

# Environmental Monitoring Report

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## **PUBLIC**

Project Number: 51077-003  
Quarterly Report (July-September 2024)  
October 2024

## Maldives: Greater Male Waste-to-Energy Project

### Part A: Main Report

Prepared by the Ministry of Climate Change, Environment and Energy for the Ministry of Finance and the Asian Development Bank (ADB).

## CURRENCY EQUIVALENTS

(As of 1 October 2024)

Currency unit	–	Equivalent
1 MVR	=	\$ 0.065
\$1.00	=	MVR15.46

## ABBREVIATIONS

ADB	–	Asian Development Bank
CVRA	–	climate vulnerability and risk assessment
DBO Contractor	–	design-build-operate
EA	–	executing agency
EIA	–	environmental impact assessment
EMP	–	environmental management plan
EPA	–	Environmental Protection Agency
ER	–	employer’s representative
IA	–	implementing agency
IEE	–	initial environmental examination
MoCCEE	–	Ministry of Climate Change, Environment and Energy
MoF	–	Ministry of Finance
MTCC	–	Maldives Transport and Contracting Company
PMDSC	–	project management, design and construction supervision consultant
PMU	–	project management unit
URA	–	Utility Regulatory Authority of the Maldives
WAMCO	–	Waste Management Corporation Limited
WTE	–	waste-to-energy

## WEIGHTS AND MEASURES

°C	degree Celsius
dB	decibel
tpd	tons per day
cm	centimetre
km	kilometre
kg	kilogram
MW	megawatt
kW	kilowatt
µg/L	microgram per litre
µg/m <sup>3</sup>	microgram per cubicmetre

## **NOTE**

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## I. INTRODUCTION

### A. Greater Male Waste-to-Energy Project

1. The project will establish a sustainable regional solid waste treatment system in the Greater Malé capital region by (i) developing treatment (proven waste-to-energy [WTE] technology), recycling and disposal infrastructure; (ii) strengthening institutional capacities for sustainable solid waste services delivery and environmental monitoring; and (iii) improving public awareness on WTE and reduce-reuse-recycle (3Rs). The project is designed to reduce disaster risk and improve climate change resilience while creating a cleaner environment and reducing greenhouse gas (GHG) emissions.

2. The Greater Malé capital region and its outer islands (see Figure 1 for the project implementation area) suffer from inadequate collection and haphazard disposal of solid waste leading to environmental pollution and deteriorating livability. The project area covers 32 inhabited islands in the North Ari Atoll (Alifu Alifu Atoll), South Ari Atoll (Alifu Dhaalu Atoll), Malé' Atoll (Kaafu Atoll) and Vaavu Atoll, including the capital city of Malé, with a total population of 295,000 (53% of Maldives) as stated by the National Bureau of Statistics (2018), Maldives Population Projections 2014-2054.

3. Lack of a sustainable system to manage the 836 tons per day (tpd) of solid waste (Feasibility Study, 2018) generated in the project area resulted in waste spillage into the ocean, and open dumping and burning of garbage at the 30-year-old, 10-hectare dumpsite on Thilafushi Island which has no pollution control measures, creating a public health and environmental hazard. Plumes of smoke visible from the capital Malé, the international airport and nearby resorts compromise air quality and pose nuisance to residents and tourists, while leachate and plastics contaminate the surrounding marine environment. This poses a critical threat to tourism and fisheries, both of which rely heavily on the country's pristine environment and are cornerstones to Maldives' economy. This project will establish a sustainable regional solid waste treatment and disposal system. Proposed project site is shown in Figure 2.

### B. Project Outcome and Outputs

4. The project will have two outputs and Table 1 presents the subprojects and/or packages:

4.1. **Output 1:** Disaster- and climate-resilient regional waste management facility developed. This will include (i) a 500 tpd WTE plant with 15-year operations and maintenance (O&M) contract, including two treatment lines of 250 tpd each, energy recovery and air pollution control (APC) system; and (ii) a landfill for safe disposal of APC residues and non-marketable bottom ashes. The facility is expected to export 10.5 megawatt (MW) of electricity to the grid and will be designed to accommodate a third 250 tpd treatment line, required to respond to further demand increase. All facilities will adopt disaster- and climate-resilient features such as raised floor elevations, flood-proof mechanical and electrical equipment and landfill cells, and enhanced drainage systems.

4.2. **Output 2:** Institutional capacity in sustainable solid waste management (SWM) services delivery (WTE) and environmental monitoring strengthened and public awareness on WTE and 3Rs improved. This will include (i) capacity building support in monitoring sustainable WTE operations, including the Ministry of Climate Change, Environment and Energy (MoCCEE) and the Environmental Protection Agency (EPA) institutional capacity strengthening and training to monitor WTE O&M and environmental standards; (ii) public

awareness on WTE and 3Rs in Greater Malé improved; and (iii) project management and supervision consultant support provided.

**Table 1: Subprojects/Packages**

No.	Subproject / package	Type of contract
1	WTE plant and auxiliary facilities of plant with 15 years O&M contract	Design-Build-Operate (DBO Contractor)
2	Project management and supervision	Consulting services contract
3	Community awareness consultant	Consulting services contract
4	Individual Environmental Monitor	Consulting services contract
5	Joint Crediting Mechanism Auditor	Consulting services contract

### C. Environmental Category

5. The project is classified as environmental category A according to Safeguard Policy Statement (SPS) 2009 of the Asian development Bank (ADB) due to construction and operation of a large WTE facility which may have potential significant adverse impacts. This project is classified as a Schedule D project by the Environmental Protection Agency (EPA), Republic of Maldives based on the Regulation on the Preparation of Environmental Impact Assessment (EIA) Report (2012/R-27). The Approval/Decision Statement for this project has been received from the EPA on 21 January 2020 and extended until December 2021. As site preparation work and demarcation work and site levelling work started within the EIA extension period, the EIA is valid till the end of project construction phase and operation phase. However, any change or any new activity which require permit should follow a screening process with the EPA. As such an addendum was prepared for construction and operation of a domestic sewerage treatment plant which was not covered in the EIA. <sup>1</sup>

### D. About this Report

6. This is the quarterly environmental monitoring report (QEMR) prepared by the Project Management Unit (PMU), the Ministry of Climate Change, Environment and Energy (MoCCEE), for the monitoring period from 1st July 2024 to 30<sup>th</sup> September 2024. This QEMR provides the status of project implementation, presents the preparation and implementation of environmental management, details of mitigation and monitoring actions, and status reports of compliance with the environmental management plan (EMP) and ADB loan covenants. This report covers the contract packages implemented under this project.

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<sup>1</sup> According to EIA regulation 2012 validity of EIA is one year and can only be extended once for another year. Before validity of decision statement expires, construction related work such as site clearance and mobilization of equipment and materials can be carried out. EPA considers such preliminary works as site activities as project initiation. Once a project is initiated within the validity period of EIA decision statement validity period of the permit will remain.



Figure 1: Project Implementation Area

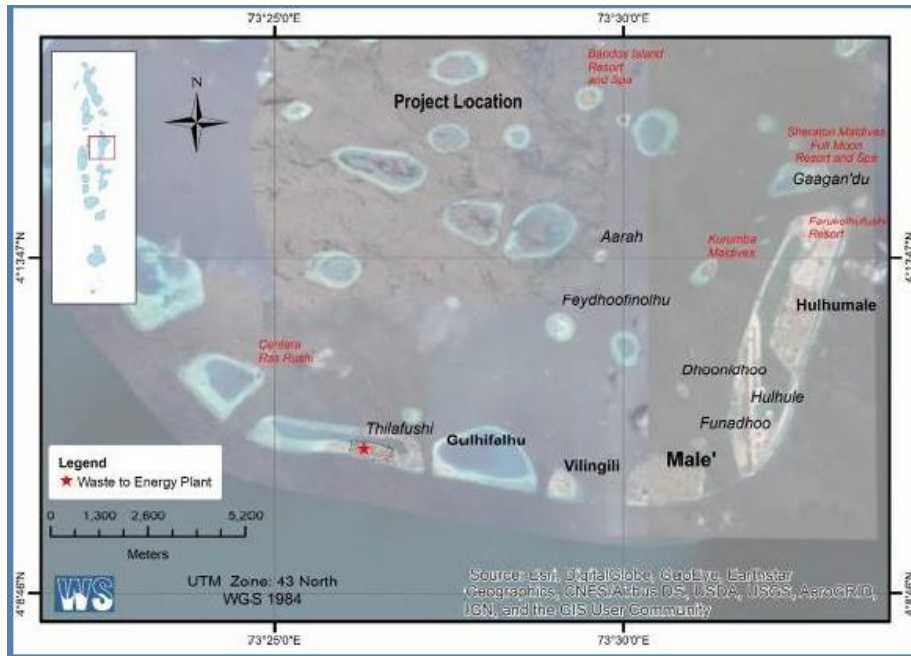
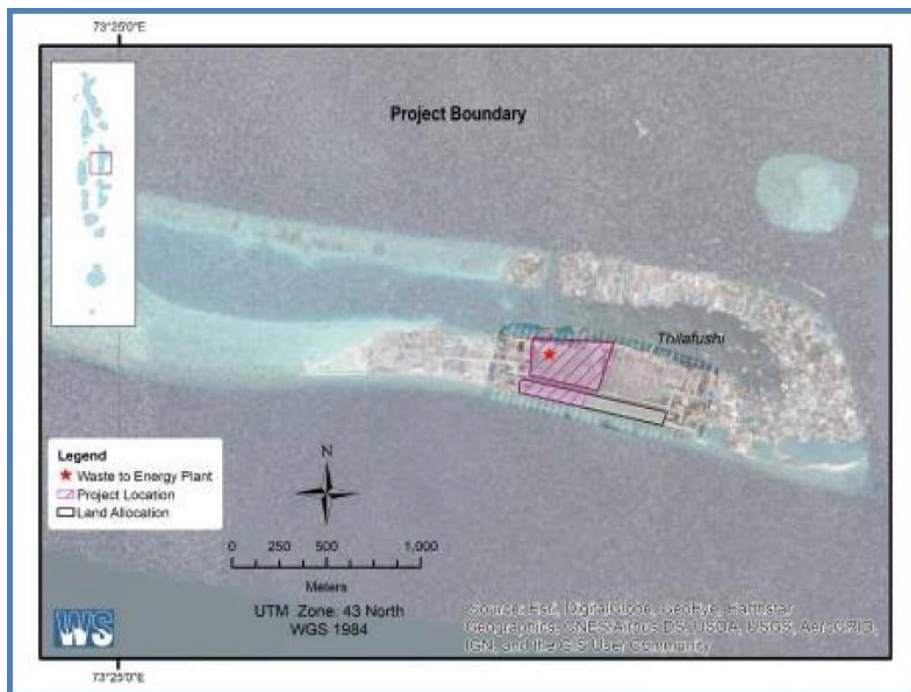


Figure 2: Proposed WTE Site in Thilafushi



## II. PROJECT IMPLEMENTATION ARRANGEMENTS

### A. Project and Safeguards Implementation Arrangements

7. The project's executing agency (EA) is the Ministry of Finance (MoF), while the implementing agency (IA) is the MoCCEE. The PMU at the MoCCEE will assist in: (i) project management; and (ii) function as project implementation unit to assist in day-to-day project implementation and operation of water supply, water resource management, and capacity building components.

8. A project steering committee (PSC), with membership comprising of officials from relevant ministries, representatives from other relevant institutions/agencies, provides overall policy and strategic guidance to the Project and ensures collaboration among central level agencies. The PSC is Chaired by the Minister, MoCCEE (or a senior official designated by the Minister), and representative from Ministry of Finance, Ministry of Housing, Land and Urban Development, Waste Management Corporation Limited (WAMCO), Ministry of Tourism, Ministry of Health, Ministry of Social and Family Development, Local Government Authority, Environmental Protection Agency and State Electric Company Limited (STELCO).

9. MoCCEE, through the PMU, is responsible for ensuring the project's compliance with the ADB loan covenants. Headed by the Project Director, PMU is responsible for the overall project and for the day-to-day implementation of the project. The PMU is staffed with technical, financial, safeguards, capacity building/governance and procurement officers to manage all technical, procurement, safeguards, and loan account administration. The PMU's key technical and managerial staff are supported by the Project Management Design and Construction Supervision Consultant (PMDSCS).

10. PMU is responsible for the implementation of this project in compliance with ADB's SPS 2009 and the applicable government rules and regulations. PMU, through a Safeguards Specialist, oversees the implementation and monitoring of environmental safeguards and is responsible for implementation, monitoring, reporting and compliance with safeguards related ADB loan covenants. PMU is supported by various experts, and the details of consultants, DBO Contractor and monitoring experts involved in the project are given below:

- 10.1. Consultants for implementation and monitoring. PMU is assisted by specialist consultants of PMDCSC in environment safeguards.
- 10.2. DBO Contractor. The WTE plant will be designed, constructed, operated, and maintained by a single contractor using the DBO Contractor contract. The O&M period under the DBO Contractor Contract will be 15 years. The DBO Contractor is responsible for the implementation of the EMP at all stages of the project. The DBO Contractor includes a full-time HSE manager with extensive experience. As part of back-to-back contract, EPC contractor has engaged a team of HSE professionals in compliance with contractual obligations.
- 10.3. External monitoring. As required by SPS 2009 for a category A project, an Independent External Monitor (IEM), an environmental expert has been contracted for this project to verify its monitoring information and reports directly to ADB. The IEM shall not be involved in the day-to-day project implementation or supervision of the project but will closely coordinate his/her site visits and work with the PMU.

## B. Status of Staff Resources

11. **Current status.** Table 2 shows the environmental safeguards staff engaged at all levels in the project including project agencies, consultants, contractors, and monitoring personnel. According to the DBO Contractor's obligations, one environment manager, one health and safety manager, three health and safety inspectors and three environment officers must be on site, one for each shift. However, there are a total of four subordinates for environment and health and safety as at present most construction work is executed/envisaged in one shift and on a need basis in second shift. The HSE manager for the EPC contractor resigned on the 1<sup>st</sup> of May 2024. Instead of hiring a replacement, the EPC contractor has preferred to handle HSE work with the current H&S manager and Environmental manager. The local environmental expert from PMDCSC has also resigned on the 7<sup>th</sup> of June 2024 and PMDCSC.

**Table 2: Environmental Safeguards Team**

No	Positions	Name of the expert/staff	Contact Number & Email	Remarks
<b>A PMU</b>				
1	Social and Environmental Safeguards Specialist	Fathimath Yamna Mohamed	+9609995153 <a href="mailto:fathimath.yamna@environment.gov.mv">fathimath.yamna@environment.gov.mv</a>	-
<b>B PMDCSC (Fichtner GmbH&amp; Co. KG together with Renewable Energy Maldives)</b>				
1	Team Leader	Javier Varon	+34608147897 <a href="mailto:Javier.varon@fichtner.es">Javier.varon@fichtner.es</a>	-
2	Project Manager	Maximilian Schrade	+601112201489 <a href="mailto:Maximilian.schrade@fichtner.de">Maximilian.schrade@fichtner.de</a>	-
3	Environmental Expert (international)	Sunil Chandra Gupta	+91- 9759955477, 9412230242 <a href="mailto:heenagrawal1@yahoo.co.uk">heenagrawal1@yahoo.co.uk</a>	-
4	Environmental Safeguard Expert (local)	Zaha Waheed	+9607904730 <a href="mailto:zaha.waheed@renewableenergymaldives.com.mv">zaha.waheed@renewableenergymaldives.com.mv</a>	Joined the project on 11 <sup>th</sup> September 2024
<b>C DBO Contractor (URBASER SA)</b>				
1	Project Manager, URBASER (DBO Contractor)	Javier Gamero Sutil	+34914122000 / +34 914122907 <a href="mailto:infoMaldivesWtE@urbaser.com">infoMaldivesWtE@urbaser.com</a>	-
2	EHS Manager, URBASER (DBO Contractor)	Roshan Thomas	+960 911 0165 <a href="mailto:rthomas@urbaser.com">rthomas@urbaser.com</a>	-
3	Contractor's Engineers (Project Manager)	Raymond Lee	+6590057789 <a href="mailto:rlee@ramboll.com">rlee@ramboll.com</a>	Ramboll as a company has been contracted as contractor's engineer by URBASER on 15 <sup>th</sup> March 2022
4	Environmental Manager	Sujith Sudhakaran	+9609502431 <a href="mailto:sujith@aawte.com">sujith@aawte.com</a>	-
5	HS manager	Dhamothara Kannan	+9609188331 <a href="mailto:dhamu@aawte.com">dhamu@aawte.com</a>	-
6	Environmental Consultant (national)	Dr. Mahmood Riyaz	+9607890307 <a href="mailto:mahmood.riyaz@gmail.com">mahmood.riyaz@gmail.com</a>	-
<b>D Independent External Monitor</b>				
1	Independent environmental monitor	Nicholas Skinner	<a href="mailto:nick.skinner@vistaenvironment.com">nick.skinner@vistaenvironment.com</a>	-

No	Positions	Name of the expert/staff	Contact Number & Email	Remarks
			0046736504583	

### III. PROJECT IMPLEMENTATION STATUS

#### A. Status of Bidding and Contract Award

12. The project has five contract packages. Details of contract packages are given in Table 3.

**Table 3: Status of Contract Packages**

No.	Package Number/Name	Project components	Status	Name of contractor	Duration of contract	Contract start date
1	DBO Contractor a WTE plant in Thilafushi	WTE plant and balance of plant with 15 years O&M	Contract awarded	Urbaser SA	18.5 years	10 October 2021
2	Project management, design and construction supervision	Project management, design and construction supervision	Contract awarded	Fichtner GmbH & Co. KG and Renewable Energy Maldives (REM)	66 months	30 January 2022
3	Community/Public Awareness consultant	Community Awareness consultant	Awaiting tender board endorsement. However: <ol style="list-style-type: none"> <li>1. Four consulting organizations have been shortlisted on the basis of EOI on March 6 2023 and the proposals were submitted on 7 September 2023.</li> <li>2. Technical evaluation has been completed and no objection received.</li> <li>3. Financial evaluation has been completed and submitted to</li> </ol>	-	-	Consultant will be finalized within the next quarter.

No.	Package Number/Name	Project components	Status	Name of contractor	Duration of contract	Contract start date
			MoF on 19 <sup>th</sup> August 2024.			
4	Independent Environment Monitor	Independent environment monitor for environment category A project	Contract signed. Site visits ongoing	Vista Environnement AB - Nicholas Skinner	60 months	19 December 2021
5	Joint Crediting Mechanism (JCM) Auditor	To validate proposed JCM project and verify GHG emissions reduction	Not advertised yet and to be hired in Q3 of 2024	-	-	-

## B. Implementation Status

13. Implementation status of awarded civil work contract packages is presented in Table 4.

**Table 4: Implementation Status of Civil Works Contract Packages**

No.	Package	Progress during reporting period	Cumulative progress as of 31 March 2024	List of main activities/works conducted during reporting period	Activities / Components completed to date
1	WTE plant and balance of plant with 15 years O&M.	Design: - 3.68% <sup>2</sup> Construction: 9.02% Procurement & Manufacturing: - 5.01%  <b>Overall Progress 4.14%</b>	Design: 61.53% Construction: 20.22% Procurement & Manufacturing: 19.72%  <b>Overall Progress 21.09%</b>	<ul style="list-style-type: none"> <li>▪ Detailed Design, documentation and review process is ongoing.</li> <li>▪ Monitoring of ambient air quality, noise level, ground water and marine water quality is ongoing.</li> <li>▪ Preparation /review / finalization of HSE Plans.</li> <li>▪ Dewatering permits for WtE Building excavation from URA and excavation permits from Urbanco (HDC) for main process building and bunker.</li> <li>▪ Development of construction related method statements.</li> <li>▪ Continuous dewatering at the bunker area is ongoing.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Geotechnical investigation.</li> <li>▪ Concept design</li> <li>▪ Permitting design</li> <li>▪ EIA update based on conceptual design.</li> <li>▪ Installation of wastewater treatment plant (WWTP)</li> <li>▪ Foundation detailed design of the main process building approved by ER.</li> <li>▪ Bunker area foundations completed and major part of the walls completed.</li> <li>▪ Spun pile driving completed.</li> <li>▪ Pile caps concrete work has been completed for the bunker and main process area. Turbine area remains to be completed.</li> </ul>

<sup>2</sup> Negative values are due to revisions made to the baseline schedule.

No.	Package	Progress during reporting period	Cumulative progress as of 31 March 2024	List of main activities/works conducted during reporting period	Activities / Components completed to date
				<ul style="list-style-type: none"> <li>▪ Concrete for foundation slabs and walls in the Bunker area is ongoing.</li> <li>▪ Backfilling between the pile caps in the Main Process Building area is ongoing.</li> <li>▪ Main process building Area 1,2,3 column concrete works ongoing.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spun pile static loading for turbine area completed.</li> <li>▪ Commissioning and operation of batching plant.</li> <li>▪ Turbine area sheet piling works completed.</li> <li>▪ Main process building Area 1,2,3 foundation slab completed.</li> <li>▪ Main process building Area 4,5,7 lean concrete completed.</li> </ul>

### C. Work Planned for the Upcoming Quarter (October-December 2024)

14. Main work that is planned for the upcoming quarter is presented in Table 5. However, the actual work and progress may vary.

**Table 5: Work planned for the upcoming quarter (October-December 2024)**

No.	Package	Expected progress during reporting period	Expected cumulative progress as of 31 December 2024	List of main activities/works planned for next reporting period
1	WTE plant and balance of plant with 15 years O&M.	Design: 13.47% Construction: 4.78% Procurement & Manufacturing: 3.28% <b>Overall Progress: 2.91%</b>	Design: 75% Construction: 25% Procurement & Manufacturing: 23% <b>Overall Progress 24%</b>	<ul style="list-style-type: none"> <li>▪ Concreting work for bunker, boiler foundation and incinerator</li> <li>▪ Excavation for sea water intake structure within the project site – dewatering expected</li> <li>▪ Bored piling work for stack area foundation</li> <li>▪ Detailed design work and review to continue</li> </ul>

#### IV. COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

##### A. Status of Clearances

15. Details of clearances, permits and approvals required for the implementation of the projects, status, and further actions required for compliance are presented in Table 6 and copy of updated legal register and each permit obtained during reporting period is enclosed as Appendix-1.

**Table 6: Status of Statutory Clearances**

Clearance/Permit Required	Status	Further Actions/Remarks
<b>DBO Contractor Contract</b>		
Environmental Clearance from EPA	<ul style="list-style-type: none"> <li>▪ Decision Statement (DS) obtained on 21 January 2020 and extended until 31 December 2021</li> <li>▪ EIA Addendum for commissioning of domestic Wastewater Treatment Plant (WWTP) at the WtE site has been approved by EPA and the documents were sent to URA for approval on 23 February 2023. URA issued the permit for operation of STP via letter dated 12 April 2023.</li> </ul>	<ul style="list-style-type: none"> <li>▪ There is no need to apply or renew for the construction phase as site clearance and levelling works started on 28 December 2021 by the contractor and has been informed to EPA. As site works already started no renewal of permit required from EPA. Site works undertaken after levelling involved securing of required Government permits, boundary fencing, setting up of project site office.</li> <li>▪ Monitoring program outlined in the approved EIA are being implemented during construction phase and summary of environmental monitoring reports is being submitted to MoCCEE as outlined in paragraph 8 of the Decision Statement. Failure to submit may result in the suspension or revocation of the permit. All quarterly environmental monitoring reports which include all details of monitoring are submitted to EPA.</li> </ul>
Dewatering Permit	<ul style="list-style-type: none"> <li>• Dewatering permit for WtE Building excavation has been renewed from URA on regular basis and last renewed permit was valid until 22.09.24.</li> <li>• last renewed dewatering permit was issued by HDC 07.08.24.</li> <li>• To comply with stipulated condition of dewatering permit, water quality tests are conducted @ once in 28 days for submission to URA.</li> <li>• Dewatering works have been stopped from 12 October 2024 and permit from URA and HDC will be renewed, before start of additional dewatering works.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Permit for discharge of water is to be obtained from the Maldives Utility Regulatory Authority (URA) and after every 28 days till completion of dewatering.</li> <li>▪ Location permit is to be obtained Housing Development Corporation (HDC) for laying pipeline and need to be renewed after 28 days.</li> </ul>



Clearance/Permit Required	Status	Further Actions/Remarks
Sewerage and wastewater treatment permit from the Utility Regulatory Agency (URA).	<ul style="list-style-type: none"> <li>▪ Permit via ref no 485-TE/PRIV/2023/233 dated 12 April 2023 has been obtained from URA to start operation of domestic WWTP</li> <li>▪ Unit has started operation from May 2023.</li> <li>▪ Treated wastewater quality is being tested for specified parameter @ once in a month for submission to URA.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Permit has been obtained for discharging of treated grey water or black water to sea or ground.</li> <li>▪ Monthly testing report from discharge point of unit is submitted to URA on regular basis.</li> </ul>
Operation of DG sets	<ul style="list-style-type: none"> <li>▪ At present 5 DG sets (2x180 KVA+ 1x200 KVA+ 1x385 KVA+1x300KVA) of total capacity of more than 1245 KVA are being used at project site during construction phase.</li> <li>▪ A temporary permit is given for three DG sets (2x180KVA+1x200 kVA) via an official email dated 18<sup>th</sup> September , 2023 stating that “All requirements are fulfilled by contractor, but final approval is pending due to URA being unable to process fees.”</li> <li>▪ Applications have been submitted to URA for getting permits for DG sets (1x300 KVA+1x385 KVA) and waiting for response from URA.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Contractor to follow up with URA for getting final permits from URA for all DG sets in compliance with regulation 2024/G-7 which include following main points to comply such as               <ol style="list-style-type: none"> <li>a. Generator should be installed inside a canopy to make it soundproof, or the generator hut shall be soundproofed;</li> <li>b. To ensure that Day-Night average sound level (LDN) measured at 1 meter from the generator containment wall should not be higher than 65 dB,A;</li> <li>c. An energy meter is to be installed on the Generator incoming line such that total energy consumed from the generator is logged;</li> <li>d. Exhaust stack height should not be lower than 3 meters from the top of the roof/building; etc</li> </ol> </li> </ul>
Excavation	No excavation work has been carried out within this quarter	<ul style="list-style-type: none"> <li>▪ In case of excavation , permit from HDC need to be obtained and renewed after every 14 days till completion of excavation.</li> </ul>
Approval of drilling of one borewell for getting ground water for proposed desalination plant.	<ul style="list-style-type: none"> <li>• Approval has been obtained from URA Reference No. 485-TE/PRIV/2024/423 dated 26 August 2024.</li> </ul>	To ensure that the implementation of the approved works adheres strictly to the “Technical Specification and Guideline for Borehole Drilling (URA 4004:2021)” of URA
Desalination plant registration and License to operate desalination plant from the URA	<ul style="list-style-type: none"> <li>• It is to be obtained for commissioning and operation of borewell and RO plant which is under commissioning in batching plant area for use during construction phase.</li> </ul>	For the desalination plant, it is required to submit the EIA Decision Note for EIA report and completed application forms with all details of the plant to be registered must be submitted to URA. A copy of the relevant section of the EIA may be appended to the forms as justification for the desalination plant.
Registration with transport authority and permits from MNDF for mobile	<ul style="list-style-type: none"> <li>▪ The process for obtaining permit from MNDF is ongoing and the tanker has been inspected by MNDF on 31<sup>st</sup> July 2024.</li> </ul>	The mobile diesel tanker requires registration from Maldives Transport Authority upon receipt of permit from MNDF.

Clearance/Permit Required	Status	Further Actions/Remarks
diesel tanker of 5000 L		
Registration of vehicles which are in use within project site	<ul style="list-style-type: none"> <li>▪ Registration of three transit mixers is in place and reportedly for others, it is in process. However, record of vehicles for which registration is pending has not been shared.</li> </ul>	Need compliance for all vehicles on site.
Fire Safety (Kitchen and Worker Accommodation)	<ul style="list-style-type: none"> <li>▪ Permit from MNDF (Fire Approval Letter) has been obtained on 15 February 2023 for accommodations and offices at the camp site for the construction phase.</li> <li>▪ Inspection was conducted by MNDF on 3.07.23 for verification of firefighting system installed for compliance with standards.</li> </ul>	Maldives National Defense Force (MNDF) has provided permit for fire safety to camp facilities in operation including kitchen and workers accommodation. No fire hydrants required according to local regulations.
Health center with one full time doctor and one nurse	<ul style="list-style-type: none"> <li>▪ Registration of the health center</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Health Services Act of the Maldives – 29/2015 published on 7/9/2015 requires the clinic to be registered and licensed to provide any type of health service.</li> </ul>

## V. COMPLIANCE STATUS WITH ENVIRONMENTAL REQUIREMENTS

### A. Compliance with Loan Covenants

16. The status of compliance with environmental safeguard related loan covenants is given in Table 7. All loan covenants are being complied with

**Table 7: Status of Compliance with Loan Covenants**

Loan Agreement	Covenant	Compliance Status	Proposed actions, if any
Schedule 4, paragraph 4  Environment	The Borrower, through the Project Executing Agency and the Implementing Agency, shall ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health and safety (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the EIA, the EMP, and any corrective or preventative actions set forth in a safeguards monitoring report.	Being complied. PMU is continuously monitoring to ensure that Project activities follow all applicable laws and regulations and the Safeguards Specialist of the PMU ensures that all measures and requirements set forth in the EIA and EMP are complied with.	
Schedule 4, paragraph 6  Human and Financial Resources to Implement Safeguards Requirements	The borrower shall make available necessary budgetary and human resources to fully implement the EMPs.	Being complied. The Social and Environmental Safeguard Specialist and PMDCSC are assisting PMU in monitoring and in reviewing of documents and approval process.	
Schedule 4, paragraph 7  Safeguards-Related Provisions in Bidding Documents and Works Contracts	The Borrower through the Project Executing Agency and the Implementing Agency, shall ensure that all bidding documents and contracts for Works contain	<ul style="list-style-type: none"> <li>Complied. All bidding documents related to the project included the EIA and the EMP, and compliance have been ensured by the Safeguards Specialist, PMU.</li> </ul>	<ul style="list-style-type: none"> <li>Any updated version of the EIA will be provided to the Contractor. Contractor shall be required to comply with all relevant requirements in the updated EIA (including any new requirements not included in the draft EIA and/or any amended</li> </ul>

Loan Agreement	Covenant	Compliance Status	Proposed actions, if any
	<p>provisions that require the contractors to:</p> <p>a) comply with the measures relevant to the contractor set forth in the EIA and the EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report;</p> <p>b) make available a budget for all such environmental measures; and,</p> <p>c) provide the Borrower with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the EIA and the EMP.</p>	<ul style="list-style-type: none"> <li>EIA update considering approved conceptual design details, prepared by contractor has been approved in September-23 and is in use.</li> </ul>	<p>requirements from the draft EIA).</p> <ul style="list-style-type: none"> <li>As per contract, further EIA update is to be made considering the approved design details which is still under process of finalization.</li> </ul>
<p>Schedule 4, paragraph 8</p> <p>Safeguards Monitoring and Reporting</p>	<p>The Borrower, through the Project Executing Agency and the Implementing Agency, shall do the following:</p> <p>a) submit quarterly Safeguards Monitoring Reports to ADB during construction of the project facilities and semi-annual Safeguards Monitoring Reports thereafter, and disclose relevant information from such reports to affected persons promptly upon submission;</p>	<p>Being complied. Environmental monitoring reports are submitted to ADB accordingly and the Independent External Monitor has been engaged on 19 December 2021 to verify the monitoring information of the project. Any breach or potential breach will be reported.</p>	<p>-</p>

Loan Agreement	Covenant	Compliance Status	Proposed actions, if any
	<p>b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the EIA and the EMP, promptly inform ADB of this occurrence of each risks or impacts, with detailed description of the event and proposed corrective action plan;</p> <p>c) no later than 3 months after the Effective Date, engage qualified and experienced external experts or qualified NGOs under a selection process and terms of reference acceptable to ADB, to verify information produced through the project monitoring process and facilitate the carrying out of any verification activities by such external experts; and,</p> <p>d) report any actual or potential breach of compliance with the measures and requirements set forth in the EMP promptly after becoming aware of the breach.</p>		

#### **B. Status of Environmental Assessment Reports and Approval**

17. The Environmental Impact Assessment (EIA) Report has been approved by ADB and disclosed in their website in July 2020 as complying with the requirements of SPS 2009. The EIA report has been further updated by the DBO Contractor considering the approved concept design

and baseline environment monitoring results during pre-construction activity, reviewed, and cleared by PMDCSC / PMU and submitted to ADB. Updated EIA report has been cleared by ADB. Table 8 presents the status of the EIA report.

**Table 8: Status of the EIA Report**

No.	Package	Status		Remarks
		Concept Design	Detailed Design	
1	WTE plant	EIA update considering change in power production from 10 MW to 13 MW capacity and the required additional baseline data, as well as the environmental monitoring results during pre-construction activity has been approved in September-2023.	In the process  EIA will be further updated with reflect the detailed design	<ul style="list-style-type: none"> <li>▪ Draft EIA disclosed in ADB website in December 2019</li> <li>▪ Updated draft EIA disclosed in ADB website in March 2020 and July 2020 provide explanatory notes for the updates.</li> <li>▪ The updated EIA is disclosed by ADB on 11<sup>th</sup> September 2023</li> <li>▪ Draft and updated EIA reports also disclosed on implementing agency / project website.</li> <li>▪ Also, EIA update with air quality dispersion modeling, thermal plume modeling, and other appropriate updates will be done based on the detailed design by the DBO Contractor after approval of the detailed design.</li> </ul>

18. The link for the EIA update disclosed in July 2020 at the ADB website is <https://www.adb.org/projects/documents/mld-51077-003-eia-2> while the link for the project website is <https://www.environment.gov.mv/v2/en/download/10368>. The link for EIA updated in August 2023 in ADB website is <https://www.adb.org/projects/documents/mld-51077-003-eia-3> and link from Project website is [https://mymaldiveshome.environment.gov.mv/knowledge\\_articles/environmental-impact-assessment-greater-male-waste-to-energy-project-waste-to-energy-plant-part-a/](https://mymaldiveshome.environment.gov.mv/knowledge_articles/environmental-impact-assessment-greater-male-waste-to-energy-project-waste-to-energy-plant-part-a/)

### **C. Safeguards in Bid Documents and Contracts**

19. The EIA including the EMP has been included in the bid documents as well as in the DBO Contractor Contract for implementation and compliance.

## VI. STATUS OF EMP IMPLEMENTATION

### A. Details of site visits/field verifications by Safeguard Staff

20. Table 9 provides the details of field/construction site visits conducted by the environmental safeguards' officers/experts for supervision and monitoring. The purpose of the site visits was to ensure compliance to contractual obligations on the HSE aspects including the status of documents (CEMP, CEMP Guide, H & S Plan, SOPs and others) for pre-construction and construction period, and the HSE requirements during pre-construction and construction period etc.

**Table 9: Field Verification Visits by Safeguards Supervision and Monitoring Staff**

No	Position of staff/expert	Name	Date of visit	Purpose of visit	Name of work sites visited	Indicate if the onsite environmental staff of the contractor is available onsite during the visit
1	PMU Safeguards Specialist	Fathimath Yamna Mohamed	<ul style="list-style-type: none"> <li>• 9<sup>th</sup>, 18<sup>th</sup>, 29<sup>th</sup>, 30<sup>th</sup> July</li> <li>• 5<sup>th</sup> and 10<sup>th</sup> September</li> </ul>	Inspection	WtE facility construction site in Thilafushi	EHS manager of DBO Contractor was on-site during site visits in July and August.
2	PMDCSC: Site Engineer	Sofi bin Ismail	Deputed on project site on full time basis.	Supervision		
3	PMDCSC: Deputy Team Leader	Naahee Nazim	<ul style="list-style-type: none"> <li>▪ 9<sup>th</sup>, 18<sup>th</sup> 25<sup>th</sup>, 29<sup>th</sup> &amp; 30<sup>th</sup> July</li> <li>▪ 13<sup>th</sup> August</li> <li>▪ 16<sup>th</sup>, 17<sup>th</sup> and 24<sup>th</sup> September</li> </ul>	Inspection		
4	PMDCSC: International Environment Safeguard	Sunil Gupta	<ul style="list-style-type: none"> <li>▪ 29<sup>th</sup> &amp; 30<sup>th</sup> July</li> </ul>	Inspection cum audit		
5	PMDCSC: Local Environment Safeguard	Zaha Waheed	<ul style="list-style-type: none"> <li>▪ 24<sup>th</sup> and 30<sup>th</sup> September</li> </ul>	Inspection		
6	Independent Environment Monitor	Nick Skinner	<ul style="list-style-type: none"> <li>▪ No visit scheduled for this quarter.</li> </ul>	-		

21. The inspections included assessments of signages, compliance on personal protective equipment usage, heavy machinery operation procedures and logs of activities. The verification of baseline environmental monitoring is also part of the scope of work. Reports of onsite inspections and audit done by the PMDCSC during this quarter are enclosed as Appendix-2.

**B. Implementation of Design and Pre-construction Stage EMP**

22. Table 10 presents the status of the EMP implementation during the design and pre-construction stage. Table 11 was based on Table 64 (Environmental Management Plan Matrix) from the EIA (July 2020) which was disclosed in ADB website as well as in the project website. The design EMP being implemented and mitigation measures shall be duly integrated into the project detailed design.



**Table 10: Design/Pre-Construction Mitigation Measures Implementation & Compliance**

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
	<b>Category of compliance</b>				<i>“Complied”, “Being complied”, “Partially complied”, “Not complied”</i> <sup>3</sup>
1	Invitation for Bids	<ul style="list-style-type: none"> <li>No bidding documents shall be issued without having the mitigation measures and monitoring requirements in the EIA report included in the safeguard clauses of technical specifications in bidding and contract documents.</li> </ul>	<ul style="list-style-type: none"> <li>Bidding and contract documents include safeguard provisions</li> </ul>	<ul style="list-style-type: none"> <li>Completed</li> </ul>	<ul style="list-style-type: none"> <li>Complied</li> </ul>
2(i)	Locating intake and outfall of cooling/thermal water.	<ul style="list-style-type: none"> <li>If necessary, undertake coral and benthic study following Reef Check protocol.</li> </ul>	<ul style="list-style-type: none"> <li>Findings of marine ecological survey being conducted</li> </ul>	<ul style="list-style-type: none"> <li>Marine ecological survey is being conducted on quarterly basis.</li> </ul>	<ul style="list-style-type: none"> <li>Being Complied</li> </ul>
2(ii)		<ul style="list-style-type: none"> <li>Confirm that the pre-identified best location for intake and outfall is acceptable to the DBO Contractor. If changes are planned, the DBO Contractor shall ensure that withdrawal of cooling water and discharge of cooling water will have no or minimum impact to underwater ecosystem.</li> </ul>	<ul style="list-style-type: none"> <li>Due to proposed planned shoreline reclamation work by the Housing Development Department (HDC) at the southern shoreline of Thilafushi Island, the depth and locations may be changed which will be determined in detailed design phase.. The shoreline extension is necessary to create space for the road construction passing the site at the Southern</li> </ul>	<ul style="list-style-type: none"> <li>HDC has confirmed during June 2024 that reclamation will be carried out to accommodate a road on the south side of the project area, between the site plot and the sea, in which water intake and outfall pipelines have been proposed.</li> <li>PMDSC has issued an instruction to the DBO Contractor via letter</li> </ul>	<ul style="list-style-type: none"> <li>Being complied</li> </ul>

<sup>3</sup> Complied: Mitigation measures have been implemented, Being complied: Some mitigation measures have been implemented and some are in the process of implementation, Partially complied: There is a gap in compliance and a remedial action is required, Not complied: Mitigation measures have not been implemented.

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
			<p>boundary. As per contract, the hot water discharge maximum temperature difference of 3°C compared with the intake water temperature must be complied with.</p> <ul style="list-style-type: none"> <li>▪ Finding of marine ecological survey.</li> </ul>	<p>4169Ao1/330/144 dated 26 July 2024 to consider the revised shoreline in their design considering basic design drawings as received from HDC.</p> <ul style="list-style-type: none"> <li>▪ Thermal plume modelling will be carried out considering updated design details. It is currently unclear when the detail design is completed and when the study can be submitted.</li> <li>▪ Study area for quarterly marine ecological survey will be changed accordingly and as part of the EIA update; impacts and EMP shall be revised.</li> </ul>	
2(iii)		<ul style="list-style-type: none"> <li>▪ Contract documents to include performance guarantee by the facility that hot water discharge shall have maximum temperature difference of 3 degrees Celsius from the ambient temperature.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hot water discharge - maximum temperature difference of 3°C from the ambient temperature</li> </ul>	<ul style="list-style-type: none"> <li>▪ Completed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
2(iv)		<ul style="list-style-type: none"> <li>▪ Undertake hot water dispersion modeling along the planned area of discharge. Ensure that this area is with no or least marine species that could be affected</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hot water discharge - maximum temperature difference of 3°C from the intake temperature.</li> <li>▪ Findings of marine ecological survey being</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 2(ii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
2(v)		<p>based on the underwater ecology study.</p> <ul style="list-style-type: none"> <li>▪ If there will be changes in the location of cooling water discharge location, the DBO Contractor shall conduct confirmatory numerical modelling for brine discharge— both near and far-field, covering all 4 seasons (2 monsoon and 2 inter-monsoon) to ensure the location of discharge will not have significant impact to marine environment.</li> </ul>	<p>conducted on regular basis</p> <ul style="list-style-type: none"> <li>▪ Findings of detailed design and revised thermal dispersion modelling.</li> <li>▪ Hot water discharge - maximum temperature difference of 3°C from the intake temperature.</li> <li>▪ Findings of marine ecological survey being conducted</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 2(ii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
2(vi)		<ul style="list-style-type: none"> <li>▪ Ensure that design considers achievement of proper mixing and rapid dilution within a small area around the outfall.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Outcome of detailed design and proposed modelling</li> </ul>	<ul style="list-style-type: none"> <li>▪ System is being designed to ensure proper mixing and rapid dilution, though it is yet to be finalized and approved.</li> </ul>	Being Complied
2(vii)		<ul style="list-style-type: none"> <li>▪ Consider in the design of the combined outfall for hot water and treated wastewater to minimize impact to marine ecosystem.</li> </ul>		<ul style="list-style-type: none"> <li>▪ Findings of design will be verified via modelling to be carried out as part of EIA update considering approved detailed design parameters.</li> </ul>	
3 (i)	Location of ambient air quality monitoring stations	<ul style="list-style-type: none"> <li>▪ Contract documents to include performance guarantee for the facility that emissions comply with applicable standards.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Copy of work orders</li> <li>▪ Findings of performance guarantee tests</li> </ul>	<ul style="list-style-type: none"> <li>▪ Performance Guarantees: minimum air emission standards for both the WtE and the bottom ash processing plant has been prescribed in contract with DBO Contractor .</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<ul style="list-style-type: none"> <li>▪ Collect/Conduct meteorological data on daily basis for various seasons of the year to map projected wind directions, speeds at any season during plant operations.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Site specific meteorological data including wind rose diagram</li> </ul>	<ul style="list-style-type: none"> <li>▪ Meteorological data is received from Maldives Meteorological department on a monthly basis and is included in the Environment Monthly Reports.</li> <li>▪ Windssocks have been provided at two locations within project site.</li> <li>▪ Online anemometer has been installed at site to monitor wind speed, direction, temperature and humidity. Only on time display of data has been provided and no data logger has been provided for data recording.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
3 (ii)		<ul style="list-style-type: none"> <li>▪ Design smoke stacks with height that will ensure emissions will have no or minimum impact to surrounding receptors within the direct and indirect impact zones.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Final design details on stack height, diameter, location, gas temperature, gas velocity, emission rate of each pollutant etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Detailed design has been completed and approved to ensure contractual obligations as mentioned.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
3 (iii)		<ul style="list-style-type: none"> <li>▪ Undertake air dispersion modelling to show and understand the behaviour and movement of components of flue gas from the stacks.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Findings of dispersion modelling on GLCs of relevant pollutants</li> </ul>	<ul style="list-style-type: none"> <li>▪ Air dispersion modelling report was submitted on 8<sup>th</sup> August 2024 for review and rejected for resubmission by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<ul style="list-style-type: none"> <li>▪ Modified report report is expected to be submitted by 28<sup>st</sup> October 2024.</li> </ul>	
3 (iv)		<ul style="list-style-type: none"> <li>▪ Based on the dispersion modelling, identify the appropriate sampling locations for ambient air quality in Thilafushi island and other islands nearby, if necessary and practical.</li> </ul>		<ul style="list-style-type: none"> <li>▪ Existing monitoring locations will be reviewed on receipt of air dispersion modelling report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
3 (v)		<ul style="list-style-type: none"> <li>▪ Undertake baseline ambient air quality data gathering with due consideration of the direction of flow of smoke from the existing dumpsite</li> </ul>	<ul style="list-style-type: none"> <li>▪ Results of monitoring of ambient air quality.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ambient air quality at seven locations as per approved EIA report has been conducted on regular basis as per modified CEMP.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
4(i)	Locating proper drainage system around the facility	<ul style="list-style-type: none"> <li>▪ To prepare and implement wastewater management, dewatering and storm water drainage plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approved plans and system</li> </ul>	<ul style="list-style-type: none"> <li>▪ There are no stormwater drainage facilities in place for construction phase. However:               <ol style="list-style-type: none"> <li>1. Sewerage treatment plant has been provided and treated wastewater is being discharged into sea.</li> <li>2. For dewatering of water from excavated area, a sedimentation pond has been commissioned to provide retention time before discharging to the sea.</li> <li>3. No wastewater will be generated from the</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>cooling system of concrete batching plant.</p> <p>4. According to DBO Contractor, wastewater generated during washing of transit mixers is being taken out of the site by Villa subcontractor. However, a pipeline discharging wastewater to the adjacent site was found in May and July 2024 during inspection. PMDCSC has notified DBO Contractor via audit report conducted in July 2024 and issued an instruction vide letter 4169A01/330/156 dated 19 September and DBO Contractor responded vide letter MDV-20241007-URB-MME-LT-0202 dated 10 October 2024. Incident has been notified as environment incident and further details are provided in Table 16.</p> <ul style="list-style-type: none"> <li>▪ No disturbance to natural drainage from site construction</li> </ul>	

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				activities for storm water has been observed during construction phase. <ul style="list-style-type: none"> <li>▪ Drainage plans for the roads and facilities, as well as runoff, are to be finalized.</li> </ul>	
4(ii)		<ul style="list-style-type: none"> <li>▪ Identify and demarcate drainage lines within and around the WTE site, including approach roads. Ensure that these channels do not disturb or impede natural flow of storm water from the island to the sea.</li> </ul>	<ul style="list-style-type: none"> <li>▪ System/ plan in place and followed</li> <li>▪ Base line details and EMP given in approved EIA update</li> <li>▪ Findings of geotechnical report</li> </ul>	<ul style="list-style-type: none"> <li>▪ Dewatering plan is in operation to discharge the water generated from excavated area into sea.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
4(iii)		<ul style="list-style-type: none"> <li>▪ Provide cross drainage structures wherever necessary along the new approach roads.</li> </ul>		<ul style="list-style-type: none"> <li>▪ As per given under 4(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
4(iv)		<ul style="list-style-type: none"> <li>▪ Integrate the above considerations in the final drainage plan for the project site.</li> </ul>			
5(i)	Physical integrity of proposed project site.	<ul style="list-style-type: none"> <li>▪ Integrate results of geotechnical study undertaken to the design of project infrastructures.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Findings of review and approval of detailed design at various levels</li> </ul>	<ul style="list-style-type: none"> <li>▪ Geotechnical report has been approved and all recommendations are/will be considered during detailed designing which is in the process.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
5(ii)		<ul style="list-style-type: none"> <li>▪ Undertake and include results of climate vulnerability and risk assessment (CVRA) in the design of the project.</li> <li>▪ Provide site protections based on the risks identified in the CVRA.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Findings and recommendations of CVRA report in the detailed design.</li> <li>▪ Findings of review and approval of detailed design at various levels</li> </ul>	<ul style="list-style-type: none"> <li>▪ CVRA report was submitted on 13<sup>th</sup> August 2024 for review and rejected for resubmission by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
5(iii)		<ul style="list-style-type: none"> <li>▪ Coordinate with WAMCO to ensure the stability of the municipal dumpsite.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Physical condition of the slope of piles of municipal waste dumped adjacent to project site.</li> <li>▪ Reported incidents of fall of materials etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Modified CVRA report is expected to be submitted by 25<sup>th</sup> October 2024.</li> <li>▪ The site boundary facing the Eastern side of the dumping site of WAMCO has been shifted away by approx. 20m and a fence has been installed.</li> <li>▪ The slope of the dump is levelled by WAMCO and reinforced with construction waste.</li> <li>▪ Communication system is in place to resolve the related issue with WAMCO on immediate basis.</li> <li>▪ An incident of partial damage of site boundary due to slide of waste from dump on 1 September as per details given in Table 13.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied during period and is an ongoing process</li> </ul>
6(i)	Work program and pre-approved plans	<ul style="list-style-type: none"> <li>▪ Develop the following plans (but not limited to) that shall be included in the final detailed design and implemented during construction stage:               <ul style="list-style-type: none"> <li>- Construction Waste Management Plan.</li> <li>- Occupational Health and Safety Plan following</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ H&amp;S plan, CEMP and relevant HSE plans.</li> <li>▪ Findings of inspections, audits and environment monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Modified CEMP and HSE plans approved in April 2024. HSE plans as mentioned in the CEMP are in place and as per details of status provided in Table 11</li> <li>▪ Activity wise method statement and SOPs are developed by the</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>



No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<p>international best practices on occupational health and safety such as those in Section 4.2 of IFC EHS Guidelines on Construction and Decommissioning Activities.</p> <ul style="list-style-type: none"> <li>- Construction Camp Development and Management Plan.</li> <li>- Spill Control and Containment Plan</li> <li>- Marine and Beach Area Construction Work Plan</li> <li>- Erosion Control Plan for pipeline works</li> <li>- Traffic Management Plan including via sea around the construction site to ensure easy access and passage of workers and employees of establishments at two sides of the project site.</li> </ul>		<p>Contractor in an ongoing manner, targeting relevant construction and commissioning activities.</p> <ul style="list-style-type: none"> <li>▪ Regular inspections and audits by contractor and PMDCSC</li> </ul>	
6(ii)		<ul style="list-style-type: none"> <li>▪ To prepare and implement mitigation measures and emergency response plan including SOPs and checklists during construction phase.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 6(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 6(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
6(iii)		<ul style="list-style-type: none"> <li>▪ Develop the following plans or manuals that shall be utilized during operation stage: <ul style="list-style-type: none"> <li>- Operation and Maintenance Manual</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ All manual and plans as mentioned.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Requisite plans and manuals will be developed on finalization of detailed design and before start of operation of proposed project.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not yet due. Yet to be complied with.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<ul style="list-style-type: none"> <li>- Waste Screening Procedure / Plan to ensure all waste inputs to the facility comply with quantity and quality requirements, including accounting of hazardous / halogenated organic components in wastes.</li> <li>- In-house Solid Waste Management Plan.</li> <li>- Occupational Health and Safety Plan following international best practices on occupational health and safety such as those in IFC EHS Guidelines on Waste Management Facilities.</li> <li>- Spill Control and Containment Plan.</li> <li>- Emergency and Disaster Preparedness and Response Plan.</li> </ul>			
7	Consents, permits, clearances, no objection certificate (NOC), etc.	<ul style="list-style-type: none"> <li>▪ Obtain all necessary consents, permits, clearance, NOCs prior to start of civil works.</li> <li>▪ Ensure the compliance of stipulated conditions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Copies of necessary consents, permits, clearance, NOCs prior to start of civil works</li> <li>▪ Compliance report of stipulated conditions</li> </ul>	By and large Consents, permits, clearance, NOCs are in place as per details provided in Table 6 and in Appendix-1.	Partially Complied, as permitting is an ongoing process with renewals and new permits.
8(i)	Shifting of Utilities	<ul style="list-style-type: none"> <li>▪ Identify and include locations and operators of these utilities in the detailed design to prevent unnecessary disruption of services during the construction phase.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per approved layout plan, likely disruptions are due to live power cable of STELCO passing through the project site.</li> </ul>	The contract for relocation between HDC and STELCO has been signed on 3rd June 2024. However,	Being complied

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>work has not been started.</p> <ul style="list-style-type: none"> <li>▪ To avoid delay in construction, DBO Contractor has laid above ground dewatering pipe crossing the live power cable of STELCO with mitigation measures such as extra spun piles for safety. The cable is located 1m below ground level.</li> </ul>	
8(ii)		<ul style="list-style-type: none"> <li>▪ Prepare a contingency plan to include actions to be taken in case of unintentional interruption of services, such as the following:               <ul style="list-style-type: none"> <li>- In case of water supply disruption, provide temporary water supply source for the affected establishments.</li> <li>- In case of power interruption, provide prior notice to affected establishments. If interruption is unscheduled due to unforeseen incidents, provide a standby generator set to serve as temporary power supply to affected establishments.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Uses of standby DG sets</li> <li>▪ Plan for transportation of materials by using quay wall due to presence of shipwreck</li> </ul>	<ul style="list-style-type: none"> <li>▪ Five DG sets (2x180KVA+1x200KV A+1x300 KVA+1x385 KVA) are in operation.</li> <li>▪ No plan is in place in case water supply from MWSC is disconnected for construction works and domestic usages. However, purchased bottle water for drinking is available on site.</li> <li>▪ Discussions are in process with HDC for removal of shipwreck. However, details of existing plan are as per given below under item 11(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<ul style="list-style-type: none"> <li>▪ Identify the list of affected utilities and operators and coordinate closely with relevant government departments.</li> </ul>			
9(i)	Locating sites for construction work, camps, areas for stockpile, storage, and disposal	<ul style="list-style-type: none"> <li>▪ Except disposal sites, all the work sites (camps, storage, stockpiles etc.) will be located within the selected site.</li> <li>▪ No construction camp shall be located on the beach or overwater.</li> <li>▪ Material shall be brought to site as and when required, and temporary storage of material (pipe, sand etc.,) shall be made near the work site.</li> <li>▪ No temporary storage shall be located at the lagoon section</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of pre-approved sites for construction work camps, areas for stockpile, storage, and disposal</li> </ul>	<ul style="list-style-type: none"> <li>▪ A site organization plan was submitted in May 2022 and was approved by the PMU before mobilization and pre-construction activities on site were permitted.</li> <li>▪ All work sites (camps, storage, stockpiles etc.) are located within the boundary of project site</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
9(ii)		<ul style="list-style-type: none"> <li>▪ Waste shall be disposed in existing approved disposal sites; any new sites shall be developed considering siting guidelines, maintained, and operated accordingly</li> </ul>	<ul style="list-style-type: none"> <li>▪ Records of waste generation and disposal as per waste management plan and procedure, Soil management plan and relevant method statements for STP, dewatering etc</li> </ul>	<ul style="list-style-type: none"> <li>▪ All type of solid wastes are stored at dedicated places within project site and handed over to WAMCO for disposal.</li> <li>▪ Requisite facilities such as storage area for excavated soil for temporary storage has been provided.</li> <li>▪ Sewerage treatment plant has been provided and treated wastewater is being discharged into sea.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<ul style="list-style-type: none"> <li>▪ System is in place for dewatering during excavation into sea.</li> <li>▪ The compliance is verified through regular review of data/details provided in monthly report submitted by DBO Contractor, regular site inspections and audit carried out by PMDCSC and PMU.</li> </ul>	
10 (i)	Sourcing of construction materials	<ul style="list-style-type: none"> <li>▪ Obtain construction materials for this project from the licensed quarries acceptable to government.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Permits and compliance to stipulated condition in case construction material will be sourced from quarries.</li> <li>▪ Records of sources of procured construction materials.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Most of the construction material is being/will be imported from overseas, as it is not available locally. Only internationally accepted suppliers are/will be used for supply of construction materials.</li> <li>▪ The government of Maldives does not maintain a register of licensed parties. Hence, PMU/PMDCSC verifies and approves supplier's information before material approval is given to contractor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
10 (ii)		<ul style="list-style-type: none"> <li>▪ For new borrow sites to borrow fill material and backfill material, prior permission must be obtained</li> </ul>	<ul style="list-style-type: none"> <li>▪ Clearance/permission from EPA, MOE, Maldives and compliance to stipulated conditions</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per present estimate, no additional soil will be required for</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied, if any</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<p>from Maldives EPA, and the environmental impacts of the operation should be properly examined and mitigated as necessary</p>		<p>levelling of the project site or for construction.</p>	
10 (iii)		<ul style="list-style-type: none"> <li>▪ Make efforts to minimize the overall material requirement for the project by adopting various approaches – balanced cut and fill, re-use as much excavated material from this project as possible</li> </ul>	<ul style="list-style-type: none"> <li>▪ Records of materials procured, used and disposed as waste</li> </ul>	<ul style="list-style-type: none"> <li>▪ All records of material procured, used and disposed as waste are being kept as part of Daily Progress Report (DPR) and summary of same is being reported in monthly report.</li> <li>▪ Excavated material is being stored on site for possible usages for backfilling work.</li> <li>▪ The compliance is being verified by site engineer of PMDCSC and regular site inspections carried out by PMDCSC and PMU.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
10 (iv)		<ul style="list-style-type: none"> <li>▪ Submit to PMU monthly, documentation (materials quantities with source).</li> </ul>	<p>Records of materials procured and source</p>	<ul style="list-style-type: none"> <li>▪ All records of material procured, used and disposed as waste are being kept as part of Daily Progress Report (DPR) and summary of same is being reported in monthly report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
11(i)	<p>Delivery route for construction materials and equipment</p>	<ul style="list-style-type: none"> <li>▪ Identify a separate berth location for loading and unloading construction heavy equipment and raw materials that will not disrupt day-to-</li> </ul>	<ul style="list-style-type: none"> <li>▪ Smooth delivery of all construction related materials, machinery/equipment etc as all will be transported</li> </ul>	<ul style="list-style-type: none"> <li>▪ A dedicated quay wall is provided to the contractor which includes a 30-meter buffer zone from the</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<p>day activities in the island. Avoid use of the common ports being used by locals.</p> <ul style="list-style-type: none"> <li>▪ If no other areas available, execute agreement with WAMCO to use WAMCO's berths/docking ports when delivering heavy equipment and big-sized construction materials to the site.</li> </ul>	<p>to project site via sea as per dedicated delivery routes provided by maritime authorities.</p>	<p>quay wall. The existing debris and shipwrecks are to be moved away, to ensure that there are no obstacles during the unloading process. The space is sufficient for materials brought in for ongoing construction activities, but may hinder if large quantities are to be unloaded. Two shipwrecks have been removed and there are currently three remaining. This area is exclusively allocated for the use of the contractor and will be available throughout the construction period.</p> <ul style="list-style-type: none"> <li>▪ Private jetty owned by Villa Pvt Ltd is used for unloading of construction materials to be used for batching plant located within project site as same has been engaged as sub-contractor for supply of material for batching plant and its operation.</li> <li>▪ Cargo ferry is also used for small quantities of materials such as food items and other consumable materials</li> </ul>	

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				for camp and kitchen. This is unloaded at the main port of Thilafushi and transported to project site via road.	
12	Final Detailed Design Components	<ul style="list-style-type: none"> <li>▪ Ensure the final detailed design will integrate the following mandatory requirements:               <ul style="list-style-type: none"> <li>- Use of best practical incineration technology as recommended in the EIA.</li> <li>- Use of stack height recommended in the EIA. If circumstances based on the recommended stack height is to be changed (e.g., change in dimensions of the WTE plant building structure), ensure to use a stack height that is based on a new modelling calculation.</li> <li>- Installation of air pollution control device that will ensure emissions in compliance with the emission standards as indicated in the EIA.</li> <li>- Ensure to include installation of a continuous monitoring system (CEMS) as a mandatory requirement in the design.</li> <li>- Appropriate sampling port at the stack for random grab sampling activities.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of detailed design documents.</li> <li>▪ Findings of air dispersion modelling based on final detailed design</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Detailed design is in progress and best practices for incineration and pollution control and management in line with contractual obligations are/will be applied to ensure implementation of:               <ul style="list-style-type: none"> <li>- Adequate Stack height</li> <li>- CEMS</li> <li>- Leachate plant</li> </ul> </li> <li>▪ Status of air dispersion modelling is as per given above under item 3(iii)</li> <li>▪ The capacity of the landfill is sufficient to take the APCr but not the bottom ash which is why the PMDCSC has repeatedly pointed towards the necessity to legitimate the repurposing of bottom ash.</li> <li>▪ Each document of detailed design is to be approved by PMDCSC to ensure compliance of given items.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>



No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<ul style="list-style-type: none"> <li>- Leachate treatment plant designed based on (i) maximum expected volume of leachate generated, and (ii) full capacity operation of the WTE plant.</li> <li>- Residual waste landfill designed based on (i) maximum volume of fly ash and bottom ash generation, and (ii) full capacity operation of the WTE plant.</li> <li>- Provision of a sampling port for thermal water (heated cooling water) at appropriate and accessible location along the cooling water line.</li> </ul>		<ul style="list-style-type: none"> <li>▪ Notification of inspection is to be approved by PMDCSC before start of construction of all activities as per contract.</li> </ul>	
13	Additional Baseline Environmental Data Gathering	<ul style="list-style-type: none"> <li>▪ DBO Contractor shall:               <ul style="list-style-type: none"> <li>- Undertake ambient air quality and noise level measurements (monthly), marine water and ground water quality analysis, and marine underwater ecology survey (quarterly) on first year after DBO Contractor mobilization, at the identified sampling locations in the EIA report (and any other locations in and around Thilafushi island as may be deemed by the DBO Contractor as important sampling locations).</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of modified CEMP and method statement of OHS monitoring.</li> <li>▪ Reports</li> </ul>	<ul style="list-style-type: none"> <li>▪ Sampling and testing are carried out as per method statement enclosed with modified CEMP as per given above under section VII-Environment monitoring</li> <li>▪ All results of monitoring are being submitted by contractor as part of monthly report.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<ul style="list-style-type: none"><li>- follow required sampling methodologies, including appropriate averaging time for ambient air quality and noise level measurements as indicated in the WHO standards; and</li><li>- include results of analyses in the updating of the EIA, and consider these results in the final detailed design of the project as applicable.</li></ul>			

### C. Implementation of Construction Stage EMP

#### i. Status of HSE Plans mentioned in CEMP

23. Status of plans as on 30<sup>th</sup> September 2024 is given in Table 11.

**Table 11: Status of HSE Plans mentioned in the CEMP**

Sn	Documents	Status	Remarks
1	Occupational Health and Safety Management	Accepted by PMDCSC as part of modified H&S plan	
2	1. Air Quality Management including fugitive and point source emission 2. Noise/Vibration Management	Accepted by PMDCSC as part of modified CEMP Method statement for OHS monitoring has been accepted by PMDCSC	
3	Waste Management Plan	Accepted with comments by PMDCSC	
4	Soil Management plan	Accepted by PMDCSC	
5	Traffic Management plan	Accepted by PMDCSC	
6	Stakeholder Engagement Plan	Accepted with comments by PMDCSC	
7	Spill Control and Containment Plan	Accepted with comments by PMDCSC	
8	Grievance Redressal Mechanism Plan	Accepted by PMDCSC	
9	Marine and Beach Area Management Plan	Accepted with comments by PMDCSC	
10	Chemicals and Hazardous Material Management Plan	Accepted with comments by PMDCSC	
11	Emergency Response Plan	Accepted by PMDCSC	
12	Security Management Plan	Accepted by PMDCSC	
13	COVID-19 Management Plan	Accepted with comments by PMDCSC	Not required as it is not applicable
14	Construction Camp Development Plan	Accepted by PMDCSC	
15	Public Health, Security and Safety Management Plan	Accepted by PMDCSC	
16	Incident reporting and investigation procedure	Accepted by PMDCSC	
17	Tool and Technique to review the CEMP	Approved as part of modified CEMP	
18	Flora & Fauna Management	Accepted with comments by PMDCSC	
19	Human Resources Management	Accepted with comments by PMDCSC	
20	Regulatory Compliance Evaluation Procedure	Not submitted	
21	Procedure for Corrective & Proactive Actions	Accepted by PMDCSC	
22	Training Procedure and Plan	Accepted by PMDCSC	

Sn	Documents	Status	Remarks
23	ESMS including SOP checklists to be developed and reviewed on a regular basis considering ADB Safeguard Policy Statement 2009, IFC EHS Guidelines, IFC Performance Standards, and international good practices and guidelines (i.e., ISO 9001: 2008 – Quality Management System, ISO 14001: 2015 – Environment Management System, ISO 45001: 2018 – Occupational Health and Safety) Management System).	Accepted by PMDCSC as part of modified CEMP	

**ii. Implementation of Construction Environment Management Plan (CEMP)**

24. Table 12 presents the status of the EMP implementation during the construction works which is based on Environmental Management Plan Matrix from the EIA Report which is disclosed in ADB website as well as in the project website.

**Table 12: Construction Mitigation Measures Implementation & Compliance**

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
	<b>Category of compliance</b>				"Complied", "Being complied", "Partially complied", "Not complied" <sup>4</sup>
1(i)	Overall project site management	<ul style="list-style-type: none"> <li>▪ Designate one full time and qualified Environment, Health and Safety (EHS) Manager who will be in charge of overall EMP implementation and other tasks as required in the EIA report. He/she shall be in place from the day of mobilization of DBO Contractor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Organization chart and compliance with CEMP and H&amp;S plan in compliance with contract.</li> </ul>	<ul style="list-style-type: none"> <li>▪ EPC contractor has hired one full time Environment Manager and one H&amp;S manager as per contract (Refer Table 2 for details). DBO Contractor also has hired a full time HSE manager on site.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
1(ii)		<ul style="list-style-type: none"> <li>▪ In addition to the EHS Manager, designate one qualified trained engineer separately on Environment and H&amp;S and EMP/SEMP implementation for every shift during construction stage who will assist the EHS Manager (either in</li> </ul>	<ul style="list-style-type: none"> <li>▪ Organization chart.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Four HSE officers (three H&amp;S inspector and one Environment officer) have been hired by EPC contractor on full time basis (Refer Table 2 for details).</li> <li>▪ During period from July to September 2024, construction activities are normally carried out in single shift from 7 a.m. to 6 p.m. but concreting was also commenced beyond shift time on SOS basis and considered as working for extended period.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

<sup>4</sup> Complied: Mitigation measures have been implemented, Being complied: Some mitigation measures have been implemented and some are yet to be implemented, Partially complied: There is a gap in compliance and a remedial action is required, Not complied: Mitigation measures have not been implemented.

