

Environmental Monitoring Report Phase-1,2 and 3 (Operation Phase)



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1. Executive Summary

The environmental inspection and compliance monitoring program will be implemented under the direction of Ministry of Natural Resources and Environmental Conservation (MONREC) with oversight by Thilawa SEZ Management Committee.

The monitoring record from June 2025 to November 2025 according to the Environment Monitoring Plan is submitted in conformity with the provision of Chapter 10, 10.1 Table 10.1-3 and 10.2, Table 10.2-3 Content of the EIA Report of Thilawa SEZ Development Project (Zone B).

2. Summary of Monitoring Activities

- a) Progress made to date on the implementation of the EMP against the submitted implementation schedule;

We submitted EMP for TSEZ Zone-B as following table.

Report No.	Description	Phase	Submission
1	Environmental Monitoring Report	Phase-1 Operation Phase	September, 2019
2	Environmental Monitoring Report	Phase-1 & 2 Operation Phase	March, 2020
3	Environmental Monitoring Report	Phase-1 & 2 Operation Phase	September, 2020
4	Environmental Monitoring Report	Phase-1 & 2 Operation Phase	March, 2021
5	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	September, 2021
6	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	March, 2022
7	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	September, 2022
8	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	March, 2023
9	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	September, 2023
10	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	March, 2024
11	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	September, 2024
12	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	June, 2025
13	Environmental Monitoring Report	Phase-1,2 & 3 Operation Phase	December, 2025

Report (No.13 is submitted this day attached with Operation Phase implementation schedule. Subsequent Operation Phase reports will be submitted on Bi-annually.

- b) Difficulties encountered in implementing of the EMP and recommendations for remedying those difficulties and steps proposed to prevent or avoid similar future difficulties;

- As for Zone developer and due to not factory types, we have many monitoring points at initial baseline survey points. For these facts, actual current monitoring points are not same locations with baseline survey points. Therefore, it has some difficulties to compare with baseline survey data. Because most of baseline survey points locations are not same with current monitoring points.
- Sometime, when we do for countercheck, analysis results received are too difference results from difference Labs. Therefore, it's difficult to consider which labs analysis results are reliable or not.



- c) Number and type of non-compliance with the EMP and proposed remedial measures and timelines for completion of remediation:
- Depend on the exceeding parameters and situation. Please refer to the attached reports for detail explanation.
- d) Accidents or incidents relating to the occupational and community health and safety, and the environment:
- Please refer to the attached Environmental Monitoring Form.
- e) Monitoring data on environmental parameters and conditions as committed in the EMP or otherwise required.
- Please refer to the attached Environmental Monitoring Form.

3. Monitoring Result

Environmental Monitoring Plan report for operation phase implemented according to the following table, reference on Table 10.2-3, Chapter 10, EIA for Industrial Area of Zone-B.

Monitoring Plan (Operation Phase)

Category	Item	Location	Frequency	Remark
Air Quality	NO ₂ , SO ₂ , CO, PM _{2.5} , PM ₁₀	Representative point inside the project area	1 week each in the dry and rainy seasons	June 2025, Air Quality Monitoring Report
Water Quality	Water temperature, pH, SS, DO, BOD ₅ , COD, color and odor, Total Nitrogen, Total Phosphorus, Sulphide, HCN, Oil, Grease, Formaldehyde, Phenols, Free chlorine, Zinc, Chromium, Arsenic, Copper, Mercury, Cadmium, Barium, Selenium, Lead, and Nickel	Outflow of retention pond to the creek (at least 3 sampling points/mixing point: discharge water, upstream water, and downstream water)	<u>With Third Party</u> Every 2 month: Water temperature, pH, SS, DO, BOD ₅ , COD, color and odor, Every 6 month : all parameters	August 2025, October 2025, Water and Wastewater Quality Monitoring Report (Bi-monthly report) June 2025 Water and Wastewater Quality Monitoring Report (Bi-annually report)
Waste	-Amount of Non-hazardous waste management -Amount of hazardous waste management	Each Tenant	Twice/year (Submission of the environmental report by the tenants)	General waste disposal record
Soil Contamination	-Status of control of solid and liquid waste which causes soil contamination	Each Tenant	Twice/year (Submission of the environmental report by the tenants)	Monitoring will be started when the whole Zone-B is in Operation Stage
Noise and Vibration	- Noise and vibration level - Traffic Count	Tenants including Project Proponent	One time each in the dry and rainy seasons	Noise and Vibration Monitoring Report June 2025 Traffic Count Monitoring Report June 2025
Offensive Odor	- Status offensive odor control by the tenants	Each tenant	Twice/year (submission of the environmental report by tenants)	This is responsible by each tenant
Bottom Sediment	-Water quality monitoring (as indicator of the pollution of the bottom sediment)	Same as the water quality monitoring	-Additional analysis on the bottom sediment of creek, in case of finding continuous high concentration	Refer in Environmental Monitoring report



Category	Item	Location	Frequency	Remark
Hydrological Situation	-Checking the function of retention pond at heavy rain	Retention Pond	When the heavy rain	
Living and Livelihood/ Vulnerable Group/ Misdistribution of Benefit and Damage/ Children's Right	-The implementation status for CSR activities such as community support program	Around Project Site	Once/year	Refer in Environmental Monitoring report
Risks for Infections Disease such as AIDS/HIV	-Status of measure against infectious diseases	Each tenant	Twice/year (Submission of the environmental report by the tenants)	.
Occupational Health and Safety	-Record of accident and infectious diseases	Work site and office	Twice/year (Submission of the environmental report by the tenants)	.
Community Health and Safety	Record of accidents and infectious diseases related to the community	Around the project site	Twice/year	Refer in Environmental Monitoring form
	The implementation status for CSR activities such as community support program	Around project site	Once/year	Refer in Environmental Monitoring form
Usage of Chemicals	Record of the type and quantity of chemicals and implementation status of control measures through self-inspection	Each tenant (that uses chemicals)	Biannually	.

*Remark: Each locator will report their monitoring result directly to Environmental Section, One Stop Service Center, Thilawa SEZ Management Committee.





MJTD MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED

**Thilawa Special Economic Zone
Zone B- Phase 1,2 & 3 (Operation phase)**

Environment Monitoring Form

Environmental Monitoring Report (Operation Phase)



Environment Monitoring Form

The latest results of the below monitoring items shall be submitted to Authorities on once at Pre -Construction Phase and on quarterly basis at Construction Phase, and on bi-annually base at Operation Phase. The items, standards to be applied, measurement points, and frequency for each monitoring parameter are established based on the EIA Report for Thilawa Special Economic Zone Development Project (Industrial Area of Zone B). Should there be any changes to the original plan, such change shall be reviewed and evaluated by environmental expert.

(1) General

1) Phase of the Project

- Please mark the current phase.

Pre-Construction Phase Construction Phase Operation Phase

2) Obtainment of Environmental Permits

Name of permits	Expected issuance date	Actual issuance date	Concerned authority	Remarks (Conditions, etc.)
Approved letter for Environmental Impact Assessment (EIA) Report of Industrial Area, Thilawa Special Economic Zone (Zone-B)		29 th December 2016	Thilawa SEZ Management Committee	
Notification of the comments of Ministry of Natural Resources and Environmental Conservation regarding with the Standard Change of Wastewater Quality of Industrial Zone, Internal Regulations of Thilawa Special Economic Zone	5 th January 2018	10 th January 2018	Thilawa SEZ Management Committee	



3) Response/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period	Duration of Report Period	Frequency
Number and contents of formal comments made by the public			Upon receipt of comments/ complaints
Number and contents of responses from Government agencies	- None received during this monitoring period.	June 2025 to November 2025	

(2) Monitoring Results

1) Ambient Air Quality (June 2025)

NO₂, SO₂, CO, PM_{2.5}, PM₁₀

Location	Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Referred International Standard	Frequency	Method	Note (Reason of excess of the standard)
AQ-1 (Monastery Compound of Phalan Village)	NO ₂	mg/m ³	0.015	0.481	0.2 mg/m ³ (1 Hour)	0.1 mg/m ³ (24 Hour)	-	One time / 6 months	Oceanus AQM-09 air quality monitoring system	Refer to air quality report
	SO ₂	mg/m ³	0.017	0.038	0.02 mg/m ³ (24 Hours)	0.02 mg/m ³ (24 Hours)	-			
	CO	mg/m ³	0.067	0.609	-	10.26 mg/m ³ (24 Hours)	-			
	PM _{2.5}	mg/m ³	0.009	0.019	0.025 mg/m ³ (24 Hours)	0.025 mg/m ³ (24 Hours)	-			
	PM ₁₀	mg/m ³	0.013	0.029	0.05 mg/m ³ (24 Hours)	0.05 mg/m ³ (24 Hours)	-			

*1Remarks: Referred to the tentative target value of ambient air quality (Thilawa SEZ-B EIA Report for industrial area, Table 2.4-1), Reference to the air quality monitoring report (June 2025)



*2Remark: Referred to the National Emission Quality Guideline (NEQG) 29th December 2015.

Complaints from Residents

- Are there any complaints from residents regarding air quality in this monitoring period? Yes No
 If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Complaints from Residents	Countermeasures

2) (a) Water Quality - June 2025

Measurement Point: Effluent of Wastewater (SW-2 and SW-4 are attached as reference point only and they are natural creek water which are combine all the wastewater from the Local industrial water and domestic water from existing living environment. SW-7 and SW-8 are the main discharging point. GW-2 is also as reference point for monitoring of existing tube well located in the Monastery Compound near Zone-B area)

- Are there any effluents to water body in this monitoring period? Yes, No

If yes, please attach "Analysis Record" and fill in the items not to comply with Refereed International Standard

Location	Item	Unit	Measur ed Value (Max)	Country's Standard*2	Target value to be applied*1	Frequ-ency	Method	Note (Reason of excess of the standard)
SW-2 (Reference point) Sampling on 3 June 2025	Temperature	°C	28	< 3 (increase)	≤ 35	Once per 6 months	Instrument Analysis Method	Refer to water quality report
	pH	-	6.7	6-9	6~9		Instrument Analysis Method	
	Suspended Solids (SS)	mg/L	22	50	50		APHA 2540 D Method	
	Dissolved Oxygen (DO)	mg/L	3.21	-	-		Instrument Analysis Method	
	BOD (5)	mg/L	5.18	50	30		APHA 5210 B Method	
	COD (Cr)	mg/L	31.1	250	125		APHA 5220D Method	
	Total Coliform*4	MPN/100 ml	450	400	400		APHA 9221B Method	
	Total Nitrogen (T-N)	mg/L	1.1	-	80		HACH Method 10072 Method	
	Total Phosphorous (T-P)	mg/L	0.13	2	2		APHA 4500-P E Method	



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-2 (Reference point) Sampling on 3 June 2025	Color	TCU	39.88	-	150		APHA 2120C Method	Refer to water quality report
	Odor	TON	1	-	-		APHA 2150 B Method	
	Oil and Grease	mg/L	<3.1	10	10		APHA 5520B Method	
	Mercury	mg/L	≤ 0.002	0.01	0.005		APHA 3120 B Method	
	Zinc	mg/L	≤ 0.002	2	2		APHA 3120 B Method	
	Arsenic	mg/L	≤ 0.010	0.1	0.1		APHA 3120 B Method	
	Chromium	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Cadmium	mg/L	≤ 0.002	0.1	0.03		APHA 3120 B Method	
	Selenium	mg/L	≤ 0.010	0.1	0.02		APHA 3120 B Method	
	Lead	mg/L	≤ 0.002	0.1	0.1		APHA 3120 B Method	
	Copper	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Barium	mg/L	0.008	-	1		APHA 3120 B Method	
	Nickel	mg/L	≤ 0.002	0.5	0.2		APHA 3120 B Method	
	Cyanide	mg/L	< 0.002	0.1	0.1		HACH 8027 Method	
	Total Cyanide	mg/L	< 0.002	1	1		APHA 4500-CN-C Method	
	Free Chlorine	mg/L	< 0.1	-	1		APHA 4500-CL G Method	
	Sulphide (S ₂ -)	mg/L	0.032	1	1		HACH 8131 Method	
	Formaldehyde	mg/L	0.022	-	1		HACH 8110 Method	
	Phenols	mg/L	0.005	0.5	0.5		USEPA Method 420.1	
	Iron	mg/L	0.860	3.5	3.5		APHA 3120 B Method	
Total Dissolved Solids	mg/L	176	-	2000	APHA 2540 C Method			
Total Residual Chlorine	mg/L	< 0.1	0.2	0.2	APHA 4500-CL G Method			
Chromium (Hexavalent)	mg/L	< 0.05	0.1	0.1	ISO 11083:1994 Method			
Ammonia	mg/L	1.15	10	10	ISO 7150/1-1984 (E)			
Fluoride	mg/L	0.138	20	20	APHA 4110 B Method			
Silver	mg/L	≤ 0.002	0.5	0.5	APHA 3120 B Method			
SW-4 (Reference point) sampling on 3 June	Temperature	°C	30	< 3 (increase)	≤ 35	Once per 6 months	Instrument Analysis Method	Refer to water quality report
	pH	-	7	6-9	6-9		Instrument Analysis Method	
	Suspended Solids (SS)*3	mg/L	74	50	50		APHA 2540 D Method	
	Dissolved Oxygen (DO)	mg/L	4.10	-	-		Instrument Analysis Method	
	BOD (5)	mg/L	4.96	50	30		APHA 5210 B Method	
	COD (Cr)	mg/L	22.9	250	125		APHA 5220D Method	
Total Coliform*4	MPN/100 ml	1700	400	400	APHA 9221B Method			



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
2025 SW-4 (Reference point) on 3 June 2025	Total Nitrogen (T-N)	mg/L	1.6	-	80		HACH Method 10072 Method	Refer to water quality report
	Total Phosphorous (T-P)	mg/L	0.19	2	2		APHA 4500-P E Method	
	Color	TCU	29.88	-	150		APHA 2120C Method	
	Odor	TON	1	-	-		APHA 2150 B Method	
	Oil and Grease	mg/L	< 3.1	10	10		APHA 5520B Method	
	Mercury	mg/L	≤ 0.002	0.01	0.005		APHA 3120 B Method	
	Zinc	mg/L	0.036	2	2		APHA 3120 B Method	
	Arsenic	mg/L	≤ 0.010	0.1	0.1		APHA 3120 B Method	
	Chromium	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Cadmium	mg/L	≤ 0.002	0.1	0.03		APHA 3120 B Method	
	Selenium	mg/L	≤ 0.010	0.1	0.02		APHA 3120 B Method	
	Lead	mg/L	≤ 0.002	0.1	0.1		APHA 3120 B Method	
	Copper	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Barium	mg/L	0.010	-	1		APHA 3120 B Method	
	Nickel	mg/L	≤ 0.002	0.5	0.2		APHA 3120 B Method	
	Cyanide	mg/L	< 0.002	0.1	0.1		HACH 8027 Method	
	Total Cyanide	mg/L	< 0.002	1	1		APHA 4500-CN-C Method	
	Free Chlorine	mg/L	< 0.1	-	1		APHA 4500-CL G Method	
	Sulphide (S ₂ -)	mg/L	0.099	1	1		HACH 8131 Method	
	Formaldehyde	mg/L	0.030	-	1		HACH 8110 Method	
	Phenols	mg/L	0.022	0.5	0.5		USEPA Method 420.1	
	Iron	mg/L	1.792	3.5	3.5		APHA 3120 B Method	
	Total Dissolved Solids	mg/L	210	-	2000		APHA 2540 C Method	
Total Residual Chlorine	mg/L	< 0.1	0.2	0.2	APHA 4500-CL G Method			
Chromium (Hexavalent)	mg/L	< 0.05	0.1	0.1	ISO 11083:1994 Method			
Ammonia	mg/L	1.19	10	10	ISO 7150/1-1984 (E)			
Fluoride	mg/L	0.175	20	20	APHA 4110 B Method			
Silver	mg/L	≤ 0.002	0.5	0.5	APHA 3120 B Method			
SW-7 (Discharge point)	Temperature	°C	30	< 3 (increase)	≤ 35	Once per 6 months	Instrument Analysis Method	Refer to water quality report
	pH	-	7.2	6-9	6~9		Instrument Analysis Method	
	Suspended Solids (SS)*5	mg/L	78	50	50		APHA 2540 D Method	
	Dissolved Oxygen (DO)	mg/L	5.45	-	-		Instrument Analysis Method	
	BOD (5)	mg/L	3.10	50	30		APHA 5210 B Method	
	COD (Cr)	mg/L	17.4	250	125		APHA 5220D Method	

Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-7 (Discharge point) Sampling on 3 June 2025	Total Coliform*6	MPN/100 ml	5800	400	400		APHA 9221B Method	Refer to water quality report
	Total Nitrogen (T-N)	mg/L	1.2	-	80		HACH Method 10072 Method	
	Total Phosphorous (T-P)	mg/L	0.23	2	2		APHA 4500-P E Method	
	Color	TCU	26.13	-	150		APHA 2120C Method	
	Odor	TON	1	-	-		APHA 2150 B Method	
	Oil and Grease	mg/L	< 3.1	10	10		APHA 5520B Method	
	Mercury	mg/L	≤ 0.002	0.01	0.005		APHA 3120 B Method	
	Zinc	mg/L	0.006	2	2		APHA 3120 B Method	
	Arsenic	mg/L	≤ 0.010	0.1	0.1		APHA 3120 B Method	
	Chromium	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Cadmium	mg/L	≤ 0.002	0.1	0.03		APHA 3120 B Method	
	Selenium	mg/L	≤ 0.010	0.1	0.02		APHA 3120 B Method	
	Lead	mg/L	≤ 0.002	0.1	0.1		APHA 3120 B Method	
	Copper	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Barium	mg/L	0.008	-	1		APHA 3120 B Method	
	Nickel	mg/L	≤ 0.002	0.5	0.2		APHA 3120 B Method	
	Cyanide	mg/L	< 0.002	0.1	0.1		HACH 8027 Method	
	Total Cyanide	mg/L	< 0.002	1	1		APHA 4500-CN-C Method	
	Free Chlorine	mg/L	< 0.1	-	1		APHA 4500-CL G Method	
	Sulphide (S ₂ -)	mg/L	0.156	1	1		HACH 8131 Method	
	Formaldehyde	mg/L	0.025	-	1		HACH 8110 Method	
	Phenols	mg/L	0.013	0.5	0.5		USEPA Method 420.1	
	Iron	mg/L	1.692	3.5	3.5		APHA 3120 B Method	
Total Dissolved Solids	mg/L	254	-	2000		APHA 2540 C Method		
Total Residual Chlorine	mg/L	< 0.1	0.2	0.2		APHA 4500-CL G Method		
Chromium (Hexavalent)	mg/L	< 0.05	0.1	0.1		ISO 11083:1994 Method		
Ammonia	mg/L	1.11	10	10		ISO 7150/1-1984 (E)		
Fluoride	mg/L	0.154	20	20		APHA 4110 B Method		
Silver	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method		
SW-8 (Discharge point)	Temperature	°C	29	< 3 (increase)	≤ 35		Instrument Analysis Method	
	pH	-	7.5	6-9	6~9	Once per 6 months	Instrument Analysis Method	
	Suspended Solids (SS)*5	mg/L	86	50	50		APHA 2540 D Method	
	Dissolved Oxygen (DO)	mg/L	4.69	-	-		Instrument Analysis Method	



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-8 (Discharge d point) Sampling on 3 June 2025	BOD (5)	mg/L	2.91	50	30		APHA 5210 B Method	Refer to water quality report
	COD (Cr)	mg/L	15.4	250	125		APHA 5220D Method	
	Total Coliform*6	MPN/100 ml	1300	400	400		APHA 9221B Method	
	Total Nitrogen (T-N)	mg/L	0.8	-	80		HACH Method 10072 Method	
	Total Phosphorous (T-P)	mg/L	0.52	2	2		APHA 4500-P E Method	
	Color	TCU	27.38	-	150		APHA 2120C Method	
	Odor	TON	1	-	-		APHA 2150 B Method	
	Oil and Grease	mg/L	< 3.1	10	10		APHA 5520B Method	
	Mercury	mg/L	≤ 0.002	0.01	0.005		APHA 3120 B Method	
	Zinc	mg/L	0.008	2	2		APHA 3120 B Method	
	Arsenic	mg/L	≤ 0.010	0.1	0.1		APHA 3120 B Method	
	Chromium	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Cadmium	mg/L	≤ 0.002	0.1	0.03		APHA 3120 B Method	
	Selenium	mg/L	≤ 0.010	0.1	0.02		APHA 3120 B Method	
	Lead	mg/L	≤ 0.002	0.1	0.1		APHA 3120 B Method	
	Copper	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method	
	Barium	mg/L	0.010	-	1		APHA 3120 B Method	
	Nickel	mg/L	≤ 0.002	0.5	0.2		APHA 3120 B Method	
	Cyanide	mg/L	< 0.002	0.1	0.1		HACH 8027 Method	
	Total Cyanide	mg/L	< 0.002	1	1		APHA 4500-CN-C Method	
	Free Chlorine	mg/L	< 0.1	-	1		APHA 4500-CL G Method	
	Sulphide (S ₂ -)	mg/L	0.227	1	1		HACH 8131 Method	
	Formaldehyde	mg/L	0.039	-	1		HACH 8110 Method	
	Phenols	mg/L	0.010	0.5	0.5		USEPA Method 420.1	
Iron*7	mg/L	3.726	3.5	3.5		APHA 3120 B Method		
Total Dissolved Solids	mg/L	280	-	2000		APHA 2540 C Method		
Total Residual Chlorine	mg/L	< 0.1	0.2	0.2		APHA 4500-CL G Method		
Chromium (Hexavalent)	mg/L	< 0.05	0.1	0.1		ISO 11083:1994 Method		
Ammonia	mg/L	0.69	10	10		ISO 7150/1-1984 (E)		
Fluoride	mg/L	0.272	20	20		APHA 4110 B Method		
Silver	mg/L	≤ 0.002	0.5	0.5		APHA 3120 B Method		
GW-2	Temperature	°C	28.5		≤ 35	Once per	Instrument Analysis Method	



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
GW-2 (Reference point) Sampling on 3 June 2025	pH	-	7.0	None available For Ground water	6-9	6 months	Instrument Analysis Method APHA 2540 D Method Instrument Analysis Method APHA 5210 B Method APHA 5220D Method APHA 9221B Method HACH Method 10072 Method APHA 4500-P E Method APHA 2120C Method APHA 2150 B Method APHA 5520B Method APHA 3120 B Method HACH 8027 Method APHA 4500-CN-C Method APHA 4500-CL G Method HACH 8131 Method HACH 8110 Method USEPA Method 420.1 APHA 3120 B Method APHA 2540 C Method APHA 4500-CL G Method ISO 11083:1994 Method ISO 7150/1-1984 (E) APHA 4110 B Method	Refer to water quality report
	Suspended Solids (SS)	mg/L	22		50			
	Dissolved Oxygen (DO)	mg/L	4.59		-			
	BOD (5)	mg/L	0.00		30			
	COD (Cr)	mg/L	< 0.7		125			
	Total Coliform	MPN/100 ml	< 1.8		400			
	Total Nitrogen (T-N)	mg/L	2.1		80			
	Total Phosphorous (T-P)	mg/L	0.64		2			
	Color	TCU	48.63		150			
	Odor	TON	1		-			
	Oil and Grease	mg/L	< 3.1		10			
	Mercury	mg/L	≤ 0.002		0.005			
	Zinc	mg/L	≤ 0.002		2			
	Arsenic	mg/L	≤ 0.010		0.1			
	Chromium	mg/L	≤ 0.002		0.5			
	Cadmium	mg/L	≤ 0.002		0.03			
	Selenium	mg/L	≤ 0.010		0.02			
	Lead	mg/L	≤ 0.002		0.1			
	Copper	mg/L	≤ 0.002		0.5			
	Barium	mg/L	0.004		1			
	Nickel	mg/L	≤ 0.002		0.2			
	Cyanide	mg/L	< 0.002		0.1			
	Total Cyanide	mg/L	< 0.002		1			
	Free Chlorine	mg/L	< 0.1		1			
	Sulphide (S ₂ -)	mg/L	0.006		1			
	Formaldehyde	mg/L	< 0.003		1			
	Phenols	mg/L	< 0.002		0.5			
	Iron	mg/L	2.588		3.5			
	Total Dissolved Solids	mg/L	300		2000			
	Total Residual Chlorine	mg/L	< 0.1		0.2			
Chromium (Hexavalent)	mg/L	< 0.05	0.1					
Ammonia	mg/L	2.40	10					
Fluoride	mg/L	0.411	20					



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
	Silver	mg/L	≤ 0.002		0.5		APHA 3120 B Method	

*1Remark: Reference to the Water and Wastewater Quality Monitoring Report (June 2025)

*2Remark: Referred to the National Emission Quality Guideline (NEQG) 29th December 2015

*3Remark: In the monitoring point of SW-4, SS exceeded than the target value due to expected i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

*4Remark: For the monitoring point of SW2, SW4 the result of total coliform exceeded than the target value due to expected reasons i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

*5Remark: For the monitoring point of SW-7 and SW-8, the result of SS exceeded due to expected reason the surface water run-off from bare land in Zone B. due to the influence of natural origin (iron can reach out from the soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by run-off or strong wind.

*6Remark: For the monitoring point of SW-8, T-Coli exceeded than the target value may be due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels. Total coliforms do not affect human health directly; self-monitoring was carried out to identify health impact by coliform bacteria. As for the result of E-Coli SW-7 was 38 and SW-8 was 12 (MPN/100ml). It is considered that there is no significant impact to human health.

*7Remark: For the monitoring point of SW-8, the result of iron exceeded due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

2) (b) Water Quality - August 2025

Measurement Point: Effluent of Wastewater (SW-2 and SW-4 are attached as reference point only and they are natural creek water which are combine all the wastewater from the Local industrial water and domestic water from existing living environment. SW-7 and SW-8 are the main discharging point. GW-2 is also as reference point for monitoring of existing tube well located in the Monastery Compound near Zone-B area)

- Are there any effluents to water body in this monitoring period?

Yes, No

If yes, please attach "Analysis Record" and fill in the items not to comply with Refereed International Standard

Location	Item	Unit	Measur ed Value (Max)	Country's Standard*2	Target value to be applied*1	Frequ-ency	Method	Note (Reason of excess of the standard)
SW-2 (Reference point) Sampling on 5 August 2025	Temperature	°C	30	< 3 (increase)	≤ 35	Once per 2 months	Instrument Analysis Method	Refer to water quality report
	pH	-	6.8	6-9	6.0 - 9.0		Instrument Analysis Method	
	Dissolved Oxygen (DO)	mg/L	1.74	-	-		Instrument Analysis Method	
	Suspended Solids (SS)	mg/L	38	50	50		APHA 2540D (Dry at 103-105°C Method)	
	BOD ₅	mg/L	3.28	50	30		APHA 5210 B (5days BOD Test)	
	COD _{Cr}	mg/L	16.4	250	125		APHA 5220 D (Close Reflux Colorimetric Method)	
	Color	TCU	13.63	-	150		APHA 2120C (Spectrophotometric Method)	
	Odor	TON	2	-	-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	<3.1	10	10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	1.8	-	80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.17	2	2		APHA 4500-PE (Ascorbic Acid Method)	
	Total Coliform*4	MPN/100ml	14000	400	400		APHA 9221 B (Standard Total Coliform Fermentation Technique)	
	Total Dissolved solids (TDS) *6	mg/L	152	-	2000		APHA 2540C (Total Dissolved Solids Dried at 180.C)	
	Iron*6, *5	mg/L	4.576	3.5	3.5		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
Mercury*6	mg/L	≤ 0.002	0.01	0.005	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)			
	Temperature	°C	2	< 3 (increase)	≤ 35	Once per	Instrument Analysis Method	



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-4 (Reference point) Sampling on 5 August 2025	pH	mg/L	7	6-9	6.0 – 9.0	2 months	Instrument Analysis Method	Refer to water quality report
	Dissolved Oxygen (DO)	mg/L	2.51	-	-		Instrument Analysis Method	
	Suspended Solids (SS)*3	mg/L	114	50	50		APHA 2540D (Dry at 103-105°C Method)	
	BOD5	mg/L	4.57	50	30		APHA 5210 B (5days BOD Test)	
	CODCr	TCU	14.7	250	125		APHA 5220 D (Close Reflux Colorimetric Method)	
	Color	TON	17.38	-	150		APHA 2120C (Spectrophotometric Method)	
	Odor	mg/L	2	-	-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	<3.1	10	10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	2.3	-	80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	MPN/100ml	0.24	2	2		APHA 4500-PE (Ascorbic Acid Method)	
	Total Coliform*4	mg/L	920	400	400		APHA 9221 B (Standard Total Coliform Fermentation Technique)	
	Total Dissolved solids (TDS) *6		180	-	2000		APHA 2540C (Total Dissolved Solids Dried at 180.C)	
	Iron*6, *5	mg/L	4.382	3.5	3.5		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
Mercury*6	mg/L	≤ 0.002	0.01	0.005	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)			
SW-7 Sampling on 5 August 2025	Temperature	°C	33	< 3 (increase)	≤ 35	Once per 2 months	Instrument Analysis Method	Refer to water quality report
	pH	-	7.1	6-9	6.0 – 9.0		Instrument Analysis Method	
	Dissolved Oxygen (DO)	mg/L	3.88	-	-		Instrument Analysis Method	
	Suspended Solids (SS)	mg/L	50	50	50		APHA 2540D (Dry at 103-105°C Method)	
	BOD5	mg/L	4.48	50	30		APHA 5210 B (5days BOD Test)	
	CODCr	mg/L	15.3	250	125		APHA 5220 D (Close Reflux Colorimetric Method)	
	Color	TCU	14.88	-	150		APHA 2120C (Spectrophotometric Method)	
	Odor	TON	1	-	-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	<3.1	10	10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	1.6	-	80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.09	2	2		APHA 4500-PE (Ascorbic Acid Method)	
Total Coliform	MPN/100ml	170	400	400	APHA 9221 B (Standard Total Coliform Fermentation			

Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-7 (Discharge Point)	Total Dissolved solids (TDS) *6	mg/L	170	-	2000		Technique) APHA 2540C (Total Dissolved Solids Dried at 180.C)	
	Iron*6	mg/L	2.234	3.5	3.5		APHA 3120 B (Inductively Coupled Plasma (ICP) Method) APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
	Mercury*6	mg/L	≤ 0.002	0.01	0.005			
SW-8 (Discharge Point) Sampling on 5 August 2025	Temperature	°C	36	< 3 (increase)	≤ 35	Once per 2 months	Instrument Analysis Method	Refer to water quality report
	pH	-	8.4	6-9	6.0 - 9.0		Instrument Analysis Method	
	Dissolved Oxygen (DO)	mg/L	6.47	-	-		Instrument Analysis Method	
	Suspended Solids (SS)*7	mg/L	154	50	50		APHA 2540D (Dry at 103-105°C Method)	
	BOD5	mg/L	4.34	50	30		APHA 5210 B (5days BOD Test)	
	CODCr	mg/L	9.8	250	125		APHA 5220 D (Close Reflux Colorimetric Method)	
	Color	TCU	8.63	-	150		APHA 2120C (Spectrophotometric Method)	
	Odor	TON	2	-	-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	<3.1	10	10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	1.1	-	80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.13	2	2		APHA 4500-PE (Ascorbic Acid Method)	
	Total Coliform*8	MPN/100ml	2200	400	400		APHA 9221 B (Standard Total Coliform Fermentation Technique)	
	Total Dissolved solids (TDS) *6	mg/L	132	-	2000		APHA 2540C (Total Dissolved Solids Dried at 180.C)	
	Iron*6,*9	mg/L	4.33	3.5	3.5		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
Mercury*6	mg/L	≤ 0.002	0.01	0.005	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)			
GW-2 (Reference point)	Temperature	°C	29	None Available for	≤ 35	Once per 2 months	Instrument Analysis Method	Refer to water quality report
	pH	-	6.9		6.0 - 9.0		Instrument Analysis Method	
	Dissolved Oxygen (DO)	mg/L	5.13		-		Instrument Analysis Method	
	Suspended Solids (SS)	mg/L	4		50		APHA 2540D (Dry at 103-105°C Method)	
	BOD5	mg/L	2.09		30		APHA 5210 B (5days BOD Test)	
	CODCr	mg/L	< 0.7		125		APHA 5220 D (Close Reflux Colorimetric Method)	

Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
GW-2 (Reference point) Sampling on 5 August 2025	Color	TCU	74.88	Ground water	150		APHA 2120C (Spectrophotometric Method)	
	Odor	TON	1		-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	<3.1		10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	1		80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.63		2		APHA 4500-PE (Ascorbic Acid Method)	
	Total Coliform	MPN/100ml	< 1.8		400		APHA 9221 B (Standard Total Coliform Fermentation Technique)	
	Total Dissolved solids (TDS) *6	mg/L	206		2000		APHA 2540C (Total Dissolved Solids Dried at 180.C)	
	Iron*6, *10	mg/L	4.676		3.5		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
	Mercury*6	mg/L	≤ 0.002		0.005		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	

*1Remark: Reference to the Water and Wastewater Quality Monitoring Report (August 2025).

*2Remark: Referred to the National Emission Quality Guideline (NEQG) 29th December 2015

*3Remark: SS results exceeded in the monitoring point of SW-4 than the target value be due to two expected reasons i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

*4Remark: For the monitoring point of SW2 and SW-4 the result of total coliform exceeded than the target value due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

*5 Remark: For the monitoring point of SW-2 and SW-4 the results of Iron exceeded. The possible reasons may be due to the influence of natural origin (iron can reach out from the soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by run-off or strong wind.

*6 Remark: Recommendation from JICA Environmental expert (TSMC), to be more emphasized on Environmental and analyzing only.

*7 Remark: For the monitoring point of SW-7, SS exceeded due to the surface water run-off from bare land in Zone B.

*8 Remark: For the monitoring point of SW-8, the results of T-Coli exceeded due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels. Total coliforms do not affect human health directly, self-monitoring was carried out to identify health impact by coliform bacteria. As for the result of E-Coli SW-8 was 33 (MPN/100ml). It is considered that there is no significant impact to human health.

*9 Remark: For the monitoring point of SW-8, Iron exceeded due to the possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

*10 Remark: For the monitoring point of SW-8, Iron exceeded possible reasons may due to the influence of natural origin (iron can reach out from soil by run-off). Moreover, Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

Note: Ground water for GW-2, it was compared with Vietnam Groundwater Standard (No: QCVN 09-MT:2015/BTNMT) at the Appendix Attachment of Water Quality Monitoring Report (August 2025).

2) (b) Water Quality – October 2025

Measurement Point: Effluent of Wastewater (SW-2 and SW-4 are attached as reference point only and they are natural creek water which are combine all the wastewater from the Local industrial water and domestic water from existing living environment. SW-7 and SW-8 are the main discharging point. GW-2 is also as reference point for monitoring of existing tube well located in the Monastery Compound near Zone-B area)

- Are there any effluents to water body in this monitoring period?

