	✓	Obs.
	W33	Carry out effluent quality monitoring at location specified in the discharge license.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Waste/Chemical Management	WM4	Allocate an area for waste sorting and storage of C&D materials into the following categories for reuse, recycle or disposal if possible. Remove waste from the construction site for sorting once generated if no suitable space can be identified.	✓	✓	✓
		Excavated materials suitable for reuse	✓	✓	✓
		Inert C&D materials (or public fill) for disposal offsite	✓	✓	✓
		Non-inert C&D materials (or C&D waste) for disposal at landfills	✓	✓	✓
		Records of quantities generated/ recycled/ disposed maintained?	✓	✓	✓
		Chemical waste	✓	✓	✓
		Bentonite slurry for reconditioning and reuse	N/A	N/A	N/A
		General refuse	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Waste/Chemical Management	WM5	Adopt good site practice as follows:	✓	✓	✓
		Provide training to workers on site cleanliness, waste management (waste reduction, reuse and recycle) and chemical handling procedures.	✓	✓	✓
		Cover waste materials with tarpaulin or in enclosure during transportation.	✓	Obs.	✓
		Maintain drainage systems, sumps and oil interceptors.	✓	✓	✓
		Sort out chemical waste for proper handling and treatment onsite or offsite.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Waste/Chemical Management	WM6	Adopt good site practice as follows:	✓	✓	✓
		Allocate area/containers for sorting, recovering and storing waste for reuse, recycle or disposal (e.g. demolition debris and excavated materials, general refuse like aluminum cans.) Remove waste from the construction site for sorting once generated if no suitable space can be identified.	✓	✓	✓
		Allocate area for proper storage of construction materials to prevent contamination prevent soil contamination?	✓	✓	✓
		Maintain drainage systems, sumps and oil interceptors.	✓	✓	✓
		Minimize wastage through careful planning and avoiding over purchase of construction materials	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Waste/Chemical Management	WM7	Prepare and implement a site-specific Waste Management Plan (WMP) as part of Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/2005. Detail waste management method in the form of avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal according to the recommendations on the EIA and EM&A Manual. It should be approved by the ER and regularly reviewed.	✓	✓	✓
	WM8	Store waste materials properly as follows:	✓	✓	✓
		Avoid contamination by proper handling and storing waste.	✓	✓	✓
		Prevent erosion by covering waste.	✓	✓	✓
		Apply water spray on excavated materials.	✓	✓	✓
		Maintain and clean storage area regularly.	✓	✓	✓
		Sort and stockpile different materials at designated location to enhance reuse.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Waste/Chemical Management	WM9	Apply for relevant waste disposal permits in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap.28) Dumping at Sea Ordinance (Cap. 466).	✓	✓	✓
	WM10	Hire licensed waste disposal contractors for waste collection and removal. Dispose waste at licensed waste disposal facilities	✓	✓	✓
	WM11	Implement trip-ticket system for recording the amount of waste generated, recycled and disposed, including chemical wastes	✓	✓	✓
	WM12	Provide wheel washing at construction site exit to clean the vehicle body and wheel.	✓	✓	✓
	WM13	Reduce water content in wet spoil generated from piling work by mixing with dry materials. Only dispose treated spoil with less than 25% dry density to Public Fill Reception Facilities	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Waste/Chemical Management	WM14	Dispose dry waste or waste with less than 70% water content by weight to landfill.	✓	✓	✓
	WM15	Follow the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste as follows:	✓	✓	✓
		Store chemical wastes with suitable containers. Seal and maintain the container to avoid leakage or spillage during storage, handling and transport.	✓	✓	✓
		Label chemical waste containers in both English and Chinese with instructions in accordance to Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.	✓	✓	✓
		The container capacity should be smaller than 450 litres unless agreed by the EPD.	✓	✓	✓

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			June 2023	July 2023	August 2023
Waste/Chemical Management	WM16	Comply with the requirement of the chemical storage area:	✓	✓	✓
		Store only chemical waste and label clearly the chemical characters of the waste.	✓	✓	✓
		Have at least 3 sides enclosed and protected from rainfall with cover.	✓	✓	✓
		Provide sufficient ventilation	✓	✓	✓
		Have impermeable floor and has bunds to contain 110% of the capacity of the largest container or 20% of the total volume of the stored waste in the area, whichever is larger		✓	✓
	WM17	Transfer used lubricants, waste oils and other chemicals to oil recycling companies, if possible, and empty oil drums for reuse or refill. No direct or indirect discharge is permitted	✓	✓	✓
	WM18	Hire licensed chemical waste disposal contractors for waste collection and removal. Dispose chemical waste at the approved Chemical Waste Treatment Centre at Tsing Yi or other licensed facility.	✓	✓	✓
	WM19	Hire reputable waste collector to separately collect and dispose general refuse from other wastes. Cover the waste to prevent being blown away.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Waste/Chemical Management	WM20	Provide recycling bins for sorting out recyclables for collection by recycling companies. Non-recyclables should be removed to designated landfills every day by licensed collectors to prevent environmental and health nuisance.	✓	✓	✓
	WM21	Organize training and reminders to site staff on waste minimization through avoidance and reduction, reusing and recycling.	✓	✓	✓
	WM22	Used bentonite shall be reconditioned onsite and reused as far as practical to minimize wastage. If this is deemed not viable, the used bentonite shall be delivered offsite for reconditioning.	N/A	N/A	N/A
	WM23	Characterize the sediment quality of the marine sediment to be dredged and submit a Sediment Quality Report for EPD's approval. Dispose the dredged marine sediment in accordance with ETWB TC(W) No. 34/2002.	N/A	N/A	N/A

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Ecology	E1	Erect bright colour fencing along the boundary of the undisturbed region of the shrubland and woodland, and around <i>Diospyros vaccinioides</i> , a plant species of conservation importance, near the work boundary to remind workers not to trespass or occupy the area, and to be careful during operation of equipment.	✓	✓	✓
	E2	Reinstate the disturbed rocky shore with the rocks temporarily removed.	N/A	N/A	N/A
	E3	Place sandbag around the section of W3 next to Fairway Vista and along the shore during open cut excavation for laying of gravity sewer nearby.	✓	✓	✓
	E4	Temporarily divert the water from outfall of W3 away from excavation area.	✓	✓	✓
	E5	Inspect the condition of the <i>Diospyros vaccinioides</i> near the work boundary as part of weekly site audit.	✓	✓	✓
	E6	Erection of hoarding, fencing or provision of clear demarcation of work zones	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Ecology	E7	Designate areas for placement of equipment, building materials and wastes away from the natural environment.	✓	✓	✓
	E8	Carry out tree preservation and compensatory tree planting will be carried out in accordance with DEVB TCW No. 7/2015.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Landscape and Visual	CM8	Protective materials to be provided to natural rocky coastline to prevent damage to existing landform from plant and machinery during temporary drilling operations. Reinstatement following removal of plant & equipment to original or improved condition shall be undertaken.	N/A	N/A	N/A
	OM2	Use of appropriate building materials and colours for Sewage Treatment Plant to complement surroundings	N/A	N/A	N/A
	CM1	The construction area and contractor's temporary works areas should be minimized to avoid impacts on adjacent landscape. All slope excavation shall take place from within the work boundary to minimize impacts on adjacent slopes.	✓	✓	✓
	CM2	Reduction of construction period to practical minimum.	✓	✓	✓
	CM3	Construction traffic (land and sea) including construction plant, construction vessels and barges to be kept to a practical minimum.	✓	✓	✓
	CM4	Erection of decorative mesh screens or construction hoardings and/or temporary noise barriers around works areas in visually unobtrusive colors.	✓	✓	✓
	CM5	Avoidance of excessive height and bulk of site buildings and structures.	✓	✓	✓

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
			June 2023	July 2023	August 2023
Landscape and Visual	CM6	Protective materials to be provided to natural rocky coastline to prevent damage to existing landform from plant and machinery during temporary drilling operations. Reinstatement following removal of plant & equipment to original or improved condition shall be undertaken.	✓	✓	✓
	CM7	All existing trees shall be carefully protected during construction. A Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. Tree risk assessment shall be undertaken to all existing trees within the project site as per "Guidelines for Tree Risk Assessment and Management Arrangement"	✓	✓	✓
	OM3	Lighting units to be directional and minimize unnecessary light spill and glare.	N/A	N/A	N/A
	OM4	Greening measures to reinstate the landscape which are appropriate to the context, including tree and shrub planting and vertical greening, shall be implemented.	N/A	N/A	N/A

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Item	EM & A Ref.	EM&A Manual Recommended Mitigation/ Actions	Implementation Status		
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Building Heritage	BH1	Undertake condition survey by professional qualified building surveyor or engineer to record the existing condition of the built heritage resources.	✓	✓	✓
	BH2	Carry out vibration and settlement monitoring to build heritage resources. A maximum vibration level 7.5mm/s shall be adopted for the Grade 3 Hung Shing Temple and settlement check points in the Alert/Alarm/Action limit levels at 6mm/8mm/10mm shall be adopted.	✓	✓	✓
	BH3	Are protective covering or protective screen provided to build heritage resources which are close to building area? (c.f. BH3)	N/A	N/A	N/A
	BH4	Maintain public access to the cultural landscape features (c.f. BH4)	N/A	N/A	N/A
	BH5	Provision of at least 1m buffer zone from the proposed works provided? (c.f. BH5)	N/A	N/A	N/A