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		his/her presence or absence) at all times.		<ul style="list-style-type: none"> <li>▪ Requisite additional one H&amp;S Inspector and two Environment officer are to be recruited according to increase in number of shifts.</li> </ul>	
1(iii)		<ul style="list-style-type: none"> <li>▪ H&amp;S plan to be aligned with ISO 45001 and CEMP to be aligned with ISO 14001</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approved H&amp;S plan and CEMP.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Modified H&amp;S plan and CEMP have been approved in April 2024</li> <li>▪ Status of HSE plans as mentioned in CEMP are as per given in Table 11.</li> <li>▪ Additionally, method statements and SOPs are being/will be developed as no approval is required for internal documents by PMU/PMDCSC by DBO Contractor. Method statements for STP, dewatering, excavation, spun piling works etc. and SOPs such as operation of batching plan, electrical safety etc. are in place.</li> <li>▪ PMDCSC is reviewing details submitted by DBO Contractor in monthly reports.</li> <li>▪ Inspections and audits are being conducted on regular basis by PMU/PMDCSC in line with project manual (refer Table 9 for details).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
1(iv)		<ul style="list-style-type: none"> <li>▪ Coordinate with the PMU on confirmatory surveys determined during design stage that need to be conducted once the DBO Contractor is selected; and complete these studies as required with support of external experts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of design documents including drawings, method statements, approval of credential of sub-contractor(s), Notification of Inspection etc before start of any construction activity by PMU/PMDCSC.</li> <li>▪ Approval of Notification of Inspection before start of any activity by PMDCSC.</li> <li>▪ Observations made during regular site inspection by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Aconex document platform is in place to manage the status of each document submitted, reviewed and approved by PMDCSC/PMU.</li> <li>▪ Team of qualified and experienced professional have been engaged by PMDCSC to review and approve the designed documents, drawings, method statements etc submitted by DBO Contractor.</li> <li>▪ To ensure compliance, a full-time civil engineer has been deputed at site by PMDCSC.</li> <li>▪ In addition to above, Deputy team leader makes visits the site on regular basis and</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>local environment safeguard also visits the site twice in a month for inspection.</p> <ul style="list-style-type: none"> <li>▪ However international safeguard makes site visit for inspection cum audit on quarterly basis.</li> <li>▪ Also, critical review of details as part of monthly report submitted by DBO Contractor is made by PMDCSC team.</li> <li>▪ Regular inspections and audits are being conducted by PMDCSC to ensure the compliance.</li> </ul>	
2(i)	Marine Traffic	<ul style="list-style-type: none"> <li>▪ Avoid using the docking ports used by the local people and industries in Thilafushi when transporting heavy construction equipment and raw materials at the site.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to CEMP &amp; traffic management plan.</li> <li>▪ Complaints, if any received via GRM</li> </ul>	<ul style="list-style-type: none"> <li>▪ Traffic management plan and GRM Plan as part of CEMP are in place.</li> <li>▪ A dedicated quay wall adjacent to project site is exclusively made available by WAMCO to contractor for unloading men and materials; however, there are access challenges of all type of vessels and operation of unloading equipment to the quay due to presence of shipwrecks within the footprint of the quay wall designated.</li> <li>▪ Private jetty owned by Villa Pvt Ltd is used for unloading of construction materials for the batching plant located within project site for which same has been engaged as sub-contractor for supply of material for batching plant and its operation.</li> <li>▪ Cargo ferry is used to unload food and small quantities of materials at the main port of Thilafushi.</li> <li>▪ No complaint or feedback has been received via GRM.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied and efforts are being made to make the dedicated quay accessible by removing the shipwrecks .</li> </ul>
2(ii)		<ul style="list-style-type: none"> <li>▪ Utilize the exclusive docking port area being used by WAMCO</li> </ul>	As per given above under 2(i)	<ul style="list-style-type: none"> <li>▪ In addition to given above under 2(i), HSE procedure for working at night and</li> </ul>	As per given above under 2(i)

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
2(iii)		<ul style="list-style-type: none"> <li>▪ Transport and unload heavy equipment and raw materials at night time when marine traffic is low within and around the island.</li> </ul>		General lifting, unloading and transportation procedure are in place.	
3(i)	Marine water quality	<ul style="list-style-type: none"> <li>▪ Implement spoils management plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to CEMP and plans such as soil management, waste Management Procedure and plan, Marine Beach Area etc.</li> <li>▪ Compliance to relevant method statements such as spun piling, excavation work, dewatering plan, STP, batching plan etc</li> <li>▪ Results of quarterly marine water quality results.</li> <li>▪ Complaints, if any received via GRM.</li> <li>▪ Findings of walk downs, inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Soil management plan, waste Management Procedure and plan, Marine Beach Area Plan etc. are in place.</li> <li>▪ Internal documents such as Method statements for spun piling, excavation work, dewatering plan, STP, batching plant etc are in place.</li> <li>▪ Solid wastes generated, stored and disposed at project site are being reported in Daily Progress Report (DPR) and monthly report submitted by DBO Contractor. However, records of soil excavated and reused for backfilling are not being reported and kept.</li> <li>▪ Status of waste water management is as per given under 4(i) of Table 10.</li> <li>▪ As per details given under Section VII, quarterly marine ecological survey has not been conducted, reportedly due to adverse weather conditions.</li> <li>▪ Inspections and audit are being made by PMDCSC.</li> <li>▪ No complaint has been received via GRM</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially Complied.</li> </ul>
3(ii)		<ul style="list-style-type: none"> <li>▪ Reuse excess spoils and materials.</li> </ul>		<ul style="list-style-type: none"> <li>▪ In addition to details given above, construction concrete debris are also being stored within project site for possible reuse. However, waste generated from batching plant is handed over to WAMCO for disposal. Records of</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>



No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				same is being reported in DPR and monthly report.	
3(iii)		<ul style="list-style-type: none"> <li>▪ Temporary storage areas for excess spoils prior to disposal should be located as far as possible from the edge of the island or seawalls.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 3(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ All temporary storages for spoils are being located within project site and away from edge of the island to the maximum possible extent.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>
3(iv)		<ul style="list-style-type: none"> <li>▪ Disposal site in designated areas only.</li> </ul>	As per given above under 3(i)	<ul style="list-style-type: none"> <li>▪ As per given above under 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>
3(v)		<ul style="list-style-type: none"> <li>▪ Earthworks during dry season. Avoid earthworks during heavy rainy days, especially during monsoon season, to prevent run-off.</li> </ul>	As per given above under 3(i)	<ul style="list-style-type: none"> <li>▪ Efforts are being made to maximum possible extent to avoid rainy days for earthworks. However, no excavation work was carried out during period from July to September 2024.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>
3(vi)		<ul style="list-style-type: none"> <li>▪ Stockyards are covered when possible and provided with drainage canals around.</li> </ul>	As per given above under 3(i)	<ul style="list-style-type: none"> <li>• Overall stockyards are covered.</li> <li>• Stockyards in batching plant area are covered with metal sheets from three sides.</li> <li>• Temporary excavated soil storage area has not been covered. Also, no drainage canal/trench around temporary excavated soil storage area has been provided as mentioned in soil management plan. However, as per DBO Contractor/EPC, same is not required as rain water is percolated through the soil and no runoff is discharged into sea. As per observations made by PMU and PMDCSC, due to high permeability of soil, chances of runoff flowing to sea/lagoon is very unlikely.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
3(vii)		<ul style="list-style-type: none"> <li>▪ Install temporary silt traps or sedimentation basins along drainage leading to the lagoon and sea.</li> </ul>	As per given above under 3(i)	<ul style="list-style-type: none"> <li>▪ As per given above under 3(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
3(viii)		<ul style="list-style-type: none"> <li>▪ Fuel, other petroleum products, and toxic and hazardous chemicals or substances stored at storage areas away from water drainage and protected by impermeable lining and bunded 110%.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to CEMP and plans such as Chemicals and Hazardous Material Management Plan, emergency response etc.</li> <li>▪ Findings of inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Overall, dedicated storages for hazardous chemicals and materials are provided with second containment and polythene ground covers as impermeable layer. However:               <ol style="list-style-type: none"> <li>1. Non-compliance of local regulations as per given under Table 6.</li> <li>2. Risk Assessment as internal document has been carried out and identified basic mitigation measures are in place.</li> <li>3. No secondary containment has been provided for diesel storage tank of 990 lit for DG set operating in batching plant area.</li> <li>4. It has been reported that diesel is being brought by sub- contractors for equipment/machinery owned by them via mobile diesel tankers and/or in 200 liter drums via truck. However, no record of has been shared. Also, no risk assessment has been carried out for same.</li> <li>5. Two spill kits (one in batching plant area and other one in hazardous chemical storage area) have been provided within project site to handle maximum spillage of 50 litre by each kit. Additionally, one kit has also been provided in mobile diesel tanker.</li> </ol> </li> <li>▪ Record on real time inventory is kept.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied as:               <ol style="list-style-type: none"> <li>a. Requisite permits need to be obtained.</li> <li>b. Second containment needs to be provided.</li> <li>c. Requirements of number and capacity of spill kit need to be justified.</li> <li>d. Record of diesel brought by sub-contractor need to be maintained via issuing</li> </ol> </li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
					gate passes.
3(ix)		<ul style="list-style-type: none"> <li>Take precautions to minimize the overuse of water</li> </ul>	<ul style="list-style-type: none"> <li>Records of water usages</li> <li>Findings of inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>All outlet of water to be used are provided with taps/valves.</li> <li>No record on water usages for domestic purpose and construction except bill paid to MWSC has been kept and reported.</li> </ul>	<ul style="list-style-type: none"> <li>Being Complied</li> </ul>
3(x)		<ul style="list-style-type: none"> <li>Divert all wash water generated from site into sedimentation ponds prior to discharge to canals.</li> </ul>	<ul style="list-style-type: none"> <li>Compliance to relevant Method statements such as excavation work, dewatering plan, batching plant, STP etc</li> <li>Testing report of discharged water on monthly basis.</li> </ul>	<ul style="list-style-type: none"> <li>Status of wastewater management is as per given under 4(i) of Table 10 and Table 16. However, PMDCSC is to verify the status of mitigation measures as per given in Table 16.</li> </ul>	<ul style="list-style-type: none"> <li>Partially complied.</li> </ul>
3(xi)	<ul style="list-style-type: none"> <li>During excavations, water accumulation in the pits / should be disposed of only after being diverted in sedimentation basis or equivalent and clarified prior to discharge.</li> </ul>	<ul style="list-style-type: none"> <li>Findings of inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>Being Complied</li> </ul>		
3(xii)	<ul style="list-style-type: none"> <li>Conduct water quality monitoring at least quarterly or as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Reports of marine water quality</li> </ul>	<ul style="list-style-type: none"> <li>Quarterly water quality monitoring is being conducted at seven locations on quarterly basis as per details provided in section VII.</li> </ul>		<ul style="list-style-type: none"> <li>Being complied</li> </ul>
4(i)	Dust and air pollution	<ul style="list-style-type: none"> <li>Use of physical controls such as water sprays, covers, compaction, screening, enclosure, windbreakers, binders and/or road surfacing to avoid or minimize airborne dust from construction activities and vehicle movements. Undertake water spraying several times of the day or as often as</li> </ul>	<ul style="list-style-type: none"> <li>Compliance to CEMP &amp; HSE plans mentioned in CEMP and H&amp;S plan</li> <li>Findings of ambient air quality monitoring and OHS monitoring conducted within and outside project site</li> <li>Findings of walk downs, inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>Metal sheets provided to cover construction materials storage area from three sides in batching plant area.</li> <li>As per monthly meeting on 17<sup>th</sup> September 2024, DBO Contractor has agreed to implement water spraying for dust suppression.</li> <li>Air quality is being monitored as per modified CEMP and MOS of OHS on regular basis. As per details for this quarter given under section VII, higher</li> </ul>	<ul style="list-style-type: none"> <li>Partially complied.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		needed especially on windy days / dry seasons.		values of PM10 and PM2.5 are mainly contributed by local activities and contribution from construction activities of the project is marginal.	
4(ii)		<ul style="list-style-type: none"> <li>▪ Construction vehicle's speed limited to 30 kilometres per hour (kph).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to Traffic management plan</li> <li>▪ Findings of inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ During inspection, speed was always found below 20 km/hr as mentioned in Traffic management plan but no monitoring is being conducted and kept records by DBO Contractor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
4(iii)		<ul style="list-style-type: none"> <li>▪ Prohibition of open burning of solid waste.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to CEMP and waste management procedure and plan</li> <li>▪ Findings of walk downs, inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No solid waste is being burnt within project site.</li> <li>▪ All solid waste is being collected and stored at dedicated places within project site and handed over to WAMCO for disposal at dumping site.</li> <li>▪ Cooking is not allowed within the rooms by individuals. Food for all staff and workers is prepared in kitchen located within project site.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
4(iv)		<ul style="list-style-type: none"> <li>▪ Minimize stockpile height.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to Soil management plan.</li> <li>▪ Findings of inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Height provided to temporary soil stockpile is ~4 m.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
4(v)		<ul style="list-style-type: none"> <li>▪ If dust generation is significant, provide a dust screen of appropriate height</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 4(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 4(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>
4(vi)		<ul style="list-style-type: none"> <li>▪ Workers and staff should be provided with dust masks &amp; instructed to use them on site</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan and SOPs of PPE</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per real time inventory, total 2450 FFP2 masks are available to provide to workers on need basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
			<ul style="list-style-type: none"> <li>▪ Findings of inspections and audit conducted by PMDCSC on regular basis.</li> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪ Workers are provided with masks. However, improved supervision and awareness is required to ensure proper use of PPE.</li> </ul>	
4(vii)		<ul style="list-style-type: none"> <li>▪ Conduct work in stages to reduce dust impacts; clearing and then conducting construction in only a portion of the site at a time.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Daily Progress reports and monthly reports submitted by DBO Contractor.</li> <li>▪ Approval of Notification of approval by site engineer of PMDCSC</li> <li>▪ Findings of environment monitoring</li> <li>▪ Findings of inspections and audit conducted by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction activities are mainly confined to concreting and backfilling in two bunker areas during this quarter.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
4(viii)		<ul style="list-style-type: none"> <li>▪ Control access to work area, prevent unnecessary movement of vehicles, workers, public trespassing into work areas; limiting soil disturbance will minimize dust generation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to traffic management plan, Security management plan, H&amp;S plan, public health and safety plan etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Site boundary is established with a dedicated gate for vehicles entry and exit and guardhouses are located at entrance and exit points.</li> <li>▪ Traffic movement via road is very limited as transportation of men and materials is being carried out via sea.</li> <li>▪ Access is controlled as per procedure given in security management plan.</li> <li>▪ Identified routes are used by vehicles within project site.</li> <li>▪ Records are being kept for each vehicle coming in and going out.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
4(ix)		<ul style="list-style-type: none"> <li>▪ Contractor's environmental manager should monitor these activities and act to apply the mitigation if dust production becomes significant.</li> </ul>	<ul style="list-style-type: none"> <li>▪ In-house Inspections and records</li> <li>▪ Findings of ambient air quality conducted within and outside project site</li> </ul>	<ul style="list-style-type: none"> <li>▪ Walk down visits are being made by environment manager and environment officer on daily basis. Findings of daily walkdowns are shared via a group chat and recorded in an observation register.</li> <li>▪ As per given above under item 4(i) and 4 (vi).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
			<ul style="list-style-type: none"> <li>▪ Findings of inspections and audit conducted by PMDCSC on regular basis</li> <li>▪ Number of complaints received.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No complaint has been reported.</li> </ul>	
4(x)		<ul style="list-style-type: none"> <li>▪ Use tarpaulins to cover loose material (soil, sand, aggregate) when transported by trucks</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to Traffic management plan and soil management plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction materials such as fly ash and cement are being transported in jumbo packs containing 1 tonne of materials.</li> <li>▪ Construction materials such as gravel, sand and others and backfilling material are transported to project site via road in dumpers and no cover has been provided while transportation</li> <li>▪ Soil from temporary soil storage area within project site is transported to backfilling site in open dumpers without any cover.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
4(xi)		<ul style="list-style-type: none"> <li>▪ Clean wheels and undercarriage of haul trucks prior to leaving construction site/quarry</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to traffic management plan</li> <li>▪ Facility made available for cleaning and washing.</li> <li>▪ Records of entry and exit of vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Transportation of materials via road is very limited as described under 4(ii) and 4 (x). As per DBO Contractor, cleaning of wheels and undercarriage of hauling trucks prior to leaving the site is carried out in the batching plant area.</li> <li>▪ No record has been shared to verify the same and DBO Contractor has been notified of the same. However, records of entry or exit of vehicles are kept. .</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul> <p>Records of cleaning of Wheels and undercarriage of trucks are to be kept.</p>
4(xii)		<ul style="list-style-type: none"> <li>▪ Stabilize surface soils where loaders, support equipment and vehicles will operate by using water and maintain surface soils in a stabilized condition</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to activities wise method statements and SOPs.</li> <li>▪ Approval of notification of inspection by site engineer of PMDCSC.</li> <li>▪ Findings of walk downs, inspections and audit conducted by PMDCSC on regular basis</li> </ul>	<ul style="list-style-type: none"> <li>▪ In-house system is in place to plan and implement for the site-specific requirements by Area authority, area manager and others before allowing the construction activities to start and to conduct inspections during execution.</li> <li>▪ Deputy team leader of DBO Contractor and Site engineer of PMDCSC review the planning to provide go ahead before</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
4(xiii)		<ul style="list-style-type: none"> <li>▪ Ensure that all the construction equipment, machinery is fitted with pollution control devices, which are operating correctly.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Results of exhaust emissions monitoring.</li> <li>▪ Records of preventive maintenance</li> </ul>	<p>start of activities and conduct inspections during execution on regular basis.</p> <ul style="list-style-type: none"> <li>▪ In-house facility and system are in place for preventive maintenance of vehicles and equipment and records are being kept for equipment/machinery owned by EPC contractor.</li> <li>▪ Fitness check is carried out by external authorized agency on annual basis for equipment owned by EPC contractor however it does not include exhaust emissions.</li> <li>▪ No facility is available in Maldives for testing emission from exhaust of vehicles and equipment including DG sets. Hence same is not being carried out.</li> <li>▪ In-house inspection is being carried out by EPC using checklists for the equipment taken on rent from subcontractors and used by subcontractors engaged for job work before allowing them to operate. There is no system in place to deal with equipment which does not have a valid inspection certificate from external authorized agency and no record of same was shared.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied.</li> </ul>
4(xiv)		<ul style="list-style-type: none"> <li>▪ Ensure that only those vehicles and equipment in good condition, and are in good maintenance are used for project construction</li> </ul>			
4(xv)		<ul style="list-style-type: none"> <li>▪ Vehicles / equipment should have a valid permits or licenses issued by relevant government agency.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Vehicle registry at Ministry of Transport and Civil Aviation.</li> <li>▪ Records of permits and licenses for all vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Registration of three transit mixers is in place and reportedly for others, it is in process. However, record of vehicles for which registration is pending has not been shared.</li> </ul>	Partially complied
4(xvi)		<ul style="list-style-type: none"> <li>▪ Maintain record of these permits or licenses of all vehicles at all times for</li> </ul>	<ul style="list-style-type: none"> <li>▪ Records of permits and licenses for all vehicles</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 4(xv)</li> </ul>	Being complied

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		ready inspection at the work sites.			
5(i)	Dust and air pollution (batching plant)	<ul style="list-style-type: none"> <li>▪ Ensure that batching plant is installed with built-in air pollution and dust control system for fugitive emissions and dust from loading area.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of design details</li> <li>▪ Compliance of SOPs for operation of batching plant.</li> <li>▪ As per given above under item 4(i), 4(ii), and 4 (vi), 4(ix), 4(x), 4(xi), 4(xiii), 4(xv) and 4(xvi).</li> </ul>	<ul style="list-style-type: none"> <li>▪ The batching plant in operation is installed with built-in air pollution and dust control system for fugitive emissions and dust from loading area as per Guidelines for concrete batching plants, 2016 by EPA, Maldives. However, as per guidelines, no emission standards are prescribed.</li> <li>▪ Villa Pvt Ltd has been engaged as sub-contractor for operation of batching plant and supply of construction materials for same.</li> <li>▪ Design details have been approved by PMDCSC.</li> <li>▪ As per given above under item 4(i), 4(ii), and 4 (vi), 4(ix), 4(x), 4(xi), 4(xiii), 4(xv) and 4(xvi).</li> <li>▪ Additionally, dust resistance suit with suitable mask is being provided to worker engaged in transferring construction materials such as cement and fly ash to hoppers of batching plant from 1 tonne Jumbo packs.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
5(ii)		<ul style="list-style-type: none"> <li>▪ Provide dust screen around the components that generate emissions or fugitive dusts.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 5(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 4(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
5(iii)		<ul style="list-style-type: none"> <li>▪ Ensure that plant is well operated and maintained at all times according to O&amp;M manual of batching plant (provided by the</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of design details</li> <li>▪ Compliance of SOPs for operation of batching plant.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Design details have been approved by PMDCSC.</li> <li>▪ Regular inspection and scheduled maintenance work</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>



No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		equipment manufacturer).			
5(iv)		<ul style="list-style-type: none"> <li>▪ The concrete loading area is equipped with a leak-proof concrete floor, from which all drainage is collected and treated as necessary prior to discharge.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 5(iii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ All discharges are being drained in RCC sedimentation tank provided for washing of mixer trucks and mixer drums. Refer 4(i) of Table 10 for more details on violation of discharge of waste water from sedimentation tank.</li> <li>▪ As per given above under item 5(iii)</li> <li>▪ Drainage plan for construction phase has not been finalised yet.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied.</li> </ul>
5(v)		<ul style="list-style-type: none"> <li>▪ Mixer trucks and mixer drums are washed out only in a designated area, which should be equipped with a leak-proof floor, from which drainage is collected and treated as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 4(ix)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 4(ix)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 4(ix)</li> </ul>
5(vi)		<ul style="list-style-type: none"> <li>▪ All chemicals used in concrete preparation are properly stored, whether dry, in powder or granular form, or as liquids, at storage areas away from water drainage and protected by impermeable lining and bunded 110%. Storage facilities should be as specified in the appropriate international standard and should include equipment to extract dust and completely</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 3(viii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 3(viii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under item 3(viii)</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		contain any spillage from leaks.			
6(i)	Noise pollution	<ul style="list-style-type: none"> <li>▪ Prepare work schedule and consult with local community and administration.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of Grievance Redressal plan.</li> </ul>	GRM plan in place and no complaint has been received during this quarter as per details given under section X..	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
6(ii)		<ul style="list-style-type: none"> <li>▪ Maintain low noise levels. Noise level at the boundary of site shall not exceed 70 dB(A) during day and night unless necessary to carry out construction works.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of method statement for noise monitoring.</li> <li>▪ Results of ambient noise level monitored within project site</li> <li>▪ Results of noise level monitoring at sources located within project site.</li> <li>▪ Findings of, inspections and audit conducted by PMDCSC on regular basis</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ambient noise levels are monitored on monthly basis at five locations to comply with EMP on 24 hourly basis. However, two of them (NQ3 and NQ5) are located within project site.</li> <li>▪ As per given under section VI and reported values of Leq daytime and Leq nighttime at all five locations within and outside project site are well within the prescribed limit of 70 dB(A).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
6(iii)		<ul style="list-style-type: none"> <li>▪ When possible, schedule noisy works at night time when most establishments in Thilafushi are closed. Minimize any high noise-generating activities during the daytime.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Same as above</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction work has been conducted mostly in single shift from 7.00 a.m. to 6.00 p.m. but concreting was also commenced beyond shift time on SOS basis and considered as working for extended period.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied .</li> </ul>
6(iv)		<ul style="list-style-type: none"> <li>▪ Use low noise generating equipment. Use modern vehicles and machinery with low noise emissions. Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers,</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of SOPs on operation of machinery and equipment</li> <li>▪ Results of noise level monitored at source level.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mitigation measure provided are confined to manufacturer's instructions and preventive maintenance on regular basis only.</li> <li>▪ Fitness test conducted on annual basis does not include verifying the fitness for noise emission.</li> <li>▪ As per details given under section VII, noise levels at the various sources including machinery/equipment are monitored at source, 1m, 2 m and 3 m.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		and use portable street barriers to minimize sound impact to surrounding sensitive receptor.		<p>As per Table 27 , reported noise levels from DG set in batching plant area, dewatering pump 1 and 2 etc are more than 85 dB(A).</p> <ul style="list-style-type: none"> <li>▪ Also, to comply with local regulation 2024/G-7, it is to ensure that Day-Night average sound level (LDN) measured at 1 meter from the diesel generator containment wall should not be higher than 65 dB(A). This is part of one of condition need to be complied for getting permit from URA as per given under Table 6.</li> <li>▪ DBO Contractor has been notified to take corrective actions to comply with above mentioned condition.</li> <li>▪ As per real time inventory, 400 number of small ear plugs, 500 big bell corded earplug and 20 number of earmuff are available at project site.</li> </ul>	
6(v)		<ul style="list-style-type: none"> <li>▪ Minimize drop heights for construction materials.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of activity wise method statements</li> <li>▪ Compliance of SOPs on operation of machinery and equipment</li> <li>▪ Approval of notification of approval by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance is being ensured by approval of notification of Inspection by DBO Contractor and PMDCSC, issuance of permit to work and regular inspection.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
6(vi)		<ul style="list-style-type: none"> <li>▪ No use of horns unless necessary.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of Traffic management plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Limited traffic movement as per details provided under 2(i), 4(ii) and 4 (x).</li> <li>▪ Flag men direct the movement of movable machinery and equipment. However, violation was observed during site visit as no flag man was available during movement of JCB in batching plant area.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
6(vii)		<ul style="list-style-type: none"> <li>▪ Avoid loud random noise from sirens, air compression, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of activity wise method statements</li> </ul>	<ul style="list-style-type: none"> <li>▪ Permit to work and approval of notification of inspections restrict the operation of machinery and equipment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
			<ul style="list-style-type: none"> <li>▪ Compliance of SOPs on operation of machinery and equipment</li> <li>▪ Compliance of method statement for OHS monitoring.</li> </ul>	<p>needed for execution of particular activity only.</p> <ul style="list-style-type: none"> <li>▪ Siren is only operated in case of mock drill conducted and during emergency.</li> <li>▪ Construction work is confined to small area and project site is also not big hence unnecessary operation of any equipment and machinery can be identified during walk downs by construction team and HSE team.</li> </ul>	
6(viii)		<ul style="list-style-type: none"> <li>▪ Avoid using multiple high noise generating equipment and activities simultaneously.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under 6(vii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under 6(vii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
6(ix)		<ul style="list-style-type: none"> <li>▪ Install temporary or portable acoustic barriers around stationary construction noise sources.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under 6(vii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under 6(iv).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
6(x)		<ul style="list-style-type: none"> <li>▪ Warning signs in noise hazard areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Findings of walk downs, inspections and audit conducted by PMDCSC on regular basis</li> </ul>	<ul style="list-style-type: none"> <li>▪ No classification of area has been made.</li> <li>▪ Warning signs have been provided.</li> <li>▪ Permit to work system and approval of Notification of inspection is in place to identify hazard, if any.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
6(xi)		<ul style="list-style-type: none"> <li>▪ Identify vibration risk to nearby structures. Take caution working in such areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of activity wise method statements.</li> <li>▪ Compliance of SOPs on operation of machinery and equipment</li> </ul>	<ul style="list-style-type: none"> <li>▪ No sensitive receptor is located adjacent to project site.</li> <li>▪ Permit to work system and approval of Notification of inspection is in place to identify hazard, if any.</li> <li>▪ In-house facility and system are in place for preventive maintenance of vehicles and equipment and records are being kept for equipment/machinery owned by EPC contractor.</li> <li>▪ Fitness check is carried out by external authorized agency on annual basis for equipment owned by EPC contractor</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>however it does not include noise level emission from source.</p> <ul style="list-style-type: none"> <li>▪ In-house inspection is being carried out by EPC using checklists for the equipment taken on rent from subcontractors and used by subcontractors engaged for job work before allowing them to operate. There is no system in place to deal with equipment which does not have a valid inspection certificate from external authorized agency and no record of same was shared.</li> </ul>	
6(xii)		<ul style="list-style-type: none"> <li>▪ Conduct noise level monitoring at least every quarter or as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to monitoring plan as per CEMP and MOS of OHS monitoring</li> <li>▪ Results of monitoring conducted</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section VI.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
7(i)	Aesthetics	<ul style="list-style-type: none"> <li>▪ Prepare and implement a Construction Waste Management Plan (CWMP) to identify specific steps on handling and disposal of all solid waste from construction activities, including the following:               <ol style="list-style-type: none"> <li>a. Reuse as much waste sand in this project as possible;</li> <li>b. Finding alternative beneficial uses for any unused sand, for example as infill in other construction works;</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of soil management plan, waste management procedure and plan, activity wise method statements and SOPs.</li> <li>▪ Inspection and audit conducted by PMDCSC</li> <li>▪ Monthly report submitted by DBO Contractor</li> <li>▪ Complaint(s) received</li> </ul>	<ul style="list-style-type: none"> <li>▪ Soil management plan, waste management procedure and plan, activity wise method statements and SOPs are in place.</li> <li>▪ Excavated soil is being stored within project site at dedicated place for reuse and partially has been used for backfilling. However, no record of excavated soil and reused has been kept in Daily Progress Report.</li> <li>▪ Sludge generated from STP is also being stored in sludge collection polythene bags since commissioning of operation near STP within project premises for possible usages as manure.</li> <li>▪ Construction debris waste is also being stored at dedicated place for possible usages. However, part of it especially from batching plant has been handed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied, however final disposal method for needles of used syringes and blades is to be identified and implemented.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<ul style="list-style-type: none"> <li>c. Disposal of debris and bulky solid waste materials after construction stage.</li> <li>d. Minimizing stockpile size.</li> <li>e. Clearing wastes regularly.</li> <li>f. Avoiding stockpiling of excess spoils.</li> <li>g. Covering delivery trucks during transportation</li> <li>h. Cleaning roads.</li> <li>i. Using screening enclosure shade cloth, temporary walls around construction site.</li> <li>j. Cleaning site regularly.</li> <li>k. Following the principle of "Reduce, Reuse, Recycle, and Recover".</li> </ul>		<p>over to WAMCO for disposal. Details of same are reported in DPR and monthly reports.</p> <ul style="list-style-type: none"> <li>▪ Other non-hazardous waste such as kitchen waste, waste from camp and office, wood debris etc is being stored at dedicated places and are being handed over to WAMCO for disposal. Details of same are reported in DPR and monthly reports.</li> <li>▪ Hazardous waste such as waste oil, empty containers of hazardous chemicals etc are being stored at dedicated places and are being handed over to WAMCO for disposal. Details of same are reported in DPR and monthly reports.</li> <li>▪ Medical waste generated from health centre is being stored at dedicated places. Waste other than needles of used syringes and blades are being handed over to WAMCO for disposal as same is not accepted by WAMCO. Needles of used syringes and blades are being stored separately and no detail has been provided on final disposal of same.</li> <li>▪ WAMCO accepts the waste in mix form for disposal on chargeable basis. This also includes collection from site and transportation to dumping site.</li> <li>▪ Housekeeping is being done on regular basis and details are being reported in monthly reports.</li> <li>▪ In-house inspection is being carried out on regular basis.</li> <li>▪ Inspections and audit carried out by PMDCSC on regular basis.</li> <li>▪ No compliant has been received.</li> </ul>	

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
7(ii)		<ul style="list-style-type: none"> <li>▪ When applicable, solid wastes from the site shall be returned to the manufacturer of raw materials they were generated from, or dispose as per their specifications.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ It mainly includes scrap metals and waste material. At present partly being handed over to WAMCO for disposal and rest is being stored within project site.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
7(iii)		<ul style="list-style-type: none"> <li>▪ Hazardous waste shall be stabilized, encapsulated, and disposed as per internationally accepted practices. Provision will be made for secure storage of hazardous waste.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
7(iv)		<ul style="list-style-type: none"> <li>▪ Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in approved disposal sites and/or third-party sources approved by Maldives EPA.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied.</li> </ul>
7(v)		<ul style="list-style-type: none"> <li>▪ Prohibit burning of construction and/or domestic waste;</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 4(iii).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
7(vi)		<ul style="list-style-type: none"> <li>▪ Ensure that wastes are not haphazardly thrown in and around the project site; provide proper collection bins, and create awareness to use the dust bins.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Dustbins are provided at the site and housekeeping is carried out on regular basis.</li> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
7(vii)		<ul style="list-style-type: none"> <li>▪ Conduct site clearance and restoration to</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 7(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		original condition after the completion of construction works.		<ul style="list-style-type: none"> <li>▪ Site restoration will be carried out after completion of construction, if any.</li> </ul>	
8(i)	Amenities for community	<ul style="list-style-type: none"> <li>▪ Implement the Traffic Management Plan that will elaborate the following:               <ol style="list-style-type: none"> <li>a. Suitable transportation routes.</li> <li>b. Safe passage for vehicles and pedestrians.</li> <li>c. Temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours.</li> <li>d. Scheduling of material deliveries on low traffic hours, particularly at night time when most establishments in Thilafushi island are already closed.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to CEMP and traffic management plan, security management plan, public health and safety plan, GRM Plan, activity wise method statements and SOPs etc</li> <li>▪ Complaints, if any received via GRM</li> </ul>	<ul style="list-style-type: none"> <li>▪ Traffic management plan, Security management plan, public health and safety plan and GRM Plan as part of CEMP is in place.</li> <li>▪ Minimal movements within the Island via road as raw materials are directly transported to site via sea as per given under 2(i), 4(ii) and 4 (x).</li> <li>▪ Construction materials unloaded at jetty of Villa Pvt Ltd, located at about 2 km is being transported in jumbo pack of 1 tonne to project site via road. This is confined to only concreting activity.</li> <li>▪ Registration of three transit mixers is in place and reportedly for others, it is in process. However, record of vehicles for which registration is pending has not been shared. Thilafushi island is an industrial island and has limited road traffic.</li> <li>▪ Access roads to project site are not in good condition and need to be improved. HDC has been notified for same.</li> <li>▪ No complaint and feedback have been received</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
8(ii)		<ul style="list-style-type: none"> <li>▪ Erect and maintain barricades if required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 8(i),</li> <li>▪ Approval of notification of inspection by PMDCSC and issuance of permit to work before start of particular activity</li> </ul>	<ul style="list-style-type: none"> <li>▪ In addition to given above under 8(i):</li> <ol style="list-style-type: none"> <li>1. Most of the construction activities are mainly confined within project site which is already fenced with restricted entry.</li> <li>2. Outside the project site, construction activities mainly include laying pipeline and construction of facilities for water intake and discharge of wastewater for operation phase. However same are yet</li> </ol> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>



No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>to be commissioned and mitigation will be implemented on the basis of findings of mapping of risks associated.</p> <p>3. At present pipelines for discharge of wastewater into sea generated from STP and dewatering tank are in operation which are buried under ground.</p> <p>4. Parking area is provided within project site.</p> <p>5. Based on need identified during inspection by PMDCSC and permit to work to be issued by Area authority/manager of EPC contractor, barricades are/will be provided.</p>	
8(iii)		<ul style="list-style-type: none"> <li>▪ Consult with business and institutions for work schedules.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to stakeholder engagement plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stakeholder engagement plan is in place and same was conducted as part of EIA study and will be conducted again as part of EIA update proposed to be carried out on finalization of detailed design.</li> <li>▪ A grievance box has also been placed at Thilafushi ferry terminal.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
8(iv)		<ul style="list-style-type: none"> <li>▪ Erect display boards around strategic locations about nature, duration of construction and contact for complaints and/or issues about the project.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Display boards with details</li> </ul>	<ul style="list-style-type: none"> <li>▪ Display board is placed at gate to provide information of nature, duration of construction and contact for complaints. However, details displayed are not visible as same are faded.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
8(v)		<ul style="list-style-type: none"> <li>▪ Complete quickly any work that is near adjacent establishments.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of relevant activity wise method statements and SOPs</li> <li>▪ Approval of notification of inspection by PMDCSC and permit to work before start of particular activity.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Need of additional mitigation measures including completion of work quickly is being/will be identified during inspection for approval of notification of inspection by PMDCSC and issuance of permit to work to be issued by Area authority/manager of EPC contractor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
8(vi)		<ul style="list-style-type: none"> <li>▪ Restore damaged properties and utilities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of design details of construction.</li> <li>▪ Approval of notification of inspection by PMDCSC and permit to work before start of particular activity</li> <li>▪ Complaint(s) received, if any</li> <li>▪ Compliance with damage assessment section of the Emergency Response Plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Property and utility, if any will be identified during approval of design details and inspection for approval of notification of inspection by PMDCSC before start of construction activity.</li> <li>▪ Property and utility, if damaged due to construction activities will be restored.</li> <li>▪ An underground (at 1 m depth) live power cable of STELCO is passing through the project site and discharge pipeline from dewatering sedimentation pond is passing above the same with adequate protection. As per latest update, STELCO and HDC will commence the rerouting of the cable to de-activate the live cable going through the project site.</li> <li>▪ No complaint has been registered on subject.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
9(i)	Marine and terrestrial ecology	<ul style="list-style-type: none"> <li>▪ Implement the Marine and Beach Area during Construction Work Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of the Marine and Beach Area Management Plan</li> <li>▪ Results of marine water quality and survey of marine ecology.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Marine and Beach Area Management Plan is in place. Additionally, Spill Control and Containment Plan, Flora and Fauna management plan etc are also in place as complementary plans.</li> <li>▪ Marine water quality and marine ecological surveys are carried out on quarterly basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
9(ii)		<ul style="list-style-type: none"> <li>▪ Implement the Erosion Control Plan for pipeline works.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of design details.</li> <li>▪ Compliance of the activity wise method statements and SOPs</li> <li>▪ Approval of notification of inspection and regular inspection by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ Erosion Control Procedures are being addressed in the relevant construction procedures and method statements</li> <li>▪ PMDCSC approves all design details before planning of any construction activity.</li> <li>▪ A full-time site engineer is deputed on site by PMDCSC to grant approval of notification before start of construction activity and to conduct regular inspection.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
9(iii)		<ul style="list-style-type: none"> <li>▪ Ensure that all construction activities are conducted strictly within the site footprint (including offices, car parking and other activities that might normally be located in an exterior contractor's area).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of design details and layout plan.</li> <li>▪ Compliance to approved site layout plan, CEMP, relevant HSE plans, method of activity wise method statements and SOPs</li> <li>▪ Approval of notification of inspection and regular inspection by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ In addition to above given under 9(ii):</li> <li>1. All construction activities are/will be conducted within the site boundary except laying of pipelines for water intake and discharges for which adequate permission and permits will be obtained.</li> <li>2. Layout plan has been approved by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
9(iv)		<ul style="list-style-type: none"> <li>▪ Prohibit any deliberate killing or harming of animals on or off-site; any hunting or fishing at the site or in nearby areas by site personnel; preventive actions shall be put in place by contractor for protected marine species.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance with plans on Construction camp development, Flora and Fauna management and Marine Beach Area</li> </ul>	<ul style="list-style-type: none"> <li>▪ Thilafushi Island is almost devoid of terrestrial flora and fauna and as per IBAT study, no endangered species has been identified.</li> <li>▪ As per camp policy, swimming and fishing is prohibited.</li> <li>▪ Camp area is located within project premises and entry is recorded and restricted via two gates where in security guards are being posted.</li> <li>▪ No cooking by workers is allowed within project site as Turkish food cooked is cooked in kitchen and for others who mainly Indian and Bangladeshi worker workers/staff do not want Turkish food, food is brought from outside for everyone staying and/or working at project site.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
9(v)		<ul style="list-style-type: none"> <li>▪ Ensure that all construction work or other activities near the site perimeter are conducted with particular care and include measures to reduce noise and dust to minimum possible.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under other sections.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under other sections.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under other sections.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
9(vi)		<ul style="list-style-type: none"> <li>▪ Create awareness in all site staff &amp; workers on the importance of the marine animals/species and plants around the site and their vulnerability.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Camp policy</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per camp policy, swimming and fishing is prohibited.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
9(vii)		<ul style="list-style-type: none"> <li>▪ To protect site personnel, training should also be provided to enable them to recognize, and deal safely and humanely with all animals that may be encountered.</li> </ul>			
9(viii)		<ul style="list-style-type: none"> <li>▪ Implement the Spill Control and Containment Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance with the Spill Control and Containment Plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Spill Control and Containment Plan is in place. However, no incident has been reported.</li> <li>▪ As per observation made during site inspections:               <ol style="list-style-type: none"> <li>a. Two spill kits: one near container used for storage of hazardous chemicals and one batching plant area are provided. Each kit is capable of handling 50 litres of spill only and maximum size of containers stored is 1000 litres.</li> <li>b. One spill kit has also been provided in mobile diesel tanker.</li> <li>c. No mapping of probable maximum size of spills has been done.</li> <li>d. Eye wash stations: Total three- one near batching plant area, second near container used for chemical storage and third one inside the newly constructed chemical storage area.</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied and need to:               <ol style="list-style-type: none"> <li>a. Provide spill kits on the basis of mapping of probable maximum size of spills</li> <li>b. replace mask to comply with</li> </ol> </li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
9(ix)		<ul style="list-style-type: none"> <li>▪ Marine works should be scheduled to occur in the north east monsoon season when the sea conditions are calmer to limit the spread of sediment around this operation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance with method statement for excavation and relevant SOPs.</li> <li>▪ Approval of Notification of execution plan and notification of inspection.</li> <li>▪ Permits from relevant local authorities</li> <li>▪ Approval of notification of inspection and regular inspection by PMDCSC</li> </ul>	<p>e. Mask provided as part of Spill kit is not as per document on PPE procedure.</p> <ul style="list-style-type: none"> <li>▪ As per given under Table 6, all relevant permits for existing activities are in place.</li> <li>▪ Marine works confined to only construction of intake and outfall structures and pipelines for operation phase is yet to be started.</li> <li>▪ Mentioned aspects will be considered during preparation of method statement and SOPs for same. Based on available of site-specific details, mapping of environment impacts and hazards will be carried out to plan the requisite mitigation measures.</li> <li>▪ SOPs will be developed considering all local legal requirement and findings of relevant agencies such as HDC, URA and EPA.</li> <li>▪ A full-time site engineer is deputed on site by PMDCSC to grant approval of notification before start of construction activity and to conduct regular inspection.</li> </ul>	<p>PPE procedure.</p> <ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
9(x)		<ul style="list-style-type: none"> <li>▪ Conduct the excavation, and deposit the excavated material in a more controlled manner minimizing the area that is disturbed.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance with soil management plan and method statement for excavation and relevant SOPs.</li> <li>▪ Approval of notification of inspection by PMDCSC</li> <li>▪ Findings of regular walkdowns, inspection and audit to be conducted by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ In addition to given above under 9(ix):</li> <li>▪ Design is approved before planning for work.</li> <li>▪ Notification of Inspection is to be raised to PMDCSC for approval before start of excavation works to ensure the compliance of relevant plans and method statement.</li> <li>▪ Work permit is to be issued by Area Manager considering environment and health and safety risks and required mitigation measures as well as on receipt of approval of inspection notification from</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				PMDCSC before start of construction work <ul style="list-style-type: none"> <li>▪ Excavated material will be stored in a designated area and is being re-used for back filling.</li> </ul>	
9(xi)		<ul style="list-style-type: none"> <li>▪ Avoid the need to re-excavate by choosing right time (calmed sea conditions again), and quickly lowering the pipes into trench and refilling.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 9(ix) and 9(x)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 9(ix) and 9(x)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
9(xii)		<ul style="list-style-type: none"> <li>▪ Limit the size of the construction area on the beach and to avoid any encroachment outside the specified area.</li> </ul>			
9(xiii)		<ul style="list-style-type: none"> <li>▪ Monitor the turbidity &amp; DO levels due to spread of sediment throughout the trenching operation and work should be stopped if levels exceed pre-determined values as per the guideline below:               <ol style="list-style-type: none"> <li>a. The turbidity of the water is to be measured (ISO 7027) at the edge of the construction zone during trenching and backfilling activities;</li> <li>b. When the turbidity exceeds the minimum of the background</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of method statements for dewatering.</li> <li>▪ Results of monitoring of dewatering water quality.</li> <li>▪ Visual inspection.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 3(x)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		turbidity plus 20% or 100 NTU, the trenching is to cease until the turbidity returns to the background level plus 10%.			
10(i)	Socioeconomic status	<ul style="list-style-type: none"> <li>▪ Engage the local workforce to the maximum possible extent.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of Human resource policies and procedures</li> <li>▪ Complaints received</li> </ul>	<ul style="list-style-type: none"> <li>▪ Availability of local workers is limited and at present, only five local workers/staff have been engaged out of about 220 workers/staff. However Human resource policies and procedures are in place.</li> <li>▪ No complaint received</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
10(ii)		<ul style="list-style-type: none"> <li>▪ Procure construction materials from local market, wherever available.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Number of local vendors</li> <li>▪ Complaints received</li> </ul>	<ul style="list-style-type: none"> <li>▪ Based on availability, preference is given to locals. Local subcontractors are chosen where possible.</li> <li>▪ Local sub contactors engaged are for supply of construction materials for batching plant and operation of batching plant, security, laboratory for civil works related testing, transportation of laboratory samples, excavation works and General Electric works etc.</li> <li>▪ No complaints received</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied.</li> </ul>
11(i)	Other amenities for community welfare	<ul style="list-style-type: none"> <li>▪ Before any excavation work, reconfirm location and nature of existing infrastructure, if any, identified during detailed design stage.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of method statement for excavation.</li> <li>▪ Approval of Notification of Inspection by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Notification of inspection is to be approved by site engineer of PMDCSC before start of any excavation work. This needs inspection of site to be excavated.</li> <li>▪ As per given under 8(i) of Table 10.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied.</li> </ul>
11(ii)		<ul style="list-style-type: none"> <li>▪ Minimize repeated disturbance to locals by integrating forms of infrastructures such as temporary safe walkways in areas with ongoing excavation works. Provide alternate</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 11(i).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Most of the excavation work is/will be carried out within project site which is fenced with restricted entry. Construction activities outside project site is/will be mainly laying pipelines for intake water and discharge wastewater.</li> <li>▪ As per given above under 8(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<p>routes in the area, if necessary, to allow smooth movement of workers and vehicles in the area.</p>			
11(iii)		<ul style="list-style-type: none"> <li>▪ Inform through continuous meaningful consultations with local people about nature, duration and possible impacts of the construction and integrate their concerns.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of stakeholder engagement plan and GRM Plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 6(i) and 8(iii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially Complied</li> </ul>
11(iv)		<ul style="list-style-type: none"> <li>▪ Promptly relocate infrastructure materials if found to be obstructing or disturbing free movement of local people.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of method statement for excavation.</li> <li>▪ Approval of Notification of Inspection by PMDCSC</li> <li>▪ Complaint, if any received</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 9(ix)</li> <li>▪ PMDCSC has deputed one full time site engineer on site for granting approval to Notification of Inspection and for inspections on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
11(v)		<ul style="list-style-type: none"> <li>▪ Take prior permission from local authority for water use.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Permit register</li> </ul>	<ul style="list-style-type: none"> <li>▪ Water is being taken from pipeline of Male Water and Sewage Company on chargeable basis for construction and domestic purposes.</li> <li>▪ One bore well and desalination plant for producing water to be used in batching plant by Villa sub-contractor are under commissioning. As per details given in Table 6, approval of commissioning of borewell has been obtained while DBO Contractor has been notified on non-compliance of local regulation for commissioning and operation of desalination plant. As per communication received from DBO Contractor, it has been initiated and</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>



No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>production of water will not be commenced till receipt of all requisite permits.</p> <ul style="list-style-type: none"> <li>▪ At present, villa subcontractor is purchasing water for usages in batching plant</li> </ul>	
11(vi)		<ul style="list-style-type: none"> <li>▪ Restore damaged properties and utilities to pre-work conditions.</li> </ul>	As per given above under 8(vi)	<ul style="list-style-type: none"> <li>▪ As per given above under 8(vi)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
12(i)	Community health and safety	<ul style="list-style-type: none"> <li>▪ Restrict work force in designated areas.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approved layout plan.</li> <li>▪ Relevant Method statements and SOPs.</li> <li>▪ Approval of Notification of Inspection by PMDCSC</li> <li>▪ Compliance to CEMP, public health, Construction camp development plan and H&amp;S plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction workers and activities, apart from laying of pipelines as described in other sections, mostly confined within the project site which is fenced.</li> <li>▪ Transportation of material via road is very limited as described in other sections.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
12(ii)		<ul style="list-style-type: none"> <li>▪ Identify stockyard areas in consultation with local administration.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approved layout plan.</li> <li>▪ Relevant Method statements and SOPs.</li> <li>▪ Approval of Notification of Inspection by PMDCSC</li> <li>▪ Compliance of soil management plan, waste management procedure and Plan, relevant activity wise method statements and SOPs</li> </ul>	<ul style="list-style-type: none"> <li>▪ All construction activities are/shall be mainly confined to fenced project site and all stockyard areas are located within the project site.</li> <li>▪ No stockyard is envisaged outside project premises.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
12(iii)		<ul style="list-style-type: none"> <li>▪ Work on private land to require written permission of landowners.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approved layout plan.</li> <li>▪ Approval of Notification of Inspection by PMDCSC</li> <li>▪ Permission of land acquired/to be acquired for usages, if any</li> </ul>	<ul style="list-style-type: none"> <li>▪ Most of the construction activities are/will be executed as per approved layout plan and within project site. Only pipelines and other requisite facilities for wastewater discharge and water intake are/will be developed on land owned by</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not applicable</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>HDC and accordingly permissions for usages are/will be obtained.</p> <ul style="list-style-type: none"> <li>▪ No private land is envisaged for usages during construction activities.</li> </ul>	
12(iv)		<ul style="list-style-type: none"> <li>▪ Prefer small mechanical excavator for excavation works.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of method statements of excavation and relevant SOPs.</li> <li>▪ Approval of notification of inspection by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Excavation for laying the pipelines outside project site for wastewater discharge and water intake is/will be carried out as per relevant method statement and SOPs and after approval of notification of inspection by Site engineer of PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
12(v)		<ul style="list-style-type: none"> <li>▪ Prohibit alcohol and drugs on site.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of local regulations</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per Drugs and Alcohol policy, use of alcohol and drugs are prohibited.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
12(vi)		<ul style="list-style-type: none"> <li>▪ Prevent excessive noise.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 6(ii), 6(iv), 6(vi) and 6(vii).</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 6(ii), 6(iv), 6(vi) and 6(vii).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
12(vii)		<ul style="list-style-type: none"> <li>▪ Code of conduct for workers includes restricting workers in designated areas, no open defecation, no littering, no firewood collection, no fire except designated places, no trespassing, no residence at construction sites, and no obligation to potentially dangerous work.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of Human resource polices and procedure, Construction camp development and management plan, waste management procedure and plan.</li> <li>▪ Regular inspection and audit by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given below under 14(i) and 14(ii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>
12(viii)		<ul style="list-style-type: none"> <li>▪ Follow international best practices on community health and safety such as those in Section 4.3 of IFC Environmental Health and Safety</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approval of Notification of Inspection by PMDCSC</li> <li>▪ Compliance to CEMP and all plans as mentioned including public health and safety plan and H&amp;S plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mapping of environment impacts and risk to health and safety has been done and on the basis of findings, public health and safety plan, GRM plan and other plans as per details given in Table 11 are being</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<p>(EHS) Guidelines on Construction and Decommissioning Activities. These requirements are discussed in Section VI of the EIA report.</p>	<ul style="list-style-type: none"> <li>▪ Records reported in Daily Progress Report (DPR) and monthly report by submitted by DBO Contractor.</li> <li>▪ Regular inspection and audit by PMDCSC.</li> </ul>	<p>developed to define the requirements of mitigation measures.</p> <ul style="list-style-type: none"> <li>▪ Number of internal documents such as method statements and/or SOPs for each construction activities such as excavation, concreting, dewatering etc and tools such as PPEs, electricity safety etc are being developed</li> <li>▪ Environment monitoring is being carried out on regular basis as per details given under Section VI.</li> <li>▪ Details of construction activities, real time inventory of construction materials, waste generated, stored and disposed are being reported in DPR and monthly report.</li> <li>▪ Inspections and audit by PMDCSC are being conducted on regular basis.</li> </ul>	
12(ix)		<ul style="list-style-type: none"> <li>▪ Maintain a complaint logbook in workers camp and act promptly of complaints.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of Grievance Redressal Mechanism plan</li> </ul>	<ul style="list-style-type: none"> <li>▪ GRM plan in place and details of status of implementation of same are as per given under section X. However, no complaint has been received during this quarter.</li> <li>▪ However, no public announcement has been made through local newspapers, community bulletin boards etc and through MoE.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
13(i)	Work site and Workers Health and Safety	<ul style="list-style-type: none"> <li>▪ Comply with labour act of Maldives.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of modified CEMP &amp; other plans including Human Resource Management Procedure and HSE Regulatory Procedure</li> <li>▪ Status of permits to work issued by Maldivian</li> <li>▪ Insurance policies in place</li> <li>▪ Details of wages paid</li> </ul>	<ul style="list-style-type: none"> <li>▪ Applicable provisions of local regulations have been considered in developing all plans as mentioned in Table 11. However, HSE Regulatory procedure is yet to be developed.</li> <li>▪ Personal Mediclaim insurance has been covered as part of permit to work issued by Maldivian Government and no separate insurance cover for individuals</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
			<ul style="list-style-type: none"> <li>▪ Findings of regular inspection and audit by PMDCSC</li> <li>▪ Complaint received, if any</li> </ul>	<p>has been provided. However, other insurances such as third party, group insurance etc are in place.</p> <ul style="list-style-type: none"> <li>▪ Appointment letters for permanent employees and contracts for contracted labours are in place.</li> <li>▪ Contracts with sub-contractors</li> <li>▪ All wages, leave and overtime are provided in compliance with local regulations. For example, local employees are being paid pension fund @14% as additional amount. Overtime is being provided @1.5 time on holidays and @1.25 times on working days.</li> <li>▪ Total overtime paid to workers are 8.55% during July-24, 8.4% during August-24 and 7.6% during September-24.</li> <li>▪ HR manager confirms that company does not keep passport of any worker/staff. However, no system is in place to ensure the same for workers engaged by sub- contractors. During site visit, security guards informed that their employer keep passport.</li> <li>▪ No system is in place to verify the compliance of labour laws and ADB SPS by subcontractors, though same is mentioned in contract.</li> <li>▪ No complaints have been received during this quarter.</li> <li>▪ Improvement is required on ensuring the use of adequate PPE by all workers.</li> </ul>	
13(ii)		<ul style="list-style-type: none"> <li>▪ Implement the Occupational Health and Safety Plan, which shall follow all</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan and CEMP &amp; other plans such as emergency response plan,</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given under section 3(viii), 4, 5, 6, 7, 9 and 14.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<p>occupational health and safety requirements discussed in Section VI of the EIA report.</p>	<p>Chemical and hazardous material management plan etc</p> <ul style="list-style-type: none"> <li>▪ Compliance of relevant activity wise method statements and SOPs</li> <li>▪ Findings of OHS monitoring</li> <li>▪ Details provided on health and safety of workers in monthly report</li> <li>▪ Regular inspection and audit by PMDCSC</li> <li>▪ Complaints received, if any</li> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪ Modified CEMP and H&amp;S plan have been approved. Status of each plan is as per given in Table 11</li> <li>▪ Activity wise method statements such as excavation, spun piling, batching plant, wastewater treatment, dewatering SOPs such as PPE procedure, electrical safety procedure, permit to work procedure etc are in place.</li> <li>▪ Requisite details on finding and actions taken training, toolbox talk, status of permits including copies of same, incident reports etc are being provided in monthly report submitted by DBO Contractor.</li> <li>▪ Finding of OHS monitoring during period are summarised in section VI and as per given above under 4(i) and 6(iv).</li> <li>▪ EHS committee has been constituted in August 2024.</li> <li>▪ Online real time inventory of chemicals is updated on weekly basis.</li> <li>▪ Air exchange rate of container is to verified in compliance with best practice of storage of chemicals and hazardous materials to ensure adequate ventilation.</li> <li>▪ Following observations are recorded on the new hazardous chemical storage area for corrective measures: <ul style="list-style-type: none"> <li>a. Design criteria has not been shared.</li> <li>b. No system in place to keep temperature low.</li> <li>c. Found without lock and unguarded entry.</li> <li>d. Impermeable RCC ground floor is provided with adequate secondary containment. However, no partition</li> </ul> </li> </ul>	

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>has been provided for storage area of each chemical.</p> <p>e. No label of respective hazards associated with chemicals stored by supplier and secondary containers. Though MSDSs were kept.</p> <ul style="list-style-type: none"> <li>▪ Display of dos and don'ts are displayed in English only. However same need to be displayed in other languages also as English is hard to understand by most workers and leads to unawareness.</li> <li>▪ Fire extinguishers have been inspected by third party and by in-house team on regular basis.</li> <li>▪ During interaction with construction team responsible for issuing permit to work and supervision, it was found that permit to work was issued without understanding type of chemicals and machinery, equipment, tool etc to be used and have inadequate understanding of hazards associated with activity. Need more training and strict supervision from HSE team.</li> <li>▪ During interaction with scaffolding supervisor, it was found that he does not have adequate understanding about scaffolding and has poor understanding of English. Though his competency has been attested by PWA (Pvt) Ltd and valid till 13 June 2026. He does not have any professional qualification or previous experience. During last audit in July-24, scaffolding inspector also was found with inadequate qualification, experience and understanding on subject.</li> </ul>	

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<ul style="list-style-type: none"> <li>▪ Portable toilets provided at construction site need proper maintenance and cleanliness.</li> <li>▪ Three transit mixers have been registered with transport authority.</li> <li>▪ Mock drills on evacuation, firefighting, fall from work at height and security have been conducted.</li> <li>▪ During inspection of records on random basis in compliance with all relevant documents, it is found that same need to be audited in detail to verify the compliance.</li> </ul>	
13(iii)		<ul style="list-style-type: none"> <li>▪ Provide compulsory health and safety orientation training to all new workers to ensure that they are apprised of Occupational Health and Safety Plan including rules of work, use of personal protective equipment (PPE), preventing injury to fellow workers, etc.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of HSE Training Procedure</li> <li>▪ Training schedule</li> <li>▪ Details provided in monthly report</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given below under section VIII.</li> <li>▪ Training is mostly provided in Hindi and English, and videos are also displayed on the subject. However, workers are mainly from various countries such as India, Turkey, Bangladesh, Nepal, Sri Lanka etc.</li> <li>▪ Mapping of understanding of language need to be conducted and corrective actions need to be taken to make training session more effective.</li> <li>▪ HIV-AIDS awareness programme for workers needs to be conducted via an approved service.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
13(iv)		<ul style="list-style-type: none"> <li>▪ Restrict public access to worksites.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Approved project site and layout plan.</li> <li>▪ Compliance to security management plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Site boundary is fenced and only three gates are provided for entry/exit</li> <li>▪ Out of three gates, two are open for use and two guards at each gate with guardhouses are placed to control and restrict entry.</li> <li>▪ Each worker/ staff are provided identity card. No entry to project site is allowed without entry.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
13(v)		<ul style="list-style-type: none"> <li>▪ Provide PPE to workers and ensure their effective usage. For example, require workers to (i) wear ear plugs while in noise hazard areas, and (ii) wear high visibility clothes or reflectorized vests at all times.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan, CEMP &amp; other plans such as Risk Assessment Procedure, Chemicals and hazardous materials management plan, emergency response plan, HSE training procedure, PPEs procedure etc</li> <li>▪ Activities wise method statements and SOPs including PPE procedure.</li> <li>▪ Findings of OHS monitoring</li> <li>▪ Regular inspection and audit by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 13(ii) and 13(iii)</li> <li>▪ PPEs provided are by and large in compliance with British standards but need to be ensured by detailed inspection and audit.</li> <li>▪ In-house supervision of applying PPEs by workers need to be made more effective as many workers were found not wearing all and/or inadequate PPEs as required.</li> <li>▪ Permit to work need to be made more specific as it does not provide activity specific requirements of PPEs.</li> <li>▪ During inspection of records on random basis in compliance with all relevant documents, it is found that same need to be audited in detail to verify its adequacy of compliance.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
13(vi)		<ul style="list-style-type: none"> <li>▪ Document procedures to be followed for site activities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Same as given in other rows of this aspects</li> </ul>	<ul style="list-style-type: none"> <li>▪ Same as given in other rows of this aspects</li> </ul>	<ul style="list-style-type: none"> <li>▪ Same as given in other rows of</li> </ul>
13(vii)		<ul style="list-style-type: none"> <li>▪ Maintain accident reports and records.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of H&amp;S plan and Incident reporting and investigation procedure.</li> <li>▪ Medical register as maintained in health centre</li> <li>▪ Incident reporting as part of monthly report.</li> <li>▪ Regular inspection and audit by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ All accidents are being recorded and reported in compliance with Incident reporting and investigation procedure.</li> <li>▪ Medical register of type of patient including injured during accident are being reported in monthly report.</li> <li>▪ Details of reported incidents are as per given under section VI(F).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
13(viii)		<ul style="list-style-type: none"> <li>▪ Make first aid kits readily available.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan</li> <li>▪ Regular inspection and audit by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ First aid kits are placed at two locations i.e. one in kitchen and one at construction site. However, two kits are kept at health centre on standby</li> <li>▪ First aid kit needs to be in compliance with British Standard BS 8599-1:2019. Hower kit placed at construction site was</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially Complied</li> </ul>



No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				not found in compliance with internal document on same. <ul style="list-style-type: none"> <li>9 trained first aiders and list of same are displayed in camp area and health centre. This is in addition to one MBBS doctor and one nurse on 24x7 basis.</li> </ul>	
13(ix)		<ul style="list-style-type: none"> <li>Maintain hygienic accommodation in work camps.</li> </ul>	<ul style="list-style-type: none"> <li>As per given below under 14(i) and 14(ii)</li> </ul>	As per given below under 14(i) and 14(ii)	As per given below under 14(i) and 14(ii)
13(x)	<ul style="list-style-type: none"> <li>Ensure uncontaminated water for drinking, cooking and washing.</li> </ul>				
13(xi)	<ul style="list-style-type: none"> <li>Ensure clean eating areas.</li> </ul>				
13(xii)	<ul style="list-style-type: none"> <li>Ensure sanitation facilities are readily available.</li> </ul>				
13(xiii)	<ul style="list-style-type: none"> <li>Provide medical insurance coverage for workers.</li> </ul>	<ul style="list-style-type: none"> <li>As per given above under 13(i)</li> </ul>			
13(xiv)	<ul style="list-style-type: none"> <li>Provide orientation for guest visitors.</li> </ul>	<ul style="list-style-type: none"> <li>Compliance Security management plan, H&amp;S plan, HSE training procedure etc</li> </ul>	<ul style="list-style-type: none"> <li>Records of visitors</li> </ul>	<ul style="list-style-type: none"> <li>In compliance with HSE training procedure, orientation including HSE is being provided to visitor by HSE staff in office building and records are kept.</li> <li>Security guards provide identity card, safety jacket, helmets at entry gate while, shoes are provided by HSE team in case visitor are to visit the construction site.</li> <li>Visitor is accompanied by a member of HSE team and/or construction team.</li> </ul>	<ul style="list-style-type: none"> <li>Being Complied</li> </ul>
13(xv)	<ul style="list-style-type: none"> <li>Ensure that visitors do not enter hazard areas unescorted.</li> </ul>				
13(xvi)		<ul style="list-style-type: none"> <li>Ensure moving equipment is outfitted with audible backup alarms.</li> </ul>	<ul style="list-style-type: none"> <li>Compliance to H&amp;S plan, General Lifting, Unloading and Transportation Procedure etc</li> </ul>	<ul style="list-style-type: none"> <li>In compliance with documents in place, equipment is being fitted with all accessories provided by manufactures.</li> <li>Checklists of in-house inspection are in place.</li> </ul>	<ul style="list-style-type: none"> <li>Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
13(xvii)		<ul style="list-style-type: none"> <li>▪ Chemical and material storage areas need to be marked clearly. Display MSDS, train staff on storage and handling.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 13(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 13 (ii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially complied</li> </ul>
13(xviii)		<ul style="list-style-type: none"> <li>▪ Hearing protection equipment enforced in noisy environment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under various rows of 6</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under various rows of 6</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially Complied</li> </ul>
13(xix)		<ul style="list-style-type: none"> <li>▪ Conduct of daily toolbox talks to reiterate repeatedly all the above measures and prioritize safety briefings; leanings from previous incidents, their causes and risks, and other safety procedures as may be identified.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan</li> <li>▪ Records of daily toolbox talks</li> <li>▪ Regular inspection and audit by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Daily toolbox talks are conducted and records are kept.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>
13(xx)		<ul style="list-style-type: none"> <li>▪ Conduct periodic safety audit, identify and remove potential hazards.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan and CEMP</li> <li>▪ Regular inspection and audit by PMDCSC.</li> </ul>	<ul style="list-style-type: none"> <li>▪ In-house supervision and inspections are being carried out by EPC contractor on regular basis and findings are being communicated to construction team via WhatsApp group and records of findings and action taken are being kept in register and on-line tracker.</li> <li>▪ DBO Contractor has engaged Ramboll on periodic inspections on monthly basis and audits on quarterly basis and record of findings with action taken reports are kept.</li> <li>▪ EHS committee is in place. Also, DBO Contractor and EPC contractor have weekly meeting</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<ul style="list-style-type: none"> <li>▪ Findings of inspections and audits carried out by EPC and DBO Contractor are reported in monthly report.</li> <li>▪ As per revised project manual, PMDCSC is to conduct inspections via walk downs by site engineer and regular inspections (twice in month) by local environment safeguard and audit by international environment safeguard by using checklists. Details are as per given below under section VI(A).</li> </ul>	
13(xxii)		<ul style="list-style-type: none"> <li>▪ For works in the marine environment, ensure that:               <ol style="list-style-type: none"> <li>a. all persons engaged in the marine construction are competent swimmers.</li> <li>b. Lifejackets are provided to workers and worn at all times.</li> <li>c. Properly functioning ship-to-shore communications are provided.</li> <li>d. No work during rough sea conditions.</li> <li>e. Emergency rescue team is available at all times at the site during the marine work (such as rescue boat with divers).</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan, emergency response plan, relevant method statements and SOPs,</li> <li>▪ Approval of design details by PMDCSC.</li> <li>▪ Approval of Notification of approval by PMDCSC.</li> <li>▪ Inspections and audit by PMDCSC on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Most of the construction activities are mainly confined with project site which is already fenced with restricted entry.</li> <li>▪ Outside the project site, proposed construction activities mainly include laying of pipelines and construction of facilities for water intake from sea and discharge of wastewater into sea. However same are in design stage and yet to be commissioned and mitigation will be implemented on the basis of findings of mapping of hazards associated.</li> <li>▪ Based on findings of mapping of hazards associated, activity wise method statement and SOPs, H&amp;S plan and emergency response plan shall be reviewed and modified, if any for corrective mitigation measures and same will be complied with,</li> </ul>	<ul style="list-style-type: none"> <li>▪ Being Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		f. Provide caution & information boards (traffic, safety, information etc.,)			
13(xxii)		<ul style="list-style-type: none"> <li>▪ Undertake all necessary public safety measures, precautions</li> </ul>	<ul style="list-style-type: none"> <li>▪ As given above under 11 for Other amenities for community welfare</li> </ul>	<ul style="list-style-type: none"> <li>▪ As given above under 11 for Other amenities for community welfare</li> </ul>	<ul style="list-style-type: none"> <li>▪ As given above under 11 for Other amenities for community welfare</li> </ul>
13(xxiii)		<ul style="list-style-type: none"> <li>▪ Ensure proper maintenance and cleanliness of the site and facilities</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given hereunder 14(i) and (ii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given hereunder 14(i) and (ii)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given hereunder 14(i) and (ii)</li> </ul>
13(xxiv)		<ul style="list-style-type: none"> <li>▪ Demarcate assembly area for emergencies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of H&amp;S plan and Emergency response plan.</li> </ul>	<ul style="list-style-type: none"> <li>▪ There are two designated assembly areas provided almost in one direction i.e. one in front of administrative building second one near gate no-1.</li> <li>▪ Wind socks are provided at two locations/</li> </ul>	<ul style="list-style-type: none"> <li>▪ Complied</li> </ul>
13(xxv)		<ul style="list-style-type: none"> <li>▪ Provide medical aid facilities (first aid, doctor on call etc.,)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance to H&amp;S plan</li> <li>▪ Record of medical register.</li> <li>▪ Regular inspection and audit by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ One full time MBBS doctor and one nurse on 24x7 basis. Others are as per given above under 13(viii).</li> <li>▪ In case of requirement of further treatment, patient is being referred to IGMH hospital, Male. A speed boat is available on 24x7 basis.</li> <li>▪ Reportedly, records of Permit to work issued by Maldivian Govt including medical check-up conducted for same have been kept. However, no system in place to keep the record of blood group.</li> <li>▪ Centre need to be registered as given above in Table 6.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Partially Complied</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
14(i)	Labor Camps	<ul style="list-style-type: none"> <li>▪ Avoid establishing labour camps by employing local workers as far as possible.</li> <li>▪ In unavoidable cases, establish camp within the site; and implement the Construction Camp Development and Management Plan (CCDMP).</li> <li>▪ Follow the layout plan included in the CCMP.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Compliance of Construction camp development and management plan.</li> <li>▪ Complaints, if any received via GRM.</li> <li>▪ Findings of inspection and audits conducted by PMDCSC</li> </ul>	<ul style="list-style-type: none"> <li>▪ Camp has been established within project site in compliance with construction camp development and management plan which is developed considering details given in CCDMP and a guidance note by IFC and the EBRD on worker's accommodation and standards and local regulations.</li> <li>▪ Camp is developed in phases considering all workers and supervisory staff including subcontractors.</li> <li>▪ As present, about 218 workers and staff are staying in camp area. Only DBO Contractor staff and workers of sub-contractors are not staying as accommodations for them have been arranged by themselves and provided by subcontractor.</li> <li>▪ Total 63 single occupancy rooms are available for manager and engineers and out of which 32 rooms are occupied.</li> <li>▪ Total 43 six-person occupancy rooms are available for workers and out of which 25 rooms are occupied.</li> <li>▪ Total 12 triple occupancy rooms are available for foreman and supervisors and all are occupied.</li> <li>▪ Details of facilities provided as worker accommodations which are in compliance with IFC EBARD guidelines:               <ol style="list-style-type: none"> <li>a. Number of occupancies – 6 person per room</li> <li>b. Area of room 24.7 m<sup>2</sup> @ 4.12 m<sup>2</sup> per person and ceiling height of 2.92 m.</li> <li>c. Each room is provided with three double bunk beds and designed space</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Being complied but need to provide/ad opt missing items/practices.</li> </ul>

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>between two beds is 1 m to 1.5 m. Clear space between the lower and upper bunk of the bed is 0.92 m.</p> <p>d. 30 toilets (squat and sitting), 30 showers and 16 wash basins are in place. As per IFC Standard , for every 15 workers, there should be 1 toilet, 1 hand wash basin, 1 bathroom while as per local regulation No: 2021/R-15 there should be at least one toilet for every 10 workers living in the accommodation. The shower/toilet facilities are located 30 meters from the worker's room.</p> <p>e. Dining hall- total area is 260 m<sup>2</sup> which can be used for 260 workers at a time.</p> <p>f. AC in each room is provided.</p> <p>g. Laundry facilities operated by support staff are provided.</p> <p>h. Adequate electricity sockets are provided.</p> <p>i. Prayer room is provided.</p> <ul style="list-style-type: none"> <li>▪ Separate Recreation room with TV and indoor games is in place for workers, having an area of 43 m<sup>2</sup> .</li> <li>▪ Staff room provide has an area of 9.7 m<sup>2</sup></li> <li>▪ Details of facilities for worker's accommodations need to be provided/modified to comply with IFC EBARD guidelines:               <ol style="list-style-type: none"> <li>a. Furniture such as a table, a chair, a mirror and a bedside light</li> <li>b. Total volume of each cupboard provided is 260 liters which is less than recommended as 475 liters</li> </ol> </li> </ul>	

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<p>c. No mobile partitions or curtains to ensure privacy.</p> <p>d. Inadequate separate storage for work boots and other personal protection equipment, as well as drying/airing areas.</p> <ul style="list-style-type: none"> <li>▪ Following are the findings during site visits:           <ul style="list-style-type: none"> <li>a. Camp policy is in place and displayed</li> <li>b. Workers in each room can bring in their clothes and bed linens on the day they are allocated once a week. Washing soap and drying lines are not provided.</li> <li>c. Since the toilet facilities are located in a separate building from the accommodation, need a sheltered walk way to protect workers from rain.</li> <li>d. Pest control is being carried out on monthly basis.</li> <li>e. The rooms were cleaned by support staff regularly. However, Dirty work clothes left in the room makes the air stagnant.</li> <li>f. The corridors are used to hang work clothes for airing and storage of personal items including boots creating obstructions in movements.</li> <li>g. Only one exit and entrance provided in the accommodation block.</li> <li>h. Emergency light and smoke detector are provided in corridor.</li> <li>k. The minimum space between the beds in some of the rooms does not meet the standards of 1 m. In some rooms arrangements of beds are blocking the access to windows.</li> </ul> </li> </ul>	

No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
				<ul style="list-style-type: none"> <li>i. Need drying or airing areas for workers clothes.</li> <li>m. Workers need to be educated and encouraged to keep rooms clean.</li> <li>n. Only one gate has been provided in each block of accommodation which is also designated as the emergency exit gate;</li> <li>o. Drains from AC are having opening in open area. <ul style="list-style-type: none"> <li>▪ No complaints have been received in this quarter.</li> </ul> </li> </ul>	
14(ii)		<ul style="list-style-type: none"> <li>▪ The CCDMP will consider all construction camp requirements discussed in Section VI of the EIA report, which, among others, are the following: <ul style="list-style-type: none"> <li>a. The camp, if possible, in Thilafushi Island, is at least 50 m away from water bodies.</li> <li>b. Clear separation of the workers living areas from material storage areas and work sites with fencing and separate entry and exit</li> <li>c. Provision of proper liquid waste and solid waste collection,</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 14(i)</li> </ul>	<ul style="list-style-type: none"> <li>▪ As per given above under 14(i) and 13(xxv).</li> <li>▪ Camp is located more than 50 m from seashore and storage area and solid waste dumping site of WAMCO.</li> <li>▪ STP is being in operation and treated wastewater is being tested on monthly basis before discharge into sea.</li> <li>▪ Solid waste is being collected and stored before handing over to WAMCO for disposal.</li> <li>▪ Water supplied by Male Water and Sewage Company is being further treated for drinking purpose for workers and drinking water quality is monitored on monthly basis. This water is treated at five locations with potable system.</li> <li>▪ However, for supervisor staff, bottled water is being provided for drinking.</li> <li>▪ Mainly Turkish food to is cooked in kitchen and provided in separate dining hall for staff and workers. Same food is served to all. However, for personnel (mainly from India, Bangladesh and Sri</li> </ul>	Being complied but need to provide/adopt missing items/practices.