Yes, No

If yes, please attach “Analysis Record” and fill in the items not to comply with Refereed International Standard

Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-2	Temperature pH	°C -	26 6.9	< 3 (increase) 6-9	≤ 35 6.0 – 9.0	Once per 2	Instrument Analysis Method Instrument Analysis Method	Refer to



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-2 (Reference point) Sampling on 9 October 2025	Dissolved Oxygen (DO)	mg/L	3.68	-	-	months	Instrument Analysis Method	water quality report
	Suspended Solids (SS)	mg/L	20	50	50		APHA 2540D (Dry at 103-105°C Method)	
	BOD ₅	mg/L	4.74	50	30		APHA 5210 B (5days BOD Test)	
	COD _{Cr}	mg/L	14.7	250	125		APHA 5220 D (Close Reflux Colorimetric Method)	
	Color	TCU	32.43	-	150		APHA 2120C (Spectrophotometric Method)	
	Odor	TON	1	-	-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	<3.1	10	10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	3.0	-	80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.11	2	2		APHA 4500-PE (Ascorbic Acid Method)	
	Total Coliform*4	MPN/100ml	160000	400	400		APHA 9221 B (Standard Total Coliform Fermentation Technique)	
	Total Dissolved solids (TDS)*6	mg/L	112	-	2000		APHA 2540C (Total Dissolved Solids Dried at 180.C)	
Iron*6, *5	mg/L	8.580	3.5	3.5	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	Refer to water quality report		
Mercury*6	mg/L	≤ 0.002	0.01	0.005	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)			
SW-4 (Reference point) Sampling on 9 October 2025	Temperature	°C	26	< 3 (increase)	≤ 35	Once per 2 months	Instrument Analysis Method	Refer to water quality report
	pH	-	7.4	6-9	6.0 – 9.0		Instrument Analysis Method	
	Dissolved Oxygen (DO)	mg/L	4.3	-	-		Instrument Analysis Method	
	Suspended Solids (SS)*3	mg/L	198	50	50		APHA 2540D (Dry at 103-105°C Method)	
	BOD ₅	mg/L	5.47	50	30		APHA 5210 B (5days BOD Test)	
	COD _{Cr}	mg/L	6	250	125		APHA 5220 D (Close Reflux Colorimetric Method)	
	Color	TCU	5.29	-	150		APHA 2120C (Spectrophotometric Method)	
	Odor	TON	1	-	-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	< 3.1	10	10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	< 0.5	-	80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.11	2	2		APHA 4500-PE (Ascorbic Acid Method)	
Total Coliform*4	MPN/100ml	92000	400	400	APHA 9221 B (Standard Total Coliform Fermentation Technique)			
Total Dissolved solids	mg/L	188	-	2000	APHA 2540C (Total Dissolved Solids Dried at 180.C)			



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
	(TDS) *6 Iron*6, *5 Mercury*6	mg/L mg/L	6.040 ≤ 0.002	3.5 0.01	3.5 0.005		APHA 3120 B (Inductively Coupled Plasma (ICP) Method) APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
SW-7 (Discharge Point) SW-7 Sampling on 9 October 2025	Temperature pH Dissolved Oxygen (DO) Suspended Solids (SS)*8 BOD5 CODCr Color Odor Oil and Grease Total Nitrogen (T-N) Total Phosphorous (T-P) Total Coliform*7 Total Dissolved solids (TDS) *6 Iron*6 Mercury*6	°C - mg/L mg/L mg/L mg/L TCU TON mg/L mg/L mg/L MPN/100ml mg/L mg/L mg/L	27 7.1 4.35 52 5.32 12.1 19.57 1 < 3.1 4 0.08 35000 128 2.948 ≤ 0.002	< 3 (increase) 6-9 - 50 50 250 - - 10 - 2 400 - 3.5 0.01	≤ 35 6.0 - 9.0 - 50 30 125 150 - 10 80 2 400 2000 3.5 0.005	Once per 2 months	Instrument Analysis Method Instrument Analysis Method Instrument Analysis Method APHA 2540D (Dry at 103-105°C Method) APHA 5210 B (5days BOD Test) APHA 5220 D (Close Reflux Colorimetric Method) APHA 2120C (Spectrophotometric Method) APHA 2150B (Threshold Odor Test) APHA 5520 B (partition Gravimetric Method) HACH Method 10072 (TNT Persulfate Digestion Method) APHA 4500-PE (Ascorbic Acid Method) APHA 9221 B (Standard Total Coliform Fermentation Technique) APHA 2540C (Total Dissolved Solids Dried at 180.C) APHA 3120 B (Inductively Coupled Plasma (ICP) Method) APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	Refer to water quality report
SW-8 (Discharge Point) SW-8 Sampling on 9 October 2025	Temperature pH Dissolved Oxygen (DO) Suspended Solids (SS)*8 BOD5 CODCr Color Odor	°C - mg/L mg/L mg/L mg/L TCU TON	29 7.4 5.06 106 5 9 13.86 1	< 3 (increase) 6-9 - 50 50 250 - -	≤ 35 6.0 - 9.0 - 50 30 125 150 -	Once per 2 months	Instrument Analysis Method Instrument Analysis Method Instrument Analysis Method APHA 2540D (Dry at 103-105°C Method) APHA 5210 B (5days BOD Test) APHA 5220 D (Close Reflux Colorimetric Method) APHA 2120C (Spectrophotometric Method) APHA 2150B (Threshold Odor Test)	Refer to water quality report



Location	Item	Unit	Measured Value (Max)	Country's Standard*2	Target value to be applied*1	Frequency	Method	Note (Reason of excess of the standard)
SW-8 (Discharge Point)	Oil and Grease	mg/L	< 3.1	10	10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	5.3	-	80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.14	2	2		APHA 4500-PE (Ascorbic Acid Method)	
	Total Coliform*7	MPN/100ml	35000	400	400		APHA 9221 B (Standard Total Coliform Fermentation Technique)	
	Total Dissolved solids (TDS) *6	mg/L	170	-	2000		APHA 2540C (Total Dissolved Solids Dried at 180.C)	
	Iron*6, *9	mg/L	8.420	3.5	3.5		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
	Mercury*6	mg/L	≤ 0.002	0.01	0.005		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
GW-2 (Reference point) Sampling on 9 October 2025	Temperature	°C	27	None available For Ground water	≤ 35	Once per 2 months	Instrument Analysis Method	Refer to water quality report
	pH	-	6.9		6.0 – 9.0		Instrument Analysis Method	
	Dissolved Oxygen (DO)	mg/L	5.78		-		Instrument Analysis Method	
	Suspended Solids (SS)*10	mg/L	64		50		APHA 2540D (Dry at 103-105°C Method)	
	BOD5	mg/L	4.31		30		APHA 5210 B (5days BOD Test)	
	CODCr	mg/L	< 0.7		125		APHA 5220 D (Close Reflux Colorimetric Method)	
	Color	TCU	39.57		150		APHA 2120C (Spectrophotometric Method)	
	Odor	TON	3		-		APHA 2150B (Threshold Odor Test)	
	Oil and Grease	mg/L	< 3.1		10		APHA 5520 B (partition Gravimetric Method)	
	Total Nitrogen (T-N)	mg/L	< 0.5		80		HACH Method 10072 (TNT Persulfate Digestion Method)	
	Total Phosphorous (T-P)	mg/L	0.52		2		APHA 4500-PE (Ascorbic Acid Method)	
	Total Coliform	MPN/100ml	13		400		APHA 9221 B (Standard Total Coliform Fermentation Technique)	
	Total Dissolved solids (TDS) *6	mg/L	192		2000		APHA 2540C (Total Dissolved Solids Dried at 180.C)	
	Iron*6, *11	mg/L	11.92		3.5		APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	
Mercury*6	mg/L	≤ 0.002	0.005	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)				



*1Remark: Reference to the Water and Wastewater Quality Monitoring Report (October 2025)

*2Remark: Referred to the National Emission Quality Guideline (NEQG) 29th December 2015

*3Remark: SS results exceeded in the monitoring point of SW-4 than the target value be due to two expected reasons; i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

*4 Remark: For the monitoring point of SW2 the result of total coliform exceeded than the target value due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

*5 Remark: For the monitoring point of SW-2 and SW-4, the results of Iron exceeded. The possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind.

*6 Remark: Recommendation from JICA Environmental expert (TSMC), to be more emphasized on Environmental and analyzing only.

*7 Remark: For the monitoring point of SW-7 and SW-8, the results of T-Coli exceeded due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels. Total coliforms do not affect human health directly, self-monitoring was carried out to identify health impact by coliform bacteria. As for the result of E-Coli SW-7 was 20 and SW-8 was 20. It is considered that there is no significant impact to human health.

*8 Remark: For the monitoring point of SW-7 and SW-8, the results of SS exceeded due to due to the surface water run-off from bare land in Zone B.

*9 Remark: For the monitoring point of SW-8, the results of Iron exceeded due to possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

*10 Remark: For the monitoring point of GW-2, the results of SS exceeded due to expected reason may be due to construction or agricultural runoff, stormwater runoff and flooding that erode soil and introduce particles which can then infiltrate to groundwater.

*11 Remark: For the monitoring point of GW-2, Iron exceeded due to possible reasons may due to the influence of natural origin (iron can reach out from soil by run-off).

Moreover, Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

Note: Ground water for GW-2, it was compared with Vietnam Groundwater Standard (No: QCVN 09-MT:2015/BTNMT) at the Appendix Attachment of Water Quality Monitoring Report (October 2024).

3) Soil Contamination (only operation phase)

Situations environmental report from tenants

- Are there any serious issues regarding soil contamination in this monitoring period? Yes, No

If yes please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Issues on Soil Contamination	Countermeasures

Remark: Soil contamination survey will be done after the whole Zone-B is operation stage.

4) Noise Level (December 2024)

Location	Item	Unit	Measured Value (Mean)	Measured Value (Max)	Country's Standard	Target value to be applied*	Referred International Standard	Frequency	Method	Note (Reason of excess of the standard)
Residential Area NV-2 (4 June 2025)	Leq (day)	dB(A)	54	61	70	60	Refer the section 2.4 in EIA main report	One time / 3 months		
	Leq (evening)	dB(A)	-	-		55				
	Leq(night)	dB(A)	-	-		50				
Along the road (NV-1) (5 June 2025)	Leq (day)	dB(A)	61	62	70	75				
	Leq(night)	dB(A)	-	-		70				

*Remarks: Referred to the tentative target value of ambient air quality (TSEZ-B EIA Report for industrial area, Table 2.4.9), Reference to the noise and vibration monitoring report (June 2025)

Remark: Due to has Curfew and we could monitor day time only.

Complaints from Residents

- Are there any complaints from residents regarding noise in this monitoring period? Yes, No
 If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Complaints from Residents	Countermeasures

5) Solid Waste

Measurement Point: Storage for Sludge* (Operation Phase)

Are there any wastes if sludge in this monitoring period? Yes, No

If yes, please report the amount of sludge and fill in the results of solid waste management activities.

Item	Date	Generated from	Unit	Value	Disposed to
General Waste	16 June 2025	Landscaping and Plantation	Kg	2950	Waste disposing to Thanlyin Development Committee, Yangon Division
	30 July 2025			2900	
	9 September 2025			2850	
	31 October 2025			3000	
Total			Kg	11700	
Sludge	30 July 2025	Sewage Treatrnt Plant	Kg	6200	Golden DOWA Eco-System Myanmar Co., Ltd
	12 August 2025			5280	
	29 August 2025			3860	
Total			Kg	15340	

Remarks: Waste amount is not only in TSEZ-B but also combine with TSEZ-A General Waste. Generate wastes are dried waste and weight value are estimated base on type of Trash collector car. Green Waste are used in Bio-fertilizer.

Note: Zone-B wastewater treated at Sewage Treatment of TSEZ-A. Above data are sludge generated from Sewage treatment plant of TSEZ-A.



6) (a) Ground Subsidence Hydrology (GPS Location 16.67 N, 96.29E)

Duration (Month)	Water Consumption		Ground Level		Frequency	Note
	Quantity	Unit	Quantity	Unit		
27 June 2025	-	m3/week	+6.3006	m	Once per month	There is no tube well water consumption in Zone-B.

6) (b) Ground Subsidence Hydrology (GPS Location 16.67 N, 96.29E)

Duration (Month)	Water Consumption		Ground Level		Frequency	Note
	Quantity	Unit	Quantity	Unit		
25 July 2025	-	m3/week	+6.3008	m	Once per month	There is no tube well water consumption in Zone-B.

6) (c) Ground Subsidence Hydrology (GPS Location 16.67 N, 96.29E)

Duration (Month)	Water Consumption		Ground Level		Frequency	Note
	Quantity	Unit	Quantity	Unit		
29 August 2025	-	m3/week	+6.3003	m	Once per month	There is no tube well water consumption in Zone-B.

6) (d) Ground Subsidence Hydrology (GPS Location 16.67 N, 96.29E)

Duration (Month)	Water Consumption		Ground Level		Frequency	Note
	Quantity	Unit	Quantity	Unit		
26 September 2025	-	m3/week	+6.3003	m	Once per month	There is no tube well water consumption in Zone-B.

6) (e) Ground Subsidence Hydrology (GPS Location 16.67 N, 96.29E)

Duration (Month)	Water Consumption		Ground Level		Frequency	Note
	Quantity	Unit	Quantity	Unit		
31 October 2025	-	m3/week	+6.2989	m	Once per month	There is no tube well water consumption in Zone-B.

6) (f) Ground Subsidence Hydrology (GPS Location: 16.67 N, 96.29E)

Duration (Month)	Water Consumption		Ground Level		Frequency	Note
	Quantity	Unit	Quantity	Unit		
26 November 2025	-	m3/week	+6.3008	m	Once per month	There is no tube well water consumption in Zone-B.

7) Offensive Odor (only operation phase)

Complaints from Residents

- Are there any complaints from residents regarding offensive odor in this monitoring period? Yes, No
If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Complaints from Residents	Countermeasures

Situations environmental report from tenants

- Are there any serious issues regarding offensive odor in this monitoring period? Yes, No
If yes, please describe the contents of complains and its countermeasures to fill in below the table.

Contents of Complaints from Tenants	Countermeasures

8) Infectious disease, Working Environment, Accident

Information from contractor (construction phase) or tenants (operation phase)

- Are there any incidents regarding infectious disease, Working Environment, Accident in this monitoring period? Yes, No
If yes, please describe the contents of complains and its countermeasures to fill in below the table.



Contents of Incidents	Countermeasures
There is no accident and incident during monitoring period.	

Note: If emergency incidents are occurred, the information shall be reported to the relevant organizations and authorities immediately.

9) Resettlement Works for Project Affected Persons (PAPs) and Common Assets

Information from TSMC

- Please describe the progress and remarkable issues (if any) to fill in below the table.

Resentment Works		Progress in Narrative	Remarkable Issues
Projected Affected Persons	Land Acquisition and Relocation	There were no compensated or relocated PAHs between June 2025 to November 2025, as there was no progress in land acquisition and relocation work during this period.	
	Income Restoration Program	There were no IRP activities for PAPs between June 2025 to November 2025, except for some information we have checked monthly for Zone B PAPs.	
Common Assets	Relocation		

- Are there any grievances submitted, solved and pending regarding resettlement works?
If yes, please describe the contents of grievances to fill in below the table.

Yes, No

Contents of Grievance	Response/ Countermeasures



10) CSR activities such as Community Support Program
 - Are there any CSR activities implemented in this monitoring

Yes, No

If yes, please describe the outline of CSR activities implemented to fill in below the table.

Date	Activities	Description (Location, Participant etc)	Available photos
June 2025	Thilawa SEZ World Environment Day 2025 Forum: <i>“Building a Better Sustainable Environment Through Smart Waste Management Practices”</i>	The MJTD Community Relations Department hosted a one-day forum as the celebration of World Environmental Day on 11 June 2025, in collaboration with the MJTD Environment Section and Environmental specialists from TSEZ locator companies – Ball Asia Pacific (Yangon) Metal Container Limited, JFE MYANMAR Coated Steel Co., Ltd, Golden Dowla Eco-System Myanmar Co., Ltd, Indorama Ventures Packaging (Myanmar) Limited and TSMC OSSC Environment Section and Myanmar Koei International Limited. A total of 105 attendees, representing 41 locator companies, participated in the forum, which featured key presentations and a panel discussion.	

<p>June 2025</p>	<p>Vocational and Educational Training Program for TSEZ Community: Basic Computer Course (2/2025) and Basic House Wiring Course (1/2025) (Closing Ceremony)</p>	<p>39 students completed the 30-hour Basic Computer Course, and 28 students finished the intensive 60-hour Basic House Wiring Course. The completion certificates were awarded.</p>	
<p>July 2025</p>	<p>Ceremony for the provision of academic funds and scholarship awards to the students</p>	<p>Hosting the ceremony to award the academic funds, scholarship payments to two high schools and one technical institute. (Refreshment costs for 50 attendees and transportation charges for students)</p>	
<p>August 2025</p>	<p>School Items Donation (Stationery Donation) to students around TSEZ communities</p>	<p>10th TSEZ Stationery Donation Program: distributed stationery items to students around PACs, covering over 4,861 students from seven villages and wards surrounding the Thilawa SEZ. (Annual Support Program)</p>	



<p>August 2025</p>	<p>Excursion/Yangon City Tour for TSEZ Scholarship Students (2025-2026 Academic Year)</p>	<p>Excursion activity to Yangon City for TSEZ scholarship students (24 high-school scholarship students) for engagement and skill development of the students.</p>	
<p>September 2025</p>	<p>Academic Fund Support for Hiring Non-In-Service Teachers</p>	<p>Provided academic funds to hire two teachers at BEPS Tha Yat Kone, Kyauk Tan Township.</p>	
<p>September 2025</p>	<p>Nutrition Support Program: TSEZ School Lunch Program 2025 (Pilot Project) (Sep 2025 to Nov 2025)</p>	<p>This program is specifically designed to enhance the nutritional status of children who are underweight or malnourished. Provided nutritious lunches every Monday, Wednesday, and Friday, with regular monitoring of students' physical growth. (3-month Pilot Project)</p>	



<p>October 2025</p>	<p>Mid-year TSEZ CSR Engagement Meeting with Locators (17th Oct 2025)</p>	<p>Meeting with TSEZ Locators CSR representatives for reporting the CSR Activities during the first half of FY 25-26 and discussing the upcoming activities in FY2025-2026</p>	
<p>October 2025</p>	<p>9th Kathina Robe Offering Ceremony (15th Oct 2025)</p>	<p>Provided Kathina Robe Offering Ceremony at Yadanar Myaing Tharyar Monastery, Shwe Pyauk Village Tract, Kyauk Tan Township.</p>	
<p>October 2025</p>	<p>Academic Fund Support for Hiring Non-In-Service Teachers</p>	<p>Provided academic funds to hire two teachers at BEPS Tha Yat Kone, Kyauk Tan Township.</p>	
<p>October 2025</p>	<p>Nutrition Support Program: TSEZ School Lunch Program 2025 (Pilot Project) (Sep 2025 to Nov 2025)</p>	<p>This program is specifically designed to enhance the nutritional status of children who are underweight or malnourished. Provided nutritious lunches every Monday, Wednesday, and Friday, with regular monitoring of students' physical growth. (3-month Pilot Project)</p>	



			
<p>October 2025</p>	<p>School Infrastructure Development Programs (2025)- School Roofing Renovation and installation of new walkway at BEPS Kayat, Thida Myaing Ward, Kyauk Tan Township.</p>	<p>School Roofing Renovation and installation of new walkway at BEPS Kayat (Thida Myaing Ward): Roof modification work, Gutter replacement work, Ceiling repair work and installation of new walkway.</p>	<p>School roof renovation and repair works, and installation of a new walkway at BEPS Kayat</p> <p>Before</p>  <p>After</p> 
<p>November 2025</p>	<p>TSEZ All Locators Badminton and Sepak Takraw Tournaments 2025</p>	<p>The fourth time of organizing the Sepak Takraw and Badminton Tournaments for all employees at TSEZ locators. The TSEZ All Locators Sepak Takraw Tournament was held on 13-14 November, which the 24 teams representing 16 locators, including MJTD, participated by demonstrating remarkable teamwork and skill. The TSEZ All locators Badminton Tournament was held on 29-30 November by the intense over 105 Matches for two</p>	

		<p>days. The tournament attracted approximately 400 spectators over the two days, creating a vibrant and encouraging atmosphere for all participants. The TSEZ All-Locators Sepak Takraw and Badminton Tournaments 2025 concluded smoothly with great enthusiasm, joy, and a strong sense of accomplishment, further empowering both participants and spectators within the Thilawa Special Economic Zone.</p>	
<p>November 2025</p>	<p>Cash donation to the School Committee of BEPS Gway Pin for the installation of new wire mesh on Windows for the safety of students</p>	<p>Donated the cash 10lakh to the school committee of BEPS Gway Pin for the installation of new wire mesh on windows for the safety of students.</p>	



<p>November 2025</p>	<p>Academic Fund Support for Hiring Non-In-Service Teachers</p>	<p>Provided academic funds to hire two teachers at BEPS Tha Yat Kone, Kyauk Tan Township.</p>	
<p>November 2025</p>	<p>Nutrition Support Program: TSEZ School Lunch Program 2025 (Pilot Project) (Sep 2025 to Nov 2025)</p>	<p>This program is specifically designed to enhance the nutritional status of children who are underweight or malnourished. Provided nutritious lunches every Monday, Wednesday, and Friday, with regular monitoring of students' physical growth. (3-month Pilot Project)</p>	
<p>June 2025 to November 2025</p>	<p>Scholarship / Student Grant Programme for outstanding students in TSEZ (University Medical Student)</p>	<p>Provide academic support (200,000/- MMK per month) for Medical Year 3 Student from Shwe Pyauk Village (Mg Zaw Htet) (June 2025 to November 2025)</p>	



<p>June 2025 to November 2025</p>	<p>TSEZ Scholarship/ Student Grant Program for outstanding students in TSEZ (High School Students)</p>	<p>Provide the scholarship payment for High School Students, G12-12 students, G11-6 students, and G10- 6students (Total 24 students) from BEHS Aye Mya Thida, BEHS Myaing Thar Yar (June 2025 - November 2025)</p>	
<p>June 2025 to November 2025</p>	<p>Scholarship/Student Grant Program for outstanding students in TSEZ (GTI Thanlyin)</p>	<p>Provide academic support (150,000/- MMK per month) for the GTI Thanlyin Student (4 students) (June 2025 to November 2025)</p>	
<p>June 2025 to November 2025</p>	<p>Electricity Utility Charges Support to Moe Kyo Swam Monastery</p>	<p>Provided the monthly electricity utility charges for the neighboring monastery, Moe Kyo Swan Monastery at TSEZ Shwe Pyi Thar Yar Ward.</p>	<p>-</p>



June 2025 to November 2025	Job assistance for vacancy announcement	The vacancy announcement from Locators (about 90 posts) was delivered and uploaded to the TSEZ Facebook page.	-
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End of Document





MJTD

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED

**Thilawa Special Economic Zone
Zone B– Phase 1,2 & 3 (Operation phase)**

Appendix- 1

Air Quality Monitoring Report

June 2025



**AIR QUALITY MONITORING
REPORT
FOR DEVELOPMENT OF INDUSTRIAL AREA
THILAWA SEZ ZONE B
(PHASE 1, 2 & 3 OPERATION STAGE)**

(BI-ANNUALLY MONITORING)

June 2025

Myanmar Koei International Ltd.



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CHAPTER 1: OUTLINES AND SUMMARY OF MONITORING PLAN

1.1 General

Thilawa Special Economic Zone (TSEZ) is located in southern district of Yangon region and about 23 km southeast of Yangon city. As the developer of Thilawa SEZ, Myanmar Japan Thilawa Development Ltd. (MJTD) has a responsibility to carry out regular environmental monitoring in the industrial area of Zone B in accordance with the approved Environmental Impact Assessment (EIA) report with Environmental Management Plan (EMP). MJTD has implemented monitoring various environmental items with the specified time frame to know the environmental conditions in and around the area.

1.2 Outlines of Monitoring Plan

To assess the environmental condition under the operation of industrial area in and around Thilawa SEZ Zone B, air quality had been monitored from 2 June 2025 to 9 June 2025 as follows;

Table 1.2-1 Outlines of Air Quality Monitoring Plan

Monitoring Date	Monitoring Item	Parameters	Number of Point	Duration	Monitoring Methodology
From 2 June to 9 June, 2025	Air Quality	CO, NO ₂ , PM _{2.5} , PM ₁₀ and SO ₂	1	7 Days	On site measurement by Oceanus AQM-09 Air Quality Monitoring System

Source: Myanmar Koei International Ltd.



CHAPTER 2: AIR QUALITY MONITORING

2.1 Monitoring Item

The parameters for air quality monitoring were CO, NO₂, PM_{2.5}, PM₁₀ and SO₂.

2.2 Monitoring Location

The air quality measurement equipment, “Oceanus AQM-09 Air Quality Monitoring System” was set up at the south of the Thilawa SEZ Zone B, N: 16°39'24.20", E: 96°17'15.80", inside the monastery compound of Phalan village. As the monitoring point (AQ-1) is adjacent to the southern boundary of Thilawa SEZ Zone B, it is surrounded by Thilawa SEZ Zone B in the north and east. In the south and west of AQ-1, the residential houses of Phalan village and the fields are located respectively. Besides, Thilawa SEZ Zone A is distanced about 2 km north of AQ-1 as well as the local Thilawa Industrial Zone is about 1 km northeast. Due to the air quality monitoring is carried out at above location which is closed to the residential houses of Phalan village, the possible emission sources are exhaust gas and dust emissions from the fuel-burning equipment and other tasks of construction activities of Zone B but also from the daily human activities in Phalan village. The location of air quality monitoring point is shown in Figure 2.2-1.



Source: Google Earth

Figure 2.2-1 Location of Air Quality Monitoring Point

2.3 Monitoring Period

Air quality monitoring was conducted seven consecutive days from 2 June, 2025 to 9 June, 2025.

2.4 Monitoring Method

Monitoring of CO, NO₂, PM_{2.5}, PM₁₀ and SO₂ were conducted by referring to the recommendation of the United States Environmental Protection Agency (U.S. EPA). The Oceanus AQM-09 Air Quality Monitoring System was used to collect ambient air pollutants. The system measures automatically every one minute and directly reads and records onsite for CO, NO₂, PM_{2.5}, PM₁₀ and SO₂. Wind data are analyzed by using the WRPLOT View (Ver. 8.0.2), in which calm wind is defined below 0.5 m/s in term of the classification stipulated by National Oceanic and Atmospheric Administration (USA). The status of air quality monitoring is shown in Figure 2.4-1.



Source: Myanmar Koei International Ltd.

Figure 2.4-1 Status of Air Quality Monitoring Point

2.5 Monitoring Results

The daily average value of air quality monitoring results of CO, NO₂, PM_{2.5}, PM₁₀ and SO₂ are described in Table 2.5-1. Comparing with the target value of CO, NO₂, PM_{2.5}, PM₁₀ and SO₂ prescribed in EIA report of Thilawa SEZ Zone B development project as well as the guideline values in National Environmental Quality (Emission) Guidelines (NEQG), concentration of CO, NO₂, PM_{2.5}, PM₁₀ and SO₂ are within limitations. Additionally, when current monitoring results are compared with air quality results measured in October 2015 for the mentioned EIA report, there is not much difference between the results.

Table 2.5-1 Air Quality Monitoring Result (Daily Average)

Monitoring Date	CO		NO ₂		PM _{2.5}		PM ₁₀		SO ₂	
	mg/m ³		mg/m ³		mg/m ³		mg/m ³		mg/m ³	
	June 2025	AQ-3 (Baseline Result, EIA Report)*	June 2025	AQ-3 (Baseline Result, EIA Report)*	June 2025	AQ-3 (Baseline Result, EIA Report)*	June 2025	AQ-3 (Baseline Result, EIA Report)*	June 2025	AQ-3 (Baseline Result, EIA Report)*
02~03 June, 2025 (Day 1)	0.197	0.115	0.010	0.071	0.013	0.006	0.017	0.012	0.018	0.002
03~04 June, 2025 (Day 2)	0.038	0.172	0.010	0.064	0.011	0.016	0.016	0.033	0.019	0.009
04~05 June, 2025 (Day 3)	0.012	0.126	0.011	0.056	0.009	0.007	0.013	0.016	0.018	0.009
05~06 June, 2025 (Day 4)	0.037	0.103	0.008	0.056	0.006	0.005	0.010	0.012	0.015	0.001
06~07 June, 2025 (Day 5)	0.006	0.103	0.008	0.047	0.005	0.004	0.008	0.015	0.016	0.003
07~08 June, 2025 (Day 6)	0.046	0.160	0.018	0.051	0.008	0.005	0.012	0.017	0.018	0.005
08~09 June, 2025 (Day 7)	0.131	0.183	0.037	0.060	0.011	0.008	0.016	0.02	0.015	0.007
7 Days Average Value	0.067	0.137	0.015	0.058	0.009	0.007	0.013	0.018	0.017	0.005
Target Value	10.26		0.1		0.025		0.05		0.02	
NEQG Guideline Value	-		-		0.025		0.05		0.02	

Note: The target value of CO, NO₂ and SO₂ were converted from ppm units to mg/m³. The conversion equation are as follows;

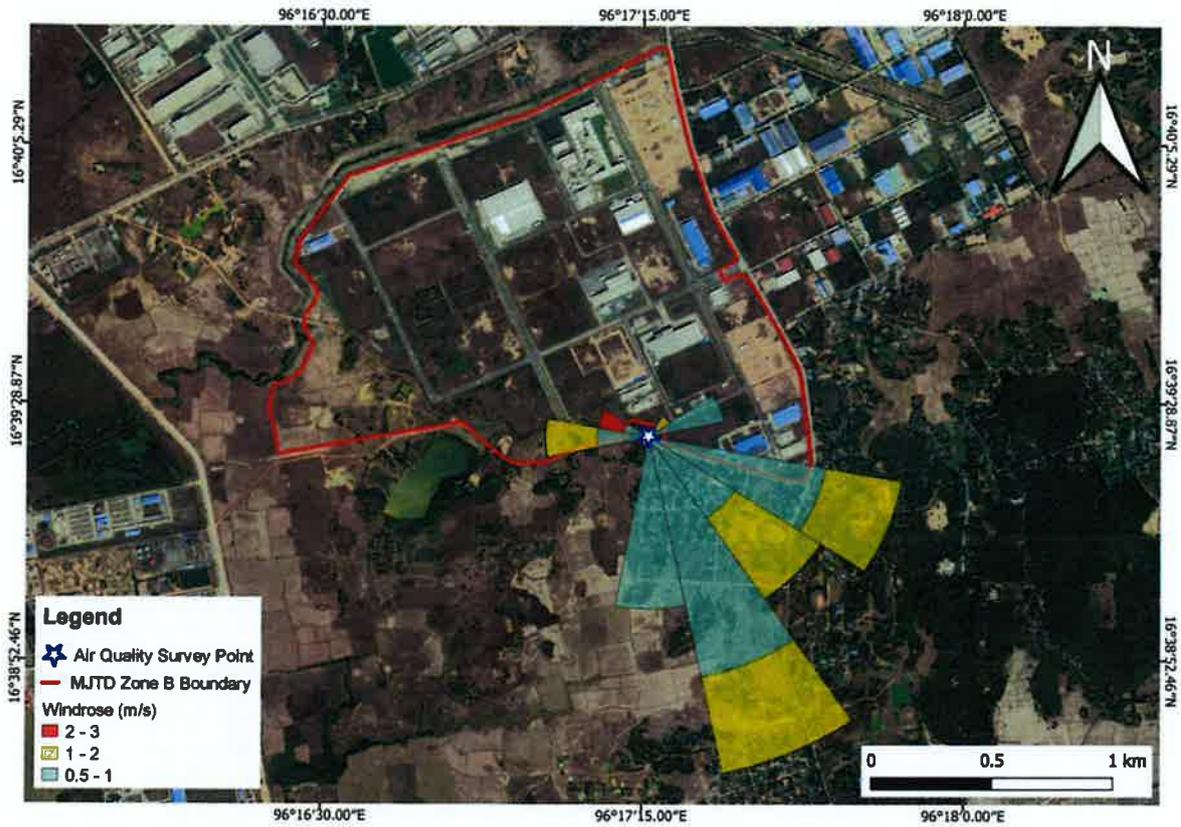
1. (CO, mg/m³) = (CO, ppm) * (Molecular Weight of CO (28)) / 24.45 at 25°C and 1 atm condition
2. (NO₂, mg/m³) = (NO₂, ppm) * (Molecular Weight of NO₂ (46)) / 24.45 at 25°C and 1 atm condition
3. (SO₂, mg/m³) = (SO₂, ppm) * (Molecular Weight of SO₂ (64)) / 24.45 at 25°C and 1 atm condition

* Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

Source: Myanmar Koei International Ltd.



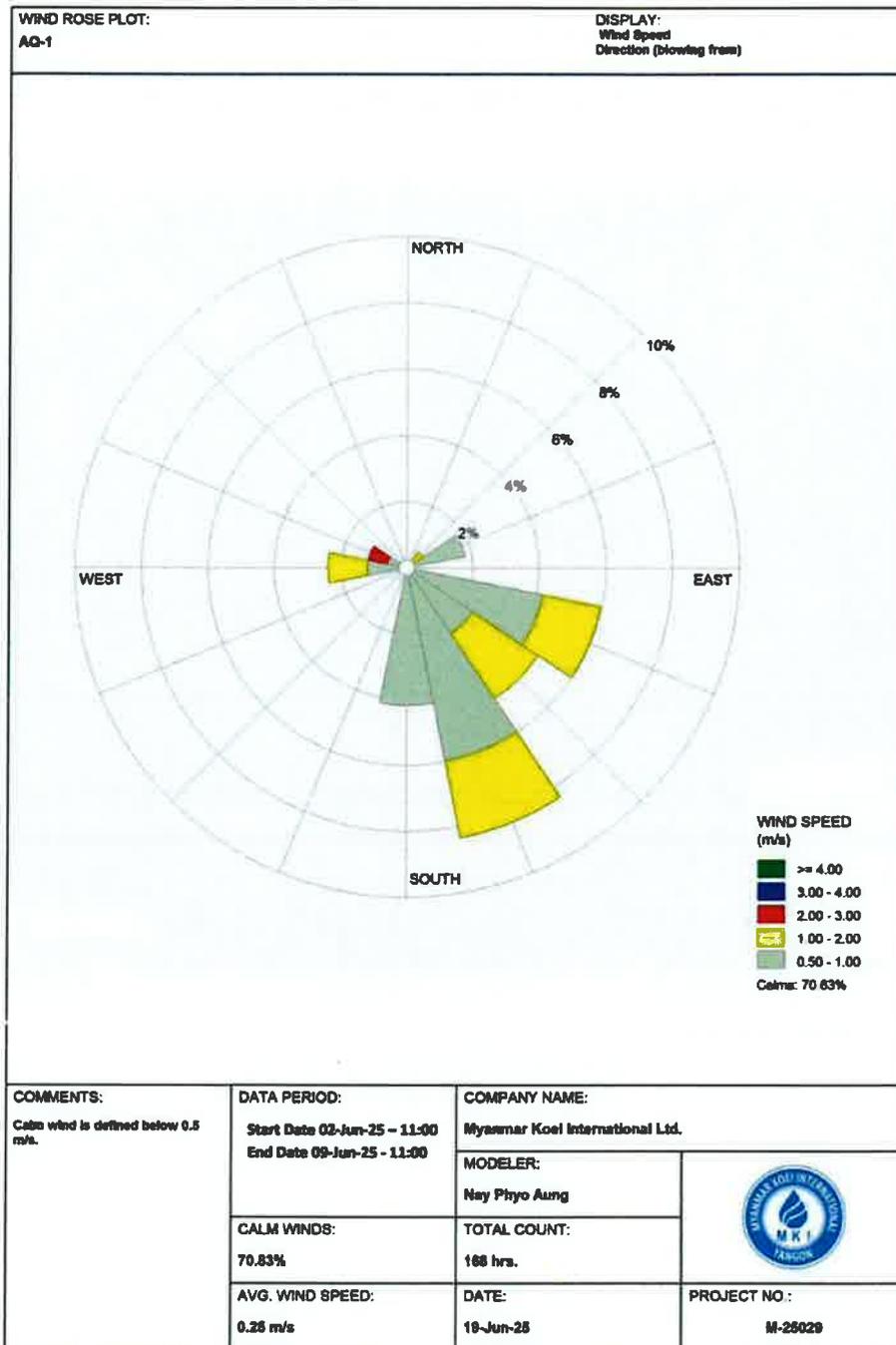
Wind direction and wind speed were measured at AQ-1. Hourly average values of measured wind direction and wind speed data are described in Appendix-1. Frequency of wind direction at AQ-1 and its wind rose diagram are described in Figure 2.5-1 and Figure 2.5-2. According to the wind rose analysis, the prevailing wind direction during monitoring was South-Southeast (SSE) and the least frequency wind direction was East-Northeast (ENE). During the monitoring period, while the maximum wind speed was 2.31 m/s, the average speed is 0.25 m/s. The calm wind is 70.83 %, whereas the calm wind is defined below 0.5 m/s. As the average wind speed is lower than the defined calm wind, it is assumed that the wind was calm during the monitoring period.



Source: Myanmar Koei International Ltd.

Figure 2.5-1 Wind Status at AQ-1





Note: According to defined calm wind speed (< 0.5 m/s), 70.83 % of all monitoring data was defined as calm wind and not considered or counted for modelling. 29.17 % of wind data were used in this model.
Source: Myanmar Koei International Ltd.

Figure 2.5-2 Wind Rose Diagram of AQ-1



CHAPTER 3: CONCLUSION AND RECOMMENDATION

The result of air quality at AQ-1, concentration of CO, NO₂, PM_{2.5}, PM₁₀ and SO₂ during seven days monitoring was not exceed the limitation, thus there are no impacts on the surrounding environments.

In conclusion of this environmental survey periodical monitoring will be necessary to grasp the environmental conditions in Thilawa SEZ Zone B and to show the compliance status in the operation stage of Thilawa SEZ Zone B. The mitigation measures for environmental management will be considered in collected periodical environmental data and has to be reviewed in future.