Remark

N/A – Not Applicable


✓ – Implemented

Obs. – Observed

Rem. – Reminder

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APPENDIX F - METEOROLOGICAL DATA EXTRACTED FROM HONG KONG OBSERVATORY

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2023/06 Daily Extract of Meteorological Observations from HKO


Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
1	1002.8	31.6	29.2	26.2	25.1	79	71	6	6.4	240	12.3
2	1004.8	35.2	30.7	28.2	25.9	76	48	0	10.7	230	17.7
3	1007.6	34.9	30.8	28.9	26.1	76	47	0.6	9	130	11.8
4	1008.4	32.7	30	27.9	26.2	81	65	5.1	8.7	90	18.3
5	1007.9	32.9	29.7	27.7	25.7	79	83	4.8	6.2	90	28.7
6	1007.8	30.2	28.4	26.8	26	87	90	31.1	1.1	90	23.1
7	1008.7	31.5	28.5	27	26.2	88	85	27.1	1.6	140	23.5
8	1007.1	33.1	29.4	27.4	25.9	82	79	2.6	3.9	150	20
9	1004.2	32	29	26.7	25.8	83	86	16.8	5.1	190	9.8
10	1001.9	33	29.5	28	25.4	79	85	0.3	6	190	8.3
11	1001.6	32.5	29.2	27.3	25.9	83	86	25.4	5.8	90	7.8
12	1001.9	33.7	30.2	28.2	25.6	77	82	0.2	8.3	90	16.5
13	1002.6	32.7	29.8	25.8	26.2	81	86	31.8	3.5	170	11.7
14	1004.9	29.6	27.7	25.1	25.4	88	92	62.8	2.2	190	11.4
15	1005.1	28.7	27.4	26.1	25.7	91	88	41.5	0	200	10.9
16	1007.1	28.1	26.4	25.2	25	92	90	41.7	0.1	230	17.7
17	1009.3	28	26.2	25.3	25.2	94	90	89.9	0	120	12
18	1008.9	29.9	28	25.7	25.9	89	88	35.8	0.6#	170	23.8
19	1007.5	31.4	29.1	26.9	26	83	87	10.2	4.4	220	26.2
20	1007	32.2	30	27.8	26.1	80	79	2.3	7.1	220	24.8
21	1007.4	32.2	30.2	28.7	26.1	79	85	1.9	9	230	26.3
22	1007.2	32.4	30.2	29	25.8	77	88	0.6	9.3	230	25.2
23	1006.5	31.2	30	28	26.1	80	88	2.3	1.3	200	26
24	1007.1	31	29.1	27.4	26.3	85	88	8.2	0.1	190	26
25	1008.2	32.9	29.4	26.1	26	83	88	13	6.2	150	15.8
26	1008.5	32.9	29.4	26.6	26.2	83	88	11.4	6.4	70	13.8
27	1009.5	33.9	30.1	28.1	26.1	80	76	Trace	8.1	60	18.9
28	1009.9	31.3	28.8	26.9	26.2	86	84	5.4	3.5	90	14.6
29	1006.9	33.3	29.5	27.1	26.3	84	84	0.9	6.2	50	11.5
30	1005.6	32.5	29.8	26.5	26.3	82	83	11.2	6.6	240	14.5
Mean/Total	1006.5	31.9	29.2	27.1	25.9	83	82	490.9	147.4	90	17.6
Climatological Normal?	1006.1	30.7	28.3	26.5	24.9	82	77	491.5	144.3	220	21.6

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Source: [Daily Extract](#) | [Hong Kong Observatory\(HKO\)](#) | [Climate Information Service](#)

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2023/07 Daily Extract of Meteorological Observations from HK


Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
1	1006.6	30.9	28.9	26.2	25.6	82	85	4.7	1.9	200	16.2
2	1007.9	29.3	27.5	26.2	25.5	89	88	15.6	0.9	240	11.6
3	1008.8	32.4	28.9	27	25.7	83	82	3.6	5.7	200	19.5
4	1008.7	32	29.3	26.7	25.8	82	87	10.6	5.5	230	25.5
5	1008.4	33	30.4	28.9	25.9	77	86	Trace	9.3	230	25.5
6	1008.9	32.8	30.3	28.4	25.7	77	77	Trace	8.9	230	26.7
7	1009.7	33.4	30.4	29	25.7	76	71	0.3	9.8	220	24.7
8	1010.4	33.2	30.4	28.8	25.6	76	48	0	11.5	240	18.7
9	1009.8	33.7	30.5	28.7	26	77	46	Trace	10.7	240	21.5
10	1008.5	33.7	30.7	28.9	25.7	75	40	0	11.1	240	21.5
11	1008.4	33.6	30.7	28.9	25.8	76	42	0	11	240	18
12	1008.2	34.5	30.7	28.9	25.4	74	40	0	7.1	180	11
13	1006.8	34.8	30.9	28.6	24.8	71	58	0	12	90	6.5
14	1004.4	33.8	31.3	28.5	25.2	71	68	0	10.8	240	9.1
15	1000.8	34.5	31.1	28.2	25.8	74	83	2.5	9	270	11.7
16	997.7	33.3	29.7	27.2	24.8	75	87	4.9	5.9	50	45.5
17	997.5	29.4	28.4	27.2	25.7	85	88	29	0.1	100	61.4
18	1004.5	31.1	29.2	27.5	26.6	86	88	10.9	1.1	120	35.3
19	1007.5	30.3	28.7	27.3	26.5	88	88	3.9	1.1	120	19.8
20	1008.5	33.6	29.6	26.8	25.6	80	84	4.8	8.4	120	10.6
21	1009.7	32.4	29.7	27.7	25.6	79	76	Trace	4.5	160	5.4
22	1010.8	34	30.6	28.3	25.7	76	77	0	8.8	120	4.6
23	1009.5	34.1	30.6	28.6	26	77	86	Trace	9.5	110	8
24	1007.7	34.6	30.7	28.4	26	76	62	0	9.1	130	5.5
25	1006.3	33.4	30.7	28.4	25.3	73	56	0	11.5	240	14.3
26	1002.3	35.5	32	29.3	26.1	72	78	0	7.9	10	8.7
27	997.7	36.1	32.2	28.4	25.1	67	77	6.9	7.5	360	16.6
28	996.8	34.7	31.5	28.9	25.7	72	86	0	6.1	230	16.6
29	1002.3	31.5	29.8	27.2	26.8	84	91	21	0.5	220	18
30	1005.4	32.1	29.2	27.5	26.7	87	88	10	3	140	17.3
31	1006.3	32.5	29.1	26.5	26.1	84	85	46.5	9	80	21.9
Mean/Total	1006	33	30.1	28	25.8	78	74	175.2	219.2	230	18.6
Climatological Normal?	1005.6	31.6	28.9	26.9	25.2	81	72	385.8	197.3	230	21.3

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989

Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Source: [Daily Extract](#) | [Hong Kong Observatory\(HKO\)](#) | [Climate Information Service](#)

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2023/08 Daily Extract of Meteorological Observations from HKO

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
1	1004.7	32.2	29.3	27.9	25.3	80	75	Trace	7	70	10.6
2	1003.7	34.6	30.4	27.9	24.1	70	52	0	11	60	9.4
3	1002.8	35.1	30.8	27.9	25.2	73	43	0	11	230#	11.6#
4	1004.7	33.5	30.5	28.3	26	77	86	2.6	9	220	28.3
5	1004.5	33	30.4	28.3	26.3	79	84	5.9	7	230	30.1
6	1002.4	33	30.3	29.2	26.1	78	71	Trace	7.2	230	28.8
7	1001.8	32.4	30.1	28	25.4	76	69	1.6	6.3	230	21.2
8	1003.6	33.3	30.3	28.9	25.2	74	69	0	8.3	230	18
9	1004.9	32.8	30.3	28.7	25.4	76	73	Trace	5.9	230	21.5
10	1004.7	32.1	29.2	27.5	25.7	82	86	11.1	1.4	230#	18.0#
11	1003.5	30.1	27.8	25.7	24.9	85	85	26.4	2.6	***	***
12	1003.5	32.1	29	26.6	24.9	79	86	0.9	8.5	***	***
13	1003.7	29.6	28.5	26.1	25.6	84	87	34.2	1	***	***
14	1005.2	32.2	29.4	27	25.9	82	88	3.6	4	***	***
15	1006.7	32.5	29.9	28.8	26.2	80	85	Trace	3.2#	***	***
16	1006.8	34	30.6	28.8	26.2	78	70	0	10.7	220#	21.9#
17	1005.2	32	30	29	26.5	82	85	Trace	5.3	250	22
18	1004	30.6	29.2	27.2	26.6	86	88	9.3	2.1	240#	16.5#
19	1005.7	30.6	28.8	27.3	25.8	84	88	0.3	3.4	230	11.6
20	1007.7	31.5	29.7	28.4	26	80	86	0.6	3.3	120	2.8
21	1007.8	32.1	29.6	28.2	26.2	82	86	0.2	6	20	6.4
22	1006.1	33	30	28	25.8	79	88	0.3	6.4	180	5.5
23	1005.3	33.5	30.4	28.2	25.9	78	86	0.3	6.9	190	8.7
24	1006.7	31.4	29.1	27.5	26.1	85	88	5.7	1.4	30	11.7
25	1006.8	30.9	29.3	28.2	26.1	83	77	0.2	3.3	20	8.4
26	1005.2	32.8	29.7	27.9	26.4	83	88	0	3.5	110	5.7
27	1003.2	31.9	29.4	26.4	26.4	84	87	2.2	2.8	110	7.1
28	1002.6	33.4	29.9	28.1	26.2	81	88	0.5	3.3	110	5.3
29	1003.5	32.6	29	26.8	25.8	83	87	34.4	4.6	20	10.5
30	1003.9	32	28.9	26.7	23.3	72	83	0	6.7	360	20
31	1002.7	32.1	29.2	27.7	23.2	70	88	0.4	3.3	350	31.2
Mean/Total	1004.6	32.4	29.7	27.8	25.6	79	81	140.7	166.4	230#	14.9#
Climatological Normal?	1005.2	31.3	28.7	26.7	25.1	81	70	453.2	182.1	230	18.8