No.	Field or Activity	Mitigation Measures	Indicator of Compliance	Status of implementation	Compliance
		<p>treatment and disposal system.</p> <p>d. Provision of drinking water, water for other uses, and sanitation facilities (e.g. separate toilets for men and women).</p> <p>e. Liveability at the highest standards possible at all times; living quarters provided with standard materials, space, and proper lighting and ventilation.</p> <p>f. Fire safety, medical facilities</p>		<p>Lanka), food is being brought from outside due to food habits.</p> <ul style="list-style-type: none"> <li>▪ Fire extinguishers duly inspected by third part have been provided.</li> </ul>	



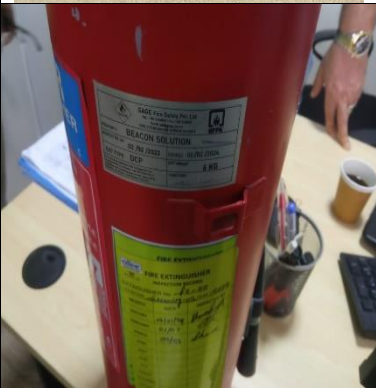

**D. Key Site Observations and Action Taken**




25. Details of findings/observations based on weekly site walk down reports, inspection reports, etc. are given in Table 13 with specific details on status in line with reports enclosed as Appendix-2. However, major issues identified for actions are listed as per given below:


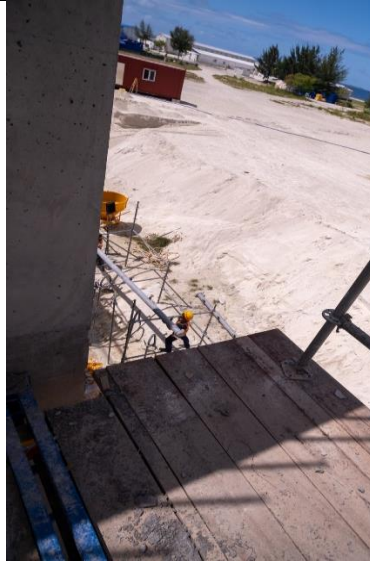

- a) There is regulatory compliance issue due to the lack of requisite permit/registration for diesel mobile tanker, commissioning of bore well and RO plant in batching plant area, vehicles which are in operation at site and registration of health center.
- b) Some pending HSE plans have not been fully accepted due to some comments from PMDSC (list given in Table 11), and that DBO Contractor has not addressed these comments yet.
- c) The scaffolding supervisor was found to lack the necessary competency due to insufficient experience and knowledge of scaffolding. The supervisor has been provided a 3 day training from a third party. The contractor must ensure that personnel assigned to scaffolding inspections have adequate experience and effective training.
- d) Implementation noise suppression measures such as enclosure of DG sets.
- e) There is no provision of secondary containment for each storage of hazardous chemicals and there is inadequate number of spill kits provided.
- f) Ambient air monitoring instrument used for monitoring of workplaces are not calibrated.
- g) There is no storm water management plan for construction phase
- h) Inadequacy in implementation of HSE documents such as ensuring all regulatory requirements are met, noise suppression measures are implemented etc.
- i) CVRA study report is to be revised and re-submitted.
- j) Air dispersion modelling report has not been submitted.
- k) Risk due to presence of live electrical cables of STELCO (passing through project site) and presence of shipwrecks in sea adjacent to quay wall.
- l) Appointment of Public Awareness consultant by PMU and public consultations.

Table 13: Site Observations and Current Status

Aspect	Site Observation / Finding	Site photographs	Action to be taken	Current status	Close out photo
<b>Wastewater from batching plant discharged to adjacent site</b>	Pipeline discharging wastewater from the sedimentation tank at batching plant to the adjacent site  18/07/24		Pipeline to be removed	Pipeline removed  Closed date: 18/07/24	-
<b>Secondary containment for storage of hazardous chemicals</b>	No secondary containment for storage of chemical Sikaplastic-176 LK in batching plant area  29/7/24		Secondary containment needs to be provided	Secondary containment constructed  Closed date: 19/09/2024	

Aspect	Site Observation / Finding	Site photographs	Action to be taken	Current status	Close out photo
	<p>No secondary containment for storage of chemicals in warehouse and spillage of chemicals</p> <p>09/07/24</p>		<p>Secondary containment needs to be provided</p>	<p>Chemical storage area constructed, and chemicals shifted</p> <p>Closed date: 31/08/2024</p>	
<p><b>Third party inspection of fire extinguishers</b></p>	<p>All fire extinguishers were found with expired date of third-party inspection 14/4/24</p>		<p>Inspections by third party need to be done.</p>	<p>Third party inspections done</p>	

Aspect	Site Observation / Finding	Site photographs	Action to be taken	Current status	Close out photo
<b>Eye wash station near hazardous chemical storage area</b>	Eye wash station was not provided near hazardous chemical storage area 14/4/24		Eye wash station need to be provided	Eye wash station provided	
<b>Damage to site fence due to falling of waste from WAMCO dumpsite</b>	Spillage of waste from work at the WAMCO dumpsite caused damage to the site boundary fence  01/09/2024		Discussions to be held with WAMCO on corrective action plan	Discussion held with PMU, DBO Contractor, EPC and WAMCO on 21/08/2024.  Methodology used for dumpsite works changed to ensure no more C&D waste is dumped and that waste adjacent to the fence is cleared.  Action plan to be developed by WAMCO and shared with the contractor.  Work is currently on hold at the WAMCO site.	-

Aspect	Site Observation / Finding	Site photographs	Action to be taken	Current status	Close out photo
<b>Non-compliance of local regulations for transit mixers</b>	<p>All transit mixers were in operation without requisite registration from transport authority</p> <p>14/04/2024</p>		<p>Need to get registration from Transport Authority</p>	<p>Closed.</p>	<p>-</p>
<b>Working Platform (Working at height)</b>	<p>Working platform at bunker wall was installed not in accordance with Method statement.</p> <p>Need improvement to safeguard the users (workers/staff) safety. Some of the key issues as follows:</p> <p>a) Noticeable gap on the platform which increase the potential of falling.</p>		<p>EPC to improve awareness of scaffolders and installer on working platform requirement as specified in project specification and working platform method statement.</p> <p>EPC to conduct training and set a mock-up platform as references.</p>	<p>Corrective actions have been taken to ensure compliance with the Method statement and to enhance safety for workers.</p> <p>All noticeable gaps on the platform have been closed to eliminate the risk of falls.</p> <p>Toe-boards have been provided across all working platforms to prevent objects from falling.</p> <p>Handrails have been installed in every section of the platform to ensure sufficient protection and support for workers.</p> <p>Closed date: 22/08/2024</p>	

<b>Aspect</b>	<b>Site Observation / Finding</b>	<b>Site photographs</b>	<b>Action to be taken</b>	<b>Current status</b>	<b>Close out photo</b>
	b) No adequate toe-board. This might lead to falling object. c) Not sufficient handrail on every section.				

## E. Project Construction related Accidents and Incidents

26. Table 14 and Table 15 below presents details of work-related incidents reported from the project pre-construction and construction activities.

**Table 14: Details of Construction related incidents (reporting period)**

Date of occurrence of incident	Type of incident	Description of incident	Consequence of incidents	Action taken by contractor	Present status
28 <sup>th</sup> July 2024 [16:00]  Thilafushi Terminal Cargo Jetty	First aid injury	During unloading of furniture from the cargo ferry to pickup truck the worker got a small cut injury on his left little finger	Cut injury on left hand little finger	<ul style="list-style-type: none"> <li>• Provide refresher training for proper use of PPE</li> <li>• Provide refresher training for manual handling</li> </ul>	All hazards and risk associated have been mitigated.
6 <sup>th</sup> August 2024 [17:10]  Bunker area	First aid injury	During shifting of white wood from the carpentry yard to the bunker area, worker's leg got stuck with the packing wood in the access kept below the foam work material and fell on the concrete floor, injuring his left knee	Fell on concrete and injured left knee	<ul style="list-style-type: none"> <li>• Carry out proper housekeeping and stacking of materials on a daily basis</li> <li>• Provide refresher training for manual handling</li> </ul>	All hazards and risk associated with the equipment and surroundings have been mitigated.



Date of occurrence of incident	Type of incident	Description of incident	Consequence of incidents	Action taken by contractor	Present status
31 <sup>st</sup> August 2024 [21:00]  Bunker Area	First aid injury	Rigger slipped and fell from the same level on the ground and got a small abrasion on the right knee	Fall at same level resulting in a small abrasion	<ul style="list-style-type: none"> <li>Instructed to carry out housekeeping</li> <li>Provide refresh training regarding housekeeping and manual handling</li> </ul>	All hazards and risk associated with the equipment and surroundings have been mitigated

**Table 15: Construction related incidents**

Particulars	Number of cases (previous reporting period)	Number of cases (this reporting period)	Cumulative up to end of this reporting period	Cases remaining outstanding
Minor / first aid cases	1	3	4	0
Major accidents	0	0	0	0
Fatal accidents	0	0	0	0
Accidents (only damage to assets, does not involve personnel injuries)	1	0	1	0
Near miss cases	2	0	2	0
<b>Total</b>	<b>4</b>	<b>3</b>	<b>7</b>	<b>0</b>

## F. Unanticipated Impacts

27. No unanticipated environmental impacts were encountered during the pre-construction/design stage.

28. An environment incident occurred during construction stage involving the release of residual water from the batching plant. Details are provided in Table 16.

**Table 16: Details of Environment Incidents (reporting period)**

<b>Date of occurrence of incident</b>	<b>Type of incident</b>	<b>Description of incident</b>	<b>Consequence of incidents</b>	<b>Action taken by contractor</b>	<b>Present status</b>
As per given above in 4(i) of Table 10  Batching plant area	Discharge of waste water on land within project site and on adjacent land from sedimentation tank	As per given above in 4(i) of Table 10	Deposition of sludge and possible contamination of soil	<p>As per letter vide letter MDV-20241007-URB-MME-LT-0202 dated 10 October 2024 of DBO Contractor, several measures such as the issuance of multiple TBT's and a warning letter dated 19.07.24 have already been taken to ensure proper handling of the discharge wastewater from the batching plant.</p> <p>It is now being collected in Intermediate Bulk Containers (IBCs). These IBCs are then transported to the Subcontractor Villa company, which processes the wastewater in their facility outside of the site. To maintain transparency and accountability, the EPC is issuing gate passes for each transfer of wastewater. Additionally, comprehensive records of all transactions and movements are being maintained on-site. However, records shared were found inadequate to verify with reference to quantity of waste water mentioned on gate passes issued and operating hours and days of batching plant.</p>	All hazards and risk associated have been mitigated.

## VII. ENVIRONMENTAL MONITORING

### A. Monitoring Activities - Proposed and Conducted

29. Considering the findings of the EIA study report (July 2020), environment baseline monitoring is carried out as per details given in CEMP during construction.

30. Environmental monitoring of ambient air quality, marine water quality, groundwater quality, ambient noise levels, wastewater quality from the discharge point of the WWTP/STP, and water quality proposed to be used for construction and camp and marine ecology survey have been carried out as per details provided in Table 17. Sampling and testing have been carried out based on the method statement enclosed as Appendix of the CEMP.

31. Monitoring of ambient air quality, ambient noise level and illumination level have been carried out as part of OHS monitoring. However, detailed OHS monitoring plan is to be revised for approval.

**Table 17: Additional Baseline Data Gathering During Construction Stage**

Assessment	Parameters	Location	Frequency	Status
Ambient air quality	TSP, PM10, PM2.5, NO2 and SO2	Total of 7 monitoring locations (Refer to Figure 3) <ul style="list-style-type: none"> <li>▪ AQ1 (downwind direction of the proposed project site)</li> <li>▪ AQ2 (crosswind direction of the plume)</li> <li>▪ AQ3 (crosswind direction of the smoke plume from the existing dump site at Thilafushi.</li> <li>▪ AQ4 (Villingili as a control site)</li> <li>▪ ASR2</li> <li>▪ ASR3</li> <li>▪ ASR5</li> </ul>	once in each quarter	Ambient air quality samplings were undertaken on the following dates:  1) 5-9 August 2024
Ambient noise level	Leq <sub>daytime</sub> and Leq <sub>nighttime</sub>	Total of 5 monitoring locations (Refer to Figure 4)	Monthly sampling	Noise level sampling was undertaken on the following dates: 1) 20-21 July 2024 2) 25-26 August 2024 3) 15-16 September 2024
OHS monitoring	Ambient air quality for TSP, PM10, PM2.5, NO2 and SO2	24 hourly basis ambient air quality monitoring was conducted at two locations within project site	Once in a month	1) No during July 2024 2) 4 to 6 August 2024 3) 23-24 September 2024
		Only one hourly basis ambient air quality has been monitored at six workplaces within project site (Refer to Figure 3).	Once in a month	1) 10-11 July 2024 2) 10 to 11 August 2024 3) 10 to 11 September 2024

Assessment	Parameters	Location	Frequency	Status
	Noise level for $Leq_{daytime}$ and $Leq_{nighttime}$	Noise level has been monitored at two locations once for 24 hours which are same as NQ3 and NQ5 for which has been done on monthly basis as per EMP of EIA (refer to Figure 4) as well as near grab monitoring at and near sources.	Once in a month	1) 20-21 July 2024 2) 25-26 August 2024 3) 15-16 September 2024
	Source Noise level at source, 1m, 2m and 3 m distance	Grab noise level at various sources in dB(A)	At least once in month	1) 13-14 July 2024 2) 1, 17 and 24 August 2024 3) 15-16 September 2024
	Illumination level in Lux	Illumination levels have been monitored on grab basis at various locations within project site	Once in a month	1)14 July 2024 2) 8 August 2024 3)23 September 2024
	Drinking water	Drinking water quality at three locations in July and 5 locations in August and September	Once in a month	Grab sample was collected on 4 <sup>th</sup> July 2024, 14 <sup>th</sup> August 2024 and 8 <sup>th</sup> September 2024.
Marine water quality	Heavy metals (As, Cr <sup>+6</sup> , Cu, Ni, Pb, Zn, Hg, Cd), nitrite, pH, turbidity, and BOD <sub>5</sub> etc.	Marine water samples to be collected from seven sampling stations - SW1, SW2, SW3, SW4, SW5, SW6, and SW7 (Refer Figure 6: Marine Water Quality Sampling Stations)	Quarterly sampling	Marine water samples were collected on 14 <sup>th</sup> August 2024.
Groundwater quality	Oil and grease, fecal coliform, presence of petroleum, pH, Heavy metals (As, Cr <sup>+6</sup> , Cu, Ni, Pb, Zn, Hg, Cd), etc.	<ul style="list-style-type: none"> <li>▪ Water samples to be collected from the eight monitoring locations (Refer Figure 7: Groundwater Sampling Stations)</li> <li>▪ For each location, the sample was collected from mid-water level</li> </ul>	Quarterly sampling	<ul style="list-style-type: none"> <li>▪ Groundwater Samples were collected from seven sampling stations - GW1, GW2, GW3, GW4, GW5, GW7 and GW8 on 14<sup>th</sup> August 2024. GW6 was inaccessible.</li> </ul>
Water quality proposed to be used for construction and other activities	pH, EC, TSS, fecal coliform, total coliform, aerobic plate count, Fe, Cd, As, Pb, Hg, Nitrate, etc.	<ul style="list-style-type: none"> <li>▪ Supply line of Male Water and Sewerage Company Supply network at project site.</li> </ul>	Monthly sampling	<ul style="list-style-type: none"> <li>▪ Grab sample was collected on 4<sup>th</sup> July 2024, 14 August 2024, and 8 September 2024.</li> <li>▪ Parameters have been revised in compliance with supply water quality standard as prescribed by URA from August 2023 onwards.</li> </ul>
Treated wastewater quality from	pH, COD, BOD <sub>5</sub> , heavy metals, EC, etc.	<ul style="list-style-type: none"> <li>▪ At discharge point from the WWTP/STP to the receiving body of water</li> </ul>	Monthly sampling	<ul style="list-style-type: none"> <li>▪ Grab sample was collected on 4<sup>th</sup> July</li> </ul>

Assessment	Parameters	Location	Frequency	Status
WWTP/STP to be discharged into sea				2024, 14 <sup>th</sup> August 2024 and 8 <sup>th</sup> September 2024 <ul style="list-style-type: none"> <li>Parameters have been revised in compliance with National Waste Water Quality Guidelines 2007 and IFC General EHS Guidelines from August 2023 onwards.</li> </ul>
Discharge water quality from dewatering	Fecal Coliform, pH, Total Dissolved Solids, Dissolved Oxygen, Turbidity, Total Hydrocarbon, Electrical Conductivity, Salinity, Hydrogen Sulphide, Oil & Grease, Ammonia, Nitrites and Phosphates	As discharge point of retention pond into sea	Monthly sampling	Grab sample was collected on 4 <sup>th</sup> July 2024, 14 <sup>th</sup> August 2024 and 8 <sup>th</sup> September 2024
Marine ecology survey	Live coral and fish	In and around locations (M8, M9 and M10) at 5 and 10 m depth as referred in EIA and CEMP	Once During the Pre – Construction Phase & Quarterly During the Construction Phase	Survey was planned for September 2024. However, it was delayed to October 2024 due to adverse weather conditions.

## B. Monitoring Results

### i. Ambient Air Quality

32. There was one sampling event during this reporting period i.e. during August 2024. Measurements of parameter such as PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, and TSP were done by using air quality monitoring station-based online sensor technology by AirQoon Sensor. Parameters measured with sensor devices consist of the averages of instantaneous measurements taken at 1-minute intervals and reported on hourly and 24-hourly basis.

33. Ambient air quality sampling was conducted at seven locations: 6 locations at Thilafushi (AQ1, AQ2, and AQ3 identified as baseline stations in the EIA and the ASR2, ASR3 and ASR5 based on the AERMOD study in the EIA), and one location at Villingili (AQ4) as control station. Figure 3 shows the ambient air quality sampling stations. Table 18 gives the description of the sampling stations while Table 19 shows the results of ambient air quality sampling. Detailed reports on ambient air quality sampling conducted are given in Appendix 3.

**Figure 3: Ambient Air Quality Sampling Stations**



**Table 18: Description of Ambient Air Quality Sampling Stations**

<b>Location</b>	<b>Description</b>	<b>Distance to Project Site (WtE facility construction) meter</b>
AQ1	Represents dense industrial area	650
AQ2	Represents dense industrial area	1,000
AQ3	Represents dense industrial area	500
ASR2	Represents dense industrial area	700
ASR3	Represents dense industrial area	500
ASR5	Represents dense industrial area	1,000
AQ4	Represents residential area with moderate urbanisation	4,500

**Table 19: Results of Ambient Air Quality Sampling, August 2024**

Parameters	Air Quality Monitoring during August							
	AQ1	AQ2	AQ3	AQ4	ASR2	ASR3	ASR5	WHO air quality standards
PM <sub>10</sub> (µg/m <sup>3</sup> )	25.6	25.4	25.9	25.8	25.7	25.5	26.5	45
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	<b>24.3</b>	<b>24.4</b>	<b>24.6</b>	<b>24.5</b>	<b>24.3</b>	<b>24.2</b>	<b>25.3</b>	15
SO <sub>2</sub> (µg/m <sup>3</sup> )	ND	ND	ND	ND	ND	ND	ND	40
NO <sub>2</sub> (µg/m <sup>3</sup> )	ND	ND	ND	ND	ND	<b>28.1</b>	22.0	25
TSP (µg/m <sup>3</sup> )	53.1	53.7	54.7	53.9	54.31	53.9	53.2	-



34. From Table 19, results of ambient air quality conducted during August-2024 show that levels of PM<sub>2.5</sub> at all locations are exceeding the WHO air quality guidelines. Levels of NO<sub>2</sub> are also exceeding the WHO guidelines at ASR3.

35. Variations in the ambient air quality results compared to the last year results may be attributed to the microclimate of the monitoring locations that may have background pollution sources as Thilafushi is an industrial site where various types of industrial works are conducted in addition to the local activities, and meteorological conditions at the time of sampling. Further analysis has been mentioned in sub section (iii) i.e. OHS monitoring -air quality.

36. Male and Hulhumale are located in the E-N quadrant of the Thilafushi island. Based on the meteorology of the area, more specific to monthly variations, easterly winds are predominant from December to February. In March, it is a combination of easterly and NW winds, while westerly winds are predominant for the rest of the year. Two monsoon seasons are observed in Maldives: The Northeast (*Iruvai*) and the Southwest (*Hulhangu*) monsoon. The southwest monsoon lasts from May to September and the northeast monsoon occurs from December to February. The transition period of southwest monsoon, which is the driest part of the year, occurs between March and April while that of northeast monsoon occurs between October and November.

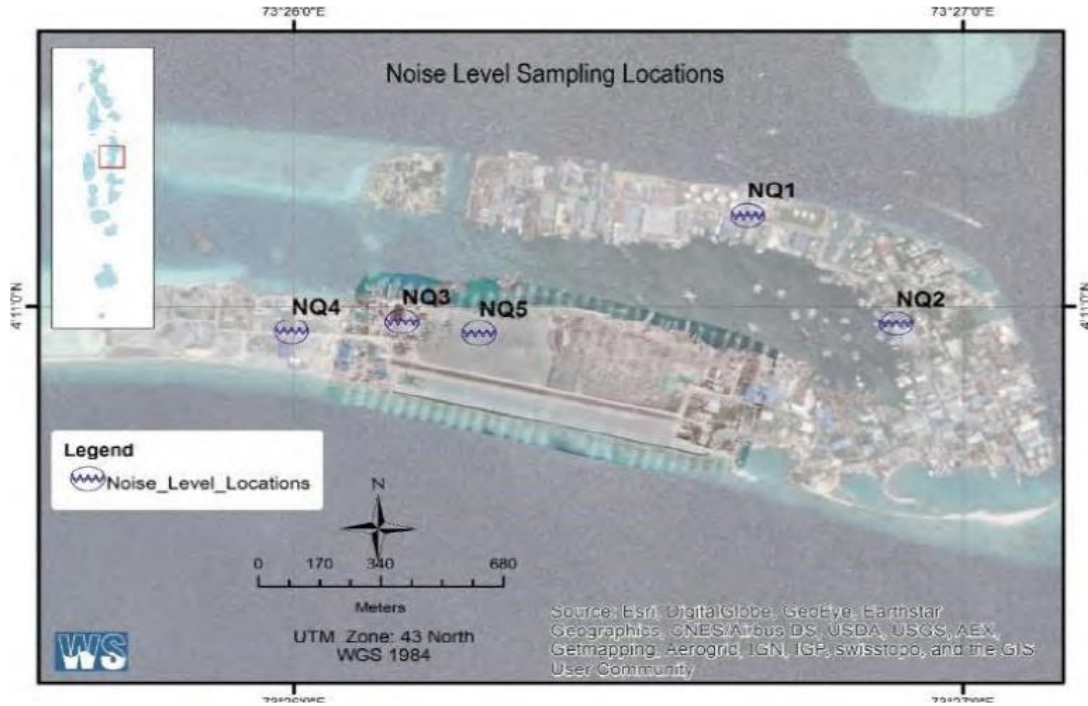
## ii. Noise level monitoring

37. Ambient noise level measurements were conducted from, 20-21 July 2024, 25-26 August 2024, and 15-16 September 2024, at five sampling stations identified in the EIA (July 2020). These are NQ1 to NQ5 (refer to Table 18 for description of the sampling stations and Figure 4 for location map). Thilafushi is considered an industrial area and the EPA has no noise level standards, thus, results of ambient noise level measurements were referred to the WB-IFC EHS Guidelines April 2007 (Table 1.7.1) of 70 dBA for both daytime and night-time. Hourly noise levels were measured during daytime and night-time using a handheld instrument. Results of noise sampling are presented in Table 21.

**Table 20: Description of Noise Sampling Stations**

Station Identifier	Location	Description and rationale
NQ1	4°10'26.4 N 73°28'59.9 E	The station was selected as it represents a major industrial location of the island and is also located close to the harbour. The location lies north of the proposed facility on the opposite side of the lagoon.
NQ2	4°10'56.6 N 73°26'53.3 E	The station was selected as it represents a major industrial location of the island. The location lies east of the proposed facility on the opposite side of the lagoon. The location has various industrial activities in its proximity
NQ3	4°10'58.3 N 73°26'09.6 E	This station was selected as it is located near the boundary of the proposed WTE facility.
NQ4	4°10'57.3 N 73°25'59.4 E	This station was selected as it is located west of proposed WTE facility. The area has less development and less activity during the daytime.
NQ5	4°10'57.3 N 73°26'14.4 E	This station was selected as it is located at the proposed facility

**Figure 4: Noise Sampling Stations**



**Table 21: Results of Ambient Noise Level Measurements**

Station	Measured from 20-21 July 2024		Measured from 25-26 August 2024		Measured from 15-16 September 2024	
	Noise level (dBA) daytime	Noise level (dBA) night-time	Noise level (dBA) daytime	Noise level (dBA) night-time	Noise level (dBA) daytime	Noise level (dBA) night-time
NQ1	60	57	60	52	59	53
NQ2	55	48	55	47	57	50
NQ3	60	68	58	64	67	57
NQ4	54	44	57	42	54	42
NQ5	52	45	51	45	51	47
WHO Guidelines Value for Noise Levels Measured Out of Doors (One Hour LAeqin dBA) Source: Guidelines for Community Noise. WHO. 1999	70	70	70	70	70	70

38. Measurements of noise levels are conducted for duration of 5 minutes in one hour at each location and Leq values are reported on hourly basis for 24 hours. Considering the hourly Leq values, daytime Leq (from 7 hrs to 22 hrs) and night time Leq (from 22 hrs to 7 hrs) are calculated.

39. Results of ambient noise levels were found to be within the applicable standards for commercial and industrial areas during the reporting period i.e., from April to June 2024. Compared to the ambient noise levels measured on during April to June 2023, at same locations, monitored

noise levels were found in same range, however variations in the results may be attributed to the commercial and industrial activities at the time of measurements.

### iii. OHS monitoring

40. OHS monitoring included air quality, noise and illumination at several locations within the project site. Drinking water quality was also monitored at 3 locations. Description of the sites are given in Table 22 below.

**Table 22: Description of OHS Monitoring Stations (Air quality, Noise and Illumination levels)**

Monitoring	Location	Description
Air Quality	Near Area 12	Within the construction site
Air Quality	Batching plant	Near the batching plant
Air Quality	Camp area	Camp area
Air Quality	Warehouse area	Warehouse for material storage
Air Quality	WTE site area	Bunker area
Air Quality	Batching plant area	Batching plant area
Noise	NQ3	Near the process area
Noise	NQ5	Near the material storage area
Noise	Equipment	Near dewatering pump, generator sets and equipment
Illumination	Workplace & accommodation	At several locations within the site
Drinking water	Worker's accommodation	Filtered water
Drinking water	Dining area	Filtered water
Drinking water	Outside QC laboratory	Filtered water

### Air Quality

41. Ambient air quality monitoring was carried out in August and September at two locations within the project site on 24 hourly basis and results are presented in Table 23 below. Levels of PM 2.5 were found exceeding the WHO standards for ambient air quality at all sites. However, during August month, values reported for PM10 and PM2.5 within project site are marginally higher than reported in Table 24 for locations outside project site. Also, 8 hourly permissible limits by OSHA for respirable dust and total dust exposure limit for workers are 5 mg/m<sup>3</sup> and 10 mg/m<sup>3</sup> respectively.

42. Ambient air quality monitoring as a part of OHS monitoring was carried out at 6 locations representing workplaces on 1 hourly basis by using hand hold device. Due to errors in reported results, same are not included in this section. However, DBO Contractor has been notified to take corrective measures including QA/QC and calibration.

**Figure 5 Ambient Air Quality Sampling Stations within Project Site**



- 1. AREA 12
- 2. Batching plant

**Table 23: Results of OHS Air Quality Monitoring within the site (April and May)**

Parameters	OHS Air Quality Monitoring within the site				WHO Standards
	August		September		
	Near area 12	Near batching plant	Near area 12	Near batching plant	
PM <sub>10</sub> (µg/m <sup>3</sup> )	27.7	31.5	41.58	42.19	45
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	<b>26.2</b>	<b>30.8</b>	<b>41.2</b>	<b>40.17</b>	15
SO <sub>2</sub> (µg/m <sup>3</sup> )	ND	ND	ND	ND	40
NO <sub>2</sub> (µg/m <sup>3</sup> )	ND	ND	ND	ND	25
TSP (µg/m <sup>3</sup> )	53.6	53.1	71.5	69.99	-
Monitoring dates: August (5-8 August 2024) September (23-25 September 2024) Averaging time is 24 hours					

Parameters	OHS Air Quality Monitoring within the site				WHO Standards
	August		September		
	Near area 12	Near batching plant	Near area 12	Near batching plant	
LOQ for ND	<0.5 ppb (1.3µg/m <sup>3</sup> ) for SO <sub>2</sub>		<0.5 ppb (0.94µg/m <sup>3</sup> ) for NO <sub>2</sub>		

43. 24 hourly values of PM<sub>2.5</sub> and PM<sub>10</sub> in ambient air collected by MoCCEE at its own building at Male and at Centre for Maritime studies at Villimale from July to September 2024 and by DBO Contractor at seven locations outside the project premises during 2023 and 2024 and at two locations within project site are summarized in Table 24 .

44. Male and Villimale are located at about 8.0 km (aerial distance) and about 4.8 km (aerial distance) from Thilafushi respectively in eastern direction from.

45. From above mentioned table and figures, following observations are made:

- a. Average values of PM<sub>2.5</sub> in ambient air at all locations are exceeding WHO limit of 15 µg/m<sup>3</sup>.
- b. Average values of PM<sub>10</sub> in ambient air at all locations are within WHO limit of 45 µg/m<sup>3</sup>.
- c. Reported values of PM<sub>10</sub> and PM 2.5 in ambient air within the project site are higher than the reported values outside the project site. It implies that there is a marginal contribution of PM<sub>10</sub> and PM<sub>2.5</sub> to the ambient air from construction activities.
- d. Reported values of PM<sub>10</sub> and PM<sub>2.5</sub> in ambient air at Vilimale Island are higher than values reported on Male Island. Important to note is that reclamation of land for construction of road and bridge near Vilimale from Male to Thilafushi island is in process

46. It is evident from above discussion that reported higher values of PM<sub>10</sub> and PM<sub>2.5</sub> in ambient air are cumulative impacts of all surrounding domestic, commercial, construction and natural activities at Male, Villimale and Thilafushi including construction activities at project site.

PMU/PMDCSC have been notifying DBO Contractor on reported values of higher values and compliance on mitigation measures as mentioned in EMP of approved EIA verbally and in writing.

**Table 24: Summarized 24 hourly monitored values of PM<sub>2.5</sub> and PM<sub>10</sub> in regional ambient air quality**

	MoCCEE Male	Centre for Maritime Studies Villimale'	At seven locations outside the project site		At two locations within project site
	July to September 2024	July to September 2024	July to September 2024	August 2024	August and September May-2024
PM <sub>2.5</sub> (µg/m <sup>3</sup> )					
Maximum	15.5	16.5	31.1	25.3	30.8
Minimum	3.0	2.1	1.3	24.2	26.2
Average	6.7	7.2	5.5	24.5	28.5
98 percentiles	14.1	15.0	21.6	25.2	30.6598

	MoCCEE Male	Centre for Maritime Studies Villimale'	At seven locations outside the project site		At two locations within project site
PM10 ( $\mu\text{g}/\text{m}^3$ )					
Maximum	27.8	32.6	32.9	26.5	31.5
Minimum	5.1	4.1	1.5	25.4	27.7
Average	11.4	13.4	6.4	25.8	29.6
98 percentiles	25.6	28.9	23.1	26.4	31.4

### Illumination

47. Illumination levels in LUX at various locations during night within project site were monitored. Results are given for the accommodation area, bunker area and material storage area in Table 25. Detailed report is enclosed as Appendix- 3.

48. Illumination levels were found to be lower than the recommended levels at several locations within the site. The contractor has stated that broken lights have been fixed, additional lights have been placed in the accommodation area and they are in the process of procuring additional lights.

**Table 25: Results of OHS Illumination Monitoring within the site**

Locations	Average Lux			Type of workplace	IFC Minimum limits for workplace illumination intensity
	July	August	September		
Main office	Front side- 44.2	Assembly area- 18.7	Front side- 46.4	Outdoor non-working areas	<ul style="list-style-type: none"> <li>●Outdoor non-working areas – 20 lux</li> <li>●Simple orientation and temporary visits (machine storage, garage, warehouse) – 50 lux</li> <li>●Workspace with occasional visual tasks (corridors, stairways, lobby, elevator, auditorium) – 100 lux</li> <li>●Medium precision work (simple assembly, rough machine works, welding, packing, etc.) – 200 lux</li> </ul>
Camp area	New labour accommodation- 18.9	New labour accommodation- 21.5	Accommodation area - 1.4, 3.6 & 3.3	Outdoor non-working areas	
	Forman accommodation- 22.9	Forman accommodation- 12.8			
	First aid room - 0.0	First aid room - 0.0	First aid room - 0.2		
Bunker area	Walkway to bunker area-0.0	Walkway to bunker area-0.0	North side- 85.1, South side-2.2, East side-7.5, West side- 106.8	Medium precision work	<ul style="list-style-type: none"> <li>●Precision work (reading, moderately difficult assembly, sorting, checking, medium bench and machine works, etc, offices) – 500 lux</li> <li>●High precision work (difficult assembly, sewing, colour inspection, fine sorting etc) – 1000-3000 lux</li> </ul>
	Bunker area- 96.5 & 22.6	Bunker area- 53.2 & 38.2			
Material storage area	-	-	0.0	Simple orientation	

Locations	Average Lux			Type of workplace	IFC Minimum limits for workplace illumination intensity
	July	August	September		
				n and temporary visits	
Process area	120.9 & 67.7	85.1 & 121.5	24.6	Medium precision work	
Batching plant area	130.7 & 52.2	41.1 & 43.4	73.6, 45.0, 30.5 & 40.6	Medium precision work	
Steel yard	221.7 & 246.6	94.3 & 54.3	138.3	Medium precision work	
Sedimentation pond	108.6 & 29.6	87.9	-	Simple orientation and temporary visits	
DG No -1 area	26.2			Medium precision work	
Laboratory area (road side)	-	-	129.0	Medium precision work	
Security Gate	-	-	Gate-2- Front side- 69.1, Road area-0.0 Gate-3- Front side- 357.8	Medium precision work	

## **Noise**

49. As per Figure 4, two of the Noise Sampling Stations (NQ3 and NQ5) are located within the project site, therefore, noise level measurements from these two locations have been considered as a part of OHS noise monitoring as well as ambient noise monitoring. For the purpose of OHS monitoring, Leq have been calculated for 8 hours as reported in Table 27 and compared with ILO noise standards. Leq levels for 8 hour periods are in compliance with the ILO noise standard of 85 dBA.

50. Noise levels were monitored near equipment as per the contractor's draft OHS monitoring plan. Results are presented in Table 27 below. DBO Contractor has been notified to prepare and implement plan for providing temporary or portable acoustic barriers around stationary construction noise sources and ear plug/muff based on Noise Reduction Rating to comply with EMP of approved EIA.

51. DBO Contractor has been notified to take immediate corrective actions for DG set in batching plant area and as per latest update, DBO Contractor has notified Villa Pvt Ltd as the DG set is owned by them.

**Table 26 :Results of OHS Noise Monitoring within the site**

Sn	Duration	8 hourly Leq dB(A)					
		July		August		September	
		NQ3	NQ5	NQ3	NQ5	NQ3	NQ5
1	7 a.m. to 2.00 pm	63.9	53.9	58.5	51.7	66.6	51.4
2	3 p.m. to 10.00 pm	58.6	51.6	60.0	51.6	67.8	51.1
3	10 p.m. to 6.00 a.m.	70.0	43.9	63.7	46.7	56.1	46.5

**Table 27: Results of OHS Noise Monitoring Near Equipment**

Noise levels recorded (DB)						
Sn	Equipment	Location	Very close	1 m from equipment	2 m from equipment	3 m from equipment
<b>July</b>						
1	Diesel generator 1	Batching plant	111.4	106.6	102.2	97.8
2	Cooling tower	Batching plant	86.9	81.9	79.0	77.4
3	Chiller plant	Batching plant	85.0	82.1	78.9	75.3
4	Diesel generator 1	Batching plant	104.8	92.8	89.3	86.4
5	Carmix no.3	Batching plant	103.9	96.3	92.4	90.4
6	Water discharge pump 4	Bunker area	95.9	91.3	87.5	84.5
7	JCB (Bulk)	Process area	102.1	97.2	92.6	86.3
8	Diesel generator 3	Process area	101.0	97.2	92.6	86.3
9	14" cutting machine	Steel yard	103.4	98.3	96.0	92.7
10	80 MT Mobile crane	Steel yard	91.1	85.4	83.3	81.3
11	Wood cutting machine 1	Steel yard	91.2	87.9	86.6	86.4
12	Wood cutting machine 2	Steel yard	92.8	91.9	89.3	85.6
13	Pile cutting machine	Bunker	119.5	113.5	109.9	105.5



14	Transmixer miller	Batching plant	93.5	90.2	86.2	82.2
15	V-Loader	Batching plant	99.6	94.3	87.1	97.5
16	Fud Road Roller	Bunker area	102.7	97.2	93.2	89.7
17	HI-UP Crane	Bunker area	91.0	85.1	84.4	82.1
<b>August</b>						
1	Forklift	Laboratory area	Reported values are not submitted in prescribed format.			
2	Carmix -03	Bunker area				
3	Diesel generator 1	Batching plant				
4	Diesel generator (Villa)	Batching plant				
5	V-Loader	Batching plant				
6	Water discharge pump	Bunker area				
7	TATAT Concrete pump	Bunker area				
8	Water discharge pump	Process area				
9	Mobile crane 50 tonne	Process area				
10	Hyup crane	Process area				
11	JCB "bull"	Bunker area				
12	Steel cutting machine	Steel yard				
<b>September</b>						
1	Carmix -03	Laboratory area	106.9	97.5	94.4	91.3
2	Diesel generator 1	Batching plant	104.6	100.5	95.2	91.1
3	Diesel generator (Villa)	Batching plant	109.0	107.1	104.2	105.2
4	Water discharge pump	Bunker area	93.1	90.0	87.9	89.0
5	JCB "Bull"	Process area	106.0	101.9	99.9	94.8
6	Crane (80 tonne)	Bunker area	97.1	98.3	87.4	84.7
7	Grinding Machinne	Bunker area	107.5	99.2	96.6	91.3
8	Hyup crane	Steel yard	90.7	87.6	86.2	81.7
9	Diesel generator 3	Steel yard	106.2	100.3	95.8	92.8
10	Bore pile pump	Process area	101.0	98.9	97.8	91.8

**Drinking Water**

52. Drinking water quality was monitored at five locations and results are provided in Table 28. All reported values of drinking water were found within limits.

53. Drinking water is supplied after treatment of water supplied by MWSC by a water filtration system.

54. All reported values are within the limits. However, variation in electrical conductivity and TDS levels is noted and requires close monitoring.

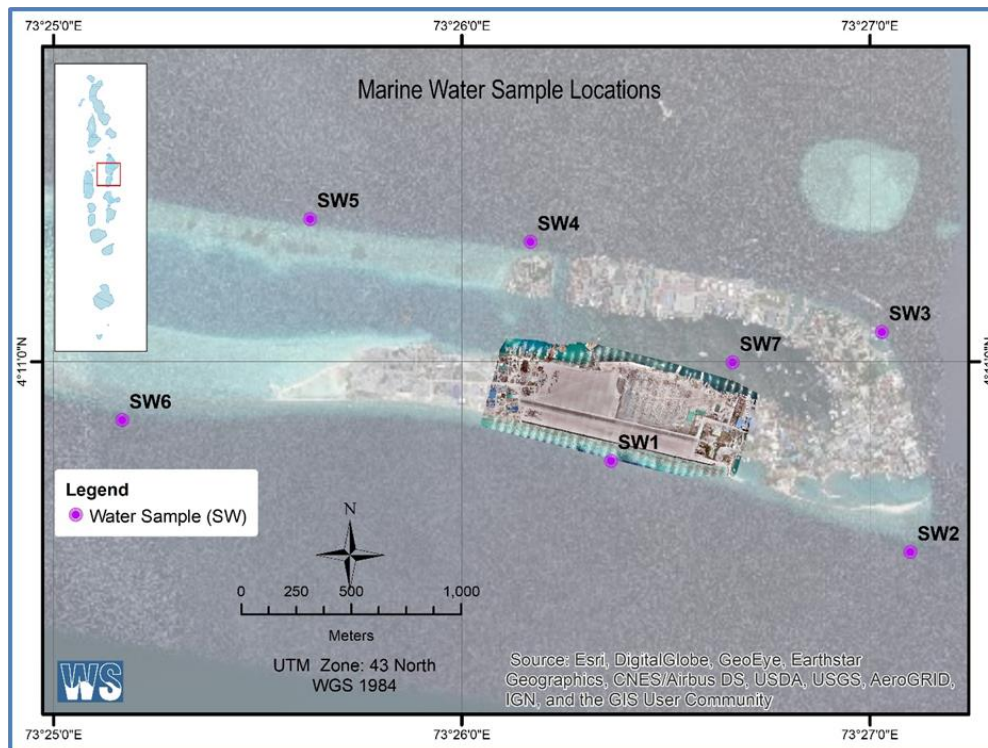
Table 28: Drinking Water Quality

Parameters	Drinking Water Quality													Unit	Limits
	Sample 1			Sample 2			Sample 3			Sample 4		Sample 5			
	July	August	September	July	August	September	July	August	September	August	September	August	September		
pH	7.8	7.8	6.9	7.8	7.8	7.5	7.6	7.6	7.1	7.3	7.7	7.3	7.8	pH	6.5-8.5
Turbidity	ND	ND	0.10	ND	ND	0.11	0.1	0.1	0.15	ND	0.08	ND	0.23	NTU	< 1.0
Residual free chlorine*	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l	0.04-0.2
Electrical conductivity	15	15	447	168	168	100	458.9	458.9	130	158	145	109	130	µS/cm	<1000
Total Dissolved Solids	10	10	298	112	112	95	307	307	75	111	80	06	75	mg/l	<500
Total Coliform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	MPN/100 ml	0/100 ml
Faecal Coliform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	MPN/100 ml	0/100 ml
Escherichia coli	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	MPN/100 ml	0/100 ml
Iron (as Fe)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	mg/l	<0.3
Ammonia -N	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	<0.5
Nitrate (as NO <sub>3</sub> <sup>-</sup> )	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	mg/l	<50
Chloride (as Cl <sup>-</sup> )	1.8	1.8	14.2	9.7	9.7	5.8	19.1	19.1	6.0	6.3	6.6	2.7	5.3	mg/l	<200
Physical Appearance	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		Clear /colourless

#### iv. Marine Water Quality

55. For the additional baseline data gathering, marine water quality sampling was done on 3 May 2024 from the same seven locations identified in the EIA (July 2020) given in Figure 8 below. Laboratory analysis of marine water was done by the Bureau Veritas Laboratory, Sri Lanka for the following parameters - heavy metals (As, Cr, Cu, Ni, Pb, Zn, Hg, Cd), total nitrogen, nitrites, pH, turbidity, five-day biochemical oxygen demand (BOD)5 etc (Table 29). The samples were brought to Sri Lanka and delivered to the laboratory within 24 hours from the field sampling. All the samples are kept in ice boxes to maintain the appropriate temperature and to conserve the samples. In-situ recording of pH, dissolved oxygen (DO), and electrical conductivity (EC) for each sample was conducted by using a handheld Hach SensION +MM156 water quality measurement meter. These results show compliance to the Maldivian Marine Monitoring Standards [Reference: Great Barrier Reef Marine Park Authority (2009) Outlook Report 2009]. Laboratory test results of marine water samples are given in Appendix 3

**Figure 6: Marine Water Quality Sampling Stations**



**Table 29: Results of Marine Water Quality Sampling, August 2024**

Parameters	Date of sampling: 14 <sup>th</sup> August 2024							Unit	Approved Marine water quality standard of Maldives EPA
	SW1	SW2	SW3	SW4	SW5	SW6	SW7		
Temperature indoor/laboratory	28.1	28.1	27.2	27.4	27.9	28.3	26.3	°C	18-32
Salinity	35	35	33	31	34	36	32	%	
TSS	58	72	68	60	71	75	58	mg/L	
Oil & Grease	ND	ND	ND	ND	ND	ND	ND	mg/l	
Faecal Coliform	ND	ND	ND	ND	ND	ND	ND	MPN/100 ml	
Nitrite (as NO <sub>2</sub> )	7.4	2.2	1.8	1.8	2.2	2.3	1.5	mg/L	None proposed
pH at 24°C	7.5	7.5	7.5	7.5	7.5	7.5	7.4	-	8-8.3
COD	15	48	45	43	48	48	42	mg/L	
BOD <sub>5</sub> at 20 °C	2.1	20	18	15	20	23	13	mg/L	<2mg/L
Turbidity	2.0	2.1	2.4	2.2	2.5	2.7	2.2	NTU	3 – 5 NTU (max)
Electrical Conductivity at 25°C	58,400	60,300	58,800	55,650	59,400	61,200	55,950	µS/cm	48994-62350
Total inorganic Nitrogen	5.7	6.2	5.6	5.4	5.9	6.2	5.1	mg/L	None proposed
Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	0.1	0.9	0.7	0.6	0.9	1.2	0.6	mg/L	1
Sulfide	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/l	NA
Ammonia	2	2.6	2.3	2.1	2.5	2.8	2	mg/l	
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	mg/L	NA
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	mg/L	NA
Lead	0.003	0.019	0.015	0.011	0.018	0.02	0.011	mg/L	NA
Hexavalent Chromium (asCr <sup>6+</sup> )*	<0.005	<0.005	<0.005	0.005	<0.004	0.005	<0.005	mg/L	NA
Total Chromium	<0.004	0.003	0.003	0.005	0.004	0.005	0.004	mg/L	NA
Mercury	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	mg/L	NA
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	mg/L	NA
Zinc	0.011	0.035	0.028	0.02	0.031	0.034	0.018	mg/L	NA
Copper	0.014	0.021	0.016	0.012	0.019	0.021	0.01	mg/L	NA

56. As per Table 29, values ranged for EC from 55,650  $\mu\text{S}/\text{cm}$  to 61,200  $\mu\text{S}/\text{cm}$ , for nitrite from 1.5 mg/L to 7.4 mg/L, and for total inorganic nitrogen from 5.1 mg/L to 6.2 mg/L. While pH values ranged from 7.4 to 7.5. Also, BOD<sub>5</sub> values ranged from 2.1 mg/L to 23 mg/L. while COD values ranged from 15 mg/L to 48 mg/l.

57. During August 2023 at same locations, values ranged for EC from 66,960  $\mu\text{S}/\text{cm}$  to 76,860  $\mu\text{S}/\text{cm}$ , for nitrite from 0.02 mg/L to 0.1 mg/L, and for total inorganic nitrogen from 12.0-13.1 mg/L. While pH values ranged from 7.2 to 7.7. Also, BOD<sub>5</sub> values ranged from 8 mg/L to 13 mg/L while COD values ranged from 33 mg/L to 43 mg/l. Levels of heavy metals in all the sampling stations were found to be below the detection limit.

58. From the EIA (July 2020), samples were collected from the same locations on 3 July 2018. Values of temperature (24.2°C), nitrate (0.3 mg/L to 0.5 mg/L), oil & grease (less than 2 mg/L), salinity (36 ppt to 37 ppt), free ammonia (ND to 0.05 mg/L), and BOD<sub>5</sub> (ND to 1 mg/L) were similarly within the prescribed standards. The pH values ranged from 8.2 to 8.4 which is slightly higher than the limit of 8.3 in all the sampling stations except in SW7. Heavy metals, except for Zn (ND to 0.008 mg/L for SW2, SW3, SW6 & SW7), were tested to be below the detection limit. Variations in the results of marine water quality (Table 29) compared to the results from the EIA (July 2020) may be attributed to the environmental conditions at the time of sampling.

#### **v. Groundwater Quality**

59. Environmental monitoring of groundwater quality for the construction period was conducted on 14<sup>th</sup> August 2024. Water samples were collected from the monitoring stations identified in the EIA (July 2020) except at GW6 (refer to Figure 7: Groundwater Sampling Stations Figure 7 for locations). Due to non-accessibility of location GW6, sampling could not be carried out. For each location, the sample was collected from mid-water level and brought for laboratory testing in Sri Lanka. General sampling procedure involves washing the glass sampling bottles with water from the sampling points. For microbial tests, samples were collected in sterile glass bottles and tested in the laboratory of Male' Water and Sewerage Company (MWSC). Table 30 presents the analytical results of groundwater quality with detailed test results given in Appendix 3.

60. Results from Table 30 show that levels of heavy metals were found below detection limit while other parameters are: Electrical conductivity (135  $\mu\text{S}/\text{cm}$  at GW1 to 38850  $\mu\text{S}/\text{cm}$  at GW2), pH (7.2 at GW5 and 8.5 at GW1) and nitrate (2.3 mg/l at GW1 and 44.1 mg/l at GW2). While PAH were reported ND at all locations. As use of ground water in Thilafushi is not permissible except in toilet flushing tanks there is no specific standard for ground water quality. Wells closer to the sea show high conductivity.

61. During August 2023 at same locations, levels of heavy metals were found below detection limit while other parameter are: Electrical conductivity (415  $\mu\text{S}/\text{cm}$  at GW1 to 72540  $\mu\text{S}/\text{cm}$  at GW2), pH (7.1 at GW2 to 7.8 at GW3 and GW4), nitrate (ND at all locations except at GW1 (6 mg/L) and GW2 (15 mg/l) etc. While PAH were reported ND at all locations. As use of ground water in Thilafushi is not permissible except in toilet flushing tanks there is no specific standard for ground water quality. Wells closer to the sea show high conductivity and wells near dumpsite show higher contamination of nitrates .

62. Ground water quality is not akin to drinking water standards as the island is originally reclaimed using waste and various sites have industrial activities. Water treatment will be required if groundwater in Thilafushi is to be used as drinking water. As use of ground water in Thilafushi

is not permissible except in toilet flushing tanks there is no specific standard prescribed for ground water.

63. From the EIA (July 2020), samples were collected in the same sampling stations on 2 April 2019. Values of PAH, oil & grease, and heavy metals were found to be below the detection limit while for other parameters are: TDS (794 mg/L in GW1 to 12,946 mg/L in GW3), electrical conductivity (1.39 mS/cm in GW1 to 25mS/cm in GW6), total coliform (4 MPN/100 ml in GW8 to >2,420 MPN/100 ml in GW1, GW3, GW5, and GW7), pH (7.1 in GW5 to 8.0 in GW4), chloride (183 mg/L in GW1 to 6,325mg/L in GW6), and nitrate (1.7mg/L in GW1 to 34.5 mg/L in GW6).

**Figure 7: Groundwater Sampling Stations**



**Table 30: Groundwater Quality Results, August 2024**

Parameters	Results of Groundwater Quality Sampling								Unit
	Date of Sampling: 14 <sup>th</sup> August 2024								
	GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	
Turbidity	0.1	ND	0.1	ND	ND	-	0.1	0.1	NTU
pH	8.5	7.8	7.8	7.9	7.2	-	7.9	7.6	-
Iron	ND	ND	ND	ND	ND	-	ND	ND	mg/L
Manganese (as Mn)	ND	ND	ND	ND	ND	-	ND	ND	mg/L
Arsenic (as As)	ND	ND	ND	ND	ND	-	ND	ND	mg/L
TSS	3	59	7	6	44	-	8	12	mg/L
Electrical Conductivity at 25 °C	135	35850	1707	1385	6761	-	358	537	µS/cm
Fecal Coliform	ND	ND	ND	ND	ND	-	ND	ND	MPN/100 ml
Oil and Grease	ND	ND	ND	1	1	-	ND	ND	mg/l
Nitrate (as NO <sub>3</sub> )	2.3	44.1	3.1	2.8	9	-	2.1	3.4	mg/l
Cadmium (as Cd)	ND	ND	ND	ND	ND	-	ND	ND	mg/L
Lead (as Pb)	ND	ND	ND	ND	ND	-	ND	ND	mg/L
Mercury (as Hg)	ND	ND	ND	ND	ND	-	ND	ND	mg/L
Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	0.1	2.8	0.9	ND	2.6	-	0.1	0.4	mg/L
Chlorides	10.4	152.7	43.1	38	97	-	17.4	32.6	mg/L
Polycyclic Aromatic Hydrocarbons (PAH)									
Naphthalene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Benzo[a] anthracene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Acenaphthylene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Acenaphthene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Fluorene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Phenanthrene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Pyrene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Chrysene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Benzo [b]fluoranthene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Benzo[k]fluoranthene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Dibenzo [a,h ]anthracene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Benzo[g,h,i]perylene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Benzo[j]fluoranthene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Benzo[a]pyrene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Benzo[e]pyrene	ND	ND	ND	ND	ND	-	ND	ND	µg/l
Indenol [ 1,2,3-cd ] pyrene	ND	ND	ND	ND	ND	-	ND	ND	µg/l

**vi. Water quality proposed to be used for construction and camp**

64. One grab sample during each month of this quarter was collected from the supply line network of MWSC (Male Water and Sewerage Company) at the project site. Samples were analyzed for limited parameter as per details given in Table 31 and findings of same are well within the acceptable limits. Detailed report is enclosed as Appendix3.



**Table 31: Water quality for domestic supply of water used in construction camp during July-September 2024**

Test Parameter	Unit	Results			Acceptable Limits* Supply Water Quality Standards (5 December 2022) from the Utility Regulatory Authority
		4th July 2024	14 <sup>th</sup> August 2024	8 <sup>th</sup> September 2024	
Date of sampling		4th July 2024	14 <sup>th</sup> August 2024	8 <sup>th</sup> September 2024	
Physical Appearance		Clear	Clear	Clear	-
pH	--	7.7	7.2	7.7	6.5-8.5
Turbidity	NTU	0.1	0.2	0.06	< 1.0
Residual Free Chlorine	mg/l	<0.01	<0.01	<0.01	-
Electrical Conductivity	µs/cm	423	482.6	466	<1000
Total Hardness	mg/l	9.8	10.4	19.1	
Total Suspended Solids	mg/L	5	3	9	5-750
Total Dissolved Solids	mg/L	282	323	340	5-750
Iron as Fe	mg/L	ND	ND	ND	< 0.3
Hydrogen Sulphide	mg/L	<0.01	<0.01	<0.01	-
Ammonia	Mg/l	<0.1	<0.1	<0.1	-
Nitrate (as NO <sub>3</sub> -)	mg/L	ND	ND	ND	<50
Chloride (as Cl <sup>-</sup> )	mg/L	18.5	18.5	27.7	< 200
Fecal Coliform	MPN/100m 	ND	ND	ND	0/100 ml
Total Coliform	MPN/100m 	ND	ND	ND	0/100 ml
E.Coli	MPN/100m 	ND	ND	ND	0/100 ml

**vii. Treated Wastewater Quality from WWTP/STP discharged into Sea**

65. One grab sample of treated wastewater was collected during each month of quarter from July to August 2024 from discharge point of WWTP/STP in operation at the project site and analyzed for limited parameter as per details given in Table 32. Quality of treated wastewater of three samples is well within the acceptable limits prescribed by IFC General EHS Guidelines. However, quality of treated wastewater of all three samples is also well within limits prescribed by URA. Detailed report is enclosed as Appendix3.

**Table 32: Treated Wastewater Quality from WWTP/STP during July, August, September – 2024**

Parameters	Unit	Results			Acceptable Limits National Wastewater Quality Guidelines URA (August 2023)	Acceptable limits as per IFC General EHS Guidelines 2007
		July 2024	August 2024	September 2024		
Total coliform	MPN/ ml	13	09	7	-	400
Fecal coliforms	Org/ml	ND	ND	ND	100	
E.coli	Org/ml	ND	ND	ND	1	
Total suspended solids	mg/L	24	19	26	30	50
Residual free Chlorine	mg/L	<0.01	<0.01	0.01		
Temperature	°C	26.3	27.4	27.4		-
Physical Appearance		ND	ND	ND		
pH at 25°C	--	6.9	6.8	6.7	5-9.5	6-9
Nitrate (as NO <sub>3</sub> -)	mg/L	4.1	5	5		-
Ammonia –N	mg/L	1.6	2.8	2.2	10	
Ortho Phosphates	mg/L	0.2	0.7	0.6	10	2
Surfactants	mg/l	0.2	0.2	0.1		
Soap, oil and grease	mg/L	ND	ND	ND	5	10
Electrical Conductivity	µs/cm	930	654	780	---	-
Chemical Oxygen Demand	mg/L	29	21	38	50	125
Biological Oxygen Demand 20°C	mg/L	8	9	13	40	30
Dissolved Oxygen	mg/L	6.2	6.4	6.1		-
Total nitrogen	mg/L	4	5	3.5	15	10
Sum of metals (Pb, Cr, Ni, Cd, Se, As,Fe, Al,Sb, Cu, Mn,Hg)	mg/l	0.12	0.11	0.14	-	
Acute Toxicity	mg/l	ND	ND	ND	0	

#### viii. Discharge water quality from de-watering

66. One grab sample of discharge water from dewatering was collected during each month of this quarter from discharge point of retention pond and analyzed for limited parameter to comply with requirements of local regulations as per details given in Table 33. However, no limit for discharge quality has been prescribed by local regulations. Detailed report is enclosed as Appendix3.

**Table 33: Discharge Water Quality from Dewatering during July, August, September – 2024**

Parameters	Unit	Results			
		July 2024	August 2024	September 2024	Limits
Fecal Coliform	MPN/100ml	ND	ND	ND	100
pH	pH	7.6	7.5	7.4	6.5-8.5
Temperature	°C	27.4	29.4	27.9	18-32
Total Dissolved Solids	mg/l	36,400	27,800	35,205	EC*0.67
Total Suspended Solids	mg/l	11	31	24	50
Dissolved Oxygen	mg/l	6.7	6.5	6.2	6.5-8.0
Turbidity	NTU	1.0	1.4	1.3	<5
Total Hydrocarbon	ppm	<0.1	<0.1	<0.1	10
Electrical Conductivity	us/CM	54,600	41,700	52,307	<= Sea Water EC Value
Salinity	ppm	3.6	3.9	3.8	3.2-4.2%
Hydrogen Sulphide	mg/l	<0.01	<0.01	<0.01	0.5
Oil & Grease	mg/l	<1	<01	<01	5
Ammonia	mg/l	1.8	2.8	1.2	5
Nitrate (as NO <sub>3</sub> <sup>-</sup> )	mg/	3.6	5.6	0.7	10
Phosphates	mg/l	0.9	1.3	0.1	2

**ix. Marine ecology assessment survey**

67. As part of site environmental baseline monitoring, it was planned to conduct the 6<sup>th</sup> marine ecological survey for reef benthic cover and fish population during September 2024. However, it was delayed to October 2024 due to adverse weather conditions.

### VIII. TRAINING AND CAPACITY BUILDING ACTIVITIES

68. Details of DBO Contractor/EPC Contractor-driven trainings are given in Table 34 and photos are shown in Appendix 6.

**Table 34: Training and Capacity building activities conducted**

No	Date	Training Activity	Training Objective	Venue and Duration	Target Group	Number of participants (male, female)
1	08.07.2024	Fire Watcher	What is fire, type of fire and extinguisher agents, fire watcher role and responsibility	WtE Site Thilafushi, 1hr	Site Workers	6, Male
2	10.07.2024	Falling Object Campaign	Definition of Falling object, Why focused on the falling object, Risk area of Falling Object, Recommended action, Hot to prevent falling object	WtE Site Thilafushi, 1hr	Staff/ Workers	All on site
3	11.07.2024	GRM Awareness	Scope of GRM, GRM structure, How to raise a GRM, Solving GRM, Feedback, Records	WtE Site Thilafushi, 1hrs	Staff	11, Male
4	20.07.2024	Security Management	Security officer Roles and Responsibilities, Incident Reporting, Checking and Inspecting at the Gate	WtE Site Thilafushi, 1hrs	Security officer	8, Male
5	23.07.2024	Driving Safety	Safe defense driving, Driving Hazards, Blind Spot, Fatigue and Inspection and Maintenance	WtE Site Thilafushi, 1hrs	Driver / Operator	5, Male
6	27.07.2024	Vector Based Disease Prevention Training	What are the vector-based diseases, Precautions, and Control Measure	WtE Site Thilafushi, 1hrs	Site workers/ supervisors	All on site
7	06.08.2024	PTW Training	PTW Procedure, Roles and Responsibility, PTW Authorization	WtE Site Thilafushi, 1hrs	AAJV Staff / Sub Contractors	7, Male

No	Date	Training Activity	Training Objective	Venue and Duration	Target Group	Number of participants (male, female)
			Procedure, Supporting documents RA and SOP			
8	14.08.2024	Manual Handling	Manual Handling Assessment, Lifting Technique, Awkward postures, Hazards, Control Measures, PPE	WtE Site Thailafushi, 1hrs	Staff/ workers	11, Male
9	14.08.2024	Fire Warden	Emergency Planning and Preparation, Roles and Responsibilities, Conducting regular inspection of fire fighting equipment, Evacuation Routes, Communication	WtE Site Thailafushi, 1hrs	Site Workers/ Supervisors	11, Male
10	15.08.2024	Third-Party Training - Operators and Rigger	Crane Hazards, Lifting Hazards, Planning, Competent Personals, Inspection, Load Capacity, Rigging and Slings, Training	WtE Site Thailafushi, 8hrs	Security Officer	8, male
11	19.08.2024	Hand and Power tools	Power tools hazards, Control Measures, PPE, Inspection, Colour Coding systems, Training	WtE Site Thailafushi, 1hrs	Site Workers/ Supervisors	8, Male
12	19.08.2024	Emergency Response	Types of Emergency, Roles and Responsibility, Emergency Rescue Equipment, Evacuation Route, Communication, Assembly Point, Head Count	WtE Site Thailafushi, 1hrs	Driver/ Operators	8, Male
13	05.09.2024	OJT - Training, Safe operation of	Safe Operation of diesel bowser, Emergency shutdown, & Response, Spill	WtE Site Thailafushi, 1hrs	Operators and Helpers	3, Male

No	Date	Training Activity	Training Objective	Venue and Duration	Target Group	Number of participants (male, female)
		Diesel Bowser	containment, Fire Prevention & Earthing and Bonding			
14	12.09.2024	Work at Height Training	What is working at height, hazards, Risk Assessment, Training, Fall prevention, PPE, Supervision, Inspection of PPE	WtE Site Thilafushi, 1 hrs	Workers	5, Male
15	21.09.24	Food Handling and Personal Hygienic	HACCP, Hygenic, Pest control, Temperature Control, First In First Out Procedure	WtE Site Thilafushi, 1 hrs	Kitchen Staff/ Workers	11, Male
16	22.09.24	Risk Assessment Training	Why is required to do Risk Assessment, What is Risk Assessment, Identify the Hazards, Evaluate the Risks, Who might be harmed, Control measures, Review and Records finding, Case study	WtE Site Thilafushi, 1 hrs	Site Workers / Supervisors	11, Male
17	22.09.24	Incident Reporting Systems	What is incident, Type of Incident, Reporting Procedure, Documents and Records	WtE Site Thilafushi, 1 hrs	Site Workers / Supervisors	11, Male

69.