APPENDIX-1 HOURLY AIR RESULTS



Air Quality Monitoring Report for Development of Industrial Area Thilawa SEZ Zone B
(Phase 1, 2 & 3 Operation Stage, FY June 2025)

Date	Time	CO	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	Wind Speed	Wind Direction	
		mg/m ³	m/s	Deg.	Direction				
		Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly
02 June, 2025	11:00 ~ 11:59	0.609	0.020	0.011	0.012	0.038	0.40	98	E
02 June, 2025	12:00 ~ 12:59	0.573	0.014	0.011	0.012	0.035	0.43	11	N
02 June, 2025	13:00 ~ 13:59	0.500	0.008	0.011	0.013	0.016	0.45	354	N
02 June, 2025	14:00 ~ 14:59	0.428	0.007	0.011	0.013	0.013	0.45	81	E
02 June, 2025	15:00 ~ 15:59	0.452	0.009	0.015	0.018	0.019	1.00	140	SE
02 June, 2025	16:00 ~ 16:59	0.321	0.008	0.015	0.018	0.021	0.15	110	ESE
02 June, 2025	17:00 ~ 17:59	0.239	0.008	0.015	0.019	0.017	0.20	167	SSE
02 June, 2025	18:00 ~ 18:59	0.176	0.007	0.014	0.018	0.012	0.05	173	S
02 June, 2025	19:00 ~ 19:59	0.103	0.012	0.011	0.017	0.020	0.02	45	NE
02 June, 2025	20:00 ~ 20:59	0.065	0.019	0.013	0.016	0.024	0.00	267	W
02 June, 2025	21:00 ~ 21:59	0.137	0.009	0.014	0.018	0.018	0.00	254	WSW
02 June, 2025	22:00 ~ 22:59	0.073	0.007	0.011	0.017	0.011	0.00	254	WSW
02 June, 2025	23:00 ~ 23:59	0.044	0.005	0.011	0.017	0.010	0.00	211	SSW
03 June, 2025	00:00 ~ 00:59	0.000	0.004	0.010	0.015	0.011	0.00	204	SSW
03 June, 2025	01:00 ~ 01:59	0.004	0.006	0.011	0.018	0.012	0.00	204	SSW
03 June, 2025	02:00 ~ 02:59	0.000	0.006	0.015	0.021	0.012	0.00	204	SSW
03 June, 2025	03:00 ~ 03:59	0.000	0.008	0.017	0.024	0.011	0.00	203	SSW
03 June, 2025	04:00 ~ 04:59	0.000	0.007	0.016	0.022	0.011	0.00	203	SSW
03 June, 2025	05:00 ~ 05:59	0.000	0.009	0.012	0.018	0.012	0.00	203	SSW
03 June, 2025	06:00 ~ 06:59	0.052	0.010	0.010	0.014	0.011	0.00	203	SSW
03 June, 2025	07:00 ~ 07:59	0.323	0.021	0.013	0.017	0.014	0.05	214	SW
03 June, 2025	08:00 ~ 08:59	0.317	0.014	0.012	0.015	0.027	0.18	324	NW
03 June, 2025	09:00 ~ 09:59	0.197	0.009	0.016	0.022	0.032	0.27	18	NNF
03 June, 2025	10:00 ~ 10:59	0.126	0.008	0.015	0.020	0.032	0.43	11	N

Max	0.609	0.021	0.017	0.024	0.038
Avg	0.197	0.010	0.013	0.017	0.018
Min	0.000	0.004	0.010	0.012	0.010

A1-1



Air Quality Monitoring Report for Development of Industrial Area Thilawa SEZ Zone B
(Phase 1, 2 & 3 Operation Stage, FY June 2025)

Date	Time	CO	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	Wind Speed	Wind Direction	
		mg/m ³	m/s	Deg.	Direction				
		Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly
03 June, 2025	11:00 ~ 11:59	0.107	0.008	0.015	0.020	0.014	0.52	22.51	NNE
03 June, 2025	12:00 ~ 12:59	0.113	0.007	0.016	0.022	0.011	0.57	74.19	ENE
03 June, 2025	13:00 ~ 13:59	0.115	0.008	0.016	0.022	0.011	0.35	84.76	E
03 June, 2025	14:00 ~ 14:59	0.115	0.009	0.016	0.021	0.022	0.38	48.59	NE
03 June, 2025	15:00 ~ 15:59	0.082	0.008	0.015	0.021	0.015	0.53	175.43	S
03 June, 2025	16:00 ~ 16:59	0.000	0.008	0.014	0.019	0.021	0.40	162.39	SSE
03 June, 2025	17:00 ~ 17:59	0.000	0.006	0.014	0.019	0.023	0.13	171.73	S
03 June, 2025	18:00 ~ 18:59	0.000	0.008	0.013	0.020	0.019	0.13	128.00	SE
03 June, 2025	19:00 ~ 19:59	0.000	0.017	0.006	0.012	0.012	0.10	64.00	ENE
03 June, 2025	20:00 ~ 20:59	0.000	0.027	0.004	0.006	0.012	0.07	75.83	ENE
03 June, 2025	21:00 ~ 21:59	0.000	0.024	0.007	0.010	0.028	0.00	9.17	N
03 June, 2025	22:00 ~ 22:59	0.000	0.020	0.015	0.023	0.021	0.03	20.50	NNE
03 June, 2025	23:00 ~ 23:59	0.000	0.015	0.009	0.014	0.010	0.00	23.00	NNE
04 June, 2025	00:00 ~ 00:59	0.000	0.007	0.014	0.018	0.012	0.03	34.44	NE
04 June, 2025	01:00 ~ 01:59	0.000	0.005	0.005	0.010	0.015	0.22	188.67	S
04 June, 2025	02:00 ~ 02:59	0.000	0.006	0.006	0.010	0.014	0.03	173.81	S
04 June, 2025	03:00 ~ 03:59	0.000	0.007	0.005	0.010	0.015	0.00	170.00	S
04 June, 2025	04:00 ~ 04:59	0.000	0.006	0.005	0.010	0.014	0.00	170.00	S
04 June, 2025	05:00 ~ 05:59	0.011	0.006	0.006	0.010	0.015	0.00	170.00	S
04 June, 2025	06:00 ~ 06:59	0.218	0.005	0.009	0.013	0.027	0.00	170.00	S
04 June, 2025	07:00 ~ 07:59	0.162	0.007	0.011	0.014	0.034	0.02	158.01	SSE
04 June, 2025	08:00 ~ 08:59	0.000	0.007	0.013	0.018	0.028	0.07	66.91	ENE
04 June, 2025	09:00 ~ 09:59	0.000	0.005	0.013	0.017	0.034	0.32	358.20	N
04 June, 2025	10:00 ~ 10:59	0.000	0.006	0.012	0.017	0.024	0.30	14.67	NNE

Max	0.218	0.027	0.016	0.023	0.034
Avg	0.038	0.010	0.011	0.016	0.019
Min	0.000	0.005	0.004	0.006	0.010

A1-2



Air Quality Monitoring Report for Development of Industrial Area Thilawa SEZ Zone B
(Phase 1, 2 & 3 Operation Stage, FY June 2025)

Date	Time	CO	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	Wind Speed	Wind Direction	
		mg/m ³	m/s	Deg.	Direction				
		Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly
04 June, 2025	11:00 ~ 11:59	0.000	0.007	0.011	0.016	0.018	0.47	288.54	WNW
04 June, 2025	12:00 ~ 12:59	0.000	0.006	0.011	0.015	0.020	0.53	341.45	NNW
04 June, 2025	13:00 ~ 13:59	0.000	0.007	0.014	0.019	0.017	0.35	65.06	ENE
04 June, 2025	14:00 ~ 14:59	0.115	0.007	0.017	0.029	0.020	0.40	306.83	NW
04 June, 2025	15:00 ~ 15:59	0.000	0.009	0.006	0.012	0.022	0.56	276.77	W
04 June, 2025	16:00 ~ 16:59	0.000	0.041	0.011	0.014	0.020	0.63	228.85	SW
04 June, 2025	17:00 ~ 17:59	0.000	0.031	0.010	0.012	0.023	0.27	31.78	NNE
04 June, 2025	18:00 ~ 18:59	0.000	0.028	0.009	0.011	0.020	0.05	25.21	NNE
04 June, 2025	19:00 ~ 19:59	0.000	0.015	0.009	0.012	0.024	0.05	31.00	NNE
04 June, 2025	20:00 ~ 20:59	0.000	0.010	0.006	0.010	0.027	0.03	34.99	NE
04 June, 2025	21:00 ~ 21:59	0.000	0.006	0.006	0.010	0.019	0.02	135.24	SE
04 June, 2025	22:00 ~ 22:59	0.000	0.006	0.005	0.010	0.010	0.00	324.06	NW
04 June, 2025	23:00 ~ 23:59	0.000	0.009	0.010	0.014	0.015	0.00	307.00	NW
05 June, 2025	00:00 ~ 00:59	0.000	0.008	0.007	0.011	0.013	0.02	307.00	NW
05 June, 2025	01:00 ~ 01:59	0.000	0.006	0.007	0.010	0.011	0.02	307.00	NW
05 June, 2025	02:00 ~ 02:59	0.000	0.009	0.007	0.011	0.012	0.00	324.06	NW
05 June, 2025	03:00 ~ 03:59	0.000	0.009	0.007	0.013	0.008	0.02	315.11	NW
05 June, 2025	04:00 ~ 04:59	0.000	0.008	0.007	0.012	0.008	0.12	307.00	NW
05 June, 2025	05:00 ~ 05:59	0.000	0.009	0.008	0.012	0.017	0.00	307.00	NW
05 June, 2025	06:00 ~ 06:59	0.000	0.005	0.008	0.011	0.016	0.00	307.00	NW
05 June, 2025	07:00 ~ 07:59	0.130	0.008	0.009	0.012	0.021	0.03	312.14	NW
05 June, 2025	08:00 ~ 08:59	0.053	0.006	0.009	0.013	0.020	0.10	318.75	NW
05 June, 2025	09:00 ~ 09:59	0.000	0.005	0.009	0.013	0.026	0.28	351.75	N
05 June, 2025	10:00 ~ 10:59	0.000	0.006	0.009	0.013	0.025	0.32	358.39	N

Max	0.130	0.041	0.017	0.029	0.027
Avg	0.012	0.011	0.009	0.013	0.018
Min	0.000	0.005	0.005	0.010	0.008



Air Quality Monitoring Report for Development of Industrial Area Thilawa SEZ Zone B
(Phase 1, 2 & 3 Operation Stage, FY June 2025)

Date	Time	CO	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	Wind Speed	Wind Direction	
		mg/m ³	m/s	Deg.	Direction				
		Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly
05 June, 2025	11:00 ~ 11:59	0.000	0.007	0.010	0.015	0.025	0.50	6.07	N
05 June, 2025	12:00 ~ 12:59	0.000	0.008	0.009	0.011	0.025	0.53	69.75	ENE
05 June, 2025	13:00 ~ 13:59	0.000	0.005	0.005	0.008	0.012	0.60	174.44	S
05 June, 2025	14:00 ~ 14:59	0.000	0.007	0.005	0.007	0.011	0.78	113.52	ESE
05 June, 2025	15:00 ~ 15:59	0.000	0.008	0.005	0.008	0.027	0.73	167.85	SSE
05 June, 2025	16:00 ~ 16:59	0.000	0.011	0.004	0.006	0.016	0.42	161.21	SSE
05 June, 2025	17:00 ~ 17:59	0.000	0.009	0.004	0.006	0.012	0.17	117.10	ESE
05 June, 2025	18:00 ~ 18:59	0.000	0.008	0.006	0.007	0.009	0.14	137.52	SE
05 June, 2025	19:00 ~ 19:59	0.031	0.006	0.007	0.010	0.012	0.07	15.87	NNE
05 June, 2025	20:00 ~ 20:59	0.082	0.005	0.008	0.012	0.018	0.00	0.00	N
05 June, 2025	21:00 ~ 21:59	0.065	0.005	0.006	0.012	0.017	0.00	0.00	N
05 June, 2025	22:00 ~ 22:59	0.105	0.006	0.008	0.015	0.020	0.02	0.00	N
05 June, 2025	23:00 ~ 23:59	0.069	0.008	0.006	0.013	0.023	0.00	0.00	N
06 June, 2025	00:00 ~ 00:59	0.000	0.008	0.004	0.011	0.014	0.00	0.00	N
06 June, 2025	01:00 ~ 01:59	0.000	0.008	0.004	0.011	0.010	0.05	343.80	NNW
06 June, 2025	02:00 ~ 02:59	0.000	0.009	0.004	0.010	0.009	0.00	332.00	NNW
06 June, 2025	03:00 ~ 03:59	0.000	0.011	0.004	0.009	0.009	0.00	332.00	NNW
06 June, 2025	04:00 ~ 04:59	0.000	0.010	0.004	0.011	0.009	0.10	332.00	NNW
06 June, 2025	05:00 ~ 05:59	0.057	0.010	0.008	0.014	0.015	0.08	332.00	NNW
06 June, 2025	06:00 ~ 06:59	0.481	0.007	0.010	0.014	0.033	0.00	330.67	NNW
06 June, 2025	07:00 ~ 07:59	0.000	0.009	0.008	0.012	0.011	0.05	314.20	NW
06 June, 2025	08:00 ~ 08:59	0.000	0.009	0.008	0.011	0.007	0.20	27.77	NNE
06 June, 2025	09:00 ~ 09:59	0.000	0.010	0.007	0.010	0.009	0.28	3.24	N
06 June, 2025	10:00 ~ 10:59	0.000	0.007	0.007	0.010	0.016	0.43	334.56	NNW

Max	0.481	0.011	0.010	0.015	0.033
Avg	0.037	0.008	0.006	0.010	0.015
Min	0.000	0.005	0.004	0.006	0.007



Air Quality Monitoring Report for Development of Industrial Area Thilawa SEZ Zone B
(Phase 1, 2 & 3 Operation Stage, FY June 2025)

Date	Time	CO	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	Wind Speed	Wind Direction	
		mg/m ³	m/s	Deg.	Direction				
		Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly
06 June, 2025	11:00 ~ 11:59	0.000	0.007	0.007	0.010	0.022	0.42	348.99	N
06 June, 2025	12:00 ~ 12:59	0.000	0.007	0.005	0.008	0.024	0.45	4.57	N
06 June, 2025	13:00 ~ 13:59	0.000	0.008	0.005	0.009	0.021	0.42	3.33	N
06 June, 2025	14:00 ~ 14:59	0.000	0.010	0.006	0.009	0.020	0.42	353.67	N
06 June, 2025	15:00 ~ 15:59	0.000	0.011	0.003	0.006	0.013	0.33	33.22	NNE
06 June, 2025	16:00 ~ 16:59	0.000	0.007	0.001	0.003	0.010	0.20	344.78	NNW
06 June, 2025	17:00 ~ 17:59	0.000	0.007	0.002	0.004	0.015	0.07	292.53	WNW
06 June, 2025	18:00 ~ 18:59	0.000	0.005	0.003	0.004	0.020	0.00	1.12	N
06 June, 2025	19:00 ~ 19:59	0.000	0.006	0.004	0.006	0.014	0.00	15.17	NNE
06 June, 2025	20:00 ~ 20:59	0.000	0.006	0.004	0.005	0.016	0.05	15.00	NNE
06 June, 2025	21:00 ~ 21:59	0.000	0.006	0.004	0.009	0.013	0.00	15.00	NNE
06 June, 2025	22:00 ~ 22:59	0.000	0.010	0.008	0.011	0.014	0.00	15.00	NNE
06 June, 2025	23:00 ~ 23:59	0.000	0.012	0.012	0.017	0.016	0.02	15.00	NNE
07 June, 2025	00:00 ~ 00:59	0.000	0.009	0.007	0.011	0.013	0.00	15.00	NNE
07 June, 2025	01:00 ~ 01:59	0.000	0.010	0.008	0.011	0.013	0.00	15.00	NNE
07 June, 2025	02:00 ~ 02:59	0.000	0.009	0.003	0.007	0.013	0.00	15.00	NNE
07 June, 2025	03:00 ~ 03:59	0.000	0.010	0.003	0.007	0.014	0.00	15.00	NNE
07 June, 2025	04:00 ~ 04:59	0.000	0.009	0.003	0.006	0.014	0.00	15.00	NNE
07 June, 2025	05:00 ~ 05:59	0.074	0.008	0.006	0.010	0.016	0.08	15.00	NNE
07 June, 2025	06:00 ~ 06:59	0.061	0.009	0.006	0.008	0.011	0.02	15.00	NNE
07 June, 2025	07:00 ~ 07:59	0.000	0.010	0.006	0.010	0.011	0.02	15.00	NNE
07 June, 2025	08:00 ~ 08:59	0.000	0.010	0.009	0.011	0.010	0.12	41.25	NE
07 June, 2025	09:00 ~ 09:59	0.000	0.005	0.005	0.006	0.022	0.28	72.69	ENE
07 June, 2025	10:00 ~ 10:59	0.000	0.007	0.006	0.007	0.026	0.50	66.22	ENE

Max	0.074	0.012	0.012	0.017	0.026
Avg	0.006	0.008	0.005	0.008	0.016
Min	0.000	0.005	0.001	0.003	0.010



Air Quality Monitoring Report for Development of Industrial Area Thilawa SEZ Zone B
(Phase 1, 2 & 3 Operation Stage, FY June 2025)

Date	Time	CO	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	Wind Speed	Wind Direction	
		mg/m ³	m/s	Deg.	Direction				
		Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly
07 June, 2025	11:00 ~ 11:59	0.000	0.007	0.006	0.008	0.016	0.50	51.92	NE
07 June, 2025	12:00 ~ 12:59	0.000	0.006	0.007	0.009	0.031	0.55	42.69	NE
07 June, 2025	13:00 ~ 13:59	0.000	0.006	0.006	0.008	0.030	0.62	50.93	NE
07 June, 2025	14:00 ~ 14:59	0.000	0.007	0.007	0.009	0.036	0.48	6.89	N
07 June, 2025	15:00 ~ 15:59	0.000	0.007	0.016	0.018	0.026	0.42	354.10	N
07 June, 2025	16:00 ~ 16:59	0.034	0.006	0.008	0.010	0.018	0.20	321.70	NW
07 June, 2025	17:00 ~ 17:59	0.000	0.007	0.007	0.008	0.012	0.00	113.25	ESE
07 June, 2025	18:00 ~ 18:59	0.046	0.025	0.007	0.009	0.019	0.05	265.39	W
07 June, 2025	19:00 ~ 19:59	0.048	0.023	0.008	0.010	0.017	0.18	293.14	WNW
07 June, 2025	20:00 ~ 20:59	0.000	0.006	0.006	0.008	0.017	0.10	354.17	N
07 June, 2025	21:00 ~ 21:59	0.000	0.006	0.005	0.007	0.017	0.07	353.00	N
07 June, 2025	22:00 ~ 22:59	0.000	0.009	0.005	0.007	0.016	0.17	353.00	N
07 June, 2025	23:00 ~ 23:59	0.000	0.007	0.017	0.021	0.016	0.03	353.00	N
08 June, 2025	00:00 ~ 00:59	0.000	0.009	0.008	0.016	0.017	0.02	353.00	N
08 June, 2025	01:00 ~ 01:59	0.086	0.010	0.006	0.010	0.019	0.00	21.21	NNE
08 June, 2025	02:00 ~ 02:59	0.355	0.009	0.006	0.013	0.018	0.05	19.93	NNE
08 June, 2025	03:00 ~ 03:59	0.000	0.009	0.005	0.009	0.016	0.28	354.23	N
08 June, 2025	04:00 ~ 04:59	0.000	0.009	0.006	0.011	0.016	0.22	33.51	NNE
08 June, 2025	05:00 ~ 05:59	0.441	0.008	0.006	0.010	0.016	0.32	25.16	NNE
08 June, 2025	06:00 ~ 06:59	0.086	0.009	0.008	0.011	0.015	0.33	9.90	N
08 June, 2025	07:00 ~ 07:59	0.000	0.008	0.010	0.012	0.014	0.23	324.49	NW
08 June, 2025	08:00 ~ 08:59	0.010	0.044	0.015	0.020	0.010	0.46	331.65	NNW
08 June, 2025	09:00 ~ 09:59	0.000	0.101	0.010	0.015	0.008	0.33	13.60	NNE
08 June, 2025	10:00 ~ 10:59	0.000	0.101	0.017	0.022	0.011	0.40	359.09	N

Max	0.441	0.101	0.017	0.022	0.036
Avg	0.046	0.018	0.008	0.012	0.018
Min	0.000	0.006	0.005	0.007	0.008



Air Quality Monitoring Report for Development of Industrial Area Thilawa SEZ Zone B
(Phase 1, 2 & 3 Operation Stage, FY June 2025)

Date	Time	CO	NO ₂	PM _{2.5}	PM ₁₀	SO ₂	Wind Speed	Wind Direction	
		mg/m ³	m/s	Deg.	Direction				
		Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly	Hourly
08 June, 2025	11:00 ~ 11:59	0.000	0.101	0.010	0.015	0.021	0.55	16.77	NNE
08 June, 2025	12:00 ~ 12:59	0.000	0.101	0.017	0.022	0.017	0.65	38.82	NE
08 June, 2025	13:00 ~ 13:59	0.233	0.101	0.013	0.018	0.014	0.48	54.15	NE
08 June, 2025	14:00 ~ 14:59	0.370	0.101	0.008	0.013	0.010	0.47	37.30	NE
08 June, 2025	15:00 ~ 15:59	0.158	0.101	0.008	0.013	0.017	0.42	354.61	N
08 June, 2025	16:00 ~ 16:59	0.237	0.101	0.009	0.014	0.018	0.20	332.71	NNW
08 June, 2025	17:00 ~ 17:59	0.178	0.101	0.007	0.012	0.014	0.10	176.79	S
08 June, 2025	18:00 ~ 18:59	0.225	0.034	0.019	0.025	0.010	0.03	161.50	SSE
08 June, 2025	19:00 ~ 19:59	0.218	0.018	0.010	0.014	0.017	0.05	142.28	SE
08 June, 2025	20:00 ~ 20:59	0.183	0.022	0.010	0.015	0.022	0.00	140.66	SE
08 June, 2025	21:00 ~ 21:59	0.145	0.009	0.013	0.018	0.015	0.00	150.00	SSE
08 June, 2025	22:00 ~ 22:59	0.073	0.007	0.018	0.023	0.009	0.02	246.50	WSW
08 June, 2025	23:00 ~ 23:59	0.223	0.006	0.014	0.019	0.008	0.15	272.21	W
09 June, 2025	00:00 ~ 00:59	0.000	0.007	0.011	0.016	0.009	0.08	298.17	WNW
09 June, 2025	01:00 ~ 01:59	0.038	0.007	0.007	0.012	0.009	0.17	287.32	WNW
09 June, 2025	02:00 ~ 02:59	0.271	0.007	0.008	0.013	0.010	0.28	0.03	N
09 June, 2025	03:00 ~ 03:59	0.038	0.007	0.010	0.015	0.009	0.37	345.00	NNW
09 June, 2025	04:00 ~ 04:59	0.095	0.009	0.008	0.013	0.009	0.23	345.00	NNW
09 June, 2025	05:00 ~ 05:59	0.212	0.008	0.010	0.015	0.009	0.17	339.67	NNW
09 June, 2025	06:00 ~ 06:59	0.000	0.007	0.013	0.018	0.009	0.13	343.81	NNW
09 June, 2025	07:00 ~ 07:59	0.000	0.007	0.009	0.014	0.012	0.25	329.80	NNW
09 June, 2025	08:00 ~ 08:59	0.164	0.008	0.018	0.023	0.025	0.28	356.92	N
09 June, 2025	09:00 ~ 09:59	0.052	0.008	0.010	0.015	0.029	0.40	33.45	NNE
09 June, 2025	10:00 ~ 10:59	0.031	0.008	0.008	0.013	0.029	0.52	70.27	ENE

Max	0.370	0.101	0.019	0.025	0.029
Avg	0.131	0.037	0.011	0.016	0.015
Min	0.000	0.006	0.007	0.012	0.008



APPENDIX-2 CERTIFICATE OF CALIBRATION



Calibrate report

Product	Air Quality Monitor System	Model	AQM-09																				
Quantity	1pcs	Call date	January,14,2025																				
Product No.	OC202501140420007																						
Appearance	<input checked="" type="checkbox"/> Clean <input checked="" type="checkbox"/> Non corrosive <input checked="" type="checkbox"/> No damage																						
Gas type	CO:ppm VOC:ppm Wind veloci: m/s	SO ₂ :ppb PM2.5:ug/m ³ Wind direct: °	NO ₂ :ppb PM10:ug/m ³ Atmospheric : hpa Temperature and humidity: °C/%RH																				
Accuracy	±3%FS																						
resolution	0.1ppm 1ppm 1ppb 1ug/m ³																						
Response time	≤30S																						
Survey range	CO:0-200.0ppm O ₂ :0-2000ppb PM2.5:0-1000ug/m ³ Wind veloci:0-30.0m/s Atmospheric :600-1100 hpa	SO ₂ :0-2000ppb CO ₂ :0-5000ppm PM10:0-1000ug/m ³ Wind direct:0-360° Temperature: -20.0~50.0°C	NO ₂ :0-2000ppb VOC:0-50.0ppm TSP : 0-1000ug/m ³ Humidity:0%-100%RH																				
Signal output mode	4G LTE																						
Power supply voltage	AC 220V/50Hz																						
Power dissipation	≤30W																						
Working temperature and humidity range	-20°C~50°C / 0%RH-100%RH																						
Testing condition indoor	Temperature: 15°C Humidity: 55%RH																						
Calibration gas	CO SO ₂ NO ₂ O ₂ CO ₂ C ₂ H ₄																						
Call gas test	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1.CO: Call gas concentration: <u>12.0</u> ppm</td> <td style="width: 50%;">Inspect concentration: <u>11.9</u> ppm</td> </tr> <tr> <td>2.SO₂: Call gas concentration: <u>1480</u> ppb</td> <td>Inspect concentration: <u>1487</u> ppb</td> </tr> <tr> <td>3.NO₂: Call gas concentration: <u>1830</u> ppb</td> <td>Inspect concentration: <u>1830</u> ppb</td> </tr> <tr> <td>4.O₂: Call gas concentration: <u>1500</u> ppb</td> <td>Inspect concentration: <u>1499</u> ppb</td> </tr> <tr> <td>5.CO₂: Call gas concentration: <u>4000</u> ppm</td> <td>Inspect concentration: <u>3999</u> ppm</td> </tr> <tr> <td>6.C₂H₄: Call gas concentration: <u>48.0</u> ppm</td> <td>Inspect concentration: <u>47.9</u> ppm</td> </tr> <tr> <td>7.PM2.5: Measured value: <u>20</u> ug/m³</td> <td>8.PM10: Measured value: <u>36</u> ug/m³</td> </tr> <tr> <td>9.TSP: Measured value: <u>39</u> ug/m³</td> <td>10.Wind direct: Measured value: <u>201</u></td> </tr> <tr> <td>11.Wind veloci: Measured value: <u>3.4</u> m/s</td> <td>12.Atmospheric : Measured value: <u>1013</u> hpa</td> </tr> <tr> <td>13.Temperature: Measured value: <u>21.9</u> °C</td> <td>14.Humidity: Measured value: <u>45</u> %RH</td> </tr> </table>			1.CO: Call gas concentration: <u>12.0</u> ppm	Inspect concentration: <u>11.9</u> ppm	2.SO ₂ : Call gas concentration: <u>1480</u> ppb	Inspect concentration: <u>1487</u> ppb	3.NO ₂ : Call gas concentration: <u>1830</u> ppb	Inspect concentration: <u>1830</u> ppb	4.O ₂ : Call gas concentration: <u>1500</u> ppb	Inspect concentration: <u>1499</u> ppb	5.CO ₂ : Call gas concentration: <u>4000</u> ppm	Inspect concentration: <u>3999</u> ppm	6.C ₂ H ₄ : Call gas concentration: <u>48.0</u> ppm	Inspect concentration: <u>47.9</u> ppm	7.PM2.5: Measured value: <u>20</u> ug/m ³	8.PM10: Measured value: <u>36</u> ug/m ³	9.TSP: Measured value: <u>39</u> ug/m ³	10.Wind direct: Measured value: <u>201</u>	11.Wind veloci: Measured value: <u>3.4</u> m/s	12.Atmospheric : Measured value: <u>1013</u> hpa	13.Temperature: Measured value: <u>21.9</u> °C	14.Humidity: Measured value: <u>45</u> %RH
1.CO: Call gas concentration: <u>12.0</u> ppm	Inspect concentration: <u>11.9</u> ppm																						
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13.Temperature: Measured value: <u>21.9</u> °C	14.Humidity: Measured value: <u>45</u> %RH																						
Test result	Qualified																						
Remark																							

Quality judgment:
Date: January, 14, 2025



Tester: Bing Wen Wang

OQC : Ying Liu

Auditor: Yan Hui Wang



**Thilawa Special Economic Zone
Zone B– Phase 1,2 & 3 (Operation phase)**

Appendix- 2(a)

Water and Waste Water Monitoring Report

June 2025

**WATER QUALITY MONITORING REPORT
FOR DEVELOPMENT OF INDUSTRIAL AREA
IN THILAWA SEZ ZONE B
(PHASE 1, 2 & 3 OPERATION STAGE)**

(Bi-Annually Monitoring)

June 2025

Myanmar Koei International Ltd.



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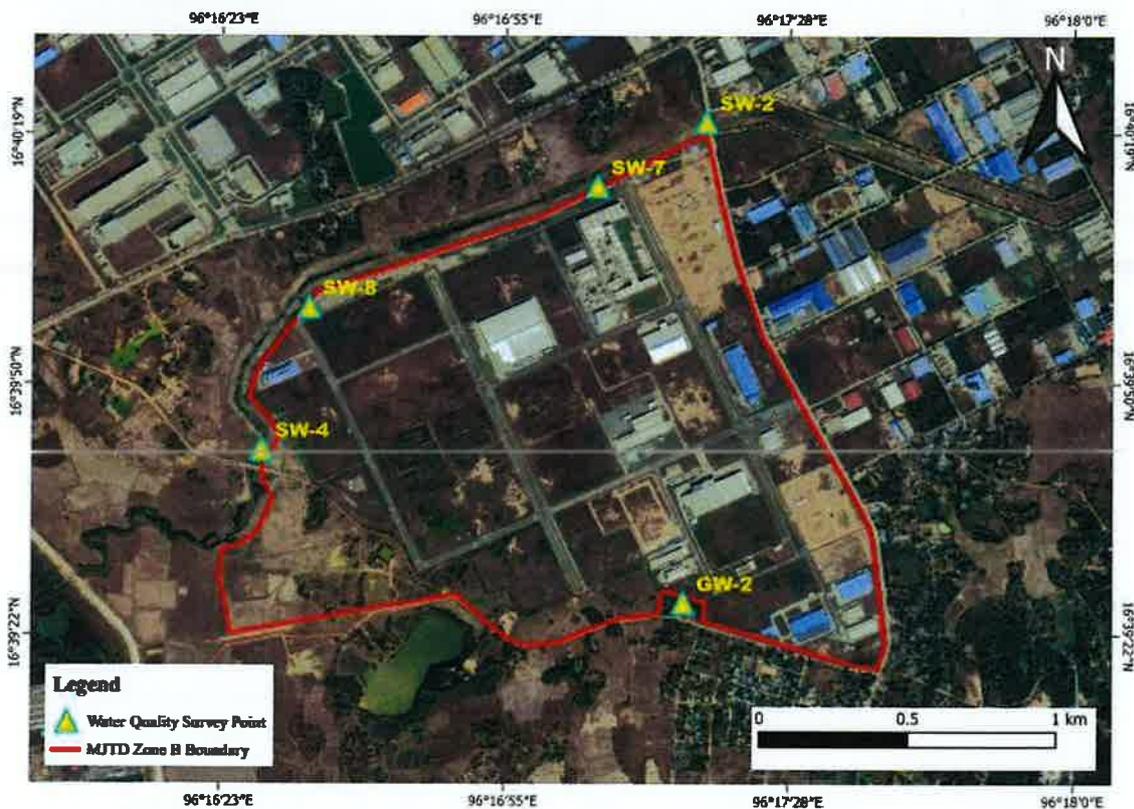
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CHAPTER 1: INTRODUCTION

1.1 General

Thilawa Special Economic Zone (SEZ) is located in southern district of Yangon region and about 23 km southeast of Yangon city. As the developer of Thilawa SEZ, Myanmar Japan Thilawa Development Ltd. (MJTD) has a responsibility to carry out regular monitoring in the industrial area of Zone B in accordance with the approved Environmental Impact Assessment (EIA) report and Environmental Management Plan (EMP). MJTD has implemented monitoring various environmental items with the specified time frame to know the environmental conditions in and around the area. As for the monitoring of the water quality, total five sampling points are set for water quality survey, named SW-2, SW-4, SW-7, SW-8 and GW-2 have been monitored in Thilawa SEZ and its surrounding area in timely manner. Among the five locations, SW-7 is main discharged point of Zone B and SW-8 is another main discharged point of Zone B during the operation stage. The remaining points SW-2 and SW-4 are sampled as a reference monitoring for comparison with discharged points and baseline of discharged creek. Moreover, GW-2 is monitored as a reference of existing tube well located in the monastery compound of Phalan village which is situated next to the southern boundary of the industrial area of Zone B. Location of sampling points for water quality monitoring is shown in Figure 1.1-1.



Source: Google Earth

Figure 1.1-1 Location of Sampling Points of Water Quality Monitoring



CHAPTER 2: WATER QUALITY MONITORING

2.1 Monitoring Items

Sampling points and parameters for water quality monitoring are determined to cover the environmental monitoring plan of the EIA report.

Water quality sampling was carried out at five locations. Among the five locations, water flow measurement at three locations (SW-2, SW-4 and SW-7) can be carried out by current meter. However, water flow measurement cannot be conducted with current meter at one location (SW-8) because water gate at that point was closed during sampling. Monitoring items and sampling points are summarized in Table 2.1-1.

Table 2.1-1 Monitoring Items for Water Quality

No.	Parameters	SW-2	SW-4	SW-7	SW-8	GW-2	Remarks
1	Water Temperature	o	o	o	o	o	On-site measurement
2	pH	o	o	o	o	o	On-site measurement
3	Dissolved Oxygen (DO)	o	o	o	o	o	On-site measurement
4	Turbidity	o	o	o	o	o	On-site measurement
5	Suspended Solids (SS)	o	o	o	o	o	Laboratory analysis
6	BOD ₍₅₎	o	o	o	o	o	Laboratory analysis
7	COD _(Cr)	o	o	o	o	o	Laboratory analysis
8	Total Coliform	o	o	o	o	o	Laboratory analysis
9	Oil and Grease	o	o	o	o	o	Laboratory analysis
10	Total Nitrogen (T-N)	o	o	o	o	o	Laboratory analysis
11	Total Phosphorous (T-P)	o	o	o	o	o	Laboratory analysis
12	Color	o	o	o	o	o	Laboratory analysis
13	Odor	o	o	o	o	o	Laboratory analysis
14	Ammonia (NH ₃)	o	o	o	o	o	Laboratory analysis
15	Total Dissolved Solids (TDS)	o	o	o	o	o	Laboratory analysis
16	Mercury (Hg)	o	o	o	o	o	Laboratory analysis
17	Zinc (Zn)	o	o	o	o	o	Laboratory analysis
18	Arsenic (As)	o	o	o	o	o	Laboratory analysis
19	Chromium (Cr)	o	o	o	o	o	Laboratory analysis
20	Cadmium (Cd)	o	o	o	o	o	Laboratory analysis
21	Selenium (Se)	o	o	o	o	o	Laboratory analysis
22	Lead (Pb)	o	o	o	o	o	Laboratory analysis
23	Copper (Cu)	o	o	o	o	o	Laboratory analysis
24	Barium (Ba)	o	o	o	o	o	Laboratory analysis
25	Nickel (Ni)	o	o	o	o	o	Laboratory analysis
26	Silver (Ag)	o	o	o	o	o	Laboratory analysis
27	Iron (Fe)	o	o	o	o	o	Laboratory analysis
28	Cyanide (CN ⁻)	o	o	o	o	o	Laboratory analysis
29	Total Cyanide (T-CN ⁻)	o	o	o	o	o	Laboratory analysis
30	Chromium (Hexavalent) (Cr ⁺⁶)	o	o	o	o	o	Laboratory analysis
31	Fluoride (F ⁻)	o	o	o	o	o	Laboratory analysis
32	Free Chlorine (Cl)	o	o	o	o	o	Laboratory analysis
33	Total Residual Chlorine (T R C)	o	o	o	o	o	Laboratory analysis
34	Sulphide (S ²⁻)	o	o	o	o	o	Laboratory analysis
35	Formaldehyde (CH ₂ O)	o	o	o	o	o	Laboratory analysis
36	Phenols (C ₆ H ₅ OH)	o	o	o	o	o	Laboratory analysis
37	Escherichia Coli (E. coli)	-	-	o	o	o	Laboratory analysis
38	Flow Rate	o	o	o	-	-	On-site measurement

Source: Myanmar Koei International Ltd.



2.2 Description of Sampling Points

The outline of sampling points is mentioned in Table 2.2-1. The photos of conducting field survey at each sampling points are mentioned in Appendix-1.

Table 2.2-1 Outline of Sampling Points

No.	Station	Detailed Information
1	SW-2	Coordinate- N - 16° 40' 20.69", E - 96° 17' 18.04"
		Location - Upstream of Shwe Pyauk Creek
		Survey Item - Surface water sampling and water flow rate measurement
2	SW-4	Coordinate- N - 16° 39' 42.84", E - 96° 16' 27.42"
		Location - Downstream of Shwe Pyauk Creek
		Survey Item - Surface water sampling and water flow rate measurement
3	SW-7	Coordinate - N - 16° 40' 13.25", E - 96° 17' 5.66"
		Location - Outlet of retention pond of Zone B before connecting to Shwe Pyauk Creek
		Survey Item - Discharge water sampling
4	SW-8	Coordinate - N - 16° 39' 59.25", E - 96° 16' 32.77"
		Location - Another outlet of retention pond of Zone B before connecting to Shwe Pyauk Creek
		Survey Item - Discharge water sampling
5	GW-2	Coordinate - N - 16° 39' 25.30", E - 96° 17' 15.60"
		Location - In the monastery compound of Phalan village
		Survey Item - Ground water sampling

Source: Myanmar Koei International Ltd.

SW-2 (Reference Point)

SW-2 was collected at the upstream of Shwe Pyauk creek. This sampling point is located in the northeast of Zone B area and at the south of Dagon-Thilawa road. The surrounding areas are Zone A in the northwest and local industrial zone in the east respectively.

SW-4 (Reference Point)

SW-4 was collected at the downstream of Shwe Pyauk creek, after mixing of discharge water from local industrial zone, Thilawa SEZ Zone A and Zone B, which is flowing from east to west and then entering into the Yangon River. The distance is about 2.15 km downstream of SW-2. This sampling point is located in the west of Zone B area and in the south of Dagon-Thilawa road. The surrounding areas are Zone A in the northeast, local industrial zone in the east and paddy fields in the south and west respectively.

SW-7 (Discharged Point)

SW-7 is main discharged point of Zone B during operation stage. The distance is about 434 m downstream of SW-2. This sampling point is located at outlet of retention pond of Zone B, in the north of Zone B area and in the south of Dagon-Thilawa road. The surrounding areas are Zone A in the north and local industrial zone in the east respectively.

SW-8 (Discharged Point)

SW-8 is another main discharged point of Zone B during operation stage. The distance is about 500 m upstream of SW-4. This sampling point is located in the south of Dagon-Thilawa road as well as 1 km southwest of SW-7 in the retention pond of Zone B. The surrounding areas are Zone A in the north and local industrial zone in the east respectively.

GW-2 (Reference of Existing Tube Well)

GW-2 was collected from tube well as ground water sample. It is located in the monastery compound of Phalan village. The surrounding areas are Thilawa SEZ Zone A in the north, Phalan village in the



south and fields in the west and local industrial zone in the northeast and operation of Thilawa SEZ Zone B in the east and northeast respectively.

2.3 Monitoring Method

All water samples were collected with cleaned sampling bottles and analyzed by the following standard method as shown in Table 2.3-1. All samples were kept in iced boxes keeping at 2-4 °C and were transported to the laboratory. Among the parameters; water temperature, pH and DO were measured by the on-site instrument “Horiba, U-52” and water flow rate was also measured by using the on-site instrument “JFE Digital Current Meter”.

Table 2.3-1 Analytic Method for Water Quality

No.	Parameter	Method
1	Water Temperature	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
2	pH	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
3	Dissolved Oxygen (DO)	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
4	Turbidity	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
5	Suspended Solids (SS)	APHA 2540 D (Dry at 103-105°C Method)
6	BOD ₍₅₎	APHA 5210 B (5 Days BOD Test)
7	COD _(Cr)	APHA 5220D (Close Reflux Colorimetric Method)
8	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)
9	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)
10	Total Nitrogen (T-N)	HACH Method 10072(TNT Persulfate Digestion Method)
11	Total Phosphorous (T-P)	APHA 4500-P E (Ascorbic Acid Method)
12	Color	APHA 2120C (Spectrophotometric Method)
13	Odor	APHA 2150 B (Threshold Odor Test)
14	Ammonia (NH ₃)	ISO 7150/1-1984 (E) Determination of ammonium- Manual spectrometric method
15	Total Dissolved Solids (TDS)	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)
16	Mercury (Hg)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
17	Zinc (Zn)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
18	Arsenic (As)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
19	Chromium (Cr)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
20	Cadmium (Cd)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
21	Selenium (Se)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
22	Lead (Pb)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
23	Copper (Cu)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
24	Barium (Ba)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
25	Nickel (Ni)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
26	Silver (Ag)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
27	Iron (Fe)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
28	Cyanide (CN ⁻)	HACH 8027 (Pyridine-Pyrazalone Method)
29	Total Cyanide (T-CN ⁻)	Distillation process: APHA 4500-CN-C. Total Cyanide after Distillation, Determine cyanide Concentration Process: HACH 8027 (Pyridine – Pyrazalone Method)
30	Chromium (Hexavalent) (Cr ⁺⁶)	ISO 11083:1994 (Determination of chromium (VI) Spectrometric method using 1,5-diphenylcarbazide)
31	Fluoride (F ⁻)	APHA 4110 B (Ion Chromatography with Chemical Suppression of Eluent Conductivity)
32	Free Chlorine (Cl)	APHA 4500-CL G (DPD Colorimetric Method)
33	Total Residual Chlorine (TRC)	APHA 4500-CL G (DPD Colorimetric Method)
34	Sulphide (S ²⁻)	HACH 8131 (USEPA Methylene Blue Method)
35	Formaldehyde (CH ₂ O)	HACH 8110 (MBTH Method)
36	Phenols (C ₆ H ₅ OH)	USEPA Method 420.1 (Phenolics (Spectrophotometric, Manual 4-AAP With Distillation))



No.	Parameter	Method
37	Escherichia Coli (E. coli)	APHA 9221 F (Escherichia Coli Procedure Using Fluorogenic Substrate)
38	Flow Rate	Detection of Electromagnetic Elements (Real-time measurement by AEM 213-D Digital Current Meters)

Source: Myanmar Koei International Ltd.