*** unavailable

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since August 1989


Trace means rainfall less than 0.05 mm

? 1991-2020 Climatological Normal, unless otherwise specified

Source: [Daily Extract](#) | [Hong Kong Observatory\(HKO\)](#) | [Climate Information Service](#)


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APPENDIX G - GRAPHICAL PLOTS OF THE MONITORING RESULT


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AMS1N – 1-hour and 24-hour TSP monitoring


Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
6-Jun-23	Cloudy	47.3	42.0
12-Jun-23	Fine	33.7	36.0
16-Jun-23	Cloudy	28.7	28.0
21-Jun-23	Fine	31.3	27.0
27-Jun-23	Cloudy	58.7	67.0

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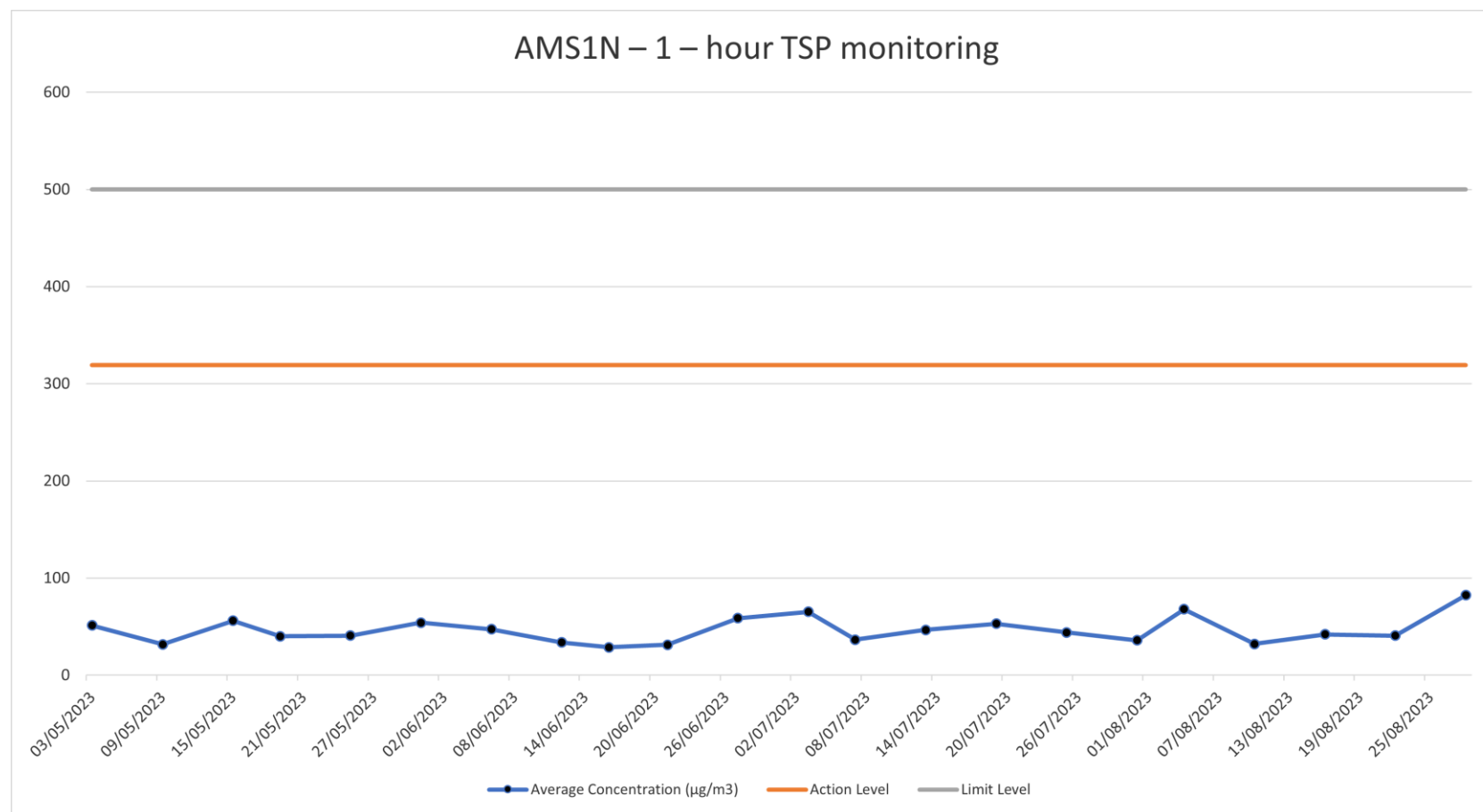
Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
3-Jul-23	Cloudy	65.3	59.0
7-Jul-23	Fine	36.7	37.0
13-Jul-23	Fine	46.7	42.0
19-Jul-23	Fine	53.0	44.0
25-Jul-23	Fine	44.0	62.0
31-Jul-23	Fine	36.0	39.0


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Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
4-Aug-23	Fine	68.0	59.0
10-Aug-23	Rainy	32.3	29.0
16-Aug-23	Fine	42.0	28.0
22-Aug-23	Cloudy	40.7	39.0
28-Aug-23	Fine	82.3	65.0
	Average:	46.7	43.9
	Action Level:	319	153
	Limit Level:	500	260

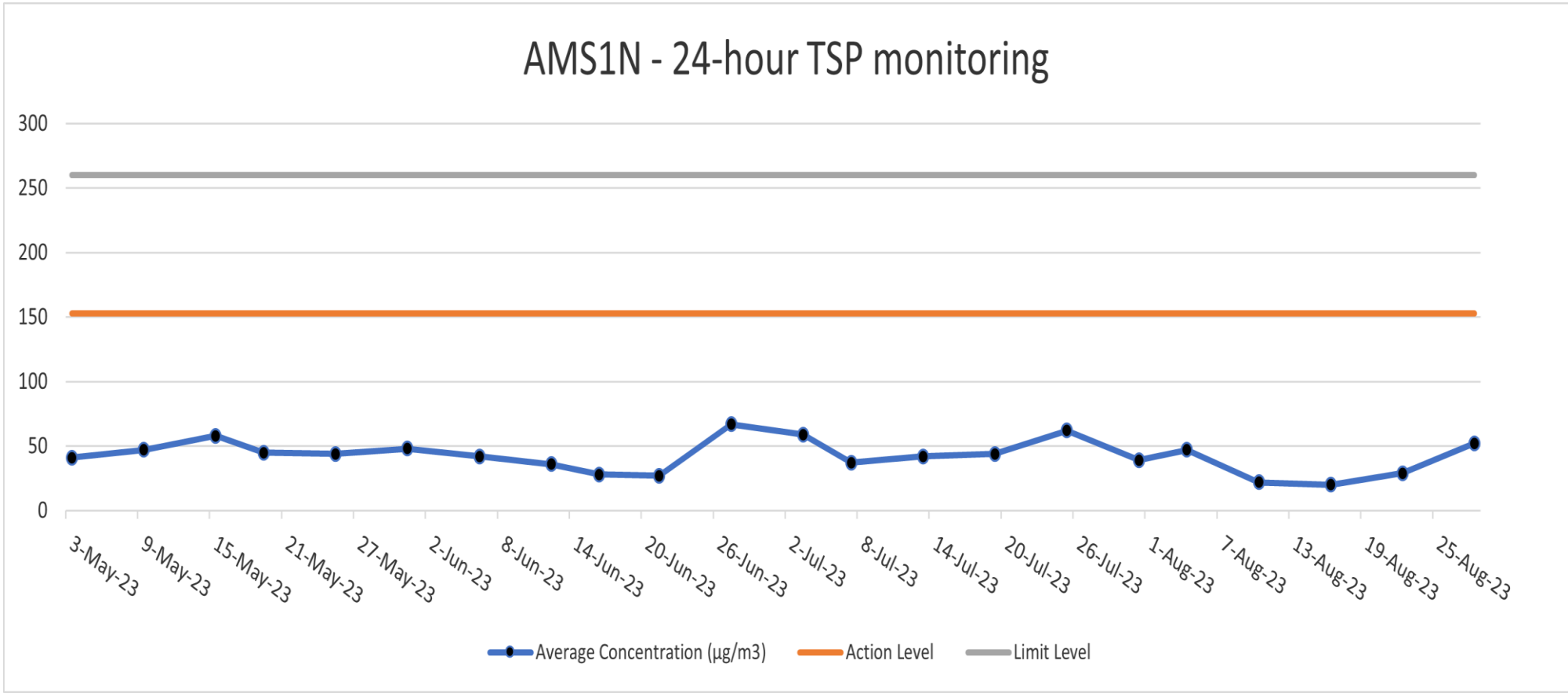
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AMS1N- 1 – hour TSP Monitoring