70.

71. Table 35 provides details of training plan to be conducted by DBO Contractor during October 2024.

72. PMDSC has submitted revised project manual to PMU on 31<sup>st</sup> March 2024 and need based trainings shall be conducted on line and off line (at site) to staff of DBO Contractor and PMU. A training on management of hazardous substances was conducted on 30<sup>th</sup> September 2024 by PMDSC for HSE and construction team of DBO Contractor and EPC.

**Table 35: Training and Capacity building activities to be conducted by DBO Contractor/  
EPC contractor during October, 2024**

No	Date	Training Activity
1	05.10.2024	Awareness training regarding underground STELCO high voltage electric cable
2	09.10.2024	Manual handling
3	10.10.2024	Energy management
4	13.10.2024	Water protection and management
5	17.10.2024	Firewatcher training
6	20.10.2024	Refresh HSE induction
7	22.10.2024	Waste management
8	23.10.2024	GRM awareness training
9	28.10.2024	Driving safety

## IX. STAKEHOLDER ENGAGEMENT

73. The PMU will be supported by a Public Awareness Consultant (PAC) a consulting firm that will help to generate awareness and strengthen skills in waste collection, segregation, composting, recycling, and O&M targeting the poor and the women, including community awareness campaign for strengthening disaster risk reduction and climate change readiness. The PAC will be responsible for the information, education, and communications initiatives and public awareness on waste-to-energy. The financial evaluation for PAC has been completed and submitted to the Ministry of Finance on 19<sup>th</sup> August 2024 and is awaiting endorsement by the Tender Board.

74. Public awareness and communications activities of the project during this period are given below:

75. Island Waste Management Center (IWMC) planning workshops were conducted at three islands in zone 3. These workshops consisted of 1-day awareness sessions based on 3R principles, Segregation and Law and Policy. During the sessions participants were given information on the Greater Male' Environmental Improvement and Waste to Energy project.

76. During the first days of the trainings, there was considerable discussion about the waste-to-energy facility, a topic of concern across all participating islands. One of the primary issues raised by the public was the apparent contradiction in the Ministry's stance on waste incineration. They noted that while the Ministry penalizes illegal waste burning, it seems permissible when conducted by the Ministry itself. To address this misunderstanding, we clarified the difference between open waste burning and the controlled burning that occurs within a facility specifically designed to convert waste into electricity.

77. Concerns were also voiced regarding the air pollution that the facility might generate. We assured the participants that the facility is equipped with advanced measures to prevent any air pollution. Furthermore, we shared information about how the facility's byproduct, bottom ash, can be repurposed for construction, highlighting its potential benefits.

78. The second day focused primarily on IWMC planning.

79. IWMC Planning workshop in K. Himmafushi was conducted from 30<sup>th</sup> July to 1<sup>st</sup> August 2024. 19 (9 F/ 10M) participants representing several sectors from the Island took part in the session.



**Figure 8: IWMC planning workshop conducted in K.Himmafushi**



80. IWMC Planning in K. Huraa was conducted from 7th to 8th August 2024. 42 (30 F/ 12M) participants representing several sectors from the Island took part in the session.

**Figure 9: IWMC planning workshop conducted in K. Huraa**





81. An awareness session was held for 7th – 9th graders of K. Huraa school on the 7th of August 2024. The session delved into 3r and Segregation and the importance of waste reduction as well as the environmental and health effects of improper waste management and disposal. A total of 79 students took part, with 50 Females and 29 Males.

82. IWMC Planning in K. Thulusdhoo was conducted from 28th to 29th August 2024. 20 (12 F/ 8 M) participants representing several sectors from the Island took part in the session.

**Figure 10: Awareness session held for students of K. Huraa school students**



**Figure 11: IWMC planning workshop conducted in K.Thulusdhoo**



**X. GRIEVANCE REDRESS MECHANISM**

**A. Grievance Redress Mechanism**

83. Project level grievance redress mechanism (GRM) has been established for the Project and is shown in Figure 12 below. Grievance Redress Committees are also in place at the PMU levels. The PMU (MoCCEE) has approved and published the GRM (July 2022) on its website and released the government notification of the same on 30 March 2023.

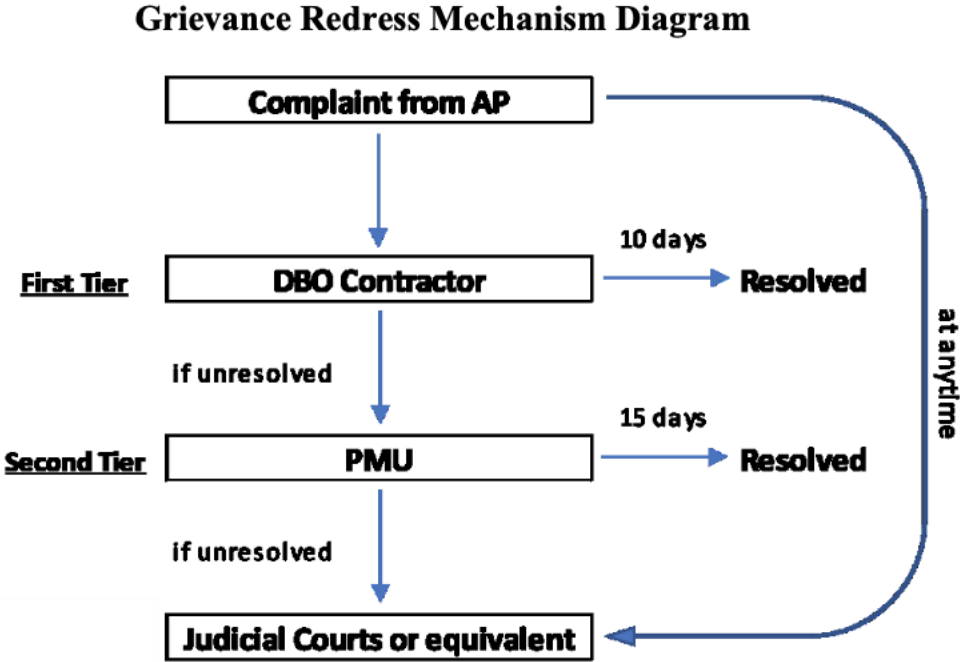
84. Aside from the project GRM, the DBO Contractor has also setup an internal and external GRM to receive and address grievances/complaints from its staff/workers and public. However, the GRM plan has been accepted with comments.

85. The DBO Contractor/EPC Contractor has installed sign boards on the GRM at the project site, which include details of focal persons, and contact phone numbers. GRM boxes with complaint forms are also provided at the entry gates of the project site.

86. GRM committee meeting was held on 14<sup>th</sup> May 2024 with participants from EPC, DBO Contractor, ER and PMU. Discussions were held on the grievances received and areas for improvement.

87. A grievance drop box was placed at Thilafushi ferry terminal by the contractor on 21<sup>st</sup> July 2024. The contractor also attempted to engage with public near the ferry terminal.

**Figure 12: Grievance Redress Mechanism Flow Chart**



88. As per the system in place, a GRC for each tier in the GRM has been established. In the 1<sup>st</sup> tier, the grievances will be handled by the GRC under the Thilafushi DBO Contractor which is composed of the Contractor's Project Manager, Contractor's Resident Engineer, Contractor's Environmental/H&S Officer, and one representative from the PMDSC. At the 2<sup>nd</sup> tier, grievances will be dealt with by the GRC consisting of the Project Manager/Director of PMU, Environment and Social Safeguard Specialist of PMU, Civil Engineer of PMU and IEC Specialist of PMU.

89. Improvement in compliance of GRM plan is required which mainly includes:

- a. Public announcements need to be made through local newspapers, community bulletin boards, through the MoE. Also, through social media, websites, newsletters to reach a broader audience.
- b. GRM materials is to be translated in local language for public and workers.

## **B. Complaints Received**

90. No grievance has been received for this reporting period from public or from staff.

## XI. FINDINGS & RECOMMENDATIONS

91. The validity of environmental clearance from the EPA has been extended until 31 December 2021 and the site clearance and levelling works started from 28 December 2021 by the contractor and EPA has been informed accordingly.
92. As per Table 11, most HSE plans are approved or approved with comments. Method statement for OHS monitoring has been approved on 25 September 2024. DBO Contractor has committed to submission of all pending plans by 7<sup>th</sup> November 2024.
93. Quarterly audit was conducted on 29<sup>th</sup> and 30<sup>th</sup> July 2024 by the International environmental expert.
94. PMDCSC has appointed a new local environmental expert on 11<sup>th</sup> September 2024. The local expert shall conduct site visits twice a month as per the project manual.
95. Mostly project site is complying with IFC EBRD guidelines of IFC, however, corrective actions such as provision of suitable furniture such as table, chair, mirror and mobile partitions/curtains in accordance with IFC guidance note on worker accommodation. Additionally, the medical facility on site requires registration in accordance with the Health Services Act of Maldives.
96. During an inspection on 18<sup>th</sup> July 2024 by PMDCSC and PMU a pipeline was found in the batching plant area which was discharging water to the adjacent site. This was brought to the attention of the contractor immediately. An HSE warning letter was issued by EPC to the sub-contractor on 19<sup>th</sup> July 2024 regarding the incident.
97. An HSE instruction was issued by PMDCSC on 19<sup>th</sup> September 2024 highlighting regulatory requirements and corrective actions.
98. The site boundary is established with security measures in place including provision of ID cards, guard posts and CCTV placement.
99. Safety measures such as placement of fire extinguishers, spill kits, eye wash stations and warning signs are in place on site. All staff are provided with and use basic PPEs.
100. A full-time doctor and nursing staff are available on site at all times. Basic first aid and medicine are stocked at the doctor's office. The contractor also has a dedicated speed boat in the event that emergency transport to a hospital is required.
101. To ensure implementation of various plans including CEMP and H&S plan, supervision, record keeping and coordination between HSE team and construction team need to be improved.
102. Regular environmental monitoring is carried out in compliance with the EIA. Data monitored for this quarter include ambient air quality, ambient noise level, marine water quality, ground water quality, water quality of water used for construction and camp, treated wastewater quality and discharge water quality from dewatering.
103. OHS related monitoring is also carried out including drinking water quality monitoring, illumination monitoring, air quality and noise level monitoring as per MOS of OHS monitoring. However, equipment used for air quality monitoring at workplaces requires calibration and improvements are required in reporting of OHS monitoring data.

104. Daily toolbox talks and HSE trainings are carried out regularly for workers at the site. PMDCSC also conducted a training on management of hazardous materials for supervisor level staff. A training plan is being designed for PMDCSC to deliver regular trainings.

105. PMDCSC has conducted a online training on “management of hazardous substance “ on 30 September 2024 for contractor.

106. Table 36 and Table 37 present key issues identified in previous quarter and key issues identified and proposed remedial actions based on findings for this quarter respectively.

**Table 36: Status of Key Issues identified in previous QEMR (April-June 2024)**

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
1(i)	Regulatory compliance	Applicable NOC and permits for commissioning and operation of borewell and RO plant which is under commissioning in batching plant area for construction phase.	30 <sup>th</sup> October 2024	DBO Contractor	PMU/ PMDCSC	Approval for borehole drilling has been provided by URA on 26 <sup>th</sup> August 2024.  Process has not been initiated for approvals required for commissioning of the RO plant. Date for starting of RO plant operations has not been finalised yet.
1(ii)		Permits for operation of generator sets	30 <sup>th</sup> October 2024	DBO Contractor	PMU/ PMDCSC	Provisional approval for 3 generator sets was provided via email on 18/09/2023.  Reportedly application for remaining 2 generator sets have been submitted.
1(iii)		Renewal of dewatering location permit from HDC	10 <sup>th</sup> July 2024	DBO Contractor	PMU/ PMDCSC	Dewatering location permit was renewed on 07/08/2024  Dewatering works have been stopped



No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
						from 12 October 2024 and permit from HDC will be renewed, before start of additional dewatering works.
1(iv)		Applicable registration from transport authority and permit from MNDF and others, if any for 5000-liter mobile diesel tanker	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	Fuel tanker has been inspected by MNDF on 31/07/2024
1(v)		Applicable registration of vehicles and mobile machinery/equipment from transport authority	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	3 transit mixers, 1 pickup, 1 car and 2 bikes have been registered.  Other machinery/equipment requires registration.
1(vi)		Ensure that the subcontractor (Villa) complies with the applicable permits, if any, for discharge of wastewater from sedimentation tank (batching plant area) are obtained as per discharge practices adopted/to be adopted	30 <sup>th</sup> September 2024	DBO Contractor	PMU/ PMDCSC	Warning letter was issued to Villa subcontractor on 19 <sup>th</sup> July 2024.
2(i)	Status of HSE documents	Submission of modified OHS monitoring Plan for approval	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Method statement for OHS monitoring has been approved on 25 September 2024.

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
2(ii)		Submission of Regulatory compliance procedure for approval and implementation as part of CEMP	15 <sup>th</sup> October 2024	DBO Contractor	PMU/ PMDCSC	Not submitted by proposed date.
2(iii)		Submission of HSE plans which are approved with comments	20 <sup>th</sup> October 2024 <sup>5</sup>	DBO Contractor	PMU/ PMDCSC	Not submitted by proposed date.
3(i)	Implementation of HSE documents	Compliance of GRM plan such as placing complaint box at public ferry terminal, Thilafushi, public announcements on the GRM via newspaper, social media and other means as mentioned, regular training to workers etc.	31 <sup>st</sup> July 2024	DBO Contractor	PMU/ PMDCSC	Complaint box has been placed at Thilafushi ferry terminal on 21/07/2024.
3(ii)		Constitution of EHS committee	15 <sup>th</sup> August 2024	DBO Contractor	PMU/ PMDCSC	EHS committee has been formed and an introductory meeting was held on 28/08/2024.
3(iii)		Mapping of languages understood by workers to make training session more effective.	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Not completed.
3(iv)		To keep records of medical check-up conducted by Maldivian Govt at time of issue of work permit.	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Reportedly medical records are maintained at HR office and with the doctor
4(i)		Plan for providing temporary or portable acoustic barriers	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Ear plugs/ muffs have been procured

<sup>5</sup> Refer Table 10 for target date of completion of each HSE plan.

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
	Compliance to EMP of approved EIA	around stationary construction noise sources and ear plug/muff based on Noise Reduction Rating and status of actions taken as a part of the OHS monitoring method statement				and are to be worn where required.
4(ii)		Plan for providing dust suppression measures such as water spray, wind breakers, dust screens, appropriate mask for protection from PM2.5 etc as per requirements – as a part of the OHS monitoring method statement	31st August 2024	DBO Contractor	PMU/ PMDCSC	Site and activities wise specific measure has not been covered in approved MOS of OHS monitoring. However, as per monthly meeting on 17th September 2024, DBO Contractor has agreed to implement water spraying for dust suppression and FFP2 masks have been procured. However, PMDCSC is to verify status.
4(iii)		Maintain records of cleaning of wheels and undercarriage of haul trucks prior to leaving construction site	31st August 2024	DBO Contractor	PMU/ PMDCSC	Records are maintained only for washing of transit mixer at the batching plant area.  Records for other vehicles were not provided.

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
4(iv)		Details and records of management of waste water generated from sedimentation tank located in batching plant area.	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Records are maintained.
4(v)		Prepare storm water drainage plan for the construction phase.	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	Detailed design is in process
4(vi)		Design of new structures for water intake and outfall as well as wastewater discharge during operation phase and thermal dispersion modelling of discharge of wastewater into sea.	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	<p>HDC has confirmed that reclamation will be carried out at the area where water intake and outfall pipelines are proposed. PMDCSC has issued an instruction to DBO Contractor to consider the revised shoreline during their design.</p> <p>It is currently unclear when the detail design is completed and when the study can be submitted.</p>
4(vii)		Air dispersion modelling considering the design parameter and reshuffling of seven ambient air quality	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Submitted on 8 August 2024 for review of PMDCSC and rejected for resubmission.

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
		monitoring locations based on findings.				
4(vii)		Create awareness in all site staff & workers on the importance of the marine animals/species and plants around the site and their vulnerability.	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	It has been discussed to be included within the camp policy.
5(i)	Storage areas for hazardous chemicals	Secondary containment to be provided at all areas where hazardous materials are stored. Details need to be provided for verification.	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Secondary containment has been provided at the batching plant area on 19/09/2024.  A new chemical storage area has been developed on 24/08/2024.  However, minor improvements are required.
5(ii)		Verify the adequacy of Spill kits provided referring to capacity of handling size of spill and numbers.	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	Details on adequacy of spill kits have not been provided.
6	Drainage plans to be finalised	Preparation of a drainage plan for operation phase	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	Detailed design in process
7	Variation in environment monitoring results	QA/QC on environment monitoring results to close issue of variations observed and calibration of in-house monitoring instruments used for	30 <sup>th</sup> September 2024	DBO Contractor	PMU/ PMDCSC	Calibration of equipment has not been carried out for the handheld air quality monitoring equipment used for

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
		ambient air quality and noise level.				OHS monitoring at workplaces. As per DBO Contractor, attempts are being made to identify the agency elsewhere as facilities for calibration are not available in Maldives.
8	Climate vulnerability and risk assessment (CVRA) study	Project specific CRVA is to be carried out and accordingly mitigation measures are to be included in the design.	31 <sup>st</sup> August 2024	DBO Contractor	PMU/ PMDCSC	CCA (Climate Change Adaptations) report based was submitted on 13th August 2024 for review and rejected for resubmission by PMDCSC.
9(i)	Removal of live electrical cables of STELCO (passing through project site) and shipwrecks (present in sea adjacent to quay wall)	PMU to follow up with HDC and STELCO on progress of work to deactivate the live cable	15 <sup>th</sup> August 2024	PMU	PMU	Cable relocation work has had major setbacks due to HDC having misallocated a plot to a private party which is on the pathway for laying of the new cable.  Arrangements have been made to clear a work shed belonging to the

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
						private party which is on the cable path.
9(ii)		PMU to follow up with HDC for removal of shipwrecks.	15 <sup>th</sup> August 2024	PMU	PMU	<p>The initial party hired by HDC was unable to remove the shipwrecks.</p> <p>HDC has stated that they are in the process of obtaining new quotations from interested parties.</p> <p>It is uncertain when the shipwrecks can be removed.</p>
10	Public Consultation	Public awareness and consultation to be conducted	30 <sup>th</sup> September 2024	PMU	PMU	Awareness and information sessions were carried out at K.Himmafushi, K.Huraa and K.Thulusdhoo during this period
11	Appointment of Public Awareness consultant by PMU	Speed up the hiring process (final bid evaluation and contract signing). Until consultants are hired, PMU to conduct public awareness	31 <sup>st</sup> August 2024	PMU	PMU	Financial evaluation completed and submitted to MOF on 19/08/2024 and is waiting for Tender Board endorsement.
12	Training /workshop	Basic training/workshop to be conducted for staff of DBO Contractor and PMU	30 <sup>th</sup> September 2024	PMDSC	PMU	HSE training on "management of hazardous substances" was

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Status of implementation from last reporting period on pending issues identified
						conducted on 30/09/2024 for managers and supervisors of DBO Contractor, EPC and sub-contractors.
13	Position of local environment consultant is vacant	Appoint a local environment consultant	31 <sup>st</sup> August 2024	PMD CSC	PMU	Local environment expert was appointed on 11/09/2024.



**Table 37: Key Issues identified and Proposed Remedial Measures during July-September 2024**

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Remarks
1(i)	Regulatory compliance	Applicable registration from transport authority and permit from MNDF and others, if any for 5000-liter mobile diesel tanker	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	Fuel tanker has been inspected by MNDF on 31/07/2024
1(ii)		Permits for operation of generator sets	30 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	-
1(iii)		Applicable registration of pending vehicles and mobile machinery/equipment from transport authority	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	-
1(iv)		Registration of the health center under The Health Services Act of the Maldives – 29/2015 published on 7/9/2015	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	-
1(v)		Applicable NOC and permits for commissioning and operation of RO plant which is under commissioning in batching plant area for construction phase.	31 <sup>st</sup> December 2024			-
2	Status of HSE documents	Submission of all pending HSE plans as per given above under Table 10.	30 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	-
3	Understanding of HSE aspects by inspection and construction team	Key HSE supervisory roles such as scaffolding inspector & supervisor and construction supervisors issuing permit to work require experienced personnel with adequate training	30 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	-
4(i)	Implementation of HSE documents	Permit to work should be specific and include PPEs required for the type of activity	20 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	-
4(ii)		Compliance of GRM plan such as, public announcements on the GRM via newspaper, social media and	30 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	-

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Remarks
		other means as mentioned, regular training to workers etc.				
4(iii)		Mapping of languages understood by workers to make training session more effective.	20 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	-
4(iv)		Calibration of in-house monitoring instruments used for ambient air quality at workplaces within project site.	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	-
5(i)	Compliance to EMP of approved EIA	Plan for providing temporary or portable acoustic barriers around stationary construction noise sources or replacement of equipment such as the diesel generator set at the batching plant area	30 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	-
5(ii)		Design of new structures for water intake and outfall as well as wastewater discharge during operation phase and thermal dispersion modelling of discharge of wastewater into sea.	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	-
5(iii)		Air dispersion modelling considering the design parameter and reshuffling of seven ambient air quality monitoring locations based on findings.	30 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	
6(i)	Storage areas for hazardous chemicals	Secondary containment to be provided at all areas where hazardous materials are stored. Details need to be provided for verification.	15 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	
6(ii)		Verify the adequacy of Spill kits provided referring to capacity of handling size of spill and numbers.	15 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Remarks
6(iii)		New storage area to be maintained as per best industry practices such as to keep under lock and key, proper labelling on containers, arrangements of chemicals as per general recommendations for separation or segregation of different classes, display of dos and don'ts in all applicable languages based on mapping etc.	30 <sup>th</sup> November 2024	DBO Contractor	PMU/ PMDCSC	
7(i)	Drainage plans to be finalised	Operation phase	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	
7(ii)		Construction phase	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	
8	Condition of equipment / vehicles	Fitness certificates to be provided	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	
9	Climate vulnerability and risk assessment (CVRA) study	Project specific CRVA is to be carried out and accordingly mitigation measures are to be included in the design.	23 <sup>rd</sup> October 2024	DBO Contractor	PMU/ PMDCSC	
10	HIV awareness training to be held for workers as per contract	HIV-AIDS awareness programme for workers needs to be conducted via an approved service.	31 <sup>st</sup> December 2024	DBO Contractor	PMU/ PMDCSC	
11	Removal of live electrical cables of STELCO (passing through project site) and shipwrecks (present in sea adjacent to quay wall)	PMU to follow up with HDC and STELCO on progress of work to deactivate the live cable	20 <sup>th</sup> November 2024	PMU	PMU	
		PMU to follow up with HDC for removal of shipwrecks.	31 <sup>st</sup> December 2024	PMU	PMU	
12	Spillage of waste from	PMU to follow up with WAMCO on action plan prepared for the dumpsite	31 <sup>st</sup> October 2024	PMU	PMU	

No	Key Issue / Concern	Remedial / Corrective Measures	Target Dates	Implementation Responsibility	Monitoring Responsibility	Remarks
	WAMCO dumpsite					
13	Public Consultation	Public awareness and consultation to be conducted	31 <sup>st</sup> December 2024	PMU	PMU	
14	Appointment of Public Awareness consultant by PMU	Speed up the hiring process (final bid evaluation and contract signing). Until consultants are hired, PMU to conduct public awareness	31 <sup>st</sup> December 2024	PMU	PMU	
15	Training /workshop	Training plan is to be submitted for at least one quarter for basic training/workshop to be conducted for staff of DBO Contractor and PMU	30 <sup>th</sup> September 2024	PMDSC	PMU	

**QEMR July – September 2024 – Comments, responses and follow up actions**

ADB Comments	Response by PMU/PMDCSC	ADB Follow Up Notes on PMU Responses
<p>1. The live electrical cable of STELCO and on the shipwreck near the quay wall remain not addressed. Although agreement was reached between HDC and STELCO in June 2024, no action has been executed yet regarding this safety hazard at site.</p>	<ul style="list-style-type: none"> <li>• STELCO buried cable- Initial work has been started. Currently the cable route is blocked by a shed, with some conflicting boundary issues arising between WAMCO site and the bridge contractors Right of Way (ROW). The path for laying the cable has been cleared and the only remaining obstacle is the removal of concrete slab within the shed. HDC is working on resolving these conflicts.</li> <li>• Shipwreck- Owner of the shipwreck blocking the ramp to be used by the Contractor for unloading has removed the shipwreck on 12th December. Other shipwrecks remain in place. Contractor is currently assessing whether he now can access the site via the ramp or if the space available is insufficient.</li> </ul>	<ul style="list-style-type: none"> <li>• Noted. Please provide these details in the QEMR for Q4 2024, and please ensure these issues are resolved with finality.</li> </ul>
<p>2. Air quality sampling apparently confirms that the elevated PM2.5 is now a persistent ambient air quality at the project site despite efforts to mitigate through measures at the side of the DBO Contractor. Therefore, DBO Contractor shall make it a mandatory requirement for workers to wear PPEs, and reiterate the same during toolbox talks the importance of the use of relevant PPEs including masks at the sites.</p>	<ul style="list-style-type: none"> <li>• As per real time inventory till 30<sup>th</sup> September 2024, total 2450 FFP2 masks have been procured and are/will be provided to workers working engaged in dust prone construction activities.</li> <li>• PMDCSC has issued an instruction vide letters 4169A01/330/156 dated 19 September 2024 and 4169A01/330/164 dated 10 October 2024 to DBO contractor to implement relevant mitigation measures including PPEs on subject in compliance with EMP of approved EIA.</li> <li>• However, during inspection conducted by PMDCSC on 26.11.24, some non-compliances on PPE usage and condition</li> </ul>	<ul style="list-style-type: none"> <li>• Noted. Please continue to monitor and if necessary, provide stern advice to contractor. Provide more detailed update in the QEMR for Q4 2024.</li> </ul>

ADB Comments	Response by PMU/PMDSC	ADB Follow Up Notes on PMU Responses
	of PPE was noted and a report with corrective actions was issued on 09.12.24.	
<p>3. The reported damage to site fence due to falling of waste from WAMCO dumpsite implies that there may already be overfilling of the existing dumpsite by WAMCO. This poses a continuous threat to the project site, and specific action from WAMCO to permanently prevent this kind of incident should be implemented immediately.</p>	<p>WAMCO has cleared the waste on the ground adjacent to the site fence, clearing a path. However, the waste pile remains and it is in the process of compaction which is expected to take ~15 days. However, current slope is not stable and need to be stabilised.</p>	<p>Please coordinate with WAMCO to fully resolve this issue. The slope being <u>NOT stable</u> is a serious safety concern that need to be addressed immediately.</p>
<p>4. Relevant HSE-related sub-plans, including OHS monitoring method statement, have already been accepted by the PMDSC. There are still sub-plans wherein PMDSC accepted them with “comments”, and there is one that is yet to be submitted (i.e. Regulatory Compliance Evaluation Procedure). PMU needs to push the DBO Contractor to address these “comments” from PMDSC so that they become fully acceptable.</p>	<p>Update on HSE sub-plans till date: Approved:</p> <ol style="list-style-type: none"> <li>1. Stakeholder Engagement Plan</li> <li>2. Human Resources Policies and Procedure</li> <li>3. Spill Control and Containment Plan</li> <li>4. Marine and Beach Area Plan</li> <li>5. Chemical and Hazardous Material Management Pan</li> <li>6. Flora and Fauna Management Plan</li> </ol> <p>Approved with comments:</p> <ol style="list-style-type: none"> <li>1. Waste Management Procedure and Plan (status- modified document was reviewed in November 2024 and approved with comments again)</li> <li>2. HSE Obligations Register</li> </ol> <p>Pending:</p> <ol style="list-style-type: none"> <li>1. HSE Regulatory Compliance Procedure (Status- under review by PMDCSC as it was submitted for the first time on 10.12.24)</li> </ol>	<p>Noted. Please advice PMDSC to work closely with Contractor to ensure the latter addresses all comments properly (to the final satisfaction of PMDSC). All these plans should be in place by now.</p>

ADB Comments	Response by PMU/PMDCSC	ADB Follow Up Notes on PMU Responses
<p>5. Please carefully look into legal compliance of the project works. There seems still gaps in contractor compliance (eg. Permission for mobile tanker). If the clearances cannot be obtained, then alternative method shall be employed (such as supply by oil marketing company)</p>	<ul style="list-style-type: none"> <li>• PMDCSC is monitoring status of legal compliance during monthly inspections, quarterly audits and review of monthly report submitted by DBO.</li> <li>• The DBO Contractor has been informed via an HSE instruction letter issued by PMDCSC to stop using the diesel tanker until the required clearances are obtained.</li> <li>• They have been reminded via the HSE instruction letters to ensure compliance with all legal requirements. A legal register is in place and is to be updated regularly.</li> </ul>	<ul style="list-style-type: none"> <li>• Noted. Please provide complete update in QEMR of Q4 2024.</li> </ul>
<p>6. PMDCSC has prepared checklist for site verification and monitoring by both DBO and PMDCSC; I am sure they are using it, please attach the filled-up checklists with site visit reports of the reporting period to the QEMR. If there are multiple checklists, at least couple of samples can be attached.</p>	<ul style="list-style-type: none"> <li>• PMDCSC has checklists for their inspections and audit as part of project manual.</li> <li>• PMDCSC has also reviewed and approved checklists enclosed with various HSE plans as referred in CEMP and H&amp;S plan. Though, DBO /EPC contractor are also using various checklists enclosed as part of method of statements and SOPs as internal documents. Duly filled checklists are inspected on random basis during inspection and audit by PMDCSC.</li> <li>• The duly filled checklists used by PMDCSC for monthly inspections and quarterly audit are already attached with the QEMR as appendices on-site inspection reports.</li> </ul>	<ul style="list-style-type: none"> <li>• Noted.</li> </ul>
<p>7. No complaints received during the reporting period, either from the public or the workers. However, going back to previous issues, no update was reported as to the status of the complaint filed by an ex-staff of the EPC Contractor that was reported in the QEMR for the period January – March 2024. The last QEMR just became silent on</p>	<p>This issue was addressed within the January-March QEMR and the follow up comments from ADB for January to March and April – June QEMR. There is no update since the January-March QEMR, as there was no response from the complainant to the reply sent by DBO and EPC. That is why it was not addressed within April- June or July – September QEMR.</p>	<p>Noted. Please provide this final update (i.e. complaint by an ex-staff) in complete detail in the QEMR of Q4 2024 for it to be closed and recorded.</p>

ADB Comments	Response by PMU/PMDSC	ADB Follow Up Notes on PMU Responses
<p>this. PMU needs to close this issue if indeed already resolved, and report in the QEMR. There was also another issue recently reported that payments are not being made by EPC/DBO to employees. Please check and let us know if contractor internal grievance system is functioning and if so, we would like to know why are these not being resolved at the project level.</p>	<p>As stated in response to the follow up comments for Jan-March QEMR:                      DBO and EPC have verified the payment and emailed PMU and PMDCSC that “EPC has settled the said employee's monthly salary and leave encashment and has these transaction details with them to demonstrate that there are no dues pending”.</p> <p>As stated in response to the follow up comments for Apr-June QEMR:                      Status of complaint was explained in the previous QEMR (paragraph 66). The Project Manager of DBO replied to the complainant and no further communication was received.</p> <p>It was informed to PMU that EPC as well as DBO ensured that all required payments were made to the complainant and that they considered the matter as closed due to no further communication from the complainant.</p> <p>There is an internal grievance system in place with complaint boxes placed at the project site and the contractor carries out awareness sessions on the GRM.</p> <p>No wage related grievances were submitted to the PMU/PMDSC during July-Sep reporting period. However, there are recent findings which PMDCSC is looking into and will address in due time. Please let us know if ADB has received any grievances.</p>	



# Environmental Monitoring Report

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## **PUBLIC**

Project Number: 51077-003  
Quarterly Report (July-September 2024)  
October 2024

## Maldives: Greater Male Waste-to-Energy Project

### Part B: Appendices

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or Staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section of ADB's website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

**Appendix 1: Legal register and copies of permits  
obtained during  
reporting period**

**WASTE TO ENERGY FACILITY IN THILAFUSHI PROJECT  
PERMIT REGISTER**

<b>No</b>	<b>Agency/Authority</b>	<b>Permit</b>	<b>Actual Submission Date</b>	<b>Actual Approved Date</b>	<b>Status</b>	<b>Description</b>
1	HDC	Boundary fencing permit	5/22/2022	6/7/2022	Completed	
2	URA	Dewatering Permit for Exavation of Banker		5/25/2023	Completed	
3	STELCO	Approval for grid connectivity (Temporary Power Connection)	4/5/2022	5/15/2022	Completed	
4	MWSC	Water Supply and Sewerage (Temporary Connection)	4/5/2022	6/8/2022	Completed	
5	Ministry of Defence	Fire protection system for Office and Accomodation	1/2/2023	15/02/2023	Completed	
6	Ministry of Defence	Fire protection system for Kitchen and Worker Accomodation	4/23/2023	5/7/2023	Completed	
7	HDC	Excavation Permit (LAYING SEWAGE PIPE)		2/20/2023	Completed	
8	HDC	Excavation Permit (Laying water pipe from water meter to site boundary)		8/3/2023	Completed	
9	HDC	Laying water discharging pipe from site boundary to the sea		6/22/2023	Completed	
10	HDC	Road closing permit (LAYING SEWAGE WATER PIPE FROM UNDER THE ROAD)		19/02/2023	Completed	
11	URA	SEWAGE TREATMENT PLANT (THILAFUSHI WASTE TO ENERGY PROJECT)	6/3/2023	12/4/2023	Completed	
12	HDC	Partial Construction Permit for Spun Piles (ERQ – Table 5.17 – Item 1- Construction Permit)	15/3/2023	5/11/2023	Completed	
13	MNHPI	Foundation systems of WtE Building	16/04/2023	5/4/2023	Completed	
14	URA	Cable Approval	25/01/2023	5/8/2023	Completed	
15	HDC	Exavation permit for WtE Bunker & Process building		7/31/2023	Completed	
16	URA	Dewatering Permit for Exavation of Banker	8/20/2023	8/20/2023	Completed	
17	HDC	Exavation permit for WtE Bunker & Process building		8/26/2023	Completed	
18	URA	Dewatering Permit for Exavation of Banker	9/18/2023	9/21/2023	Completed	
19	HDC	Exavation permit for WtE Bunker & Process building	9/18/2023	9/24/2023	Completed	
20	HDC	Dewatering Location Permit	10/2/2023	10/15/2023	Completed	
21	HDC	Exavation permit for WtE Bunker & Process building	10/11/2023	10/18/2023	Completed	
22	URA	Dewatering Permit for Exavation of Banker	10/22/2023	10/23/2023	Completed	
23	HDC	Exavation permit for WtE Bunker & Process building	11/3/2023	11/9/2023	Completed	
24	HDC	Dewatering Location Permit	11/8/2023	11/20/2023	Completed	
25	URA	Dewatering Permit for Exavation of Banker	11/19/2023	11/21/2023	Completed	
26	HDC	Exavation permit for WtE Bunker & Process building	11/26/2023	12/3/2023	Completed	
27	HDC	Exavation permit for WtE Bunker & Process building	12/17/2023	12/25/2023	Completed	

28	URA	Dewatering Permit for Exavation of Banker	12/18/2023	12/24/2023	Completed	
29	URA	Dewatering Permit for Exavation of Banker	1/23/2024	1/24/2024	Completed	
30	HDC	Dewatering Location Permit	2/5/2024	2/11/2024	Completed	
31	URA	Dewatering Permit for Exavation of Banker	2/20/2024	2/27/2024	Completed	
32	HDC	Dewatering Location Permit	2/5/2024	2/11/2024	Completed	
33	URA	Dewatering Permit for Exavation of Banker	2/20/2024	2/27/2024	Completed	
34	URA	Dewatering Permit for Exavation of Banker	3/22/2024	3/26/2024	Completed	
35	URA	Dewatering Permit for Exavation of Banker	4/22/2024	4/25/2024	Completed	
36	HDC	Dewatering Location Permit	5/23/2024	6/5/2024	Completed	
37	URA	Dewatering Permit for Exavation of Banker	5/23/2024	5/26/2024	Completed	
38	HDC	Construction Permit		6/11/2024	Completed	
39	URA	Dewatering Permit for Exavation of Banker	6/27/2024	6/30/2024	Completed	
40	HDC	Dewatering Location Permit	6/25/2024	7/3/2024	Completed	
41	URA	Dewatering Permit for Exavation of Banker	7/25/2024	7/28/2024	Completed	
42	HDC	Dewatering Location Permit	8/7/2024	8/11/2024	Completed	Following the completion of dewatering operations at the site, a permit renewal application has not been submitted. A renewal application will be submitted prior to the commencement of any new dewatering activities.
43	URA	Dewatering Permit for Waste to Energy Facility Turbine Area	8/21/2024	8/25/2024	Completed	
44	MNDF	Diesel Tanker operation Permit	6/18/2024	10/9/2024	Completed	Further vehicle registration in process
45	URA	Borehole for RO plant	5/29/2024	8/26/2024	Completed	
46	URA	Diesel Generator operation permit	16.10.2024	In Process	Inprocess	Revised and a new Application link has been applied, we are still waiting for HDC to provide proper payment link for the registration

# PERMITS

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



مملكة العربية السعودية

وزارة

التعليم

الرجوع رقم: 2024-28-LA-1/T/36

### سكولتي تعليمية لمرحلة التعليم الثانوي

- عنوان المدرسة: منطقة الرياض، الرياض، حي النور
- رقم المدرسة: 1446 / 05
- رقم الترخيص: 08
- رقم التسجيل: 08
- رقم الترخيص: 08
- رقم التسجيل: 08
- رقم الترخيص: 08
- رقم التسجيل: 08

رقم الترخيص: 9878753

GDCWAIL6NH979932

2024

2025

أولاً: يرجى التأكد من صحة المعلومات الواردة في هذا التقرير، وذلك من خلال مراجعة ملف المدرسة الإلكتروني على نظام المدارس الإلكترونية، وذلك من خلال الرابط التالي: [www.mawana.gov.sa](#)

ثانياً: يرجى التأكد من صحة المعلومات الواردة في هذا التقرير، وذلك من خلال مراجعة ملف المدرسة الإلكتروني على نظام المدارس الإلكترونية، وذلك من خلال الرابط التالي: [www.mawana.gov.sa](#)



التاريخ: 08/05/2024

مدير مكتب التعليم

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



ދިވެހި ރާއްޖޭގެ  
ދައުލަތުގެ  
ބޭރު މަސްދަރާ

ސަރުކާރުގެ އިދާރާތައް: 28-LA-1/PRIV /2024/1093

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05 ވަނަ ދުވަހުގެ ތެރޭގައި

08 ވަނަ ދުވަހުގެ ތެރޭގައި 2024

ދިވެހި ރާއްޖޭގެ  
ބޭރު މަސްދަރާ  
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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ  
 مَرَقِبَةُ وَجْهِ مَدِينَةِ  
 دُوَّحَا، مَرْفُوعِ سَمَرْقَنْدِ

بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ

23 سَمَرْقَنْدِ 2024

بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ

بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ
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بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ
5,000 مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ	بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ
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بَدَلَةُ كَاتِبَةِ مَدِينَةِ مَرْفُوعِ سَمَرْقَنْدِ			





Reference No. 485-TE/PRIV/2024/423

Date: 26<sup>th</sup> August 2024

Mr. Senol Beken  
Managing Director  
Alke Alkatas Joint Venture Pvt Ltd  
M. Areeka 5B  
Male', Maldives

**DETAIL DESIGN APPROVAL - BOREHOLE DESIGN OF WTE FACILITY AT THILAFUSHI**

Reference is made to your application for design approval of borehole design on 21<sup>st</sup> August 2024.

The detail design of TEMPORARY BOREHOLE IN WTE FACILITY (S7-S01) IN THILAFUSHI complies with the URA design guideline and is therefore approved.

Please ensure that the implementation of the approved works adheres strictly to the "[Technical Specification and Guideline for Borehole Drilling](#)" of URA

Sincerely,

Aminath Mohamed  
Director





## DE-WATERING LOCATION PERMIT

HDC(161)-MNS/DW/2024/00052

25/06/2024 10:50:13



# APPROVED

APPLICANT NAME

**URBASER S.A.**

IDENTIFICATION

**FC00242021**

MOBILE NUMBER

**7522866**

APPROVED DATE

**03/07/2024**

### GENERAL INFO

REQUESTED BY

**POWER OF ATTORNEY**

APPLICANT ADDRESS

**Waste to Energy Facility K. Thilafushi**

AGREEMENT NUMBER

**(AGR)438-WPMC/PRIV/2021/71**

PERMIT TYPE

• RENEWAL

DEWATERING PERMIT NUMBER (FOR RENEWAL/  
ADDITIONAL PIPELINE ONLY)

### LOCATION INFO

LOCATION

**PLOT**

LAND REF NUMBER

**K. Thilafushi -S7-01**

### DURATION & ADDITIONAL INFO

ESTIMATED DURATION FOR DEWATERING (DAYS)

**28**

NUMBER OF PIPELINES

**2**

NOTE

### PAYMENT DETAILS (Rates are MVR 2.00 meter/day for a pipeline and MVR 10.00 meter/day for ramp)

PIPELINE LENGTH ( PER PIPELINE)

**52.37**

AMOUNT/DAY FOR PIPELINES

**209.48**

TOTAL AMOUNT FOR PIPELINE

**5865.44**

RAMP LENGTH

AMOUNT/DAY FOR RAMP

TOTAL AMOUNT FOR RAMP

PERMITTED DURATION FOR PIPELINE/RAMP

**28**

GST AMOUNT(8%)

**469.24**

GRAND TOTAL (INCLUDING GST)

**6334.68**

NOTE

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### **FOR OFFICE USE (MONITORING & INSPECTION)**

PIPELINE/RAMP INSTALLED DATE

RAMP/PIPELINE PERMIT EXPIRY DATE:

POST INSPECTION SITE STATUS

INSPECTOR NAME

INSPECTOR SIGN

REMARKS

CUSTOMER NAME

CUSTOMER SIGN

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### **PAYMENT DETAILS OF EXCEEDING DURATION**

DEWATERING PERMIT END DATE

ROAD CLOSING DATE FOR RAMP/PIPELINE REMOVAL

EXCEEDED DURATION (DAYS)

NO.OF PIPELINES

PIPELINE FEE

RAMP FEE

TOTAL(INCLUDING GST)

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### **Slip Remarks**

NOTE

**This permit is issued to lay pipeline and ramp on the road for dewatering, it is in no means a permission for the Dewatering process.**

- **Dewatering Permit should be obtained from Utility Regulatory Authority before laying the pipeline and ramp on the road and before starting Dewatering process**
- **Dewatering must be done to the location as per attached drawing.**
- **Before progression, HDC inspectors should be informed (Inspectors hotline: 7973535) and should follow all instructions given by the inspector, pertaining to rules and regulations of HDC.**
- **If the dewatering pipe has to cross any road, you must place a ramp as per the attached**

drawing. The ramp can be avoided if you are using a flexible hose for the process.

- When laying pipes on the pavement, remove the pavement bricks and dig a trench on the sidewalk to a depth required to lay the pipe.
- Pavement bricks must be placed back once you have laid the pipe.
- You must place a white light on both sides at 3m height, projecting down to the ramp
- Light post must be located 2m distance from the ramp at the center of the hedge area
- Submit a copy of dewatering permit issued by Utility Regulatory Authority (URA) to HDC before proceeding ramp/pipeline laying work.
- Once the dewatering procedure is complete, you must remove the ramp and inform HDC inspectors.

#### **LAND**

- You should make an appropriate depth of pit to avoid the dispersing of water to nearby roads.
- Dewatering process must be carried out with all safety precautions in order to avoid mosquito breeding.

#### **SEA**

- Follow the instruction shown in the dewatering pipe extension to the lagoon when placing the pipe into the lagoon

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AUTHORIZED SIGNATORY

**AZAF A SHAFEEU**







485-AP/PRIV/2024/356 - 485-AP/PRIV/2024/356

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## DEWATERING PERMIT

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**Work Site:** Waste to Energy Facility Turbine Area

**Owner of the work:** MCCEE

**Contractor:** Alke Alkatas' Joint Venture Pvt. Ltd.

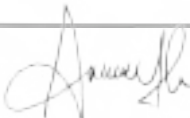
**Application Form no:** DW24075-1

**Permit Duration:** 28 Days

**Start Date:** 28.07.2024 12PM

**End Date:** 25.08.2024 12PM

**Issued Date:** 25.07.2024

  
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**Approved by**

Utility Regulatory Authority

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**Appendix 2: Site Inspection Reports and Audit  
Reports by PMDCSC from July-September 2024,  
including Site Inspection Photos**



**Site Inspection Report**

No.: SI-24-11

by the Employer's Representative

Dates / Time of the Visit	Conducted by [ER]	Signature
09 <sup>th</sup> July 2024 09:30 hrs – 14:30 Hrs	Nahee Nazim <i>Deputy Team Leader</i> Fichtner / REM	

General Observations

Sn	Particulars	Details / Remarks	Reference
1	Change in construction methodology with reference to same given in EIA report, if any	-	-
2	Not anticipated/accounted project specific activity (ies) and impacts observed which were not considered in EIA study report, if any, either on site or adjacent by the Contractor or other stakeholders.	Long term impacts of working close to the landfill has been discussed, and the DBO is working on a plan to monitor the air quality around the campsite and mitigation measures to be taken based on the findings once the monitoring starts. Expected to start late Q1 or early Q2 of 2024.	-
3	Any activity or sign observed within and adjacent to project site which may lead to soil and ground & marine water contamination	Presence of Shipwrecks adjacent to quay wall and movement of speed boats, ships (medium and large) on the route and adjacent to quay wall of island. Leachate and run off water from waste dumping site of WAMCO adjacent to project site.	-
4	Total amount of manpower at project as per attendance register on date of visit a) ER Representative b) DBO Representative c) HO Management Team d) EPC Contractor Direct Staff e) EPC Contractor Indirect Staff f) EPC Contractor Direct Site Workers g) Security (Gage) h) ELS (Concrete Laboratory) i) Villa Company (Batching Plant) j) Clamp Engineering	Total of 89 direct workers deployed by the DBO/EPC on site. Total 206 persons on site. 2 2 5 43 36 89 8 6 17 3	-
5	Others, if any	-	-

## Progress Observations

No.	Particulars	Details / Remarks	Reference
1	Temporary facilities	New staff and accommodation buildings have been completed; new storage tents have been completed. Reinforcement work yard has been completed. Batching plant is completed and is in use.	-
2	Site Preparation	Daily monitoring of sheet piles for any movement is ongoing in the bunker area. Concrete batching plant is operational. Backfilling, compaction, geotextile installation is on going. Pile cap concrete works and lean concrete work is continuing. Bunker slab has been completed and bunker wall concrete works is ongoing.	-
3	Excavation & Dewatering	Excavation work for the bunker and the main process building has been completed. The ramp at the bunker area has been completed. Well point dewatering system around the bunker area has been setup and continuous dewatering works is ongoing. Monthly monitoring of the discharge water is carried out.	-

## Environmental Observations

Sn	Particulars	Details / Remarks	Reference
1	Status of adequacy of compliance of CEMP and ESMS including SOPs in place applicable to construction activities visited on the basis of assessment made on randomly basis, on site or adjacent. <sup>1</sup>	For construction phase, various plans and SOPs as part of ESMS as mentioned in CEMP are in the process of final approval. All documents are currently approved with comments. Implementation of the said plans is an ongoing process and efforts are in place to implement the CEMP. All site works are carried out after approval of method statements.	-
2	Status of adequacy of environment monitoring as envisaged in CEMP on the basis of assessment made on randomly basis.	Being conducted as scheduled. Monthly monitoring of ambient air quality, noise levels and water quality monitoring is ongoing. The data is collected, for ambient air and noise level.	-
3	Status of adequacy of level of understanding of environment hazards and corresponding designed mitigation measures of construction team including supervisors and workers on site or adjacent on the basis of assessment made on randomly basis.	Toolbox talks are being conducted on a daily basis. Training is conducted monthly as per requirement for the month. Implementation of CEMP, H&S plan and other management plans is ongoing. Training drills are being conducted.	-
4	Status of adequacy of record keeping including data reported in monthly environment report on the basis of assessment made on randomly basis.	Site activities are captured on the Daily Progress Reports prepared by the EPC and digital copies of the report are kept on record on the ACONEX project management system and shared with all stakeholders.	-

<sup>1</sup>aspects includes (but not limited to) solid wastes (hazardous and non-hazardous including construction, plastic, E-waste, battery and bio-medical) management, Storage and handling of construction materials, waste water (from domestic and construction activities and run off due to rain) management, Air emission (from mainly DG sets, diesel driven machinery and equipment, Raw mix plant, fugitive, vehicular movement, etc.) management, management of construction noise level etc.

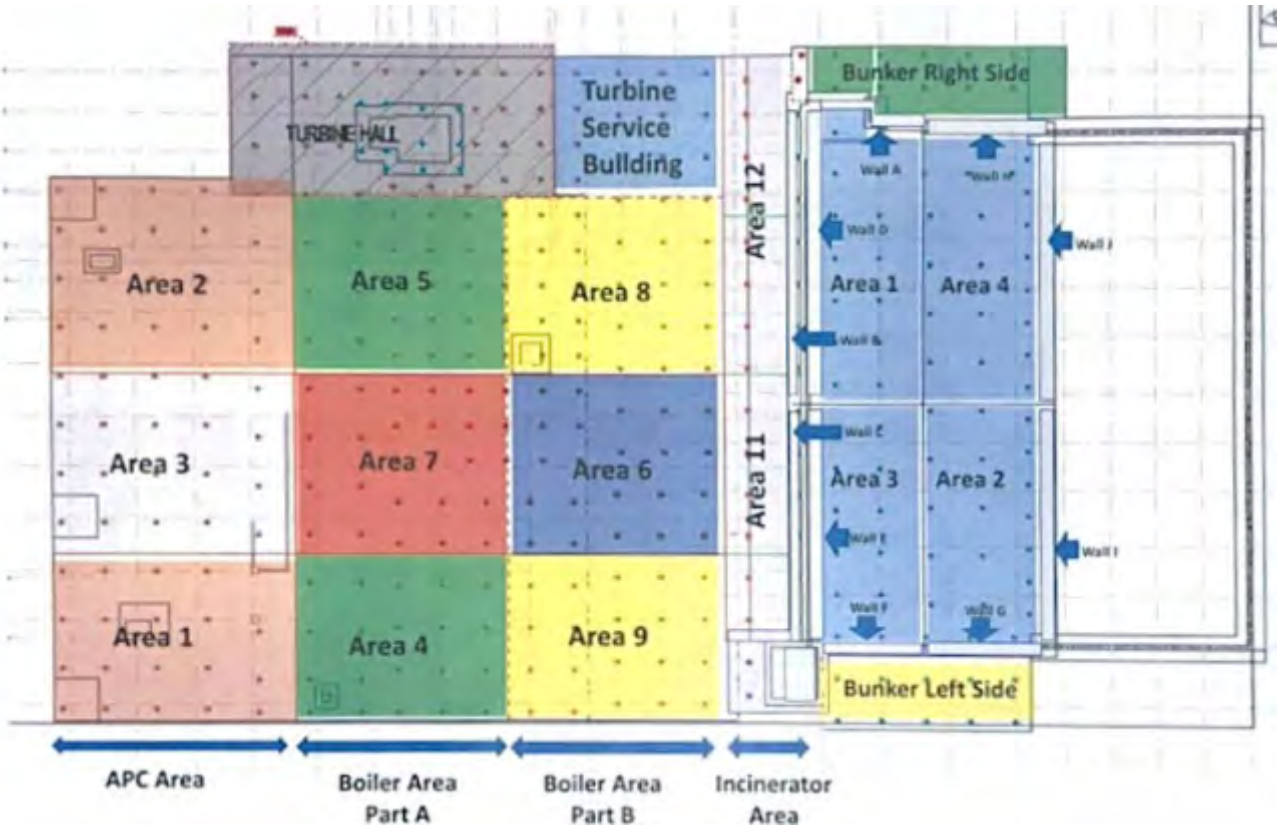
## Health and Safety Observation

Sn	Aspects	Details / Remarks	Reference
<b>Labour - health, safety and welfare</b>			
1	Status of adequacy of HSE /Occupational Health and Safety management plan and ESMS including SOPs applicable to construction activities visited on the basis of randomly assessment made. <sup>2</sup>	SOPS are in place for specific work activities and is an ongoing process. However following observations were made: <ul style="list-style-type: none"> <li>Impacts/risks to workers due to presence of dumping site have not been identified, OHS monitoring plan is being prepared by the DBO and has gone through review process with the ER and and revisions are being made.</li> <li>Documents on subject were under process of finalization for getting approval of ER/PMU for construction phase. All HSE documents are "Approved with comments" at this stage.</li> <li>Presence of live electrical cable supplying electricity to project from STELCO runs within the site boundary. HDC and Stelco have been informed of the matter and the cable is to be re-routed at the earliest. Planning works is in progress between stakeholders.</li> </ul>	-
2	Status of adequacy of HSE monitoring as envisaged in CEMP, HSE Plan, ESMS & SOPs etc.	Documents on subject as part of CEMP, HSE Plan and SOPs as part of ESMS have been prepared and submitted for approval of ER. All HSE related documents are "Approved" or "Approved with comments" and the final revisions are being worked on by the EPC/DBO HSE team. HSE monitoring and audits are conducted by the EPC as well as Rambol on behalf of the DBO. Implementation of the CEMP and HSE plans is ongoing. SOPs are in place for all ongoing construction work and is an ongoing process as work progress on site.	-
3	Status of adequacy of on-site Emergency Preparedness and Response on the basis of randomly assessment made (emergency response team, safety committee, fire fighting, mock drills, assembly point, evacuation, accident/incident reporting etc.)	SOPs on subject is in place and drills have been conducted on site. Training program is prepared on a monthly basis as well as drills are being conducted by the HSE team on site. Assembly point established and inadequate safety signage were in place however no safety committee is in place. Adequate medical aid facilities (e.g. availability of stretcher and medicine, medical evacuation etc) at health center located within project site and full-time qualified doctor and nurse has been posted.	-
4	Status of adequacy of workers accommodations including fresh water for drinking & others, hygienic with reference to waste water and domestic solid waste management and other welfare facilities (e.g. Kitchen/food, medical, toilets, recreation, shelters, spray of mosquitoes and odour repellent etc.) maintained at project site on the basis of randomly assessment made.	Worker's accommodations including toilets are operational and deemed sufficient for the current workers on site. Fresh water supply is from MWSC utility pipeline and drinking water filters are being used, along with bottled drinking water. Waste collection bins have been placed and collected to the main waste collection area and handed over to WAMCO for disposal. A gym and recreational area have been completed and is in use. Designated smoking areas and shelters have been established. Wastewater treatment plant is operational.	-
5	Status of adequacy of housekeeping within project site on the basis of randomly assessment made.	Site is kept generally clean and organized. Scheduled mass house-keeping is being conducted monthly. Designated persons assigned for cleaning and logs kept for toilets. Designated waste collection area is established, waste bins are installed through out site camp area. All waste produced is logged and recorded.	-
6	Status of adequacy of security management (availability of adequate number of security guards, fencing of project site, procedure(s) to allow entry for visitors and workers etc. understanding of role of security guards as per contract) of project site on the basis of randomly assessment made.	Gates in place, and visitors register in form of loose sheets, a proper register is to be maintained. Security guards in place at the 3 entry points to the site. CCTV system is installed. Adequate lighting is provided around the site.	-
7	Status of adequacy of handling of workers complaint(s) received on HSE, human resources and welfare aspects as per complaint register kept at site on the basis of randomly assessment made.	Boxes placed for for internal grievance redress mechanism at several places within the site area. Notices and forms are in several languages. Effort to place a box at the ferry terminal is ongoing.	-

<sup>2</sup>e.g assessment of activity wise associated hazards, work permit, PPEs, first aid, toolbox talk, barricading, COVID-19, electrical safety etc.

8	Status of adequacy of record keeping including data reported in monthly HSE report on the basis of randomly assessment made.	Site activities are captured on the Daily Progress Reports prepared by the EPC and digital copies of the report are kept and digital record is shared with all parties.	-
<b>Community- health, safety and welfare</b>			
9	Status of adequacy of Community Health and Safety plan and ESMS including SOPS on the basis of randomly assessment made (mainly during transportation of men, materials and machinery, influx of workers from other places, contamination of air, land and marine water and ecology, if any etc.)	Pre-construction environment baseline monitoring is being carried out as per CEMP on regular basis. However, for construction phase, various plans and SOPs as part of ESMS mentioned in CEMP and H&S plan are yet to be finalized for approval from ER/PMU, several rounds of review and comments have been shared by the ER with the DBO contractor on the documents that are being prepared. Even though the process of developing the documents, measures are taken to implement these as an ongoing process.	-
10	Status of adequacy of off-site Emergency Preparedness and Response on the basis of randomly assessment made (e.g. response team, mock drills, mutual aids, evacuation plan, accident/incident reporting etc.)	Plans and SOPs on subject are under process of finalization for getting approval of ER/PMU for construction phase. Regular training and drills are being conducted on site and records are kept.	-
12	Status of adequacy of handling of community complaint(s) received on Environment, HSE and welfare aspects on the basis of randomly assessment made.	To comply with contract's obligations, community engagement plan is yet to be submitted for getting approval of ER/PMU. The site being in the industrial area no complaints were received this month.	-

Main Process Building & Bunker work area designations



Site Photos / Observations

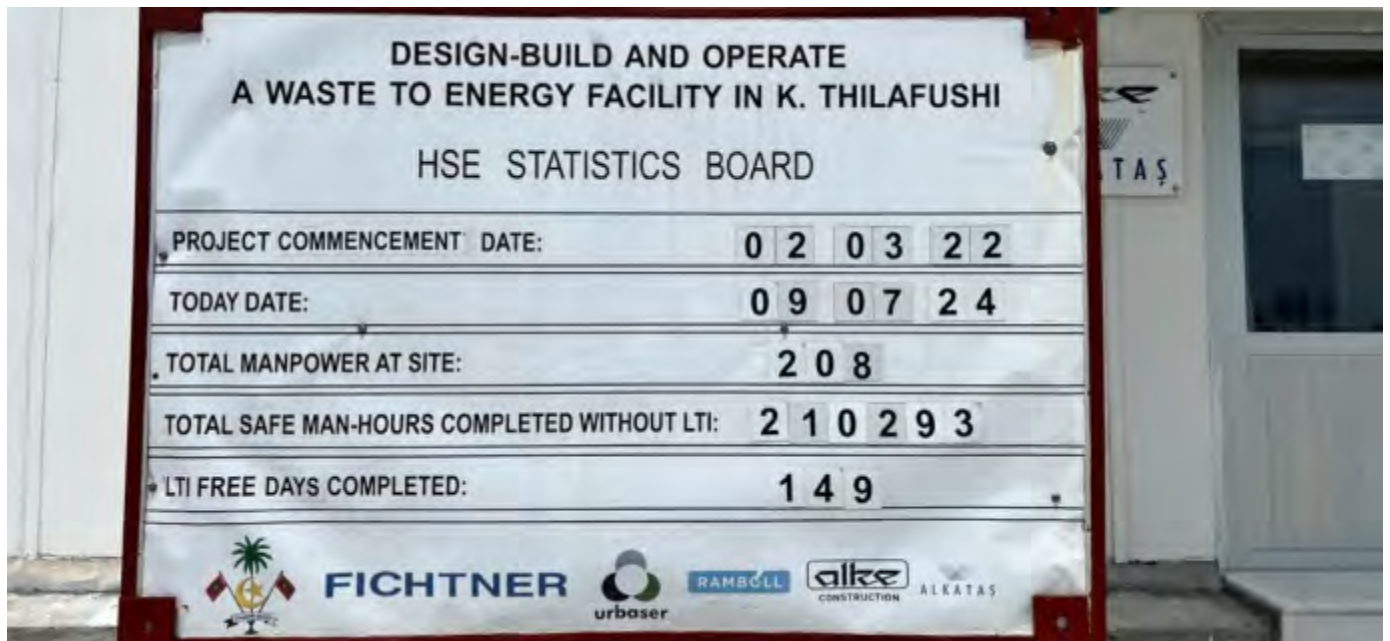


Photo 01 09/07/24– HSE Statistics board has been updated on regular basis.



Photo 02 09/07/24 – The walkpath from the construction camp to the construction area is kept clean and free of tripping hazards.



**Photo 03** 09/07/24 – CNTY delivered the grate parts and are stored on the site laydown area and covered with several sheets of canvas to protect from the elements.



**Photo 04** 09/07/24 – WAMCO is working on the landfill and some C&D waste has been laid close to the boundary fence.



**Photo 05** 09/07/24 – Bunker wall construction is progressing as planned.



**Photo 06** 09/07/24 – Backfilling, lean concrete and water proofing work is ongoing in the process building area.



**Photo 07** 09/07/24 – The scaffolding at the bunker area is regularly inspected for safety.





**Photo 08** 09/07/24 –Shipwrecks still remain in place, HDC is working on making arrangements to remove.



**Photo 09** 09/07/24– Shipwrecks still remain in place, HDC is working on making arrangements to remove.



**Photo 10** 09/07/24– Backfilling material delivered to site and stockpiled in the laydown area.



**Photo 11** 09/07/24 – Waste management area, waste is sorted and removed from site on regular basis.



**Photo 12** 09/07/24– Construction of the desalination plant building is ongoing in the batching plant area, permits are to be obtained before operation. EPC and Villa are working on the necessary permits.



**Photo 13** 09/07/24– Some vehicles in the parking area within the site boundary, some vehicles are lacking registration plates, and EPC has been asked to register unregistered vehicles.



**Site Inspection Report**

No.: SI-24-12

by the Employer's Representative

Dates / Time of the Visit	Conducted by [ER]	Signature
18 <sup>th</sup> July 2024 09:30 hrs – 14:30 Hrs	Nahee Nazim <i>Deputy Team Leader</i> Fichtner / REM	

General Observations

Sn	Particulars	Details / Remarks	Reference
1	Change in construction methodology with reference to same given in EIA report, if any	-	-
2	Not anticipated/accounted project specific activity (ies) and impacts observed which were not considered in EIA study report, if any, either on site or adjacent by the Contractor or other stakeholders.	Long term impacts of working close to the landfill has been discussed, and the DBO is working on a plan to monitor the air quality around the campsite and mitigation measures to be taken based on the findings once the monitoring starts. Expected to start late Q1 or early Q2 of 2024.	-
3	Any activity or sign observed within and adjacent to project site which may lead to soil and ground & marine water contamination	Presence of Shipwrecks adjacent to quay wall and movement of speed boats, ships (medium and large) on the route and adjacent to quay wall of island. Leachate and run off water from waste dumping site of WAMCO adjacent to project site.	-
4	Total amount of manpower at project as per attendance register on date of visit a) ER Representative b) DBO Representative c) HO Management Team d) EPC Contractor Direct Staff e) EPC Contractor Indirect Staff f) EPC Contractor Direct Site Workers g) Security (Gage) h) ELS (Concrete Laboratory) i) Villa Company (Batching Plant) j) Clamp Engineering	Total of 92 direct workers deployed by the DBO/EPC on site. Total 206 persons on site, and 2 staff from MOE visited 2 2 5 43 36 92 8 6 14 3	-
5	Others, if any	-	-

## Progress Observations

No.	Particulars	Details / Remarks	Reference
1	Temporary facilities	New staff and accommodation buildings have been completed; new storage tents have been completed. Reinforcement work yard has been completed. Batching plant is completed and is in use.	-
2	Site Preparation	Daily monitoring of sheet piles for any movement is ongoing in the bunker area. Concrete batching plant is operational. Backfilling, compaction, geotextile installation is on going. Pile cap concrete works and lean concrete work is continuing. Bunker slab has been completed and bunker wall concrete works is ongoing.	-
3	Excavation & Dewatering	Excavation work for the bunker and the main process building has been completed. The ramp at the bunker area has been completed. Well point dewatering system around the bunker area has been setup and continuous dewatering works is ongoing. Monthly monitoring of the discharge water is carried out.	-

## Environmental Observations

Sn	Particulars	Details / Remarks	Reference
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<sup>1</sup>aspects includes (but not limited to) solid wastes (hazardous and non-hazardous including construction, plastic, E-waste, battery and bio-medical) management, Storage and handling of construction materials, waste water (from domestic and construction activities and run off due to rain) management, Air emission (from mainly DG sets, diesel driven machinery and equipment, Raw mix plant, fugitive, vehicular movement, etc.) management, management of construction noise level etc.