2.4 Monitoring Period

Water quality and water flow rate monitoring were conducted on 3 June 2025, and sampling time is shown in Table 2.4-1 In order to avoid tidal effect, the sampling was carried out during low tide especially at SW-4. The tide record for Yangon River, Myanmar on 3 June 2025 is shown in Table 2.4-2.

Table 2.4-1 Sampling Time of Each Point

No.	Station	Sampling Time
1	SW-2	03/06/2025 08:51
2	SW-4	03/06/2025 12:24
3	SW-7	03/06/2025 10:45
4	SW-8	03/06/2025 11:09
5	GW-2	03/06/2025 11:36

Source: Myanmar Koei International Ltd.

Table 2.4-2 Tide Record for Yangon River, Myanmar

Date	Time	Height (m)	Tide Conditions
03/06/2025	04:51	1.22	Low Tide (lowest)
	10:22	4.89	High Tide (highest)
	16:55	1.82	Low Tide (lowest)
	22:25	4.76	High Tide (highest)

Source: Myanmar Port Authority, Tide Table for the Yangon River and Elephant Point, 2025.



2.5 Monitoring Results

Results of water quality monitoring are summarized from Table 2.5-1 to Table 2.5-3. Analytical results of the laboratory are described in Appendix-2. The results of surface water quality were compared with the target value of effluent water quality discharging to water body stipulated in the EIA report and the National Surface Water Quality Standard (NSWQS) in Myanmar (referred to Table-2 in Section 7.1.1, Table-3 in Section 7.1.2 and Table-4 in Section 7.2). Besides, ground water quality results were compared with the target value of effluent water quality discharging to water body stipulated in the EIA report but also with Vietnam Ground Water Standard. Additionally, current monitoring results are compared with baseline results of SW-2 for surface water as well as GW-2 for ground water, measured in October 2015 for the mentioned EIA report.

As the comparison with the target value, the results of suspended solid (SS) at SW-4, SW-7 and SW-8, total coliform at SW-2, SW-4, SW-7 and SW-8, and iron at SW-8 in surface water exceeded the limitations.

2.5.1 Results of Water Quality Monitoring at Discharged Points and Creek

(1) Results of Water Quality Monitoring at Discharged Points

As for the result of SS, results at the main discharging points of Zone B (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the surface water run-off from bare land in Zone B.

As for the results of total coliform of surface water, results at the main discharging point of Zone B (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels.

Since the composition of the total coliform include bacteria from natural origin, and total coliform do not affect human health directly, E. Coli analysis was carried out alternatively to identify the health impact by coliform bacteria. As for the result of E. Coli of surface water at the main discharging points of Zone B (SW-7 and SW-8), the result was within limitation. Therefore, although the limitation of total coliform was exceeded at the main discharging points of Zone B (SW-7 and SW-8) but it is considered that there is no significant impact on human health.

As for the result of iron, the result at one main discharging point of Zone B (SW-8) before discharging to the creek slightly higher the limitation. The possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

When comparing the results of monitoring parameters with National Surface Water Quality Standard (2024), the parameters for environmental conservation (pH, DO, SS, BOD, COD, Cu and E. coli) are aligned with the standard values of Class I, II, III and IV respectively, while standard values of monitoring parameter (color, TDS and turbidity) are included in Class I, III and V designation. Besides, monitoring parameters for human health (Hg, As, Cd, Se, Pb, Ni, CN⁻, Cr⁺⁶, F⁻ and C₆H₅OH) are within the standard values applied for Class I-V. According to the results of monitoring parameters referred to National Surface Water Quality Standard, water quality of SW-7 and SW-8 can be applied for Class V water use.

Among the results between present monitoring and baseline survey in 2015, dissolved oxygen and oil and grease of SW-7 and SW-8 are lower than those of SW-2 (baseline survey 2015).



Table 2.5-1 Results of Water Quality Monitoring at Discharged Points

No.	Parameters	Unit	SW-7	SW-8	SW-2 (Baseline Result, EIA Report)*	Target Value	National Surface Water Quality Standard
1	Water Temperature	°C	30	29	26.7	≤ 35	-
2	pH	-	7.2	7.5	6.6	6-9	6.5-8.5 (Class I)
3	Dissolved Oxygen (DO)	mg/l	5.45	4.69	6.5	-	> 4 (Class III)
4	Turbidity	NTU	211	284	-	-	100 (Class V)
5	Suspended Solid (SS)	mg/l	78	86	-	50	100 (Class IV)
6	BOD ₍₅₎	mg/l	3.10	2.91	-	30	8 (Class III)
7	COD _(Cr)	mg/l	17.4	15.4	-	125	50 (Class IV)
8	Total Coliform	MPN/100ml	5800.0	1300.0	-	400	-
9	Oil and Grease	mg/l	< 3.1	< 3.1	3.4	10	No noticeably seen
10	Total Nitrogen (T-N)	mg/l	1.2	0.8	-	80	-
11	Total Phosphorous (T-P)	mg/l	0.23	0.52	-	2	-
12	Color	TCU (True Color Unit)	26.13	27.38	-	150	50 (Class III)
13	Odor	TON (Threshold Odo Number)	1	1	-	-	-
14	Ammonia	mg/l	1.11	0.69	-	10	-
15	Total Dissolved Solids	mg/l	254	280	-	2000	500 (Class I)
16	Mercury	mg/l	≤ 0.002	≤ 0.002	-	0.005	0.001 (Class I - V)
17	Zinc	mg/l	0.006	0.008	-	2	-
18	Arsenic	mg/l	≤ 0.010	≤ 0.010	-	0.1	0.05 (Class I - V)
19	Chromium	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
20	Cadmium	mg/l	≤ 0.002	≤ 0.002	-	0.03	0.003 (Class I - V)
21	Selenium	mg/l	≤ 0.010	≤ 0.010	-	0.02	0.04 (Class I - V)
22	Lead	mg/l	≤ 0.002	≤ 0.002	-	0.1	0.01 (Class I - V)
23	Copper	mg/l	≤ 0.002	≤ 0.002	-	0.5	0.1 (Class I)
24	Barium	mg/l	0.008	0.010	-	1	-
25	Nickel	mg/l	≤ 0.002	≤ 0.002	-	0.2	0.07 (Class I - V)
26	Silver	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
27	Iron	mg/l	1.692	3.726	-	3.5	-
28	Cyanide	mg/l	< 0.002	< 0.002	-	0.1	0.07 (Class I - V)
29	Total Cyanide	mg/l	< 0.002	< 0.002	-	1	-
30	Chromium (Hexavalent)	mg/l	< 0.05	< 0.05	-	0.1	0.05 (Class I - V)
31	Fluoride	mg/l	0.154	0.272	-	20	1.5 (Class I - V)
32	Free Chlorine	mg/l	< 0.1	< 0.1	-	1	-
33	Total Residual Chlorine	mg/l	< 0.1	< 0.1	-	0.2	-
34	Sulphide	mg/l	0.156	0.227	-	1	-
35	Formaldehyde	mg/l	0.025	0.039	-	1	-
36	Phenols	mg/l	0.013	0.010	-	0.5	0.05 (Class I - V)
37	Escherichia Coli	MPN/100ml	38.0	12.0	-	(1000)** (CFU/100ml)	300 (Class II)
38	Flow Rate	m ³ /s	0.554	-	-	-	-

Note: Red color means exceeded value than target value.

Note: National Surface Water Quality Standard 2024.

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

**Note: Based on the water utilization at discharged creek, the quality standard for water baths in Japan, (Ministry of Environment, 1997) is set as a reference value for self-monitoring of E. coli for surface water monitoring. However, due to limitation of capacity for analytical laboratory in Myanmar, the method to analyze the "Colony Forming Unit (CFU)" is not available in Myanmar. Therefore, the results of "Most Probable Number (MPN)" are assumed similar to CFU values and compared with reference values. Once the method to analyze the CFU will be available in Myanmar, the analytical method will be changed.

According to the quality standard for water baths in Japan, (Ministry of Environment, 1997), in case of E. Coli result is exceeding 1,000 CFU/100 ml, since it is assumed unsafety, it is considered unsuitable for water baths.

Source: Myanmar Koei International Ltd.



(2) Results of Water Quality Monitoring at Reference Monitoring points (Creek)

As for the result of SS, SS result at the surface water monitoring point (SW-4) exceeded the limitations due to two expected reasons; i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

As for the result of total coliform, results at surface water monitoring points (SW-2) and (SW-4) exceeded the limitation due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

When comparing the results of monitoring parameters with National Surface Water Quality Standard (2024), the parameters for environmental conservation (pH, DO, SS, BOD, COD and Cu) are aligned with standard values of Class I, III, and IV respectively, while standard values of monitoring parameter such as (color, TDS and Turbidity) are included in Class I, III and V designation. Besides, monitoring parameters for human health (Hg, As, Cd, Se, Pb, Ni, CN⁻, Cr⁺⁶, F⁻ and C₆H₅OH) are within the standard values applied for Class I-V. According to the results of monitoring parameters referred to National Surface Water Quality Standard, water quality of SW-2 and SW-4 can be applied for Class V water use.

Among the results between present monitoring and baseline survey in 2015, dissolved oxygen and oil and grease of SW-2 and SW-4 are lower than those of SW-2 (baseline survey 2015).



Table 2.5-2 Results of Water Quality Monitoring at Creek

No.	Parameters	Unit	SW-2	SW-4	SW-2 (Baseline Result, EIA Report)*	Target Value	National Surface Water Quality Standard
1	Water Temperature	°C	28	30	26.7	≤ 35	-
2	pH	-	6.7	7.0	6.6	6~9	6.5-8.5 (Class I)
3	Dissolved Oxygen (DO)	mg/l	3.21	4.10	6.5	-	> 3 (Class IV)
4	Turbidity	NTU	33	144	-	-	100 (Class V)
5	Suspended Solid (SS)	mg/l	22	74	-	50	75 (Class III)
6	BOD ₍₅₎	mg/l	5.18	4.96	-	30	8 (Class III)
7	COD _(Cr)	mg/l	31.1	22.9	-	125	50 (Class IV)
8	Total Coliform	MPN/100ml	450.0	1700.0	-	400	-
9	Oil and Grease	mg/l	< 3.1	< 3.1	3.4	10	No noticeably seen
10	Total Nitrogen (T-N)	mg/l	1.1	1.6	-	80	-
11	Total Phosphorous (T-P)	mg/l	0.13	0.19	-	2	-
12	Color	TCU (True Color Unit)	39.88	29.88	-	150	50 (Class III)
13	Odor	TON (Threshold Odor Number)	1	1	-	-	-
14	Ammonia	mg/l	1.15	1.19	-	10	-
15	Total Dissolved Solids	mg/l	176	210	-	2000	500 (Class I)
16	Mercury	mg/l	≤ 0.002	≤ 0.002	-	0.005	0.001 (Class I – V)
17	Zinc	mg/l	≤ 0.002	0.036	-	2	-
18	Arsenic	mg/l	≤ 0.010	≤ 0.010	-	0.1	0.05 (Class I – V)
19	Chromium	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
20	Cadmium	mg/l	≤ 0.002	≤ 0.002	-	0.03	0.003 (Class I – V)
21	Selenium	mg/l	≤ 0.010	≤ 0.010	-	0.02	0.04 (Class I – V)
22	Lead	mg/l	≤ 0.002	≤ 0.002	-	0.1	0.01 (Class I – V)
23	Copper	mg/l	≤ 0.002	≤ 0.002	-	0.5	0.1 (Class I)
24	Barium	mg/l	0.008	0.010	-	1	-
25	Nickel	mg/l	≤ 0.002	≤ 0.002	-	0.2	0.07 (Class I – V)
26	Silver	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
27	Iron	mg/l	0.860	1.792	-	3.5	-
28	Cyanide	mg/l	< 0.002	< 0.002	-	0.1	0.07 (Class I – V)
29	Total Cyanide	mg/l	< 0.002	< 0.002	-	1	-
30	Chromium (Hexavalent)	mg/l	< 0.05	< 0.05	-	0.1	0.05 (Class I – V)
31	Fluoride	mg/l	0.138	0.175	-	20	1.5 (Class I – V)
32	Free Chlorine	mg/l	< 0.1	< 0.1	-	1	-
33	Total Residual Chlorine	mg/l	< 0.1	< 0.1	-	0.2	-
34	Sulphide	mg/l	0.032	0.099	-	1	-
35	Formaldehyde	mg/l	0.022	0.030	-	1	-
36	Phenols	mg/l	0.005	0.022	-	0.5	0.05 (Class I – V)
37	Escherichia Coli	MPN/100ml	-	-	-	(1,000)* (CFU/100ml)	-
38	Flow Rate	m ³ /s	0.76	1.95	-	-	-

Note: Red color means exceeded value than target value.

Note: National Surface Water Quality Standard 2024.

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

**Note: Based on the water utilization at discharged creek, the quality standard for water baths in Japan, (Ministry of Environment, 1997) is set as a reference value for self-monitoring of E. coli for surface water monitoring. However, due to limitation of capacity for analytical laboratory in Myanmar, the method to analyze the "Colony Forming Unit (CFU)" is not available in Myanmar. Therefore, the results of "Most Probable Number (MPN)" are assumed similar to CFU values and compared with reference values. Once the method to analyze the CFU will be available in Myanmar, the analytical method will be changed.

According to the quality standard for water baths in Japan, (Ministry of Environment, 1997), in case of E. Coli result is exceeding 1,000 CFU/100 ml, since it is assumed unsafety, it is considered unsuitable for water baths.

Source: Myanmar Koei International Ltd.



2.5.2 Results of Water Quality Monitoring at Reference Monitoring Point (Tube Well)

As the comparison with the Vietnam Ground Water Standard and the target value of effluent water quality discharging to water body stipulated in the EIA report, all the results at the monitoring point of reference tube well (GW-2) were within the limitations.

For the ground water quality, National Technical Regulation on Ground Water Quality (No. QCVN 09-MT: 2015/BTNMT) in Vietnam is used as a reference because Myanmar does not have any ground water guidelines and standards, and most of the analyzed parameter are included in Vietnam standard rather the those stipulated by neighboring countries. For the result of Escherichia Coli, B1 (Irrigation water) of National Technical Regulation on Surface Water Quality (No. QCVN 08-MT: 2015/BTNMT) in Vietnam is referred, as no standard for E.coli is mentioned in Vietnam ground water regulation.as a reference. In addition, the target values of effluent water quality discharging to water body stipulated in the EIA report are also considered for comparison with ground water quality.

Among the results between present monitoring and baseline survey in 2015, suspended solid and COD of GW-2 is lower than those of GW-2 (baseline survey 2015), while total nitrogen and total phosphorus of GW-2 are higher.

Table 2.5-3 Results of Water Quality Monitoring at Reference Tube Well

No.	Parameters	Unit	GW-2	GW-2 (Baseline Result, EIA Report)*	Target Value	Vietnam Ground Water Standard
1	Water Temperature	*C	29	28.5	≤ 35	-
2	pH	-	7.0	6.7	6~9	5.5 – 8.5
3	Dissolved Oxygen (DO)	mg/l	4.59	7.5	-	-
4	Turbidity	NTU	14	-	-	-
5	Suspended Solid (SS)	mg/l	22	120	50	-
6	BOD ₍₅₎	mg/l	0.00	< 2	30	-
7	COD _(Cr)	mg/l	< 0.7	11	125	-
8	Total Coliform	MPN/100ml	< 1.8	>23	400	3
9	Oil and Grease	mg/l	< 3.1	< 0.2	10	-
10	Total Nitrogen (T-N)	mg/l	2.1	< 0.6	80	-
11	Total Phosphorous (T-P)	mg/l	0.64	0.39	2	-
12	Color	TCU (True Color Unit)	48.63	< 1	150	-
13	Odor	TON (Threshold Odo Number)	1	None	-	-
14	Ammonia	mg/l	2.40	-	10	-
15	Total Dissolved Solids	mg/l	300	-	2000	1500
16	Mercury	mg/l	≤ 0.002	< 0.0005	0.005	0.001
17	Zinc	mg/l	≤ 0.002	< 0.1	2	3
18	Arsenic	mg/l	≤ 0.010	< 0.001	0.1	0.05
19	Chromium	mg/l	≤ 0.002	-	0.5	-
20	Cadmium	mg/l	≤ 0.002	< 0.001	0.03	0.005
21	Selenium	mg/l	≤ 0.010	-	0.02	0.01
22	Lead	mg/l	≤ 0.002	< 0.006	0.1	0.01
23	Copper	mg/l	≤ 0.002	< 0.1	0.5	-
24	Barium	mg/l	0.004	-	1	-
25	Nickel	mg/l	≤ 0.002	< 0.002	0.2	0.02
26	Silver	mg/l	≤ 0.002	-	0.5	-
27	Iron	mg/l	2.588	0.19	3.5	5
28	Cyanide	mg/l	< 0.002	< 0.01	0.1	0.01
29	Total Cyanide	mg/l	< 0.002	-	1	-
30	Chromium (Hexavalent)	mg/l	< 0.05	< 0.02	0.1	0.05
31	Fluoride	mg/l	0.411	0.25	20	-
32	Free Chlorine	mg/l	< 0.1	-	1	-
33	Total Residual Chlorine	mg/l	< 0.1	-	0.2	-
34	Sulphide	mg/l	0.006	-	1	-
35	Formaldehyde	mg/l	< 0.003	-	1	-
36	Phenols	mg/l	< 0.002	-	0.5	0.001



No.	Parameters	Unit	GW-2	GW-2 (Baseline Result, EIA Report)*	Target Value	Vietnam Ground Water Standard
37	Escherichia Coli	MPN/100ml	< 1.8	-	(100)** (MPN/100ml)	(100)* (MPN/100ml)
38	Flow Rate	m ³ /s	-	-	-	-

Note: Vietnam Groundwater Standard (No: QCVN 09-MT:2015/BTNMT)

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

**Note: Based on the water utilization at monitoring point for ground water, B1(Irrigation water) of National Technical Regulation on Surface Water Quality in Vietnam (No: QCVN 08-MT: 2015/BTNMT) is set as a reference value of self-monitoring for ground water monitoring.

Source: Myanmar Koei International Ltd.

2.5.3 Comparison of Results of Water Quality Exceed the Target Value between Previous Monitoring and June 2025 Monitoring

In order to overview the exceed the limitations of the concerned parameters during the present monitoring (June 2025), the results of the exceed parameters with respective sampling points are compared with the previous monitoring results since June 2024.

Regarding the results of the parameter of discharge points (SW-7 and SW-8), suspended solid concentration at SW-7 is higher than the limitation in June, August 2024, and April, June 2025. Noticeably, suspended solid concentrations of SW-7 is higher during rainy season and dry season, ranging from 56 to 126 mg/l. However, suspended solid concentration at SW-8 is higher than the limitation in current monitoring (June 2025), observed as 86 mg/l. Total coliform concentration at SW-7 is higher than the limitation except December 2024 and February 2025, ranging from 1700 MPN/100ml to the detection limit (>160000 MPN/100ml). Moreover, total coliform concentration at SW-8 is higher than the limitation except December 2024, ranging from 1300 MPN/100ml to the detection limit (>160000 MPN/100ml). Total coliform concentration at both SW-7 and SW-8 is obviously reached to the detection limit in the rainy season and it might be the effect of storm water run-off but also by the fecal contaminates from the surroundings into the retention pond. The iron concentration at SW-8 is slightly higher than the limitation in current monitoring survey. It is observed that iron concentration at SW-8 is higher during rainy season and the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

On the other hand, the result of SS concentration, at the reference monitoring point (SW-4) is higher than the limitation throughout all three seasons, ranging from 70 to 817 mg/l. It is assumed that SS concentrations at SW-4 are always higher due to the agricultural and domestic run-off from the surrounding as well as the tidal effect resulting the cloudiness (turbidity) of water along Shwe Pyauk creek during all seasons. The results of total coliform at the reference monitoring points (SW-2 and SW-4) are higher in all monitoring surveys, ranging from 450 to >160000 MPN/100ml for SW-2 and from 1700 to 160000 MPN/100ml for SW-4, respectively. Especially, the total coliform amount at SW-2 was reached to the detection limit (>160000 MPN/100ml) in December 2024, as well as SW-4 to 160000 MPN/100ml in August 2024. It is possible to say that the present condition of the water quality reflects the background condition of the surrounding environment of Thilawa SEZ.

The expected reasons for the results exceed the limitation of concerned parameters are discussed in the upper section of this monitoring report.



CHAPTER 3: CONCLUSION AND RECOMMENDATIONS

As described in Chapter 2 (Section 2.5), the results of suspended solid (SS) at SW-4, SW-7 and SW-8, total coliform at SW-2, SW-4, SW-7 and SW-8, and iron at SW-8 in surface water exceeded the limitations in this monitoring period for operation stage of Thilawa SEZ Zone B.

As for the result of SS, result at the main discharging point of Zone B (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the surface water run-off from bare land in Zone B.

As for the results of total coliform of surface water, results at the main discharging point of (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels.

Since the composition of the total coliform include bacteria from natural origin, and total coliform do not affect human health directly, E. Coli analysis was carried out alternatively to identify the health impact by coliform bacteria. As for the result of E. Coli of surface water at the main discharging points of Zone B (SW-7 and SW-8), the result was within limitation. Therefore, although the limitation of total coliform was exceeded at the main discharging points of Zone B (SW-7 and SW-8) but it is considered that there is no significant impact on human health.

As for the result of iron, the result at one main discharging point of Zone B (SW-8) before discharging to the creek slightly higher the limitation. The possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

The results of suspended solid in surface water exceeded the limitation at reference monitoring point (SW-4) as well as total coliform in surface water exceeded the limitation at reference monitoring point (SW-2 and SW-4). The exceeded result of SS at the surface water monitoring point (SW-4) maybe due to two expected reasons; i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

The exceeded results for total coliform at SW-2 and SW-4 may be due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

As for the comparison of the results of monitoring parameters with National Surface Water Quality Standard, water quality of SW-2, SW-4, SW-7 and SW-8 can be applied for Class V water use.

As for future subject for main discharged points of Thilawa SEZ Zone B, the following action may be taken to achieve the limitation of suspended solid, total coliform, iron and appropriate water quality monitoring:

- To perform regular removal of accumulated solids and decaying vegetation present in the retention pond in order to preserve its cleanliness.
- To continue monitoring Escherichia coli (E. coli) level to identify health impact by coliform bacteria.
- To clean the drainage system routinely.
- To inspect the quality of discharge water from the factories.



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APPENDIX-1 FIELD SURVEY PHOTOS



FOR DISCHARGED POINT OF THILAWA SEZ ZONE B



Surface water sampling and onsite measurement at SW-7



Surface water sampling and onsite measurement at SW-8

**FOR REFERENCE MONITORING POINTS FOR COMPARISON WITH DISCHARGED
POINTS AND BASELINE OF DISCHARGED CREEK**



Surface water sampling and onsite measurement at SW-2



Surface water sampling and onsite measurement at SW-4



Ground water sampling and onsite measurement at GW-2

APPENDIX-2 LABORATORY RESULTS



FOR REFERENCE MONITORING POINTS FOR COMPARISON WITH DISCHARGED POINTS AND BASELINE OF DISCHARGED CREEK

DOWA

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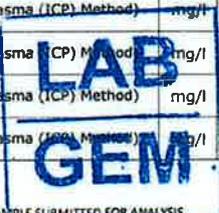
maximize our planet
Doc No: GEM-LB-R006E/01/AD
Page 1 of 2

Report No. : GEM-LAB-202506050
Revision No. : 1
Report Date : 16 June, 2025
Application No. : 0001-C001

Test Report

Client Name : Myanmar Koei International LTD (MKI)
Address : No, 36/A, 1st Floor, Grand Pho Sein Condominium, Pho Sein Road, Tamwe Township, Yangon, Myanmar.
Project Name : Environment Monitoring report for Zone A & B
Sample Description
Sample Name : MKI-SW-2-0603
Sample No. : W-2506040
Waste Profile No. : -
Sampling Date : 3 June, 2025
Sampling By : Withdraw GEM
Sample Received Date : 3 June, 2025
Analytical Date : 3-16/06/2025

No.	Parameter	Method	Unit	Result	TSEZ's WQ Standard	LOQ
1	SS	APHA 2540D (Dry at 103-105°C Method)	mg/l	22	50	-
2	BOD (5)	APHA 5210 B (5 Days BOD Test)	mg/l	5.18	30	0.00
3	COD (Cr)	APHA 5220D (Close Reflux Colorimetric Method)	mg/l	31.1	125	0.7
4	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)	MPN/100ml	450.0	400	1.8
5	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	10	3.1
6	Color	APHA 2120C (Spectrophotometric Method)	TCU	39.88	150	0.00
7	Total Nitrogen	HACH Method 10072 (TNT Persulfate Digestion Method)	mg/l	1.1	80	0.5
8	Total Phosphorous	APHA 4500-P E (Ascorbic Acid Method)	mg/l	0.13	2	0.05
9	Ammonia	ISO 7150/1-1984(E)	mg/l	1.15	10	0.01
10	TDS	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)	mg/l	176	2000	-
11	Odor	APHA 2150 B (Threshold Odor Test)	TON	1	-	0
12	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.005	0.002
13	Zinc	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	2	0.002
14	Arsenic	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.1	0.010
15	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.5	0.002
16	Cadmium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.03	0.002
17	Selenium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.010	0.02	0.010
18	Lead	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.1	0.002
19	Copper	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.5	0.002
20	Barium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	0.008	1	0.002



REPORT RESULT IS ONLY OF THE SAMPLE SUBMITTED FOR ANALYSIS.
THIS ANALYSIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF THE LABORATORY OF GOLDEN DOWA ECO-SYSTEM MYANMAR CO.,LTD.





MJTD

MYANMAR JAPAN THILAWA DEVELOPMENT LIMITED

**Thilawa Special Economic Zone
Zone B- Phase 1,2 & 3 (Operation phase)**

Appendix-2 (b)

Water and Waste Water Monitoring Report

August 2025



**WATER QUALITY MONITORING REPORT
FOR DEVELOPMENT OF INDUSTRIAL AREA
IN THILAWA SEZ ZONE B
(PHASE 1, 2 & 3 OPERATION STAGE)**

(Bi-Monthly Monitoring)

August 2025

Myanmar Koei International Ltd.



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CHAPTER 1: INTRODUCTION

1.1 General

Thilawa Special Economic Zone (SEZ) is located in southern district of Yangon region and about 23 km southeast of Yangon city. As the developer of Thilawa SEZ, Myanmar Japan Thilawa Development Ltd. (MJTD) has a responsibility to carry out regular monitoring in the industrial area of Zone B in accordance with the approved Environmental Impact Assessment (EIA) report and Environmental Management Plan (EMP). MJTD has implemented monitoring various environmental items with the specified time frame to know the environmental conditions in and around the area. As for the monitoring of the water quality, total five sampling points are set for water quality survey, named SW-2, SW-4, SW-7, SW-8 and GW-2 have been monitored in Thilawa SEZ and its surrounding area in timely manner. Among the five locations, SW-7 is main discharged point of Zone B and SW-8 is another main discharged point of Zone B during the operation stage. The remaining points SW-2 and SW-4 are sampled as a reference monitoring for comparison with discharged points and baseline of discharged creek. Moreover, GW-2 is monitored as a reference of existing tube well located in the monastery compound of Phalan village which is situated next to the southern boundary of the industrial area of Zone B. Location of sampling points for water quality monitoring is shown in Figure 1.1-1.

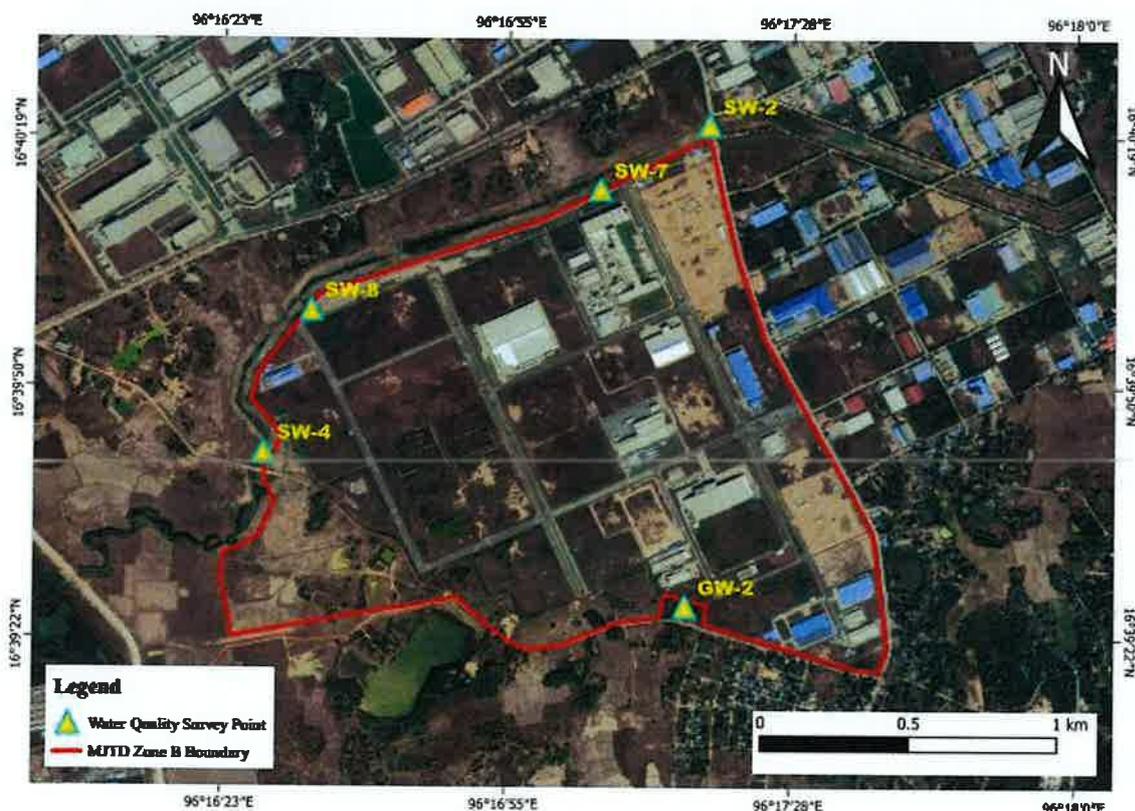


Figure 1.1-1 Location of Sampling Points of Water Quality Monitoring



CHAPTER 2: WATER QUALITY MONITORING

2.1 Monitoring Items

Sampling points and parameters for water quality monitoring are determined to cover the environmental monitoring plan of the EIA report.

Water quality sampling was carried out at five locations. The water flow measurement can be carried at two locations (SW-2 and SW-4) with current meter. However, water flow measurement cannot be conducted with current meter at SW-7 and SW-8 because water gate was closed during sampling. Monitoring items and sampling points are summarized in Table 2.1-1.

Table 2.1-1 Monitoring Items for Water Quality

No.	Parameters	SW-2	SW-4	SW-7	SW-8	GW-2	Remarks
1	Water Temperature	o	o	o	o	o	On-site measurement
2	pH	o	o	o	o	o	On-site measurement
3	Dissolved Oxygen (DO)	o	o	o	o	o	On-site measurement
4	Turbidity (NTU)	o	o	o	o	o	On-site measurement
5	Suspended Solids (SS)	o	o	o	o	o	Laboratory analysis
6	BOD ₍₅₎	o	o	o	o	o	Laboratory analysis
7	COD _(Cr)	o	o	o	o	o	Laboratory analysis
8	Total Nitrogen (T-N)	o	o	o	o	o	Laboratory analysis
9	Total Phosphorous (T-P)	o	o	o	o	o	Laboratory analysis
10	Color	o	o	o	o	o	Laboratory analysis
11	Odor	o	o	o	o	o	Laboratory analysis
12	Total Coliform	o	o	o	o	o	Laboratory analysis
13	Oil and Grease (Self-monitoring)	o	o	o	o	o	Laboratory analysis
14	Chromium	-	-	o	o	o	Laboratory analysis
15	Total Dissolved Solids (TDS) (Self-monitoring)	o	o	o	o	o	Laboratory analysis
16	Iron (Self-monitoring)	o	o	o	o	o	Laboratory analysis
17	Mercury (Self-monitoring)	o	o	o	o	o	Laboratory analysis
18	Escherichia Coli (Self-monitoring)	-	-	o	o	o	Laboratory analysis
19	Flow Rate	o	o	-	-	-	On-site measurement

Source: Myanmar Koei International Ltd.



2.2 Description of Sampling Points

The outline of sampling points is mentioned in Table 2.2-1. The photos of conducting field survey at each sampling points are mentioned in Appendix-1.

Table 2.2-1 Outline of Sampling Points

No.	Station	Detailed Information
1	SW-2	Coordinate- N - 16° 40' 20.69", E - 96° 17' 18.04"
		Location - Upstream of Shwe Pyauk Creek
		Survey Item - Surface water sampling and water flow rate measurement
2	SW-4	Coordinate- N - 16° 39' 42.84", E - 96° 16' 27.42"
		Location - Downstream of Shwe Pyauk Creek
		Survey Item - Surface water sampling and water flow rate measurement
3	SW-7	Coordinate - N - 16° 40' 13.25", E - 96° 17' 5.66"
		Location - Outlet of retention pond of Zone B before connecting to Shwe Pyauk Creek
		Survey Item - Discharge water sampling
4	SW-8	Coordinate - N - 16° 39' 59.25", E - 96° 16' 32.77"
		Location - Another outlet of retention pond of Zone B before connecting to Shwe Pyauk Creek
		Survey Item - Discharge water sampling
5	GW-2	Coordinate - N - 16° 39' 25.30", E - 96° 17' 15.60"
		Location - In the monastery compound of Phalan village
		Survey Item - Ground water sampling

Source: Myanmar Koei International Ltd.

SW-2 (Reference Point)

SW-2 was collected at the upstream of Shwe Pyauk creek. This sampling point is located in the northeast of Zone B area and at the south of Dagon-Thilawa road. The surrounding areas are Zone A in the northwest and local industrial zone in the east respectively.

SW-4 (Reference Point)

SW-4 was collected at the downstream of Shwe Pyauk creek, after mixing of discharge water from local industrial zone, Thilawa SEZ Zone A and Zone B, which is flowing from east to west and then entering into the Yangon River. The distance is about 2.15 km downstream of SW-2. This sampling point is located in the west of Zone B area and in the south of Dagon-Thilawa road. The surrounding areas are Zone A in the northeast, local industrial zone in the east and paddy fields in the south and west respectively.

SW-7 (Discharged Point)

SW-7 is main discharged point of Zone B during operation stage. The distance is about 434 m downstream of SW-2. This sampling point is located at outlet of retention pond of Zone B, in the north of Zone B area and in the south of Dagon-Thilawa road. The surrounding areas are Zone A in the north and local industrial zone in the east respectively.

SW-8 (Discharged Point)

SW-8 is another main discharged point of Zone B during operation stage. The distance is about 500 m upstream of SW-4. This sampling point is located in the south of Dagon-Thilawa road as well as 1 km southwest of SW-7 in the retention pond of Zone B. The surrounding areas are Zone A in the north and local industrial zone in the east respectively.

GW-2 (Reference of Existing Tube Well)

GW-2 was collected from tube well as ground water sample. It is located in the monastery compound of Phalan village. The surrounding areas are Thilawa SEZ Zone A in the north, Phalan village in the



south and fields in the west and local industrial zone in the northeast and operation of Thilawa SEZ Zone B in the east and northeast respectively.

2.3 Monitoring Method

All water samples were collected with cleaned sampling bottles and analyzed by the following standard method as shown in Table 2.3-1. All samples were kept in iced boxes keeping at 2-4 °C and were transported to the laboratory. Among the parameters; water temperature, pH and DO were measured by the on-site instrument “Horiba, U-52” and water flow rate was also measured by using the on-site instrument “JFE Digital Current Meter”.

Table 2.3-1 Analytic Method for Water Quality

No.	Parameter	Method
1	Water Temperature	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
2	pH	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
3	Dissolved Oxygen (DO)	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
4	Turbidity	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
5	Suspended Solids (SS)	APHA 2540 D (Dry at 103-105°C Method)
6	BOD ₍₅₎	APHA 5210 B (5 Days BOD Test)
7	COD _(Cr)	APHA 5220D (Close Reflux Colorimetric Method)
8	Total Nitrogen (T-N)	HACH Method 10072 (TNT Persulfate Digestion Method)
9	Total Phosphorous (T-P)	APHA 4500-P E (Ascorbic Acid Method)
10	Color	APHA 2120C (Spectrophotometric Method)
11	Odor	APHA 2150 B (Threshold Odor Test)
12	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)
13	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)
14	Chromium (Cr)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
15	Total Dissolved Solids (TDS)	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)
16	Iron (Fe)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
17	Mercury (Hg)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
18	Escherichia Coli (E. coli)	APHA 9221 F (Escherichia Coli Procedure Using Fluorogenic Substrate)
19	Flow Rate	Detection of Electromagnetic Elements (Real-time measurement by AEM 213-D Digital Current Meters)

Source: Myanmar Koei International Ltd.



2.4 Monitoring Period

Water quality and water flow rate monitoring were conducted on 5 August 2025, and sampling time is shown in Table 2.4-1. In order to avoid tidal effect, the sampling was carried out during low tide especially at SW-4. The tide record for Yangon River, Myanmar on 5 August 2025 is shown in Table 2.4-2.