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AMS1N- 24– hour TSP Monitoring




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AMS2N1 – 1- hour and 24-hour TSP Monitoring


Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
6-Jun-23	Cloudy	72.7	68.0
12-Jun-23	Fine	53.3	54.0
16-Jun-23	Cloudy	44.7	44.0
21-Jun-23	Fine	32.3	33.0
27-Jun-23	Cloudy	149.0	157.0

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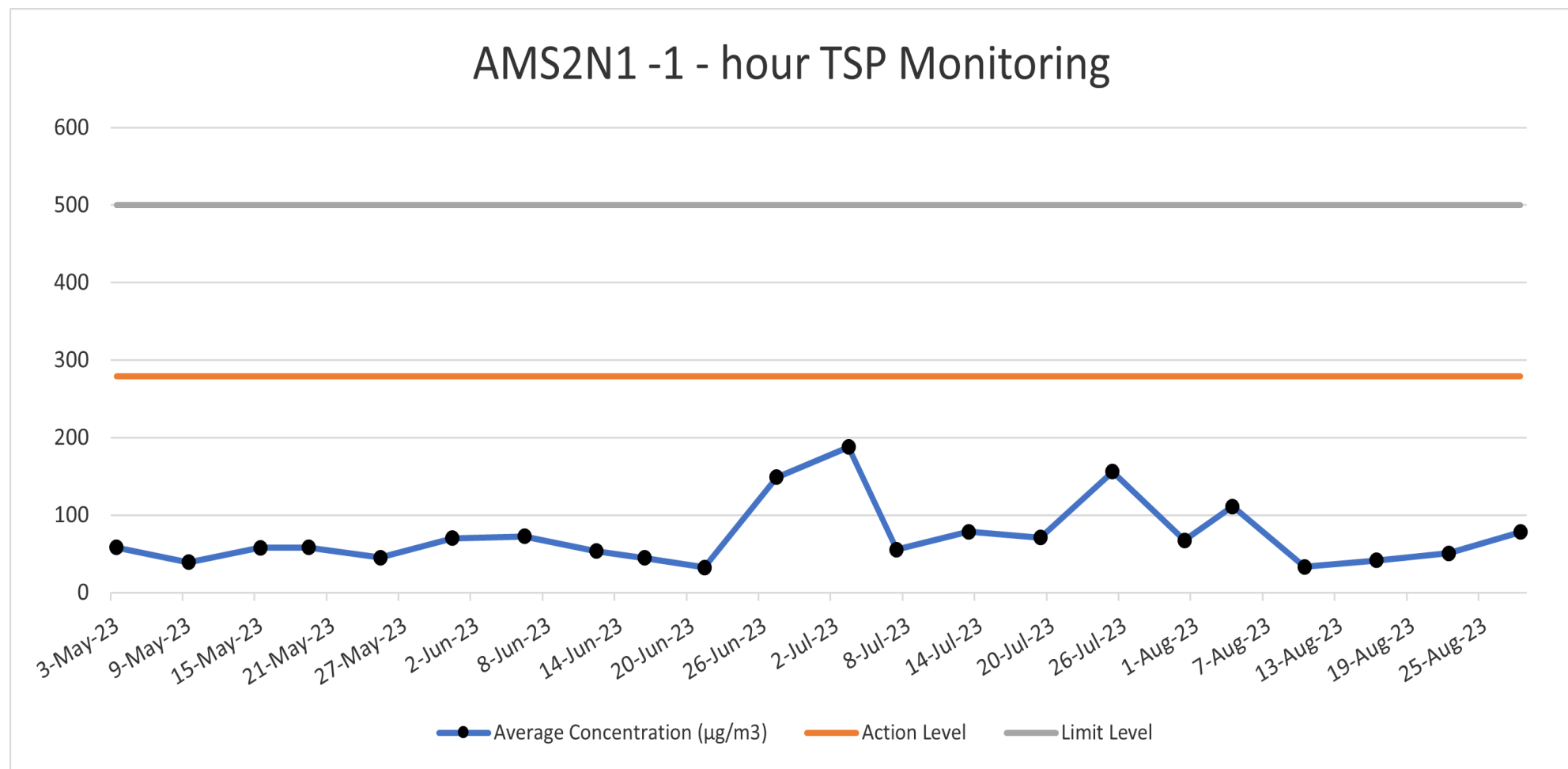
Date	Weather	1-hour TSP Monitoring	Date
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
3-Jul-23	Cloudy	187.7	159.0
7-Jul-23	Fine	55.3	58.0
13-Jul-23	Fine	78.3	79.0
19-Jul-23	Fine	71.0	56.0
25-Jul-23	Fine	156.0	145.0
31-Jul-23	Fine	67.3	72.0

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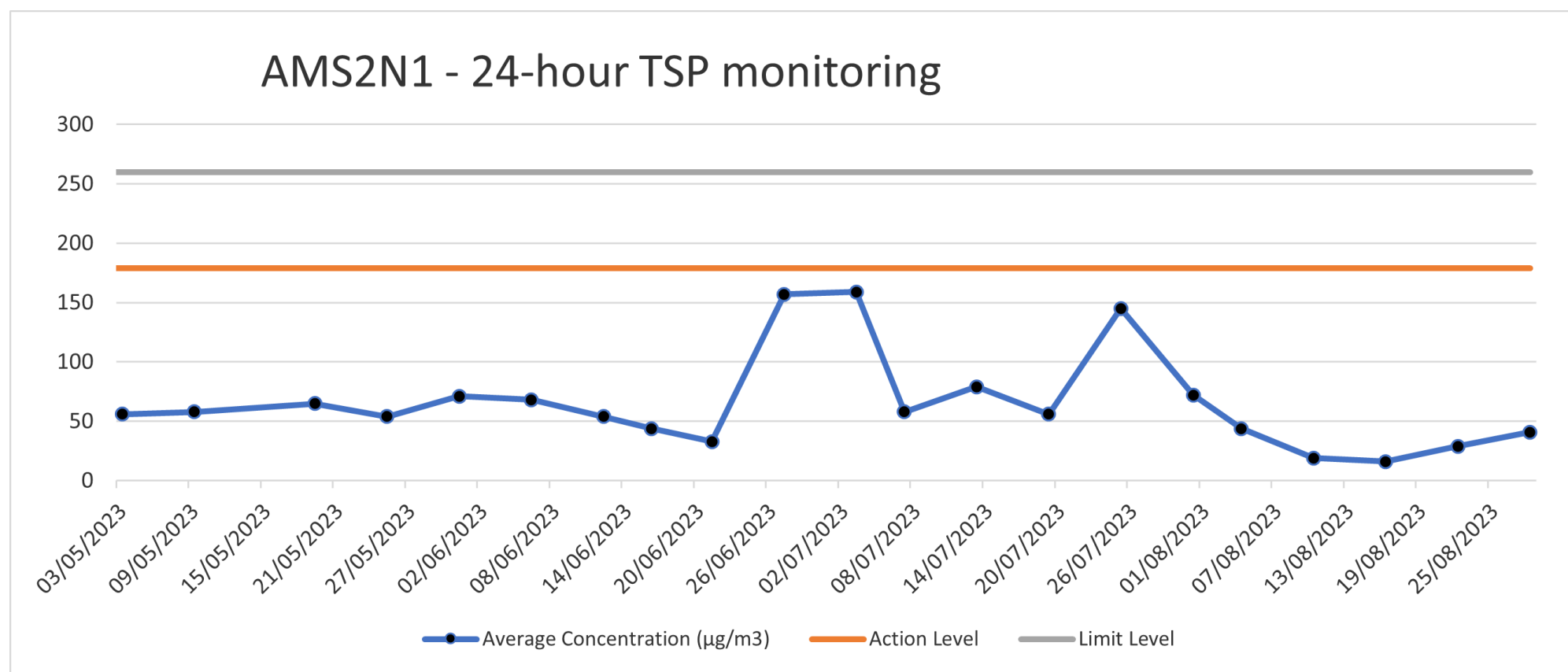
Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
4-Aug-23	Fine	111.0	80.0
10-Aug-23	Rainy	33.3	34.0
16-Aug-23	Fine	41.7	28.0
22-Aug-23	Cloudy	50.7	51.0
28-Aug-23	Fine	78.0	74.0
	Average:	80.1	74.5
	Action Level:	279	179
	Limit Level:	500	260


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AMS2N- 1 – hour TSP Monitoring




AMS2N1- 24 – hour TSP Monitoring




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AMS3N – 1- hour and 24-hour TSP Monitoring


Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
6-Jun-23	Cloudy	42.0	34.0
12-Jun-23	Fine	30.7	32.0
16-Jun-23	Cloudy	23.0	25.0
21-Jun-23	Fine	24.7	24.0
27-Jun-23	Cloudy	80.0	75.0