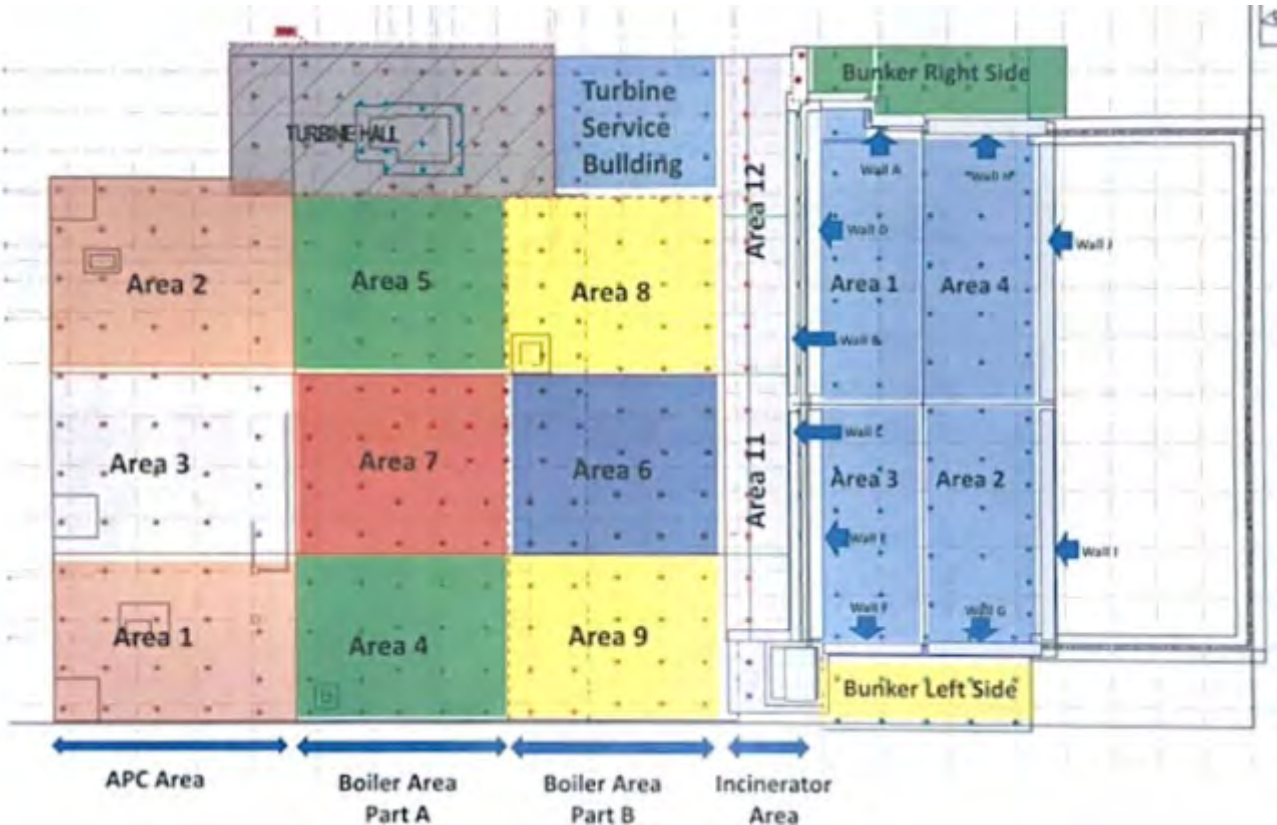
## Health and Safety Observation

Sn	Aspects	Details / Remarks	Reference
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1	Status of adequacy of HSE /Occupational Health and Safety management plan and ESMS including SOPs applicable to construction activities visited on the basis of randomly assessment made. <sup>2</sup>	SOPS are in place for specific work activities and is an ongoing process. However following observations were made: <ul style="list-style-type: none"> <li>Impacts/risks to workers due to presence of dumping site have not been identified, OHS monitoring plan is being prepared by the DBO and has gone through review process with the ER and and revisions are being made.</li> <li>Documents on subject were under process of finalization for getting approval of ER/PMU for construction phase. All HSE documents are "Approved with comments" at this stage.</li> <li>Presence of live electrical cable supplying electricity to project from STELCO runs within the site boundary. HDC and Stelco have been informed of the matter and the cable is to be re-routed at the earliest. Planning works is in progress between stakeholders.</li> </ul>	-
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3	Status of adequacy of on-site Emergency Preparedness and Response on the basis of randomly assessment made (emergency response team, safety committee, fire fighting, mock drills, assembly point, evacuation, accident/incident reporting etc.)	SOPs on subject is in place and drills have been conducted on site. Training program is prepared on a monthly basis as well as drills are being conducted by the HSE team on site. Assembly point established and inadequate safety signage were in place however no safety committee is in place. Adequate medical aid facilities (e.g. availability of stretcher and medicine, medical evacuation etc) at health center located within project site and full-time qualified doctor and nurse has been posted.	-
4	Status of adequacy of workers accommodations including fresh water for drinking & others, hygienic with reference to waste water and domestic solid waste management and other welfare facilities (e.g. Kitchen/food, medical, toilets, recreation, shelters, spray of mosquitoes and odour repellent etc.) maintained at project site on the basis of randomly assessment made.	Worker's accommodations including toilets are operational and deemed sufficient for the current workers on site. Fresh water supply is from MWSC utility pipeline and drinking water filters are being used, along with bottled drinking water. Waste collection bins have been placed and collected to the main waste collection area and handed over to WAMCO for disposal. A gym and recreational area have been completed and is in use. Designated smoking areas and shelters have been established. Wastewater treatment plant is operational.	-
5	Status of adequacy of housekeeping within project site on the basis of randomly assessment made.	Site is kept generally clean and organized. Scheduled mass house-keeping is being conducted monthly. Designated persons assigned for cleaning and logs kept for toilets. Designated waste collection area is established, waste bins are installed through out site camp area. All waste produced is logged and recorded.	-
6	Status of adequacy of security management (availability of adequate number of security guards, fencing of project site, procedure(s) to allow entry for visitors and workers etc. understanding of role of security guards as per contract) of project site on the basis of randomly assessment made.	Gates in place, and visitors register in form of loose sheets, a proper register is to be maintained. Security guards in place at the 3 entry points to the site. CCTV system is installed. Adequate lighting is provided around the site.	-
7	Status of adequacy of handling of workers complaint(s) received on HSE, human resources and welfare aspects as per complaint register kept at site on the basis of randomly assessment made.	Boxes placed for for internal grievance redress mechanism at several places within the site area. Notices and forms are in several languages. Effort to place a box at the ferry terminal is ongoing.	-

<sup>2</sup>e.g assessment of activity wise associated hazards, work permit, PPEs, first aid, toolbox talk, barricading, COVID-19, electrical safety etc.

8	Status of adequacy of record keeping including data reported in monthly HSE report on the basis of randomly assessment made.	Site activities are captured on the Daily Progress Reports prepared by the EPC and digital copies of the report are kept and digital record is shared with all parties.	-
<b>Community- health, safety and welfare</b>			
9	Status of adequacy of Community Health and Safety plan and ESMS including SOPS on the basis of randomly assessment made (mainly during transportation of men, materials and machinery, influx of workers from other places, contamination of air, land and marine water and ecology, if any etc.)	Pre-construction environment baseline monitoring is being carried out as per CEMP on regular basis. However, for construction phase, various plans and SOPs as part of ESMS mentioned in CEMP and H&S plan are yet to be finalized for approval from ER/PMU, several rounds of review and comments have been shared by the ER with the DBO contractor on the documents that are being prepared. Even though the process of developing the documents, measures are taken to implement these as an ongoing process.	-
10	Status of adequacy of off-site Emergency Preparedness and Response on the basis of randomly assessment made (e.g. response team, mock drills, mutual aids, evacuation plan, accident/incident reporting etc.)	Plans and SOPs on subject are under process of finalization for getting approval of ER/PMU for construction phase. Regular training and drills are being conducted on site and records are kept.	-
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Main Process Building & Bunker work area designations



Site Photos / Observations



**Photo 01** 18/07/24– Walkpath to the construction camp to the work area needs to be cleaned and kept free of tripping hazards.



**Photo 02** 18/07/24 – Some equipment and material remain on site from the spun pile driving work, its advised to remove from site if the material is no longer required.



**Photo 03** 18/07/24 – Construction work on the bunker walls is ongoing as planned.



**Photo 04** 18/07/24 – Sheet pile removal work and backfilling work on going in the area between the main process building and bunker.



**Photo 05** 18/07/24 – Sheet pile works are ongoing for the turbine foundation area.



**Photo 06** 18/07/24 – Resting shack/smoking area has been setup close to the work area.





**Photo 07** 18/07/24 – Lift foundation work is on going in the main process building area.



**Photo 08** 18/07/24 – Foundation slab reinforcement installation is ongoing and is being made ready for concreting.



**Photo 09** 18/07/24– Several heavy machinery in operation doesn't have any visible registration plates, however the EPC assures the vehicles are registered, all registration plates should be installed on vehicles and should be visible as per regulations.



**Photo 10** 18/07/24– Excavation work is ongoing for temporary cable laying.



**Photo 11** 18/07/24 – Excavation work is ongoing for temporary cable laying.



**Photo 12** 18/07/24– Portable toilets are kept cleaned and maintained.



**Photo 13** 18/07/24– Yamna from MOE is seen here conducting random interview with the workers about HSE aspects.



**Photo 14** 18/07/24– Continous dewatering is ongoing and will continue until all the sides of the bunker walls have been completed.



**Photo 15** 18/07/24– Some of the fire extinguishers still showing expired tests stickers from the third party inspectors, however the EPC assures they have checked and all extinguishers will be checked and verified by the third party inspectors very soon.



**Photo 16** 18/07/24– Several concrete mixer vehicles on site, that belongs to the Villa subcontractor are lacking registration, and the process has been started to all vehicle registration in place.



**Photo 17** 18/07/24– A pump and pipe line was seen from the concrete wash out area retention tank to the adjacent site, this has been brought to immediate attention of the DBO, EPC and Villa subcontractor and instructed to stop this as it is violation of regulations and ensure this doesn't happen again.



**Photo 18** 18/07/24– A pump and pipe line was seen from the concrete wash out area retention tank to the adjacent site, this has been brought to immediate attention of the DBO, EPC and Villa subcontractor and instructed to stop this as it is violation of regulations and ensure this doesn't happen again.



**Photo 19** 18/07/24– Construction of the desalination plant building is in progress, however permits for borehole, and operation of the plant should be obtained from relevant authorities before operation can begin.



**Photo 20** 18/07/24– Chemical storage area, proper bund wall needs to be in place all around the storage area and all chemicals need to be moved to this dedicated areas as soon as possible.



**Photo 21** 18/07/24– Chemical storage area, proper bund wall needs to be in place all around the storage area and all chemicals need to be moved to this dedicated areas as soon as possible.



**Site Inspection Report**

**No.: SI-24-13**

by the Employer's Representative

Dates / Time of the Visit	Conducted by [ER]	Signature
25 <sup>th</sup> July 2024 11:00 hrs – 14:30 Hrs	Nahee Nazim <i>Deputy Team Leader</i> Fichtner / REM	

**General Observations**

Sn	Particulars	Details / Remarks	Reference
1	Change in construction methodology with reference to same given in EIA report, if any	-	-
2	Not anticipated/accounted project specific activity (ies) and impacts observed which were not considered in EIA study report, if any, either on site or adjacent by the Contractor or other stakeholders.	Long term impacts of working close to the landfill has been discussed, and the DBO is working on a plan to monitor the air quality around the campsite and mitigation measures to be taken based on the findings once the monitoring starts. Expected to start late Q1 or early Q2 of 2024.	-
3	Any activity or sign observed within and adjacent to project site which may lead to soil and ground & marine water contamination	Presence of Shipwrecks adjacent to quay wall and movement of speed boats, ships (medium and large) on the route and adjacent to quay wall of island. Leachate and run off water from waste dumping site of WAMCO adjacent to project site.	-
4	Total amount of manpower at project as per attendance register on date of visit a) ER Representative b) DBO Representative c) HO Management Team d) EPC Contractor Direct Staff e) EPC Contractor Indirect Staff f) EPC Contractor Direct Site Workers g) Security (Gage) h) ELS (Concrete Laboratory) i) Villa Company (Batching Plant) j) Clamp Engineering	Total of 108 direct workers deployed by the DBO/EPC on site. Total 222 persons on site, and 1 staff from MOE visited 2 1 5 43 36 108 7 6 17 3	-
5	Others, if any	-	-

## Progress Observations

No.	Particulars	Details / Remarks	Reference
1	Temporary facilities	New staff and accommodation buildings have been completed; new storage tents have been completed. Reinforcement work yard has been completed. Batching plant is completed and is in use.	-
2	Site Preparation	Daily monitoring of sheet piles for any movement is ongoing in the bunker area. Concrete batching plant is operational. Backfilling, compaction, geotextile installation is on going. Pile cap concrete works and lean concrete work is continuing. Bunker slab has been completed and bunker wall concrete works is ongoing.	-
3	Excavation & Dewatering	Excavation work for the bunker and the main process building has been completed. The ramp at the bunker area has been completed. Well point dewatering system around the bunker area has been setup and continuous dewatering works is ongoing. Monthly monitoring of the discharge water is carried out.	-

## Environmental Observations

Sn	Particulars	Details / Remarks	Reference
1	Status of adequacy of compliance of CEMP and ESMS including SOPs in place applicable to construction activities visited on the basis of assessment made on randomly basis, on site or adjacent. <sup>1</sup>	For construction phase, various plans and SOPs as part of ESMS as mentioned in CEMP are in the process of final approval. All documents are currently approved with comments. Implementation of the said plans is an ongoing process and efforts are in place to implement the CEMP. All site works are carried out after approval of method statements.	-
2	Status of adequacy of environment monitoring as envisaged in CEMP on the basis of assessment made on randomly basis.	Being conducted as scheduled. Monthly monitoring of ambient air quality, noise levels and water quality monitoring is ongoing. The data is collected, for ambient air and noise level.	-
3	Status of adequacy of level of understanding of environment hazards and corresponding designed mitigation measures of construction team including supervisors and workers on site or adjacent on the basis of assessment made on randomly basis.	Toolbox talks are being conducted on a daily basis. Training is conducted monthly as per requirement for the month. Implementation of CEMP, H&S plan and other management plans is ongoing. Training drills are being conducted.	-
4	Status of adequacy of record keeping including data reported in monthly environment report on the basis of assessment made on randomly basis.	Site activities are captured on the Daily Progress Reports prepared by the EPC and digital copies of the report are kept on record on the ACONEX project management system and shared with all stakeholders.	-

<sup>1</sup>aspects includes (but not limited to) solid wastes (hazardous and non-hazardous including construction, plastic, E-waste, battery and bio-medical) management, Storage and handling of construction materials, waste water (from domestic and construction activities and run off due to rain) management, Air emission (from mainly DG sets, diesel driven machinery and equipment, Raw mix plant, fugitive, vehicular movement, etc.) management, management of construction noise level etc.

## Health and Safety Observation

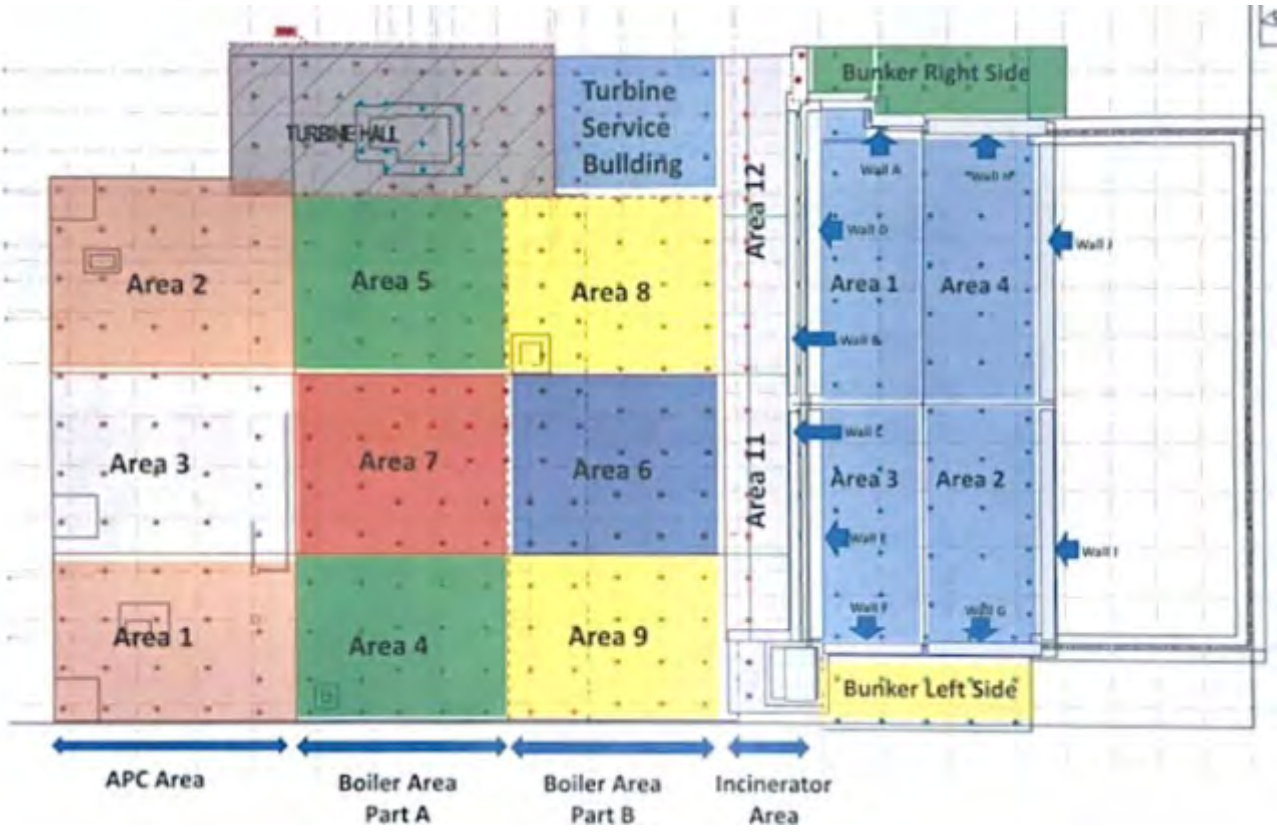
Sn	Aspects	Details / Remarks	Reference
<b>Labour - health, safety and welfare</b>			
1	Status of adequacy of HSE /Occupational Health and Safety management plan and ESMS including SOPs applicable to construction activities visited on the basis of randomly assessment made. <sup>2</sup>	SOPS are in place for specific work activities and is an ongoing process. However following observations were made: <ul style="list-style-type: none"> <li>Impacts/risks to workers due to presence of dumping site have not been identified, OHS monitoring plan is being prepared by the DBO and has gone through review process with the ER and and revisions are being made.</li> <li>Documents on subject were under process of finalization for getting approval of ER/PMU for construction phase. All HSE documents are "Approved with comments" at this stage.</li> <li>Presence of live electrical cable supplying electricity to project from STELCO runs within the site boundary. HDC and Stelco have been informed of the matter and the cable is to be re-routed at the earliest. Planning works is in progress between stakeholders.</li> </ul>	-
2	Status of adequacy of HSE monitoring as envisaged in CEMP, HSE Plan, ESMS & SOPs etc.	Documents on subject as part of CEMP, HSE Plan and SOPs as part of ESMS have been prepared and submitted for approval of ER. All HSE related documents are "Approved" or "Approved with comments" and the final revisions are being worked on by the EPC/DBO HSE team. HSE monitoring and audits are conducted by the EPC as well as Rambol on behalf of the DBO. Implementation of the CEMP and HSE plans is ongoing. SOPs are in place for all ongoing construction work and is an ongoing process as work progress on site.	-
3	Status of adequacy of on-site Emergency Preparedness and Response on the basis of randomly assessment made (emergency response team, safety committee, fire fighting, mock drills, assembly point, evacuation, accident/incident reporting etc.)	SOPs on subject is in place and drills have been conducted on site. Training program is prepared on a monthly basis as well as drills are being conducted by the HSE team on site. Assembly point established and inadequate safety signage were in place however no safety committee is in place. Adequate medical aid facilities (e.g. availability of stretcher and medicine, medical evacuation etc) at health center located within project site and full-time qualified doctor and nurse has been posted.	-
4	Status of adequacy of workers accommodations including fresh water for drinking & others, hygienic with reference to waste water and domestic solid waste management and other welfare facilities (e.g. Kitchen/food, medical, toilets, recreation, shelters, spray of mosquitoes and odour repellent etc.) maintained at project site on the basis of randomly assessment made.	Worker's accommodations including toilets are operational and deemed sufficient for the current workers on site. Fresh water supply is from MWSC utility pipeline and drinking water filters are being used, along with bottled drinking water. Waste collection bins have been placed and collected to the main waste collection area and handed over to WAMCO for disposal. A gym and recreational area have been completed and is in use. Designated smoking areas and shelters have been established. Wastewater treatment plant is operational.	-
5	Status of adequacy of housekeeping within project site on the basis of randomly assessment made.	Site is kept generally clean and organized. Scheduled mass house-keeping is being conducted monthly. Designated persons assigned for cleaning and logs kept for toilets. Designated waste collection area is established, waste bins are installed through out site camp area. All waste produced is logged and recorded.	-
6	Status of adequacy of security management (availability of adequate number of security guards, fencing of project site, procedure(s) to allow entry for visitors and workers etc. understanding of role of security guards as per contract) of project site on the basis of randomly assessment made.	Gates in place, and visitors register in form of loose sheets, a proper register is to be maintained. Security guards in place at the 3 entry points to the site. CCTV system is installed. Adequate lighting is provided around the site.	-
7	Status of adequacy of handling of workers complaint(s) received on HSE, human resources and welfare aspects as per complaint register kept at site on the basis of randomly assessment made.	Boxes placed for for internal grievance redress mechanism at several places within the site area. Notices and forms are in several languages. Effort to place a box at the ferry terminal is ongoing.	-

<sup>2</sup>e.g assessment of activity wise associated hazards, work permit, PPEs, first aid, toolbox talk, barricading, COVID-19, electrical safety etc.



8	Status of adequacy of record keeping including data reported in monthly HSE report on the basis of randomly assessment made.	Site activities are captured on the Daily Progress Reports prepared by the EPC and digital copies of the report are kept and digital record is shared with all parties.	-
<b>Community- health, safety and welfare</b>			
9	Status of adequacy of Community Health and Safety plan and ESMS including SOPS on the basis of randomly assessment made (mainly during transportation of men, materials and machinery, influx of workers from other places, contamination of air, land and marine water and ecology, if any etc.)	Pre-construction environment baseline monitoring is being carried out as per CEMP on regular basis. However, for construction phase, various plans and SOPs as part of ESMS mentioned in CEMP and H&S plan are yet to be finalized for approval from ER/PMU, several rounds of review and comments have been shared by the ER with the DBO contractor on the documents that are being prepared. Even though the process of developing the documents, measures are taken to implement these as an ongoing process.	-
10	Status of adequacy of off-site Emergency Preparedness and Response on the basis of randomly assessment made (e.g. response team, mock drills, mutual aids, evacuation plan, accident/incident reporting etc.)	Plans and SOPs on subject are under process of finalization for getting approval of ER/PMU for construction phase. Regular training and drills are being conducted on site and records are kept.	-
12	Status of adequacy of handling of community complaint(s) received on Environment, HSE and welfare aspects on the basis of randomly assessment made.	To comply with contract's obligations, community engagement plan is yet to be submitted for getting approval of ER/PMU. The site being in the industrial area no complaints were received this month.	-

Main Process Building & Bunker work area designations



Site Photos / Observations



**Photo 01** 25/07/24– Construction work on the bunker walls continue and additional work as been started adjacent to the bunker area.



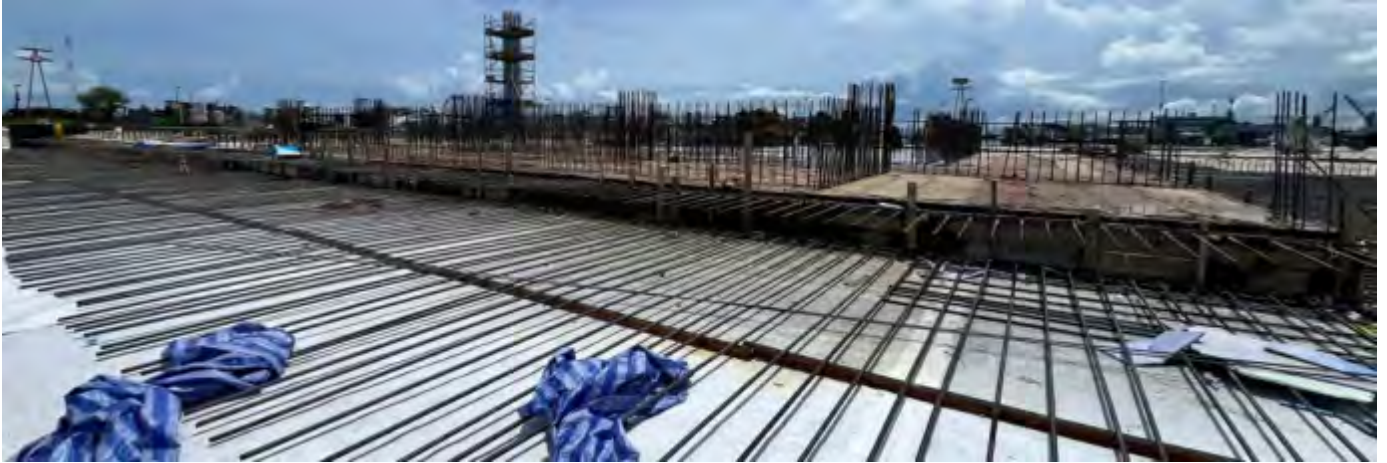
**Photo 02** 25/07/24 – Pile cap concrete work in progress for the remaining piles caps, after the sheet piles in this area had been removed. (Area 11 & 12)



**Photo 03** 25/07/24 – Sheet piling work for the turbine foundation area is ongoing.



**Photo 04** 25/07/24 – Backfilling work and lean foundation work is ongoing on part of the main process building area. (Area 8)



**Photo 05** 25/07/24 – Foundation slab in the main process building area 1 & 3 has been completed, Area 2 is being made ready for concreting.



**Photo 06** 25/07/24 – First column in the main process building area 1 is being made ready for concreting.



**Photo 07** 25/07/24 – Desalination plant building in the batching plant area is under construction.



**Photo 08** 25/07/24 – Chemical storage area in the batching plant area requires proper bund wall for retention in case of accidental spillage.



**Photo 09** 25/07/24– Safety signage placed at the main entrance to the site.



**Photo 10** 25/07/24– Main project information display board needs to be updated and replaced as soon as possible.



**Photo 11** 25/07/24 – C&D waste placed by WAMCO in the landfill area next to the site boundary fence.



**Photo 12** 25/07/24– The water sampling well GW6 near the landfill has been damaged and needs to be repaired as soon as possible.



## Greater Male' Waste-to-Energy Project

### Greater Male Waste to Energy Project

#### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
30.6.2024	6.7.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been completed 100%.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer at 55% completion.
- Main Process Area - Lean concrete 100%.
- Boiler Area - Backfilling 100%, Lean concrete 100%..
- Incinerator Area - No activity.
- Turbine Area - No activity.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO





OVERALL - POINT THREE



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 4<sup>th</sup> LAYER COMPLETED 55%

7



BOILER AREA - BACKFILLING 100% COMPLETED, LEAN CONCRETE 100%.

8



APC AREA - LEAN CONCRETE 100% COMPLETED.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER - VIEW FROM INSIDE (EAST)

11



BUNKER WEST SIDE

12



INCINERATOR -REMOVAL OF SHEETPILE ANCHORE WAS SUCCESS.

13



BACKFILLING ON GOING BEHIND BUNKER WALL

Site Log



Date: 30/06/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Sunday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy.

	Total	Civil	Process
Workers on Site	93	93	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Concreting work for Bunker Wall J (4th layer) (BW24 & BW25) completed.
- 3) Bunker - Structural backfilling for external bunker wall at Bunker Wall A, H, B & C in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW20) in progress.
- 5) Boiler Area - Lean concreting work at Area 4 completed.
- 6) Boiler Area - Formwork and PE sheet installation prior to lean concrete at Area 5 & 7 in progress.

Safety Audits/Safety Walkarounds

Inform DBO that this week focus area of improvement to be working platform. Daily audit and inspection to be conducted until significant improvement are in place. Among the key improvement required:

- 1) Guardrail/handrail.
- 2) Toe board.
- 3) Tie point for body harness.

Safety and Environmental Incidences

N/A

Compliance to Design and construction methods, approved materials

N/A

Major Quality Issues

N/A

Site Instructions Issued

N/A

Verbal communication

Received sheet pile monitoring data, maximum deflection data (59mm - Leachate area) beyond design tolerance (33mm). No further movement on Leachate Area upon reinstallation of anchor block.

When	Who	What
10:00am	FIT, URB, AAJV	Weekly Briefing
		1) Brief planned work for this week, plan to continue up to 4th layer bunker wall.
		2) Brief status of crack remedial work. 7 days result was OK. EPC to compile and submit.
		3) Brief planned work for APC, Boiler, Incinerator and Turbine area.
		4) Material requirement available until September 2024.

Comments

N/A

Site Log



Date 01/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	93	93	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall A, H, B & C in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall G (4th layer) (BW27) in progress.  
 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW20) in progress.  
 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.  
 6) Boiler Area - Lean concreting work at Area 7 completed.  
 7) Boiler Area - Formwork and PE sheet installation prior to lean concrete at Area 5 in progress.  
 8) Material Delivery - Cement 15.000 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

Received sheet pile monitoring data, maximum deflection data (59mm - Leachate area) beyond design tolerance (33mm). No further movement on Leachate Area upon reinstallation of anchor block.  
 Remind EPC to conduct survey verification upon removal of any sheetpile anchor. Backfilling have been done up to -1.2m which allow for the safe anchor removal.

**Meetings**

When	Who	What
N/A		

**Comments**



# FICHTNER

Site Log

Date      02/07/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Tuesday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall north and east side in progress.  
 3) Bunker - Concreting work for Bunker Wall G (4th layer) (BW27) completed.  
 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW18, BW19 & BW20) in progress.  
 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.  
 6) Boiler Area - Lean concreting work at Area 5 completed.  
 7) Material Delivery - Cement 8.255 + 8.195 + 7.974 tonne.

**Safety Audits/Safety Walkarounds**     

**Safety and Environmental Incidences**     

**Compliance to Design and construction methods, approved materials**     

**Major Quality Issues**     

**Site Instructions Issued**     

**Verbal communication**      Received sheet pile monitoring data, maximum deflection data (59mm - Leachate area) beyond design tolerance (33mm). No further movement on Leachate Area upon reinstallation of anchor block.

**Meetings**

When	Who	What
<input type="text" value="N/A"/>		

**Comments**      Site visit to WAMCO landfill with WAMCO operation team (Mr. Imma) to have a look at their arrangement for construction waste storage arrangement in relation to site boundary. They plan to use the ground area (road) as new laydown for construction waste. This to avoid waste falling from top as previously occurred.

Site Log



**Date** 03/07/2024 **Site:** Greater Male WTE **Site Representative:** Sofi bin Ismail  
 Wednesday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	0	0	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall north and east side in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW18, BW19 & BW20) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.
- 6) Bunker - Removal of anchor for sheetpile in north side wall.
- 7) Boiler Area - Lean concreting work at Area 5 completed.
- 8) Material Delivery - Aggregate 23.506 tonne.
- 9) Material Delivery - Sand 24.330 + 24.570 + 25.468 + 24.640 + 24.972 + 25.620 + 24.894 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

**Comments**

Site Log



Date: 04/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Thursday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy. Light rain from 13:00 to 15:00.

	Total	Civil	Process
Workers on Site	0	0	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall north and east side in progress.
- 3) Bunker - Concreting work at Bunker Wall I (4th layer) (BW20) completed.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17 & BW18) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.
- 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.
- 7) Bunker - Removal of anchor for sheetpile in north side wall.
- 8) Material Delivery - Aggregate 26.934 + 22.207 tonne.
- 9) Material Delivery - Sand 24.868 + 24.189 + 24.863 tonne.

Safety Audits/Safety Walkarounds: N/A

Safety and Environmental Incidences: N/A

Compliance to Design and construction methods, approved materials: N/A

Major Quality Issues: N/A

Site Instructions Issued: N/A

Verbal communication: Received sheet pile monitoring data, maximum deflection data (60mm - Leachate area) beyond design tolerance (33mm). No further movement on Leachate Area upon reinstallation of anchor block.

Meetings	When	Who	What
	N/A		

Comments: N/A

Site Log



Date 05/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Friday Time on site: [ ] Time off site: [ ] Completed by: Sofi Bin Ismail

Weather: Sunny

Workers on Site table with columns: Total, Civil, Process. Note: Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections OFF-DAY FRIDAY

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials N/A

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication N/A

Meetings table with columns: When, Who, What

Comments N/A

Site Log



Date: 06/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Saturday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy.

Total	Civil	Process
0	0	0

Workers on Site *Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall north and east side in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17 & BW18) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.
- 6) Bunker - Removal of anchor for sheetpile in north side wall.

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials N/A

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication Received sheet pile monitoring data, maximum deflection data (60mm - Leachate area) beyond design tolerance (33mm). No further movement on Leachate Area upon reinstallation of anchor block.

When	Who	What
N/A		

Comments N/A



Greater Male'  
Waste-to-Energy Project

## Greater Male Waste to Energy Project

### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
7.7.2024	13.7.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been completed 100%.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer at 65% completion.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer at 5% completion.
- Main Process Area - Lean concrete 100%. Waterproofing Area 1 (100%) & Area 3 (60%).
- Main Process Area - Formwork and reinforcement bar for foundation at Area 1 in progress.
- Boiler Area - Backfilling 100%, Lean concrete 100%.
- Incinerator Area - Spun pile cutting in progress.
- Turbine Area - No activity.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO





5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 4<sup>th</sup> LAYER COMPLETED 65%

7



BOILER AREA - BACKFILLING 100% COMPLETED, LEAN CONCRETE 100%.

8



APC AREA - WATERPROOFING WORK 100% COMPLETED AT AREA 1.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER - VIEW FROM INSIDE (EAST)

11



INCINERATOR AREA - EXCAVATION & SPUN PILE CUTTING IN PROGRESS.

12



BUNKER EAST SIDE - EXCAVATION AND PILECAP IN PROGRESS.

13



MOCK-UP WORKING PLATFORM INSTALLED AS REFERENCE AND FREQUENT TRAINING DURING TOOLBOX MEETING

Site Log



Date: 07/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Sunday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny.

	Total	Civil	Process
Workers on Site	93	93	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17 & BW18) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.
- 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.
- 7) Bunker - Removal of anchor for sheetpile in north side wall.
- 8) Incinerator Area - Spun pile cutting at Area 11 & Area 12.
- 9) Material Delivery - Fly ash 22.400 tonne.
- 10) Material Delivery - Sand 24.220 + 24.943 + 24.301 + 24.789 tonne.

Safety Audits/Safety Walkarounds  
 Site walk to verify improvement on working platform. Still require improvement on toe-board and platform gap. Daily site walk to be conducted until working platform are on satisfactory level in accordance to project requirement.

Safety and Environmental Incidences  
 N/A

Compliance to Design and construction methods, approved materials  
 N/A

Major Quality Issues  
 N/A

Site Instructions Issued  
 N/A

Verbal communication  
 N/A

When	Who	What
10:00am	FIT, URB, AAJV	Weekly Briefing
		1) Brief planned work for this week, plan to continue up to 5th layer bunker wall.
		2) Brief status of crack remedial work. Pending material for complete crack remedial.
		3) Brief planned work for APC, Boiler, Incinerator and Turbine area.
		4) Material requirement available until September 2024.

Comments  
 N/A

# FICHTNER

Site Log

Date      08/07/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Monday  
 Time on site:      8:30      Time off site:      18:00      Completed by:      Sofi Bin Ismail

**Weather:**      Sunny

	Total	Civil	Process	
Workers on Site	89	89	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17 & BW18) in progress.  
 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.  
 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.  
 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.  
 7) Bunker - Removal of sheetpile has started. Remind EPC to call for inspection to verify sheetpile fitness.  
 8) APC Area - Application of waterproofing membrane primer has completed at Area 1.  
 9) Material Delivery - Aggregate 23.236 + 23.477 + 23.412 tonne.

**Safety Audits/Safety Walkarounds**      Site walk to verify improvement on working platform. Still require improvement on toe-board and platform gap. Daily site walk to be conducted until working platform are on satisfactory level in accordance to project requirement.

**Safety and Environmental Incidences**      N/A

**Compliance to Design and construction methods, approved materials**      N/A

**Major Quality Issues**      N/A

**Site Instructions Issued**      N/A

**Verbal communication**      Recommend EPC to conduct further training and discussion session with scaffolder to increase work requirement awareness.

	When	Who	What
Meetings	N/A		

**Comments**      N/A



# FICHTNER

Site Log

Date      09/07/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Tuesday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17) in progress.  
 4) Bunker - Concreting work for Bunker Wall I (4th layer) (BW18) has been completed.  
 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.  
 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.  
 7) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.  
 8) Bunker - Removal of sheetpile has started. Remind EPC to call for inspection to verify sheetpile fitness.  
 9) APC Area - Application of waterproofing membrane in progress.

**Safety Audits/Safety Walkarounds**

Site walk to verify improvement on working platform. Working platform are in compliance to project requirement. Photo evidence as reference for future inspection.  
 Reminded EPC next point of action shall be related to chemical storage/hazardous storage arrangement.

**Safety and Environmental Incidences**

N/A

**Compliance to Design and construction methods, approved materials**

N/A

**Major Quality Issues**

N/A

**Site Instructions Issued**

N/A

**Verbal communication**

N/A

**Meetings**

When	Who	What
N/A		

**Comments**

N/A

# FICHTNER

Site Log

Date      10/07/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Wednesday  
 Time on site:      8:30      Time off site:      18:00      Completed by:      Sofi Bin Ismail

**Weather:**      Sunny

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17) in progress.  
 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.  
 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.  
 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.  
 7) Bunker - Removal of sheetpile has started. Remind EPC to call for inspection to verify sheetpile fitness.  
 8) APC Area - Application of waterproofing membrane in progress at Area 1 & Area 3.  
 9) Boiler Area - Structural backfilling work for pilecaps in progress.

**Safety Audits/Safety Walkarounds**      N/A

**Safety and Environmental Incidences**      N/A

**Compliance to Design and construction methods, approved materials**      N/A

**Major Quality Issues**      N/A

**Site Instructions Issued**      N/A

**Verbal communication**      N/A

	When	Who	What
Meetings	N/A		

**Comments**      N/A

Site Log



Date: 11/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Thursday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny

Total	Civil	Process
0	0	0

Workers on Site

Note : Enter this information when it is available, at least once per week as a minimum

Site Activities,  
Contractors  
Involved, Major  
Deliveries,  
Testing,  
Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.
- 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.
- 7) Bunker - Removal of sheetpile has started. Remind EPC to call for inspection to verify sheetpile fitness.
- 8) APC Area - Application of waterproofing membrane and protective geotextile layer in progress at Area 1 & Area 3.
- 9) Boiler Area - Structural backfilling work for pilecaps in progress.
- 10) Material Delivery - Sand 23.168 tonne.
- 11) Material Delivery - Cement 15.594 + 15.639 + 22.917 + 23.801 tonne.
- 12) Material Delivery - Aggregate 22.677 + 22.873 tonne.

Safety  
Audits/Safety  
Walkarounds

N/A

Safety and  
Environmental  
Incidences

N/A

Compliance to  
Design and  
construction  
methods,  
approved  
materials

N/A

Major Quality  
Issues

N/A

Site Instructions  
Issued

N/A

Verbal  
communication

N/A

Meetings

When	Who	What
2:00pm	ER, URB & AAJV	Discussion on chemical storage requirement:
		1) EPC to brief their plan by 16/7/2024.
		2) Audit for improvement scheduled on 19/7/2024.

Comments

N/A

Site Log



Date 12/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Friday

Time on site:  Time off site:  Completed by:

Weather:

Total Civil Process

Workers on Site 

<input type="text"/>	<input type="text"/>	<input type="text"/>
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*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

	When	Who	What
Meetings	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

Comments

Site Log



Date: 13/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Saturday

Time on site:  Time off site:  Completed by:

Weather:

Total	Civil	Process
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0	0	0
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Note : Enter this information when it is available, at least once per week as a minimum

Workers on Site

Site Activities,  
Contractors  
Involved, Major  
Deliveries,  
Testing,  
Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (4th layer) (BW17) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (4th layer) (BW29) in progress.
- 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.
- 7) Bunker - Removal of sheetpile has started. Remind EPC to call for inspection to verify sheetpile fitness.
- 8) APC Area - Application of waterproofing membrane and protective geotextile layer in progress at Area 3.
- 9) APC Area - Reinforcement bar and formwork installation at Area 1 in progress.
- 10) Material Delivery - Cement 15.732 + 24.042 + 7.879 + 8.056 + 15.209 + 7.858 + 7.996 + 10.765 tonne.
- 11) Material Delivery - Sand 25.344 tonne.
- 12) Material Delivery - Aggregate 22.825 + 23.393 + 21.093 + 23.020 tonne.

Safety  
Audits/Safety  
Walkarounds

N/A

Safety and  
Environmental  
Incidences

N/A

Compliance to  
Design and  
construction  
methods,  
approved  
materials

N/A

Major Quality  
Issues

N/A

Site Instructions  
Issued

N/A

Verbal  
communication

N/A

Meetings

When	Who	What
N/A		

Comments

N/A



## Greater Male' Waste-to-Energy Project

### Greater Male Waste to Energy Project

#### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
14.7.2024	20.7.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been completed 100%.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer at 75% completion.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer at 15% completion.
- Main Process Area - Concrete casting for foundation slab at Area 1 (100%) completed.
- Main Process Area - Formwork and reinforcement bar for foundation at Area 3 in progress.
- Boiler Area - No activity.
- Incinerator Area - backfilling and pilecaps completed.
- Turbine Area - Installation of temporary sheetpile in progress.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO





OVERALL - POINT THREE



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 4<sup>th</sup> LAYER COMPLETED 75%

7



BOILER AREA - LEAN CONCRETE 100%, NO FURTHER ACTIVITIES.

8



APC AREA - AREA 1 CONCRETE CASTING FOR FOUNDATION COMPLETED. AREA 3 REINFORCEMENT BAR AND FORMWORK IN PROGRESS.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER - VIEW FROM INSIDE (EAST)

11



INCINERATOR AREA - PILECAPS IN PROGRESS.

12



CONSTRUCTION OF DEDICATED HAZARDOUS STORAGE AREA.

13



CRACK REMEDIAL WORK FOR EXTERNAL BUNKER WALL.

Site Log



Date: 14/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Sunday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny.

	Total	Civil	Process
Workers on Site	90	90	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Concrete casting for Bunker Wall I (4th layer) (BW17) completed.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW13 & BW14) in progress.
- 5) Bunker - Concrete casting for Bunker Wall F (4th layer) (BW29) completed.
- 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.
- 7) Bunker - Removal of sheetpile in progress.
- 8) APC Area - Application of waterproofing membrane and protective geotextile layer in progress at Area 3.
- 9) APC Area - Reinforcement bar and formwork installation at Area 1 in progress.
- 10) Material Delivery - Sand 7.377 tonne.
- 11) Material Delivery - Aggregate 23.353 tonne.

Safety Audits/Safety Walkarounds: N/A

Safety and Environmental Incidences: N/A

Compliance to Design and construction methods, approved materials: N/A

Major Quality Issues: N/A

Site Instructions Issued: N/A

Verbal communication: N/A

When	Who	What
10:00am	FIT, URB, AAJV	Weekly Briefing
		1) Brief planned work for this week, plan to continue up to 5th layer bunker wall.
		2) Brief status of crack remedial work. Pending material for complete crack remedial.
		3) Brief planned work for APC, Boiler, Incinerator and Turbine area.
		4) Material requirement available until September 2024.

Comments: N/A

Site Log



Date: 15/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

Weather:

	Total	Civil	Process
Workers on Site	89	89	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Concrete casting for Bunker Wall D (4th layer) (BW13 & BW14) completed.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.
- 5) Bunker - Removal of sheetpile in progress.
- 6) Bunker - Spun pile cutting work at Eastern side bunker.
- 7) APC Area - Application of waterproofing membrane and protective geotextile layer in progress at Area 3.
- 8) APC Area - Reinforcement bar and formwork installation at Area 1 in progress.

Safety Audits/Safety Walkarounds:

Safety and Environmental Incidences:

Compliance to Design and construction methods, approved materials:

Major Quality Issues:

Site Instructions Issued:

Verbal communication:

Meetings	When	Who	What
	N/A		

Comments:



# FICHTNER

Site Log

Date      16/07/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Tuesday  
 Time on site:      8:30      Time off site:      18:00      Completed by:      Sofi Bin Ismail

**Weather:**      Sunny

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW21) in progress.  
 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW24 & BW25) in progress.  
 5) Bunker - Removal of sheetpile in progress.  
 6) Bunker - Lean concrete for pilecaps at Eastern side bunker.  
 7) Bunker - Lean concrete for pilecaps at Northern side of bunker.  
 8) APC Area - Application of waterproofing membrane and protective geotextile layer in progress at Area 3.  
 9) APC Area - Reinforcement bar and formwork installation at Area 1 in progress.  
 10) Material Delivery - Sand 18.840 + 17.460 + 18.200 + 17.250 + 17.570 + 19.240 tonne.  
 11) Material Delivery - Aggregate 25.088 tonne.

**Safety Audits/Safety Walkarounds**      N/A

**Safety and Environmental Incidences**      N/A

**Compliance to Design and construction methods, approved materials**      N/A

**Major Quality Issues**      N/A

**Site Instructions Issued**      N/A

**Verbal communication**      N/A

	When	Who	What
Meetings	10:00am	FIT, URB, AAJV	Briefing planned work for Turbine Area.
			1) Requirement for sheetpile.
			2) Excavation work.

**Comments**      N/A

# FICHTNER

Site Log

Date      17/07/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Wednesday  
 Time on site:      8:30      Time off site:      18:00      Completed by:      Sofi Bin Ismail

**Weather:**      Sunny

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW21) in progress.  
 4) Bunker - Concrete casting for Bunker Wall J (5th layer) (BW24 & BW25) in progress.  
 5) Bunker - Removal of sheetpile in progress.  
 6) Bunker - Lean concrete for pilecaps at Eastern side bunker.  
 7) Bunker - Lean concrete for pilecaps at Northern side of bunker.  
  
 8) APC Area - Application of waterproofing membrane and protective geotextile layer in progress at Area 3.  
 9) APC Area - Reinforcement bar and formwork installation at Area 1 in progress.  
  
 10) Material Delivery - Cement 16.015 + 15.505 + 15.845 + 15.880 + 7.940 + 7.605 + 16.390 + 8.060 + 7.800 + 15.415 + 8.005 + 18.140 + 8.045 + 8.045 + 15.840 tonne.  
 11) Material Delivery - Sand 17.940 + 17.270 + 19.780 + 17.380 + 15.080 + 16.710 + 16.240 + 18.290 + 18.220 tonne.

**Safety Audits/Safety Walkarounds**      N/A

**Safety and Environmental Incidences**      N/A

**Compliance to Design and construction methods, approved materials**      N/A

**Major Quality Issues**      N/A

**Site Instructions Issued**      N/A

**Verbal communication**      N/A

	When	Who	What
Meetings	N/A		

**Comments**      N/A

Site Log



Date: 18/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Thursday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny

Total	Civil	Process
0	0	0

Workers on Site *Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW21) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW11) in progress.
- 5) Bunker - Removal of sheetpile in progress.
- 6) Bunker - Formwork and reinforcement bar installation for pilecaps at Eastern side bunker.
- 7) Bunker - Formwork and reinforcement bar installation for pilecaps at Western side bunker.
- 8) APC Area - Application of waterproofing membrane and protective geotextile layer in progress at Area 3.
- 9) APC Area - Reinforcement bar and formwork installation at Area 1 in progress.
- 10) Material Delivery - Cement 19.600 + 19.600 tonne.

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials N/A

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication N/A

Meetings	When	Who	What
	N/A		

Comments N/A

Site Log



Date 19/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Friday

Time on site:  Time off site:  Completed by:

Weather:

Total Civil Process

Workers on Site 

<input type="text"/>	<input type="text"/>	<input type="text"/>
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*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections  
**OFF-DAY FRIDAY**  
1) APC Area - APC Area 1 concrete casting for foundation has been completed.

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

Meetings

When	Who	What
<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>

Comments

Site Log



Date: 20/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Saturday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny

Total	Civil	Process
0	0	0

Workers on Site *Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Concrete casting for Bunker Wall J (5th layer) (BW21) completed.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall D (4th layer) (BW11) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (5th layer) (BW19) in progress.
- 6) Bunker - Concrete casting for pilecaps at Eastern side bunker.
- 7) Bunker - Crack remedial work for external bunker wall in progress.
- 8) APC Area - Reinforcement bar and formwork installations at Area 3 in progress.
- 9) Turbine Area - Sheetpile installation in progress.
- 10) Material Delivery - Aggregate 23.312 + 22.706 + 22.246 + 23.010 tonne.

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials N/A

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication N/A

Meetings	When	Who	What
	<u>N/A</u>		

Comments N/A



## Greater Male' Waste-to-Energy Project

### Greater Male Waste to Energy Project

#### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
21.7.2024	27.7.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been completed 100%.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer at 30% completion.
- APC Area - Concrete casting for foundation slab at Area 1 & 3 (100%) completed.
- APC Area - Formwork and reinforcement bar for foundation at Area 2 in progress.
- Boiler Area - Lean concrete for Area 5 completed.
- Incinerator Area - backfilling and 12 pilecaps completed.
- Turbine Area - Installation of temporary sheetpile in progress.

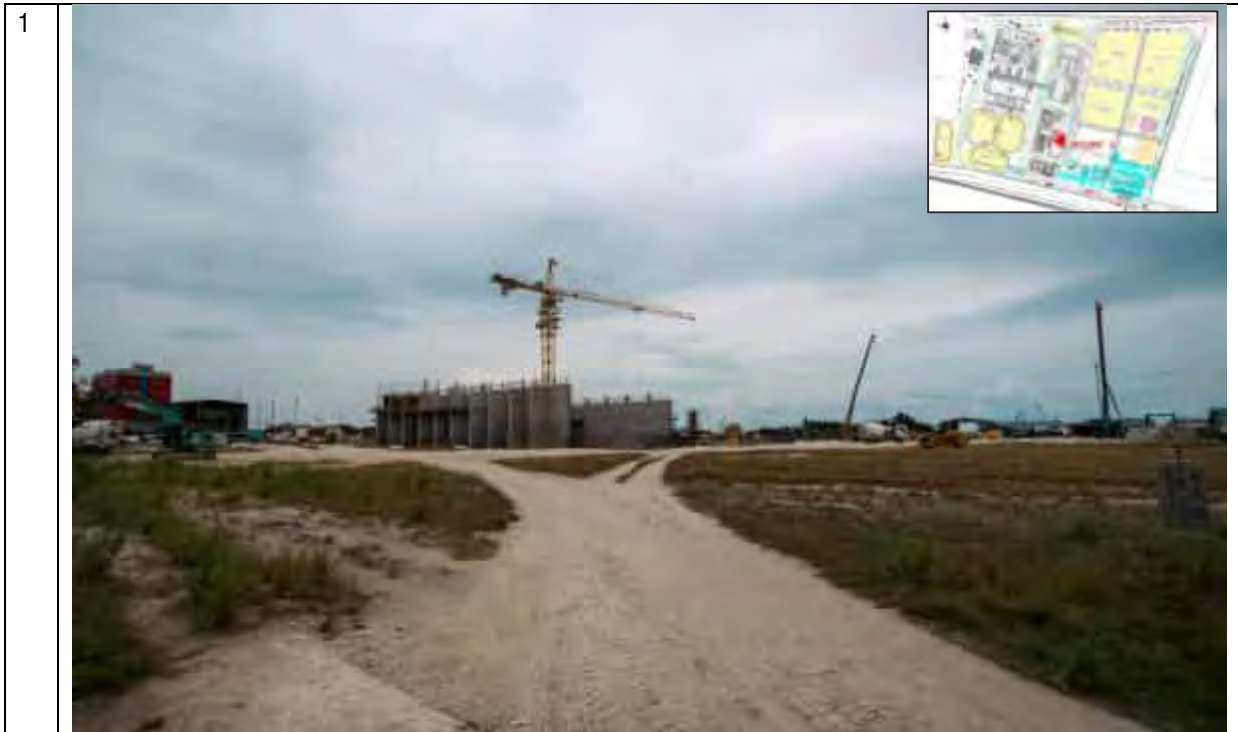
Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.



OVERALL - POINT ONE



OVERALL - POINT TWO





OVERALL - POINT THREE



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 4<sup>th</sup> LAYER COMPLETED 85%

7



BUNKER (INSIDE) VIEW.

8



APC AREA - AREA 1 & 3 CONCRETE CASTING FOR FOUNDATION COMPLETED.  
AREA 2 REINFORCEMENT BAR AND FORMWORK IN PROGRESS.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - WATERPROOFING IN PROGRESS.

11



APC AREA - REINFORCEMENT BAR AND FORMWORK AREA 2 IN PROGRESS.

12



CONSTRUCTION OF DEDICATED HAZARDOUS STORAGE AREA.

13



INCINERATOR AREA - 12 PILECAPS CONCRETED.

14



EVACUATION DRILL BY EPC.

15



MOCKUP FOR COLUMN SUPPORT AND FORMWORK AT APC AREA.

# FICHTNER

Site Log

**Date** 21/07/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Sunday**  
**Time on site:**  **Time off site:**       **Completed by:**

**Weather:**

	Total	Civil	Process	
Workers on Site	105	105	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Concrete casting for Bunker Wall D (4th layer) (BW11) completed.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (5th layer) (BW19) in progress.
- 5) Bunker - Crack remedial work for external bunker wall in progress.
- 6) Boiler Area - Lean concrete for foundation slab at Area 5 completed.
- 7) APC Area - Reinforcement bar and formwork installations at Area 3 in progress.
- 8) Turbine Area - Sheetpile installation in progress.

**Safety Audits/Safety Walkarounds**

EPC conduct an Evacuation Drill at 11:30am. Measuring the effectiveness of headcount and respond time. Things to improve:

- a) Headcount should be done by permit holder for each team and reported to HS team and to cross check with attendance list.
- b) As evacuation area are specified based on type of incident, the EPC to brief the workers and HS manager to decide which evacuation area are to be use. To use portable siren for better respond.

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	10:00am	FIT, URB, AAJV	Weekly Briefing
			1) Brief planned work for this week, plan to continue up to 5th layer bunker wall.
			2) Brief status of crack remedial work. Remind EPC to complete the crack mapping up to layer 5.
			3) Brief planned work for APC, Boiler, Incinerator and Turbine area.
			4) Material requirement available until mid September 2024.

**Comments**



Site Log



**Date** 22/07/2024 **Site:** Greater Male WTE **Site Representative:** Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	105	105	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW8 & BW9) in progress
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (5th layer) (BW19 & BW17) in progress.
- 5) Bunker - Crack remedial work for external bunker wall in progress.
- 6) Boiler Area - Lean concrete for foundation slab at Area 5 completed.
- 7) APC Area - Reinforcement bar and formwork installations at Area 3 in progress.
- 8) APC Area - Waterproofing membrane installation at Area 2 in progress.
- 9) Incinerator Area - Excavation work for foundation and pilecaps completed.
- 10) Turbine Area - Sheetpile installation in progress.
- 11) Material Delivery - Aggregate 289.59 tonne & Fly Ash 16.80 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

Date 23/07/2024      Site: Greater Male WTE      Site Representative: Sofi bin Ismail  
 Tuesday  
 Time on site:  Time off site:       Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5, BW6, BW8 & BW9) in progress.  
 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (5th layer) (BW17) in progress.  
 5) Bunker - Concrete casting for Bunker Wall I (5th layer) (BW19) completed.  
 6) Bunker - Crack remedial work for external bunker wall in progress.  
 7) Bunker East Side - Lean concrete for foundation work completed.  
  
 7) APC Area - Reinforcement bar and formwork installations at Area 3 in progress.  
 8) APC Area - Waterproofing membrane installation at Area 2 in progress.  
  
 9) Incinerator Area - Concrete casting for 6 pilecaps completed.  
  
 10) Turbine Area - Sheetpile installation in progress.  
  
 11) Material Delivery - Aggregate 270.77 tonne, sand 217.93 tonne & cement 150.00 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	2:00pm	FIT, URB & AAJV	Briefing on formwork and support mechanism for APC Area column.
			1) EPC intend to concrete single stage column up to level 10.75m.
			2) FIT highlight on few criteria to comply in order to do single stage casting for column:
			a) To ensure EPC have sufficient length of vibrating machine to reach the bottom during casting. b) To ensure support for formwork is sufficient at bottom part and timing of casting is critical.

**Comments**

Site Log



Date 24/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Wednesday  
 Time on site:  Time off site:  Completed by:

Weather:

	Total	Civil	Process
Workers on Site	0	0	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5, BW6, BW8 & BW9) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (5th layer) (BW17) in progress.
- 6) Bunker - Crack remedial work for external bunker wall in progress.
- 7) Bunker East Side - Waterproofing membrane installation in progress.
- 7) APC Area - Concrete casting for foundation slab at Area 3 completed.
- 8) APC Area - Reinforcement bar and formwork installations at Area 2 in progress.
- 9) APC Area - Formwork and reinforcement bar installation work for Column (+10.75m) at Area 1 in progress.
- 9) Incinerator Area - Formwork and reinforcement bar for 6 pilecaps in progress.
- 10) Turbine Area - Sheetpile installation in progress.
- 11) Material Delivery - Sand 234.87 tonne & fly ash 50.40 tonne.

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

Comments

Site Log



Date: 25/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
Thursday  
Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny

Total Civil Process

0	0	0
---	---	---

Note : Enter this information when it is available, at least once per week as a minimum

Workers on Site

Site Activities,  
Contractors  
Involved, Major  
Deliveries,  
Testing,  
Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5, BW6, BW8 & BW9) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (5th layer) (BW17) in progress.
- 6) Bunker - Crack remedial work for external bunker wall in progress.
- 7) Bunker East Side - Waterproofing membrane installation in progress.
  
- 8) APC Area - Reinforcement bar and formwork installations at Area 2 in progress.
- 9) APC Area - Formwork and reinforcement bar installation work for Column (+10.75m) at Area 1 in progress.
  
- 9) Incinerator Area - Formwork and reinforcement bar for 6 pilecaps in progress.
  
- 10) Turbine Area - Sheetpile installation in progress.

Safety  
Audits/Safety  
Walkarounds

Review the chemical storage progress. Remind the safety team to ensure all the necessary items are in place such as spill kit, signage, MSDS and eye wash kit.

Safety and  
Environmental  
Incidences

N/A

Compliance to  
Design and  
construction  
methods,  
approved  
materials

N/A

Major Quality  
Issues

N/A

Site Instructions  
Issued

N/A

Verbal  
communication

N/A

Meetings

When	Who	What
N/A		

Comments

N/A

# FICHTNER

Site Log

**Date** 26/07/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

OFF-DAY FRIDAY

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Comments**

# FICHTNER

Site Log

**Date** 27/07/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Saturday**  
**Time on site:**       **Time off site:**            **Completed by:**

**Weather:**

	Total	Civil	Process	
<b>Workers on Site</b>	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5, BW6, BW8 & BW9) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall I (5th layer) (BW17) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall G (5th layer) (BW27, BW28 & BW29) in progress.
- 6) Bunker - Crack remedial work for external bunker wall in progress.
- 7) Bunker East Side - Waterproofing membrane installation in progress.
  
- 8) APC Area - Reinforcement bar and formwork installations at Area 2 in progress.
- 9) APC Area - Formwork and reinforcement bar installation work for Column (+10.75m) at Area 1 in progress.
  
- 9) Incinerator Area - Concrete casting for 6 pilecaps completed.
  
- 10) Turbine Area - Sheetpile installation in progress.
  
- 11) Material Delivery - Aggregate 236.23 tonne.

**Safety Audits/Safety Walkarounds**     

**Safety and Environmental Incidences**     

**Compliance to Design and construction methods, approved materials**     

**Major Quality Issues**     

**Site Instructions Issued**     

**Verbal communication**     

	When	Who	What
<b>Meetings</b>	<input type="text" value="N/A"/>		

**Comments**



## Greater Male' Waste-to-Energy Project

### Greater Male Waste to Energy Project

#### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
28.7.2024	3.8.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been completed 100%.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer at 50% completion.
- APC Area - Concrete casting for foundation slab at Area 1, 2 & 3 (100%) completed.
- APC Area - Concrete casting for 3 columns completed.
- Boiler Area - No activity.
- Incinerator Area - No activity.
- Turbine Area - Installation of temporary sheetpile completed. Dewatering pipe installation in progress.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.





OVERALL - POINT ONE



OVERALL - POINT TWO

3



OVERALL - POINT THREE

4



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 4<sup>th</sup> LAYER COMPLETED 85%

7



BUNKER (INSIDE) VIEW.

8



APC AREA - AREA 1, 2 & 3 CONCRETE CASTING FOR FOUNDATION COMPLETED.  
PROGRESSING TO COLUMN.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - CONCRETE CASTING FOR FOUNDATION SLAB COMPLETED.

11



TURBINE AREA - SHEETPILE COMPLETED.

12



CONSTRUCTION OF DEDICATED HAZARDOUS STORAGE AREA.

13



TOWER CRANE INSTALLATION IN PROGRESS AT APC AREA 1.

14



STRUCTURAL BACKFILLING BEHIND BUNKER WALL IN PROGRESS.

15



BOILER AREA - NO ACTIVIITY.



# FICHTNER

Site Log

**Date** 28/07/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Sunday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy. Light rain from 16:00 to 17:00.

	Total	Civil	Process	
<b>Workers on Site</b>	109	109	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5 & BW6) in progress.
- 4) Bunker - Concreting work for Bunker Wall E (4th layer) (BW8 & BW9) completed.
- 5) Bunker - Concreting work for Bunker Wall I (5th layer) (BW17) completed.
- 6) Bunker - Formwork and reinforcement bar installation at Bunker Wall G (5th layer) (BW27) in progress.
- 7) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (5th layer) (BW28 & BW29) in progress.
- 8) Bunker East Side - Formwork and reinforcement bar installation for raft foundation at East Side.
- 9) APC Area - Reinforcement bar and formwork installations at Area 2 in progress.
- 10) APC Area - Formwork and reinforcement bar installation work for Column (C161) at Area 1 in progress.
- 11) Turbine Area - Sheetpile installation completed. First layer excavation started. Water table at 0.6m and require dewatering.
- 12) Material Delivery - Aggregate 126.51 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
<b>Meetings</b>	10:00am	FIT, URB, AAJV	Weekly Briefing
			1) Brief planned work for this week, plan to continue up to 5th layer bunker wall.
			2) Brief requirement for column casting and its working platform.
			3) Brief planned work for APC, Boiler, Incinerator and Turbine area.
			4) Material requirement available until mid September 2024.

**Comments** N/A

Site Log



Date: 29/07/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

Weather:

	Total	Civil	Process
Workers on Site	109	109	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5 & BW6) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall G (5th layer) (BW27) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (5th layer) (BW28 & BW29) in progress.
- 6) Bunker East Side - Formwork and reinforcement bar installation for raft foundation at East Side.
- 7) APC Area - Reinforcement bar and formwork installations at Area 2 in progress.
- 8) APC Area - Concrete casting for Column (C161) at Area 1 completed.
- 9) Turbine Area - First layer excavation continue. Water table at 0.6m and require dewatering.
- 10) Material Delivery - Sand 94.27 tonne.
- 11) Material Delivery - Cement 150.00 tonne.

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

Comments

Site Log



Date: 30/07/2024

Site: Greater Male WTE

Site Representative: Sofi bin Ismail

Tuesday

Time on site:

8:30

Time off site:

18:00

Completed by:

Sofi Bin Ismail

Weather:

Sunny

Workers on Site

Total	Civil	Process
0	0	0

Note : Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5 & BW6) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall G (5th layer) (BW27) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (5th layer) (BW28 & BW29) in progress.
- 6) Bunker East Side - Formwork and reinforcement bar installation for raft foundation at East Side.
- 7) APC Area - Concrete casting at Area 2 for foundation slab completed.
- 8) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149 & C155) in progress.
- 9) Turbine Area - First layer excavation continue. Water table at 0.6m and require dewatering.
- 10) Material Delivery - Aggregate 45.36 tonne.
- 11) Material Delivery - Sand 449.64 tonne.
- 12) Material Delivery - Cement 100.00 tonne.
- 13) Material Delivery - Fly Ash 52.60 tonne.

Safety Audits/Safety Walkarounds

N/A

Safety and Environmental Incidences

N/A

Compliance to Design and construction methods, approved materials

N/A

Major Quality Issues

N/A

Site Instructions Issued

N/A

Verbal communication

N/A

Meetings

When	Who	What
N/A		

Comments

N/A

# FICHTNER

Site Log

**Date** 31/07/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Wednesday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process	
Workers on Site	0	0	0	Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall E (4th layer) (BW5 & BW6) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall G (5th layer) (BW27) in progress.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (5th layer) (BW28 & BW29) in progress.
- 6) Bunker East Side - Formwork and reinforcement bar installation for raft foundation at East Side.
- 7) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149 & C155) in progress.
- 8) Turbine Area - First layer excavation continue. Water table at 0.6m and require dewatering.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** Request EPC to rectify bottom reinforcement bar at Bunker east side foundation slab as to avoid present of mass concrete which might lead to structural crack. Bottom concrete cover shall be as specified in the drawing.

	When	Who	What
Meetings	N/A		

**Comments** N/A

Site Log



Date 01/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Thursday  
 Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process
Workers on Site	0	0	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall E (4th layer) (BW5 & BW6) completed.
- 4) Bunker - Concrete casting at Bunker Wall G (5th layer) (BW27) completed.
- 5) Bunker - Formwork and reinforcement bar installation at Bunker Wall F (5th layer) (BW28 & BW29) in progress.
- 6) Bunker East Side - Concrete casting for raft foundation at East Side completed.
- 7) APC Area - Tower crane installation started at Area 1.
- 8) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C131, 149, C155, C157 & C162) in progress.
- 9) Material Delivery - Aggregate 271.33 tonne.
- 10) Material Delivery - Sand 263.47 tonne.
- 11) Material Delivery - Fly Ash 50.40 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

Meetings	When	Who	What
	10:00am	FIT, URB & AAJV	Review monthly report from QAQC dept, HSE dept and Planning Dept.
			a) Remind QAQC Dept. to regularly upload the closed NOI to aconex. Request crack mapping plan for the remaining bunker wall.
			b) Remind HSE Dept. to ensure all the requirement for chemical storage area is complied.
			c) Delay days should be based on work schedule not based on expected outcome.

**Comments** N/A

# FICHTNER

Site Log

**Date** 02/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

OFF-DAY FRIDAY

**Safety Audits/Safety Walkarounds**

N/A

**Safety and Environmental Incidences**

N/A

**Compliance to Design and construction methods, approved materials**

N/A

**Major Quality Issues**

N/A

**Site Instructions Issued**

N/A

**Verbal communication**

N/A

	When	Who	What
Meetings	N/A		

**Comments**

N/A

Site Log



Date: 03/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Saturday Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny

Total Civil Process

Workers on Site table with 3 columns: Total (0), Civil (0), Process (0). Note: Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections. 1) Dewatering of bunker area continue. 2) Bunker - Structural backfilling for external bunker wall at Bunker Wall in progress. 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall A (2nd layer) (BW31) in progress. 4) Bunker - Concrete casting at Bunker Wall F (5th layer) (BW28 & BW29) completed. 5) Bunker East Side - Concrete casting for raft foundation at East Side completed. 6) APC Area - Tower crane installation at Area 1 in progress. 7) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (149, C151, C155, C164 & C162) in progress. 8) APC Area - Concrete casting at Area 1 for columns (C157 & C131) completed. 9) Turbine Area - Installation of dewatering pipe in progress.

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials N/A

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication N/A

Meetings table with columns: When, Who, What. Row 1: N/A, empty, empty. Rows 2-4: empty.

Comments N/A



## Greater Male Waste to Energy Project

### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
4.8.2024	10.8.2024	Sofi bin Ismail		Naahee Nazim	

### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer have been 100% completion.
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer at 85% completion.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer at 60% completion.
- APC Area - Concrete casting for foundation slab at Area 1, 2 & 3 (100%) completed.
- APC Area - Concrete casting for columns in progress. Completed 8 out of 21.
- Boiler Area - No activity.
- Incinerator Area - No activity.
- Turbine Area - No activity.

Attachment:

Site Daily Logs



## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO

3



OVERALL - POINT THREE

4



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 4<sup>th</sup> LAYER COMPLETED 85%

7



BUNKER WEST SIIDE.

8



APC AREA - AREA 1, 2 & 3 CONCRETE CASTING FOR COLUMNS IN PROGRESS.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - CONCRETE CASTING FOR FOUNDATION SLAB COMPLETED.

11



TOWER CRANE INSTALLATION IN PROGRESS AT APC AREA 1

12



BOILER AREA - NO ACTIVITY

13



STRUCTURAL BACKFILLING WORK BEHIND BUNKER WALL IN PROGRESS

14



LEACHATE AREA



# FICHTNER

Site Log

**Date** 04/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Day** Sunday  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy. Light rain from 15:00 to 17:00.

	Total	Civil	Process	
<b>Workers on Site</b>	117	117	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall A (2nd layer) (BW31) completed.
- 4) APC Area - Tower crane installation at Area 1 in progress.
- 5) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149, C155, C164 & C162) in progress.
- 6) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C166 & C158) in progress.
- 7) APC Area - Concrete casting at Area 1 for columns (C151) completed.
- 8) Material Delivery - Aggregate 98.00 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
<b>Meetings</b>	10:00am	FIT, URB, AAJV	Weekly Briefing
			1) Brief planned work for this week, plan for bunker wall and column at APC area.
			2) Brief discussion on crack remedial work and documentations.
			3) Highlight that FIT will conduct material inspection audit within this week.
			4) Material requirement available until mid September 2024.