Table 2.4-1 Sampling Time of Each Point

No.	Station	Sampling Time
1	SW-2	05/08/2025 08:51
2	SW-4	05/08/2025 09:16
3	SW-7	05/08/2025 11:04
4	SW-8	05/08/2025 11:37
5	GW-2	05/08/2025 08:28

Source: Myanmar Koei International Ltd.

Table 2.4-2 Tide Record for Yangon River, Myanmar

Date	Time	Height (m)	Tide Conditions
05/08/2025	01:19	4.43	High Tide (highest)
	07:32	2.49	Low Tide (lowest)
	13:29	4.95	High Tide (highest)
	21:20	1.91	Low Tide (lowest)

Source: Myanmar Port Authority, Tide Table for the Yangon River and Elephant Point, 2025.



2.5 Monitoring Results

Results of water quality monitoring are summarized from Table 2.5-1 to Table 2.5-3. Analytical results of the laboratory are described in Appendix-2. The results of surface water quality were compared with the target value of effluent water quality discharging to water body stipulated in the EIA report and the National Surface Water Quality Standard (NSWQS) in Myanmar (referred to Table-2 in Section 7.1.1, Table-3 in Section 7.1.2 and Table-4 in Section 7.2). Besides, ground water quality results were compared with the target value of effluent water quality discharging to water body stipulated in the EIA report but also with Vietnam Ground Water Standard. Additionally, current monitoring results are compared with baseline results of SW-2 for surface water as well as GW-2 for ground water, measured in October 2015 for the mentioned EIA report.

As the comparison with the target value, the results of suspended solid (SS) at SW-4 and SW-8, total coliform at SW-2, SW-4 and SW-8, and iron at SW-2, SW-4, SW-8 and GW-2, exceeded the limitations in this monitoring period.

2.5.1 Results of Water Quality Monitoring at Discharged Points and Creek

(1) Results of Water Quality Monitoring at Discharged Points

As for the result of SS, results at the main discharging points of Zone B (SW-8) before discharging to the creek, exceeded the limitation due to the surface water run-off from bare land in Zone B.

As for the results of total coliform of surface water, results at the main discharging point of Zone B (SW-8) before discharging to the creek, exceeded the limitation due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels.

Since the composition of the total coliform include bacteria from natural origin, and total coliform do not affect human health directly, E. Coli analysis was carried out alternatively to identify the health impact by coliform bacteria. As for the result of E. Coli of surface water at the main discharging points of Zone B (SW-8), the result was within limitation. Therefore, although the limitation of total coliform was exceeded at the main discharging points of Zone B (SW-8) but it is considered that there is no significant impact on human health.

As for the result of iron, the result at one main discharging point of Zone B (SW-8) before discharging to the creek slightly higher the limitation. The possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

When comparing the results of monitoring parameters with National Surface Water Quality Standard (2024), the parameters for environmental conservation (pH, DO, SS, BOD, COD, and E. coli) are aligned with the standard values of Class I, II, III, IV and V respectively, while standard values of monitoring parameter (color, TDS and turbidity) are included in Class I and V designation. Besides, monitoring parameters for human health (Hg) are within the standard values applied for Class I-V. According to the results of monitoring parameters referred to National Surface Water Quality Standard, water quality of SW-7 and SW-8 can be applied for Class V water use.

Among the results between present monitoring and baseline survey in 2015, dissolved oxygen and oil and grease of SW-7 and SW-8 are lower than those of SW-2 (baseline survey 2015).



Table 2.5-1 Results of Water Quality Monitoring at Discharged Points

No	Parameters	Unit	SW-7	SW-8	SW-2 (Baseline Result, EIA Report)*	Target Value	National Surface Water Quality Standard
1	Water Temperature	°C	33	36	26.7	≤ 35	-
2	pH	-	7.1	8.4	6.6	6~9	6.5-8.5 (Class I)
3	Dissolved Oxygen (DO)	mg/l	3.88	6.47	6.5	-	> 3 (Class IV)
4	Turbidity	NTU	99	253	-	-	100 (Class V)
5	Suspended Solid (SS)	mg/l	50	154	-	50	150 (Class V)
6	BOD ₍₅₎	mg/l	4.48	4.34	-	30	8 (Class III)
7	COD _(Cr)	mg/l	15.3	9.8	-	125	50 (Class IV)
8	Total Coliform	MPN/100ml	170.0	2200	-	400	-
9	Oil and Grease	mg/l	<3.1	<3.1	3.4	10	No noticeably seen
10	Total Nitrogen (T-N)	mg/l	1.6	1.1	-	80	-
11	Total Phosphorous (T-P)	mg/l	0.09	0.13	-	2	-
12	Color	TCU (True Color Unit)	14.88	8.63	-	150	15 (Class I)
13	Odor	TON (Threshold Odo Number)	1	2	-	-	-
14	Total Dissolved Solids	mg/l	170	132	-	2000	500 (Class I)
15	Mercury	mg/l	≤ 0.002	≤ 0.002	-	0.005	0.001 (Class I – V)
16	Chromium	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
17	Iron	mg/l	2.234	4.330	-	3.5	-
18	Escherichia Coli	MPN/100ml	40.0	33.0	-	(1000)** (CFU/10 0ml)	300 (Class II)

Note: Red color means exceeded value than target value.

Note: National Surface Water Quality Standard 2024.

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

**Note: Based on the water utilization at discharged creek, the quality standard for water baths in Japan, (Ministry of Environment, 1997) is set as a reference value for self-monitoring of E. coli for surface water monitoring. However, due to limitation of capacity for analytical laboratory in Myanmar, the method to analyze the "Colony Forming Unit (CFU)" is not available in Myanmar. Therefore, the results of "Most Probable Number (MPN)" are assumed similar to CFU values and compared with reference values. Once the method to analyze the CFU will be available in Myanmar, the analytical method will be changed.

According to the quality standard for water baths in Japan, (Ministry of Environment, 1997), in case of E. Coli result is exceeding 1,000 CFU/100 ml, since it is assumed unsafety, it is considered unsuitable for water baths.

Source: Myanmar Koei International Ltd.



(2) Results of Water Quality Monitoring at Reference Monitoring points (Creek)

As for the result of SS, SS result at the surface water monitoring point (SW-4) exceeded the limitations due to two expected reasons; i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

As for the result of total coliform, results at surface water monitoring points (SW-2) and (SW-4) exceeded the limitation due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

As for the result of iron, the result at the monitoring point of surface water (SW-2) and (SW-4) exceeded the limitation. The possible reason for exceeded value in surface water (SW-2) and (SW-4) may be due to the influence of natural origin (iron can reach out from the soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by run-off or strong wind.

When comparing the results of monitoring parameters with National Surface Water Quality Standard (2024), the parameters for environmental conservation (pH, DO, SS, BOD and COD) are aligned with standard values of Class I, III, IV and V respectively, while standard values of monitoring parameter such as (color, TDS and Turbidity) are included in Class I, II and V designation. Besides, monitoring parameters for human health (Hg) are within the standard values applied for Class I-V. According to the results of monitoring parameters referred to National Surface Water Quality Standard, water quality of SW-2 and SW-4 can be applied for Class V water use.

Among the results between present monitoring and baseline survey in 2015, dissolved oxygen and oil and grease of SW-2 and SW-4 are lower than those of SW-2 (baseline survey 2015).



Table 2.5-2 Results of Water Quality Monitoring at Creek

No.	Parameters	Unit	SW-2	SW-4	SW-2 (Baseline Result, EIA Report)*	Target Value	National Surface Water Quality Standard
1	Water Temperature	°C	30	29	26.7	≤ 35	-
2	pH	-	6.8	7.0	6.6	6~9	6.5-8.5 (Class I)
3	Dissolved Oxygen (DO)	mg/l	1.74	2.51	6.5	-	> 3 (Class IV)
4	Turbidity	NTU	49	150	-	-	100 (Class V)
5	Suspended Solid (SS)	mg/l	38	114	-	50	150 (Class V)
6	BOD ₍₅₎	mg/l	3.28	4.57	-	30	8 (Class III)
7	COD _(Cr)	mg/l	16.4	14.7	-	125	50 (Class IV)
8	Total Nitrogen (T-N)	mg/l	1.8	2.3	-	80	-
9	Total Phosphorous (T-P)	mg/l	0.17	0.24	-	2	-
10	Color	TCU (True Color Unit)	13.63	17.38	-	150	25 (Class II)
11	Odor	TON (Threshold Odor Number)	2	2	-	-	-
12	Total Coliform	MPN/100ml	14000.0	920.0	-	400	-
13	Oil and Grease	mg/l	< 3.1	< 3.1	3.4	10	No noticeably seen
14	Total Dissolved Solids (TDS)	mg/l	152	180	-	2000	500 (Class I)
15	Iron	mg/l	4.576	4.382	-	3.5	-
16	Mercury	mg/l	≤ 0.002	≤ 0.002	-	0.005	0.001 (Class I – V)
17	Chromium	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
18	Flow Rate	m ³ /s	24.38	1.31	-	-	-

Note: Red color means exceeded value than target value.

Note: National Surface Water Quality Standard 2024.

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

Source: Myanmar Koei International Ltd.



2.5.2 Results of Water Quality Monitoring at Reference Monitoring Point (Tube Well)

As the comparison with the Vietnam Ground Water Standard and the target value of effluent water quality discharging to water body stipulated in the EIA report, only iron concentration at the monitoring point of reference tube well (GW-2) exceeded the limitation.

For the ground water quality, National Technical Regulation on Ground Water Quality (No. QCVN 09-MT: 2015/BTNMT) in Vietnam is used as a reference because Myanmar does not have any ground water guidelines and standards, and most of the analyzed parameter are included in Vietnam standard rather than those stipulated by neighboring countries. For the result of Escherichia Coli, B1 (Irrigation water) of National Technical Regulation on Surface Water Quality (No. QCVN 08-MT: 2015/BTNMT) in Vietnam is referred, as no standard for E. coli is mentioned in Vietnam ground water regulation as a reference. In addition, the target values of effluent water quality discharging to water body stipulated in the EIA report are also considered for comparison with ground water quality.

As for the result of the iron, the result at the monitoring point of reference tube well (GW-2) exceeded the limitation. However, iron result was within the limitation of Vietnam Standard. Comparison with previous monitoring results of GW-2 since April 2019, the iron concentration results are ranging from 0.108 mg/l in April 2023 to 14.100 mg/l in December 2023 and most of the iron concentration results (from April 2019 to August 2025) exceeded the limitation except the results of August 2019, February and April 2022, and April 2023. Therefore, the possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Moreover, Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

Among the results between present monitoring and baseline survey in 2015, suspended solid, COD and total coliform of GW-2 is lower than those of GW-2 (baseline survey 2015), while total nitrogen, total phosphorus and iron of GW-2 are higher.

Table 2.5-3 Results of Water Quality Monitoring at Reference Tube Well

No.	Parameters	Unit	GW-2	GW-2 (Baseline Result, EIA Report)*	Target Value	Vietnam Ground Water Standard
1	Water Temperature	°C	29	28.5	≤ 35	-
2	pH	-	6.9	6.7	6-9	5.5 – 8.5
3	Dissolved Oxygen (DO)	mg/l	5.13	7.5	-	-
4	Turbidity	NTU	23	-	-	-
5	Suspended Solid (SS)	mg/l	4	120	50	-
6	BOD ₍₅₎	mg/l	2.09	< 2	30	-
7	COD _(Cr)	mg/l	< 0.7	11	125	-
8	Total Coliform	MPN/100ml	< 1.8	> 23	400	3
9	Oil and Grease	mg/l	< 3.1	< 0.2	10	-
10	Total Nitrogen (T-N)	mg/l	1.0	< 0.6	80	-
11	Total Phosphorous (T-P)	mg/l	0.63	0.39	2	-
12	Color	TCU (True Color Unit)	74.88	< 1	150	-
13	Odor	TON (Threshold Odor Number)	1	None	-	-
14	Total Dissolved Solids	mg/l	206	-	2000	1500
15	Mercury	mg/l	≤ 0.002	< 0.0005	0.005	0.001
16	Chromium	mg/l	≤ 0.002	-	0.5	-
17	Iron	mg/l	4.676	0.19	3.5	5
18	Escherichia Coli	MPN/100ml	< 1.8	-	(100)* (MPN/100ml)	(100)* (MPN/100ml)

Note: Red color means exceeded value than target value.

Note: Vietnam Groundwater Standard (No: QCVN 09-MT:2015/BTNMT)

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

**Note: Based on the water utilization at monitoring point for ground water, B1 (Irrigation water) of National Technical Regulation on Surface Water Quality in Vietnam (No: QCVN 08-MT: 2015/BTNMT) is set as a reference value of self-monitoring for ground water monitoring.

Source: Myanmar Koei International Ltd.



2.5.3 Comparison of Results of Water Quality Exceed the Target Value between Previous Monitoring and August 2025 Monitoring

In order to overview the exceed the limitations of the concerned parameters during the present monitoring (August 2025), the results of the exceed parameters with respective sampling points are compared with the previous monitoring results since August 2024.

Regarding the results of the parameter of discharge points (SW-7 and SW-8), suspended solid concentration at SW-8 is higher than the limitation in June and August 2025. Total coliform concentration at SW-8 is higher than the limitation in August, October 2024, June and August 2025, ranging from 1300 to >160000 MPN/100ml. It is observed that total coliform at SW-8 is higher during rainy season.

Moreover, the iron concentration at GW-2 is always higher than the limitation in all monitoring surveys except in June 2025. It is observed that iron concentration at GW-2 is higher throughout all three seasons and it might be Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

On the other hand, though the result of iron concentration at reference monitoring point (SW-2) is higher than the limitation in this monitoring survey (August 2025) as 4.567 mg/l, iron at SW-4 is higher in all monitoring surveys except June 2025, ranging from 4.382 to 171.64 mg/l. The result of SS concentration at the reference monitoring point (SW-4) is higher than the limitation throughout all three seasons, ranging from 74 to 817 mg/l. It is assumed that SS concentrations at SW-4 are always higher due to the agricultural and domestic run-off from the surrounding as well as the tidal effect resulting the cloudiness (turbidity) of water along Shwe Pyauk creek during all seasons. The results of total coliform at the reference monitoring points (SW-2 and SW-4) are higher in all monitoring surveys, ranging from 450 to >160000 MPN/100ml for SW-2 and from 920 to 160000 MPN/100ml for SW-4, respectively. Especially, the total coliform amount at SW-2 was reached to the detection limit (>160000 MPN/100ml) in December 2024, as well as SW-4 to 160000 MPN/100ml in August 2024. It is possible to say that the present condition of the water quality reflects the background condition of the surrounding environment of Thilawa SEZ.

The expected reasons for the results exceed the limitation of concerned parameters are discussed in the upper section of this monitoring report.



CHAPTER 3: CONCLUSION AND RECOMMENDATIONS

As described in Chapter 2 (Section 2.5), the results of suspended solid (SS) at SW-4 and SW-8, total coliform at SW-2, SW-4 and SW-8, and iron at SW-2, SW-4, SW-8 and GW-2, exceeded the limitations in this monitoring period for operation stage of Thilawa SEZ Zone B.

As for the result of SS, result at the main discharging point of Zone B (SW-8) before discharging to the creek, exceeded the limitation due to the surface water run-off from bare land in Zone B.

As for the results of total coliform of surface water, results at the main discharging point of (SW-8) before discharging to the creek, exceeded the limitation due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels.

Since the composition of the total coliform include bacteria from natural origin, and total coliform do not affect human health directly, E. Coli analysis was carried out alternatively to identify the health impact by coliform bacteria. As for the result of E. Coli of surface water at the main discharging point of Zone B (SW-8), the result was within limitation. Therefore, although the limitation of total coliform was exceeded at the main discharging points (SW-8) but it is considered that there is no significant impact on human health.

As for the result of iron, the result at one main discharging point of Zone B (SW-8) before discharging to the creek slightly higher the limitation. The possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

As for the result of SS, SS result at the surface water monitoring point (SW-4) exceeded the limitations due to two expected reasons; i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

The exceeded results for total coliform at SW-2 and SW-4 may be due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

As for the result of iron, the result at the monitoring point of surface water (SW-2) and (SW-4) exceeded the limitation. The possible reason for exceeded value in surface water (SW-2) and (SW-4) may be due to the influence of natural origin (iron can reach out from the soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by run-off or strong wind.

As for the result of the iron, the result at the monitoring point of reference tube well (GW-2) exceeded the limitation. However, iron result was within the limitation of Vietnam Standard. Comparison with previous monitoring results of GW-2 since April 2019, the iron concentration results are ranging from 0.108 mg/l in April 2023 to 14.100 mg/l in December 2023 and most of the iron concentration results (from April 2019 to August 2025) exceeded the limitation except the results of August 2019, February and April 2022, and April 2023. Therefore, the possible reasons may due to the influence of natural origin (iron can reach out from soil by run-off). Moreover, Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

As for the comparison of the results of monitoring parameters with National Surface Water Quality Standard, water quality of SW-2, SW-4, SW-7 and SW-8 can be applied for Class V water use.

As for future subject for main discharged points of Thilawa SEZ Zone B, the following action may be taken to achieve the limitation of suspended solid, total coliform, iron and appropriate water quality



monitoring:

- To perform regular removal of accumulated solids and decaying vegetation present in the retention pond in order to preserve its cleanliness.
- To continue monitoring Escherichia coli (E. coli) level to identify health impact by coliform bacteria.
- To clean the drainage system routinely.
- To inspect the quality of discharge water from the factories.

End of the Document



APPENDIX-1 FIELD SURVEY PHOTOS



FOR DISCHARGED POINT OF THILAWA SEZ ZONE B



Surface water sampling and onsite measurement at SW-7



Surface water sampling and onsite measurement at SW-8



**FOR REFERENCE MONITORING POINTS FOR COMPARISON WITH DISCHARGED
POINTS AND BASELINE OF DISCHARGED CREEK**



Surface water sampling and onsite measurement at SW-2



Surface water sampling and onsite measurement at SW-4



Ground water sampling and onsite measurement at GW-2

APPENDIX-2 LABORATORY RESULTS



FOR DISCHARGED POINT



GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
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meet here our place
Doc No: GEM-LB-R006E/01/AD
Page 1 of 1

Report No. : GEM-LAB-202508047
Revision No. : 1
Report Date : 15 August, 2025
Application No. : 0001-C001

Test Report

Client Name : Myanmar Koei International LTD (MKI)
Address : No, 36/A, 1st Floor, Grand Pho Sein Condominium, Pho Sein Road, Tamwe Township, Yangon, Myanmar.
Project Name : Environment Monitoring report for Zone A & B
Sample Description
Sample Name : MKI-SW-7-0805 Sampling Date : 5 August, 2025
Sample No. : W-2508035 Sampling By : Withdraw GEM
Waste Profile No. : - Sample Received Date : 5 August, 2025
Analytical Date : 5-15/08/2025

No.	Parameter	Method	Unit	Result	TSEZ's WQ Standard	LOQ
1	SS	APHA 2540D (Dry at 103-105°C Method)	mg/l	50	50	-
2	BOD (5)	APHA 5210 B (5 Days BOD Test)	mg/l	4.48	30	0.00
3	COD (Cr)	APHA 5220D (Close Reflux Colorimetric Method)	mg/l	15.3	125	0.7
4	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	10	3.1
5	Color	APHA 2120C (Spectrophotometric Method)	TCU	14.88	150	0.00
6	Total Nitrogen	HACH Method 10072 (TNT Persulfate Digestion Method)	mg/l	1.6	80	0.5
7	Total Phosphorus	APHA 4500-P E (Ascorbic Acid Method)	mg/l	0.09	2	0.05
8	TDS	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)	mg/l	170	2000	-
9	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.005	0.002
10	Iron	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	2.234	3.5	0.002
11	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	3.5	0.002
12	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)	MPN/100ml	170.0	400	1.8
13	Odor	APHA 2150 B (Threshold Odor Test)	TON	1	-	0
14	Escherichia Coli	APHA 9221 F Escherichia Coli Procedure Using Fluorogenic Substrate	MPN/100ml	40.0	-	1.8

Remark : LOQ - Limit of Quantitation

APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition

APHA 2120B.6(b); Color Unit - TCU(True Color Unit).
One TCU is equivalent to one Hazen unit and to one Pt-Co unit.

Analysed By :

Cherry Myint Thein
Manager



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Approved By :

Ni Ni Aye Lwin
Senior Manager

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FOR REFERENCE MONITORING POINTS FOR COMPARISON WITH DISCHARGED POINTS AND BASELINE OF DISCHARGED CREEK



GOLDEN DOWA ECO-SYSTEM MYANMAR CO., LTD.
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Report No. : GEM-LAB-202508044
Revision No. : 1
Report Date : 15 August, 2025
Application No. : 0001-C001

Test Report

Client Name : Myanmar Koel International LTD (MKI)
Address : No, 36/A, 1st Floor, Grand Pho Sein Condominium, Pho Sein Road, Tamwe Township, Yangon, Myanmar.
Project Name : Environment Monitoring report for Zone A & B
Sample Description
Sample Name : MKI-SW-2-0805 Sampling Date : 5 August, 2025
Sample No. : W-2508032 Sampling By : Withdraw GEM
Waste Profile No. : - Sample Received Date : 5 August, 2025
Analytical Date : 5-15/08/2025

No.	Parameter	Method	Unit	Result	TSEZ's WQ Standard	LOQ
1	SS	APHA 2540D (Dry at 103-105°C Method)	mg/l	38	50	-
2	BOD (5)	APHA 5210 B (5 Days BOD Test)	mg/l	3.28	30	0.00
3	COD (Cr)	APHA 5220D (Close Reflux Colorimetric Method)	mg/l	16.4	125	0.7
4	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	10	3.1
5	Color	APHA 2120C (Spectrophotometric Method)	TCU	13.63	150	0.00
6	Total Nitrogen	HACH Method 10072 (TNT Persulfate Digestion Method)	mg/l	1.8	80	0.5
7	Total Phosphorous	APHA 4500-P E (Ascorbic Acid Method)	mg/l	0.17	2	0.05
8	TDS	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)	mg/l	152	2000	-
9	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.005	0.002
10	Iron	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	4.576	3.5	0.002
11	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	3.5	0.002
12	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)	MPN/100ml	14000.0	400	1.8
13	Odor	APHA 2150 B (Threshold Odor Test)	TCU	2	-	0

Remark : LOQ - Limit of Quantitation

APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition

APHA 2120B.6(b); Color Unit - TCU(True Color Unit).
One TCU is equivalent to one Hazen unit and to one Pt-Co unit.

Analysed By :

Cherry Myint Thein
Manager



*** End of Document ***

Approved By :

Ni Ni Aye Lwin 15 Aug, 2025
Senior Manager

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**Thilawa Special Economic Zone
Zone B– Phase 1, 2,3 (Operation phase)**

Appendix-2 (c)

Water and Waste Water Monitoring Report

October 2025

**WATER QUALITY MONITORING REPORT
FOR DEVELOPMENT OF INDUSTRIAL AREA
IN THILAWA SEZ ZONE B
(PHASE 1, 2 & 3 OPERATION STAGE)**

(Bi- Monthly Monitoring)

October 2025

Myanmar Koei International Ltd.



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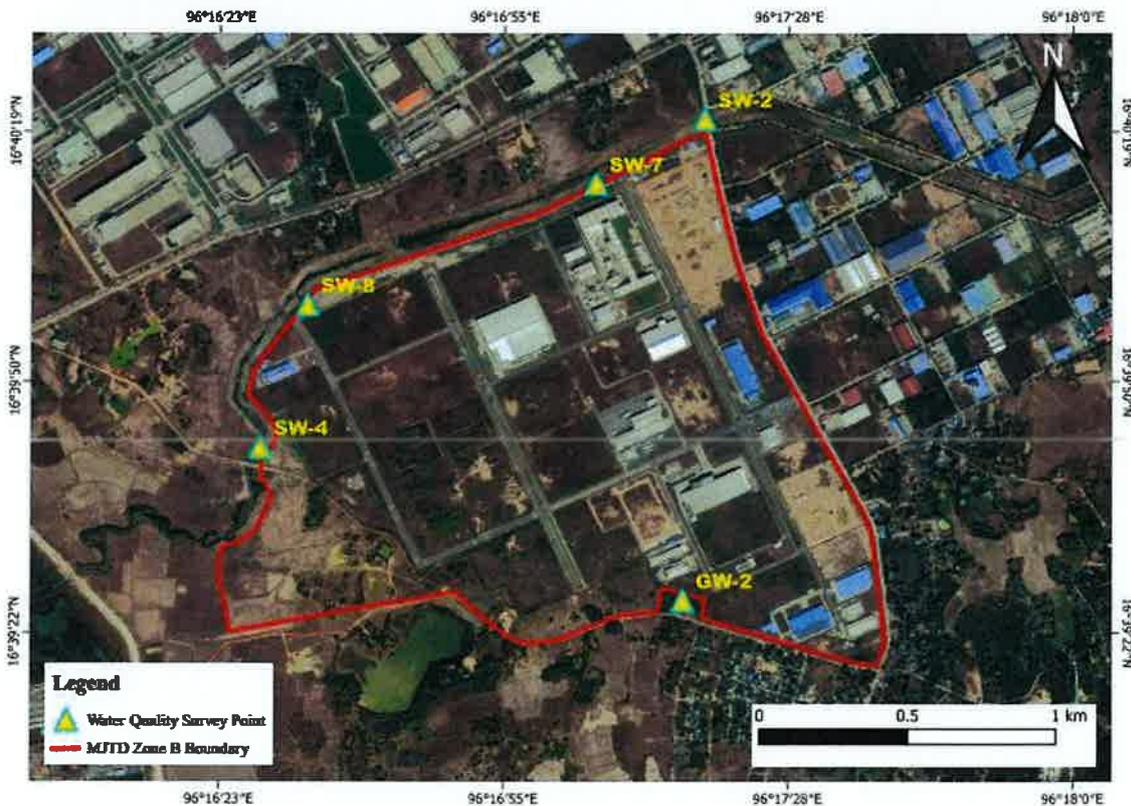
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CHAPTER 1: INTRODUCTION

1.1 General

Thilawa Special Economic Zone (SEZ) is located in southern district of Yangon region and about 23 km southeast of Yangon city. As the developer of Thilawa SEZ, Myanmar Japan Thilawa Development Ltd. (MJTD) has a responsibility to carry out regular monitoring in the industrial area of Zone B in accordance with the approved Environmental Impact Assessment (EIA) report and Environmental Management Plan (EMP). MJTD has implemented monitoring various environmental items with the specified time frame to know the environmental conditions in and around the area. As for the monitoring of the water quality, total five sampling points are set for water quality survey, named SW-2, SW-4, SW-7, SW-8 and GW-2 have been monitored in Thilawa SEZ and its surrounding area in timely manner. Among the five locations, SW-7 is main discharged point of Zone B and SW-8 is another main discharged point of Zone B during the operation stage. The remaining points SW-2 and SW-4 are sampled as a reference monitoring for comparison with discharged points and baseline of discharged creek. Moreover, GW-2 is monitored as a reference of existing tube well located in the monastery compound of Phalan village which is situated next to the southern boundary of the industrial area of Zone B. Location of sampling points for water quality monitoring is shown in Figure 1.1-1.



Source: Google Earth

Figure 1.1-1 Location of Sampling Points of Water Quality Monitoring

CHAPTER 2: WATER QUALITY MONITORING

2.1 Monitoring Items

Sampling points and parameters for water quality monitoring are determined to cover the environmental monitoring plan of the EIA report.

Water quality sampling was carried out at five locations. The water flow measurement can be carried at two locations (SW-2 and SW-4) with current meter. However, water flow measurement cannot be conducted with current meter at SW-7 and SW-8 because water gate was closed during sampling. Monitoring items and sampling points are summarized in Table 2.1-1.

Table 2.1-1 Monitoring Items for Water Quality

No.	Parameters	SW-2	SW-4	SW-7	SW-8	GW-2	Remarks
1	Water Temperature	o	o	o	o	o	On-site measurement
2	pH	o	o	o	o	o	On-site measurement
3	Dissolved Oxygen (DO)	o	o	o	o	o	On-site measurement
4	Turbidity (NTU)	o	o	o	o	o	On-site measurement
5	Suspended Solids (SS)	o	o	o	o	o	Laboratory analysis
6	BOD ₍₅₎	o	o	o	o	o	Laboratory analysis
7	COD _(Cr)	o	o	o	o	o	Laboratory analysis
8	Total Nitrogen (T-N)	o	o	o	o	o	Laboratory analysis
9	Total Phosphorous (T-P)	o	o	o	o	o	Laboratory analysis
10	Color	o	o	o	o	o	Laboratory analysis
11	Odor	o	o	o	o	o	Laboratory analysis
12	Total Coliform	o	o	o	o	o	Laboratory analysis
13	Oil and Grease (Self-monitoring)	o	o	o	o	o	Laboratory analysis
14	Chromium	-	-	o	o	o	Laboratory analysis
15	Total Dissolved Solids (TDS) (Self-monitoring)	o	o	o	o	o	Laboratory analysis
16	Iron (Self-monitoring)	o	o	o	o	o	Laboratory analysis
17	Mercury (Self-monitoring)	o	o	o	o	o	Laboratory analysis
18	Escherichia Coli (Self-monitoring)	-	-	o	o	o	Laboratory analysis
19	Flow Rate	o	o	-	-	-	On-site measurement

Source: Myanmar Koei International Ltd.



2.2 Description of Sampling Points

The outline of sampling points is mentioned in Table 2.2-1. The photos of conducting field survey at each sampling points are mentioned in Appendix-1.

Table 2.2-1 Outline of Sampling Points

No.	Station	Detailed Information
1	SW-2	Coordinate- N - 16° 40' 20.69", E - 96° 17' 18.04"
		Location - Upstream of Shwe Pyauk Creek
		Survey Item - Surface water sampling and water flow rate measurement
2	SW-4	Coordinate- N - 16° 39' 42.84", E - 96° 16' 27.42"
		Location - Downstream of Shwe Pyauk Creek
		Survey Item - Surface water sampling and water flow rate measurement
3	SW-7	Coordinate - N - 16° 40' 13.25", E - 96° 17' 5.66"
		Location - Outlet of retention pond of Zone B before connecting to Shwe Pyauk Creek
		Survey Item - Discharge water sampling
4	SW-8	Coordinate - N - 16° 39' 59.25", E - 96° 16' 32.77"
		Location - Another outlet of retention pond of Zone B before connecting to Shwe Pyauk Creek
		Survey Item - Discharge water sampling
5	GW-2	Coordinate - N - 16° 39' 25.30", E - 96° 17' 15.60"
		Location - In the monastery compound of Phalan village
		Survey Item - Ground water sampling

Source: Myanmar Koei International Ltd.

SW-2 (Reference Point)

SW-2 was collected at the upstream of Shwe Pyauk creek. This sampling point is located in the northeast of Zone B area and at the south of Dagon-Thilawa road. The surrounding areas are Zone A in the northwest and local industrial zone in the east respectively.

SW-4 (Reference Point)

SW-4 was collected at the downstream of Shwe Pyauk creek, after mixing of discharge water from local industrial zone, Thilawa SEZ Zone A and Zone B, which is flowing from east to west and then entering into the Yangon River. The distance is about 2.15 km downstream of SW-2. This sampling point is located in the west of Zone B area and in the south of Dagon-Thilawa road. The surrounding areas are Zone A in the northeast, local industrial zone in the east and paddy fields in the south and west respectively.

SW-7 (Discharged Point)

SW-7 is main discharged point of Zone B during operation stage. The distance is about 434 m downstream of SW-2. This sampling point is located at outlet of retention pond of Zone B, in the north of Zone B area and in the south of Dagon-Thilawa road. The surrounding areas are Zone A in the north and local industrial zone in the east respectively.

SW-8 (Discharged Point)

SW-8 is another main discharged point of Zone B during operation stage. The distance is about 500 m upstream of SW-4. This sampling point is located in the south of Dagon-Thilawa road as well as 1 km southwest of SW-7 in the retention pond of Zone B. The surrounding areas are Zone A in the north and local industrial zone in the east respectively.

GW-2 (Reference of Existing Tube Well)

GW-2 was collected from tube well as ground water sample. It is located in the monastery compound of Phalan village. The surrounding areas are Thilawa SEZ Zone A in the north, Phalan village in the



south and fields in the west and local industrial zone in the northeast and operation of Thilawa SEZ Zone B in the east and northeast respectively.

2.3 Monitoring Method

All water samples were collected with cleaned sampling bottles and analyzed by the following standard method as shown in Table 2.3-1. All samples were kept in iced boxes keeping at 2-4 °C and were transported to the laboratory. Among the parameters; water temperature, pH and DO were measured by the on-site instrument “Horiba, U-52” and water flow rate was also measured by using the on-site instrument “JFE Digital Current Meter”.

Table 2.3-1 Analytic Method for Water Quality

No.	Parameter	Method
1	Water Temperature	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
2	pH	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
3	Dissolved Oxygen (DO)	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
4	Turbidity	Instrument Analysis Method (Horiba, U-52, Multi Water Quality Checker)
5	Suspended Solids (SS)	APHA 2540 D (Dry at 103-105°C Method)
6	BOD ₍₅₎	APHA 5210 B (5 Days BOD Test)
7	COD _(Cr)	APHA 5220D (Close Reflux Colorimetric Method)
8	Total Nitrogen (T-N)	HACH Method 10072 (TNT Persulfate Digestion Method)
9	Total Phosphorous (T-P)	APHA 4500-P E (Ascorbic Acid Method)
10	Color	APHA 2120C (Spectrophotometric Method)
11	Odor	APHA 2150 B (Threshold Odor Test)
12	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)
13	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)
14	Chromium (Cr)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
15	Total Dissolved Solids (TDS)	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)
16	Iron (Fe)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
17	Mercury (Hg)	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)
18	Escherichia Coli (E. coli)	APHA 9221 F (Escherichia Coli Procedure Using Fluorogenic Substrate)
19	Flow Rate	Detection of Electromagnetic Elements (Real-time measurement by AEM 213-D Digital Current Meters)

Source: Myanmar Koei International Ltd.



2.4 Monitoring Period

Water quality and water flow rate monitoring were conducted on 9 October 2025, and sampling time is shown in Table 2.4-1. In order to avoid tidal effect, the sampling was carried out during low tide especially at SW-4. The tide record for Yangon River, Myanmar on 9 October 2025 is shown in Table 2.4-2.

Table 2.4-1 Sampling Time of Each Point

No.	Station	Sampling Time
1	SW-2	09/10/2025 08:31
2	SW-4	09/10/2025 09:13
3	SW-7	09/10/2025 11:07
4	SW-8	09/10/2025 11:38
5	GW-2	09/10/2025 12:03

Source: Myanmar Koei International Ltd.

Table 2.4-2 Tide Record for Yangon River, Myanmar

Date	Time	Height (m)	Tide Conditions
09/10/2025	01:19	4.43	High Tide (highest)
	07:32	2.49	Low Tide (lowest)
	13:29	4.95	High Tide (highest)
	21:20	1.91	Low Tide (lowest)

Source: Myanmar Port Authority, Tide Table for the Yangon River and Elephant Point, 2025.



2.5 Monitoring Results

Results of water quality monitoring are summarized from Table 2.5-1 to Table 2.5-3. Analytical results of the laboratory are described in Appendix-2. The results of surface water quality were compared with the target value of effluent water quality discharging to water body stipulated in the EIA report and the National Surface Water Quality Standard (NSWQS) in Myanmar (referred to Table-2 in Section 7.1.1, Table-3 in Section 7.1.2 and Table-4 in Section 7.2). Besides, ground water quality results were compared with the target value of effluent water quality discharging to water body stipulated in the EIA report but also with Vietnam Ground Water Standard. Additionally, current monitoring results are compared with baseline results of SW-2 for surface water as well as GW-2 for ground water, measured in October 2015 for the mentioned EIA report.

As the comparison with the target value, the results of suspended solid (SS) at SW-4, SW-7 and SW-8, total coliform at SW-2, SW-4, SW-7 and SW-8, and iron at SW-2, SW-4, SW-8 and GW-2, exceeded the limitations in this monitoring period.

2.5.1 Results of Water Quality Monitoring at Discharged Points and Creek

(1) Results of Water Quality Monitoring at Discharged Points

As for the result of SS, results at the main discharging points of Zone B (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the surface water run-off from bare land in Zone B.

As for the results of total coliform of surface water, results at the main discharging points of Zone B (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels.

Since the composition of the total coliform include bacteria from natural origin, and total coliform do not affect human health directly, E. Coli analysis was carried out alternatively to identify the health impact by coliform bacteria. As for the result of E. Coli of surface water at the main discharging points of Zone B (SW-8), the result was within limitation. Therefore, although the limitation of total coliform was exceeded at the main discharging points of Zone B (SW-7 and SW-8) but it is considered that there is no significant impact on human health.

As for the result of iron, the result at one main discharging point of Zone B (SW-8) before discharging to the creek slightly higher the limitation. The possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

When comparing the results of monitoring parameters with National Surface Water Quality Standard (2024), the parameters for environmental conservation (pH, DO, SS, BOD, COD, and E. coli) are aligned with the standard values of Class I, III and V respectively, while standard values of monitoring parameter (color, TDS and turbidity) are included in Class I, II and V designation. Besides, monitoring parameters for human health (Hg) is within the standard values applied for Class I-V. According to the results of monitoring parameters referred to National Surface Water Quality Standard, water quality of SW-7 and SW-8 can be applied for Class V water use.

Among the results between present monitoring and baseline survey in 2015, dissolved oxygen and oil and grease of SW-7 and SW-8 are lower than those of SW-2 (baseline survey 2015).