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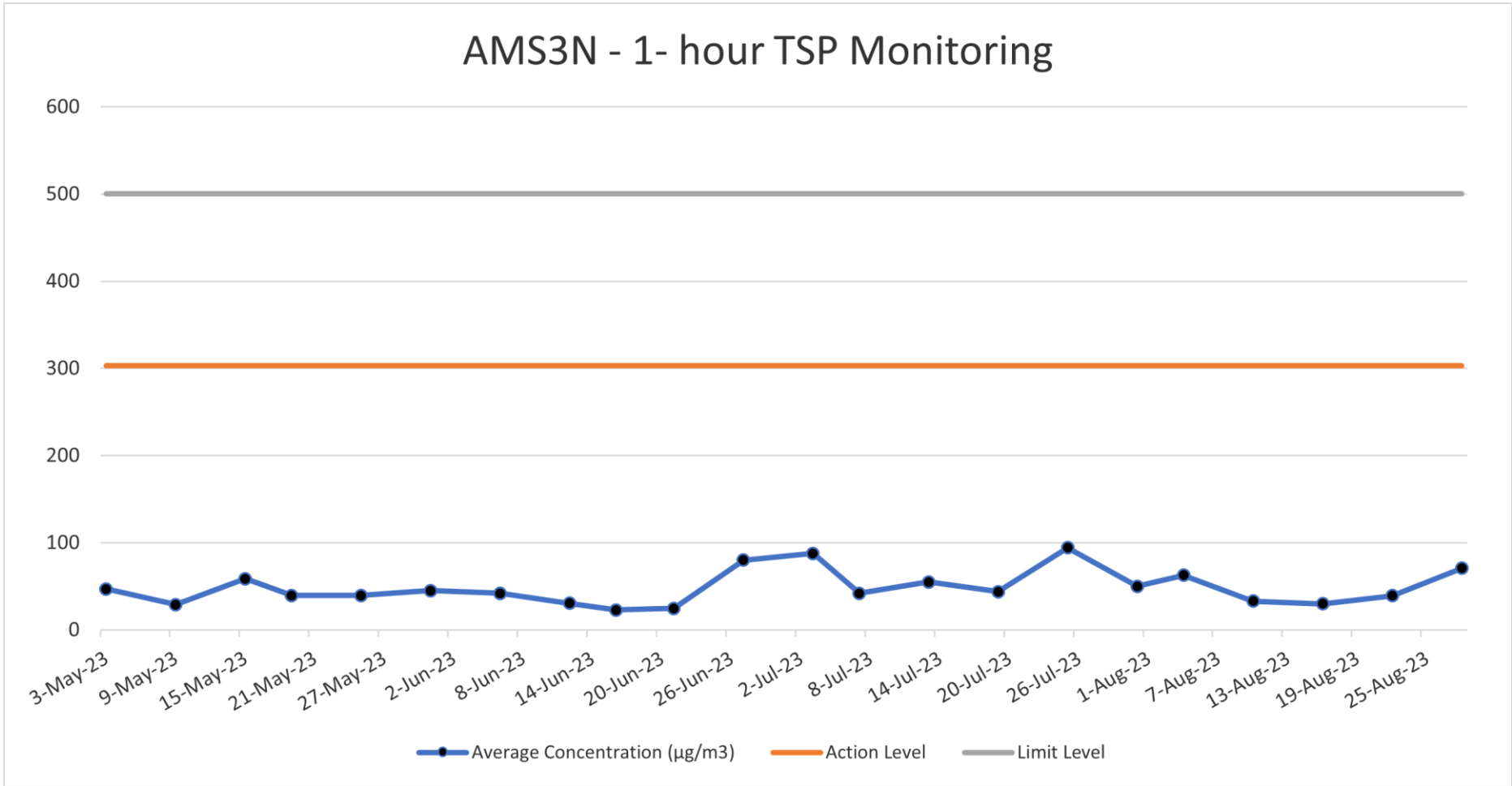
Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
3-Jul-23	Cloudy	87.7	82.0
7-Jul-23	Fine	42.0	34.0
13-Jul-23	Fine	55.0	52.0
19-Jul-23	Fine	44.0	41.0
25-Jul-23	Fine	94.3	83.0
31-Jul-23	Fine	45.0	46.0


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Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
4-Aug-23	Fine	62.7	56.0
10-Aug-23	Rainy	33.0	30.0
16-Aug-23	Fine	30.0	25.0
22-Aug-23	Cloudy	39.3	37.0
28-Aug-23	Fine	70.7	60.0
	Average:	50.3	46.0
	Action Level:	303	158
	Limit Level:	500	260

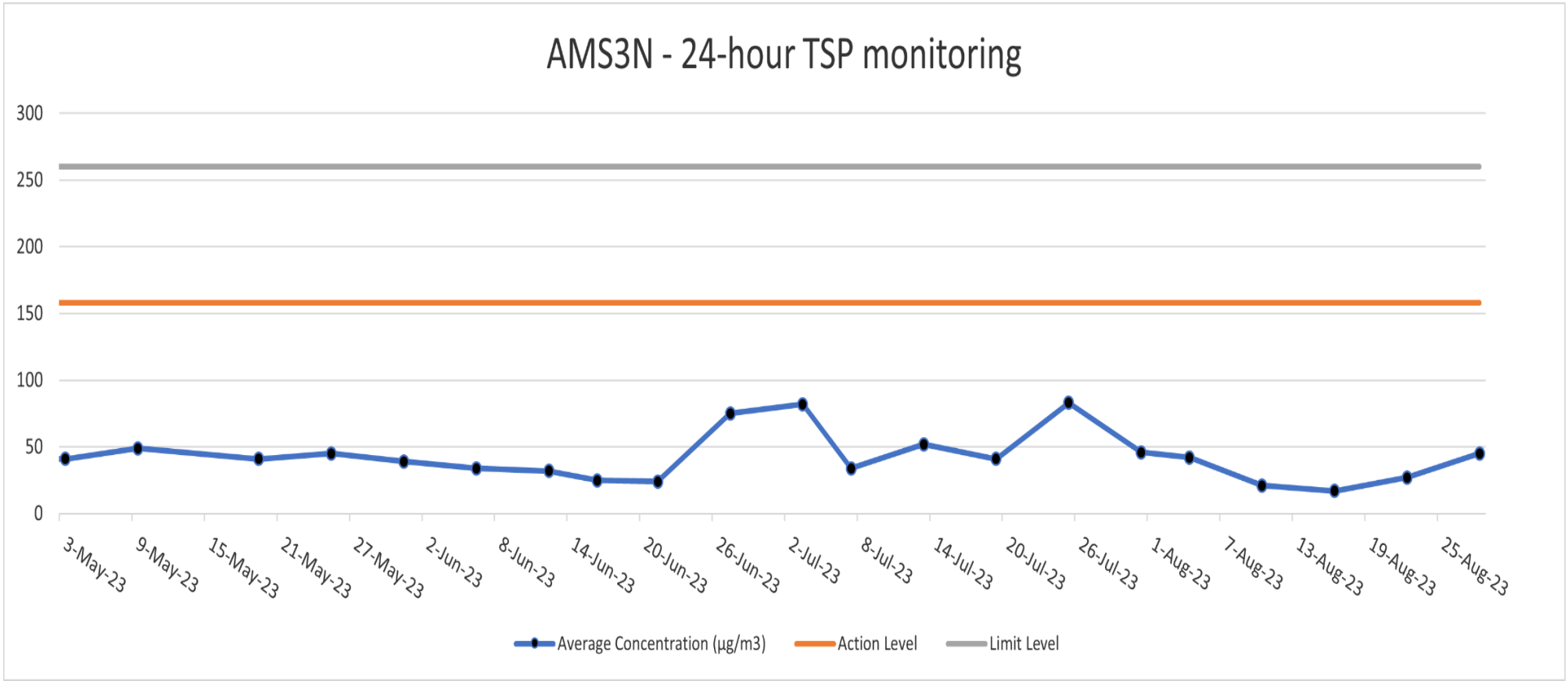
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AMS3N- 1 – hour TSP Monitoring



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AMS3N – 24-hour TSP Monitoring




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AMS4N — 1- hour and 24-hour TSP Monitoring


Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
6-Jun-23	Cloudy	43.3	41.0
12-Jun-23	Fine	34.7	36.0
16-Jun-23	Cloudy	28.3	27.0
21-Jun-23	Fine	27.0	25.0
27-Jun-23	Cloudy	97.3	88.0