**Comments** N/A

# FICHTNER

Site Log

**Date** 05/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Monday  
 Time on site: 8:30 Time off site: 18:00      Completed by: Sofi Bin Ismail

**Weather:** Cloudy. Light rain 8:00 to 11:00. Light rain 15:00 to 16:00.

	Total	Civil	Process	
Workers on Site	117	117	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall A (3rd layer) (BW31) in progress.  
 4) APC Area - Tower crane installation at Area 1 in progress.  
 5) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149, C155 & C162) in progress.  
 6) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C152, C166 & C158) in progress.  
 7) APC Area - Concrete casting at Area 1 for columns (C164) completed.  
 8) Material Delivery - Aggregate 124.74 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials**

Audit on material inspection documents. Few finding require improvement:  
 1) Anchor bolt for the steel structure require an additional document confirming the material used is based on grade 8.8.  
 2) Door frame for bunker hall to be compiled and submitted for inspection.

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
Meetings	2:00pm	FIT, URB & AAJV	Briefing for material inspection document audit.

**Comments** N/A

# FICHTNER

Site Log

**Date** 06/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Tuesday  
**Time on site:**  **Time off site:**       **Completed by:**

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW22, BW23, BW24 & BW25) in progress.  
 4) Bunker - Concrete casting at Bunker Wall A (3rd layer) (BW31) completed.  
 5) APC Area - Tower crane installation at Area 1 in progress.  
 6) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149, C155 & C162) in progress.  
 7) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C152 & C158) in progress.  
 8) APC Area - Concrete casting at Area 3 for columns (C166) completed.  
 9) Material Delivery - Aggregate 51.32 tonne.  
 10) Material Delivery - Sand 79.85 tonne.  
 11) Material Delivery - Cement 176.80 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

**Date** 07/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Wednesday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy. Light rain from 17:00 to 23:00.

	Total	Civil	Process	
<b>Workers on Site</b>	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Formwork and reinforcement bar installation at Bunker Wall J (5th layer) (BW22, BW23, BW24 & BW25) in progress.
- 4) Bunker - Formwork and reinforcement bar installation at Bunker Wall A (4th layer) (BW31) in progress.
- 5) APC Area - Tower crane installation at Area 1 in progress.
- 6) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149, C155 & C162) in progress.
- 7) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C152 & C167) in progress.
- 8) APC Area - Concrete casting at Area 3 for columns (C158) completed.
- 9) Material Delivery - Sand 93.55 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
<b>Meetings</b>	N/A		

**Comments** N/A

Site Log

# FICHTNER

Date: 08/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Thursday  
Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy

Total Civil Process

Workers on Site: 

0	0	0
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 Note : Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall J (5th layer) (BW24 & BW25) completed.
- 4) Bunker - Concrete casting at Bunker Wall A (4th layer) (BW31) completed.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall J (5th layer) (BW21 & BW22) in progress.
- 6) APC Area - Tower crane installation at Area 1 in progress.
- 7) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149, C155 & C162) in progress.
- 8) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C152) in progress.
- 9) APC Area - Reinforcement bar and formwork installations at Area 2 for Columns (C169) in progress.
- 10) APC Area - Concrete casting at Area 3 for columns (C167) completed.
- 11) Material Delivery - Aggregate 21.28 tonne.

Safety Audits/Safety Walkarounds: N/A

Safety and Environmental Incidences: N/A

Compliance to Design and construction methods, approved materials: N/A

Major Quality Issues: N/A

Site Instructions Issued: N/A

Verbal communication: N/A

Meetings	When	Who	What
	N/A		

Comments: N/A

# FICHTNER

Site Log

**Date** 09/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

OFF-DAY FRIDAY

**Safety Audits/Safety Walkarounds**

N/A

**Safety and Environmental Incidences**

N/A

**Compliance to Design and construction methods, approved materials**

N/A

**Major Quality Issues**

N/A

**Site Instructions Issued**

N/A

**Verbal communication**

N/A

	When	Who	What
Meetings	N/A		

**Comments**

N/A

# FICHTNER

Site Log

**Date** 10/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Saturday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy

	Total	Civil	Process	
Workers on Site	0	0	0	Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (B2-B6) in progress.  
 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall J (5th layer) (BW21 & BW22) in progress.  
 5) Bunker - Crack remedial work at bunker wall in progress.  
 6) APC Area - Tower crane installation at Area 1 in progress.  
 7) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149, C155 & C162) in progress.  
 8) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C168) in progress.  
 9) APC Area - Reinforcement bar and formwork installations at Area 2 for Columns (C169) in progress.  
 10) APC Area - Concrete casting at Area 3 for columns (C152) completed.  
 11) Material Delivery - Aggregate 76.30 tonne.  
 12) Material Delivery - Cement 62.40 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
Meetings	N/A		

**Comments** N/A



## Greater Male Waste to Energy Project

### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
11.8.2024	17.8.2024	Sofi bin Ismail		Naahee Nazim	

### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer have been 100% completed
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer at 75% completion.
- APC Area - Tower crane installation completed. 3<sup>rd</sup> party inspection and testing on going.
- APC Area - Concrete casting for columns in progress. Completed 14 out of 21.
- Boiler Area - No activity.
- Incinerator Area - No activity.
- Turbine Area - No activity.

Attachment:

Site Daily Logs



## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO

3



OVERALL - POINT THREE

4



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 4<sup>th</sup> LAYER COMPLETED 100%

7



BUNKER WEST SIDE.

8



APC AREA - AREA 1, 2 & 3 CONCRETE CASTING FOR COLUMNS IN PROGRESS.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - CONCRETE CASTING FOR FOUNDATION SLAB COMPLETED.

11



TOWER CRANE INSTALLATION COMPLETED AT APC AREA 1

12



BOILER AREA - NO ACTIVITY

13



STRUCTURAL BACKFILLING WORK BEHIND BUNKER WALL IN PROGRESS

14



LEACHATE AREA



# FICHTNER

Site Log

Date      11/08/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Sunday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	116	116	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (B2-B6) in progress.
- 4) Bunker - Concrete casting at Bunker Wall J (5th layer) (BW21 & BW22) completed.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall H (4th layer) (BW31) in progress.
- 6) Bunker - Crack remedial work at bunker wall in progress.
- 7) APC Area - Tower crane installation at Area 1 in progress.
- 8) APC Area - Reinforcement bar and formwork installations at Area 1 for Columns (C149, C155 & C162) in progress.
- 9) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C153) in progress.
- 10) APC Area - Concrete casting at Area 3 for columns (C168) completed.
- 11) APC Area - Concrete casting at Area 2 for columns (C169) completed.
- 12) Material Delivery - Aggregate 49.91 tonne.

**Safety Audits/Safety Walkarounds**     

**Safety and Environmental Incidences**     

**Compliance to Design and construction methods, approved materials**     

**Major Quality Issues**     

**Site Instructions Issued**     

**Verbal communication**     

	When	Who	What
Meetings	10:00am	FIT, URB, AAJV	Weekly Briefing
			1) Brief planned work for this week, plan for bunker wall and column at APC area.
			2) Brief discussion on crack remedial work and documentations.
			3) Highlight documentation required prior to IPC for bunker wall +9.00.
			4) Material requirement available until mid September 2024.

**Comments**

Site Log



Date: 12/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	116	116	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (B2-B6) in progress.  
 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (BW31) in progress.  
 5) Bunker - Concrete casting at Bunker Wall H (4th layer) (BW31) completed.  
 6) Bunker - Crack remedial work at bunker wall in progress.  
 7) APC Area - Tower crane installation at Area 1 in progress.  
 8) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C153) in progress.  
 9) Material Delivery - Aggregate 115.49 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

Meetings	When	Who	What
	N/A		

**Comments**

# FICHTNER

Site Log

Date      13/08/2024      Site:    Greater Male WTE      Site Representative:    Sofi bin Ismail  
 Tuesday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (B2-B6) in progress.  
 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (BW31) in progress.  
 5) Bunker - Concrete casting at Bunker Wall H (4th layer) (BW31) completed.  
 6) Bunker - Crack remedial work at bunker wall in progress.  
 7) APC Area - Tower crane installation at Area 1 in progress.  
 8) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C153) in progress.  
 9) Material Delivery - Aggregate 43.52 tonne.  
 10) Material Delivery - Sand 20.60 tonne.  
 11) Material Delivery - Cement 31.70 tonne.

Safety Audits/Safety Walkarounds     

Safety and Environmental Incidences     

Compliance to Design and construction methods, approved materials     

Major Quality Issues     

Site Instructions Issued     

Verbal communication      Site inspection on backfilling work at bunker southern side. Due to heavy rain, the compaction was not succesful. Suggest the EPC to discuss with designer as current backfilling material unable to handle high water table delta.

	When	Who	What
Meetings	<input type="text" value="N/A"/>		

Comments

Site Log



Date 14/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Wednesday  
 Time on site:  Time off site:  Completed by:

Weather:

	Total	Civil	Process
Workers on Site	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (B2-B6) in progress.
- 4) Bunker - Concrete casting at Bunker Wall A (4th layer) (BW31) completed.
- 5) Bunker - Crack remedial work at bunker wall in progress.
- 6) APC Area - Tower crane installation at Area 1 completed. Pending 3rd party inspection and testing.
- 7) APC Area - Reinforcement bar and formwork installations at Area 3 for Columns (C153) in progress.
- 8) Material Delivery - Sand 169.42 tonne.
- 9) Material Delivery - Cement 18.30 tonne.

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

Comments

Site Log



Date: 15/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Thursday Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy. Light rain from 16:00 to 18:00.

Table with columns: Total, Civil, Process. Values: 0, 0, 0. Note: Enter this information when it is available, at least once per week as a minimum

Workers on Site: 0, 0, 0. Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections: 1) Dewatering of bunker area continue. 2) Bunker - Structural backfilling for external bunker wall in progress. 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (B2-B6) in progress. 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (5th layer) (BW31) in progress. 5) Bunker - Crack remedial work at bunker wall in progress. 6) APC Area - Tower crane 3rd party inspection and testing on going. 7) APC Area - Concrete casting at Area 3 for Columns (C153) completed. 8) Material Delivery - Sand 166.77 tonne.

Safety Audits/Safety Walkarounds: N/A

Safety and Environmental Incidences: N/A

Compliance to Design and construction methods, approved materials: N/A

Major Quality Issues: N/A

Site Instructions Issued: N/A

Verbal communication: N/A

Table with columns: When, Who, What. Meetings: N/A

Comments: N/A

# FICHTNER

Site Log

**Date** 16/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

OFF-DAY FRIDAY

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Comments**

Site Log



Date: 17/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy

Total Civil Process

Workers on Site table with 3 columns: Total (0), Civil (0), Process (0). Note: Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections. 1) Dewatering of bunker area continue. 2) Bunker - Structural backfilling for external bunker wall in progress. 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (B2-B6) in progress. 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (5th layer) (BW31) in progress. 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall J (5th layer) (BW21) in progress. 6) Bunker - Crack remedial work at bunker wall in progress. 7) APC Area - Tower crane 3rd party inspection and testing on going. 8) APC Area - Concrete casting at Area 1 for Columns (C165) completed. 9) APC Area - Reinforcement bar and formwork at Area 2 for Column (C172 & C173) in progress.

Safety Audits/Safety Walkarounds: N/A

Safety and Environmental Incidences: N/A

Compliance to Design and construction methods, approved materials: N/A

Major Quality Issues: N/A

Site Instructions Issued: N/A

Verbal communication: N/A

Meetings table with columns: When, Who, What. Row 1: N/A, empty, empty. Rows 2-4: empty.

Comments: N/A



## Greater Male Waste to Energy Project

### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
18.8.2024	23.8.2024	Sofi bin Ismail		Naahee Nazim	

### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer have been 100% completed
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer at 95% completion.
- Bunker - Concrete casting work for Bunker Wall 6<sup>th</sup> layer at 25% completion.
- APC Area - Tower crane installation completed. 3<sup>rd</sup> party inspection completed.
- APC Area - Concrete casting for columns in progress. Completed 20 out of 21.
- Boiler Area - No activity.
- Incinerator Area - Preparation for pilecaps and structural backfilling in progress.
- Turbine Area - No activity.

Attachment:

Site Daily Logs



## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO



OVERALL - POINT THREE



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 5<sup>th</sup> LAYER COMPLETED 95%

7



BUNKER SOUTH SIDE.

8



APC AREA - AREA 1, 2 & 3 CONCRETE CASTING FOR COLUMNS IN PROGRESS.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - CONCRETE CASTING FOR FOUNDATION SLAB COMPLETED.

11



TOWER CRANE INSTALLATION COMPLETED AT APC AREA 1

12



INCINERATOR AREA - STRUCTURAL BACKFILLING IN PROGRESS

13



STRUCTURAL BACKFILLING WORK BEHIND BUNKER WALL TO BE RECTIFIED

14



PEDESTAL PREPARATION AT APC AREA 1



# FICHTNER

Site Log

Date      11/08/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Sunday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	121	121	0

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall D (5th layer) (B2-B6) completed.
- 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (5th layer) (BW31) in progress.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall J (5th layer) (BW21) in progress.
- 6) Bunker - Crack remedial work at bunker wall in progress.
- 7) APC Area - Tower crane 3rd party inspection completed, pending report from 3rd party.
- 8) APC Area - Reinforcement bar and formwork at Area 2 for Column (C172) in progress.
- 9) APC Area - Concrete casting at Area 2 for Column (C173) completed.

**Safety Audits/Safety Walkarounds**     

**Safety and Environmental Incidences**     

**Compliance to Design and construction methods, approved materials**     

**Major Quality Issues**     

**Site Instructions Issued**     

**Verbal communication**      Rejected backfilling work on leachate area. Recommend EPC to redo the backfilling work after complete removal of temporary sheetpile. The accumulated water makes compacted soil not achieving expected compaction rate.

	When	Who	What
Meetings	10:00am	FIT, URB, AAJV	Weekly site meeting
			1) Brief planned work for this week, plan for bunker wall and column at APC area.
			2) Brief discussion on crack remedial work and documentations.
			3) Highlight that the chemical storage still not complete and has been pending for 1 week.
			4) Material requirement available until mid September 2024.

**Comments**

Site Log



**Date** 12/08/2024 **Site:** Greater Male WTE **Site Representative:** Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	121	121	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Concrete casting at Bunker Wall E (5th layer) (BW9) completed.  
 4) Bunker - Concrete casting at Bunker Wall A (5th layer) (BW31) completed.  
 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall H (6th layer) (BW31) in progress.  
 6) Bunker - Crack remedial work at bunker wall in progress.  
 7) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.  
 8) APC Area - Reinforcement bar and formwork at Area 2 for Column (C160) in progress.  
 9) APC Area - Concrete casting at Area 2 for Column (C172) completed.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**  
 The securing method for the anchor bolt is not acceptable. Notify EPC and DBO that the anchor bolt need to be secured on y-axis with two tie point to prevent any movement during concreting. EPC to rectify accordingly.

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

Date      13/08/2024      Site:    Greater Male WTE      Site Representative:    Sofi bin Ismail  
 Tuesday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Waterproofing membrane installation at external Bunker Wall south side in progress.  
 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (5th layer) (BW8, BW9 & BW6) in progress.  
 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall H (6th layer) (BW31) in progress.  
 6) Bunker - Removal of temporary sheetpile at Leachate area and bunker north side in progress.  
 7) Bunker - Crack remedial work at bunker wall in progress.  
 8) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.  
 9) APC Area - Reinforcement bar and formwork at Area 2 for Column (C160 & C170) in progress.

**Safety Audits/Safety Walkarounds**     

**Safety and Environmental Incidences**     

**Compliance to Design and construction methods, approved materials**     

**Major Quality Issues**     

**Site Instructions Issued**     

**Verbal communication**     

	When	Who	What
Meetings	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

**Date** 14/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Wednesday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy. Light rain from 15:00 to 16:00.

	Total	Civil	Process	
<b>Workers on Site</b>	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Waterproofing membrane installation at external Bunker Wall south side in progress.  
 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (5th layer) (BW6) in progress.  
 5) Bunker - Concrete casting at Bunker Wall E (5th layer) (BW8 & BW9) completed.  
 6) Bunker - Concrete casting at Bunker Wall H (6th layer) (BW31) completed.  
 7) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (6th layer) (BW31) in progress.  
 8) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (6th layer) (BW19 & BW20) in progress.  
 9) Bunker - Removal of temporary sheetpile at Leachate area and bunker north side in progress.  
 10) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.  
 11) APC Area - Concrete casting at Area 2 for Column (C138, C160 & C170) completed.  
 12) APC Area - Reinforcement bar and formwork at Area 2 for Column (C162) in progress.  
 13) APC Area - Reinforcement bar and formwork at Area 3 for Column (C135) in progress.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
<b>Meetings</b>	N/A		

**Comments** N/A

# FICHTNER

Site Log

Date 15/08/2024      Site: Greater Male WTE      Site Representative: Sofi bin Ismail  
 Thursday  
 Time on site: 8:30      Time off site: 18:00      Completed by: Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process
Workers on Site	0	0	0

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Waterproofing membrane installation at external Bunker Wall south side in progress.
- 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (5th layer) (BW6) in progress.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (BW13) in progress.
- 6) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (6th layer) (BW31) in progress.
- 7) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (6th layer) (BW19 & BW20) in progress.
- 8) Bunker - Removal of temporary sheetpile at Leachate area and bunker north side in progress.
- 9) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.
- 10) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress.
- 11) APC Area - Concrete casting at Area 2 for Column (C154) completed.
- 12) APC Area - Concrete casting at Area 3 for Column (C135) completed.
- 13) APC Area - Reinforcement bar and formwork at Area 2 for Column (C162 & C156) in progress.

**Safety Audits/Safety Walkarounds**      N/A

**Safety and Environmental Incidences**      N/A

**Compliance to Design and construction methods, approved materials**      N/A

**Major Quality Issues**      N/A

**Site Instructions Issued**      N/A

**Verbal communication**      Notify DBO that ER will do QMP audit on 27th August 2024 14:00.

	When	Who	What
Meetings	N/A		

**Comments**      N/A

# FICHTNER

Site Log

**Date** 16/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

OFF-DAY FRIDAY

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Comments**

# FICHTNER

Site Log

**Date** 17/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Saturday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy

	Total	Civil	Process
Workers on Site	0	0	0

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.

2) Bunker - Structural backfilling for external bunker wall in progress.

3) Bunker - Waterproofing membrane installation at external Bunker Wall south side in progress.

4) Bunker - Concrete casting at Bunker Wall E (5th layer) (BW6) completed.

5) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (BW13) in progress.

6) Bunker - Concrete casting at Bunker Wall A (6th layer) (BW31) completed.

7) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (6th layer) (BW19 & BW20) in progress.

9) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.

10) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress.

11) APC Area - Concrete casting at Area 2 for Column (C162) completed.

12) APC Area - Reinforcement bar and formwork at Area 2 for Column (C156) in progress.

13) APC Area - Reinforcement bar and formwork at Area 1 for Column (C134) in progress.

14) Incinerator Area - Lean concreting work at Area 11 and Area 12 for 6 pilecaps completed.

15) Material Delivery - Cement 175.50 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
Meetings	N/A		

**Comments** N/A



## Greater Male Waste to Energy Project

### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
24.8.2024	31.8.2024	Sofi bin Ismail		Naahee Nazim	

### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 2<sup>nd</sup> layer have been 100% completed
- Bunker - Concrete casting work for Bunker Wall 3<sup>rd</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 4<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 5<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 6<sup>th</sup> layer at 45% completion.
- APC Area - Concrete casting for columns in progress. Completed 21 out of 21.
- APC Area - Concrete casting for pedestals completed.
- Boiler Area - Column adjacent to APC area in progress. Completed 8 out of 66.
- Incinerator Area - Pilecaps completed. Backfilling in progress.
- Turbine Area - No activity.

Attachment:

Site Daily Logs



## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO

3



OVERALL - POINT THREE

4



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 6<sup>th</sup> LAYER COMPLETED 45%

7



BUNKER SOUTH SIDE.

8



APC AREA - AREA 1, 2 & 3 CONCRETE CASTING FOR COLUMNS COMPLETED.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - CONCRETE CASTING FOR FOUNDATION SLAB COMPLETED.

11



CHIMNEY AREA - TEST BORED PILE IN PROGRESS.

12



INCINERATOR AREA - STRUCTURAL BACKFILLING IN PROGRESS

13



STRUCTURAL BACKFILLING WORK BEHIND BUNKER WALL RECTIFIED

14



CHEMICAL STORAGE IN PROGRESS



# FICHTNER

Site Log

Date 25/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Sunday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	121	121	0

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Waterproofing membrane installation at external Bunker Wall south side in progress.
- 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (5th layer) (BW13) in progress.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall H (7th layer) (BW31) in progress.
- 6) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.
- 7) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress.
- 8) APC Area - Concrete casting at Area 2 for Column (C156) completed.
- 9) Incinerator Area - Concrete casting for six (6) pilecaps at Area 11 and Area 12.
- 10) Boiler Area - Reinforcement bar and formwork at Area 4 for Column (C133) in progress.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

Reject the pedestal concreting method. The EPC to ensure concrete pouring is not free falling pour of more than 1.5m height to avoid segregation. To have pipe or treamy hose to transfer concrete to bottom safely.

Crack mapping on bunker wall is in place. To submit in aconex for record.

When	Who	What
10:00am	FIT, URB, AAJV	Weekly site meeting
		1) Brief planned work for this week, plan for bunker wall 7th layer.
		2) Brief discussion on crack remedial work and documentations.
		3) Highlight that the chemical storage still not complete and has been pending for 1 week.
		4) Material requirement available until mid September 2024.

**Comments**

Site Log



Date: 26/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	121	121	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (6th layer) (BW13 & BW11) in progress.  
 4) Bunker - Concrete casting at Bunker Wall H (7th layer) (BW31) completed.  
 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (7th layer) (BW31) in progress.  
 6) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (5th layer) (BW17 & BW18) in progress.  
 7) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.  
 8) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress.  
 9) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.  
 10) Boiler Area - Reinforcement bar and formwork at Area 4 for Column (C133) in progress.  
 11) Boiler Area - Concrete casting at Area 4 for Column (C134) completed.  
 12) Boiler Area - Concrete casting at Area 5 for Column (C140) completed.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

Date 27/08/2024      Site: Greater Male WTE      Site Representative: Sofi bin Ismail  
 Tuesday  
 Time on site:  Time off site:       Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (6th layer) (BW11) in progress.  
 4) Bunker - Concrete casting at Bunker Wall D (6th layer) (BW13) completed.  
 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (7th layer) (BW31) in progress.  
 6) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (5th layer) (BW17 & BW18) in progress.  
 7) APC Area - Reinforcement bar and formwork at Area 1 for Pedestal in progress.  
 8) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress.  
 9) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.  
 10) Boiler Area - Reinforcement bar and formwork at Area 5 for Column (C139) in progress.  
 11) Boiler Area - Concrete casting at Area 4 for Column (C133) completed.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	2:00pm	FIT, URB, AAJV	Prerequisite audit for Quality Management Plan by ER.
			a) Updated QMP to be approved by ER. EPC to submit the revised QMP and obtain ER approval.
			b) Identification and traceability of records, NOI, ITP and other documents are not in place.
			c) ER unable to conduct auditing at this current condition. Given URB and AAJV until 23/9/24 to update and get the document ready for an actual compliance audit.

**Comments**

# FICHTNER

Site Log

**Date** 28/08/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Wednesday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process	
Workers on Site	0	0	0	Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall D (6th layer) (BW11) in progress.
- 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall A (7th layer) (BW31) in progress.
- 5) Bunker - Concrete casting at Bunker Wall I (5th layer) (BW17 & BW18) completed.
- 6) APC Area - Concrete casting at Area 1 for Pedestal completed.
- 7) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress.
- 8) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.
- 9) Boiler Area - Reinforcement bar and formwork at Area 5 for Column (C139 & C137) in progress.
- 10) Boiler Area - Concrete casting at Area 7 for Column (C136) completed.
- 11) Chimney Area - Drilling work for test bored pile started.
- 12) Material Delivery - Aggregate 124.28 tonne. Sand 47.55 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
Meetings	10:00am	FIT, URB, AAJV, ELS	Briefing for test bored pile work.
			a) ELS highlight the measure to ensure waste water circulation is not going to existing ground.
			b) FIT highlight that based on site condition, temporary casing is required at soft layer and
			bentonite performance is doubtful. EPC to have monitoring in place and measure for cases where
			the bentonite will fail.

**Comments** N/A

Site Log



Date: 29/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Thursday Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny

Total Civil Process

Workers on Site table with columns Total (0), Civil (0), Process (0) and a note: Note : Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections. 1) Dewatering of bunker area continue. 2) Bunker - Structural backfilling for external bunker wall in progress. 3) Bunker - Concrete casting Wall D (6th layer) (BW11) completed. 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall F (6th layer) (BW27, BW28 & BW29) in progress. 5) Bunker - Concrete casting at Bunker Wall A (7th layer) (BW31) completed. 6) APC Area - Concrete casting at Area 1 for Pedestal completed. 7) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress. 8) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress. 9) Boiler Area - Reinforcement bar and formwork at Area 5 for Column (C143, C139 & C137) in progress. 10) Chimney Area - Drilling work for test bored pile in progress. 11) Material Delivery - Aggregate 99.73 tonne. 12) Material Delivery - Sand 119.10 tonne.

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials N/A

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication N/A

Meetings table with columns When, Who, What

Comments N/A

# FICHTNER

## Site Log

Date 30/08/2024

Site: Greater Male WTE

Site Representative: Sofi bin Ismail

Friday

Time on site:

Time off site:

Completed by:

### Weather:

Total Civil Process

Workers on Site

<input type="text"/>	<input type="text"/>	<input type="text"/>
----------------------	----------------------	----------------------

Note : Enter this information when it is available, at least once per week as a minimum

Site Activities,  
Contractors  
Involved, Major  
Deliveries,  
Testing,  
Inspections

Safety  
Audits/Safety  
Walkarounds

Safety and  
Environmental  
Incidences

Compliance to  
Design and  
construction  
methods,  
approved  
materials

Major Quality  
Issues

Site Instructions  
Issued

Verbal  
communication

Meetings

When	Who	What
N/A		

Comments

Site Log



Date: 31/08/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
Saturday  
Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Sunny

	Total	Civil	Process
Workers on Site	0	0	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (6th layer) (BW9 & BW8) in progress.
- 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall F (6th layer) (BW28 & BW29) in progress.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall G (6th layer) (BW27) in progress.
- 6) APC Area - Reinforcement bar and formwork at Area 1 for Beam in progress.
- 7) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.
- 8) Boiler Area - Reinforcement bar and formwork at Area 5 for Column (C143 & C139) in progress.
- 9) Boiler Area - Concrete casting at Area 5 for Column (C137) completed.
- 10) Chimney Area - Drilling work for test bored pile in progress.
- 11) Material Delivery - Aggregate 76.17 tonne.
- 12) Material Delivery - Cement 83.54 tonne.

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials Training on installation of anchor bolt and embedded plate.

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication N/A

Meetings	When	Who	What
	N/A		

Comments N/A



## Site Inspection Report

No.: SI-24-14

by the Employer's Representative

Dates / Time of the Visit	Conducted by [ER]	Signature
13 <sup>th</sup> August 2024 10:00 hrs – 14:30 Hrs	Nahee Nazim <i>Deputy Team Leader</i> Fichtner / REM	

### General Observations

Sn	Particulars	Details / Remarks	Reference
1	Change in construction methodology with reference to same given in EIA report, if any	-	-
2	Not anticipated/accounted project specific activity (ies) and impacts observed which were not considered in EIA study report, if any, either on site or adjacent by the Contractor or other stakeholders.	Long term impacts of working close to the landfill has been discussed, and the DBO is working on a plan to monitor the air quality around the campsite and mitigation measures to be taken based on the findings once the monitoring starts. Expected to start late Q1 or early Q2 of 2024.	-
3	Any activity or sign observed within and adjacent to project site which may lead to soil and ground & marine water contamination	Presence of Shipwrecks adjacent to quay wall and movement of speed boats, ships (medium and large) on the route and adjacent to quay wall of island. Leachate and run off water from waste dumping site of WAMCO adjacent to project site.	-
4	Total amount of manpower at project as per attendance register on date of visit <ul style="list-style-type: none"> <li>a) ER Representative</li> <li>b) DBO Representative</li> <li>c) HO Management Team</li> <li>d) EPC Contractor Direct Staff</li> <li>e) EPC Contractor Indirect Staff</li> <li>f) EPC Contractor Direct Site Workers</li> <li>g) Security (Gage)</li> <li>h) ELS (Concrete Laboratory)</li> <li>i) Villa Company (Batching Plant)</li> <li>j) Clamp Engineering</li> </ul>	Total of 116 direct workers deployed by the DBO/EPC on site. Total 221 persons on site. <ul style="list-style-type: none"> <li>2</li> <li>2</li> <li>5</li> <li>42</li> <li>35</li> <li>116</li> <li>7</li> <li>6</li> <li>9</li> <li>3</li> </ul>	-
5	Others, if any	-	-



## Progress Observations

No.	Particulars	Details / Remarks	Reference
1	Temporary facilities	New staff and accommodation buildings have been completed; new storage tents have been completed. Reinforcement work yard has been completed. Batching plant is completed and is in use.	-
2	Site Preparation	Daily monitoring of sheet piles for any movement is ongoing in the bunker area. Concrete batching plant is operational. Backfilling, compaction, geotextile installation is on going. Pile cap concrete works and lean concrete work is continuing. Bunker slab has been completed and bunker wall concrete works is ongoing.	-
3	Excavation & Dewatering	Excavation work for the bunker and the main process building has been completed. The ramp at the bunker area has been completed. Well point dewatering system around the bunker area has been setup and continuous dewatering works is ongoing. Monthly monitoring of the discharge water is carried out.	-

## Environmental Observations

Sn	Particulars	Details / Remarks	Reference
1	Status of adequacy of compliance of CEMP and ESMS including SOPs in place applicable to construction activities visited on the basis of assessment made on randomly basis, on site or adjacent. <sup>1</sup>	For construction phase, various plans and SOPs as part of ESMS as mentioned in CEMP are in the process of final approval. All documents are currently approved with comments. Implementation of the said plans is an ongoing process and efforts are in place to implement the CEMP. All site works are carried out after approval of method statements.	-
2	Status of adequacy of environment monitoring as envisaged in CEMP on the basis of assessment made on randomly basis.	Being conducted as scheduled. Monthly monitoring of ambient air quality, noise levels and water quality monitoring is ongoing. The data is collected, for ambient air and noise level.	-
3	Status of adequacy of level of understanding of environment hazards and corresponding designed mitigation measures of construction team including supervisors and workers on site or adjacent on the basis of assessment made on randomly basis.	Toolbox talks are being conducted on a daily basis. Training is conducted monthly as per requirement for the month. Implementation of CEMP, H&S plan and other management plans is ongoing. Training drills are being conducted.	-
4	Status of adequacy of record keeping including data reported in monthly environment report on the basis of assessment made on randomly basis.	Site activities are captured on the Daily Progress Reports prepared by the EPC and digital copies of the report are kept on record on the ACONEX project management system and shared with all stakeholders.	-

<sup>1</sup>aspects includes (but not limited to) solid wastes (hazardous and non-hazardous including construction, plastic, E-waste, battery and bio-medical) management, Storage and handling of construction materials, waste water (from domestic and construction activities and run off due to rain) management, Air emission (from mainly DG sets, diesel driven machinery and equipment, Raw mix plant, fugitive, vehicular movement, etc.) management, management of construction noise level etc.

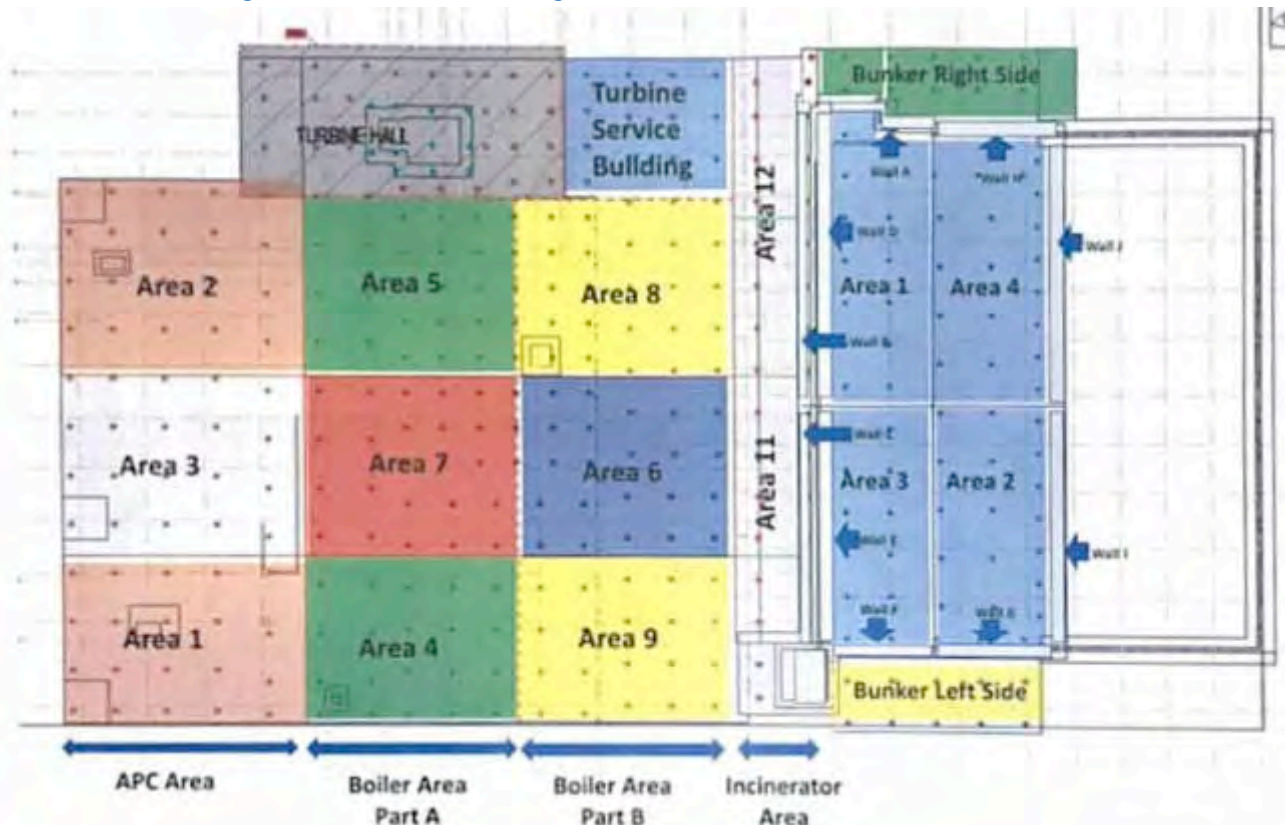
## Health and Safety Observation

Sn	Aspects	Details / Remarks	Reference
<b>Labour - health, safety and welfare</b>			
1	Status of adequacy of HSE /Occupational Health and Safety management plan and ESMS including SOPs applicable to construction activities visited on the basis of randomly assessment made. <sup>2</sup>	SOPS are in place for specific work activities and is an ongoing process. However following observations were made: <ul style="list-style-type: none"> <li>Impacts/risks to workers due to presence of dumping site have not been identified, OHS monitoring plan is being prepared by the DBO and has gone through review process with the ER and and revisions are being made.</li> <li>Documents on subject were under process of finalization for getting approval of ER/PMU for construction phase. All HSE documents are "Approved with comments" at this stage.</li> <li>Presence of live electrical cable supplying electricity to project from STELCO runs within the site boundary. HDC and Stelco have been informed of the matter and the cable is to be re-routed at the earliest. Planning works is in progress between stakeholders.</li> </ul>	-
2	Status of adequacy of HSE monitoring as envisaged in CEMP, HSE Plan, ESMS & SOPs etc.	Documents on subject as part of CEMP, HSE Plan and SOPs as part of ESMS have been prepared and submitted for approval of ER. All HSE related documents are "Approved" or "Approved with comments" and the final revisions are being worked on by the EPC/DBO HSE team. HSE monitoring and audits are conducted by the EPC as well as Rambol on behalf of the DBO. Implementation of the CEMP and HSE plans is ongoing. SOPs are in place for all ongoing construction work and is an ongoing process as work progress on site.	-
3	Status of adequacy of on-site Emergency Preparedness and Response on the basis of randomly assessment made (emergency response team, safety committee, fire fighting, mock drills, assembly point, evacuation, accident/incident reporting etc.)	SOPs on subject is in place and drills have been conducted on site. Training program is prepared on a monthly basis as well as drills are being conducted by the HSE team on site. Assembly point established and inadequate safety signage were in place however no safety committee is in place. Adequate medical aid facilities (e.g. availability of stretcher and medicine, medical evacuation etc) at health center located within project site and full-time qualified doctor and nurse has been posted.	-
4	Status of adequacy of workers accommodations including fresh water for drinking & others, hygienic with reference to waste water and domestic solid waste management and other welfare facilities (e.g. Kitchen/food, medical, toilets, recreation, shelters, spray of mosquitoes and odour repellent etc.) maintained at project site on the basis of randomly assessment made.	Worker's accommodations including toilets are operational and deemed sufficient for the current workers on site. Fresh water supply is from MWSC utility pipeline and drinking water filters are being used, along with bottled drinking water. Waste collection bins have been placed and collected to the main waste collection area and handed over to WAMCO for disposal. A gym and recreational area have been completed and is in use. Designated smoking areas and shelters have been established. Wastewater treatment plant is operational.	-
5	Status of adequacy of housekeeping within project site on the basis of randomly assessment made.	Site is kept generally clean and organized. Scheduled mass house-keeping is being conducted monthly. Designated persons assigned for cleaning and logs kept for toilets. Designated waste collection area is established, waste bins are installed through out site camp area. All waste produced is logged and recorded.	-
6	Status of adequacy of security management (availability of adequate number of security guards, fencing of project site, procedure(s) to allow entry for visitors and workers etc. understanding of role of security guards as per contract) of project site on the basis of randomly assessment made.	Gates in place, and visitors register in form of loose sheets, a proper register is to be maintained. Security guards in place at the 3 entry points to the site. CCTV system is installed. Adequate lighting is provided around the site.	-
7	Status of adequacy of handling of workers complaint(s) received on HSE, human resources and welfare aspects as per complaint register kept at site on the basis of randomly assessment made.	Boxes placed for for internal grievance redress mechanism at several places within the site area. Notices and forms are in several languages. Effort to place a box at the ferry terminal is ongoing.	-

<sup>2</sup>e.g assessment of activity wise associated hazards, work permit, PPEs, first aid, toolbox talk, barricading, COVID-19, electrical safety etc.

8	Status of adequacy of record keeping including data reported in monthly HSE report on the basis of randomly assessment made.	Site activities are captured on the Daily Progress Reports prepared by the EPC and digital copies of the report are kept and digital record is shared with all parties.	-
<b>Community- health, safety and welfare</b>			
9	Status of adequacy of Community Health and Safety plan and ESMS including SOPs on the basis of randomly assessment made (mainly during transportation of men, materials and machinery, influx of workers from other places, contamination of air, land and marine water and ecology, if any etc.)	Pre-construction environment baseline monitoring is being carried out as per CEMP on regular basis. However, for construction phase, various plans and SOPs as part of ESMS mentioned in CEMP and H&S plan are yet to be finalized for approval from ER/PMU, several rounds of review and comments have been shared by the ER with the DBO contractor on the documents that are being prepared. Even though the process of developing the documents, measures are taken to implement these as an ongoing process.	-
10	Status of adequacy of off-site Emergency Preparedness and Response on the basis of randomly assessment made (e.g. response team, mock drills, mutual aids, evacuation plan, accident/incident reporting etc.)	Plans and SOPs on subject are under process of finalization for getting approval of ER/PMU for construction phase. Regular training and drills are being conducted on site and records are kept.	-
12	Status of adequacy of handling of community complaint(s) received on Environment, HSE and welfare aspects on the basis of randomly assessment made.	To comply with contract's obligations, community engagement plan is yet to be submitted for getting approval of ER/PMU. The site being in the industrial area no complaints were received this month.	-

Main Process Building & Bunker work area designations



Site Photos / Observations



**Photo 01** 13/08/24 – Construction work on the bunker area and main process building continues.



**Photo 02** 13/08/24 – Ground floor column concretes works in Main process building work area 1,2 and 3 is in progress.



**Photo 03** 13/08/24 – Turbine Service building area piling and sheet piling works have been completed and ready for excavation, with dewatering system also in place.



**Photo 04** 13/08/24 – Backfilling work and lean foundation work is ongoing on part of the main process building area. (Area 6)



**Photo 05** 13/08/24 – Ground columns in Area 1 and 2 of Main process building have been cast up to +10.75m height



**Photo 06** 13/08/24 – Ground columns in Area 1 and 2 of Main process building have been cast up to +10.75m height



**Photo 07** 13/08/24 – Bunker walls B,D,C,E,F and G seen on this photo works in progress and expected to finish upto +9.40m this month.



**Photo 08** 13/08/24 – Bunker walls I and J on this photo works in progress and expected to finish upto +11.35m this month.



**Photo 09** 13/08/24 – Bunker walls I and J on this photo works in progress and expected to finish upto +11.35m this month. Walls A and H to be completed up to +14.10m height this month.



**Photo 10** 13/08/24 Bunker inside view of Area 1 and 4, crack repair work on Wall D has been completed.



**Photo 11** 13/08/24 – Bunker inside view of Area 2 and 3.



**Photo 12** 13/08/24– Reinforcement stock on site and workshop area.






**Photo 13** 13/08/24– Main process building work Area 2 ground floor columns being made ready for concrete.



## Greater Male' Waste to Energy Project

### Workers Accomodation Audit

by the Employer's Representative

	Name	Signature	Position	Date
Prepared by:	Zaha Waheed		Local Environmental Specialist	25.10.2024
Checked by:	Sunil Gupta		International Environment Safe-guard	25.10.2024
Approved by:	Maximilian Schrade		Project Manager	25.10.2024

Date and Time of the Visit	Conducted by [ER]	Participants from MOE
24.9.2024; 10:00-13:00	Zaha Waheed	-
30.9.2024; 10:00-13:00	Ahmed Naahee Nazim Zaha Waheed	

#### D. Camp Area

Particulars	Observations	Status of compliance of respective plan <sup>1</sup>
Types of accommodation	<ul style="list-style-type: none"> <li>Total manpower engaged at project site is 227 including AAJV staff and workers and sub-contractors workers</li> <li>Total 43 rooms for workers are available with capacity of 258 workers, 6 workers/room. However, at present 186 staff and workers are staying in camp.</li> <li>31 single occupancy room available for engineers and for senior management. 32 rooms are occupied</li> </ul>	

<sup>1</sup> considering Workers' accommodation processes and standards-a guidance note by IFC and standards

- There are discrepancies in the number of people accommodated on the camp site in relation to the total number employed.

GENERAL ROOM PLAN AND NUMBER (Information provide by Camp Manager)					
NO	Room Type	Room Capacity	Total number of rooms	No. of occupied rooms	Number of vacant rooms
1	Manager & Engineers Room/Staff	1	63	32	31
2	Workers Room	6	43	25	18
3	Foreman Rooms/Support staff	3	12	12	0

Number of beds and staff accommodated curenly

- Camp area had 3 types of accommodation
  - Single occupancy rooms for senior management & engineers, 32 staff
  - Rooms for support staff/Foreman with 2 double bunk beds – 35 support staff
  - Workers accommodation with 3 double bunk beds – 117 workers

Rooms/Dormitory facilities

- The rooms need to be aired regularly and the dirty work clothes left in the room makes the air stagnant.
- Pest control is being carried out on monthly basis.
- Suitable furniture such as a table, chairs, bedside lights and mirror need to be provided
- Mobile partitions or curtains need to be provided for the privacy of workers
- The rooms were cleaned by support staff regularly. The occupants of the rooms need to do there part to keep the rooms clean which is stated in the camp policy for the benefit of all occupants.
- The corridors are used to hang work clothes for airing and storage of personal items
- Only one exit and entrance provided in the accomodation block.

Partially complied

Bed arrangements and storage facilities	<ul style="list-style-type: none"> <li>• The minimum space between the beds in some of the rooms does not meet the standards of 1 m. Need to rearrange the rooms.</li> <li>• In some rooms arrangement of beds are blocking the access to windows needs to be cleared</li> <li>• Access to wash the clothes and bed linens are provided only once a weak. Provide covered laundry bins, which will minimise the odors in the room</li> <li>• Separate storage area for workboots are provided but not for personal protection equipment</li> <li>• Need drying or airing areas for workers clothes.</li> </ul>	Partially complied
Sanitary and toilet facilities	<ul style="list-style-type: none"> <li>▪ The doors of the toilets are not covered from the ceiling to floor to provide adequate privacy.</li> <li>▪ The facilities developed for workers does not consider women workers to be employed.</li> <li>▪ The facilities were found clean .</li> <li>▪ Since the toilet facilities are located in a separate building from the accomodation, need a sheltered walk way to protect workers from rain</li> <li>▪ One of the squat toilets had a chair placed over it. HS Manager wasn't aware of the use when enquired. The chair was removed immediately. The cleaner said that the workers used that toilet to cut their hair and tidy up. Need a place for hair cutting.</li> <li>▪ The razor blades disposal box was observed to attract mosquitoes in the toilets. Needs to be cleaned regularly.</li> <li>▪ The STP dried sludge is being stored in black bags since start of operation of STP for possible use as manure .</li> </ul>	Partially complied
Toilet facilities	<ul style="list-style-type: none"> <li>▪ Managers have single rooms with attached toilets.</li> <li>▪ 117 workers, 39 support staff - 30 toilets (squat and sitting), 30 showers and 14 wash basins. The Standard is 1 toilet, 1 hand wash basin, 1 bathroom with bench for 15 male workers.</li> <li>▪ The local regulation Regulation No: 2021/R-15 stipulates that there shall be at least one toilet for every 10 (ten) employees living in the accommodation.</li> </ul>	Complied
Laundry facilities	<ul style="list-style-type: none"> <li>▪ A separate laundromat is operated for managers/engineers</li> <li>▪ Laundromat is operated by support staff. Workers in each room can bring in their clothes and bed linens on the day they are allocated once a week. This needs to be improved.</li> <li>▪ Washing soap and drying lines are not provided.</li> </ul>	Being complied

	<ul style="list-style-type: none"> <li>▪ The most common health issues of the workers were skin problems. The doctors advised frequent showers and washing working clothes.</li> </ul>	
Cafeteria and cooking facilities	<ul style="list-style-type: none"> <li>• Separate cafeterias provided for managers/staff and workers.</li> <li>• The kitchen and the cafeteria was found very clean.</li> <li>• The cafeteria roof is leaking and presence of mould on the ceiling.</li> <li>• The cafeteria floors were washed and drained in the afternoon after lunch.</li> <li>• Turkish meals are cooked in the kitchen and provided to all.</li> <li>• Food for Bangladesh and Indian workers were catered by Al-Muzdalifa cafeteria operated in Thilafushi.</li> </ul>	Being complied
Standards for nutrition and food safety	<ul style="list-style-type: none"> <li>▪ WHO – “5 keys to safer food” is implemented</li> <li>▪ Since there is no food nutritionist on Camp unable to say the food provided is of appropriate nutritional value. The doctors raised concerns due to the labour intensive and strenuous nature of the work carried out by the workers.</li> <li>▪ The food catered adhered to the cultural and religious beliefs.</li> <li>▪ Drinking water is available in the kitchen and in the camp grounds produced by the RO Plant for workers. Bottled water is served for staff.</li> </ul>	Being complied
Recreation	<ul style="list-style-type: none"> <li>• Separate Recreation room with TV and indoor games is in place for staff and workers.</li> <li>• A gym is available for managerial staff use.</li> <li>• Workers recreation room was completed recently but smelled of smoke and need airing. This room had a television, some board games and 2 tables with a few chairs. It had provisions to make tea and coffee.</li> <li>• There is no place out doors where the workers could sit down and relax for a bit. Even though smoking on the camp site is not encouraged there is an open place for smokers for staff as well as workers.</li> </ul>	Being complied
Medical facilities	<ul style="list-style-type: none"> <li>• There is a doctor and a nurse on site to attend medical issues</li> <li>• The Health Services Act of the Maldives – 29/2015 published on 7/9/2015 requires the clinic to be registered and licensed to provide any type of health service.</li> <li>• First Aider List is provided with names, photographs and phone numbers on all facilities.</li> <li>• The doctor informed that there is only 1 worker who is asthmatic and they do have equipment and medication for nebulisation. Most of the urgent medicines needed are available in the health facility.</li> </ul>	Partially complied

	<ul style="list-style-type: none"> <li>• The disposal of the medical waste was not very clear. The bin was filled up on the day of visit. I was informed by the Doctor that it is collected by the company operating the facility and disposed.</li> <li>• The Doctors have a log of all the visits by each individual visiting the facility</li> </ul>	
Pets	<ul style="list-style-type: none"> <li>• Camp policy is not to allow any pets in the camp accommodation. Stray cats are seen on the camp site with kittens. The population can increase rapidly and who will be responsible for the welfare of the cats at the end of the project</li> </ul>	Partially complied
Camp Policy	<ul style="list-style-type: none"> <li>• Written policy is displayed in different languages. The policy includes personal conduct, illegal drugs and alcohol, smoking, pets, guests, maintenance and cleanliness, searches, personal property and damages.</li> <li>• Even though these policies are displayed, there is a communication gap among workers, staff and the Camp Management.</li> <li>• Workers to be provided with awareness sessions on health and hygiene, AIDS, communicable diseases and other relevant topics in their native languages to ensure safety of all workers</li> </ul>	Partially complied
Greening	<ul style="list-style-type: none"> <li>• The site for the facility needs greening Some of the trees that is recommended by the local experts are salt tolerant and fixes nitrogen in the soil. <ol style="list-style-type: none"> <li>1. Sea grape (Coccoloba uvifera)</li> <li>2. Conocarpus species</li> <li>3. Indian blackberry (Dhan'bu gas)</li> <li>4. Star gooseberry (Goan'bili)</li> <li>5. Jamaica cherry tree (Jeymu gas)</li> <li>6. Sea trumpet (Kaani gas)</li> <li>7. Sour plum tree (En'boo gas)</li> <li>8. Horse bush (Haalhala). This plant improves soil condition</li> <li>9. Ipil - ipil (This plant improves soil condition)</li> <li>10. Coconut palm (Dhivehi ruh )</li> </ol> </li> </ul>	

# Environmental Monitoring Report

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## **PUBLIC**

Project Number: 51077-003  
Quarterly Report (July-September 2024)  
October 2024

## Maldives: Greater Male Waste-to-Energy Project

### Part C: Appendices

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or Staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section of ADB's website.

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N. Summary of observations which need corrective actions/measures

Particulars	Observations	Status of compliance of respective plan <sup>2</sup>
Camp accomodation	<ul style="list-style-type: none"> <li>▪ Suitable furniture such as a table, chairs, bedside lights and mirror need to be provided</li> <li>▪ Mobile partitions or curtains need to be provided for the privacy of workers</li> </ul>	
Medical facilities	<ul style="list-style-type: none"> <li>• The Health Services Act of the Maldives – 29/2015 published on 7/9/2015 requires the clinic to be registered and licensed to provide any type of health service.</li> </ul>	

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<sup>2</sup> considering Workers' accommodation processes and standards-a guidance note by IFC and standards



Accommodation for Support Staff



Accommodation for Worker's



Toilet Facilities



Camp Information displayed



Laundry Services



Drinking water provision



Kitchen



Food Storage area



Chilled Storage



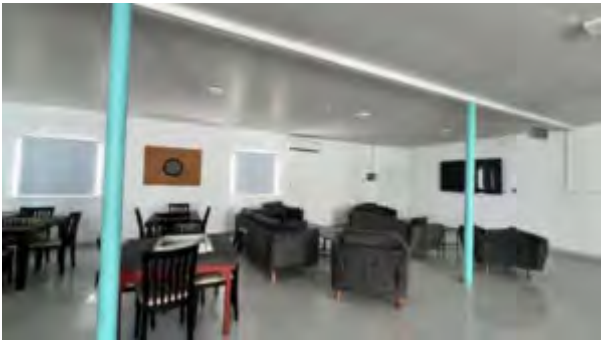
Frozen Food storage



Workers Mess Room



Staff Recreation



Workers Recreation Room



Designated Smoking Area



Storage of work boots and airing of clothes in the hallway





Mosque





## Greater Male' Waste-to-Energy Project

### Greater Male Waste to Energy Project

#### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
1.9.2024	7.9.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer to 6<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 7<sup>th</sup> layer in progress 20%.
- APC Area - Concrete casting for columns completed. Falsework for beam in progress.
- APC Area - Concrete casting for pedestals completed.
- Chimney Area - Test bored pile in progress.
- Boiler Area - Column adjacent to APC area in progress. Completed 13 out of 66.
- Incinerator Area - Lean concrete completed.
- Turbine Area - No activity.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.



OVERALL - POINT ONE



OVERALL - POINT TWO



OVERALL - POINT THREE



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 1<sup>ST</sup> TO 6<sup>TH</sup> (+15.00) LAYER 100% COMPLETED.

7



BUNKER SOUTH SIDE.

8



APC AREA - PREPARATION OF FALSEWORK FOR BEAMS IN PROGRES.

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - REINFORCEMENT BAR FOR LIFT SHAFT IN PROGRESS.



11



CHIMNEY AREA - TEST BORED PILE IN PROGRESS.

12



INCINERATOR AREA - LEAN CONCRETE COMPLETED.

13



COLUMNS ADJACENT TO APC AREA IN PROGRESS.

14



CHEMICAL STORAGE PREPARATION IN PROGRESS

Site Log



**Date** 01/09/2024 **Site:** Greater Male WTE **Site Representative:** Sofi bin Ismail  
**Day** Sunday  
**Time on site:** 8:30 **Time off site:** 18:00 **Completed by:** Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process
Workers on Site	118	118	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (6th layer) (BW6, BW9 & BW8) in progress.
- 4) Bunker - Concrete casting at Bunker Wall F (6th layer) (BW28 & BW29) completed.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall G (6th layer) (BW27) in progress.
- 6) APC Area - Falsework installation at Area 1 for Beam in progress.
- 7) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.
- 8) Boiler Area - Reinforcement bar and formwork at Area 5 for Column (C143 & C141) in progress.
- 9) Boiler Area - Concrete casting at Area 5 for Column (C139) completed.
- 10) Chimney Area - Drilling work for test bored pile in progress.
- 11) Material Delivery - Sand 19.68 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

When	Who	What
9:30am	FIT, URB, AAJV	Weekly site meeting
		1) Brief planned work for this week, plan for bunker wall 7th layer. To complete 6th layer.
		2) Highlight the outstanding work issued by FIT. EPC explain the planned work to closed it.
		3) EPC notify that chemical storage is completed, to raise NOI for FIT inspection.
		4) Material requirement available until mid September 2024.

**Comments** N/A

# FICHTNER

Site Log

**Date** 02/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Monday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process	
<b>Workers on Site</b>	118	118	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (6th layer) (BW6, BW9 & BW8) in progress.
- 4) Bunker - Concrete casting at Bunker Wall G (6th layer) (BW27) completed.
- 5) APC Area - Falsework installation at Area 1 for Beam in progress.
- 6) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.
- 7) Boiler Area - Reinforcement bar and formwork at Area 5 for Column (C132) in progress.
- 8) Boiler Area - Concrete casting at Area 5 for Column (C141) completed.
- 9) Chimney Area - Drilling work for test bored pile in progress.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
<b>Meetings</b>	N/A		

**Comments** N/A

Site Log



Date 03/09/2024

Site: Greater Male WTE

Site Representative: Sofi bin Ismail

Tuesday

Time on site:

8:30

Time off site:

18:00

Completed by:

Sofi Bin Ismail

Weather:

Sunny

Workers on Site

Total	Civil	Process
0	0	0

Note : Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (6th layer) (BW6) in progress.
- 4) Bunker - Concrete casting at Bunker Wall E (6th layer) (BW9 & BW8) completed.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall J (7th layer) (BW24 & BW22) in progress.
- 6) APC Area - Falsework installation at Area 1 for Beam in progress.
- 7) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.
- 8) Boiler Area - Concrete casting at Area 5 for Column (C132) completed.
- 9) Chimney Area - Drilling work for test bored pile in progress.

Safety Audits/Safety Walkarounds

N/A

Safety and Environmental Incidences

N/A

Compliance to Design and construction methods, approved materials

N/A

Major Quality Issues

N/A

Site Instructions Issued

N/A

Verbal communication

N/A

Meetings

When	Who	What
N/A		

Comments

N/A

Site Log



Date 04/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Wednesday  
 Time on site:  Time off site:  Completed by:

Weather:

	Total	Civil	Process
Workers on Site	0	0	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall E (6th layer) (BW6) completed.
- 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall J (7th layer) (BW24 & BW22) in progress.
- 5) APC Area - Falsework installation at Area 1 for Beam in progress.
- 6) Incinerator Area - Structural backfilling at Area 11 & 12 for foundation slab in progress.
- 7) Chimney Area - Drilling work for test bored pile in progress.
- 8) Material Delivery - Aggregate 162.96 tonne.
- 9) Material Delivery - Sand 96.61 tonne.

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

Meetings	When	Who	What
	<input type="text" value="N/A"/>		

Comments

# FICHTNER

Site Log

Date      05/09/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Thursday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall J (7th layer) (BW22) completed.
- 4) Bunker - Concrete casting at Bunker Wall G (7th layer) (BW27) completed.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall J (7th layer) (BW24 & BW25) in progress.
- 6) Bunker - Reinforcement bar and formwork installation at Bunker Wall F (7th layer) (BW29) in progress.
- 7) Bunker East Side - Reinforcement bar and formwork installation at Elevator Shaft (BW33 & BW15) in progress.
- 8) APC Area - Falsework installation at Area 1 for Beam in progress.
- 9) Incinerator Area - Lean concreting for foundation at Area 11 & Area 12 completed.
- 10) Chimney Area - Drilling work for test bored pile in progress.
- 11) Material Delivery - Aggregate 84.18 tonne.
- 12) Material Delivery - Fly Ash 50.40 tonne.

**Safety Audits/Safety Walkarounds**      Awareness training for tower crane operator and riggers by EPC based on approved method statement.

**Safety and Environmental Incidences**      N/A

**Compliance to Design and construction methods, approved materials**      N/A

**Major Quality Issues**      N/A

**Site Instructions Issued**      N/A

**Verbal communication**

Highlight discrepancies in foundation drawing for Area 11 and Area 12. EPC to communicate with the designer to finalize the reinforcement bar arrangement between Area 11 and Area 12 to bunker starter bar.

Highlight the DBO that for bored pile, the critical item to monitor is the theoretical volume VS actual volume of concrete. And to conduct integrity test to verify pile fitness.

	When	Who	What
Meetings	N/A		

**Comments**      N/A

# FICHTNER

Site Log

**Date** 06/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

OFF-DAY FRIDAY

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Comments**



# FICHTNER

Site Log

**Date** 07/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail

Saturday

Time on site:

Time off site:

Completed by:

**Weather:**

Total	Civil	Process
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**Workers on Site**

0	0	0
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*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities,  
Contractors  
Involved, Major  
Deliveries,  
Testing,  
Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall J (7th layer) (BW24 & BW25) completed.
- 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (7th layer) (BW6 & BW8) in progress.
- 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall F (7th layer) (BW29) in progress.
- 6) Bunker East Side - Reinforcement bar and formwork installation at Elevator Shaft (BW33 & BW15) in progress.
- 7) Bunker - Crack remedial work at Bunker Wall up to 6th layer in progress.
  
- 8) APC Area - Falsework installation at Area 1 for Beam in progress.
  
- 9) Incinerator Area - Concrete curing for the completed lean concrete in progress.
  
- 10) Chimney Area - Drilling work for test bored pile in progress.
  
- 11) Material Delivery - Aggregate 83.83 tonne.
- 12) Material Delivery - Sand 209.43 tonne.

**Safety  
Audits/Safety  
Walkarounds**

**Safety and  
Environmental  
Incidences**

**Compliance to  
Design and  
construction  
methods,  
approved  
materials**

**Major Quality  
Issues**

**Site Instructions  
Issued**

**Verbal  
communication**

**Meetings**

When	Who	What
<input type="text" value="N/A"/>		

**Comments**



**Greater Male'  
Waste-to-Energy Project**

## Greater Male Waste to Energy Project

### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
8.9.2024	14.9.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer to 6<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 7<sup>th</sup> layer in progress 90%.
- Bunker East Side - Elevator Shaft completed until +5.0m level.
- Bunker West Side - Spun pile cutting completed.
- APC Area - No activity
- Chimney Area - Test bored pile on-hold.
- Boiler Area - No activity
- Incinerator Area - Lean concrete completed. Waterproofing completed.
- Incinerator Area - Reinforcement bar and formwork at Area 11 in progress.
- Turbine Area - No activity.
- Water Intake - Site clearing started.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.



OVERALL - POINT ONE



OVERALL - POINT TWO



OVERALL - POINT THREE



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 7<sup>th</sup> LAYER 90% COMPLETED.

7



BUNKER SOUTH SIDE.

8



APC AREA - NO ACTIVITY

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - ELEVATOR SHAFT AND COLUMN UP TO +5.0M



11



WATER INTAKE - SITE CLEARING IN PROGRESS.

12



INCINERATOR AREA - AREA 11 REINFORCEMENT BAR AND FORMWORK IN PROGRESS.

13



BUNKER WEST SIDE - SPUN PILE CUTTING COMPLETED.

14



BUNKER SOUTH SIDE BACKFILLING REMEDIAL COMPLETED.

# FICHTNER

Site Log

**Date** 08/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Sunday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process
Workers on Site	115	115	0

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Concrete casting at Bunker Wall E (7th layer) (BW8) completed.  
 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (7th layer) (BW6) in progress.  
 5) Bunker - Concrete casting at Bunker Wall F (7th layer) (BW29) completed.  
 6) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (7th layer) (BW20) in progress.  
 7) Bunker East Side - Concrete casting at Elevator Shaft (BW33 & BW15) up to level +5.0m completed.  
 8) Bunker - Crack remedial work at Bunker Wall up to 6th layer in progress.  
 9) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.  
 10) Material Delivery - Aggregate 102.46 tonne.  
 11) Material Delivery - Cement 100.00 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

Meetings	When	Who	What
	9:30am	FIT, URB, AAJV	Weekly site meeting
			1) Brief planned work for this week, plan to complete for bunker wall 7th layer.
			2) Highlight the outstanding work issued by FIT. EPC explain the planned work to closed it.
			3) Highlight the finding from Chemical Storage inspection. EPC to rectify and recall for inspection
			4) Material requirement available for Bunker Wall and Area 11 & 12. Request details.

**Comments** N/A

# FICHTNER

Site Log

**Date** 09/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Monday  
 Time on site: 8:30 Time off site: 18:00      Completed by: Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process	
Workers on Site	112	112	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall E (7th layer) (BW6) in progress.  
 4) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (7th layer) (BW16, BW17 & BW20) in progress.  
 5) Bunker East Side - Reinforcement bar and formwork installation at Bunker Column (C13 & C16) in progress.  
 6) Bunker - Crack remedial work at Bunker Wall up to 6th layer in progress.  
 7) Incinerator Area - Application of waterproofing primer at Area 11 & 12 in progress.  
 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.  
 9) Material Delivery - Aggregate 51.57 tonne.  
 10) Material Delivery - Sand 151.31 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** Highlight to DBO that for the test bored pile, if the bored hole is left without concreting or filling, it might impact the result for testing. DBO to ensure for test pile to be as accurate as the actual point. Deviation from the design and method statement will impact the test result. EPC to communicate with the designer and brief ER on the action plan forward.

	When	Who	What
Meetings	N/A		

**Comments** N/A

# FICHTNER

Site Log

Date                    10/09/2024                    Site:            Greater Male WTE                    Site Representative:    Sofi bin Ismail  
 Tuesday  
 Time on site:                    8:30    Time off site:                    18:00                    Completed by:                    Sofi Bin Ismail

**Weather:**                    Sunny

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Concrete casting at Bunker Wall I (7th layer) (BW20) completed.  
 4) Bunker - Concrete casting at Bunker Wall E (7th layer) (BW6) completed.  
 5) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (7th layer) (BW16 & BW17) in progress.  
 6) Bunker East Side - Reinforcement bar and formwork installation at Bunker Column (C16) in progress.  
 7) Bunker East Side - Concrete casting at Bunker Column (C13) completed.  
 8) Bunker - Crack remedial work at Bunker Wall up to 6th layer in progress.  
 9) Bunker West Side - Spun pile cutting at Bunker West Side in progress.  
 10) Incinerator Area - Application of waterproofing membrane at Area 11 & 12 in progress.  
 11) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.  
 12) Water Intake - Site clearing work in progress.  
 13) Material Delivery - Sand 180.84 tonne & Aggregate 125.03 tonne.

**Safety Audits/Safety Walkarounds**                    N/A

**Safety and Environmental Incidences**                    N/A

**Compliance to Design and construction methods, approved materials**                    N/A

**Major Quality Issues**                    N/A

**Site Instructions Issued**                    N/A

**Verbal communication**                    N/A

	When	Who	What
Meetings	N/A		

**Comments**                    N/A

# FICHTNER

Site Log

**Date** 11/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Wednesday**  
**Time on site:**  **Time off site:**       **Completed by:**

**Weather:**

	Total	Civil	Process	
<b>Workers on Site</b>	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork installation at Bunker Wall I (7th layer) (BW16 & BW17) in progress.
- 4) Bunker East Side - Reinforcement bar and formwork installation at Elevator Wall (BW33 & BW15) (+5 to +7.8) in progress.
- 5) Bunker East Side - Concrete casting at Bunker Column (C16 & C19) completed.
- 6) Bunker - Crack remedial work at Bunker Wall up to 6th layer in progress.
- 7) Incinerator Area - Application of waterproofing membrane at Area 11 & 12 in progress.
- 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.
- 9) Water Intake - Site clearing work in progress.
- 10) Water Intake - Temporary sheetpile installation in progress.
- 11) Material Delivery - Sand 100.47 tonne, Aggregate 49.81 tonne & Cement 20.25 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
<b>Meetings</b>	<input type="text" value="N/A"/>		

**Comments**

Site Log



Date: 12/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Thursday  
 Time on site:  Time off site:  Completed by:

Weather:

Total Civil Process

0	0	0
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Note : Enter this information when it is available, at least once per week as a minimum

Workers on Site

Site Activities,  
 Contractors  
 Involved, Major  
 Deliveries,  
 Testing,  
 Inspections

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Bunker Wall I (7th layer) (BW16 & BW17) completed.
- 4) Bunker East Side - Reinforcement bar and formwork installation at Elevator Wall (BW33 & BW15) (+5 to +7.8) in progress.
- 5) Bunker West Side - Spun pile cutting in progress.
- 6) Bunker - Crack remedial work at Bunker Wall up to 6th layer in progress.
- 7) Incinerator Area - Application of waterproofing membrane at Area 11 & 12 in progress.
- 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.
- 9) Water Intake - Site clearing work in progress.
- 10) Water Intake - Temporary sheetpile installation in progress.
- 11) Material Delivery - Cement 79.75 tonne.