Table 2.5-1 Results of Water Quality Monitoring at Discharged Points

No	Parameters	Unit	SW-7	SW-8	SW-2 (Baseline Result, EIA Report)*	Target Value	National Surface Water Quality Standard
1	Water Temperature	°C	27	29	26.7	≤ 35	-
2	pH	-	7.1	7.4	6.6	6~9	6.5-8.5 (Class I)
3	Dissolved Oxygen (DO)	mg/l	4.35	5.06	6.5	-	> 4 (Class III)
4	Turbidity	NTU	105	241	-	-	100 (Class V)
5	Suspended Solid (SS)	mg/l	52	106	-	50	150 (Class V)
6	BOD ₍₅₎	mg/l	5.32	5	-	30	8 (Class III)
7	COD _(Cr)	mg/l	12.1	9	-	125	13 (Class III)
8	Total Coliform	MPN/100ml	35000	35000	-	400	-
9	Oil and Grease	mg/l	<3.1	<3.1	3.4	10	No noticeably seen
10	Total Nitrogen (T-N)	mg/l	4	5.3	-	80	-
11	Total Phosphorous (T-P)	mg/l	0.08	0.14	-	2	-
12	Color	TCU (True Color Unit)	19.57	13.86	-	150	25 (Class II)
13	Odor	TON (Threshold Odo Number)	1	1	-	-	-
14	Total Dissolved Solids	mg/l	128	170	-	2000	500 (Class I)
15	Mercury	mg/l	≤ 0.002	≤ 0.002	-	0.005	0.001 (Class I – V)
16	Chromium	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
17	Iron	mg/l	2.948	8.420	-	3.5	-
18	Escherichia Coli	MPN/100ml	20.0	20.0	-	(1000)** (CFU/100ml)	20 (Class I)
19	Flow Rate	m ³ /s	-	-	-	-	-

Note: Red color means exceeded value than target value.

Note: National Surface Water Quality Standard 2024.

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

**Note: Based on the water utilization at discharged creek, the quality standard for water baths in Japan, (Ministry of Environment, 1997) is set as a reference value for self-monitoring of E. coli for surface water monitoring. However, due to limitation of capacity for analytical laboratory in Myanmar, the method to analyze the "Colony Forming Unit (CFU)" is not available in Myanmar. Therefore, the results of "Most Probable Number (MPN)" are assumed similar to CFU values and compared with reference values. Once the method to analyze the CFU will be available in Myanmar, the analytical method will be changed.

According to the quality standard for water baths in Japan, (Ministry of Environment, 1997), in case of E. Coli result is exceeding 1,000 CFU/100 ml, since it is assumed unsafety, it is considered unsuitable for water baths.

Source: Myanmar Koei International Ltd.

(2) Results of Water Quality Monitoring at Reference Monitoring points (Creek)

As for the result of SS, SS result at the surface water monitoring point (SW-4) exceeded the limitations due to two expected reasons; i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

As for the result of total coliform, results at surface water monitoring points (SW-2) and (SW-4) exceeded the limitation due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

As for the result of iron, the result at the monitoring point of surface water (SW-2) and (SW-4) exceeded the limitation. The possible reason for exceeded value in surface water (SW-2) and (SW-4) may be due to the influence of natural origin (iron can reach out from the soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil),

and it can be transported to the low land area by run-off or strong wind.

When comparing the results of monitoring parameters with National Surface Water Quality Standard (2024), the parameters for environmental conservation (pH, DO, SS, BOD and COD) are aligned with standard values of Class I, III, IV and V respectively, while standard values of monitoring parameter such as (color, TDS and Turbidity) are included in Class I, III and V designation. Besides, monitoring parameters for human health (Hg) is within the standard values applied for Class I-V. According to the results of monitoring parameters referred to National Surface Water Quality Standard, water quality of SW-2 and SW-4 can be applied for Class V water use.

Among the results between present monitoring and baseline survey in 2015, dissolved oxygen and oil and grease of SW-2 and SW-4 are lower than those of SW-2 (baseline survey 2015).

Table 2.5-2 Results of Water Quality Monitoring at Creek

No.	Parameters	Unit	SW-2	SW-4	SW-2 (Baseline Result, EIA Report)*	Target Value	National Surface Water Quality Standard
1	Water Temperature	°C	26	26	26.7	≤ 35	-
2	pH	-	6.9	7.4	6.6	6~9	6.5-8.5(Class I)
3	Dissolved Oxygen (DO)	mg/l	3.68	4.3	6.5	-	> 3 (Class IV)
4	Turbidity	NTU	42	449	-	-	100 (Class V)
5	Suspended Solid (SS)	mg/l	20	198	-	50	150 (Class V)
6	BOD ₍₅₎	mg/l	4.74	5.47	-	30	8 (Class III)
7	COD _(Cr)	mg/l	14.7	6.0	-	125	50 (Class IV)
8	Total Nitrogen (T-N)	mg/l	3.0	<0.5	-	80	-
9	Total Phosphorous (T-P)	mg/l	0.11	0.11	-	2	-
10	Color	TCU (True Color Unit)	32.43	5.29	-	150	50 (Class III)
11	Odor	TON (Threshold Odor Number)	1	1	-	-	-
12	Total Coliform	MPN/100ml	160000	92000	-	400	-
13	Oil and Grease	mg/l	< 3.1	< 3.1	3.4	10	No noticeably seen
14	Total Dissolved Solids (TDS)	mg/l	112	188	-	2000	500 (Class I)
15	Iron	mg/l	8.580	6.040	-	3.5	-
16	Mercury	mg/l	≤ 0.002	≤ 0.002	-	0.005	0.001 (Class I – V)
17	Chromium	mg/l	≤ 0.002	≤ 0.002	-	0.5	-
18	Flow Rate	m ³ /s	124.25	127.49	-	-	-

Note: Red color means exceeded value than target value.

Note: National Surface Water Quality Standard 2024.

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

Source: Myanmar Koei International Ltd.



2.5.2 Results of Water Quality Monitoring at Reference Monitoring Point (Tube Well)

As the comparison with the Vietnam Ground Water Standard and the target value of effluent water quality discharging to water body stipulated in the EIA report, suspended solid and iron concentration at the monitoring point of reference tube well (GW-2) exceeded the limitation.

For the ground water quality, National Technical Regulation on Ground Water Quality (No. QCVN 09-MT: 2015/BTNMT) in Vietnam is used as a reference because Myanmar does not have any ground water guidelines and standards, and most of the analyzed parameter are included in Vietnam standard rather the those stipulated by neighboring countries. For the result of Escherichia Coli, B1 (Irrigation water) of National Technical Regulation on Surface Water Quality (No. QCVN 08-MT: 2015/BTNMT) in Vietnam is referred, as no standard for E. coli is mentioned in Vietnam ground water regulation.as a reference. In addition, the target values of effluent water quality discharging to water body stipulated in the EIA report are also considered for comparison with ground water quality.

As for the result of the SS, the result at the monitoring point of reference tube well (GW-2) exceeded the limitation during the recent sampling period. The expected reason may be due to construction or agricultural runoff, stormwater runoff and flooding that erode soil and introduce particles which can then infiltrate to groundwater. According to the information by monastery, the depth of tube well (GW-2) is about 30 m. By referring the report “Data Collection Survey on Water Resources Potential for Thilawa SEZ and Adjoining Areas” prepared by JICA in 2014, the groundwater extracted at GW-2 is from the second aquifer, there is the intrusion of saline water from Yangon River. Moreover, this aquifer is closed to ground surface and overlain by the unconsolidated soil layer. Consequently, the groundwater in this aquifer may be contaminated in terms of water intrusion by Yangon River as well as seepage of contaminated runoff through overlaying soil layer.

As for the result of the iron, the result at the monitoring point of reference tube well (GW-2) exceeded the limitation. Comparison with previous monitoring results of GW-2 since April 2019, the iron concentration results are ranging from 0.108 mg/l in April 2023 to 14.100 mg/l in December 2023 and most of the iron concentration results (from April 2019 to October 2025) exceeded the limitation except the results of August 2019, February and April 2022, and April 2023. Therefore, the possible reasons may due to the influence of natural origin (iron can reach out from soil by run-off). Moreover, Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

Among the results between present monitoring and baseline survey in 2015, suspended solid, COD and total coliform of GW-2 is lower than those of GW-2 (baseline survey 2015), while total phosphorous and iron of GW-2 is higher.

Table 2.5-3 Results of Water Quality Monitoring at Reference Tube Well

No.	Parameters	Unit	GW-2	GW-2 (Baseline Result, EIA Report)*	Target Value	Vietnam Ground Water Standard
1	Water Temperature	°C	27	28.5	≤ 35	-
2	pH	-	6.9	6.7	6~9	5.5 – 8.5
3	Dissolved Oxygen (DO)	mg/l	5.78	7.5	-	-
4	Turbidity	NTU	20	-	-	-
5	Suspended Solid (SS)	mg/l	64	120	50	-
6	BOD ₍₅₎	mg/l	4.31	< 2	30	-
7	COD _(Cr)	mg/l	<0.7	11	125	-
8	Total Coliform	MPN/100ml	13	>23	400	3
9	Oil and Grease	mg/l	<3.1	< 0.2	10	-
10	Total Nitrogen (T-N)	mg/l	<0.5	< 0.6	80	-
11	Total Phosphorous (T-P)	mg/l	0.52	0.39	2	-
12	Color	TCU (True Color Unit)	39.57	< 1	150	-
13	Odor	TON	3	None	-	-



		(Threshold Odo Number)				
14	Total Dissolved Solids	mg/l	192	-	2000	1500
15	Mercury	mg/l	≤ 0.002	<0.0005	0.005	0.001
16	Chromium	mg/l	≤ 0.002	-	0.5	-
17	Iron	mg/l	11.920	0.19	3.5	5
18	Escherichia Coli	MPN/100ml	<1.8	-	(100)** (MPN/100ml)	(100)** (MPN/100ml)
19	Flow Rate	m ³ /s	-	-	-	-

Note: Red color means exceeded value than target value.

Note: Vietnam Groundwater Standard (No: QCVN 09-MT:2015/BTNMT)

*Note: Baseline results monitored in October 2015 for EIA report (Industrial Area) of Zone B.

**Note: Based on the water utilization at monitoring point for ground water, B1 (Irrigation water) of National Technical Regulation on Surface Water Quality in Vietnam (No: QCVN 08-MT: 2015/BTNMT) is set as a reference value of self-monitoring for ground water monitoring.

Source: Myanmar Koei International Ltd.

2.5.3 Comparison of Results of Water Quality Exceed the Target Value between Previous Monitoring and October 2025 Monitoring

In order to overview the exceed limitations of the concerned parameters during the present monitoring (October 2025), the results of the exceed parameters with respective sampling points are compared with the previous monitoring results since October 2024.

Regarding the results of the parameter of discharge points (SW-7 and SW-8), suspended solid concentration is higher in three monitoring surveys at SW-7 in April, June and October 2025, but also at SW-8 in June, August and October 2025 respectively. Total coliform concentration at SW-7 is higher than the limitation except December 2024, February and August 2025, ranging from 1700 MPN/100ml to 35000 MPN/100ml. Moreover, total coliform concentration at SW-8 is higher than the limitation except December 2024, ranging from 1300 MPN/100ml to 35000 MPN/100ml. The iron concentration at SW-8 is slightly higher than the limitation in three monitoring surveys (June, August and October 2025), ranging from 3.726 to 8.42 mg/l. It is observed that iron concentration at SW-8 is higher during rainy season and the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

As for the result of the SS, the result at the monitoring point of reference tube well (GW-2) exceeded the limitation in this monitoring survey (October 2025) as 64 mg/l. Moreover, the iron concentration at GW-2 is always higher than the limitation in all monitoring surveys except in June 2025. It is observed that iron concentration at GW-2 is higher throughout all three seasons and it might be Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

On the other hand, though the result of iron concentration at reference monitoring point (SW-2) is higher than the limitation in two monitoring surveys (August and October 2025), iron at SW-4 is higher in all monitoring surveys except June 2025, ranging from 4.382 to 171.64 mg/l. The result of SS concentration at the reference monitoring point (SW-4) is higher than the limitation throughout all three seasons, ranging from 74 to 817 mg/l. It is assumed that SS concentrations at SW-4 are always higher due to the agricultural and domestic run-off from the surrounding as well as the tidal effect resulting the cloudiness (turbidity) of water along Shwe Pyauk creek during all seasons. The results of total coliform at the reference monitoring points (SW-2 and SW-4) are higher in all monitoring surveys, ranging from 450 to >160000 MPN/100ml for SW-2 and from 920 to 92000 MPN/100ml for SW-4, respectively. Especially, the total coliform amount at SW-2 was reached to the detection limit (>160000 MPN/100ml) in December 2024, as well as SW-4 to 92000 MPN/100ml in three monitoring surveys (October, December 2024 and October 2025). It is possible to say that the present condition of the water quality reflects the background condition of the surrounding environment of Thilawa SEZ.



The expected reasons for the results exceed the limitation of concerned parameters are discussed in the upper section of this monitoring report.



CHAPTER 3: CONCLUSION AND RECOMMENDATIONS

As described in Chapter 2 (Section 2.5), the results of suspended solid (SS) at SW-4, SW-7 and SW-8, total coliform at SW-2, SW-4, SW-7 and SW-8, and iron at SW-2, SW-4, SW-8 and GW-2, exceeded the limitations in this monitoring period for operation stage of Thilawa SEZ Zone B.

As for the result of SS, result at the main discharging points of Zone B (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the surface water run-off from bare land in Zone B.

As for the results of total coliform of surface water, results at the main discharging points of Zone B (SW-7 and SW-8) before discharging to the creek, exceeded the limitation due to the expected reason that might be natural bacteria existed in all area of Zone B because the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, and the contaminants from the surroundings into the retention pond may contain fecal matter and other pollutants, leading to increase coliform levels.

Since the composition of the total coliform include bacteria from natural origin, and total coliform do not affect human health directly, E. Coli analysis was carried out alternatively to identify the health impact by coliform bacteria. As for the result of E. Coli of surface water at the main discharging points of Zone B (SW-7 and SW-8), the result was within limitation. Therefore, although the limitation of total coliform was exceeded at the main discharging points (SW-7 and SW-8) but it is considered that there is no significant impact on human health.

As for the result of iron, the result at one main discharging point of Zone B (SW-8) before discharging to the creek slightly higher the limitation. The possible reasons may be due to the influence of natural origin (iron can reach out from soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by strong wind. Moreover, iron remains in the natural environment for a long time.

As for the result of SS, SS result at the surface water monitoring point (SW-4) exceeded the limitations due to two expected reasons; i) delivered from upstream area such as natural origin and wastewater from local industrial zone which is located outside of Thilawa SEZ, and ii) influence by water from the downstream of monitoring points due to backflow by tidal fluctuation along Shwe Pyauk creek.

The exceeded results for total coliform at SW-2 and SW-4 may be due to three expected reasons: i) the existing of various kinds of vegetation and aquatic animals, especially fecal contamination from the animals, ii) contaminants from the surroundings into the Shwe Pyauk creek may contain fecal matter and other pollutants, leading to increase coliform levels and iii) incoming tidal water can contain the fecal matter and delivered along Shwe Pyauk creek during flood tide.

As for the result of iron, the result at the monitoring point of surface water (SW-2) and (SW-4) exceeded the limitation. The possible reason for exceeded value in surface water (SW-2) and (SW-4) may be due to the influence of natural origin (iron can reach out from the soil by run-off). Surroundings of the Thilawa SEZ especially small hilly areas are mainly composed of iron rich soil (lateritic soil), and it can be transported to the low land area by run-off or strong wind.

As for the result of the SS, the result at the monitoring point of reference tube well (GW-2) exceeded the limitation during the recent sampling period. The expected reason may be due to construction or agricultural runoff, stormwater runoff and flooding that erode soil and introduce particles which can then infiltrate to groundwater. According to the information by monastery, the depth of tube well (GW-2) is about 30 m. By referring the report "Data Collection Survey on Water Resources Potential for Thilawa SEZ and Adjoining Areas" prepared by JICA in 2014, the groundwater extracted at GW-2 is from the second aquifer, there is the intrusion of saline water from Yangon River. Moreover, this aquifer is closed to ground surface and overlain by the unconsolidated soil layer. Consequently, the groundwater in this aquifer may be contaminated in terms of water intrusion by Yangon River as well as seepage of contaminated runoff through overlaying soil layer.



As for the result of the iron, the result at the monitoring point of reference tube well (GW-2) exceeded the limitation. However, iron result was within the limitation of Vietnam Standard. Comparison with previous monitoring results of GW-2 since April 2019, the iron concentration results are ranging from 0.108 mg/l in April 2023 to 14.100 mg/l in December 2023 and most of the iron concentration results (from April 2019 to October 2025) exceeded the limitation except the results of August 2019, February and April 2022, and April 2023. Therefore, the possible reasons may due to the influence of natural origin (iron can reach out from soil by run-off). Moreover, Thilawa SEZ area is mainly composed of iron rich soil (lateritic soil), and it can be saturated in the underlying confined aquifer.

As for the comparison of the results of monitoring parameters with National Surface Water Quality Standard, water quality of SW-2, SW-4, SW-7 and SW-8 can be applied for Class V water use.

As for future subject for main discharged points of Thilawa SEZ Zone B, the following action may be taken to achieve the limitation of suspended solid, total coliform, iron and appropriate water quality monitoring:

- To perform regular removal of accumulated solids and decaying vegetation present in the retention pond in order to preserve its cleanliness.
- To continue monitoring Escherichia coli (E. coli) level to identify health impact by coliform bacteria.
- To clean the drainage system routinely.
- To inspect the quality of discharge water from the factories.

End of the Document



APPENDIX-1 FIELD SURVEY PHOTOS



FOR DISCHARGED POINT OF THILAWA SEZ ZONE B



Surface water sampling and onsite measurement at SW-7



Surface water sampling and onsite measurement at SW-8



**FOR REFERENCE MONITORING POINTS FOR COMPARISON WITH DISCHARGED
POINTS AND BASELINE OF DISCHARGED CREEK**



Surface water sampling and onsite measurement at SW-2



Surface water sampling and onsite measurement at SW-4



Ground water sampling and onsite measurement at GW-2

APPENDIX-2 LABORATORY RESULTS



**FOR REFERENCE MONITORING POINTS FOR COMPARISON WITH DISCHARGED
POINTS AND BASELINE OF DISCHARGED CREEK**

DOWA

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Report No. : GEM-LAB-202510039
Revision No. : 1
Report Date : 21 October, 2025
Application No. : 0001-C001

Test Report

Client Name : Myanmar Koel International LTD (MKI)
Address : No, 36/A, 1st Floor, Grand Pho Sein Condominium, Pho Sein Road, Tamwe Township, Yangon, Myanmar.
Project Name : Environment Monitoring report for Zone A & B
Sample Description
Sample Name : MKI-SW-2-1009 Sampling Date : 09 October, 2025
Sample No. : W-2510022 Sampling By : Withdraw GEM
Waste Profile No. : - Sample Received Date : 09 October, 2025
Analytical Date : 09-21/10/2025

No.	Parameter	Method	Unit	Result	TSEZ's WQ Standard	LOQ
1	SS	APHA 2540D (Dry at 103-105°C Method)	mg/l	20	50	-
2	BOD (5)	APHA 5210 B (5 Days BOD Test)	mg/l	4.74	30	0.00
3	COD (Cr)	APHA 5220D (Close Reflux Colorimetric Method)	mg/l	14.7	125	0.7
4	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	10	3.1
5	Color	APHA 2120C (Spectrophotometric Method)	TCU	32.43	150	0.00
6	Total Nitrogen	HACH Method 10072 (TNT Persulfate Digestion Method)	mg/l	3.0	80	0.5
7	Total Phosphorous	APHA 4500-P E (Ascorbic Acid Method)	mg/l	0.11	2	0.05
8	TDS	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)	mg/l	112	2000	-
9	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.005	0.002
10	Iron	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	8.580	3.5	0.002
11	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	3.5	0.002
12	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)	MPN/100ml	160000.0	400	1.8
13	Odor	APHA 2150 B (Threshold Odor Test)	TON	1	-	0

Remark : LOQ - Limit of Quantitation
APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition
APHA 2120B.6(b); Color Unit - TCU(True Color Unit).
One TCU is equivalent to one Hazen unit and to one Pt-Co unit.

Analysed By :

Cherry Myint Thein
Manager



Approved By :

Ni Ni Aye Lwin 21 Oct, 2025
Senior Manager

REPORT RESULT IS ONLY OF THE SAMPLE SUBMITTED FOR ANALYSIS.
THIS ANALYSIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF THE LABORATORY OF
GOLDEN DOWA ECO-SYSTEM MYANMAR CO.,LTD.



Water Quality Monitoring Report for Development of Industrial Area in Thilawa SEZ Zone B
(Bi- Monthly Monitoring in FY October- 2025)



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Report No. : GEM-LAB-202510044
Revision No. : 1
Report Date : 21 October, 2025
Application No. : 0001-C001

Test Report

Client Name : Myanmar Koel International LTD (MKI)
Address : No, 36/A, 1st Floor, Grand Pho Sein Condominium, Pho Sein Road, Tamwe Township, Yangon, Myanmar.
Project Name : Environment Monitoring report for Zone A & B
Sample Description
Sample Name : MKI-GW-2-1009 Sampling Date : 09 October, 2025
Sample No. : W-2510027 Sampling By : Withdraw GEM
Waste Profile No. : - Sample Received Date : 09 October, 2025
Analytical Date : 09-21/10/2025

No.	Parameter	Method	Unit	Result	TSEZ's WQ Standard	LOQ
1	SS	APHA 2540D (Dry at 103-105°C Method)	mg/l	64	50	-
2	BOD (5)	APHA 5210 B (5 Days BOD Test)	mg/l	4.31	30	0.00
3	COD (Cr)	APHA 5220D (Close Reflux Colorimetric Method)	mg/l	<0.7	125	0.7
4	Oil and Grease	APHA 5520B (Partition-Gravimetric Method)	mg/l	<3.1	10	3.1
5	Color	APHA 2120C (Spectrophotometric Method)	TCU	39.57	150	0.00
6	Total Nitrogen	HACH Method 10072 (TNT Persulfate Digestion Method)	mg/l	<0.5	80	0.5
7	Total Phosphorus	APHA 4500-P E (Ascorbic Acid Method)	mg/l	0.52	2	0.05
8	TDS	APHA 2540 C (Total Dissolved Solids Dried at 180°C Method)	mg/l	192	2000	-
9	Mercury	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	0.005	0.002
10	Iron	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	11.920	3.5	0.002
11	Chromium	APHA 3120 B (Inductively Coupled Plasma (ICP) Method)	mg/l	≤0.002	3.5	0.002
12	Total Coliform	APHA 9221B (Standard Total Coliform Fermentation Technique)	MPN/100ml	13.0	400	1.8
13	Odor	APHA 2150 B (Threshold Odor Test)	TON	3	-	0
14	Escherichia Coll	APHA 9221 F Escherichia Coll Procedure Using Fluorogenic Substrate	MPN/100ml	<1.8	-	1.8

Remark : LOQ - Limit of Quantitation
APHA - American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF), Standard Methods for the Examination of Water and Wastewater, 22nd edition
APHA 2120B.6(b); Color Unit - TCU(True Color Unit).
One TCU is equivalent to one Hazen unit and to one Pt-Co unit.

Analysed By :

Cherry Myint Thein
Manager



Approved By :

Ni Ni Aye Lwin
Senior Manager 21 Oct, 2025

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THIS ANALYSIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT WRITTEN APPROVAL OF THE LABORATORY OF
GOLDEN DOWA ECO-SYSTEM MYANMAR CO.,LTD.



Thilawa Special Economic Zone
Zone B– Phase 1,2 & 3 (Operation phase)

Appendix- 4

Noise and Vibration Monitoring Report

June 2025

**NOISE AND VIBRATION
MONITORING REPORT
FOR DEVELOPMENT OF INDUSTRIAL AREA
THILAWA SEZ ZONE B
(PHASE 1, 2 & 3 OPERATION STAGE)**

(BI-ANNUALLY MONITORING)

June 2025

Myanmar Koei International Ltd.



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CHAPTER 1: OUTLINES AND SUMMARY OF MONITORING PLAN

1.1 General

Thilawa Special Economic Zone (TSEZ) is located in southern district of Yangon region and about 23 km southeast of Yangon city. As the developer of Thilawa SEZ, Myanmar Japan Thilawa Development Ltd., (MJTD) has a responsibility to carry out regular environmental monitoring in the industrial area of Zone B in accordance with the approved Environmental Impact Assessment (EIA) report with Environmental Management Plan (EMP). MJTD has implemented monitoring various environmental items with the specified time frame to know the environmental conditions in and around the area.

1.2 Outlines of Monitoring Plan

To assess the environmental condition under the operation of industrial area in and around Thilawa SEZ Zone B, noise and vibration levels had been monitored from 4 June 2025 to 5 June 2025 as follows;

Table 1.2-1 Outlines of Noise and Vibration Level Monitoring

Monitoring Date	Monitoring Item	Parameters	Number of Points	Duration	Monitoring Methodology
5 June 2025	Noise Level	L _{Aeq} (dB)	1 (NV-1)	8 hours	On-site measurement by "Rion NL-42 sound level meter"
4 June 2025	Noise Level	L _{Aeq} (dB)	1 (NV-2)	8 hours	On-site measurement by "Rion NL-42 sound level meter"
5 June 2025	Vibration Level	L _{v10} (dB)	1 (NV-1)	8 hours	On-site measurement by "Vibration Level Meter- VM-53A"
4 June 2025	Vibration Level	L _{v10} (dB)	1 (NV-2)	8 hours	On-site measurement by "Vibration Level Meter- VM-53A"

Source: Myanmar Koei International Ltd.



CHAPTER 2: NOISE AND VIBRATION LEVEL MONITORING

2.1 Monitoring Item

The noise and vibration level monitoring items are shown in Table 2.1-1.

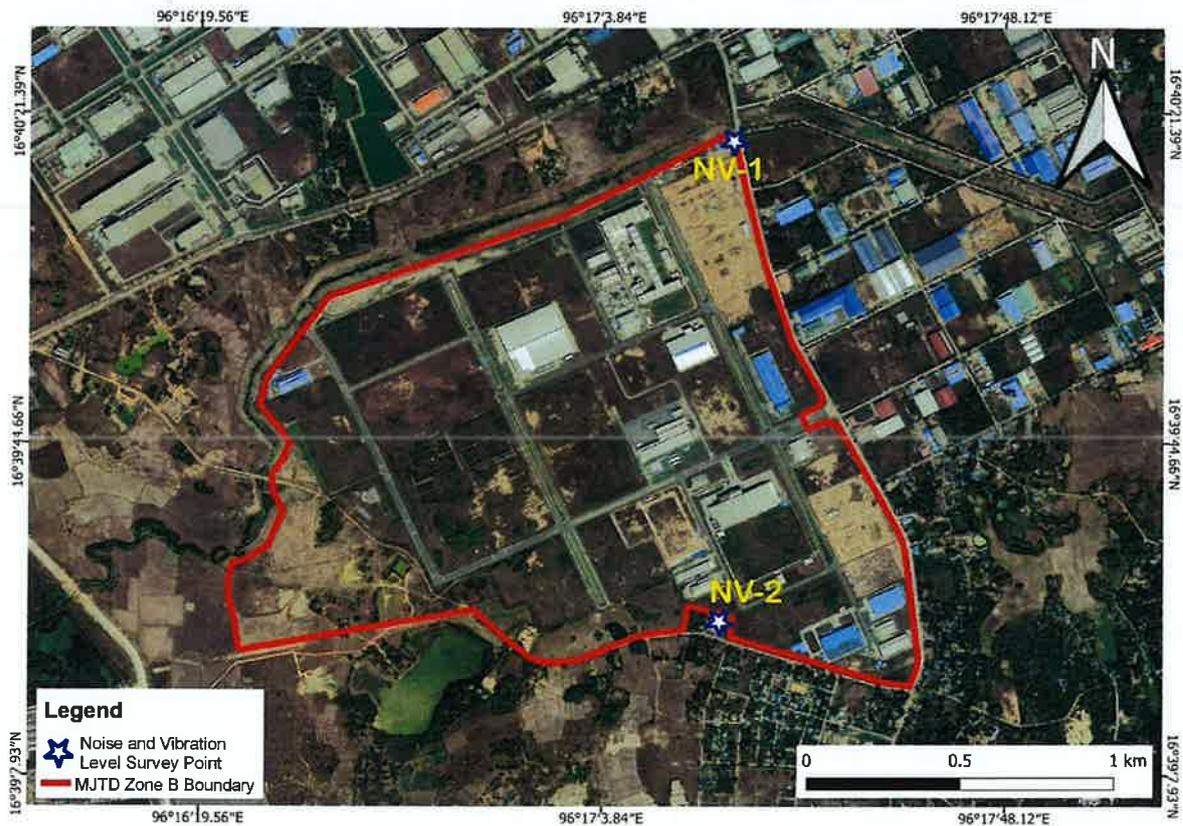
Table 2.1-1 Monitoring Parameters for Noise and Vibration Level

No.	Item	Parameter
1	Noise	A-weighted loudness equivalent (L_{Aeq})
2	Vibration	Vibration level, vertical, percentile (L_{v10})

Source: Myanmar Koci International Ltd.

2.2 Monitoring Location

Noise and vibration levels were measured in the northeast corner of the Thilawa SEZ Zone B, namely NV-1 (N: 16°40'18.22", E: 96°17'18.18") for traffic noise concerned and inside the monastery compound of Phalan village, adjacent to the southern boundary of the Thilawa SEZ Zone B, as NV-2 (N: 16°39'24.90", E: 96°17'16.70") for sensitive area noise level. The location of the noise and vibration monitoring points are shown in Figure 2.2-1.



Source: Google Earth

Figure 2.2-1 Location of Noise and Vibration Level Monitoring Points

NV-1

NV-1 is located in front of temporary gate of operation site of Thilawa SEZ Zone B and next to Thilawa Development Road. The surrounding area are Zone A in the northwest, local industrial zone in the east respectively. Possible sources of noise and vibration is generated from construction activities and road traffic.

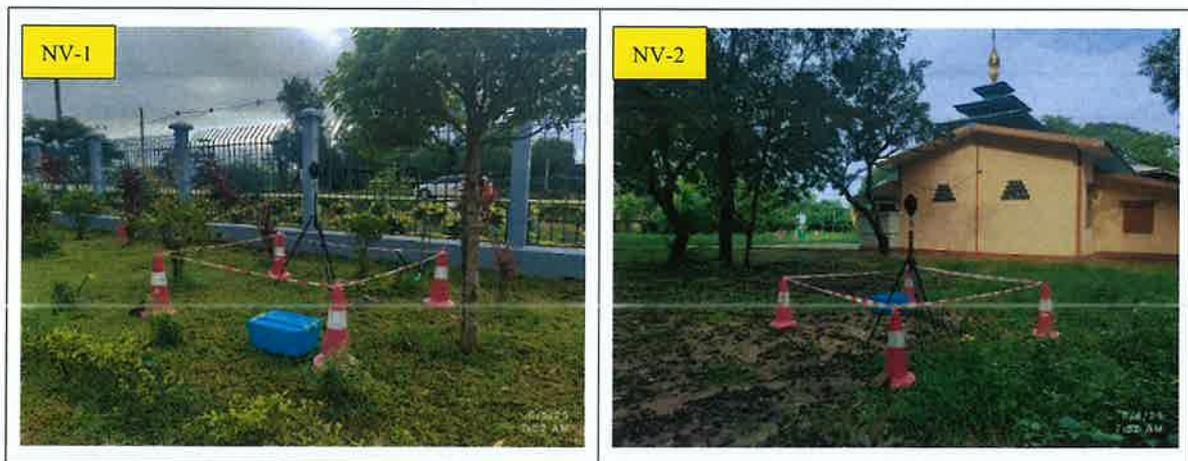
NV-2

NV-2 is located inside the monastery compound of Phalan village, adjacent to the southern boundary of the Thilawa SEZ Zone B and surrounded by the residential houses of Phalan village in the south and the fields in west. Thilawa SEZ Zone A is distanced about 2 km north of NV-2 and local industrial zone about 1 km northeast respectively. Possible sources of noise and vibration is generated from construction activities from Zone B and daily human activities from nearby Phalan village.

2.3 Monitoring Method

Noise level was measured by “Rion NL-42 sound level meter” and automatically records every 10 minutes in a memory card. The vibration level meter, VM-53A (Rion Co., Ltd., Japan), was accompanied by a 3-axis accelerometer PV-83C (Rion Co., Ltd.) and it was placed on solid soil ground. Vertical vibration (Z axis), L_v , was measured every 10 minutes within the adaptable range of (10-70) dB at NV-1 and NV-2 and recorded to a memory card.

The measurement period of noise and vibration was 8 hours for each monitoring point. The status of the noise and vibration level monitoring on NV-1 and NV-2 are shown in Figure 2.3-1.



Source: Myanmar Koei International Ltd.

Figure 2.3-1 Status of Noise and Vibration Level Monitoring at NV-1 and NV-2

2.4 Monitoring Results

Noise Monitoring Results

Noise monitoring results are separated as daytime (6:00 AM to 10:00 PM) and evening time (10:00 PM to 6:00 AM) time frames for NV-1 and daytime (7:00 AM to 7:00 PM), evening time (7:00 PM to 10:00 PM) and night time (10:00 PM to 7:00 AM) time frames for NV-2 respectively. Noise measurement was carried out for 8-hour as working time (8:00 AM to 4:00 PM) at the designated locations instead of 24-hours due to the safety reason and risk avoidance. The monitoring results are summarized in Table 2.4-1 and Table 2.4-2. Hourly noise level (L_{Aeq}) monitoring results at NV-1 and NV-2 are shown in Table 2.4-3 and Table 2.4-4. Figure 2.4-1 and Figure 2.4-2 show the results of noise level (L_{Aeq}) at NV-1 and NV-2. Comparing with the target value of noise level in operation stage prescribed in EIA report for Thilawa SEZ Zone B development project as well as the guideline values in National Environmental Quality (Emission) Guidelines (NEQG), all results were within limitations. Regarding the hourly noise level, one-hour L_{Aeq} during 15:00 - 16:00 at NV-2 was slightly exceeded the limitation though there were no construction activities at that time. According to the field surveyor record, it was due to the heavy rain at that time. Therefore, it is considered that there is no impact from operation activities of Zone B to the surrounding environment. Additionally, when current daytime monitoring results are compared with daytime noise level results measured in November 2015 for the mentioned EIA report, there is not much difference between the results.

Table 2.4-1 Results of Noise Level (L_{Aeq}) Monitoring at NV-1

Result	(Traffic Noise Level) Equivalent Noise Level (L_{Aeq} , dB)	
	Day Time (6:00 AM – 10:00 PM)	Night Time (10:00 PM – 6:00 AM)
	5 June, 2025	61
NV-2 (Baseline Result, EIA Report)*	65	-
Target Value	75	70
NEQG Guideline Value (Industrial, Commercial)**	70	70

Note: Target value is applied to the noise standard along main road stipulated in the Noise Regulation Law (Japan) (Law No. 98 of 1968, Latest Amendment by Law No.91 of 2000).

* Baseline results monitored in November 2015 for EIA report (Industrial Area) of Zone B.

** In NEQG Guideline Value, daytime is 7:00 AM – 10:00 PM and nighttime is 10:00 PM – 7:00 AM.

Source: Myanmar Koei International Ltd.

Table 2.4-2 Results of Noise Level (L_{Aeq}) Monitoring at NV-2

Result	(A side next to sensitive area such as monastery, hospital and school)) Equivalent Noise Level - L_{Aeq} (dB)		
	Day Time (7:00 AM – 7:00 PM)	Evening Time (7:00 PM – 10:00 PM)	Night Time (10:00 PM – 7:00 AM)
	4 June, 2025	54	-
NV-2 (Baseline Result, EIA Report)*	65	-	-
Target Value	60	55	50
NEQG Guideline Value (Residential, Institutional, Educational)**	55		45

Note: Target value is applied to the noise level during the operation stage in the EIA Report for Thilawa SEZ Development Project (Industrial Area of Zone B).

* Baseline results monitored in November 2015 for EIA report (Industrial Area) of Zone B.

** In NEQG Guideline Value, daytime is 7:00 AM – 10:00 PM and nighttime is 10:00 PM – 7:00 AM.

Source: Myanmar Koei International Ltd.



Table 2.4-3 Hourly Results of Noise Level (L_{Aeq}) Monitoring at NV-1

Date	Time	Hourly Result L _{Aeq} (dB)	Interval Result L _{Aeq} (dB)	Target Value L _{Aeq} (dB)	NEQG Guideline Value L _{Aeq} (dB)	Remark
5 June, 2025	6:00-7:00	-	61	75	70	No construction Activities
	7:00-8:00	-				
	8:00-9:00	60				
	9:00-10:00	61				
	10:00-11:00	60				
	11:00-12:00	62				
	12:00-13:00	61				
	13:00-14:00	60				
	14:00-15:00	60				
	15:00-16:00	62				
	16:00-17:00	-				
	17:00-18:00	-				
	18:00-19:00	-				
	19:00-20:00	-				
	20:00-21:00	-				
	21:00-22:00	-				
	22:00-23:00	-				
	23:00-24:00	-				
	24:00-1:00	-				
	1:00-2:00	-	-	70	70	
2:00-3:00	-					
3:00-4:00	-					
4:00-5:00	-					
5:00-6:00	-					

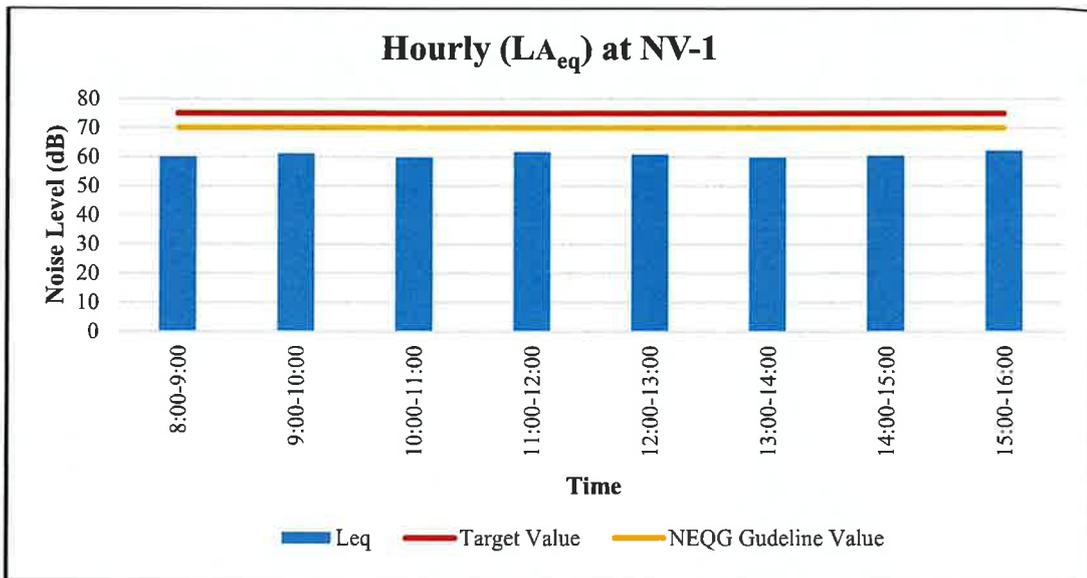
Source: Myanmar Koci International Ltd.