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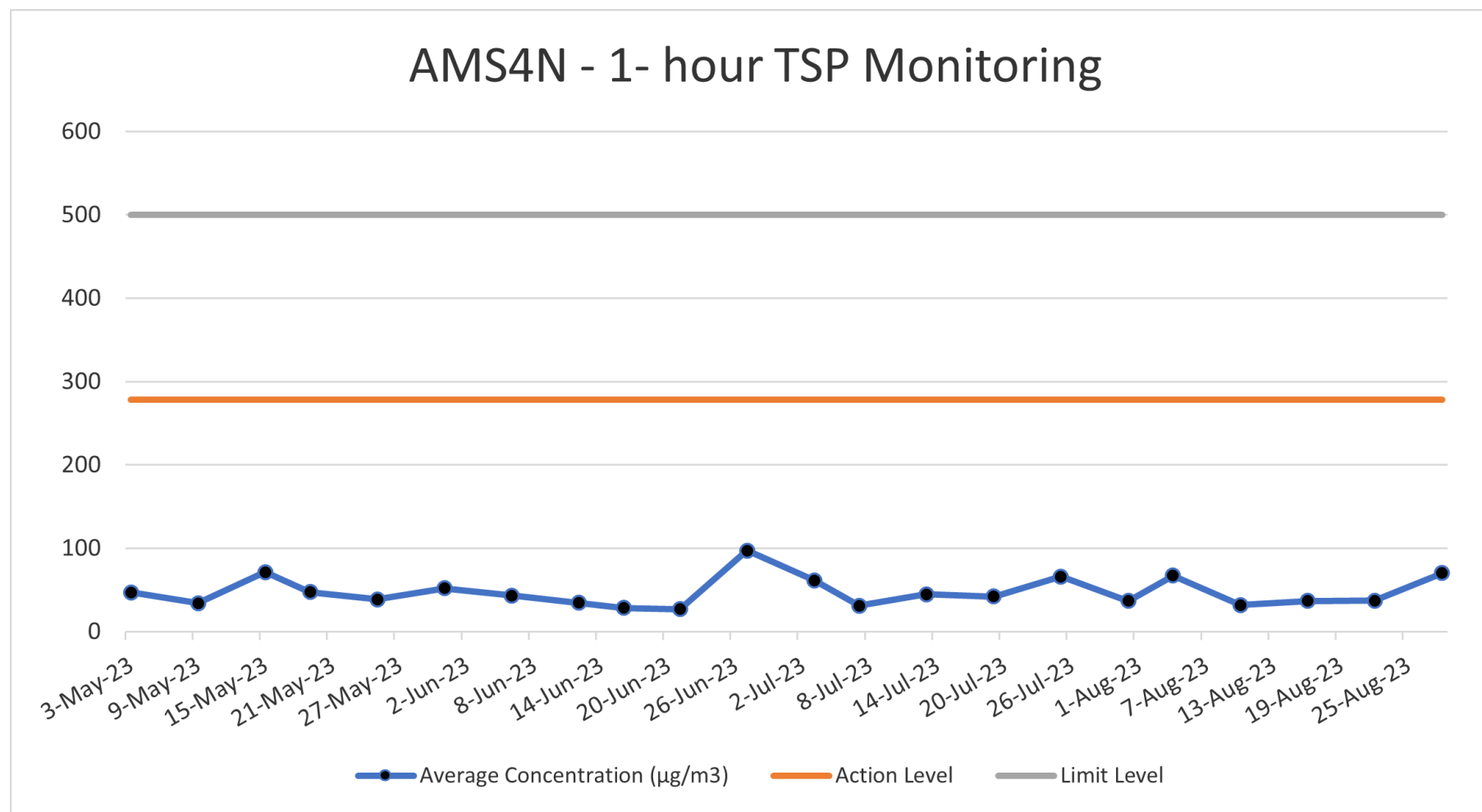
Date	Weather	1-hour TSP Monitoring	24-hour TSP monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
3-Jul-23	Cloudy	61.7	58.0
7-Jul-23	Fine	31.0	25.0
13-Jul-23	Fine	44.7	37.0
19-Jul-23	Fine	42.0	46.0
25-Jul-23	Fine	66.0	53.0
31-Jul-23	Fine	36.7	36.0


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Date	Weather	1-hour TSP Monitoring	24-hour TSP Monitoring
		Average Concentration (µg/m3)	Average Concentration (µg/m3)
4-Aug-23	Fine	67.3	61.0
10-Aug-23	Cloudy	31.7	31.0
16-Aug-23	Cloudy	36.7	26.0
22-Aug-23	Fine	37.3	38.0
28-Aug-23	Cloudy	70.3	63.0
	Average:	47.3	43.2
	Action Level:	278	144
	Limit Level:	500	260

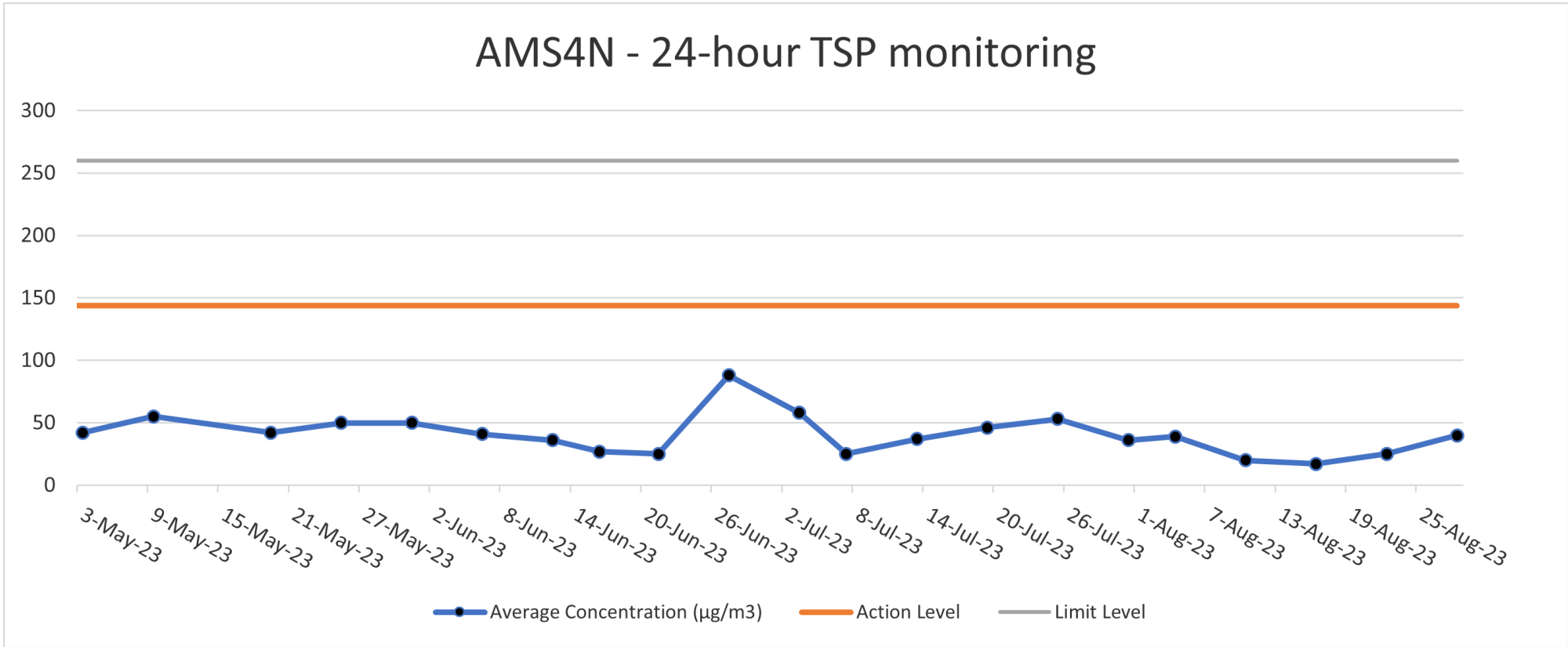
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AMS4N- 1 – hour TSP Monitoring



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AMS4N- 24 – hour TSP Monitoring



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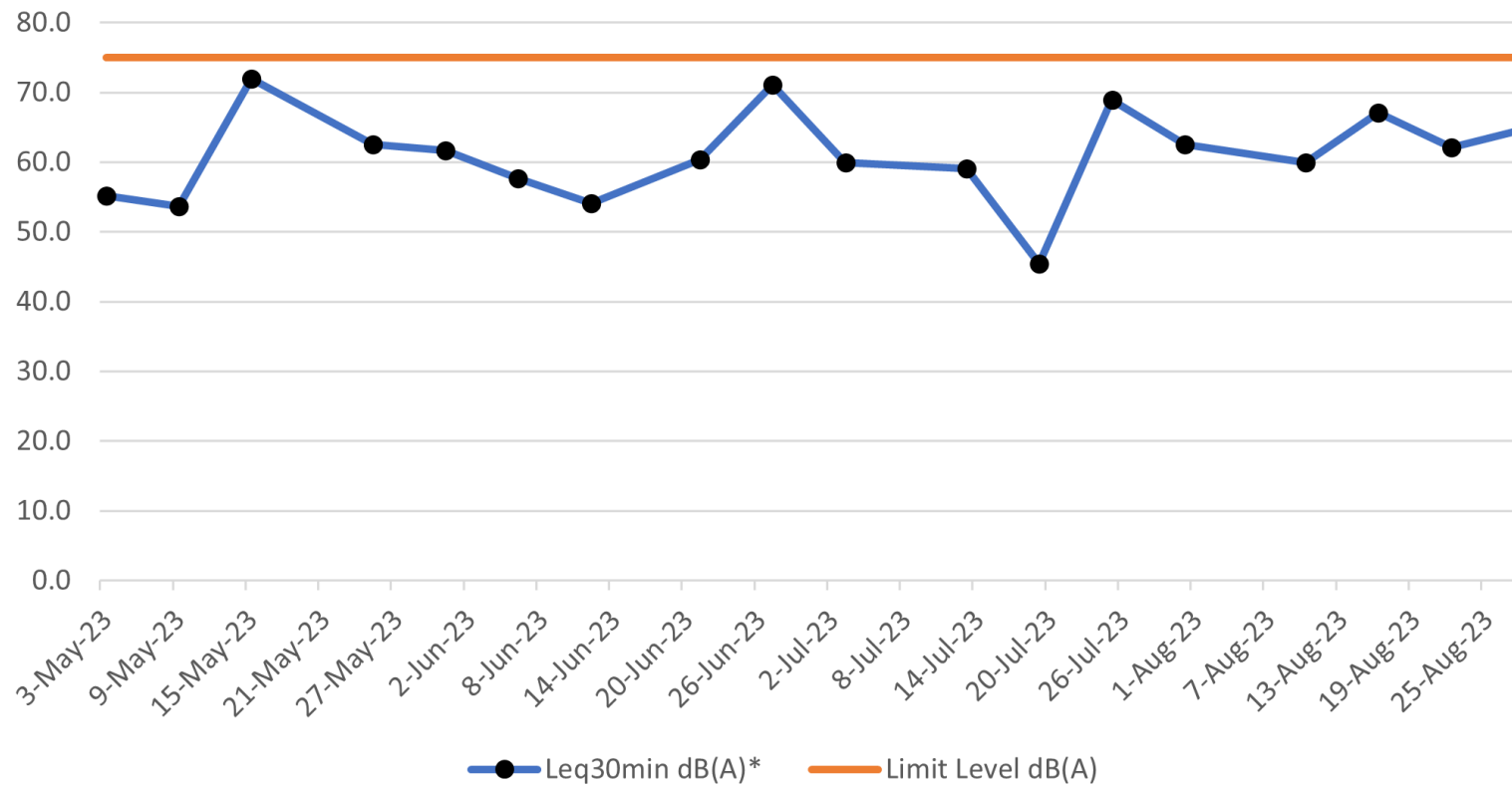
NMS1N – Leq30 Noise monitoring


Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
6-Jun-23	57.6	55.1	59.3	75
12-Jun-23	54.1	43.3	57.3	75
21-Jun-23	60.4	51.2	62.5	75
27-Jun-23	71.1	68.3	72.6	75
3-Jul-23	59.9	58.1	61.0	75
7-Jul-23	59.1	54.6	60.8	75
13-Jul-23	45.4	39.7	46.5	75
19-Jul-23	68.9	54.6	71.8	75
25-Jul-23	62.6	45.3	65.2	75
10-Aug-23	59.9	51.2	61.8	75
16-Aug-23	67.1	60.1	68.8	75
22-Aug-23	62.1	57.4	64.4	75
28-Aug-23	64.7	56.9	67.8	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			

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NMS1N – Leq30 Noise monitoring


NMS1N - Leq 30mins



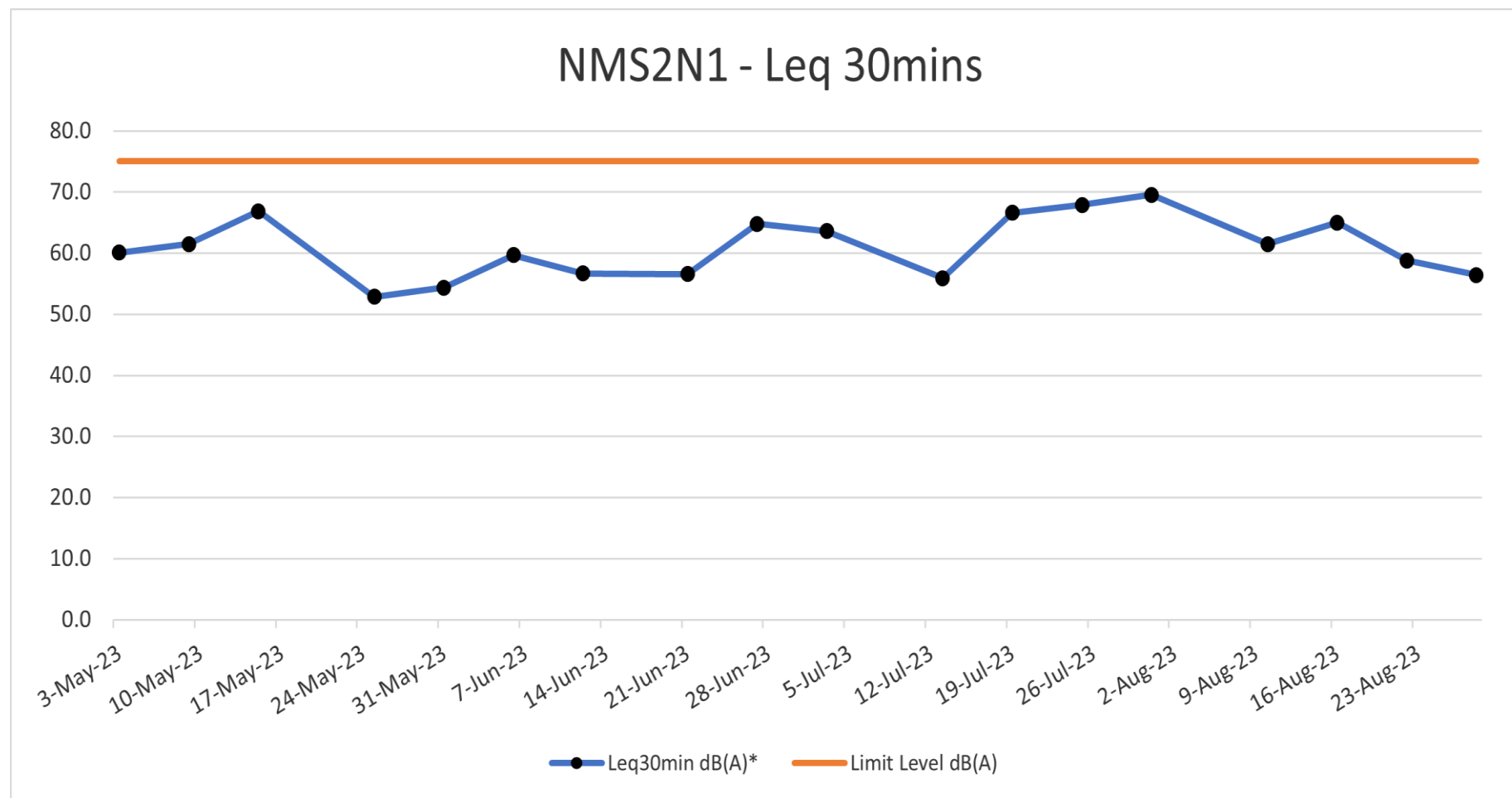
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NMS2N1 – Leq30 Noise monitoring

Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
6-Jun-23	59.7	55.1	62.2	75
12-Jun-23	56.7	50.3	59.0	75
21-Jun-23	56.6	50.8	58.4	75
27-Jun-23	64.8	63.0	66.8	75
3-Jul-23	63.6	55.1	65.6	75
7-Jul-23	55.9	47.7	56.7	75
13-Jul-23	66.6	58.4	69.1	75
19-Jul-23	67.9	60.0	71.7	75
25-Jul-23	69.5	66.4	70.6	75
10-Aug-23	61.5	53.7	63.7	75
16-Aug-23	65.0	58.0	67.5	75
22-Aug-23	58.8	49.0	56.6	75
28-Aug-23	56.4	51.0	57.9	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			

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NMS2N1 – Leq30 Noise monitoring



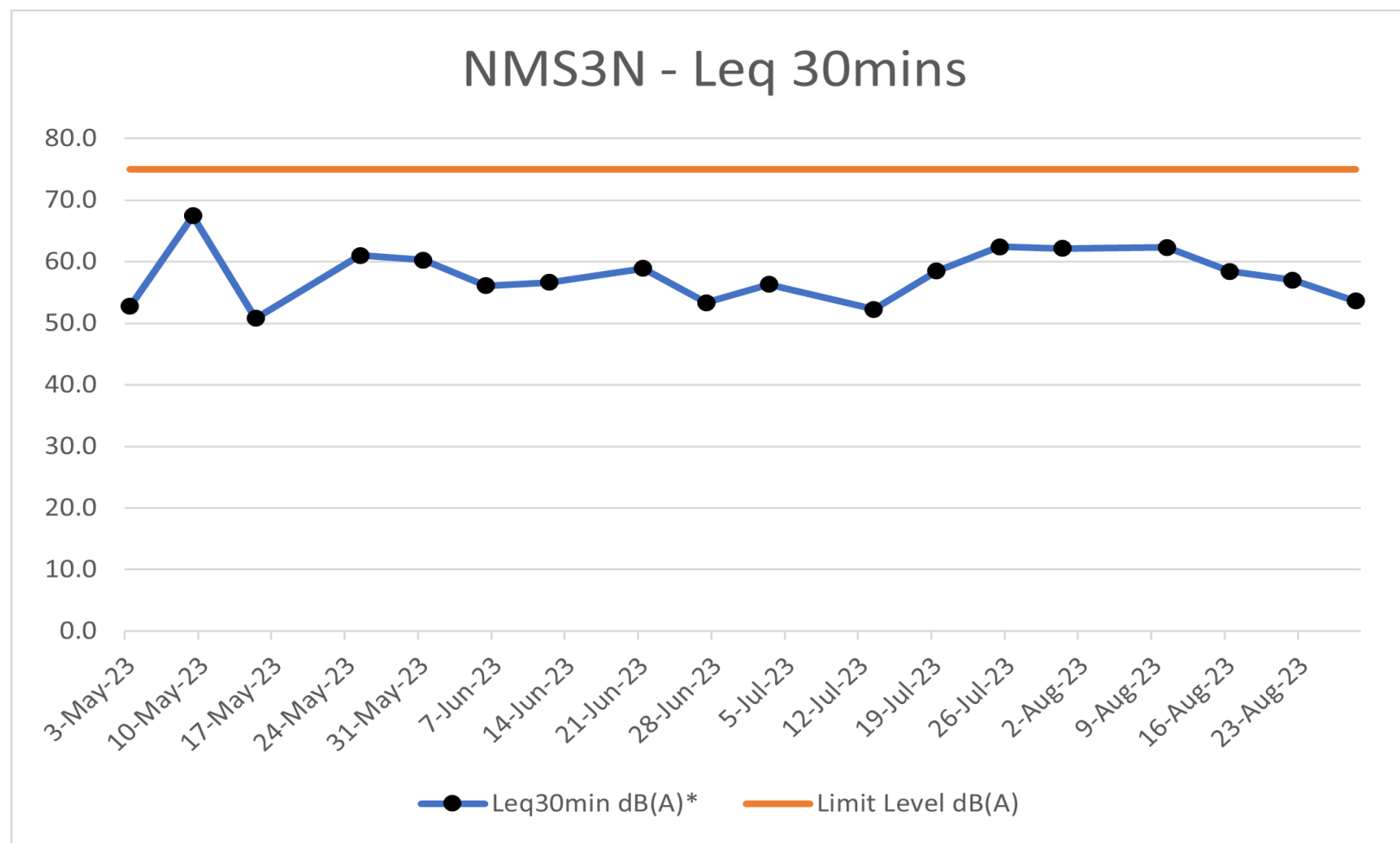
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NMS3N – Leq30 Noise monitoring

Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
6-Jun-23	56.1	52.3	58.0	75
12-Jun-23	56.6	50.5	59.1	75
21-Jun-23	58.9	51.4	61.0	75
27-Jun-23	53.3	52.6	54.8	75
3-Jul-23	56.3	55.0	57.4	75
7-Jul-23	52.2	43.5	53.8	75
13-Jul-23	58.5	54.7	59.9	75
19-Jul-23	62.4	58.7	65.5	75
25-Jul-23	62.1	57.4	64.4	75
10-Aug-23	62.3	55.3	63.2	75
16-Aug-23	58.4	55.1	60.0	75
22-Aug-23	57.0	49.3	60.1	75
28-Aug-23	53.6	46.5	56.4	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			

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NMS3N – Leq30 Noise monitoring



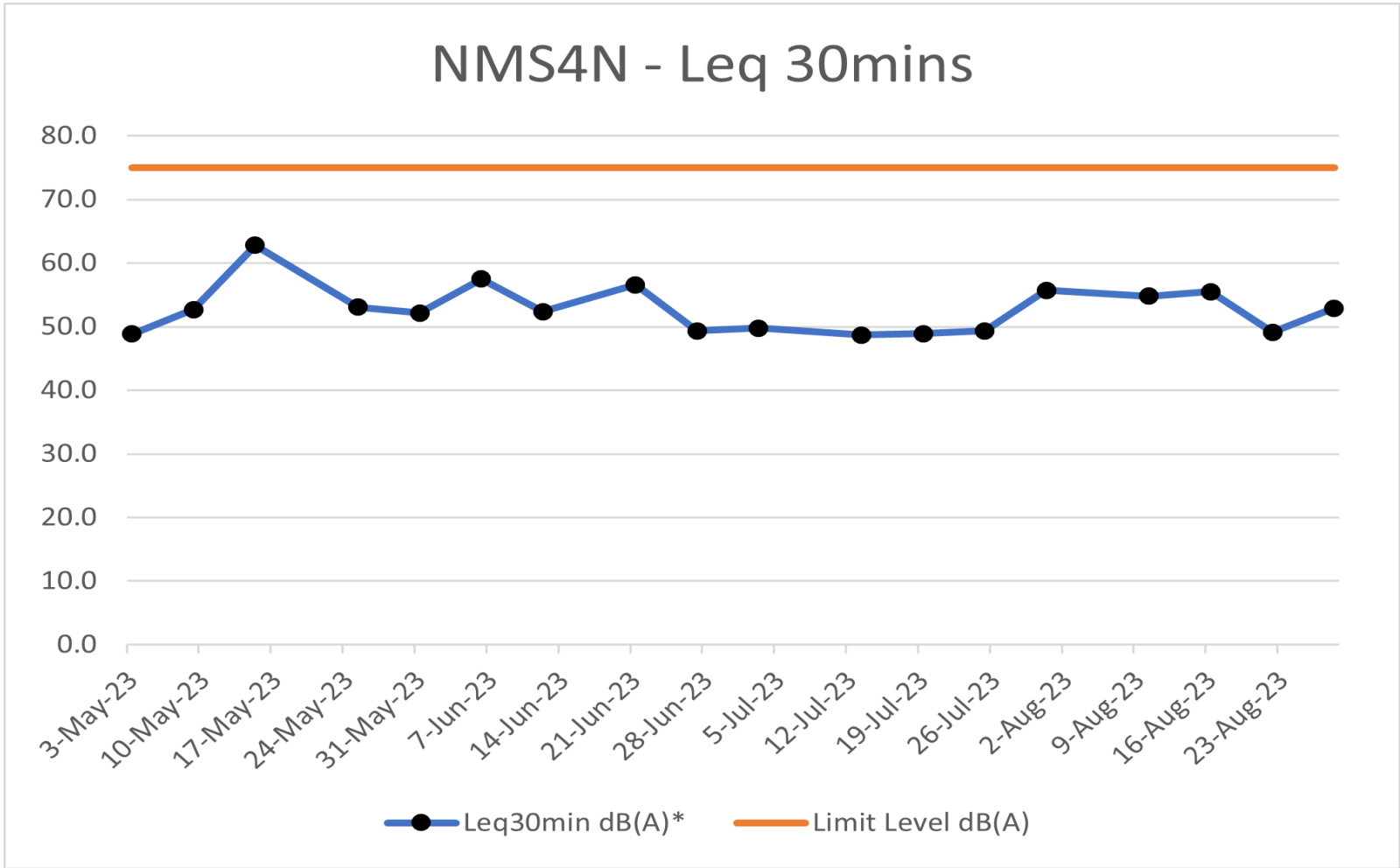
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NMS4N – Leq30 Noise monitoring

Start Date & Time	Leq dB(A)	L90 dB(A)	L10 dB(A)	Limit Level:
6-Jun-23	57.5	50.4	56.3	75
12-Jun-23	52.3	48.7	54.6	75
21-Jun-23	56.6	51.6	58.1	75
27-Jun-23	49.3	46.1	51.7	75
3-Jul-23	49.7	45.1	52.3	75
7-Jul-23	48.7	41.9	50.3	75
13-Jul-23	48.9	44.7	51.6	75
19-Jul-23	49.3	44.7	51.9	75
25-Jul-23	55.7	45.3	57.3	75
10-Aug-23	54.8	50.5	56.4	75
16-Aug-23	55.5	51.7	57.2	75
22-Aug-23	49.1	44.5	51.5	75
28-Aug-23	52.9	46.0	55.8	75
Action Level:	When one valid documented complaint is received			
Limit Level:	75.0 dB(A)			


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NMS4N – Leq30 Noise monitoring



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APPENDIX H - SUMMARY OF WASTE FLOW TABLE


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Monthly Summary Waste Flow Table for 2023 Year


Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
		Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (see note 3)	Chemical Waste	Other, e.g. general refuse
		(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in Tonne]
Jan	0.003	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.007	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.676	0.000	0.000	0.000	0.676	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.336	0.000	0.000	0.000	0.336	0.000	0.000	0.000	0.000	0.000	0.000
May	0.091	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000
June	0.004	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000
Sub-Total	1.117	0.000	0.000	0.000	1.113	0.000	0.000	0.000	0.000	0.000	0.000
July	0.004	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000
Aug	0.096	0.000	0.000	0.000	0.096	0.000	0.000	0.000	0.000	0.000	0.000
Sep											
Oct											
Nov											
Dec											
Total	1.217	0.000	0.000	0.000	1.217	0.000	0.000	0.000	0.000	0.000	0.000

Note:

- 1) The performance targets are given in the Environmental Management Plan.
- (2) The waste flow table shall also include C&D materials to be imported for use at the Site.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

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APPENDIX I - CUMULATIVE STATISTICS ON COMPLAINTS, NOTIFICATIONS OF SUMMONS

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Appendix I - Cumulative Statistics on Complaints, Notifications of Summons, Successful Prosecutions and Public Engagement Activities

Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From	Received By	Nature of Environmental Complaint	Relevant to the Construction Work of Project Site? (Y/N)	Investigation/ Mitigation Action	Status
001	28 December 2021	EPD	ET	Waste Management	N	The investigation report was submitted on 7 January 2022	Closed

Remark: * No Notifications of Summons or Successful Prosecutions were received during the reporting period.

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions and Public Engagement Activities

Reporting Period	Complaints	Notifications of Summons and Prosecutions	Public Engagement Activities
2023/03	0	0	0
2023/04	0	0	0
2023/05	0	0	0
Cumulative Project-to-Date	1	0	0