Safety  
 Audits/Safety  
 Walkarounds

Safety and  
 Environmental  
 Incidences

Compliance to  
 Design and  
 construction  
 methods,  
 approved  
 materials

Major Quality  
 Issues

Site Instructions  
 Issued

Verbal  
 communication

Meetings

When	Who	What
N/A		

Comments

# FICHTNER

Site Log

**Date** 13/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

OFF-DAY FRIDAY

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Comments**



# FICHTNER

Site Log

**Date** 14/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Saturday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Sunny

	Total	Civil	Process
Workers on Site	0	0	0

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork at Wall G (BW27) (8th layer) in progress.
- 4) Bunker - Reinforcement bar and formwork at Wall F (BW29) (8th layer) in progress.
- 5) Bunker - Reinforcement bar and formwork at Wall D (BW11) (7th layer) in progress.
- 6) Bunker East Side - Reinforcement bar and formwork installation at Elevator Wall (BW33 & BW15) (+5 to +7.8) in progress.
- 7) Bunker West Side - Spun pile cutting for B2-6, B2-7, B2-8, B2-9 & B2-10.
- 8) Bunker - Crack remedial work at Bunker Wall up to 6th layer in progress.
- 9) Incinerator Area - Application of waterproofing membrane at Area 11 & 12 completed. Spark test completed.
- 10) Incinerator Area - Reinforcement bar and formwork at Area 11 in progress.
- 11) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.
- 12) Material Delivery - Cement 206.45 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
Meetings	N/A		

**Comments** N/A



## Greater Male Waste to Energy Project

### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
15.9.2024	21.9.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer to 7<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 8<sup>th</sup> layer in progress 20%.
- Bunker East Side - Elevator Shaft completed until +7.8m level.
- Bunker West Side - Spun pile cutting completed.
- APC Area - No activity
- Chimney Area - Test bored pile on-hold.
- Boiler Area - No activity
- Incinerator Area - Waterproofing completed. Foundation Area 11 completed.
- Incinerator Area - Reinforcement bar and formwork at Area 12 in progress.
- Turbine Area - No activity.
- Water Intake - Site clearing completed.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO



OVERALL - POINT THREE



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 7<sup>th</sup> LAYER 100% COMPLETED.

7



BUNKER SOUTH SIDE.

8



APC AREA - NO ACTIVITY

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - ELEVATOR SHAFT AND COLUMN UP TO +7.8M



11



INCINERATOR AREA - AREA 12 REINFORCEMENT BAR AND FORMWORK IN PROGRESS

12



INCINERATOR AREA - AREA 11 FOUNDATION COMPLETED.

13



BUNKER WEST SIDE - SPUN PILE CUTTING COMPLETED.

14



BUNKER SOUTH SIDE BACKFILLING IN PROGRESS.

# FICHTNER

Site Log

Date      15/09/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Sunday  
 Time on site:            Time off site:            Completed by:     

**Weather:**     

	Total	Civil	Process
Workers on Site	0	0	0

Note : Enter this information when it is available, at least once per week as a minimum

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork at Wall G (BW27) (8th layer) in progress.
- 4) Bunker - Reinforcement bar and formwork at Wall F (BW29) (8th layer) in progress.
- 5) Bunker - Reinforcement bar and formwork at Wall D (BW13) (7th layer) in progress.
- 6) Bunker - Concrete casting at Wall D (BW11) (7th layer) completed.
- 7) Bunker East Side - Concrete casting at Elevator Wall (BW33 & BW15) (+5 to +7.8) completed.
- 8) Bunker - Crack remedial work at Bunker Wall up to 6th layer completed.
  
- 9) Incinerator Area - Reinforcement bar and formwork at Area 11 in progress.
  
- 10) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.
  
- 11) Material Delivery - Aggregate 73.42 tonne.

**Safety Audits/Safety Walkarounds**     

**Safety and Environmental Incidences**     

**Compliance to Design and construction methods, approved materials**     

**Major Quality Issues**     

**Site Instructions Issued**     

**Verbal communication**     

	When	Who	What
Meetings	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

**Date** 16/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Monday**  
**Time on site:**  **Time off site:**       **Completed by:**

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of bunker area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork at Wall G (BW27) (8th layer) in progress.
- 4) Bunker - Reinforcement bar and formwork at Wall F (BW29) (8th layer) in progress.
- 5) Bunker - Reinforcement bar and formwork at Wall D (BW13) (7th layer) in progress.
- 6) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.
- 7) Incinerator Area - Reinforcement bar and formwork at Area 11 in progress.
- 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

Date      17/09/2024      Site:      Greater Male WTE      Site Representative:      Sofi bin Ismail  
 Tuesday  
 Time on site:      8:30      Time off site:      18:00      Completed by:      Sofi Bin Ismail

**Weather:**      Cloudy

	Total	Civil	Process	
Workers on Site	113	113	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of bunker area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Reinforcement bar and formwork at Wall G (BW27) (8th layer) in progress.  
 4) Bunker - Concrete casting at Wall F (BW29) (8th layer) completed.  
 5) Bunker - Concrete casting at Wall D (BW13) (7th layer) completed.  
 6) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.  
 7) Incinerator Area - Reinforcement bar and formwork at Area 11 in progress.  
 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.  
 9) Water Intake - Site clearing in progress.

**Safety Audits/Safety Walkarounds**      N/A

**Safety and Environmental Incidences**      N/A

**Compliance to Design and construction methods, approved materials**      N/A

**Major Quality Issues**      N/A

**Site Instructions Issued**      N/A

**Verbal communication**      Bunker Wall 7th layer has been completed. Inform DBO to conduct overall inspection on the completed wall on 19/9/2024.

	When	Who	What
Meetings	9:00am	FIT, DBO & EPC	Weekly Site Meeting
			1) Brief planned work for this week, 7th layer bunker wall completed. To conduct inspection.
			2) Highlight the outstanding work still open. Urge EPC to close by next week.
			3) Chemical storage finding still not complete. EPC informed to complete by this week.
			4) EPC highlight material for Bunker Wall and Area 11 & 12 are available. Boiler area ordered.

**Comments**      The tower crane (boiler) regular maintenance was conducted by PWA. FIT highlight to record the work and keep in log book specifying type of maintenance work and what inspection has been carried out.

# FICHTNER

Site Log

**Date** 18/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Wednesday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy. Light rain from 15:00 to 18:00.

	Total	Civil	Process	
<b>Workers on Site</b>	113	113	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of incinerator area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Reinforcement bar and formwork at Wall G (BW27) (8th layer) in progress.
- 4) Bunker - Reinforcement bar and formwork at Wall E (BW8 & BW9) (8th layer) in progress.
- 5) Bunker - Concrete casting at Wall E (BW6) (8th layer) completed.
- 6) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.
- 7) Bunker East Side - Reinforcement bar and formwork at Beams (B1002, B1004, B1035 & B1036) in progress.
- 8) Incinerator Area - Reinforcement bar and formwork at Area 11 in progress.
- 9) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.
- 10) Material Delivery - Sand 73.03 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
<b>Meetings</b>	N/A		

**Comments** N/A

Site Log

# FICHTNER

Date: 19/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Thursday  
Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy.

	Total	Civil	Process
Workers on Site	0	0	0

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

- 1) Dewatering of incinerator area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Wall G (BW27) (8th layer) completed.
- 4) Bunker - Reinforcement bar and formwork at Wall E (BW8 & BW9) (8th layer) in progress.
- 5) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.
- 6) Bunker East Side - Reinforcement bar and formwork at Beams (B1002, B1004, B1035 & B1036) in progress.
- 7) Incinerator Area - Reinforcement bar and formwork at Area 11 in progress.
- 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.

Safety Audits/Safety Walkarounds: N/A

Safety and Environmental Incidences: N/A

Compliance to Design and construction methods, approved materials: N/A

Major Quality Issues: N/A

Site Instructions Issued: N/A

Verbal communication: N/A

Meetings	When	Who	What
	N/A		

Comments: N/A

Site Log



Date 20/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

Weather:

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

OFF-DAY FRIDAY

1) Incinerator Area - Concrete casting at Area 11 (foundation slab) completed.

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

Meetings	When	Who	What
	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

Comments



Site Log



Date: 21/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy. Light rain from 16:00 to 18:00

Table with columns: Total, Civil, Process. Values: 0, 0, 0. Note: Enter this information when it is available, at least once per week as a minimum

Workers on Site: 1) Dewatering of incinerator area continue. 2) Bunker - Structural backfilling for external bunker wall in progress. 3) Bunker - Concrete casting at Wall E (BW6 & BW7) (8th layer) completed. 4) Bunker - Reinforcement bar and formwork at Wall D (BW11) (8th layer) in progress. 5) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress. 6) Bunker East Side - Reinforcement bar and formwork at Beams (B1002, B1004, B1035 & B1036) in progress. 7) Incinerator Area - Reinforcement bar and formwork at Area 12 in progress. 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.

Safety Audits/Safety Walkarounds: N/A

Safety and Environmental Incidences: N/A

Compliance to Design and construction methods, approved materials: N/A

Major Quality Issues: N/A

Site Instructions Issued: N/A

Verbal communication: N/A

Table with columns: When, Who, What. Row 1: N/A, empty, empty. Rows 2-4: empty, empty, empty.

Comments: N/A



## Greater Male' Waste-to-Energy Project

### Greater Male Waste to Energy Project

#### Site Weekly Report

by the Employer's Representative

Week from	Week to	Prepared by	Signature	Checked by	Signature
22.9.2024	28.9.2024	Sofi bin Ismail		Naahee Nazim	

#### Progress Review

The works performed during the Reporting Week are as follows:

- Dewatering work for Bunker area continues.
- Bunker - Concrete casting work for Bunker wall 1<sup>st</sup> layer to 7<sup>th</sup> layer have been 100% completed.
- Bunker - Concrete casting work for Bunker Wall 8<sup>th</sup> layer in progress 40%.
- Bunker - Concrete casting work for Bunker Wall 9<sup>th</sup> layer in progress 15%.
- Bunker East Side - Elevator Shaft completed until +7.8m level. Preparation of beams in progress.
- Bunker West Side - Spun pile cutting completed. Pilecaps completed.
- APC Area - No activity
- Chimney Area - Test bored pile on-hold.
- Boiler Area - No activity
- Incinerator Area - Waterproofing completed. Foundation Area 11 & 12 completed.
- Turbine Area - No activity.
- Water Intake - No activity.

Attachment:

Site Daily Logs

## Site Photos

The below figure provides an overview of fixed photo locations and angles where photos are taken from in each Reporting Week.

Photos 1 to 5 will include photos according to the map, the remaining photos are taken from elsewhere and are not exactly from the same location and angle in every Weekly Report.

1



OVERALL - POINT ONE

2



OVERALL - POINT TWO

3



OVERALL - POINT THREE

4



OVERALL - POINT FOUR

5



OVERALL - POINT FIVE

6



BUNKER AREA - OVERALL BUNKER WALL 7<sup>th</sup> LAYER 100% COMPLETED.

7



BUNKER SOUTH SIDE.

8



APC AREA - NO ACTIVITY

9



OVERALL VIEW FROM EAST SIDE

10



BUNKER EAST SIDE - BEAMS PREPARATION IN PROGRESS



11



INCINERATOR AREA - AREA 12 FOUNDATION COMPLETED

12



BUNKER WEST SIDE - PILECAPS COMPLETED. BACKFILLING WORK IN PROGRESS

13



BOILER AREA - NO ACTIVITY

14



NEW CHEMICAL STORAGE COMPLETED. PENDING INSPECTION

Site Log



Date 22/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Sunday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process
Workers on Site	113	113	0

*Note : Enter this information when it is available, at least once per week as a minimum*

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of incinerator area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Wall D (BW11) (8th layer) completed.
- 4) Bunker - Reinforcement bar and formwork at Wall D (BW13) (8th layer) in progress.
- 5) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.
- 6) Bunker East Side - Reinforcement bar and formwork at Beams (B1002, B1004, B1035 & B1036) in progress.
- 7) Incinerator Area - Reinforcement bar and formwork at Area 12 in progress.
- 8) Chimney Area - Drilling work for test bored pile on hold. Machinaries broke down.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

When	Who	What
9:00am	FIT, DBO & EPC	Weekly Site Meeting
		1) Brief planned work for this week, 8th layer bunker wall and area 12.
		2) Highlight the outstanding work still open. Urge EPC to close by this week.
		3) Chemical storage finding still not complete. EPC to conduct inspection with DBO.
		4) EPC highlight material for Bunker Wall and Area 11 & 12 are available. Boiler area ordered.

**Comments**

# FICHTNER

Site Log

**Date** 23/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
 Monday  
 Time on site:  Time off site:  Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	113	113	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

- 1) Dewatering of incinerator area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.
- 3) Bunker - Concrete casting at Wall D (BW13) (8th layer) completed.
- 4) Bunker - Reinforcement bar and formwork at Wall G (BW27) (9th layer) in progress.
- 5) Bunker - Reinforcement bar and formwork at Wall E (BW6) (9th layer) in progress.
- 6) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.
- 7) Bunker East Side - Reinforcement bar and formwork at Beams (B1002, B1004, B1035 & B1036) in progress.
- 8) Bunker West Side - Structural backfilling work for pilecaps in progress.
- 9) Incinerator Area - Reinforcement bar and formwork at Area 12 in progress.
- 10) Material Delivery - Aggregate 25.20 tonne, Sand 96.48 tonne, Fly Ash 100.80 tonne.

**Safety Audits/Safety Walkarounds**

**Safety and Environmental Incidences**

**Compliance to Design and construction methods, approved materials**

**Major Quality Issues**

**Site Instructions Issued**

**Verbal communication**

	When	Who	What
Meetings	2:00pm	ER, DBO, EPC	QMP Audit by ER
			1) Review QMP and its subsidiary documentations.
			2) Review notification of inspection (NOI).
			3) Review material approval request (MAR).
			4) Outcome of the audit and finding by ER to be shared for DBO action.

**Comments**

# FICHTNER

Site Log

Date      24/09/2024      Site:    Greater Male WTE      Site Representative:    Sofi bin Ismail  
 Tuesday  
 Time on site:       Time off site:            Completed by:

**Weather:**

	Total	Civil	Process	
Workers on Site	0	0	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of incinerator area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Concrete casting at Wall G (BW27) (9th layer) completed.  
 4) Bunker - Concrete casting at Wall E (BW6) (9th layer) completed.  
 5) Bunker - Reinforcement bar and formwork at Wall G (BW29) (9th layer) in progress.  
 6) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.  
 7) Bunker East Side - Reinforcement bar and formwork at Beams (B1002, B1004, B1035 & B1036) in progress.  
 8) Bunker West Side - Lean concreting for 10 pilecaps at Bunker West Side completed.  
 9) Incinerator Area - Reinforcement bar and formwork at Area 12 in progress.  
 10) Material Delivery - Aggregate 78.71 tonne, Sand 39.42 tonne, Cement 34.03 tonne.

**Safety Audits/Safety Walkarounds**     

**Safety and Environmental Incidences**     

**Compliance to Design and construction methods, approved materials**     

**Major Quality Issues**     

**Site Instructions Issued**     

**Verbal communication**     

	When	Who	What
Meetings	<input type="text" value="N/A"/>		

**Comments**

# FICHTNER

Site Log

**Date** 25/09/2024      **Site:** Greater Male WTE      **Site Representative:** Sofi bin Ismail  
**Wednesday**  
**Time on site:** 8:30 **Time off site:** 18:00      **Completed by:** Sofi Bin Ismail

**Weather:** Cloudy.

	Total	Civil	Process	
<b>Workers on Site</b>	113	113	0	<i>Note : Enter this information when it is available, at least once per week as a minimum</i>

**Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections**

1) Dewatering of incinerator area continue.  
 2) Bunker - Structural backfilling for external bunker wall in progress.  
 3) Bunker - Concrete casting at Wall F (BW29) (9th layer) completed.  
 4) Bunker - Reinforcement bar and formwork at Wall E (BW9) (9th layer) in progress.  
 5) Bunker East Side - Reinforcement bar and formwork at Elevator Wall (BW33 & BW15) (+7.80 to +9.50) in progress.  
 6) Bunker East Side - Reinforcement bar and formwork at Beams (B1002, B1004, B1035 & B1036) in progress.  
 7) Bunker West Side - Concrete casting for 10 pilecaps at Bunker West Side completed.  
 8) Incinerator Area - Reinforcement bar and formwork at Area 12 in progress.  
 9) Material Delivery - Aggregate 172.50 tonne, Sand 7.62 tonne, Cement 15.97 tonne.

**Safety Audits/Safety Walkarounds** N/A

**Safety and Environmental Incidences** N/A

**Compliance to Design and construction methods, approved materials** N/A

**Major Quality Issues** N/A

**Site Instructions Issued** N/A

**Verbal communication** N/A

	When	Who	What
<b>Meetings</b>	N/A		

**Comments** N/A

Site Log



Date: 26/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Thursday Time on site: 8:30 Time off site: 18:00 Completed by: Sofi Bin Ismail

Weather: Cloudy. Heavy rain from 10:30 to 17:00.

	Total	Civil	Process	
Workers on Site	0	0	0	Note : Enter this information when it is available, at least once per week as a minimum

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

1) Dewatering of incinerator area continue.  
 2) Bunker - Reinforcement bar and formwork at Wall D (BW9) (9th layer) in progress.  
 3) Bunker - Reinforcement bar and formwork at Wall E (BW9) (9th layer) in progress.

Safety Audits/Safety Walkarounds N/A

Safety and Environmental Incidences N/A

Compliance to Design and construction methods, approved materials Inspection of the completed backfilling work outside bunker south side. The compaction rate is as per design requirement and does not affected by the heavy rain. EPC remedial work on backfilling work acceptable.

Major Quality Issues N/A

Site Instructions Issued N/A

Verbal communication N/A

Meetings	When	Who	What
	N/A		

Comments N/A

Site Log



Date 27/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail  
 Friday  
 Time on site:  Time off site:  Completed by:

Weather:

	Total	Civil	Process
Workers on Site	<input type="text"/>	<input type="text"/>	<input type="text"/>

*Note : Enter this information when it is available, at least once per week as a minimum*

Site Activities, Contractors Involved, Major Deliveries, Testing, Inspections

OFF-DAY FRIDAY

- 1) Dewatering of incinerator area continue.
- 2) Bunker - Reinforcement bar and formwork at Wall D (BW9) (9th layer) in progress.
- 3) Bunker - Reinforcement bar and formwork at Wall E (BW9) (9th layer) in progress.
- 4) Incinerator Area - Concrete casting for foundation at Area 12 completed.
- 5) Material Delivery - Aggregate 127.87 tonne, Sand 205.54 tonne.

Safety Audits/Safety Walkarounds

Safety and Environmental Incidences

Compliance to Design and construction methods, approved materials

Major Quality Issues

Site Instructions Issued

Verbal communication

Meetings	When	Who	What
	<input type="text" value="N/A"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>

Comments



Site Log

# FICHTNER

Date: 28/09/2024 Site: Greater Male WTE Site Representative: Sofi bin Ismail

Saturday

Time on site:

8:30

Time off site:

18:00

Completed by:

Sofi Bin Ismail

Weather:

Cloudy.

Total	Civil	Process
0	0	0

Workers on Site

Note : Enter this information when it is available, at least once per week as a minimum

Site Activities,  
Contractors  
Involved, Major  
Deliveries,  
Testing,  
Inspections

- 1) Dewatering of incinerator area continue.
- 2) Bunker - Structural backfilling for external bunker wall in progress.

Safety  
Audits/Safety  
Walkarounds

N/A

Safety and  
Environmental  
Incidences

N/A

Compliance to  
Design and  
construction  
methods,  
approved  
materials

N/A

Major Quality  
Issues

N/A

Site Instructions  
Issued

N/A

Verbal  
communication

N/A

Meetings

When	Who	What
N/A		

Comments

N/A

# Greater Male Waste to Energy Project



## EMS inspection cum audit

by the Employer's Representative

Date and Time of the Visit	Conducted by [ER]/MOE	Signature	Witnessed by	Signature
29.07.2024 and 30.07.2024	Sunil Gupta Yamna Naahee		DBO Contractor and EPC contractor	

### A. Status of Construction Activities on site<sup>1</sup>

Particulars	Observations		
	Completed	In progress	New activity started
Spun piling	95%	No	-
Excavation	partly	No	-
Concreting	partly	Yes	-
Backfilling	partly	Yes	

<sup>1</sup>Activities till date of inspection cum audit

B. Status of compliances of stipulated conditions of applicable permits

Type of permit	Validity	Conditions stipulated	<sup>2</sup> Status of compliance
Dewatering permit from HDC	30 July 2024	To be renewed after 28 days.	Being complied as application has been made for renewal
Storage of 5000-liter diesel mobile tanker owned by EPC contractor	Yet to be obtained	<ul style="list-style-type: none"> <li>As per local regulation -R160-2015, permission from MNDF is mandatory.</li> <li>To be included if any permission is required from URA as per latest Energy Act 18/2021</li> </ul>	<ul style="list-style-type: none"> <li>Not complied. However, process for registration of diesel tanker has been started. However, the tanker has been in use since ~October 2023.</li> <li>Reportedly, applications have been submitted for mobile diesel tanker and for 2 out of 16 vehicles for getting permit and registration</li> <li>Reportedly mobile diesel tanker owned by sub-contractor was to supply diesel to vehicles/machinery/equipment owned by sub-contractors. However no further detail was shared on status of permit from MNDF.</li> </ul>
Status of legal compliance of diesel mobile tanker owned by sub-contractor reportedly Villa Pvt Ltd and spotted within project site during visit in May-24	Not shared		
Registration of 5000-liter diesel in mobile tanker, transit mixers and other vehicles with transport authority	Yet to be obtained	As per local regulation –R-18-2021, registration of vehicle is mandatory	
Commissioning of bore well and RO plant for supply of water to batching plant.	Yet to be obtained	Need to comply with applicable provisions of local regulations on EIA, ground water abstraction and waste water management etc which mainly includes approval from EPA and permit from URA and HDC.	Not complied. However same is still in commissioning stage. Reportedly DBO contractor is in process of getting the same and shall not operate the bore well and RO plan without getting requisite permits.
Status of permits for all DG sets in operation (1x200 KVA+2x180 KVA+1x385 KVA) from URA	In process	As per local regulation 2023/R-78, permit from URA need to be obtained.	Partially complied – Reportedly it is in process. However, URA has given a conditional approval to operate DG sets of total capacity of 200 KW on 18 <sup>th</sup> September 2023 via an official email.

<sup>2</sup> Complied: Mitigation measures have been implemented; *no further action required*, Being complied: Some mitigation measures have been implemented and some *are in the process of implementation, ongoing process*, Partially complied: *Some mitigation measures have been implemented* but there is a gap in compliance and a remedial action is required, Not complied: Mitigation measures have not been implemented

C. Human Resources on site

a) Subcontractors

Name and address	Type of contract (Labour supplier/Job work)	Status
Villa Pvt Ltd	<ul style="list-style-type: none"> <li>Supply of construction material for batching plant</li> <li>Operation of batching plan</li> </ul>	<ul style="list-style-type: none"> <li>On random basis, contract with Villa Pvt Ltd was reviewed and verified that conditions have been mentioned in contract for compliance of applicable labour and EHS regulations including getting requisite permit(s), if any and ADB SPS in line with EPC CEMP, HS Plan and other HSE plans, method of statement and SOPs.</li> <li>HR manager was on leave during site visit hence status of system in place to ensure the compliance of labour laws by various sub-contractors could not be verified.</li> </ul>
Gage Pvt Ltd	Security provided	
Nsure Pvt Ltd	Laboratory Sample Transportation	
ELS Company	Laboratory work for civil works related testing	
Leo Trading Company	Excavation work	
Clamp Company Pvt Ltd	General Electrical works	

b) Manpower on site (local)-

Particulars	Locals					Total
	Managers	Supervisor	Workers			
			Skilled	Semi-skilled	Unskilled	
Permanent	HR manager was on leave during site visit and details were not made available. However as per Daily Progress report- Total manpower working on site was 226 which mainly includes EPC contractor Staff-43, Indirect worker-36, Direct worker-109, Villa Pvt Ltd for batching plant operation-20, GAGE security company-7, ELS-6 etc.					
Contracted (through contractor)						
Sub-contractor on job work						
Contracted (direct)						

c) Manpower on site (Expatriates)-

Particulars	Expatriates					Total
	Managers	Supervisor	Skilled	Semi-skilled	Unskilled	
Permanent	Details were not made available as HR manager was on leave.					
Contracted (through contractor)						
Sub-contractor on job work						
Contracted (direct)						

d) Others

Particulars	Observations	Status of compliance of respective plan
Total number of working shifts/days	Normally one shift per day but concreting was also commenced beyond shift time on SOS basis and considered as working for extended period.	Being complied
Working hour per shift	From 7 a.m. to 6 p.m.	Being complied
Contract with staff/workers	ER has verified the status of contracts and appointment letters on random basis during visit for monthly inspections. However same could not be verified as HR manager was on leave.	Being complied
Criteria for engagement of skilled and semi-skilled workers	No detail has been made available.	Not complied as no record was made available to verify
Status of insurances for workers	Status could not be updated as HR manager was on leave, however based on finding of last audit and discussion at site: <ul style="list-style-type: none"> <li>Personal Mediclaim insurance has been covered as part of permit to work issued by Maldivian Government and no separate insurance cover for individual has been provided. However other insurances such as third party, group insurance etc are in place.</li> <li>Records of Permit to Work issued by Maldivian Govt have been kept. However, reportedly details of medical checkup conducted Maldivian Govt for workers/staff before issue of permit to work are kept for record but could not be</li> </ul>	Being complied.

	shared to verify. However, record keeping is proposed in OHS monitoring plan which is in the process of finalization.	
How are records of working hours kept?	Manual details with signature are being collected in loose sheets then same are kept by HR department as original sheets and also in soft copy.	Being complied
Criteria followed for wages to comply with local regulations	<ul style="list-style-type: none"> <li>• Local employees- Basic salary + 14% pension fund+ Single accommodation in camp area+ Food in mess.</li> <li>• Expatriates (below supervisor level)- Basic salary + Single accommodation in camp area+ Food in mess.</li> <li>• Expatriates (above supervisor level)- Basic salary + Single accommodation in camp area+ Food in mess+ ticket to travel home after every four months.</li> <li>• Combined accounts sheets have been shared to verify the facts.</li> </ul>	Being complied
What is percentage of overtime recorded	Based on last audit report it was approx @10-15%. However same could not be updated during site visit as HR manager was on leave.	Being complied
How will the employer of particular worker identify during supervision/site visit (is any identity card etc being issued having details of worker such as name, his employer etc)	<ul style="list-style-type: none"> <li>• Identity card has been issued to all individuals.</li> <li>• Blood group has been mentioned as unknown for many workers.</li> <li>• Name of sub-contractors has not been mentioned.</li> <li>• When checked on site, many workers were found not carrying identity cards</li> </ul>	Partially complied
How does DBO/EPC contractor make sure the wages paid to workers by sub-contractor are in compliance with local regulations?	No record has been shared to verify as HR manager was on leave during site visit.	Not complied till records are verified.

#### D. Camp area

Particulars	Observations	Status of compliance of respective plan
How many accommodations are being occupied	<ul style="list-style-type: none"> <li>• Total manpower engaged at project site is 226.</li> <li>• Total 43 rooms for workers are available with capacity of 258 workers @ 6 workers/room. However, at present 150 workers are staying in camp. <ul style="list-style-type: none"> <li>▪ All 36 single occupancy room available for engineers and for senior management are occupied</li> </ul> </li> </ul>	Being complied

How many workers are not being provided accommodation, if any	<ul style="list-style-type: none"> <li>• Reportedly, staff and workers of Villa Pvt Ltd subcontractor and other sub-contractors except GAGE Pvt Ltd are staying in accommodation provided by sub-contractor outside the project site.</li> <li>▪ Staff of DBO contractor is staying in Male/Hulumale.</li> </ul>	Being complied
Conditions in and around accommodation and surrounding area	<p>Following observations were made:</p> <ol style="list-style-type: none"> <li>a. Inadequate provision of lights inside the workers accommodation</li> <li>b. Workers need to be educated and encouraged to keep rooms clean.</li> <li>c. Corridor is used for haphazard storage of items such as shoes and dirty cloths.</li> <li>d. Only one gate has been provided in each block of accommodation which is also designated as the emergency exit gate;</li> <li>e. Workers carry out ablution using a hose placed outside which leads to pooling of water on the ground.</li> </ol> <ul style="list-style-type: none"> <li>▪ Potential communication gap between workers and camp manager due to difference in spoken languages.</li> </ul>	Being complied but need to have corrective measures and more effective inspection.
Conditions in and around Kitchen	<ul style="list-style-type: none"> <li>▪ Kitchen is located within camp area. Inside the kitchen, conditions were found satisfactory.</li> </ul>	Same as above
Status of facilities such as food, laundry, drinking water, water supply for bathing and others, food, recreation etc	<ul style="list-style-type: none"> <li>▪ Mainly Turkish food is cooked in kitchen and provided in separate dining hall for staff and workers. Same food is served to all (workers/staff) except for personnel mainly from India, Bangladesh and Sri Lanka for which food is brought from outside.</li> <li>▪ Washing machines are provided.</li> <li>▪ Treated water (via RO at Kitchen and via filters at two locations) is served for drinking for workers and bottled water is served to staff.</li> <li>• Recreation room with TV and indoor games is in place.</li> </ul>	Being complied
Inspections carried out and record keeping by DBO/EPC	Frequency of in-house inspection on monthly basis to comply with relevant plan.	Being complied
Medical examination of food handlers	Medical examination mainly intestinal parasites and salmonella screening has been conducted in October 2023 for person(s) working in the capacity of food handler	Being complied

E. House keeping

Particulars	Observations
In and around area for accommodation	Overall found satisfactory and housekeeping is being carried out on regular basis.
In and around Kitchen area	Same as above
In and around construction site	Earmarked route from office building to gate near quay wall for pedestrians and area near storage area(s) were found with grass hence need attention. Otherwise, satisfactory.
In and around storage area	Earmarked area was found with patches of grasses and bushes. Otherwise, satisfactory.
In and around waste storage areas	Earmarked area was found with patches of grasses and bushes, otherwise satisfactory.

F. Grievance Redressal Mechanism

Particulars	Observations with photo					Status of compliance of GRM plan
	Number of complaint box locations	Number of complaints received	Type of complaints	Status of complaints	Record keeping	
Internal complaints	<ul style="list-style-type: none"> <li>Internal complaint boxes are located on two entry gates of project site.</li> <li>Reportedly one anonymous complaint regarding quality of food has been received in the month of July which is in process.</li> </ul>					Partially complied <ul style="list-style-type: none"> <li>Complaint forms provided in drop box are in English and Turkish language only. Forms of other languages should be provided as well.</li> <li>GRC has been constituted and only one meeting was conducted on 14 May 2024 in attendance of ER and MOE.</li> <li>No GRC meeting was conducted to review the status of compliance of GRM plan and as per GRM plan GRC meetings are to be conducted on a monthly basis.</li> </ul>



	<ul style="list-style-type: none"> <li>• Inadequate record keeping to verify the compliance of plan.</li> </ul>
<p>Com-plaints from public</p> <p>Public complaint boxes are located on two entry gates of project site and the public ferry terminal of Thilafushi. No public complaints have been recorded to date.</p>	<p>Partially complied</p> <ul style="list-style-type: none"> <li>• Complaint box has been placed at public ferry terminal of Thilafusi. Also, public awareness drive was conducted at public ferry terminal on 21 July 2024 for one hour. As per Contractor, the interest shown by the public is very low.</li> <li>• No public announcements /awareness has been made through local newspapers, community bulletin boards etc and, through MoE.</li> </ul>

### G. Stakeholder consultation

Particulars	Date of consultation		Details of findings	Status of compliance of Stakeholder consultation plan
	conducted	proposed		
Public	No	No	Nil	Being complied – As per plan it will be conducted as and when required and during EIA update on the basis of approved detailed design.
Others (mainly with agencies such as WAMCO, URA, MNDF etc)	No	No	Nil	Being complied

### H. Waste Management (Hazardous, non-hazardous, E-waste, Construction waste etc)

Source of waste generated	Type of waste generated	Collection	Storage	Disposal	Observations with photos	Status of compliance of Waste management plan and Method of statement
					Record keeping	
General wastes	Kitchen waste, plastic waste, paper etc	Collected at source	Stored at dedicated place	Handed over to WAMCO for disposal	<ul style="list-style-type: none"> <li>Partial details are being provided in Daily Progress Report (DPR) and monthly reports</li> <li>Receipts of WAMCO of accepting waste have been provided.</li> </ul>	Being complied. However: <ol style="list-style-type: none"> <li>DPR need to be modified accordingly.</li> <li>Discrepancies need to be rectified in reporting of cumulative quantity of waste, if it is not disposed e.g. waste oil, sewage sludge, medical waste, sludge from STP etc</li> </ol>
STP	Sewage sludge	Collected at source	Stored at dedicated place	Yet to be disposed		
Construction waste	Concrete residual  Wood debris	Collected at source	Stored at various places	Partially handed over to WAMCO for disposal  Handed over to WAMCO for disposal		

Hazardous waste	Engine oil & lubricant, chemical waste, E-waste, batteries, empty containers etc	Collected at source	Stored at dedicated place	Only empty containers of chemicals are handed over to WAMCO for disposal and other waste as mentioned are being stored at site.		
Medical waste	Medical waste other than used needles of syringes	Collected at source	Stored in plastic box at source	Handed over to WAMCO for disposal		
	Used needles of syringes and used blades	Collected at source	Stored in plastic box at source	<ul style="list-style-type: none"> <li>• Yet to be disposed as WAMCO does not accept the same.</li> <li>• Reportedly, EPC is still negotiating with hospital IGMH, Male for disposal of same.</li> </ul>	Log book is not maintained and also no detail is provided in monthly report	Being complied. However, quantity need to be provided in monthly report.

### I. Air emission

Source of emission	Type of emission	Mitigation measures in place	Observations with photos	Record keeping
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	(Dust/gas)	Point source/fugitive			Status of compliance of air emission management plan and method of statement
Excavation – machinery used and DG sets	Dust and gas	<ul style="list-style-type: none"> <li>Point sources</li> <li>Four DG sets (1x200KVA+2x180KVA+1x385 KVA) are in operation.</li> <li>Monitoring of exhaust gas emission.</li> </ul>	<p>a) Stack height as provided by manufacturer only.</p> <p>b) Preventive maintenance which is mainly confined to general checking and oil and filter change.</p> <p>c) For DG sets, preventive maintenance after every 500 running hours</p> <p>d) No exhaust emission monitoring is carried out. As per DBO contractor, it cannot be carried out as no facility is available in Maldives.</p>	<p>a) Records of preventive maintenance are kept and shared</p>	Partially complied
Excavation – Excavated soil storage area	Dust	-	<p>a) No quantification on stockpile of excavated soil has been reported in DPR and/or monthly report.</p> <p>b) DBO/EPC is of the view that water spray via sprinklers as mentioned in soil management plan is not effective as excavated soil is mainly coarse sand and water to be sprayed will not be retained by surface of stored soil.</p> <p>c) DBO/EPC agreed to submit applicable plan for dust suppression in compliance with EMP of approved EIA report as part of OHS monitoring plan.</p> <p>d) Ambient air quality monitoring for PM10, PM2.5, SO2 and NOx at two</p>	<ul style="list-style-type: none"> <li>Ambient air quality monitoring reports are provided as part of monthly report.</li> <li>Results of 24-hourly ambient air quality monitored during April and May months at two locations within the project site, show that that values of PM<sub>2.5</sub> varied from 27.4 to 41.13 µg/m<sup>3</sup> and PM<sub>10</sub> varied from 29.2 to 42.93 µg/m<sup>3</sup> exceeding the limit prescribed by WHO for PM<sub>2.5</sub>.</li> </ul>	Partially complied

				<p>locations within project site and seven locations outside project site (one sample for 24 hrs once in month) within project site has been commenced during April and May-24 only. As per DBO, ambient air quality at seven locations will be conducted on quarterly basis as per approved modified CEMP. However, DBO agreed to conduct ambient air quality at two locations within project site on monthly basis from August-2024.</p> <p>e) However, one hourly air monitoring at four workplaces for PM10, PM2.5, SO2 and NOx (once in month) has been carried out in June-24 but results were not considered for record as values reported were extremely low. DBO has been notified to conduct QA/QC including calibration of instruments used for monitoring.</p>	<ul style="list-style-type: none"> <li>Results of 24-hourly ambient air quality monitored during April and May months at seven locations outside the project site, show that values of PM<sub>2.5</sub> varied from 26.08 to 47.7 µg/m<sup>3</sup> and PM<sub>10</sub> varied from 27.96 to 50 µg/m<sup>3</sup> exceeding the limit prescribed by WHO for PM<sub>2.5</sub> at all locations while for PM<sub>10</sub> at two locations.</li> </ul>	
Batching plant	Dust	Mainly emissions	fugitive	<ul style="list-style-type: none"> <li>Storage areas of loose construction materials are covered with metal sheets from three directions while storage area for cement bags and fly ash is also covered with curtains and metal sheets.</li> <li>Cement and fly ash are being received and stored in bags of 1 tonne.</li> <li>No dust mitigation measure except PPEs to one worker as depicted in photograph enclosed is in place while feeding construction material</li> </ul>	Same as above	Same as above.

			to batching plant resulting fugitive emission during short duration.		
Transportation of materials	Dust and gas	Point source and fugitive source	<p>In addition to above mitigation measures,</p> <ul style="list-style-type: none"> <li>• Preventive maintenance which is confined to general check and to oil and filter change only</li> <li>• No exhaust emission monitoring is carried out. As per DBO contractor, it cannot be carried out as no facility is available in Maldives.</li> <li>• Provision of tarpaulin to cover the materials other than Cement and fly ash could not be verified as no record was shared and no transportation was in place at time of visit.</li> </ul>	Records of preventive maintenance of vehicles are in place	Partially complied.

#### J. Waste water management

Particulars	Observations including record keeping	Status of compliance waste water management plan and method of statement
Is STP in operation and respective records of discharge of treated wastewater, chemical used and running hours kept	No flow rate is monitored and no log book is provided to verify.	Being complied, however record of flow rate is to be kept at discharge point to establish real time water balance.
Is quantity of discharge from dewatering sedimentation pond being monitored and record kept	No flow rate is monitored.	Being complied, however record of flow rate is to be kept at discharge point.

Visual observations of water stored in sedimentation pond for discharge during dewatering	<ul style="list-style-type: none"> <li>• Algae formation is found which are being removed manually.</li> <li>• No record of manual inspections carried out was made available to verify.</li> <li>• Quality of discharge water is monitored on monthly basis.</li> </ul>	Being complied
Is any discharge of wastewater other than above two observed	<ul style="list-style-type: none"> <li>• No. Reportedly, all rain water is being percolated and no runoff is discharged into sea. Also, no water logging within project site was encountered during site visit.</li> <li>• No storm water drainage plan for construction phase is in place.</li> </ul>	Partially complied
Washing of transit mixers, vehicles used for transportation of construction materials and chiller for batching plant.	<ul style="list-style-type: none"> <li>• Waste water generated due to washing of transit mixers in batching plant is stored in sedimentation tank but discharge/disposal of overflow from sedimentation tank has not been established and verified as no record of same was maintained. However, Independent Environment Monitor, ER and PMU found temporary pipeline connected with sedimentation tank to discharge overflow on land within project site in May-24.</li> <li>• After being notified about this incident, DBO informed that all waste water generated from sedimentation tank is being taken away in tankers by Villa subcontractor for reuse at its project site located within same island.</li> <li>• Pipeline for discharge of above-mentioned waste water to adjacent site owned by third party was found during ER/MoE visit for inspection in early July-24. Also as depicted in photo of adjacent site, sludge is being accumulated due to discharge.</li> <li>• During site visit for audit, two tanks were found near sedimentation tank with pipe and pump.</li> <li>• However, no record and evidence (including CCTV footage) has been provided to verify the facts.</li> <li>• Transportation of materials via road is very limited as described in above sections. As per DBO, cleaning of wheels and under carriage of haul trucks prior to leaving site are being done in batching plant area. However, no record has been shared to verify the same and DBO has been notified for same.</li> <li>• Chiller is based on no discharge of waste water. Only make up water is added.</li> </ul>	<p>Not complied as</p> <ol style="list-style-type: none"> <li>1. Waste water management is to be established and verified.</li> <li>2. Ensure that the subcontractor (Villa) complies with the applicable permits, if any, for discharge of wastewater from sedimentation tank (batching plant area) are obtained as per discharge practices adopted/to be adopted.</li> <li>3. Records need to be kept.</li> </ol>

- Reportedly, sub-contractor, sub-contractor Vill Pvt Ltd was notified on violation via email on 18 July 2024

#### K. Soil management

Particulars	Observations with photos	Status of compliance Soil management plan and method of statement
Is record of soil excavated and stored being kept?	No record has been shared.	Not complied, however record of soil excavated and stored need to be kept and reported in monthly report.
Is visual inspection of excavated soil being done for any type of contamination by DBO/EPC?	Reportedly yes but no record has been shared	Not complied as no record of inspections was provided for verification.
Are trenches and barricades (garland drains) provided around storage area?	a) Not provided however provision of garland drains is mentioned in plan. b) EPC is of the view that same is not required as whole rain water and runoff is being percolated and even no water logging is encountered. c) EPC was asked to submit technical justification officially for same.	Partially complied. While EPC has not submitted a technical justification in writing for approval to PMU/ER, ER agrees that no water logging is occurring on site due to soil conditions.
Is soil excavated being used and/or disposed?	Partially. However, no record has been shared on quantity of soil used.	Being complied, however record of soil excavated and stored need to be kept and reported in monthly report.



## L. Spill Control and Containment

Particulars	Observations with photos	Status of compliance respective management plan and method of statement,
Are containers of chemicals present on site and storage areas properly labelled?	Yes, and real time inventory is kept.	Being complied
Sign of soil contamination on site, if any	Not observed during site visit.	
Are spill containment kits are located in ready to use mode?	<ul style="list-style-type: none"> <li>Two spill kits (one in batching plant area and other one in hazardous chemical storage area) have been provided within project site to handle maximum spillage of 50 litre by each kit. Additionally, one kit has also been provided in mobile diesel tanker.</li> </ul>	Partially complied as requirements of number and capacity of each spill kit need to be justified.
Locations of availability of spill containment kits and is it easily identified by anyone.	Yes	Being complied
Status of understanding of its usages at construction site and storage area of chemicals	Found Satisfactory	Being complied

## M. Misc

Particulars	Observations with photos	Status of compliance respective management plan and method of statement, if any
Has activity wise mapping of risk to	Yes. Overall, as per details given in in Environment Impact Register, specific in activity wise MOS and SOPs. However:	Partially complied

environment been carried out?	<ul style="list-style-type: none"> <li>a) No mapping of hazards and impacts of for commissioning of borewell and RO plant within area of batching plant- One bore well was being drilled and commissioning of RO plant is in process within area of operation of batching plant without mapping of hazards and impacts associated and corresponding mitigation measures.</li> <li>b) Reportedly HSE team has not been consulted for requirement of compliance of applicable local regulation at planning and procurement stage by construction team resulting violations with local regulations and HSE documents.</li> </ul>	
Have environment risks been reviewed just before start of particular construction activity and during execution?	<p>In addition to details given above:</p> <ul style="list-style-type: none"> <li>a) Permit to work system in place is being issued before start of particular construction activity by construction team.</li> <li>b) System is in place for regular inspections before start of construction activity by relevant experts during execution. However, HSE team is not been consulted</li> </ul>	Partially complied till verification of records and constitution of EHS committee
How are additional mitigation measures being identified and implemented?	<ul style="list-style-type: none"> <li>a) During approval of notification of inspection by ER and DBO before start of construction of particular activity and inspections by EPC staff before issue of permit to work and inspection during execution. However, no record has been shared to verify.</li> <li>b) HSE team of EPC also visit construction site on regular basis and communicate with construction team through WhatsApp group, if any issue is identified. Records kept are verified on random basis.</li> <li>c) Internal inspections are being carried out by EPC and DBO. Ramboll has been engaged for conducting inspections on monthly basis and audit on quarterly basis.</li> <li>d) Identified issues and requirements of additional mitigation measures are also discussed in weekly HSE meeting participated by representative of EPC, ER and DBO and recorded in online tracer system in place.</li> <li>e) Coordination between HSE team and construction team need to be made more productive and effective. EHS committee is yet to be constituted.</li> </ul>	Same as above
Status of understanding of workers and supervisors on environment risks considering	<ul style="list-style-type: none"> <li>▪ Found unsatisfactory.</li> <li>▪ Inadequate communication due to language issues as workers belong to multiple counties. Training is mostly provided in Hindi and English, and videos are also displayed on the subject. However, workers are mainly from various countries</li> </ul>	Partially complied as 1. More interactions and trainings need to be

activities in progress and internal GRM	such as India, Turkey, Bangladesh, Nepal, Sri Lanka etc. However, training material is mostly in English.	provided in all applicable languages. 2. Mapping of understanding of language is to be conducted to make training session more effective.
Overall status of record keeping by DBO/EPC	Partially maintained in compliance to HSE plans including DPR to record various data as reported in monthly report and checklists.	Partially complied and need to be inspected on status of compliance via internal inspection/audit.
Availability of HSE professionals (One Environment Manager and three environment officer) as per contract	At present, one environment manager and one HS manager and three HSE officer are on payroll of EPC. One HSE officer has resigned and been relieved from job in July. Reportedly replacement has been recruited and will join soon.  As per EPC, one environment officer is to be present in each shift, however mostly construction activities are executed in one shift while on SOS basis in second shift or extended period of first shift. Third environment officer will be recruited whenever construction activities are executed in three shifts.	Being complied
Status of supervision by Manager environment and environment officers including record keeping of observations	<ul style="list-style-type: none"> <li>Reportedly supervision on regular basis is being carried out and findings are reported via WhatsApp group to relevant staff for information and actions. Records of same are being kept in register for records, however same could not be verified during audit.</li> <li>Also, special mentioning of critical mitigation measures, if any based on findings of supervision to permit to work has not been observed while inspecting same on random basis.</li> <li>No system in place to conduct QA/QC on variations observed in reported results of environment monitoring carried out by in-house team and/or by external agencies including calibration of instruments/equipment at the time of monitoring and testing.</li> </ul>	Partially complied
Status of EHS committee, its meeting (s) and findings	<p>a) Technically it has not been constituted.</p> <p>b) Reportedly, EHS committee will be constituted by August-24</p>	Not complied

Is any environment incident reported? If yes then collect details.	<ul style="list-style-type: none"> <li>• Yes. Discharge of waste water from sedimentation tank located in batching plant area to adjacent land owned by third party as per details given in section for waste water management.</li> <li>• As per MOM of monthly meeting of July-24, DBO agreed to notify the incident as Environment incident and to prepare report including root cause analysis and corrective measures.</li> </ul>	Partially complied
Noise level monitoring	a) 24 hourly noise level has been monitored at five locations once in a month as part of CEMP. However, two locations NQ5 and NQ3 are located within project site. 24 hourly results of ambient noise levels were found to be within the applicable standards for commercial and industrial areas during the reporting period i.e., from April to June 2024. Leq levels for 8-hour periods at NQ3 and NQ5 are in compliance with the ILO noise standard of 85 dBA.	Being complied.
Status of HSE plans	<ul style="list-style-type: none"> <li>▪ Regulatory Compliance procedure as mentioned in CEMP is to be submitted.</li> <li>▪ Modified OHS monitoring plan is to be submitted for approval.</li> <li>▪ Plans which were approved with comments are yet to be modified and submitted for final approval.</li> </ul>	Partially complied till all observations are addressed.
QA/QC of environment monitoring results	<ul style="list-style-type: none"> <li>▪ No QA/QC is being carried out for observations made on reported results as part of environment monthly reports such as: <ul style="list-style-type: none"> <li>a. Reported ambient air quality results for monitored in June and July for one hour at four workplaces within project site as a part of OHS monitoring for PM10, PM2.5, SO<sub>2</sub> and NO<sub>2</sub> cannot be justified hence are not considered worth to report in QEMR.</li> <li>b. Variations reported in TDS values of water supply by Male Water and Sewage Company and in drinking water.</li> </ul> </li> </ul>	Not complied
Ambient air quality monitoring outside the project site	<ul style="list-style-type: none"> <li>▪ Frequency of ambient air quality monitoring at seven locations located outside the project site has been reduced to quarterly basis from monthly basis in compliance with EMP of approved EIA report and modified EMP</li> </ul>	Complied
Air dispersion modelling considering approved detailed design data.	<ul style="list-style-type: none"> <li>▪ Reportedly it is in process of review and will be submitted in August-24</li> </ul>	Not complied till report is submitted for review
CRVA study	<ul style="list-style-type: none"> <li>▪ Reportedly it is in process of review and will be submitted in August-24</li> </ul>	Same as above

N. Summary of observations which need corrective actions/measures

Observations	Corrective action recommended		Date of completion
	DBO agreed to comply	Need to escalate to DBO management	
1	Status of permits as mentioned in section B, DBO Contractor to receive all outstanding permits.		
2	Ensure subcontractors comply with applicable labour laws .		
3	Ensure that records of medical checkup conducted by Maldivian Govt for workers/staff before issue of permit to work for staff/workers are kept		
4	Corrective measures for observations made in section D for camp area are implemented.		
5	Removal of grass from earmarked route from office building to gate near quay wall for pedestrians and areas near storage area(s).		
6	Compliance of GRM plan a) GRC meeting on monthly basis b) public announcements /awareness to be made through local newspapers, community bulletin boards etc and, through the MoE.		
7	Ensure that discrepancies observed in reporting of waste generated, stored and disposed are addressed in monthly report.		
8	Plan for dust suppression measures in compliance with EMP of approved EIA as per section I is implemented.		
9	Storm water drainage plan for construction phase is to be submitted for approval.		
10	<ul style="list-style-type: none"> <li>• Waste water management from sedimentation tank in batching plant area need to be established and verified. Ensure that the subcontractor (Villa) complies with the applicable permits, if any, for discharge of wastewater from sedimentation tank (batching plant area) are obtained as per discharge practices adopted/to be adopted.</li> <li>• Ensure that records for washing of vehicles used for bringing construction materials are kept.</li> </ul>		
11	<p><u>Submit the following pending documents:</u></p> <ul style="list-style-type: none"> <li>▪ Regulatory Compliance procedure as mentioned in CEMP.</li> <li>▪ Modified OHS monitoring plan.</li> <li>▪ Plans which were approved with comments</li> </ul>		

12	Requirements of number and capacity of each spill kit need to be justified in reference to possible maximum size of spill.
13	Mapping of environment impacts of commissioning and operation of bore well and RO plant including legal requirements need to be carried out.
15	Status of compliance of record keeping in compliance with HSE documents need to be verified via internal inspection/audit.
16	Recruitment of HSE professionals in compliance with contractual requirement.
17	Conduct QA/QC including calibration of instruments/equipment to ensure adequacy of methodology used for sampling and testing of environment monitoring carried out .
18	Implement EHS committee and conduct regular meetings.

**Discharge of Waste water to open land within project site from sedimentation tank in batching plant observed during site visit in May month**



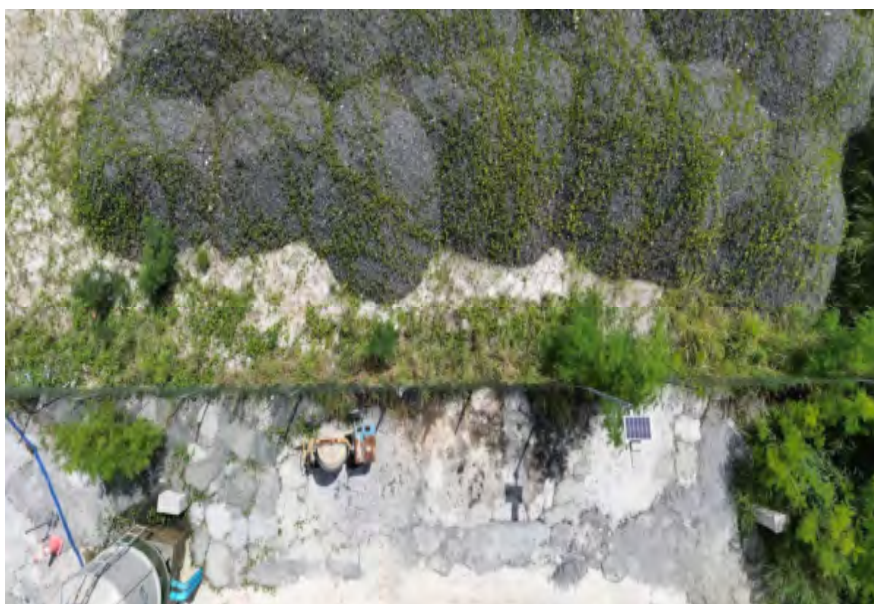
**Discharge of Waste water from sedimentation tank in batching plant to adjacent land owned by third party observed during site visit in July month for inspection**



**Discharge of Waste water from sedimentation tank in batching plant observed during site visit in July month for audit. Though tank was placed to store waste water, but no record of transportation was made available to verify the claim made by DBO.**



**Accumulated sludge on adjacent land owned by third party where waste water from sedimentation tank in batching plant area is discharged.**





**Storage of loose construction material to be used in batching plant**



**Storage of bags of cement and fly ash to be used in batching plant**



**Storage of soil at construction site for backfilling.**



**Storage of waste material**



**Storage of waste material.**



**Storage of sludge generated from sedimentation tank in batching plant area**



**Storage of needles and blades.**



**Fugitive emission during unloading of cement and fly ash into hopper of batching plant**



Faded display board at gate of project site consisting of project specific details



HSE statistic Board near office building of project site



**Compliant box at Public Ferry Terminal, Thilafushi**



**External mobile fuel tanker arriving at site entrance spotted during visit in May-2024**



Attendance Sheets



alke  
CONSTRUCTION

Design, Build and Operate of a Waste to Energy Facility at Thilafushi  
Contract No: (AGR)438-WPMC/PRIV/2021/71

MoE/ER - HSE AUDIT



urbaser  
TANEGG

WEEKLY HSE MEETING				
Date	24.07.24	Duration		
Location	Project Site			
Meeting Agenda	HSE Audit			
ATTENDEES				
Sl #	NAME	COMPANY	DESIGNATION	SIGNATURE
1.	RASHAN THOMAS	URB	EHS Manager	
2	Civan Kafafot	AA	PM	
3	SUJITH. S	AAJV	ENVI MANAGER	
4	Yamun Mohamed	PMU	Env + O&M safeguard	
5	Nabeel Nazim	ER	Dep Team Leader	
6	Suail Gulth	ER	Waste Env Safeguard	
07	Shahid Singh	AAJV HSE OFFICER	HSE OFFICER	
08	Murthy	AAJV	HSE OFFICER	
09	Anil Kumar	AAJV	HSE OFFICER	
10	Shagib	AAJV	HSE OFFICER	



Design, Build and Operate of a Waste to Energy Facility at Thibafusa  
 Contract No: (AGR)438-WPMC/PRIV/2021/71



HSE AUDIT - CLOSING MEETING

**-WEEKLY HSE MEETING**

Date	30/07/2024	Duration	
Location	WTE Site Meeting Room		
Meeting Agenda			

**ATTENDEES**

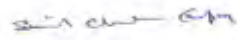

SI#	NAME	COMPANY	DESIGNATION	SIGNATURE
1	ROSHAN THOMAS	URB	EHS Manager	
2	SUJITH S	AAJV	EMM MGR	
3	DHANSHAPADIK	AAJV	HS Manager	
4	ND AYUB AHMAD	AAJV	D.C.C.	
5	Sahn KAREF	AAJV	C.G.C.	
6	Civan Kalafat	AAJV	PM	
7	Yasra Mohamed	PMU	Site Engineer	
8	Sunil Gupta	ETA	Safety Officer	



## Greater Male Waste to Energy Project

### OHS System inspection cum audit

by the Employer's Representative

	Name	Signature	Position	Date
Prepared by:	Sunil Gupta		Environmental Safeguard Expert	26.09.2024
Checked by:	Maximilian Schrade		Project Manager	26.09.2024

Date and Time of the Visit	Conducted by [ER]	Participants from MOE
29.07.2024 and 30.07.2024	Sunil Gupta & Naahee	Fathimath Yamna

#### A. Safety in General specific to construction activities in progress at site

SN	Particulars	Observations (with photos where appropriate)	<sup>1</sup> Reference and Status of compliance of respective plan/Method of statement/others
1	Status of mapping of hazards for activities in execution and batching	Overall, mapping is done and documented in Risk Assessment Procedure, relevant method of statements and SOPs as internal document. However, mapping of hazards and impacts for commissioning and operation of one bore well and RO plant for supply of water to	Partially complied

<sup>1</sup> Complied: Mitigation measures have been implemented; *no further action required*, being complied: Some mitigation measures have been implemented and some *are in the process of implementation, ongoing process*, partially complied: *Some mitigation measures have been implemented* but there is a gap in compliance and a remedial action is required, not complied: Mitigation measures have not been implemented

	plant on site and compliance of mitigation measures.	batching plant and mobile diesel tankers owned by sub-contractors <sup>2</sup> visiting project site on regular basis to supply diesel to vehicles and machinery/equipment is yet to be carried out.	
2	<ul style="list-style-type: none"> <li>Has mapping of hazard been reviewed before and during execution of construction activity and reviewed by EHS committee?</li> <li>Has Job Hazard analysis been carried out before start of activity and/or tool box talk?</li> </ul>	<ul style="list-style-type: none"> <li>Not effectively, however inspections are carried out for approval of notification before start of particular activity. However, job hazard analysis is not being carried out.</li> <li>EHS committee has not been constituted.</li> </ul>	Partially complied
3	Status and details of Tool box talks conducted	<ul style="list-style-type: none"> <li>Yes, based on the permit to work, permit holder (mainly site supervisor from construction team including sub-contractor) is responsible to conduct the specific tool box talk.</li> </ul>	Being complied.
4	Understanding of construction supervisory team at site including sub-contractor(s) on hazards and corresponding mitigation measures.	<ul style="list-style-type: none"> <li>Yes, to some extent. Area Manager, Area Authority and site supervisors are mainly responsible for management of health and safety at construction site including issuance of permit to work. HSE team is in supervisory role.</li> <li>Inadequate coordination and interactions between HSE team and construction team on HSE aspects at planning, procurement and implementation stage.</li> <li>Need more training specific to associated hazards &amp; its consequences and adequacy &amp; effectiveness of implementation of mitigation measures.</li> </ul>	Partially complied. Need more training and role of HSE team is to be given due to importance in decision making.
5	Understanding workers (assess separately with skilled, semi-skilled and unskilled workers) on hazards and corresponding mitigation measures	<ul style="list-style-type: none"> <li>Yes, to some extent. Issues of adequate communications due to difference in native languages of workers from Turkey, India, Sri Lanka, Afghanistan, Nepal etc and understanding of English was found very poor among workers. Reportedly, videos are also used during trainings.</li> <li>Need more training specific to dos and don'ts and to display dos and don'ts to maximum possible extent.</li> </ul>	Partially complied- Mapping of understanding of language is to be done.
6	Status and details of compliance of activity wise mitigation measures	Same as under item A1&2	Same as under item A1&2

<sup>2</sup> As per entry/exit records of diesel tankers provided by DBO for April to June-24, 16 times diesel tanker visited the project site. But as per further update by DBO, diesel is brought to site by Villa Pvt Ltd in 200 lit drums on a pick-up truck. Facts need to be verified and accordingly corrective actions are to be taken.

	including working at night (e.g. fall from height, working in bunker area, operation of batching plant, storage areas etc)		
7	Status and details of records including training	Satisfactory to some extent but in-house review/audit on regular basis need to be conducted on the status of record keeping.	Partially complied

## B. Supervision

SN	Particulars	Observations	Reference and Status of compliance of respective plan/Method of statement/others
1	HSE manager-DBO	<ol style="list-style-type: none"> <li>His role mainly includes reviewing and finalization of all HSE documents, in making representation in meetings, to coordinate and take lead role during site visit by ADB, PMU, ER, Ramboll etc for inspection and audit, to communicate with PMU/ER etc, to facilitate the EPC to ensure the compliance of findings of HSE plans, inspections and audits etc, to coordinate site visits during inspections and audit conducted by internal and external team and to conduct site visit on regular basis but not as per pre-decided frequency.</li> <li>He expressed concerned on understanding of local regulations as most of them are in local language.</li> </ol>	Being complied. However, more attention needs to be given to make coordination between HSE team and construction team more effective to avoid violations of local regulations and all HSE plans in place.
2	HSE manager-EPC	<ol style="list-style-type: none"> <li>No HSE manager is/will be deputed on project site since departure of the last HSE manager. HSE manager hired previously was an additional position to those mentioned in the DBO Contract. At present, one environment manager and one HS manager and three HSE officer are on payroll of EPC. One HSE officer has resigned and been relieved from job in July. Reportedly replacement has been recruited and will join soon.</li> <li>Reportedly supervision on regular basis is being carried out (on an average 5-6 times per day) and findings are reported via WhatsApp group to relevant staff for information and actions. Records of same are being kept</li> </ol>	Being complied and Training need to be provided on management of HSE issue in compliance with HSE documents at various levels starting from planning stage.
3	H & S Manager -EPC		
4	Environment Manager-EPC		
5	H & S inspector(s)-EPC		
6	Environment officer-EPC		

		in register for records, which however not be verified from records during the audit.	
7	HSE professional or equivalent - Sub contractor(s)	Supervisor of Villa Pvt Ltd is responsible for implementation of HSE aspects and has reasonable understanding of associated hazards and corresponding mitigation measures.	Being complied.
8	Scaffolding inspector	During interaction with one of scaffolding inspector, it was found that he was not having relevant qualification and experience before joining. He was provided four days training and given task of scaffolding inspector. His understanding about requirements during inspection of scaffolding safety and how to inspect was found below acceptable limits. DBO has also notified EPC for having scaffolding inspector of adequate qualification and experience.	Partially complied
9	Status and details of record keeping of findings and action taken	Records of same are being kept in register.	Being complied

### C. Electrical safety

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Condition of electric cables used (e.g. damage to insulation; exposed wiring; electrical cables connected with tape etc.)	Overall found satisfactory but records could not be inspected to verify.	Being complied till status of records is verified
2	Electric cable obstructing the way, away from damp area/water, running through doorways, construction site, camp area etc.	An underground live power cable of STELCO is passing through the project site and discharge pipeline from dewatering sedimentation pond is passing above the same with mitigation measures. Reportedly same will be de-activated very soon.	Being complied. However, training to workers on associated hazards need to be provided.
3	Conditions of electrical sockets (clean and not broken). Is there loose connection (arcing and sparking)? Is there direct connection of wire in socket?	Overall, in good condition. However, records could not be inspected to verify.	Being complied till status of records is verified

4	Is metal dust prevented from entering or accumulating on or around electrical equipment or sockets?	Yes.	Being complied
5	Is there exposed electrical part (e.g. socket, broken light bubble, missing neon light, cable, portable lamp etc.) to combustible substance?	Not found	Being complied
6	Are earthlings provided well maintained, cleaned and connected?	Yes	Being complied
7	Status and details of preventive maintenance of electrical equipment	Reportedly yes but record of inspection has not been inspected to verify.	Being complied till status of records is verified
8	Status of record for regular in-house inspection	Reportedly yes but no record has been shared to verify.	Being complied till status of records is verified
9	Status and details of records including training	All details are provided in monthly reports.	Being complied
10	Status of compliance of SOPs and Plan	Procedure for electricity safety is in place. However, no record could be inspected to verify	Being complied till status of records is verified
11	Others	<ul style="list-style-type: none"> <li>No written criteria for recruitment/engagement of electrician were in place. Reportedly, one electrician deputed is a diploma holder in electrical engineering and second one is helper without relevant qualification but has experience. However, no record has been shared to verify.</li> <li>First aid kit is not conforming British Standard BS 8599-1:2019.</li> </ul>	Partially complied

#### D. Fire Safety

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
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1	Status and details of permit(s) and compliance of stipulated conditions.	<ul style="list-style-type: none"> <li>Permit from MNDF (Fire Approval Letter) has been obtained on 15 February 2023 for accommodations and offices at the camp site for the construction phase.</li> <li>However, permit from MNDF for operation of mobile diesel tanker of 5000 liter owned by EPC is yet to be obtained. Also, status of permit of mobile diesel tanker owned by sub-contractors visiting project site on regular basis to supply diesel to diesel driven vehicles and DG set owned by sub-contractor has not been shared as depicted in Figure 1.</li> </ul>	Partially complied
2	<ul style="list-style-type: none"> <li>Are fire extinguishers selected and provided for the types of materials in areas where they are to be used (Class A, B, C, etc.)?</li> <li>Does the section have enough fire extinguishers and not obstructed</li> <li>Are the fire extinguishers fully charged? Are they not broken? Is there a control tag to record details of maintenance?</li> </ul>	<ul style="list-style-type: none"> <li>Yes.</li> <li>Reportedly yes but no document has been shared to verify the adequacy of number of fire extinguishers provided.</li> <li>Yes. Internal inspection and inspection by third party have been carried out as depicted in Figure 2.</li> </ul>	Being complied
3	<ul style="list-style-type: none"> <li>Are the emergency exits unobstructed, easy to open?</li> <li>Are the emergency exits locked during working hours, including overtime?</li> <li>Do the emergency exits have a functioning emergency light above the exit?</li> <li>Is the evacuation map visible?</li> </ul>	<p>Record of inspection has been shared to verify compliance of all relevant HSE documents. However,</p> <ol style="list-style-type: none"> <li>All emergency exits were found unobstructed and always kept open. However, only one gate has been provided in one block for exit;</li> <li>Emergency lights have been provided and were working.</li> <li>Corridor for worker accommodation is used to store various items such as shoes, small almirah, dirty clothes etc.</li> <li>Evacuation map is provided at main locations such as Kitchen, office building etc.</li> </ol>	Being complied - It is recommended to develop evacuation plan from project site also.
4	<ul style="list-style-type: none"> <li>Are escape routes kept clear to allow unhindered passage?</li> <li>Are emergency lights working (e.g. in the stairs)?</li> </ul>	As per given above under item D3	Same as under item D3
5	<ul style="list-style-type: none"> <li>In case the detector is alimented by battery, is it still charged?</li> <li>Is the alarm system accessible?</li> </ul>	<ul style="list-style-type: none"> <li>All smoke detectors are alimented with charged batteries as verified on random basis. Yes.</li> <li>Two manual alarms have been and found in working condition.</li> </ul>	Being complied

6	Are there designated smoking areas (free from flammable and combustible materials)?	Yes, designated smoking areas have been provided one near office building and second near construction site. However additional areas need to be provided near ware house and batching plant area.	Being complied.
7	Status a detail of trained volunteers for fire-fighting/evacuation team	<ul style="list-style-type: none"> <li>• Training has been provided to all on firefighting but mainly confined to usages of fire extinguishers and regarding how to approach two assembly points. Lack of awareness on evacuation from project site and/or island, if envisaged.</li> </ul>	Being complied
8	Can members of the firefighting / evacuation team explain the content of the training they received?	<ul style="list-style-type: none"> <li>• Yes</li> </ul>	
9	Status and details of mock drills conducted	<ul style="list-style-type: none"> <li>• No firefighting has been conducted since last six month.</li> <li>• Mock drill on evacuation from work place has been conducted on 21 July 2024.</li> </ul>	Partially complied
10	Status of record for regular in-house inspection	Date of inspection has been marked on each fire extinguisher by in-house team on monthly basis and third party on annual basis.	Being complied
11	Status and details of records including training	Records are being kept.	Being complied

#### E. Hazardous chemical and material management

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Status and details of compliance of local regulations for transportation, storage and handling	a) Overall, in compliance with Hazardous chemical and material management plan. However, permit applicable for diesel mobile tanker owned by EPC are in process and no status of permit for mobile diesel tanker belonging to sub-contractors visiting project site on regular basis has been shared as depicted in Figure 1.	Partially complied
2	<ul style="list-style-type: none"> <li>• Does each chemical have a definite storage place?</li> <li>• Are chemicals not stored on the way where they could be kicked by mistake?</li> </ul>	<ul style="list-style-type: none"> <li>• Overall, yes. All chemicals are stored in a containers shelves under lock and provided with air condition and exhaust fan. However, adequacy of capacity needs to be verified for envisaged maximum</li> </ul>	Partially complied