Table 2.4-4 Hourly Noise Level (L_{Aeq}) Monitoring Results at NV-2

Date	Time	Hourly Result L _{Aeq} (dB)	Interval Result L _{Aeq} (dB)	Target Value L _{Aeq} (dB)	NEQG Guideline Value L _{Aeq} (dB)	Remark
4 June, 2025	7:00-8:00	-	54	60	55	No construction Activities
	8:00-9:00	49				
	9:00-10:00	51				
	10:00-11:00	51				
	11:00-12:00	47				
	12:00-13:00	51				
	13:00-14:00	49				
	14:00-15:00	52				
	15:00-16:00	61				
	16:00-17:00	-				
	17:00-18:00	-				
	18:00-19:00	-				
	19:00-20:00	-				
	20:00-21:00	-	-	55	45	
	21:00-22:00	-				
	22:00-23:00	-				
	23:00-24:00	-				
	24:00-1:00	-				
	1:00-2:00	-				
	2:00-3:00	-				
3:00-4:00	-					
4:00-5:00	-					
5:00-6:00	-					
6:00-7:00	-					

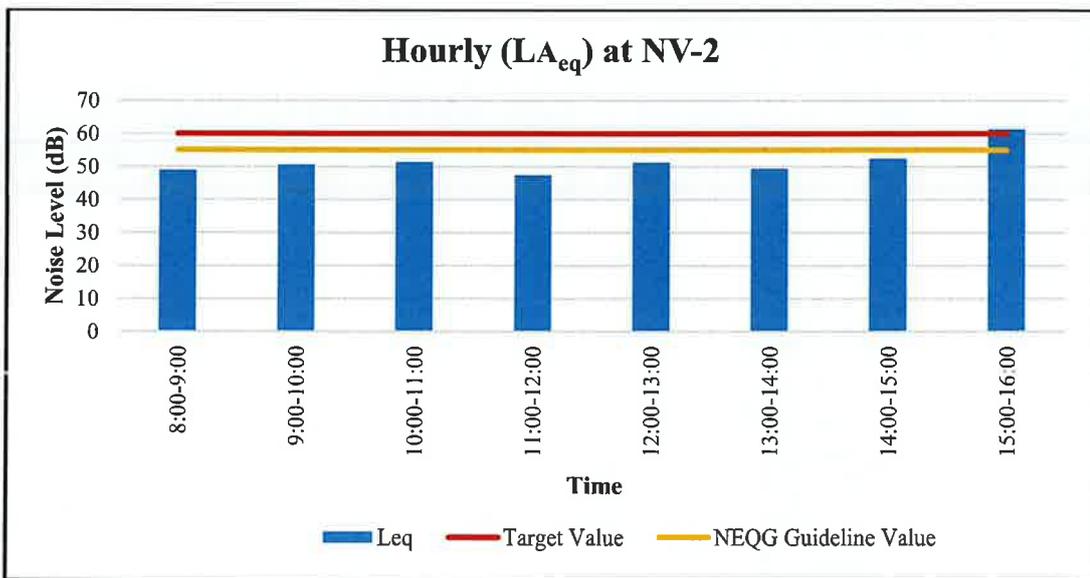
Source: Myanmar Koci International Ltd.





Source: Myanmar Koei International Ltd.

Figure 2.4-1 Hourly Results of Noise Levels (LA_{eq}) Monitoring at NV-1



Source: Myanmar Koei International Ltd.

Figure 2.4-2 Hourly Results of Noise Levels (LA_{eq}) Monitoring at NV-2



Vibration Monitoring Results

Vibration monitoring results are separated as daytime (7:00 AM to 7:00 PM), evening time (7:00 PM to 10:00 PM) and night time (10:00 PM to 7:00 AM) time frames respectively for both NV-1 and NV-2. Vibration measurement was carried out for 8-hour as working time (8:00 AM to 4:00 PM) at the designated locations instead of 24-hours due to the safety reason and risk avoidance. The results of vibration level (L_{v10}) monitoring at NV-1 and NV-2 are shown in Table 2.4-5 and Table 2.4-6. Hourly vibration level (L_{v10}) monitoring results at NV-1 and NV-2 are shown in Table 2.4-7 and Table 2.4-8. Figure 2.4-3 and Figure 2.4-4 showed the graph of vibration level monitoring results at NV-1 and NV-2. By comparing with the target vibration level in operation stage in EIA report for Thilawa SEZ Zone B development project, all of results were within limitations. Additionally, when current daytime monitoring results are compared with daytime vibration level results measured in January 2016 for the mentioned EIA report, there is not much difference between the results.

Table 2.4-5 Results of Vibration Level (L_{v10}) Monitoring at NV-1

Result	(Office, commercial facilities, and factories) Equivalent Vibration Level - L_{v10} (dB)		
	Day Time (7:00 AM – 7:00 PM)	Evening Time (7:00 PM – 10:00 PM)	Night Time (10:00 PM – 7:00 AM)
5 June, 2025	39	-	-
NV-2 (Baseline Result, EIA Report)*	36		-
Target Value	70	65	65

Note: Target value is applied to the noise level during the operation stage in the EIA Report for Thilawa SEZ Development Project (Industrial Area of Zone B).

* Baseline results monitored in January 2016 for EIA report (Industrial Area) of Zone B.

Source: Myanmar Koei International Ltd.

Table 2.4-6 Results of Vibration Level (L_{v10}) Monitoring at NV-2

Result	(Residential houses and monastery) Equivalent Vibration Level (L_{v10} , dB)		
	Day Time (7:00 AM – 7:00 PM)	Evening Time (7:00 PM – 10:00 PM)	Night Time (10:00 PM – 7:00 AM)
4 June, 2025	23	-	-
NV-2 (Baseline Result, EIA Report)*	36		-
Target Value	65	60	60

Note: Target value is applied to the noise level during the operation stage in the EIA Report for Thilawa SEZ Development Project (Industrial Area of Zone B).

* Baseline results monitored in January 2016 for EIA report (Industrial Area) of Zone B.

Source: Myanmar Koei International Ltd.



Table 2.4-7 Hourly Results of Vibration Level (L_{v10}) Monitoring at NV-1

Date	Time	Hourly Result L_{v10} (dB)	Interval Result L_{v10} (dB)	Target Value L_{v10} (dB)	Remark
5 June, 2025	7:00-8:00	-	39	70	No construction Activities
	8:00-9:00	39			
	9:00-10:00	40			
	10:00-11:00	38			
	11:00-12:00	38			
	12:00-13:00	38			
	13:00-14:00	37			
	14:00-15:00	38			
	15:00-16:00	41			
	16:00-17:00	-			
	17:00-18:00	-			
	18:00-19:00	-			
	19:00-20:00	-	-	65	
	20:00-21:00	-			
	21:00-22:00	-	-	65	
	22:00-23:00	-			
	23:00-24:00	-			
	24:00-1:00	-			
	1:00-2:00	-			
	2:00-3:00	-			
3:00-4:00	-				
4:00-5:00	-				
5:00-6:00	-				
6:00-7:00	-				

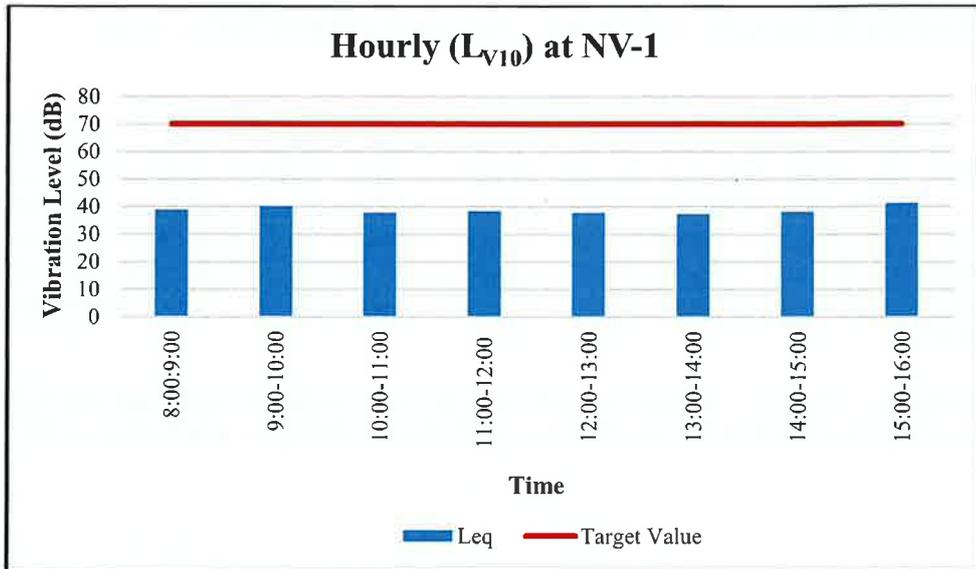
Source: Myanmar Koei International Ltd.

Table 2.4-8 Hourly Results of Vibration Level (L_{v10}) Monitoring at NV-2

Date	Time	Hourly Result L_{v10} (dB)	Interval Result L_{v10} (dB)	Target Value L_{v10} (dB)	Remark
4 June, 2025	7:00-8:00	-	23	65	No construction Activities
	8:00-9:00	20			
	9:00-10:00	23			
	10:00-11:00	21			
	11:00-12:00	21			
	12:00-13:00	24			
	13:00-14:00	26			
	14:00-15:00	25			
	15:00-16:00	24			
	16:00-17:00	-			
	17:00-18:00	-			
	18:00-19:00	-			
	19:00-20:00	-	-	60	
	20:00-21:00	-			
	21:00-22:00	-	-	60	
	22:00-23:00	-			
	23:00-24:00	-			
	24:00-1:00	-			
	1:00-2:00	-			
	2:00-3:00	-			
3:00-4:00	-				
4:00-5:00	-				
5:00-6:00	-				
6:00-7:00	-				

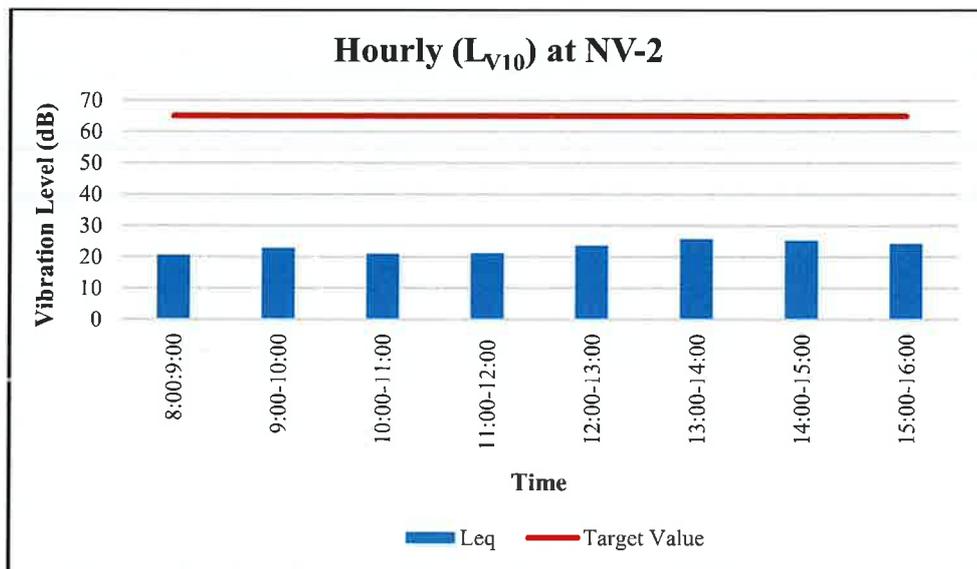
Source: Myanmar Koei International Ltd.





Source: Myanmar Koei International Ltd.

Figure 2.4-3 Hourly Results of Vibration Levels (L_{v10}) Monitoring at NV-1



Source: Myanmar Koei International Ltd.

Figure 2.4-4 Hourly Results of Vibration Levels (L_{v10}) Monitoring at NV-2

CHAPTER 3: CONCLUSION AND RECOMMENDATION

By Comparing with the target value of noise and vibration level in operation stage prescribed in EIA report for Thilawa SEZ development project Zone B, all results were within limitations except for NV-2 during day time. The result during 15:00 to 16:00 at NV-2 was exceeded the limitation and there were no construction activities at that time. According to the field surveyor record, it was due to the heavy rain at that time. Therefore, it is considered that there is no impact from operation activities of Zone B to the surrounding environment. The results of vibration level for NV-1 and NV-2 were within limitation. Thus, there is no negative impact on noise and vibration from operation activities of Zone B to the surrounding environment.

In conclusion of this environmental monitoring, there are no specific noise and vibration impacts to the surrounding area of industrial area of Thilawa SEZ Zone B during the monitoring period.



Thilawa Special Economic Zone
Zone B– Phase 1,2 & 3(Operation phase)

Appendix- 5

Waste Disposal Record
(June 2025 to November 2025)

Solid Waste

Item	Date	Generated from	Unit	Value	Disposed to
General Waste	16 June 2025	Landscaping and Plantation	Kg	2950	Waste disposing to Thanlyin Development Committee, Yangon Division
	30 July 2025			2900	
	9 September 2025			2850	
	31 October 2025			3000	
Total			Kg	11700	
Sludge	30 July 2025	Sewage Treatment Plant	Kg	6200	Golden DOWA Eco-System Myanmar Co., Ltd
	12 August 2025			5280	
	29 August 2025			3860	
Total			Kg	15340	

Remarks: Waste amount is not only in TSEZ-B but also combine with TSEZ-A General Waste. Generate wastes are dried waste and weight value are estimated base on type of Trash collector car. Green Waste (Grass cutting waste) are used in Bio-fertilizer.

Note: Zone-B wastewater treated at Sewage Treatment Plant of TSEZ-A. Above data are sludge generated from Sewage treatment plant of TSEZ-A.



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ကျောက်တန်းမြို့

ငွေလွှဲပြောင်း/လက်ခံပြေစာ

- ၁။ လွှဲပြောင်းပေးသည့်ငွေ(စာဖြင့်) ၅၆,၈၀၀,၀၀၀ ကျပ်ကို
- ၂။ လွှဲပြောင်းပေးသည့်ငွေ(ဂဏန်းဖြင့်) ၅၆,၈၀၀,၀၀၀/-
- ၃။ လွှဲပြောင်းပေးသည့်အကြောင်းအရာ ခက်ဦးစွာ ပူးတွဲပါ
- ၄။ လွှဲပြောင်းပေးသည့်ရက်စွဲ ၂၆.၀၆.၂၀၂၅
- ၅။ အထက်ဖော်ပြပါငွေကျပ်(..... ၅၆,၈၀၀,၀၀၀/-.....)အားလက်ခံရရှိပါကြောင်းအောက်တွင်လက်မှတ် ရေးထိုးပါသည်။

[Handwritten Signature]

လွှဲပြောင်းပေးသူ

အမည် | K. Aung Myint Phyo

ရာထူး | Sr. Assistant

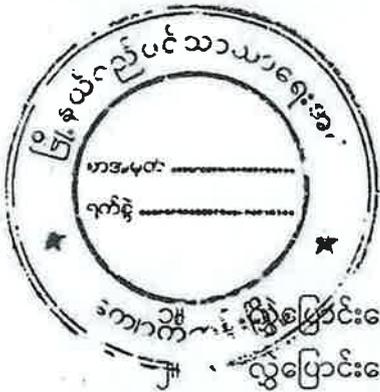
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လွှဲပြောင်းလက်ခံသူ

အမည် | U. Aung Myint

ရာထူး | Sr. Assistant





မြို့နယ်စည်ပင်သာယာရေးအဖွဲ့

ကျောက်တန်းမြို့

ငွေလွှဲပြောင်း/လက်ခံပြေစာ

- ၁။ လွှဲပြောင်းပေးသည့်ငွေ(စာဖြင့်) ၅၆၈၀၀၀.၀၀
- ၂။ လွှဲပြောင်းပေးသည့်ငွေ(ဂဏန်းဖြင့်) ၅၆၈၀၀၀
- ၃။ လွှဲပြောင်းပေးသည့်အကြောင်းအရာ အခြားအဖွဲ့အစည်း
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လွှဲပြောင်းပေးသူ

အမည် | Kawee Khin

ရာထူး | Senior Engineer

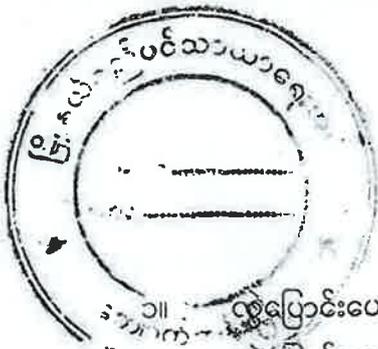

လွှဲပြောင်းလက်ခံသူ

အမည် | U Kyaw Mye

ရာထူး | Senior Engineer



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မြို့နယ်စည်ပင်သာယာရေးအဖွဲ့
ကျောက်တန်းမြို့
ငွေလွှဲပြောင်း/လက်ခံပြေစာ

- ၁။ လွှဲပြောင်းပေးသည့်ငွေ(စာဖြင့်) ဂျစ်စတင်၊ ကျယ်ဝင်း
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ရေးထိုးပါသည်-

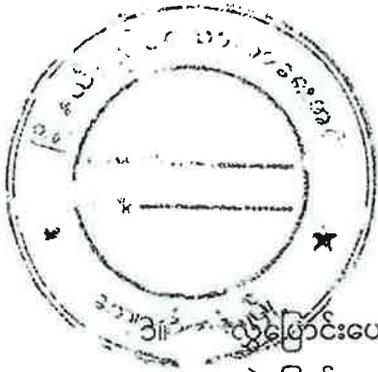
လွှဲပြောင်းပေးသူ

အမည် | Kyau Kyin Phyo
ရာထူး | Sr. Associate Engineer...

လွှဲပြောင်းလက်ခံသူ

အမည် | U Tun Aung
ရာထူး | Sr. Associate Engineer.....





မြို့နယ်စည်ပင်သာယာရေးအဖွဲ့

ကျောက်တန်းမြို့

ငွေလွှဲပြောင်း/လက်ခံပြေစာ

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- ၁။ လွှဲပြောင်းပေးသည့်ငွေ (စာဖြင့်) ၅၆၈၅၀၀၀.၀၀ (ငါးဆယ်ခြောက်ထောင်ခြောက်ရာပိဿယ့်)
- ၂။ လွှဲပြောင်းပေးသည့်ငွေ (လက်နံးဖြင့်) ၀၀၀၀၀/.....
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- ၅။ အထက်ဖော်ပြပါငွေကျပ် (..... ၉၉၉၉၀/.....) အားလက်ခံရရှိပါကြောင်းအောက်တွင်လက်မှတ် ရေးထိုးပါသည်-

လွှဲပြောင်းပေးသူ

အမည် | Kyau Mya Mya Pya.....
ရာထူး | Sr. Assistant Engineer.....

လွှဲပြောင်းလက်ခံသူ

အမည် | U Tun Aung.....
ရာထူး | Sr. Assistant Engineer.....



Manifest

C-Slip

* Transportation company to Waste Generator

8/25
70

Date of issuance <small>(Day Month, Year)</small>		12 Aug 2025		Issuer <small>(Name&Sign)</small>	Hoo Ni Win Aung <i>[Signature]</i>	
Number of issuance		0001 9508 0001				
Contractors		Waste generator		Transportation company		
Company Name		MJTD		GEM		
Tel						
Waste	Kind		Name		Style of packing	
	<input type="checkbox"/> Non-Hazardous		SIP Dehydrated sludge			
	<input type="checkbox"/> Hazardous		Quantity (Unit)		Remark	
	<input type="checkbox"/> Others		5200 kg			
Customer code		001		Waste Profile code		
				MHN-1006		
Trace		PIC (Name & Sign)		Date of Completion		
Transportation company		<small>(Name&Sign)</small> Su Min Latt <i>[Signature]</i>		<small>(Day Month, Year)</small> 12. 8. 2025 <i>[Signature]</i>		
Waste service company		<small>(Name&Sign)</small> <i>[Signature]</i> Yany		<small>(Day Month, Year)</small>		
Designed by GOLDEN DOWA ECO - SYSTEM MYANMAR CO., LTD.				GEM-SL-R 010E/00		



Manifest

C-Slip

* Transportation company to Waste Generator

Date of issuance	(Day Month, Year) 29 Aug 2025	Issuer	(Name&Sign) Hoo Ni Win 2025 Shu
Number of issuance	0001 0005 0002		
Contractors	Waste generator	Transportation company	Waste service company
Company Name	MIFID	GEM	GEM
Tel			
Waste	Kind	Name	Style of packing
	<input type="checkbox"/> Non-Hazardous	30 Activated Carbon waste	
	<input type="checkbox"/> Hazardous	Quantity (Unit)	Remark
	<input type="checkbox"/> Others	3860 kg	
Customer code	0021	Waste Profile code	N HZ S1002
Trace	PIC (Name & Sign)	Date of Completion	
Transportation company	(Name&Sign) 30-4121 Shu	(Day Month, Year) 29.8.2025 Shu	
Waste service company	(Name&Sign) Shu Thazin	(Day Month, Year)	
Designed by GOLDEN DOWA ECO - SYSTEM MYANMAR CO., LTD.		GEM-SL-R 010E/00	

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te



Manifest

C-Slip

* Transportation company to Waste Generator

2025
T.D

Date of issuance <small>(Day Month, Year)</small>		30 July 2025		Issuer <small>(Name&Sign)</small>	Hoo Ni Tun Aung <i>[Signature]</i>
Number of issuance		0001 2507 0004			
Contractors		Waste generator	Transportation company	Waste service company	
Company Name		MJTD	GEM	GEM	
Tel					
Waste	Kind	Name		Style of packing	
	<input checked="" type="checkbox"/> Non-Hazardous	Slip - hydrated Sludge			
	<input type="checkbox"/> Hazardous	Quantity (Unit)		Remark	
	<input type="checkbox"/> Others	6200kg			
Customer code	001	Waste Profile code	MHM-1006		
Trace	PIC (Name & Sign)		Date of Completion		
Transportation company	<small>(Name&Sign)</small> Saw min lo 11 201.6757 <i>[Signature]</i>		<small>(Day Month, Year)</small>		
Waste service company	<small>(Name&Sign)</small> Aung Myo Thade		<small>(Day Month, Year)</small>		
Designed by GOLDEN DOWA ECO - SYSTEM MYANMAR CO., LTD.			GEM-SI-R 010E/00		



**Thilawa Special Economic Zone
Zone B- Phase 1,2 & 3 (Operation phase)**

Appendix- 6

Traffic Volume Monitoring Report

June 2025

**TRAFFIC VOLUME MONITORING REPORT
FOR DEVELOPMENT OF INDUSTRIAL AREA
THILAWA SEZ ZONE B
(PHASE 1, 2 & 3 OPERATION STAGE)**

(BI-ANNUALLY MONITORING)

June 2025

Myanmar Koei International Ltd.



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CHAPTER 1: OUTLINES AND SUMMARY OF MONITORING PLAN

1.1 General

Thilawa Special Economic Zone (TSEZ) is located in southern district of Yangon region and about 23 km southeast of Yangon city. As the developer of Thilawa SEZ, Myanmar Japan Thilawa Development Ltd., (MJTD) has a responsibility to carry out regular environmental monitoring in the industrial area of Zone B in accordance with the approved Environmental Impact Assessment (EIA) report with Environmental Management Plan (EMP). MJTD has implemented the monitoring for various environmental items with the specified time frame to know the environmental conditions in and around the area.

1.2 Outlines of Monitoring Plan

To assess the environmental condition under the operation of industrial area in and around Thilawa SEZ Zone B, Traffic volume monitoring was carried out for 8-hours as working time (8:00 to 16:00) at one designated location instead of 24 hours due to the safety reason and risk avoidance. Traffic volume had been monitored on 5 June 2025 as follows;

Table 1.2-1 Outlines of Traffic Volume Monitoring

Monitoring Date	Monitoring Item	Parameter	Number of Point	Duration	Monitoring Methodology
5 June 2025	Traffic Volume	-	1 (TV-1)	8 hours	Manual Count

Source: Myanmar Koei International Ltd.



CHAPTER 2: TRAFFIC VOLUME MONITORING

2.1 Monitoring Item

The traffic volume monitoring item are shown in Table 2.1-1. All vehicles were classified into four types as detailed in Table 2.1-2.

Table 2.1-1 Monitoring Parameters for Traffic Volume

No.	Item	Parameter
1	Traffic volume	Number of Vehicle (4 Types)

Source: Myanmar Koei International Ltd.

Table 2.1-2 Classification of Vehicles Types

No.	Classification		Description
1	Two-wheeled vehicle and motorcycle sidecar		Motorbike, Motorcycle sidecar (Taxi)
2	Four-wheeled light vehicle		Pick-up car, Jeep, Taxi, Saloon car, Light truck (under 2 tons)
3	Heavy vehicle		Medium bus, Express, Big bus, medium truck, Heavy truck such as 2 axles, 3 axles and more than 4 axles and Trailer (over 4.5 tons)
4	Others		Tractor trailer (farm truck)

Note: In vehicle classification, two-wheeled vehicle and motorcycle sidecars are included in Number 1. A motorcycle sidecar is a modified motorbike for local-purpose use.

Source: Myanmar Koei International Ltd.

2.2 Monitoring Location

Traffic volume was recorded at the northeast corner of the Thilawa SEZ Zone B, monitoring point (TV-1); N: 16°40'17.90", E: 96°17'18.20". The location of the traffic volume survey monitoring is shown in Figure 2.2-1.



Source: Myanmar Koei International Ltd.

Figure 2.2-1 Location of Traffic Volume Monitoring Point

TV-1

TV-1 is located in front of main gate of operation site of Thilawa SEZ Zone B and next to Thilawa Development Road. The surrounding area are Zone A in the northwest and local industrial zone in the east respectively.



2.3 Monitoring Method

The traffic volume monitoring was conducted for 8 hours at the same time as the traffic noise and vibration level monitoring. Traffic volume monitoring was conducted to count the number of vehicles moving from Phalan village to Dagon-Thilawa Road and from Dagon-Thilawa Road to Phalan village in each direction. Manual count method was used and data was recorded using tally sheets. The status of the traffic volume monitoring at TV-1 is shown in Figure 2.3-1.



Source: Myanmar Koei International Ltd.

Figure 2.3-1 Status of Traffic Volume Monitoring at TV-1

2.4 Monitoring Results

The traffic volume monitoring results are summarized in Table 2.4-1. Hourly quantity of each type of vehicle was recorded. Table 2.4-1 shows that the number of 4-wheel light vehicles are distinctly and highly utilized in weekdays. The number of heavy vehicles moving from Phalan village to Dagon-Thilawa Road is four and half times lower than that of 4-wheel light vehicles and heavy vehicle moving from Dagon-Thilawa Road to Phalan village is also five and half times lower than that of 4-wheel light vehicles.

Table 2.4-1 Summary of Traffic Volume Recorded at TV-1

Survey Point	Direction	Date	Weekday	2-wheel Vehicles and motorcycle sidecar	4-wheel Light Vehicles	Heavy Vehicles	Others	Total
TV-1	Phalan village to Dagon-Thilawa road	5 June 2025	Thursday	75	750	165	23	1,013
	Dagon-Thilawa road to Phalan village			175	890	167	31	1,263

Source: Myanmar Koei International Ltd.

The summary monitoring results of hourly traffic volume at TV-1 is shown in Table 2.4-2 and Table 2.4-3 respectively. Comparing the result of each direction in the morning as 8:00 to 9:00, traffic volume from Phalan village to Dagon-Thilawa Road is slightly higher than that of opposite direction. However, in the afternoon as 15:00 to 16:00, traffic volume from Dagon-Thilawa Road to Phalan village is higher than that of opposite direction. It may be possible commuting vehicles are passing from Phalan village to Dagon-Thilawa Road in the morning hours and returning from Dagon-Thilawa Road to Phalan village in the afternoon during this monitoring period.



Table 2.4-2 Hourly Traffic Volume Results at TV-1 (From Phalan Village to Dagon-Thilawa Road)

From	To	Classification				Total
		Type of vehicles				
		Two-wheeled vehicle and motorcycle sidecar	Four-wheeled light vehicle	Heavy vehicle	Others	
8:00	9:00	0	135	20	1	156
9:00	10:00	0	85	26	4	115
10:00	11:00	0	119	25	3	147
11:00	12:00	10	84	25	5	124
12:00	13:00	15	91	19	6	131
13:00	14:00	18	68	20	0	106
14:00	15:00	16	92	13	3	124
15:00	16:00	16	76	17	1	110
Total		75	750	165	23	1,013

Source: Myanmar Koei International Ltd

Table 2.4-3 Hourly Traffic Volume Results at TV-1 (From Dagon-Thilawa Road to Phalan Village)

From	To	Classification				Total
		Type of vehicles				
		Two-wheeled vehicle and motorcycle sidecar	Four-wheeled light vehicle	Heavy vehicle	Others	
8:00	9:00	28	112	10	5	155
9:00	10:00	20	125	16	6	167
10:00	11:00	24	124	30	2	180
11:00	12:00	27	83	21	3	134
12:00	13:00	13	109	16	3	141
13:00	14:00	29	116	23	3	171
14:00	15:00	8	102	23	5	138
15:00	16:00	26	119	28	4	177
Total		175	890	167	31	1,263

Source: Myanmar Koei International Ltd

CHAPTER 3: CONCLUSION AND RECOMMENDATION

The results of the traffic volume show that the number of 4-wheel light vehicles are distinctly and highly utilized in this monitoring period. The number of heavy vehicles is four and half times and five and half times significantly lower than that of 4-wheel light vehicles for each direction. It seems that commuting vehicles are more utilized during this monitoring period as compared with construction related vehicles (Heavy vehicles).

The continuous monitoring will be necessary to grasp the traffic volume data in operation stage of Thilawa SEZ Zone B as well as to consider the mitigation measures if traffic congestion occurred in future.



**Thilawa Special Economic Zone
Zone B- Phase 1,2 & 3 (Operation phase)**

Appendix- 7

Sewage Treatment Plant Monitoring Record

(June 2025 to November 2025)

Daily Self Monitoring of STP Inlet, Outlet and Aeration

Monthly	Date	Inlet (Zone B)				Inlet -1				Inlet -2				Outlet - 1				Outlet - 2			
		pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD
		6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	125	6 - 9	2000	≤ 35	125
Standard	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	
June	01-06-25	7.06	314.6	24.4	-	7	149.8	24.4	-	6.98	150	24.5	-	6.97	307.9	24.5	-	6.93	318.1	24.5	-
June	02-06-25	7.08	211.4	24.8	-	6.93	202.9	25.2	-	6.93	202.2	25.5	-	6.98	240	25.7	16	6.93	261	25.7	46
June	03-06-25	6.44	262.5	24.9	139	6.53	203	25.1	-	6.57	204	25.7	156	6.71	214.9	25.5	14	6.86	252.4	24.9	77
June	04-06-25	7.76	144.8	27.6	-	6.74	180.9	32.6	80	6.75	180.3	32.5	-	6.79	234.3	32.2	34	6.76	268.4	32.0	29
June	05-06-25	7.05	145.3	28.2	62	6.63	240.3	30.4	-	6.83	238.9	30.0	122	6.72	249.4	30.4	15	7.07	278.4	29.7	18
June	06-06-25	6.81	145.7	26.6	82	6.78	217.6	28.3	-	6.82	215.2	28.8	146	6.81	276.9	28.9	7	6.86	305.5	28.9	12
June	07-06-25	6.86	287.1	24.3	-	7.03	476.1	24	-	6.97	557.3	23.7	-	6.84	327.4	23.5	-	6.9	429	24.2	-
June	08-06-25	6.98	211.2	23.6	-	6.96	321.1	23.6	-	6.97	320.9	23.6	-	6.83	340.2	23.6	-	6.81	417.2	23.6	-
June	09-06-25	7.09	241.1	26	-	6.95	211.9	28.6	37	6.96	236.2	28.7	-	6.87	307.6	28.4	10	6.93	411.9	28.3	11
June	10-06-25	7.34	288.6	26.3	113	7.28	445.7	26.3	-	7.29	444	26.1	94	7.34	297.8	26.5	15	7.3	298.5	28.4	13
June	11-06-25	6.63	336.2	26.9	-	6.6	333.1	26.8	65	6.72	293.4	26.5	-	6.78	291.3	26.7	17	6.76	422.8	26.7	10
June	12-06-25	7.02	243.2	28.3	63	6.72	229	28.4	-	6.7	229.3	28.6	223	6.62	326	28.4	12	6.6	408	29	23
June	13-06-25	6.86	402.4	26.5	183	6.99	442.7	28.5	-	6.99	440.9	26	173	6.7	328.7	26.7	25	6.76	395.1	26.5	17
June	14-06-25	6.83	130.9	24.9	-	6.79	254.6	24.8	-	6.81	257.9	24.7	-	6.9	268.1	24.7	-	6.82	326	24.7	-
June	15-06-25	6.95	169.5	24.8	-	6.75	207.4	25	-	6.74	197.4	25	-	6.83	227.9	25	-	6.87	209.4	25	-
June	16-06-25	7.19	203.1	28.2	-	6.99	133	26.5	203	6.94	129.9	27.4	-	6.95	182.6	27.9	19	6.94	188.4	28.2	27
June	17-06-25	6.93	316.5	26.6	120	6.63	179.6	27.5	-	6.69	186.8	27.7	285	7.02	238.7	26.4	21	7.04	219.9	26.4	25
June	18-06-25	7.08	357.9	26.3	-	7.1	389.5	25.7	96	7.03	258.8	26.1	-	7.12	385.2	26	84	7.11	259.6	26.1	21
June	19-06-25	7.27	431.7	26.9	50	7.1	223.9	27.2	-	6.95	222.5	28	42	7.03	401.5	27.6	26	7.2	297.2	27.2	32
June	20-06-25	6.85	199.5	25.8	174	6.95	368.7	27.7	-	6.97	360.4	29.5	88	6.98	212.5	28.3	25	6.96	292.6	28.2	15
June	21-06-25	6.76	366.6	23.5	-	6.71	123.5	23.5	-	6.81	219.9	23.4	-	6.83	124.4	23.6	-	6.79	206.6	23.7	-
June	22-06-25	7.4	372	23.9	-	6.74	225.1	23.9	-	6.73	227	23.9	-	6.84	131.6	23.9	-	6.81	164.9	23.9	-
June	23-06-25	7.24	269.4	25.6	-	7.25	218.2	25.7	43	7.23	218.8	25.8	-	7.23	208.5	25.6	7	6.83	190.3	26.3	12
June	24-06-25	7.4	328.3	26.8	212	7.13	349.2	26.7	-	7.17	346.5	27.1	113	7.11	254.4	27.1	15	7.14	241.7	27	15
June	25-06-25	6.86	264	28	-	6.64	182.3	27.4	64	6.76	252.4	27.4	-	6.77	206.4	27.4	37	6.76	247.1	26.8	43
June	26-06-25	7.29	442.2	27.5	212	7.06	334	25.5	-	7.09	337.5	25.4	272	6.88	216.6	25.7	31	6.91	217.1	25.9	24
June	27-06-25	7.02	295.6	25.4	40	6.54	129.2	25.8	-	6.58	128.8	26.5	39	6.52	213.1	26.7	36	6.51	213.3	26.5	34
June	28-06-25	6.92	251.6	23.7	-	7.02	173.3	23.4	-	6.92	261.4	23.8	-	6.96	331.9	23.8	-	6.95	214.1	23.1	-
June	29-06-25	6.9	176.7	24.6	-	6.92	182.8	24	-	6.94	184.8	24	-	6.94	228	24.1	-	6.93	261.2	24	-
June	30-06-25	7.3	157.4	26.9	-	6.99	155.1	27.2	245	6.91	151.1	27.7	-	6.96	202.5	27.7	47	6.94	266.5	27.5	10
July	01-07-25	7.02	354.1	26.7	132	6.84	257.6	26.9	-	6.82	219.9	27.4	134	6.93	229.7	27.2	13	6.9	277.1	27.4	23
July	02-07-25	7.15	182.2	25.7	-	6.59	201.8	26.4	332	6.63	201	26.7	-	6.7	251.1	26.8	13	6.72	251	26.7	8
July	03-07-25	6.81	473	25.5	267	6.88	214.3	25	-	7.01	226.8	25.3	51	6.9	184.8	25.3	12	6.94	216	25.1	18
July	04-07-25	7.12	218.1	26.7	105	7.15	277.9	27.2	-	7.02	285.6	27.2	139	7.09	207.7	26.6	25	6.99	265.8	26.7	20
July	05-07-25	6.85	252	23.3	-	7.02	209.5	23.4	-	7.05	215.4	23.3	-	7	244.7	23.4	-	6.94	295.6	23.4	-
July	06-07-25	7.04	481.6	24.8	-	7.02	174.5	23.3	-	7	175.3	23.3	-	6.93	291	23.7	-	6.92	291.1	23.6	-
July	07-07-25	7.03	196.6	25.6	-	7	171.5	24.1	35	6.96	255.8	24.3	-	7.11	198.8	24.6	14	6.94	255.4	24.3	9
July	08-07-25	7.1	280.7	26.9	638	6.83	183.1	26.3	-	6.85	187.3	26.3	112	6.9	181.5	26.3	26	6.83	267.4	26.3	21
July	09-07-25	7.19	241.9	24.4	-	6.95	354.2	24.3	-	6.82	352.7	24.6	-	6.84	241.7	24.6	-	6.86	242.6	24.6	-
July	10-07-25	6.99	223.9	27.7	96	7.17	184.6	27	-	7.18	294.4	26.5	22	7.37	256.3	26.8	6	7.31	263.1	26.6	4
July	11-07-25	6.66	253.6	24.9	280	6.72	221.6	25.3	-	6.85	322.3	25.6	83	6.83	260	25.6	21	6.84	289.4	25.5	28
July	12-07-25	6.79	233.6	22.5	-	7.03	150.4	22.6	-	7.01	150.2	22.7	-	6.94	235.7	22.9	-	6.99	282.5	22.7	-
July	13-07-25	6.82	133.9	22.7	-	6.76	157.7	22.5	-	6.78	157.4	22.9	-	6.99	275.9	22.8	-	6.92	276	22.7	-
July	14-07-25	6.98	272.5	26.2	-	6.75	414.8	24.2	74	6.97	318	24.5	-	6.99	221.2	25.2	15	6.96	258.8	25.3	21
July	15-07-25	6.59	229.8	25.4	51	6.57	348.4	27.1	-	6.59	340.1	27.1	48	6.69	250.1	27	11	6.72	254.8	27.2	12
July	16-07-25	7.15	233.7	26.3	-	6.63	209	26.2	47	6.65	213.1	26.2	-	6.63	174.3	26.3	37	6.72	259	26.2	30
July	17-07-25	6.87	163.1	24.6	98	7.01	321.7	25.2	-	6.56	226.1	25.3	47	7.01	177.7	25.5	18	7.02	246.7	25.7	39
July	18-07-25	6.99	349.3	25.7	89	6.81	172.7	26.6	-	6.93	312.9	25.8	62	6.91	203.9	26	30	6.95	238.2	26.2	19
July	19-07-25	6.81	265	25.6	-	6.72	297.6	25.5	-	6.72	295.3	25.6	-	6.84	243	25.6	-	6.8	268.9	25.9	-
July	20-07-25	6.76	448.3	25.5	-	6.8	174.9	25.5	-	6.78	176.4	25.6	-	6.87	174.4	25.6	-	6.83	210.3	25.6	-
July	21-07-25	6.78	271.8	25.8	-	6.77	194.2	26.4	103	6.78	184.8	26.9	-	6.9	181.9	27.1	6	6.89	211.5	27	26
July	22-07-25	7.07	180.2	26.9	279	6.73	148.6	26.9	-	6.81	171.8	26.7	48	7	154.1	26.6	18	6.77	217.6	27	8
July	23-07-25	6.85	338.6	27.8	-	7.09	248.4	26.5	180	7.03	244.4	26.6	-	6.97	203.9	26.4	40	7.04	214.6	26.7	19
July	24-07-25	6.54	201.3	25.4	88	6.49	203.1	25.8	-	6.5	188.3	26	56	6.57	255.8	26	18	6.53	250.2	26	16
July	25-07-25	6.89	188.4	25	109	6.74	317.6	25	-	6.73	317.8	25	106	6.79	248.1	25	37	6.76	248.1	25	36
July	26-07-25	6.89	188.4	25	-	6.74	317.6	25	-	6.73	317.8	25	-	6.79	248.1	25	-	6.76	248.1	25	-
July	27-07-25	6.81	147	25	-	6.79	142.8	24.9	-	6.74	141.5	24.9	-	6.76	224.5	24.9	-	6.77	195.7	24.9	-
July	28-07-25	7.7	136	25.6	-	6.72	182.5	26.3	36	6.69	188.8	27.5	-	6.74	194.1	27.5	15	6.72	196.2	27.2	25
July	29-07-25	7.46	505.5	28.6	234	6.6	215.3	28.1	-	6.64	229.1	27.8	99	6.67	213.6	28.1	61	6.69	199.2	28	24
July	30-07-25	7.07	222.2	27.4	-	6.72	264.6	26.2	154	6.64	276.3	26.4	-	6.96	209.8	26	23	7.03	209.9	25.9	22
July	31-07-25	7.35	223.7	27.9	49	6.68	191.9	27.6	-	6.6	190.2	27.8	45	6.79	276.1	27.8	6	6.74	275.6	27.8	8

Daily Self Monitoring of STP Inlet, Outlet and Aeration

Monthly	Date	Inlet (Zone B)				Inlet -1				Inlet -2				Outlet - 1				Outlet - 2			
		pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD
		6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	125	6 - 9	2000	≤ 35	125
Unit	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	
Aug	01-08-25	7.04	224.8	27.3	125	6.99	213.1	30.9	-	6.95	210.5	31	59	6.83	250.5	30.2	25	6.92	287.3	30.9	23
Aug	02-08-25	6.67	273.6	25.2	-	6.76	273.4	25.2	-	6.73	229	25.2	-	6.71	236.3	25.2	-	6.77	275.4	25.3	-
Aug	03-08-25	6.85	251.2	25.9	-	6.93	300.1	25.7	-	6.86	298.1	25.6	-	6.88	225.4	25.6	-	6.84	276.5	25.6	-
Aug	04-08-25	7.2	484.3	26.6	-	6.82	208.1	27	30	6.76	378.3	27.2	-	6.91	250.9	27.4	13	6.86	279.3	27.4	2
Aug	05-08-25	6.87	254.9	26.2	55	6.82	543.3	27	-	6.8	571.3	27	126	6.92	277.1	27	14	6.97	290.8	27	11
Aug	06-08-25	6.92	263	26.9	-	6.74	466.7	27.1	60	6.77	461	27.2	-	7.01	312	27	19	6.94	326.8	27.4	22
Aug	07-08-25	7.38	238.2	26.3	86	6.92	241.6	26.8	-	6.89	312.3	26.8	64	6.74	305.8	27.1	16	6.81	330.2	27	20
Aug	08-08-25	7.44	282	26.1	278	6.84	184.8	27.1	-	6.78	215.8	27.1	79	6.84	250.9	27.4	23	7.05	433	27.2	18
Aug	09-08-25	6.89	278.9	24	-	7.1	154.75	24.7	-	7.08	153.84	24.3	-	6.83	247.7	24.3	-	6.72	387.6	24.1	-
Aug	10-08-25	6.97	246.5	24	-	7.1	358.3	24.2	-	6.97	358.6	24.2	-	6.98	316.3	24.2	-	6.75	410.7	24.3	-
Aug	11-08-25	6.66	191.7	26.9	-	6.76	189.2	28	39	6.73	195.9	28.4	-	6.84	226	28.2	8	6.73	279.9	27.9	17
Aug	12-08-25	6.91	207.6	27	154	6.85	239.6	27.2	-	6.9	241.8	27.2	156	6.79	220.3	27.9	12	6.71	296.2	27.2	27
Aug	13-08-25	7.51	550.5	27.7	-	6.56	238	28.3	78	6.65	238.1	28.1	-	6.61	259.5	28.2	11	6.63	293.1	28.3	13
Aug	14-08-25	7.54	275.1	25.3	73	6.92	182.4	26	-	6.83	346.2	26.2	63	6.83	278.7	26.2	22	6.76	310.9	26	13
Aug	15-08-25	7.1	272.7	27.4	78	5.91	225.3	27.2	-	5.94	183.4	27.4	535	6.12	286.5	27.6	10	7.23	319.1	27	4
Aug	16-08-25	6.66	339.4	24.1	-	6.8	149.2	24.2	-	6.94	155.6	24.2	-	6.61	288.7	24.4	-	6.68	321.9	24.5	-
Aug	17-08-25	6.73	202.9	24.1	-	6.73	400.9	24.2	-	6.76	395.4	24.3	-	6.71	260.7	24.2	-	6.69	302.4	24.1	-
Aug	18-08-25	6.87	156.2	26.4	-	6.78	136.8	25.5	77	6.77	135.6	25.6	-	6.81	260.9	25.6	9	6.79	263.8	25.7	18
Aug	19-08-25	6.73	191.4	27.5	57	6.94	269.7	27.8	-	6.77	270.4	27.7	40	6.93	233.5	27.7	29	6.84	235	27.9	26
Aug	20-08-25	6.83	172.7	25.8	-	6.8	231.5	26.7	45	6.78	230.2	26.8	-	6.85	210.5	26.6	10	6.94	233.4	26.8	4
Aug	21-08-25	6.6	561.8	28.6	196	6.69	413.6	28.8	-	6.79	413.2	28.2	155	6.72	210.4	28.3	15	6.71	207.6	28	21
Aug	22-08-25	6.74	313.4	29.4	88	6.66	305.5	27.3	-	6.84	301.6	27.4	49	6.88	207.6	27.3	15	6.81	243.3	27	22
Aug	23-08-25	6.59	703.1	24.3	-	6.6	196.3	24.4	-	6.64	289.7	24.5	-	6.55	231.7	24.4	-	6.57	254.1	24.5	-
Aug	24-08-25	6.88	236	24.6	-	6.77	198.5	24.0	-	6.76	197.7	24.7	-	6.81	257.3	24.9	-	6.78	278.8	24.9	-
Aug	25-08-25	6.87	188	27.7	-	6.69	216.2	26.4	81	6.82	381.9	26.6	-	6.95	237.9	27	13	7.47	351.6	26.5	5
Aug	26-08-25	6.96	343.6	26.9	90	6.9	210.9	26.7	-	6.65	245.9	26.7	54	6.87	233.6	26.8	9	6.91	324	26.8	11
Aug	27-08-25	6.91	196.8	26.3	-	6.58	236.6	24.7	88	6.67	199.8	25	-	6.65	223.4	25.1	45	6.68	287.3	25.2	24
Aug	28-08-25	6.79	230	27.1	44	6.91	292.2	28.5	-	6.75	291	28.5	33	6.86	236.8	27.4	5	6.94	274.4	27.5	2
Aug	29-08-25	7.01	204.1	26.8	45	6.79	267.1	27.2	-	6.74	285.4	26.7	34	6.78	254.1	26.5	15	6.76	300.3	26.6	7
Aug	30-08-25	7.24	198.6	23.9	-	7.01	190.5	24.5	-	6.97	190.6	24.7	-	7.04	232.5	24.6	-	7.09	305.5	24.5	-
Aug	31-08-25	7.15	169.3	24.7	-	6.91	375.7	24.9	-	6.91	376.5	25	-	7.01	223.1	25	-	7.05	306.3	24.8	-
Sep	01-09-25	7.45	171.2	25.7	-	7.21	261.6	25.4	36	7.29	259.9	25.2	-	7.19	280.1	25.1	58	7.16	293.3	24.8	2
Sep	02-09-25	6.98	1548	25.4	147	6.99	251.7	25.4	-	7	288.2	25.4	52	7.09	277.8	25.3	31	7.25	278.8	25.4	6
Sep	03-09-25	7.54	743.3	25.4	-	7.01	426.2	25.3	88	7.24	405.5	25.4	-	7.08	600.3	25.4	27	7.11	710.2	25.4	10
Sep	04-09-25	7.01	165.3	26.7	104	6.55	347.2	28.1	-	6.57	223.8	27.8	138	6.6	197	28.1	24	6.49	202.5	28.1	19
Sep	05-09-25	6.89	295.3	28.3	76	6.84	204.3	26.5	-	6.76	192.1	26.7	69	6.88	215.6	26.4	28	6.8	275.9	26	42
Sep	06-09-25	6.86	203.4	24.8	-	6.84	374.3	24.8	-	6.7	453.7	24.8	-	6.74	268.7	24.7	-	6.65	452.4	24.8	-
Sep	07-09-25	6.7	215.6	25.1	-	6.75	292	25.2	-	6.76	292.3	25.2	-	6.7	271.6	25.2	-	6.65	359.5	25.2	-
Sep	08-09-25	7.66	219.1	27.7	-	6.55	254.5	28.1	138	6.69	268.7	28.2	-	6.74	272.3	28.5	38	6.68	363.4	28.6	20
Sep	09-09-25	6.93	216.9	26.3	266	6.69	190.3	25.4	-	6.76	200.4	25.9	278	7.09	323.4	25.8	31	6.99	310.2	26	35
Sep	10-09-25	7.02	204.9	25.8	-	6.84	226.7	25.6	51	6.81	216.7	25.6	-	6.87	211.6	25.6	33	6.85	279.4	25.7	23
Sep	11-09-25	7.09	313.2	29.7	97	6.74	388.4	25.5	-	6.76	425.3	25.8	141	6.89	272.1	25.9	20	6.91	289.7	25.7	37
Sep	12-09-25	6.63	582.2	26.4	624	6.69	616.4	27.4	-	6.87	621.8	27.6	209	6.74	298.6	27.6	3	6.96	299.4	27.5	2
Sep	13-09-25	6.67	276.2	24.7	-	6.66	170.1	24.7	-	6.62	186.3	24.8	-	6.63	270.4	24.8	-	6.64	343	24.8	-
Sep	14-09-25	6.74	235.2	26.2	-	6.55	370.6	26.5	-	6.48	325.6	26.3	-	6.66	273.1	26.2	-	6.64	355.8	25.8	-
Sep	15-09-25	6.71	125.5	28.7	-	6.61	316.9	28.2	55	6.65	314.4	28	-	6.72	284.5	28.1	28	6.7	383.2	28.6	37
Sep	16-09-25	7.13	303.6	30.2	84	6.86	390	28.8	-	6.93	482.3	29.1	86	6.6	299.3	29.4	21	6.76	365.9	29.7	23
Sep	17-09-25	6.7	373.3	30	-	6.41	353.8	28.9	47	6.54	421.2	28.5	-	6.53	290.2	28.3	15	6.56	291.6	28	9
Sep	18-09-25	6.86	552.9	27.9	301	6.9	269.7	28.4	-	6.74	249.3	28.4	190	6.78	314.5	28.6	20	6.8	387.3	28.5	43
Sep	19-09-25	6.65	321.8	29.4	188	6.64	228.6	28.3	-	6.63	241.2	28.6	61	6.72	323.3	28	3	6.73	415.5	27.9	6
Sep	20-09-25	6.61	345.6	24.4	-	6.57	321.5	24.5	-	6.54	317.5	24.6	-	6.58	328.8	24.5	-	6.51	452.4	24.5	-
Sep	21-09-25	6.85	222.8	24.3	-	6.51	265.5	24.6	-	6.48	265.4	24.7	-	6.55	399.9	24.7	-	6.56	401.9	24.5	-
Sep	22-09-25	6.78	157.3	25.2	-	6.6	164.2	25.8	139	6.73	210.8	25.8	-	6.74	281.8	25.7	3	6.66	371.3	25.5	13
Sep	23-09-25	6.61	299.8	27.1	194	6.94	192.2	27.1	-	6.72	466.5	27	265	6.84	242.9	26.2	23	6.9	343.5	27.2	21
Sep	24-09-25	6.95	197.9	25.5	-	6.71	294	26.7	92	6.72	313.5	26.7	-	6.93	198.1	26.7	23	6.82	306.3	26.9	27
Sep	25-09-25	6.48	234.4	26.6	415	6.53	216.3	27.9	-	6.57	213.7	27.8	405	6.55	216.1	27.8	83	6.58	288.6	27.4	63
Sep	26-09-25	7.01	152.2	26.1	78	6.79	196.2	26.6	-	6.8	195.9	26.5	36	6.96	210.3	26.5	36	6.94	284.2	26.7	36
Sep	27-09-25	6.82	178.6	24.5	-	6.72	222.6	24.4	-	6.86	220.3	24.3	-	6.92	183.9	24.2	-	6.93	250.3	24.1	-
Sep	28-09-25	6.81	165.1	24.3	-	6.86	193.3	24.5	-	6.92	188.5	24.5	-	6.98	253	24.3	-	7.12	241.7	24.3	-
Sep	29-09-25	6.81	228.7	27.2	-	6.65	142.2	27.7	32	6.86	160.9	27.8	-	6.94	260.2	27.4	8	7.03	240.6	27.5	4
Sep	30-09-25	6.92	214.6	26.8	192	6.8	210	27.5	-	6.84	250.4	27.5	414	6.89	236.8	27.1	68				

Daily Self Monitoring of STP Inlet, Outlet and Aeration

Monthly	Date	Inlet (Zone B)				Inlet -1				Inlet -2				Outlet - 1				Outlet - 2			
		pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD	pH	TDS	Tem	COD
		6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	400	6 - 9	2000	≤ 35	125	6 - 9	2000	≤ 35	125
Standard Unit	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	-	mg/L	°C	mg/L	
Oct	01-10-25	7.35	258.1	25.2	-	6.65	171.8	25.1	62	7.07	231	25.3	-	7.39	320.8	25.2	8	7.11	259.1	25.3	23
Oct	02-10-25	7.12	183	25.8	48	7.07	283.3	26	-	7.08	230	26.2	40	7.1	209.2	25.7	38	7.07	218.4	25.9	15
Oct	03-10-25	7.02	279.7	27.2	38	6.79	156.1	27.2	-	6.77	160.6	27.6	35	6.78	256.3	27.2	21	6.83	260.3	27	19
Oct	04-10-25	7.08	212.3	24.6	-	6.78	193.8	24.7	-	6.76	198.2	24.6	-	6.81	292.6	24.7	-	6.82	276.4	24.6	-
Oct	05-10-25	7.1	338.8	24.8	-	6.67	255.9	25.8	-	6.66	250.8	25.7	-	6.86	270.2	25.8	-	6.84	280	25.7	-
Oct	06-10-25	7.02	181.1	24.7	-	6.71	261.3	24.8	-	6.75	254.1	24.7	-	6.91	297.3	24.5	-	6.93	298.5	24.6	-
Oct	07-10-25	7.08	174.9	24.9	-	7.02	275.3	25.1	-	6.89	267.4	25.2	-	6.98	254.2	25.2	-	6.96	257.3	25.1	-
Oct	08-10-25	7.28	1388	26.7	-	7.48	207	28.4	191	7.47	205.7	28.2	-	7.29	286.6	28.8	51	7.22	252.5	28.5	108
Oct	09-10-25	7.1	616.7	27.6	199	6.91	373.2	28	-	6.83	370.3	27.8	73	6.91	294.3	26.8	19	7.06	294.1	26.8	58
Oct	10-10-25	7.41	460.4	27.9	77	6.67	234.7	29	-	6.7	351.8	28.7	88	6.66	303.4	29.1	18	7.28	376.1	29	43
Oct	11-10-25	6.57	275.9	23.9	-	6.77	341.4	23.7	-	6.81	326.3	23.6	-	6.73	344.5	23.7	-	6.71	393.5	23.9	-
Oct	12-10-25	6.68	296.9	23.7	-	6.96	191.9	23.3	-	6.83	269.2	23.5	-	6.87	304.8	23.5	-	6.75	366.2	23.8	-
Oct	13-10-25	7.22	398.1	28.2	-	7.14	436.9	27.5	75	7.15	418.8	27.5	-	7.25	338.2	27.3	31	7.11	356.2	28.1	2
Oct	14-10-25	6.89	227.2	27.9	73	6.49	189.2	27.3	-	6.43	187.5	28.3	309	6.55	279.5	28.5	36	6.51	368.1	28.4	32
Oct	15-10-25	7.18	164.1	27.3	-	6.41	171.1	26.2	1092	6.42	242.5	26	-	6.89	178.7	25.5	69	6.85	305.8	25.7	64
Oct	16-10-25	6.8	308.8	25.6	59	6.96	312.9	26	-	7	438.8	26	164	7.03	317.7	25.8	29	6.93	363	25.8	6
Oct	17-10-25	7.35	243.2	25	191	6.9	341.6	28.3	-	6.83	288.2	28.8	168	6.82	285.3	28.6	73	6.92	392.6	28.6	55
Oct	18-10-25	7.2	322	24.5	-	7.05	304.6	24.7	-	6.83	303.5	24.6	-	6.93	403.4	24.3	-	6.99	404	24.2	-
Oct	19-10-25	7.08	304.4	24.7	-	7.07	385.2	24.3	-	7.01	384.9	24.3	-	7	348.2	24.2	-	7.03	390.1	24.2	-
Oct	20-10-25	7.09	174.4	24.7	-	6.88	389.1	24.3	-	6.86	342.4	24.4	-	7.06	324.4	24.3	-	7.03	393.6	24.4	-
Oct	21-10-25	7.32	319.4	27.5	42	7.5	309.4	28.1	-	7.54	314.9	28	35	7.45	309	27.8	14	7.38	378.8	27.8	12
Oct	22-10-25	6.89	255.9	27.7	-	6.83	285.3	26.6	115	6.92	286.6	26.5	-	7.02	314.9	26.4	13	6.93	357.6	26.5	11
Oct	23-10-25	7.67	324.7	26.8	76	6.87	267.9	26.5	-	6.91	263.3	26.8	45	7.04	346.9	27.1	39	7.01	353.8	26.8	25
Oct	24-10-25	7.18	272.5	26.5	83	6.93	284.9	27	-	6.97	286.5	26.8	74	7.02	334.1	26.5	15	7	367	26.5	14
Oct	25-10-25	7.03	298.8	24	-	6.98	326.3	29.1	-	6.66	322.2	24.1	-	6.73	320.6	23.8	-	6.81	372.7	24	-
Oct	26-10-25	6.73	249.5	25.7	-	7.18	286	24.7	-	7.12	285.8	25.5	-	6.86	312.7	25.6	-	6.84	370	25.4	-
Oct	27-10-25	7.29	260.7	27.1	-	7.2	319.2	27.1	41	7.26	317.2	26.9	-	7.24	330.6	26.3	28	7.31	331.7	26.1	17
Oct	28-10-25	7.12	252.3	29.5	56	6.12	247.4	24.1	-	6.23	262.3	23.7	457	7.26	417.6	24.4	36	7.19	345.7	23.8	34
Oct	29-10-25	6.77	200	25.9	-	6.3	354	24.9	45	6.45	332.3	24.7	-	6.32	382.6	26.2	33	6.38	335.5	25.6	31
Oct	30-10-25	7.33	238.5	28.1	65	6.65	343.4	27.4	-	6.62	343	27.6	324	6.74	351.9	27.5	12	6.73	351	27.5	6
Oct	31-10-25	6.87	312.7	26.5	46	6.71	374.8	26.7	-	6.93	382.2	26.3	72	6.81	357.3	26.4	31	6.89	356	26.1	29
Nov	01-11-25	6.9	166.4	21.9	-	7	153.4	22.4	-	6.99	151.7	22.2	-	6.97	304.3	22	-	7	336	21.9	-
Nov	02-11-25	6.9	205.3	22.3	-	6.83	102.6	22.3	-	6.85	101.3	22.3	-	6.86	173.3	22.3	-	7.04	240.2	22.5	-
Nov	03-11-25	7.07	112.9	22.5	-	7.04	92.77	22.5	-	7.03	93.56	22.6	-	6.96	238.3	22.6	-	6.99	189	22.8	-
Nov	04-11-25	7.05	130.3	22.2	-	6.98	83.85	22.5	-	6.96	83.83	22.5	-	6.95	141.8	21.9	-	7.08	149.2	22.4	-
Nov	05-11-25	6.94	215.9	27.8	-	6.78	180	28.8	57	6.79	184.5	28	-	6.92	192.1	28.1	79	6.96	161.2	28.9	14
Nov	06-11-25	7.25	206.6	25.9	314	6.87	215.2	26.9	-	6.85	244.1	27.1	392	6.98	212.3	27	37	7.09	186.7	27	32
Nov	07-11-25	7.07	275.1	28.7	64	7.12	290.8	29	-	7.11	297.6	28.8	69	7.23	211.7	28.9	13	7.24	247.6	29	12
Nov	08-11-25	7.02	266.4	28.9	-	6.89	300.7	28.8	62	6.88	291.4	28.3	-	7.01	267.2	28.2	22	7.05	243.7	28.7	18
Nov	09-11-25	6.82	234.1	23	-	6.78	158.2	23.4	-	7.01	251.4	23.3	-	6.93	208.5	23.1	-	6.81	246.9	23.1	-
Nov	10-11-25	6.17	1215	25	-	6.83	127.3	24.4	88	6.8	132.7	24.2	-	7.58	184.1	24.7	39	8.04	417.8	24.7	20
Nov	11-11-25	7.05	256	25.7	55	6.71	499.8	26.9	-	6.75	498.6	26.4	85	7.16	238.2	26	17	7.14	251.2	26.2	13
Nov	12-11-25	7.05	263	27.5	-	6.86	353.8	27.9	70	6.77	358.7	28.7	-	7.07	252.9	28.1	17	6.87	327.9	27.9	26
Nov	13-11-25	7.07	370	28.9	39	6.94	263.9	27.7	-	6.92	322.3	26.8	53	7.08	262.9	26.8	23	6.96	328.4	26.8	25
Nov	14-11-25	7.15	372.4	24.7	-	7.01	530.9	24.7	-	6.89	532	24.6	-	6.62	308.5	24.7	-	6.6	337.3	24.6	-
Nov	15-11-25	7.25	372.6	24.9	-	6.68	288.1	24.6	-	6.63	301.6	24.7	-	6.99	324.7	24.6	-	6.68	355.3	24.7	-
Nov	16-11-25	6.82	351.1	24.6	-	6.62	251.6	24.7	-	6.87	249.7	24.5	-	6.88	322.3	24.6	-	6.97	325.2	24.6	-
Nov	17-11-25	6.94	325.5	25.8	-	6.9	333.6	26.2	78	6.86	333.8	26.1	-	7.05	324.6	26.1	16	7	317.7	25.9	7
Nov	18-11-25	7.18	399	26.4	107	6.99	353.3	26.2	-	6.9	251.7	26.3	47	6.93	324.2	26.5	5	6.94	326.2	26	7
Nov	19-11-25	6.82	325.5	27.8	-	6.8	436.6	27.9	115	6.77	439.3	28	-	7.05	328.4	27.9	22	6.82	323.7	27.6	28
Nov	20-11-25	7.37	324.6	25.8	51	7.13	317.9	26.9	-	7.19	449.5	26.6	172	7.26	338.8	26.6	29	7.31	369.9	26.4	7
Nov	21-11-25	7.23	402	24.8	72	7.02	270	24.6	-	7.13	256.9	24.7	56	7.2	333.5	24.4	17	7.22	381.6	24.4	10
Nov	22-11-25	6.44	1195	24.6	-	6.97	316	24.2	-	6.72	268.6	25.3	-	7.07	323.7	24.4	-	7.01	396.4	24.6	-
Nov	23-11-25	6.8	319.2	26.7	-	6.97	421.2	27	-	7.01	459.9	27	-	7.06	341.5	27.2	-	6.86	403.3	26.5	-
Nov	24-11-25	7.84	492.9	27.8	-	6.96	402.1	29	146	7.06	400.9	28.9	-	7.1	344.6	28.3	35	7.18	394.5	27.9	32
Nov	25-11-25	7.07	572.2	28.5	317	6.9	384.6	26.9	-	6.92	379.1	26.2	98	7.01	351.5	26.2	22	6.98	384	26	17
Nov	26-11-25	6.95	1138	26.7	-	7	313.6	27.1	115	6.9	308.8	27.7	-	7.02	393.1	27.2	34	7.06	375.6	27.2	29
Nov	27-11-25	6.83	322.5	26.2	160	6.82	384.7	26.1	-	7.07	569.3	26.1	222	6.94	395.5	25.9	23	6.95	418.5	25.8	22
Nov	28-11-25	7.38	325.7	27	87	7.3	314.3	26.8	-	7.27	481.2	26.9	65	7.01	375.1	27.1	9	6.98	448.5	27.2	11
Nov	29-11-25	7	316.5	24.3	-	6.85	329.1	24.6	-	7.16	399.9	24.2	-	6.99	391.2	24.4	-	7.43	438.1	24.1	-
Nov	30-11-25	6.91	283.4	24.1	-	6.59	383.9	24.3	-	6.85	384.1	24.1	-	6.99	364.3	24.1	-	7.01	437	24.1	-

Weekly STP Water Analysis Results

Month	Date	Zone A (Inlet) -1			Zone A (Inlet) -2			Outlet -1								Outlet -2							
		SS	BOD	T-P	SS	BOD	T-P	SS	BOD	T-N	T-P	O&G	T-Coli	E-Coli	Free Chlorine	SS	BOD	T-N	T-P	O&G	T-Coli	E-Coli	Free Chlorine
Standard		Max 200	Max 200	Max 8	Max 200	Max 200	Max 8	Max 50	Max 30	Max 50	Max 2	Max 10	Max 400	Max 1000	Max 1	Max 50	Max 30	Max 80	Max 2	Max 10	Max 400	Max 1000	Max 1
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	MNP/100ml	MNP/100ml	mg/L	ppm	ppm	ppm	ppm	ppm	MNP/100ml	MNP/100ml	mg/L
Jun	03-06-25	-	-	-	30	144	0.892	5	6.8	7.5	0.766	0	<1	<1	0.11	50	6.6	8.2	1	0.4	376	376	0.01
Jun	11-06-25	20	111	2.68	-	-	-	5	8.8	11.3	0.863	0.1	<1	<1	0.36	25	8.2	10.2	1.21	0.2	<1	<1	0.95
Jun	17-06-25	-	-	-	50	117	2.56	35	5.7	5.9	0.736	0.1	3	1	0.04	20	5.5	5.8	0.791	0	<1	<1	0.33
Jun	25-06-25	40	66	0.949	-	-	-	40	5.9	7.5	0.987	0.1	392	78	0.07	30	5.3	8.7	1.31	0.1	389	72	0.02
Jul	02-07-25	20	135	0.605	-	-	-	10	6.2	7.2	0.585	0.1	1	<1	0.01	5	6.1	6.5	0.924	0	1	<1	0.05
Jul	08-07-25	-	-	-	55	105	1.58	35	6.6	4.6	1.29	0.3	398	316	0.01	15	6.1	5.2	1.08	0.2	384	362	0.01
Jul	16-07-25	20	105	0.831	-	-	-	30	8.4	6.6	1.12	0.4	129	18	0.02	15	8.9	7.8	1.19	0.2	391	318	0.01
Jul	23-07-25	10	138	1.03	-	-	-	30	6.9	7.6	0.764	0.3	6	6	0.12	15	8.6	6.6	1.33	0	1	<1	0.08
Jul	29-07-25	-	-	-	40	126	0.908	20	8	8	0.949	0.1	1	<1	0.07	20	7.7	9.8	1.22	0	1	1	0.02
Aug	05-08-25	-	-	-	25	111	1.47	15	5.4	4.6	0.79	0	<1	<1	0.02	10	5.2	6	0.822	0	<1	<1	0.78
Aug	13-08-25	10	144	0.835	-	-	-	20	8.6	8	0.618	0	11	<1	0.03	10	8.9	4	0.815	0	<1	<1	0.04
Aug	19-08-25	-	-	-	10	138	0.996	35	7.1	6.5	0.803	0.1	<1	<1	0.04	5	6.6	7.2	0.804	0	<1	<1	0.98
Aug	27-08-25	30	84	0.848	-	-	-	40	9.8	9	1.28	0	29	13	0.01	25	9.6	11	1.49	0	361	273	0.02
Sep	02-09-25	-	-	-	20	105	2.77	15	5.1	6.6	0.601	0	<1	<1	0.4	20	6	6.6	1.29	0	357	357	0.02
Sep	11-09-25	10	147	0.942	-	-	-	10	9.3	2	0.546	0.2	<1	<1	0.45	5	8.2	2	0.898	0	<1	<1	0.19
Sep	17-09-25	30	141	1.69	-	-	-	15	8.5	9.3	0.801	0.1	<1	<1	0.3	5	7	18.9	1.24	0	<1	<1	0.98
Sep	23-09-25	-	-	-	60	186	3.56	10	7.7	7.1	0.498	0.3	192	31	0.05	15	7.4	8.4	1.27	0.3	1	<1	0.3
Oct	01-10-25	30	126	1.61	-	-	-	15	7.5	7.5	0.689	0.3	260	3	0.02	20	8.4	7.5	1.41	0	1	1	0.27
Oct	09-10-25	40	141	0.985	-	-	-	10	7.8	7.4	0.142	0	1	<1	0.43	5	7.7	6.7	0.904	0	<1	<1	0.88
Oct	16-10-25	-	-	-	30	108	1.54	20	9.5	9.9	0.833	0	<1	<1	0.08	5	8.6	7.8	1.01	0	<1	<1	0.43
Oct	22-10-25	30	95	1.17	-	-	-	20	8.2	6.7	0.69	0	<1	<1	0.09	5	8.1	12.1	1.18	0.2	398	199	0.01
Oct	28-10-25	-	-	-	40	135	0.624	5	7.5	3.1	0.272	0	1	<1	0.01	5	7.2	2.8	1.08	0	<1	<1	0.14
Nov	06-11-25	-	-	-	40	111	0.893	15	9.3	5.6	0.821	0.1	<1	<1	0.04	10	8	4.1	0.667	0	<1	<1	0.24
Nov	11-11-25	-	-	-	160	165	1.41	10	5.3	3.6	0.611	0	<1	<1	0.69	5	6.6	5.6	0.42	0	150	86	0.01
Nov	17-11-25	30	35	0.902	-	-	-	15	3.5	4.8	0.081	0	<1	<1	0.32	10	2.1	5.9	1.08	0.1	<1	<1	0.29
Nov	25-11-25	-	-	-	50	33	1.09	10	0.4	10.6	0.434	0	<1	<1	0.73	5	0.7	6.6	0.67	0	<1	<1	0.05



Monitoring Parameters Result for STP

Month	Date	Outlet -1						Outlet -2					
		Cyanide	Formal-dehyde	Total Chlorine	Color	Iron	Ammonia	Cyanide	Formal-dehyde	Total Chlorine	Color	Iron	Ammonia
Standard		Max 0.1	Max 1	Max 0.2	Max 150	Max3.5	Max10	Max 0.1	Max 1	Max 0.2	Max 150	Max3.5	Max10
Unit		mg/l	mg/l	mg/l	TCU	mg/l	mg/l	mg/l	mg/l	mg/l	TCU	mg/l	mg/l
June	03-06-25	0.001	0.023	0.21	4.83	0.153	0.025	0.011	0.128	0.02	13.73	0.974	1.23
July	02-07-25	0.004	0.028	0.09	4.58	0.354	0.023	0.002	0.027	0.35	6.02	0.089	0.06
Aug	05-08-25	0.003	0.028	0.33	3.79	0.655	0.41	0.002	0.051	0.95	2.47	0.137	0.03
Sep	02-09-25	0.008	0.056	1	5.11	0.478	0.17	0.005	0.057	0.03	6.67	0.469	0.068
Oct	10-09-25	0.003	0.033	0.53	2.42	0.085	0.064	0.003	0.035	0.97	1.74	0.043	0.072
Nov	11-11-25	0.002	0.041	1.39	7.32	0.596	0.082	0.007	0.016	0.04	3.05	0.098	0.122



Month	Date	Outlet-1																	Outlet-2																	
		Odor	Mercury	Zinc	Arsenic	Chromium	Cadmium	Selenium	Lead	Copper	Barium	Nickel	Silver	Sulphide	Total Cyanide	Hexavalent Chromium(Cr6+)	Fluoride	Phenols	Odor	Mercury	Zinc	Arsenic	Chromium	Cadmium	Selenium	Lead	Copper	Barium	Nickel	Silver	Sulphide	Total Cyanide	Hexavalent Chromium(Cr6+)	Fluoride	Phenols	
Standard		-	Max 0.005	Max 2	Max 0.1	Max 0.5	Max 0.03	Max 0.02	Max 0.1	Max 0.5	Max 1	Max 0.2	Max 0.5	Max 1	Max 1	Max 0.1	Max 20	Max 0.5	-	Max 0.005	Max 2	Max 0.1	Max 0.5	Max 0.03	Max 0.02	Max 0.1	Max 0.5	Max 1	Max 0.2	Max 0.5	Max 1	Max 0.2	Max 0.5	Max 1	Max 0.2	Max 0.5
Unit		TON	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	TON	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
June	03-06-25	1	≤ 0.002	0.026	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	0.004	≤ 0.002	≤ 0.002	0.012	< 0.002	< 0.05	1.374	< 0.002	3	≤ 0.002	0.014	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	0.01	≤ 0.002	≤ 0.002	0.024	< 0.002	< 0.05	0.987	0.03	
Jul	02-07-25	1.4	≤ 0.002	0.012	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	0.008	< 0.002	< 0.05	0.986	< 0.002	1.4	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	0.005	< 0.002	< 0.05	0.808	< 0.002		
Aug	05-08-25	1.4	≤ 0.002	0.044	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	0.02	≤ 0.002	≤ 0.002	< 0.005	< 0.002	< 0.05	1.96	0.077	2	≤ 0.002	0.026	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	< 0.005	< 0.002	< 0.05	1.329	0.101	
Sep	05-09-25	1	≤ 0.002	0.004	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	0.006	≤ 0.002	≤ 0.002	0.008	< 0.002	< 0.05	1.921	0.077	1.4	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	0.002	≤ 0.002	≤ 0.002	0.008	< 0.002	< 0.05	1.361	< 0.002	
Oct	09-10-25	1.4	≤ 0.002	0.036	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	0.006	≤ 0.002	≤ 0.002	< 0.005	0.002	< 0.05	1.935	0.028	3	≤ 0.002	0.244	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	< 0.005	0.002	< 0.05	1.191	0.023		
Nov	11-11-25	4	≤ 0.002	0.044	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	0.007	< 0.002	< 0.05	1.493	< 0.002	1	≤ 0.002	0.006	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.01	≤ 0.002	≤ 0.002	≤ 0.002	≤ 0.002	< 0.005	< 0.002	< 0.05	0.918	< 0.002		



**Thilawa Special Economic Zone
Zone B- Phase 1,2 & 3 (Operation phase)**

Appendix- 8

Chemical consumption at Water Sending Station at TSEZ-B

Sludge Generated from Sewage Treatment Plant at TSEZ-A

Water Supply Volume to TSEZ-B

(June 2025 to November 2025)

Chemical consumption in WSS	
Months- Year	NaOCl (Liters)
Jun-25	580.16
Jul-25	521
Aug-25	541
Sep-25	1,180
Oct-25	1,051
Nov-25	1,078
Total	4,950.96

Note: Above chemical consumption volume are used in Water Sending Station (WSS).

Generate Sludge Volume

Date	Items	Generated from	Volume (Kg)
Jun-25	Sludge	Sewage Treatment Plant at Zone-A	0
Jul-25	Sludge	Sewage Treatment Plant at Zone-A	6200
Aug-25	Sludge	Sewage Treatment Plant at Zone-A	5280
Sep-25	Sludge	Sewage Treatment Plant at Zone-A	0
Oct-25	Sludge	Sewage Treatment Plant at Zone-A	0
Nov-25	Sludge	Sewage Treatment Plant at Zone-A	0
Total			11480

Note: TSEZ-B wastewater are treated at Sewage Treatment Plant at Zone-A

Water Supply Volume in Zone-B

Months - Year	Zone B Locator Water Volume (m3)	Outsource Customer V power (m3)	Total Water Volume (m3)
Jun-25	34355	181.8	34537
Jul-25	35230	163.6	35394
Aug-25	22419	154.5	22574
Sep-25	22539	209	22748
Oct-25	35577	263.67	35841
Nov-25	35101	182	35283
Total			186376

Note: Above mention water supply are distributed from Water Sending Station (WSS)

End of Document