	<ul style="list-style-type: none"> <li>Are the chemicals properly segregated?</li> </ul>	<p>quantity of chemicals to be stored. New ware house with adequate capacity is under construction.</p> <ul style="list-style-type: none"> <li>Diesel has been stored in mobile tanker.</li> <li>Chemical Sikaplastic-176 LK stored in tank for operation and in 1000-liter containers in temporary storage are within batching plant area may be kicked by mistake.</li> </ul>	
3	In case chemicals need to be stored above each other, is the chemical warehouse equipped with proper shelves?	Same as given above.	Same as given above
4	Are corrosive chemicals stored on lower levels?	No practice is in place.	Not complied
5	Is secondary containment provided? Does it have sufficient capacity?	<ul style="list-style-type: none"> <li>Secondary containment has been provided in main ware house. However: <ul style="list-style-type: none"> <li>Bund wall have not been provided with lining of impermeable material for storage of Chemical Sikaplastic-176 LK in 1000-liter containers being stored in temporary storage area within batching plant area as depicted in Figure 3 and 4.</li> <li>Not provided for chemical Sikaplastic-176 LK Chemicals being stored in tank for usages in batching plant area as depicted in Figure 5 and diesel mobile tanker when it is parked.</li> </ul> </li> <li>Provided containments are complying with condition of 110% of maximum size of container being stored.</li> </ul>	Partially complied
6	Is there an up-to-date inventory of all chemicals stored in the warehouse?	Yes. Online inventory has been kept.	Being complied
7	Are flammable chemicals stored in a cool place?	Yes. Air condition and one small exhaust fan have been provided but confined to container provided with lock.	Partially complied
8	Are the following signs posted at the entrance of the warehouse: "chemical storage", "hazard pictogram", "nonsmoking sign", "no entrance sign"?	Yes, but nothing has been provided at places of temporary storages.	Partially complied
9	Is the responsibility for managing the chemical warehouse clearly allocated? Does the person receive corresponding training?	Yes	Being complied



10	Is the access to the chemical warehouse limited to the authorized persons? Is the warehouse locked when authorized personal is not present?	Yes, but confined to in main chemical warehouse which remained locked.	Partially complied
11	Does the chemical warehouse have adequate light?	Yes	Being complied
12	Does the air in the chemical warehouse change sufficiently? In case the natural ventilation is not sufficient, is an air exhaust system installed?	No detail on adequacy of ventilations or air exchange rate has been provided, however same needs to be established by considering best industrial practices.	Partially complied
13	Is no external electrical device plugged (such as heater, mobile phone charger)?	Air condition and small exhaust fan are provided within closed container. However, no mapping of associated hazards has been shared.	Partially complied
14	Is the full MSDS for each chemical available?	Yes	Being complied
15	Are gas cylinders secured to prevent from falling and stored away from heat?	Yes, as depicted in photo. At the time of visit, only LPG cylinders used for kitchen were connected for use in kitchen. Reportedly no cylinder used for welding and cutting are being stored.	Being complied
16	Are cylinders stored in well-ventilated areas and are they properly segregated?	Reportedly yes but could not be verified during visit as no gas cylinder other than LPG cylinders was stored at site.	Being complied
17	Are empty cylinders stored separately from full cylinders and are they adequately signed?	Same as above	Same as above
18	Details of storage of chemicals in workplaces. (Is only a limited quantity of chemicals kept in the workplace (e.g. for daily use; large quantities are kept in the chemical storage)? e.g. acetone in spot cleaning room, propane gas in kitchen etc.)	Only limited quantity of chemicals is being stored such as cylinders in kitchen area and construction area, chemicals and diesel in construction area and in STP area but no detail on real time inventory has been shared to verify for the storage of chemicals at construction and utility.	Partially complied
19	Do the chemicals present in the workplace for daily use have a specific storage location in the workplace (not just on the floor / on the way)?	Dedicated space has been provided for storage at construction site without adequate mitigation measures. No record has been shared to verify.	Partially complied
20	Is there an eyewash station in the chemical warehouse? Does it have sufficient pressure? Is it not obstructed?	Two emergency eye wash stations have been provided (one in batching plant area and second near chemical storage area). New eye wash station provided in chemical storage area is depicted in Figure 6	Being complied
21	Is sand or other material available to clean spills and leaks?	Only two spill kits have been provided (one is just outside the main chemical storage container and second in batching plant area). Each kit	Partially complied

		provided can handle spillage of 50 L only as depicted in Figure 7. No mapping of probable maximum spills has been carried out to establish the adequacy and requirements of spill kits.	
22	Are the PPEs required for the chemicals stored in the warehouse provided?	Reportedly, all are in compliance with respective plan. However, details could not be inspected.	Being complied
23	Status and details of incidents of spill noted	No incident has been reported	Being complied
24	System in place for unloading at jetty & warehouse and road transportation to warehouse	All were being unloaded at quay wall adjacent to project site and reportedly overall in compliance with Hazardous chemical and material management plan and traffic management plan. However, records as chemical hazardous material delivery log has not been shared to verify.	Partially complied till status of records is verified.
25	Status of record for regular in-house inspection	Yes, as per in compliance with plan.	Being complied
26	Status and details of records including training	Yes, as per in compliance with plan.	Being complied

#### F. Emergency Response

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Overall Status of implementation of Emergency Response plan	Overall, it was found in compliance with Emergency Response Plan. However, followings need to be addressed: a) Mapping of type of mock drills to be conducted. b) Emergencies due to usages of mobile diesel tanker of 5000 liter owned by EPC contractor and by sub-contractors. c) Wind sock was found damaged.	Partially complied
2	<ul style="list-style-type: none"> <li>Status and details of PPEs and others available to deal with emergency.</li> <li>Status and details of inspection of all related PPEs and others.</li> </ul>	As per subsection K	As per subsection K

3	<ul style="list-style-type: none"> <li>In-house plan to deal with smoke resulting from incidents of fire at adjacent waste dump site of WAMCO.</li> <li>Details of reported incidents of fire.</li> </ul>	<ul style="list-style-type: none"> <li>No specific plan is in place except mentioned in Emergency Response plan.</li> <li>Reportedly no incident was reported since March-2024.</li> <li>Dedicated areas for smoking areas - office building and in construction area have been provided (one of them in construction area is depicted in Figure 8)</li> </ul>	Partially complied
4	<ul style="list-style-type: none"> <li>How many areas have been designated as assembly points?</li> <li>Are assembly points available capable to provide protection to the workers and staff from smoke resulting from fire in adjacent dumpsite of WAMCO?</li> </ul>	Two designated assembly areas are provided, both near to the WAMCO dumping site. Also, no estimation of the impacted zone due to fire and smoke under worst meteorological scenario and accordingly mitigation measures and plan has been done by WAMCO and/or DBO contractor.	Partially complied
5	How many workers can each designated assembly point accommodate?	Reportedly both are designed for peak work force around 500 workers but no criteria has been shared to verify.	Partially complied
6	Understanding of Emergency Response team on hazards and role of in dealing with emergency including evacuation.	<ul style="list-style-type: none"> <li>Satisfactory to some extent due to mainly understanding of english among workers.</li> <li>No training has been provided for evacuation from project site, if needed.</li> </ul>	Partially complied
7	Site evacuation plan status and details - is the plan in place and are there drills to practice such evacuations?	Yes, but mainly confined to evacuation to assembly areas only.	Partially complied
8	Are emergency numbers and signage including dos and don'ts posted clearly? If yes then status and details of locations.	<ul style="list-style-type: none"> <li>Emergency contact details are displayed as depicted in Figure 9.</li> <li>Dos and don'ts posters were provided at few locations such as chemical storages in warehouse, waste oil storage area etc and in english language which cannot be understood by each worker.</li> <li>Dos and don'ts posters are to be provided in all prevalent languages and additional locations such as batching plant area, STP area, construction site etc.</li> </ul>	Partially complied
9	<ul style="list-style-type: none"> <li>Status and details of mock drills conducted</li> <li>Schedule for proposed mock drills</li> </ul>	<ul style="list-style-type: none"> <li>In-house Medical emergency and Evacuation drill and have been conducted on 10 June and 21 July 2024 respectively. No schedule for proposed mock drills has been shared. Also, no mock drill has been conducted with MNDF, police and others.</li> </ul>	Partially complied

10	Status and details of in-house inspection conducted on regular basis.	In compliance with emergency response plan.	Complied
11	Status of record keeping and training	Need to be audited by in-house team to ensure the compliance on regular basis.	Being complied

## G. Security Management

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	How many security guards are on duty during night and day time and respective locations of guarding	Seven guards were available on site on the day of visit, however as per contract eight security guards belong to sub-contractor Gage Security company and should be available at project site. No specific detail could be collected as HR manager was on leave.	
2	Which are the languages security guards understand and/or speak including local language?	Mainly Hindi, English and Nepali but could not find evidence of understanding and speaking of local language. At least one not all on duty during day and night should know local language.	Partially complied
3	What are the roles assigned to security guards as per contract with security agency.	Mainly to provide restricted entry mainly to authorized staff/workers, visitors and Vehicles and patrolling to prevent theft, damage to property etc. However limited role has been assigned during emergency (ices) such as raising alarm, assistance in evacuation during emergency etc.	Being complied
4	<ul style="list-style-type: none"> <li>What access controls for vehicles to project site are performed.</li> <li>What access control for materials/construction machinery and</li> </ul>	<ul style="list-style-type: none"> <li>Mainly from Gate No 2 entries as Gate no 1 has been closed for any on land transportation of men and material via road. Gate No 3 at north side is mainly used for entry of speed boat and vessels via sea. .Details at the time of entry and exit were being recorded by security guard as per checklists provided in security management plan for staff/workers staying outside, visitors and all types of vehicles.</li> <li>All workers/staff are being issued photo identity card.</li> <li>Unique numbered Identity card, Safety jacket and helmet were provided at security gate for each visitor in addition to recording details in entry log sheet.</li> </ul>	Being complied

	<p>equipment to project site are performed</p> <ul style="list-style-type: none"> <li>• What access controls for workers/staff to the site are performed</li> <li>• What access controls for visitors to the site are performed</li> </ul>		
5	Status and details of security arrangements in place for night	<ul style="list-style-type: none"> <li>• CCTV cameras, lights, walkie talkie etc have been provided. However, adequacy of details has been verified on randomly basis only.</li> <li>• Monitoring for illumination level in and around project site has been carried out @ once in each month and based on recorded illumination flux, partial corrective measures have been implemented and others are in process. However, no consideration has been given to standards prescribed in IFC General EHS guidelines.</li> </ul>	Partially complied.
6	Status and details of mock drills conducted	No drill on security arrangement has been carried out from January 2024 onwards however it is to be conducted after every six months.	Partially complied
7	Understanding of security guards posted on role to play during patrolling and emergency management including evacuation	Satisfactory to some extent but need more training on regular basis especially evacuation from project site via land and sea which has not been considered in emergency response plan.	Partially complied
8	Status of record keeping and training	Trainings are provided and reported in monthly report. However, records need to be verified by in-house audit on regular basis.	Being complied

## H. Traffic management

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
<b>Movement on land</b>			
1	Type of materials transported within the project site and from outside	a) From outside project site: a) Mainly construction materials used for operation of batching plant from private jetty owned by Villa Pvt Ltd. subcontractor. b) Mobile	Being complied.

		<p>diesel tankers belonging to EPC and sub-contractors to supply diesel to vehicles and diesel driven equipment/machinery c) transportation of material mainly consumable for kitchen and camp area from public jetty terminal Thilafushi etc.</p> <p>Within project site: Mainly construction materials and raw mix for concreting to and from batching plant respectively, excavated soil for backfilling, equipment/ machinery and others received via from quay wall adjacent to project site, diesel mobile tanker(s), heavy construction machinery such as cranes, JCBs, transit mixers, dumpers etc.</p>	
2	Number and type of vehicles in operation for transportation of material within project site and from outside.	Dumpers, diesel mobile tanker, one car, transit mixers, medium and heavy trucks etc. Records are being kept and verified on random basis. It also includes vehicles belong to sub-contractors engaged for job works and rented from subcontractors by EPC.	Being complied
3	<ul style="list-style-type: none"> <li>Provision of dedicated way for traffic movement within site with proper barricading and signage.</li> <li>Condition of road used for transportation of materials from outside.</li> </ul> <p>Status and details of prescribed speed limit.</p>	<ul style="list-style-type: none"> <li>Provided but status of barricading and signage provided need to be improved.</li> <li>Barricaded pedestrian route from quay wall to office building has been provided.</li> <li>Reportedly, it was not in good condition for transportation and DBO is continuously notifying PMU to facilitate with HDC for corrective actions.</li> </ul> <p>No mechanism was in place to check. However, as per traffic management plan, speed should be kept between 30 and 40 km/hr outside the premises and 20 km/hr within project site.</p>	Partially complied
4	Compliance of local regulations such as qualification and experience of drivers, registration, driving license, maintenance of vehicles etc.	<ul style="list-style-type: none"> <li>All drivers have valid driving license as per local regulations. This could be verified on randomly basis.</li> <li>Most of the vehicles including mobile diesel tanker are in operation without registration. Reportedly applications for mobile diesel tanker and two vehicles are in process, however applications for rest of 14 vehicles are yet to submitted for registration. Figure 10 depicts transit mixers at site.</li> </ul> <p>Preventive maintenance of vehicles is being carried out at site under supervision of in-house mechanic and records are kept. Reportedly break down maintenance is being done at Male.</p>	Partially complied
5	Status and details of mitigation measures taken while loading, unloading and transportation of material	Construction materials such as cement and fly ash are being transported in Jambo bags of 1 tonne while others are in loose form. No measure such as providing tarpaulin cover during transportation, water spray during loading and unloading is in place.	Partially complied

6	Understanding of drivers on hazards associated with materials to be transported and mitigation measures to be taken.	Understanding of driver of mobile diesel tanker owned by EPC was found satisfactory as assessed on random basis. However other could not be inspected.	Being complied
7	Status and details of tool box talk provided	Could not be inspected.	
8	Record of maintenance of vehicles	Records of preventive maintenance was checked on random basis which is mainly confined to general checking and oil and filter change. Reportedly for break down maintenance assistance is sought from Male. Also, no record has been shared for vehicles owned by Villa Pvt Ltd and other sub-contractors.	Partially complied
9	Is parking area provided? If yes then what is capacity of parking area and the approximate free capacity?	Parking area has been provided but vehicles transit mixers were found parked outside parking area. However, no detail has been shared to verify the adequacy of capacity of parking area.	Partially complied
10	Status and details of regular in-house inspections, if any	Records were checked on randomly basis and found in compliance with respective plan.	Being complied
11	Status of record keeping and training	Records need to verified by in-house audit on regular basis.	Being complied
<b>Movement via sea</b>			
12	Status and details of system in place especially for transportation of material, equipment/machinery, men power, evacuation for medical reasons and others, etc.	<ul style="list-style-type: none"> <li>a) Construction materials needed for operation of batching plant is being unloaded at private jetty owned by Villa Pvt Ltd.</li> <li>b) All items other than construction materials needed for operation of batching plant are being transported via sea by external vendor and unloaded at quay wall adjacent to project site.</li> <li>c) Reportedly, Public jetty/harbour at Thilafushi is being used for transportation of consumable materials for kitchen and camp.</li> <li>d) For medical evacuation and limited transportation of men, speed boat is being operated from quay wall adjacent to project site. However, workers/staff of DBO contractor and visitors are also using public ferry from Thilafushi ferry terminal for commuting.</li> <li>e) Shipwrecks are yet to be removed by HDC to make use full used of quay wall. No detail has been provided on arrangements in case evacuation is envisaged from project site and island.</li> </ul>	Partially complied
13	Status of record keeping and training	Could not be inspected.	

I. Construction machinery/equipment, batching plant, Sewage Treatment Plant (STP), pumps, tools, welding and others (cranes, ladders, scaffolding, lifting trucks, material hoists etc.)

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Broad overview on construction machine/equipment and others in use at site.	<ul style="list-style-type: none"> <li>Machine/equipment such as crane, JCBs, transit mixers, batching plant, mobile diesel tanker etc used in construction activities and others such as air compressors, DG sets, Forklifts, STP, water pumps, dumpers etc were on site. Said machine/equipment were either owned and taken on rent by EPC contractor and owned by sub-contractor engaged for job works. PWA, Sri Lanka has been engaged to check the fitness of machinery/equipment on regular basis for equipment/machinery owned by EPC. However, no record of same were shared.</li> <li>Reportedly maintenance and fitness inspection machine/equipment taken on rent by EPC from sub-contractor and owned by subcontractors for job work are the responsibility of individual sub-contractor and EPC contractor only do inspection. No record of maintenance and fitness inspection by third party has not been shared.</li> <li>Health and Safety Plan, activity wise method of statements, General Lifting, unloading and transportation Procedure are in place.</li> </ul>	Partially complied till records are verified.



<b>2</b>	Any observations concerning equipment having inadequate condition	In addition to observation mentioned above: 1. Rusty sheets are being used for constructing temporary scaffoldings as depicted in Figure 11. 2. No system in place to monitor exhaust gas emission.	Partially complied
<b>3</b>	General observation on experience, qualification of drivers, operators, flagmen, helpers etc	<ul style="list-style-type: none"> <li>No criteria for experience and qualification of skilled and semi-skilled workers found in place and no proof of experience and qualification has been shared as HR manager was on leave. Reportedly most of them have been engaged mainly on the basis of experience.</li> <li>However, criteria for drivers having driving license have been followed and records are kept</li> </ul>	Partially complied
<b>4</b>	Understanding of drivers, operators, flagmen, helpers etc. on hazards associated and mitigation measures	Found inadequate and need more training	Partially complied
<b>5</b>	Are fail safe, lock out switches provided where necessary and tested regularly?	Yes, and inspected on regular basis	
<b>6</b>	Status and details of tool box talk provided.	Could not be inspected	
<b>7</b>	Condition of PPEs provided	In compliance with PPE procedure except of adequate mask for dust suppression and ear plug/muff as same are available in limited number only. Reportedly, same are in process of procurement.	Partially complied
<b>8</b>	Status of record for regular in-house inspection	Records on in-house inspection and by third party inspection were checked on random basis and found in compliance with respective method of statement and SOPs.	Being complied
<b>9</b>	Status of record keeping and training	Record keeping was inspected on random basis and same need to be thoroughly audited to ensure the compliance of all relevant HSE documents.	Being complied

## J. Maintenance workshop

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Status and details of facilities and staff available for maintenance	Designated workshop is yet to commissioned. However, an experience mechanic is being employed on regular basis for conducting preventive maintenance of vehicles owned by EPC. However, no detail on status of maintenance has been shared for vehicles owned by sub-contractors and reportedly it is responsibility of sub-contractors and regular inspection has been carried out by in-house team of EPC.	Partially complied
2	Details of type of maintenance works which can be carried out	Same as under item H8	Same as under item A1&2
3	Status and details of experience and qualification of staff available.	No qualification detail has been shared, however mechanic on job has requisite experience.	Being complied
4	Status of understanding of staff on hazards associated and mitigation measures	Could not be assessed	
5	Status and details of mitigation measures including PPEs	Could not be assessed as no maintenance work was not carried out during visit	
6	Status and details of storage of oil, chemicals etc and waste generated, storage and disposal	Isolated secured spaces have been provided for storage of lubricating oil and waste oil. Dos and don'ts are not adequately displayed in english.	Being complied, however Do's and don'ts are to be adequately displayed
7	Status of record for regular in-house inspection	Records were shared only for vehicles owned by EPC.	Partially complied

#### K. PPEs

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
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1	<ul style="list-style-type: none"> <li>Status and details of PPEs provided for the activities in progress on site.</li> <li>Are all in line with permit to work or respective method statements?</li> </ul>	<ul style="list-style-type: none"> <li>Checked on randomly basis and found overall in compliance with PPE procedure except of adequate mask for dust suppression and ear plug/muff as same are available in limited number only. Reportedly, same are in process of procurement. However, some workers found not wearing mask and earplug/muff.</li> <li>No specific detail on PPEs has been mentioned in Permit to work issued considering nature of activities.</li> </ul>	Partially complied
2	Are all PPEs provided complying with British standards?	Checked on randomly basis and found some of them in compliance but no record has been shared to verify the same.	Partially complied
3	Status and details of assessment carried out for requirement of activity wise PPEs.	No other than mentioned in documents such as Risk Assessment Procedure, activity wise method of statements and SOPs.	Partially complied
4	Status and details of in-house inspection on regular basis for conditions (safe for use) of PPEs	Checked on randomly basis and record has been shared.	Being complied
5	Status and details of tool box talk conducted.	Could not be inspected.	
6	Status of record keeping and training	Record keeping was inspected on random basis and need to be thoroughly audited by in-house team.	Being complied

#### L. Permit to work

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Permits to work issued for the activities in progress on site and its type	All are being issued in compliance with Permit to Work Procedure and all records are maintained and provided in monthly reports.	Being complied
2	Compliance of conditions mentioned in respective Permit to work issued for the activities in progress on site	<ul style="list-style-type: none"> <li>No activity wise specific detail including PPEs has been provided.</li> <li>Construction team has been assigned the responsibility of issuance and renewal of Permit to work and HSE team has been given role of supervisor. System of approval of notification of inspection by ER and DBO is also in place. No record</li> </ul>	Partially complied

		<p>of inspection was shared to verify the compliance of conditions mentioned in respective activity wise Permit to work issued.</p> <ul style="list-style-type: none"> <li>During visit, it was found that permit to work was renewed for construction activity in bunker area without taking into consideration of observation made by in-house HSE team i.e. lack of access while working on scaffolding.</li> </ul>	
3	Activities for which Permit to work has not been issued, if any.	None, as verified on random basis	Being complied
4	Understanding of workers and supervisor on hazards associated and mitigation suggested in permit to work issued.	Overall, not up to the requirements and need further effective tool box talk and training on activity wise impacts and corresponding mitigation measures.	Partially complied
5	Status and details of tool box talk conducted		
6	Status and details of visit(s) made by H&S manager and/or by H&S inspector for supervision	Reportedly visits for regular supervision are made on random basis and if found any observation then same is reported via WhatsApp and recorded in register.	Being complied
7	Status and details of record keeping including training	<ul style="list-style-type: none"> <li>Record keeping was checked on random basis and found in compliance with Permit to Work Procedure and need to thoroughly audited by in-house team to ensure the compliance.</li> </ul>	Being complied

#### M. Medical Treatment

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Status and details of regular health check-up of workers/staff	<ul style="list-style-type: none"> <li>No in-house system in place for regular health check-up of workers/staff. However, it is being done by Maldivian Government at time of issue and renewal of work permit to individual. Reportedly records of same have been kept as baseline of health of each worker but, no record was shared to verify.</li> </ul>	Being complied

		<ul style="list-style-type: none"> <li>No fitness test is being conducted for workers before engagement to verify the suitability to work and no follow up monitoring is being done on same. However, DBO informed that ergonomic study is to be conducted soon.</li> </ul>	
2	Reported cases of injuries, type of injuries and reasons for causing injuries	<ul style="list-style-type: none"> <li>Incidents reported: on 20 April of near miss, 22 April of assets damage, and 20 June of injury and 28 July of injury. Incident report has been prepared and submitted as part of monthly reports.</li> </ul>	Being complied.
3	Reported cases of chronic diseases such as BP, diabetics, heart problem etc.	<ul style="list-style-type: none"> <li>Medical Register is maintained to report details such as name, work permit number, nature of complaint, diagnosis and prescribed treatment of each individual patient getting medical treatment and details are reported in monthly report.</li> </ul>	
4	Reported diseases other than injury and chronic diseases (infection due to viral and bacterial infection etc.)		
5	Any evacuation due to medical reasons?	Not during period	Being complied
6	Details of treatment facilities and tools such as stretcher available at site	<ul style="list-style-type: none"> <li>System in place is only for treatment of any injury, diseases etc reported during stay in camp area. Medical insurance for individual is also part of work permit. Basic facilities for first aid including dressing, for monitoring and treatment of BP and diabetic, dehydration due to temperature etc. Stretcher and bed are also available in health centre.</li> <li>First aid kit is not conforming to British Standard BS 8599-1:2019. No defibrillator has been provided to deal with heart issue as minimum estimated medical evacuation time is 25 min. However as per DBO defibrillator is not required as per legal and contractual obligations and has second thought on same.</li> </ul>	Partially complied
7	Medico staff available at site	One full time MBBS doctor with male nursing staff is available on 24x7 basis. At the time of visit, doctor on temporary basis was present on site as reportedly doctor employed on permanent basis has left site after resignation. Process is on for recruitment of alternate on permanent basis.	Being complied
8	Number of trained first aiders at site and status and details of training/certificate.	Total nine first aiders. However, no detail on training/certificate has been shared.	Partially complied till status of training/certificate is verified.
9	Status of MOU with external medical hospitals, if any	Reportedly with IGMH hospital at Male but copy of MOU has not been shared to verify. However, patients are being referred to IGMH.	Not complied till verification is done.

10	Details of training provided on occupational health hazards and mitigation measures	Reportedly no further training has been provided to doctor and nursing staff.	Not complied
11	How many first aid have been given by trained first aiders	No detail has been recorded and shared as doctor and nursing staff are available on 24x7 basis on site.	Not complied
12	Understanding of medical staff including trained first aiders type of hazards and requirements.	Satisfactory	Being complied
13	Status and details of record keeping including training	Record keeping was verified on random basis and found in compliance with respective HSE documents and need to be thoroughly audited on regular basis by in-house HSE team.	Being complied

#### N. Pest Control

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Status and details of pest control program	Pest control plan is in place and as per records checked on random basis, in-house pest control has been carried out on regular basis. However, record of pest control conducted by third party was not shared to verify.	Partially complied till status of pest control carried out by third party is verified.
2	Is any sign of presence of pest observed due to open storage of water/waste water such as sedimentation pond?	No. However, no complaint has been received.	Being complied
3	Identified sources of risk of pest including presence of waste dump site of WAMCO	Potentially in storage yards of construction materials, sedimentation tank provided for dewatering, and solid waste etc in addition to dumped waste and water logging at foot of stockpile during rain present at adjacent dump site of WAMCO.	Being complied
4	Is water and waste water storage observed within project site except sedimentation pond and in the area of waste	Not found during site visit. Reportedly no water logging has been observed after rain.	Being complied

	dump site of WAMCO adjacent to project site		
5	Status of reported diseases due to pest.	As per discussion with doctor and record kept in medical register, diseases observed were not due to pest but mainly due to seasonal changes.	Being complied
6	Status and details of record keeping including training	All have been kept in medical register and are also being shared in monthly reports.	Being complied

## 0. OHS monitoring

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
1	Is the OHS monitoring plan ready?	It has been reviewed by ER and DBO is to submit modified plan. However, OHS monitoring conducted is being reported in monthly report.	Partially complied
2	Status and details of exposure monitoring conducted	<ol style="list-style-type: none"> <li>1. Ambient air quality monitoring at two locations within project site has been carried out during April and May months (once in month for 24 hourly). However same has not carried out during June and July months.</li> <li>2. Air quality monitoring for PM10, PM2.5, SO2 and NO2 at various workplaces within project site has been conducted for one hour/each workplace during June and July 2024 by using handheld device.</li> <li>3. Noise level monitoring at selected sources has been carried out at close to source, at 1m, 2m &amp; 3 m has been carried out once in a month on grab basis.</li> <li>4. Monitoring of Lumax during night at various locations has been carried out once in a month on grab basis.</li> <li>5. Drinking water quality monitoring at available three supply locations has been carried out once in a month on grab basis.</li> </ol>	Partially complied.
3	Status of ambient air quality and noise level conducted within project site	<ul style="list-style-type: none"> <li>• Results of 24-hourly ambient air quality monitored during April and May months at two locations within the project site, show that that values of PM<sub>2.5</sub> varied from 27.4 to 41.13 µg/m<sup>3</sup> and PM<sub>10</sub> varied from 29.2 to 42.93 µg/m<sup>3</sup> exceeding the limit prescribed by WHO for PM<sub>2.5</sub>. However</li> </ul>	Partially complied

		<p>reported values for ambient air quality monitored at workplaces cannot be justified and are not worth for further reporting.</p> <ul style="list-style-type: none"> <li>• Highest noise level of more than 100 dB(A) was reported for DG set located in batching plant area,</li> </ul>	
4	Corrective action proposed/implemented based on findings of OHS monitoring	<ul style="list-style-type: none"> <li>• DBO has been notified to make a plan for dust mitigation and source noise level as per EMP of approved EIA and has agreed to include the same as part of OHS monitoring plan.</li> <li>• DBO has been notified to conduct QA/QC including calibration of instrument used for workplace monitoring.</li> <li>• Adequate PPEs provided to worker responsible for transferring construction materials from jambo bags to hopper of batching plant as depicted in Figure 12.</li> <li>• Surgical mask and has been provided to workers. However as per real time inventory of PPEs, limited earplug/earmuff and adequate mask have been provided to workers as depicted in Figure 13. DBO informed that procurement of FPP2 is in process.</li> <li>• DBO has been notified for higher noise level reported for DG set in batching plant area and corrective measures. Reportedly, no communication was made with Villa Pvt Ltd.</li> <li>• No QA/QC has been conducted for variations reported in TDS values of water supply by Male Water and Sewage Company and in drinking water. However reported values are within prescribed limit. DBO has been notified for same</li> </ul>	Partially complied.
5	Status of in-house inspection on issue related to requirement of exposure training	In addition to other than above, no additional detail has been shared to verify.	Same as above
6	Status and details of record keeping including training	Records of monitoring conducted as stated above have been reported in monthly report.	Being complied.

P. Misc

SN	Particulars	Observations (with photos where appropriate)	Reference and Status of compliance of respective plan/Method of statement/others
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1	Status and details of all type of incidents noted/reported	<ul style="list-style-type: none"> <li>Incidents reported: on 20 April of near miss, 22 April of assets damage, and 20 June of injury and 28 July of injury.</li> <li>Overall, in compliance with Incident Reporting and Investigation Procedure, however detailed investigation report with root cause analysis and actions taken was in process.</li> </ul>	Being complied
2	Access to working areas	Inadequate access for movement of workers in working area of steel rebar shop has been observed as depicted in Figure 14	Partially complied
3	Status and details of induction training to visitors and workers	Overall, in compliance with HSE training procedure.	Being complied
4	Status and details of facilities provided to deal with heat stress on site	<ul style="list-style-type: none"> <li>As per discussion with doctor, this is common problem encountered on regular basis and health centre is equipped to provide first aid. Also, ORS pouches are being provided on SOS basis. However, temporary shelters have been provided near construction site and office building. Also, project site is very small and camp area is with 100 m (max.) from construction site.</li> </ul>	Being complied.
5	<ul style="list-style-type: none"> <li>Status and details of training provided.</li> <li>Language in which training is provided. Is it understood by all?</li> </ul>	<ul style="list-style-type: none"> <li>It was found in compliance with HSE training procedure and details are being reported in monthly reports.</li> <li>During interactions on randomly basis with workers, it was found that language is an issue during communication. Most of the workers/staff are non-Maldivians and mainly from Turkey, India, Bangladesh, Nepal, Sri Lanka and Afghanistan. All documents are made in English language. No professional multi-language speaking trainer has been engaged. However in-house staff is being used for the purpose in limited way.</li> </ul>	Partially complied.
	HIV-AIDS awareness programme via an approved service provider	To comply with point 6.7 of clause 6 as mentioned in part B- special clause of contract, no HIV-AIDS awareness programme via an approved service provider has been conducted. However, HIV test is being conducted as part of medical checkup conducted by Maldivian Government before issue of permit to work. Only one in-house training was conducted on 5 January 2023 and same was attended by 18 workers/staff only.	Not complied
6	Others	<ul style="list-style-type: none"> <li>Policy on Drugs, Alcohol and Smoking is displayed as depicted in Figure 15</li> <li>Site safety rules are displayed as depicted in Figure 16</li> </ul>	

#### N. Summary of observations which need corrective actions/measures

SN	Observations	Corrective action recommended		Date of completion
		DBO agreed to comply	Need to escalate to DBO management	
1	<ul style="list-style-type: none"> <li>Mapping of hazards associated with diesel mobile tanker owned by sub-contractors<sup>3</sup> and bore well and RO plant under commissioning in batching plant area and understanding of language by workers and staff working at site to make tool box talk and training more effective.</li> <li>Effective role of HSE team in decision making, approval of notification of inspection, supervision etc</li> </ul>			
2	Staff engaged for inspection of scaffolding should have adequate experience and qualification and corrective measures to be taken so that HSE team should have updated knowledge on applicable local regulations.			
3	Training to be provided to workers on associated hazards. Criteria for recruitment of electrician and compliance of First aid kit British Standard BS 8599-1:2019			
4	Provide additional exit as emergency exit in accommodation and Mock drills especially on firefighting and evacuation with external agencies such as WAMCO, MNDF etc.			
5	Drill on security arrangement in compliance with security management plan ( to practice for responding to various types of security incidents, thereby ensuring their preparedness should such an incident occur in real life)			
6	Registration of all vehicles and mobile machinery/equipment including owned by sub-contractors and taken on rent by EPC.			
7	Fitness inspection of all machinery/equipment taken on rented EPC and belongs to sub-contractors engaged for job work basis.			
8	Commissioning of maintenance shop and regular inspection and preventive maintenance of vehicles belonging to sub-contractors.			

<sup>3</sup> As per entry/exit records of diesel tankers provided by DBO for April to June-24, 16 times diesel tanker visited the project site. But as per further update by DBO, diesel is brought to site by Villa Pvt Ltd in 200 lit drums on a pick-up truck. Facts need to verified and accordingly corrective actions are to be taken.

9	Compulsory wearing of PPEs including adequate mask and earplug/muff; PPE requirements must be assessed by HSE team prior to commencement of each activity.
10	Separate permit to work for electrical work.in compliance with Electrical safety procedure.
11	Plan for implementing corrective measures including engineering solutions, management practices and PPEs especially for dust and noise level in compliance with EMP of approved EIA.
12	Display of signage and dos and don'ts in multiple languages to ensure every worker understands the subject
13	Conduct QA/QC including calibration of instruments used for environment monitoring and testing especially for ambient air quality at workplaces and water supply for drinking purpose.
14	Observations of activities present at and in adjacent area of sampling location during monitoring period are to be noted down to justify the reported results.
15	In-house inspection/audit of record keeping in compliance with respective plan, method of statements and SOPs
16	Contractor to draft a procedure to deal with issue of heat stress
17	HIV-AIDS awareness programme for workers must be conducted via an approved service

Figure 1: External mobile fuel tanker arriving at site entrance spotted during visit in May-2024



Figure 2: Fire extinguishers inspected by third party



**Figure 3: Inadequate Secondary containment provided in temporary storage of 1000 L containers of chemicals in batching plant area.**



**Figure 4: Inadequate Secondary containment provided and spillage observed in temporary storage tank of chemical in ware house area found during visit for inspection in mid of July.**



**Figure 5: No Secondary containment provided in temporary storage tank of chemical in batching plant area.**



**Figure 6: Eye wash station provided near hazardous chemical storage ware house.**



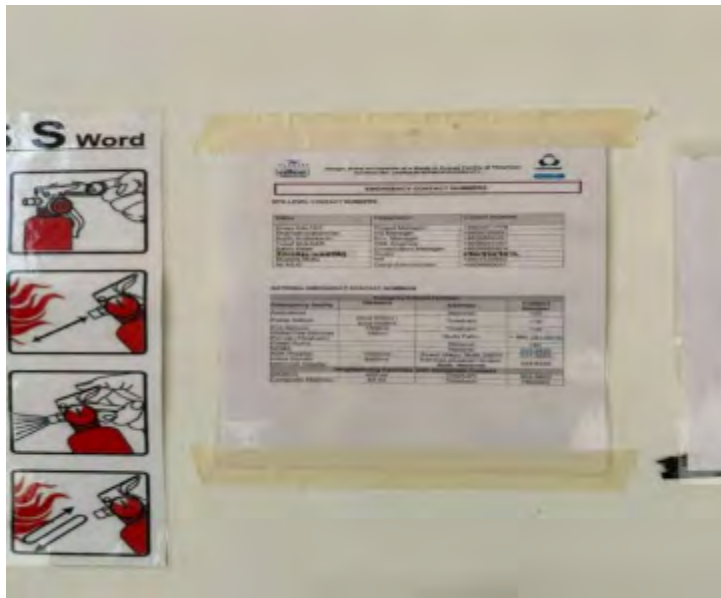
**Figure 7: Two spill kits at site**



**Figure 8: Smoking area at construction area**



**Figure 9: Display of emergency contact number**



**Figure 10: Transit mixers without legal registration**





**Figure 11: Rusty sheets to be used for scaffolding in batching plant area**



**Figure 12: Status of PPEs during transferring cement and fly ash from bags to hoppers of batching plant**



**Figure 13: Inadequate Mask found in batching plant area**



**Figure 14: Inadequate access for movement of workers in working area of steel rebar shop**



Figure 15: Display of Policy on Drugs, Alcohol and Smoking

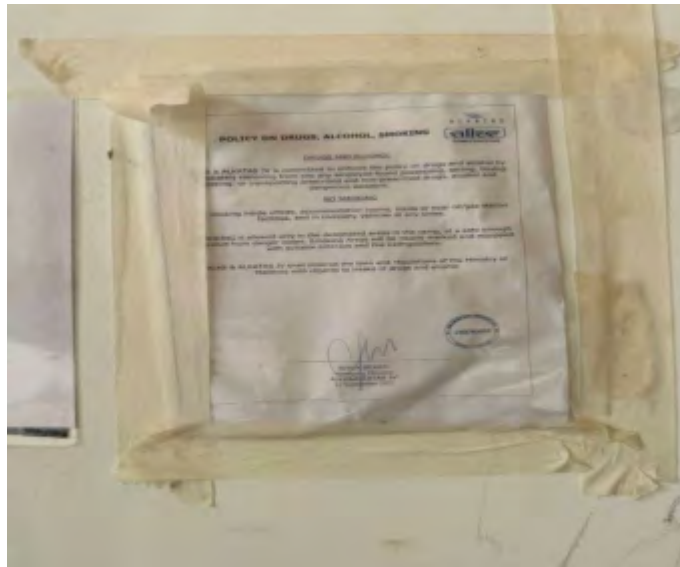


Figure 16: Display of board on site safety rules



Attendance Sheets



Design, Build and Operate of a Waste to Energy Facility at Thilafushi  
Contract No: (AGR)438-WPMC/PRIV/2021/71



MoE/ER - HSE AUDIT

WEEKLY HSE MEETING -				
Date	24.07.24	Duration		
Location	Project Site			
Meeting Agenda	HSE Audit			
ATTENDEES				
Sl #	NAME	COMPANY	DESIGNATION	SIGNATURE
1.	RASHAN THOMAS	URB	EHS Manager	
2	Civan Kafafot	AA	PM	
3	SUJITH. S	AAJV.	ENVI MANAGER	
4	Yamun Mohamed	PMU	Env + O&M safeguard	
5	Nabeel Nazim	ER	Dep Team Leader	
6	Suail Gulth	ER	Waste Env Safeguard	
07	Shahid Singh	AAJV HSE OFFICER	HSE OFFICER	
08	Murthy	AAJV	HSE OFFICER	
09	Anil Kumar	AAJV	HSE OFFICER	
10	Shagib	AAJV	HSE OFFICER	



Design, Build and Operate of a Waste to Energy Facility at Thibafusa  
 Contract No: (AGR)438-WPMC/PRIV/2021/71



HSE AUDIT - CLOSING MEETING

**-WEEKLY HSE MEETING**

Date	30/07/2024	Duration	
Location	WTE Site Meeting Room		
Meeting Agenda			

**ATTENDEES**

SI#	NAME	COMPANY	DESIGNATION	SIGNATURE
1	ROSHAN THOMAS	URB	EHS Manager	
2	SUJITH S	AAJV	EMM MGR	
3	DHANOSHAPADIA	AAJV	HS Manager	
4	ND AYUB AHMAD	AAJV	D.C.C.	
5	Sahn KAREF	AAJV	C.G.C.	
6	Civan Kalafat	AAJV	PM	
7	Yasmin Mohamed	PMU	Site Engineer	
8	Sunil Gupta	EPA	Site Engineer	

**Appendix 3: Results of Monitoring (Air Quality,  
Noise, Water and Wastewater Quality and  
Illumination level)**

## **Ambient Air Quality**

**Report Preparation By:**

**Environ Project & Consultancy Pvt. Ltd**

1103-1104, Ganesh Glory, Jagat pure Road,  
Gota, S.G. Highway Ahmedabad 382445

**Customer Name/Address**

**Alke Alkatas Joint Venture Pvt Ltd**

H. H. Moomiyaage, 5A Asaree Hingun K. Male 20265  
MALDIVES



Thilafushi Island, MALDIVES 2024

**Name of Project:** WtE Energy Facility Project

**Order No:** EN-M/2207/417\_01

**Test report:** Ambient Air Monitoring August-24

**Duration:** 05.08.2024-09.08.2024





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## 1) Purpose of Monitoring

The purpose of monitoring, as outlined in the provided details, is to assess and evaluate the air quality in the vicinity of the sensitive receptors affected by The Greater Malé Waste to Energy Project. The report aims to ascertain the levels of various air pollutants, including PM10, PM2.5, NO2, SO2, and TSP (Total Suspended Particulates), to gauge the potential environmental impact of the project on the surrounding area.

By conducting comprehensive air quality monitoring, the report seeks to provide valuable insights into the concentration levels of these pollutants, which are crucial for understanding their potential effects on human health and the environment. Additionally, the data collected will serve as a basis for assessing compliance with regulatory standards and guidelines related to air quality management.

Assessment of Air Quality: The primary objective of monitoring is to assess the quality of air in the vicinity of sensitive receptors impacted by The Greater Malé Waste to Energy Project.

Evaluation of Pollutants: The monitoring aims to evaluate the concentration levels of specific air pollutants, including:

PM10 (Particulate Matter with a diameter of 10 micrometers or less)

PM2.5 (Particulate Matter with a diameter of 2.5 micrometers or less)

NO2 (Nitrogen Dioxide)

SO2 (Sulfur Dioxide) & TSP (Total Suspended Particulates)

Compliance Legal Framework: The data collected through monitoring serves as a basis for assessing compliance with relevant regulatory standards and guidelines governing air quality management.

Decision Support: The monitoring efforts aim to provide stakeholders with accurate and reliable data to support informed decision-making processes related to the project's operations and environmental management.

Environmental Risk Mitigation: By identifying pollutant levels and potential risks, the monitoring facilitates the implementation of appropriate mitigation measures to minimize adverse impacts on public health and the environment.

Environmental Responsibility: Ultimately, the purpose of monitoring is to ensure that the Greater Malé Waste to Energy Project operates in an environmentally responsible manner, mitigating potential harm to air quality and associated ecosystems.

Overall, the purpose of this monitoring effort is to support informed decision-making processes, mitigate potential risks to public health and the environment, and ensure that the Greater Malé Waste to Energy Project operates in an environmentally responsible manner.



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**2) Methods Used for Monitoring**

The air quality monitoring stations employed sensor-based technology to assess PM10, PM2.5, TSP, SO2, and NO2 parameters. These stations utilize 'air sensor' technology, a classification recognized by the US EPA, which encompasses non-regulatory instruments characterized by their affordability, portability, capability to measure multiple pollutants simultaneously, and ease of operation compared to traditional regulatory stations. Unlike reference measurement methods reliant on skilled operators for instrument maintenance and calibration, air sensors comprise hardware and software set operable without human intervention, enabling untrained users to monitor air pollution effectively, without necessitating specialized technical expertise.

Sensor specifications that are used for measurement study are shown below:

Parameter		Unit	Value
SO2	Sensitivity	nA/ppm at 2ppm SO <sub>2</sub>	275 to 520
	Range	ppm limit of performance warranty	100
	Linearity	error at 100ppm SO <sub>2</sub> , linear at zero and 10ppm SO <sub>2</sub>	0 to -2
NO2	Sensitivity	nA/ppm at 2ppm NO <sub>2</sub>	-200 to -650
	Range	ppm NO <sub>2</sub> limit of performance warranty	20
	Linearity	ppb error at full scale, linear at zero and 20ppm	
Particles (PM <sub>10</sub> , PM <sub>2.5</sub> and TSP)	Mass concentration precision	%	5
	Mass concentration range	µg/m <sup>3</sup>	0 to 1000
Temperature	Typ. temperature accuracy	°C	0.45
	Operating temperature range	°C	-10 to 50
	Response time (τ63%)	s	<60
Humidity	Typ. relative humidity accuracy	%RH	4.5
	Operating relative humidity range	%RH	0 to 100
	Response time (τ63%)	s	20
All	Temperature Range	°C	-30 to 50
	Humidity Range	% RH	5 to 99

Ensuring the precision of these affordable sensors is paramount when assessing air quality. Through an intelligent calibration process, these low-cost sensors are refined and provide accurate readings comparable to those obtained from reference stations. The Smart Calibration Algorithm comprises operational steps outlined in the accompanying figure.



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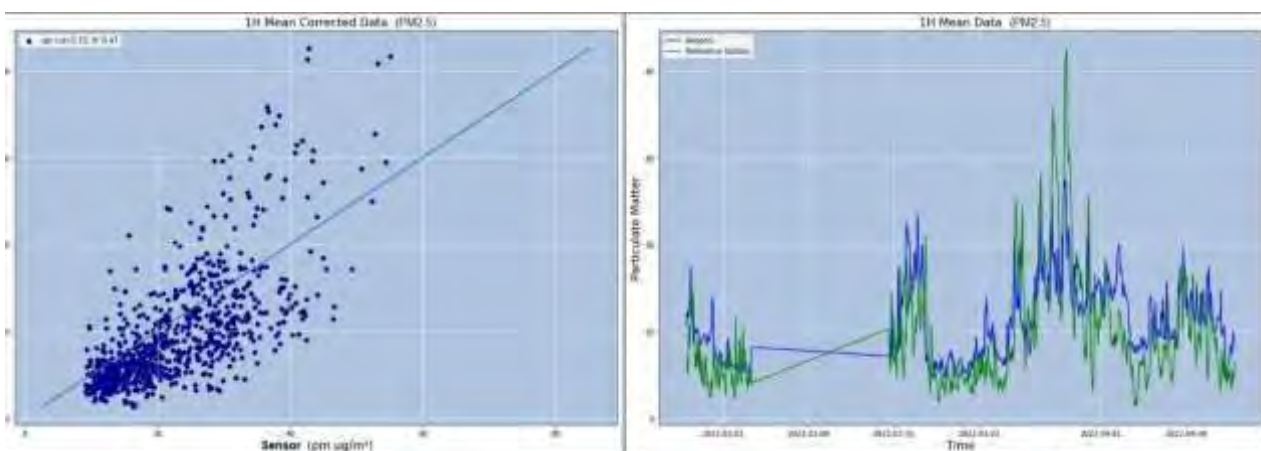
Sensor Units were calibrated using reference stations for a period before the deployment. The calibration process for particle matter and gas pollutants measurement is explained below.

Description	Methodology	
	NO <sub>2</sub> -SO <sub>2</sub> -O <sub>3</sub>	PM <sub>10</sub> -PM <sub>2.5</sub> -TSP
Installation	Near Reference Station (3/4 meters)	Near Reference Station (3/4 meters)
Pre-Test	Quality Check in zero air conditions	Quality Check in zero air conditions
Co-Located Period	4-5 weeks	8 weeks
Sampling Period	30 seconds. Hourly mean is used because the reference station measurements are hourly.	60 seconds. Hourly mean is used because the reference station measurements are hourly.
Validation	Cross-validation is used. Also, some ranges of measurement are eliminated, where the reference station is not available.	Cross-validation is used. Also, some ranges of measurement are eliminated, where the reference station is not available.
Calibration Procedure	is obtained via R <sup>2</sup> and spearman correlation	is obtained via R <sup>2</sup> and spearman correlation

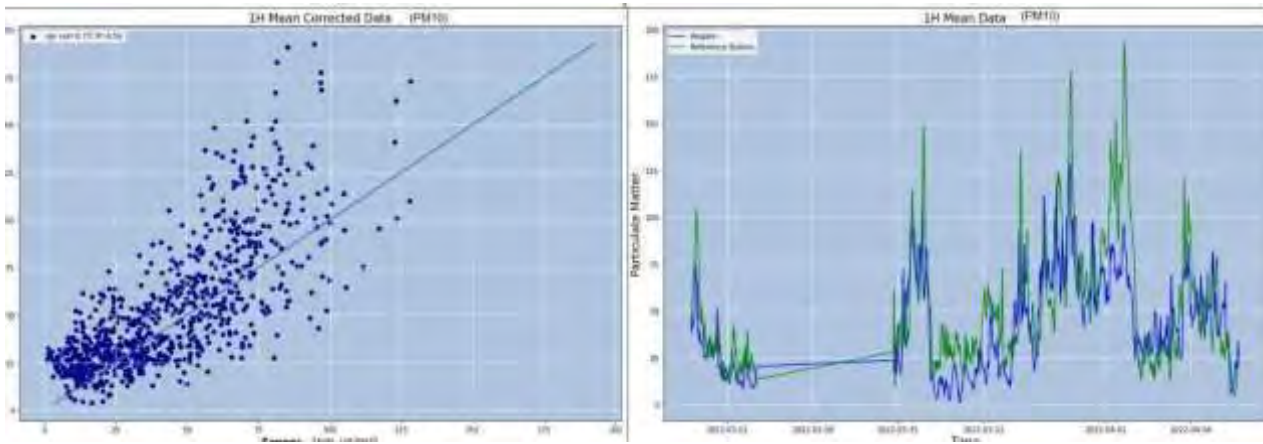
**Calibration Result for PM**

The corrected measurement results after the Smart Calibration Process are shown in the figures below. The correlation between Sensor Unit's PM<sub>2.5</sub> measurements between Reference Station's PM<sub>2.5</sub> measurements for hourly and daily mean of data is 0.73 given by the client, and the correlation between Sensor Unit's PM<sub>10</sub> measurements between Reference Station's PM<sub>10</sub> measurements for hourly and daily mean of data is 0.77 observed by the client.

**Calibration Graph of PM2.5**

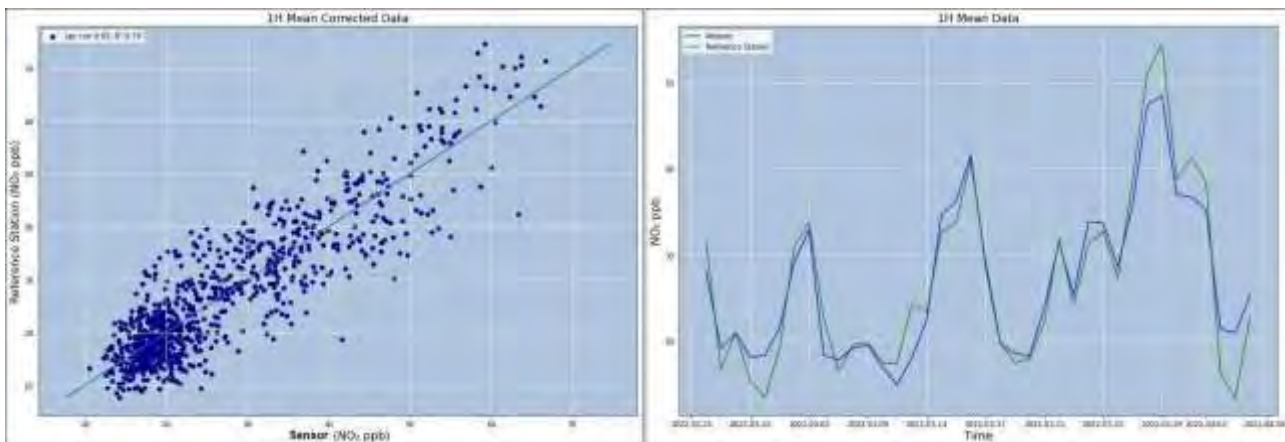


### Calibration Graph of PM<sub>10</sub>



### Calibration Result for Gases

The corrected measurement results after the Smart Calibration Process are shown in the figures below. The correlation between Sensor Unit's NO<sub>2</sub> measurements between Reference Station's NO<sub>2</sub> measurements for hourly and daily mean of data is respectively 0.823, 0.898 observed by the client



### **3) Sampling Methodology**

This section elucidates the practical implementation of the measurement procedures outlined previously. Preliminary preparations encompass crucial calibration processes, both at the factory and in the field. Factory calibrations, typically provided by sensor manufacturers, ensure baseline accuracy. Conversely, field calibrations involve real-world comparison measurements at reference stations. In our case, calibration factors derived from a month-long comparison at a designated reference station within the Turkish air quality monitoring network were employed to refine sensor accuracy.

During the actual measurement phase, meticulous organization and execution are paramount. Utilizing four distinct sets of devices - AQ2, ASR2, AQ1, ASR3, AQ3, ASR5, and AQ4 - measurements are systematically conducted over two days. Sampling point selection is informed by macro-scale assessments as per the ESIA report, followed by on-site visits to pinpoint optimal micro-scale locations for device placement. Measurements are executed within a height range of 1.5 to 4 meters above ground level, ensuring representative sampling. Each sampling point undergoes a comprehensive 24-hour measurement cycle, with sensor devices capturing parameter averages derived from instantaneous readings taken at 1-minute intervals.

Following the measurement phase, post-measurement values are extracted directly from the sensor-equipped air quality measuring devices, facilitating data analysis and interpretation.



#### 4) Sampling Location

A preconstruction baseline environmental assessment was carried out to evaluate ambient air quality at seven designated locations, including six sites within Thilafushi (specifically, AQ1, AQ2, and AQ3 as delineated in the Environmental Impact Assessment [EIA], along with ASR 2, ASR3, and ASR5 recommended for monitoring in the EIA Report), and one location situated in Villingili (designated as AQ4).

Sampling Point Coordinates and Sampling dates:

No	Location	Description	Distance to Source (meters)
1	AQ1	Represents dense industrial area	650
2	AQ2	Represents a dense industrial area	1000
3	AQ3	Represents a dense industrial area	500
4	ASR2	Represents a dense industrial area	700
5	ASR3	Represents a dense industrial area	500
6	ASR5	Represents a dense industrial area	1000
7	AQ4	Represents dense housing and Population area	4500
8	Area12	Within the premises	-
9	Batching plant	Within the premises	-

#### Sampling Points on Satellite



### **5) Legal frame work**

Within the context of the project's objectives, a comprehensive assessment was undertaken to monitor emissions of particle matter (PM10-PM2.5), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and total suspended particulates (TSP). It's imperative to note that the Maldives currently lacks a national air quality policy, necessitating reliance on established international standards for evaluation purposes.

To ensure rigorous evaluation, several authoritative bodies and frameworks were consulted. The World Health Organization (WHO) plays a pivotal role in establishing global guidelines for air quality management. These guidelines, delineated in the "Air quality guidelines for particulate matter, ozone, nitrogen dioxide, and sulfur dioxide" document, provide crucial limit values that serve as benchmarks for assessing air quality.

Moreover, the European Union (EU) has instituted directives to regulate air pollution and protect public health. Notably, the EU Council Directive 2008/50/EC sets forth health-based standards and objectives for various pollutants present in ambient air. Compliance with these directives is crucial for ensuring air quality within EU member states and aligning with international best practices.

Germany, recognized for its stringent environmental regulations, has implemented the Technical Instructions on Air Quality Control (Technische Anleitung Zur Reinhaltung der Luft), commonly referred to as the TA Luft. This regulatory framework establishes limit values aimed at safeguarding both public health and the environment from the deleterious effects of air pollution. These limit values are meticulously determined to protect against harmful emissions and mitigate the potential impact on surrounding communities and ecosystems.

To facilitate a comprehensive evaluation process, a comparative analysis was conducted, juxtaposing the established limit values from WHO guidelines, EU directives, and the TA Luft against the specific parameters selected for the modeling study. This comparative assessment ensures adherence to recognized international standards and provides a robust foundation for evaluating the potential environmental impact of the project's emissions.





Limit Values Stipulated in the International Legislation

Pollutant	Averaging Period	TA Luft	EU	WHO Ambient Air Quality Guideline Value	Project Standards
Particular Matter <10 µm (PM <sub>10</sub> )	24 hours	50 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	45 µg/m <sup>3</sup>	45 µg/m <sup>3</sup>
	1-year	40 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
Particular Matter <2.5 µm (PM <sub>2.5</sub> )	24 hours	-	-	15 (not to be exceeded more than 3-4 times a year)	15
	1-year	-	20	5	5
Nitrogen Dioxide (NO <sub>x</sub> )	1-hour	200 µg/m <sup>3</sup>	200 µg/m <sup>3</sup>	-	200 µg/m <sup>3</sup>
	24 hours	-	-	25 µg/m <sup>3</sup>	25 µg/m <sup>3</sup>
	1-year	40 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>	10 µg/m <sup>3</sup>	10 µg/m <sup>3</sup>
Sulphur Dioxide (SO <sub>2</sub> )	1-hour	350 µg/m <sup>3</sup>	350 µg/m <sup>3</sup>	-	350 µg/m <sup>3</sup>
	24 hours	125 µg/m <sup>3</sup>	125 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>	40 µg/m <sup>3</sup>
	1-year	50 µg/m <sup>3</sup>	-	-	50 µg/m <sup>3</sup>
TSP*	-	-	-	-	-

\*There is no limit value for TSP.

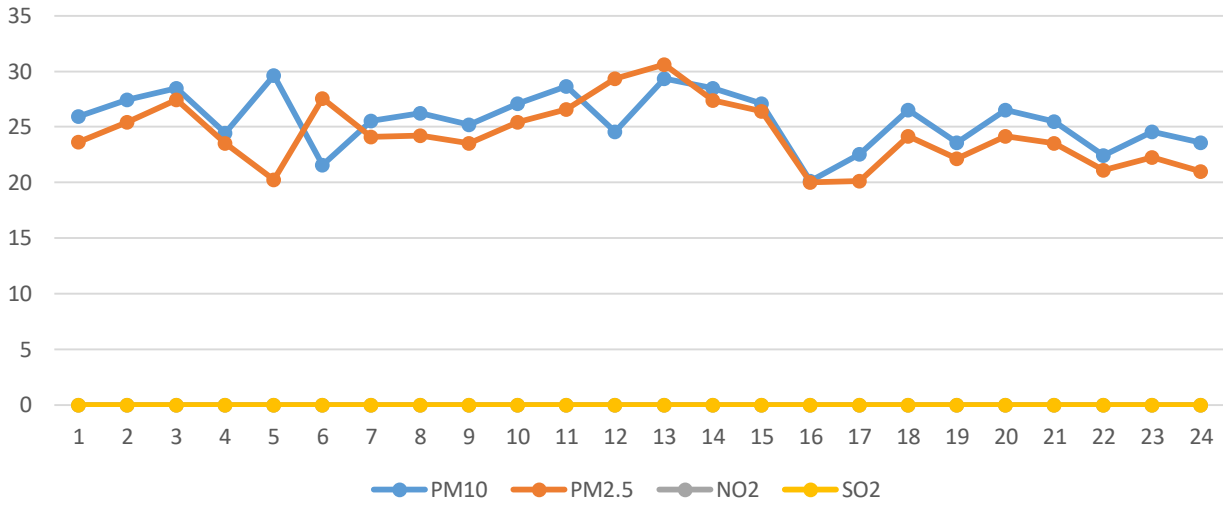


**6) Results:**

Measurement Results for Location 1

Device Code: 222								
Location	Sampling Date	Air Quality Results ( $\mu\text{g}/\text{m}^3$ )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP	Humidity (%)	Temperature (°C)
AQ1	05-08-24 17:00	25.95	23.65	0	0	52.21	86.52	34.2
	05-08-24 18:00	27.45	25.45	0	0	51.25	70.21	35.12
	05-08-24 19:00	28.45	27.45	0	0	50.52	63.25	34.41
	05-05-24 20:00	24.45	23.54	0	0	51.25	58.52	32.52
	05-08-24 21:00	29.65	20.25	0	0	55.36	53.21	33.5
	05-08-24 22:00	21.58	27.54	0	0	53.36	48.52	32.45
	05-08-24 23:00	25.54	24.12	0	0	50.25	43.15	33.69
	06-08-24 0:00	26.25	24.21	0	0	51.25	36.56	31.12
	06-08-24 1:00	25.21	23.52	0	0	50.96	39.56	30.25
	06-08-24 2:00	27.12	25.45	0	0	52.56	40.25	34.52
	06-08-24 3:00	28.65	26.58	0	0	53.69	43.58	33.32
	06-08-24 4:00	24.58	29.32	0	0	55.65	45.25	31.02
	06-08-24 5:00	29.32	30.58	0	0	52.65	48.51	32.12
	06-08-24 6:00	28.45	27.41	0	0	51.25	50.21	32.41
	06-08-24 7:00	27.12	26.41	0	0	50.29	40.25	33.23
	06-08-24 8:00	20.15	20.01	0	0	56.95	24.15	29.12
	06-08-24 9:00	22.54	20.15	0	0	54.56	29.63	34.1
	06-08-24 10:00	26.54	24.15	0	0	55.25	32.45	35.1
	06-08-24 11:00	23.58	22.15	0	0	55.02	34.74	37.22
	06-08-24 12:00	26.54	24.15	0	0	53.25	51.12	39.52
06-08-24 13:00	25.47	23.52	0	0	54.89	47.21	41.01	
06-08-24 14:00	22.45	21.14	0	0	55.01	37.45	37.52	
06-08-24 15:00	24.54	22.25	0	0	54.65	45.21	33.25	
06-08-24 16:00	23.58	21.01	0	0	53.36	55.45	30.12	
Hourly Limit Values	TA Luft	-	-	200	350	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
Daily Limit Values	24 hour Average	25.63	24.34	0.00	0.00	53.14	46.87	33.79
	Daily Limit Values	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
Daily Limit Values	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-

### Result of AQ1 location



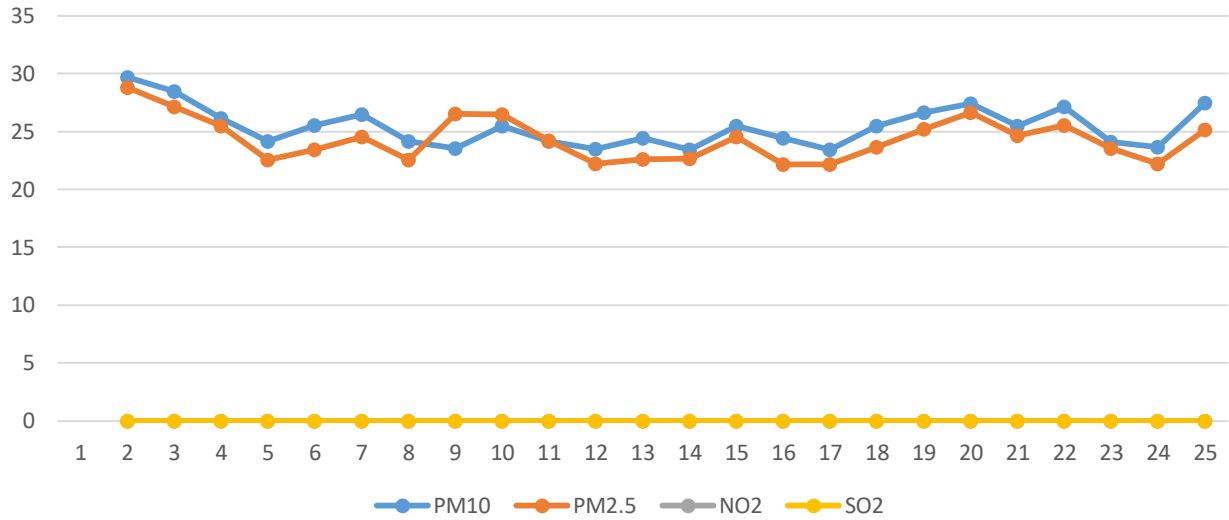
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**Measurement Results for Location 2**

Device Code: 224								
Location	Sampling Date	Results ( $\mu\text{g}/\text{m}^3$ )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
AQ2	05/08/2024 17:00	29.65	28.78	0.00	0.00	55.15	84.45	28.54
	05/08/2024 18:00	28.45	27.15	0.00	0.00	54.69	79.56	27.45
	05/08/2024 19:00	26.15	25.45	0.00	0.00	53.45	82.58	26.65
	05/08/2024 20:00	24.15	22.52	0.00	0.00	55.12	85.98	29.65
	05/08/2024 21:00	25.54	23.45	0.00	0.00	54.14	87.15	30.45
	05/08/2024 22:00	26.45	24.52	0.00	0.00	53.25	88.65	28.54
	05/08/2024 23:00	24.15	22.56	0.00	0.00	51.25	90.45	27.54
	06/08/2024 0:00	23.54	26.54	0.00	0.00	55.35	88.85	25.54
	06/08/2024 1:00	25.45	26.45	0.00	0.00	51.25	84.54	26.52
	06/08/2024 2:00	24.15	24.21	0.00	0.00	50.25	84.65	37.52
	06/08/2024 3:00	23.48	22.21	0.00	0.00	53.25	81.45	28.65
	06/08/2024 4:00	24.45	22.58	0.00	0.00	54.56	80.45	30.45
	06/08/2024 5:00	23.45	22.65	0.00	0.00	55.25	82.36	26.15
	06/08/2024 6:00	25.45	24.54	0.00	0.00	54.25	80.45	26.54
	06/08/2024 7:00	24.45	22.15	0.00	0.00	53.36	80.45	26.32
	06/08/2024 8:00	23.45	22.15	0.00	0.00	55.02	72.45	38.21
	06/08/2024 9:00	25.45	23.65	0.00	0.00	54.05	67.85	30.12
	06/08/2024 10:00	26.65	25.21	0.00	0.00	53.25	62.48	31.15
	06/08/2024 11:00	27.41	26.65	0.00	0.00	51.25	62.48	33.54
	06/08/2024 12:00	25.45	24.65	0.00	0.00	52.25	59.54	34.21
06/08/2024 13:00	27.15	25.52	0.00	0.00	53.36	52.45	35.35	
06/08/2024 14:00	24.12	23.52	0.00	0.00	55.02	54.1	36.45	
06/08/2024 15:00	23.65	22.21	0.00	0.00	54.08	56.45	35.65	
06/08/2024 16:00	27.45	25.12	0.00	0.00	55.02	55.21	38.95	
Hourly Limit Values	TA Luft	-	-	200	350	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
Average		25.41	24.35	0.00	0.00	53.66	75.21	30.84
Daily Limit Values	TA Luft	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-



### Result of AQ2 Location

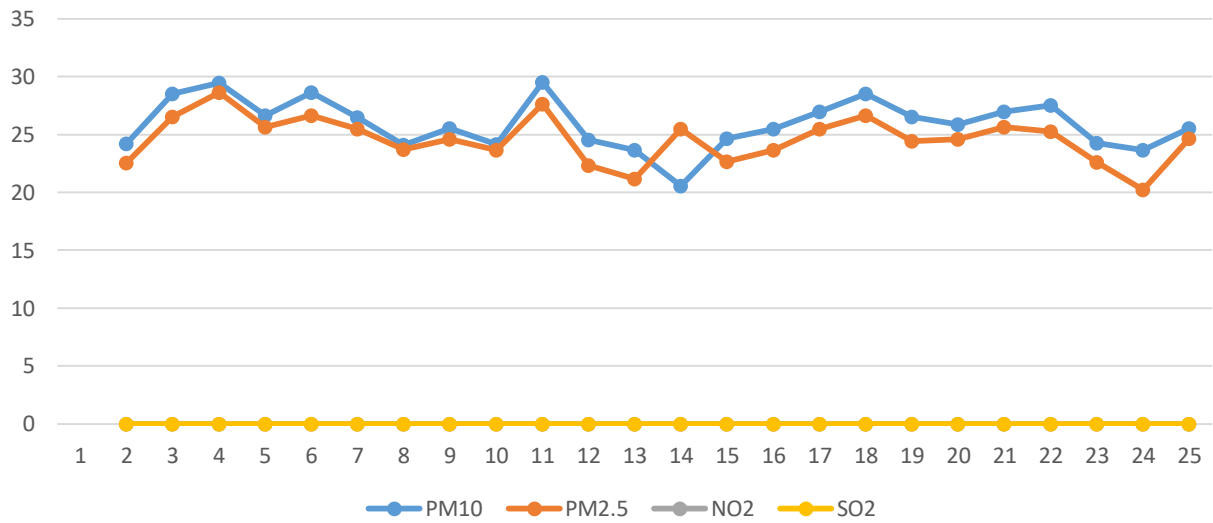


**Measurement Results for Location 3**

Device Code: 222								
Location	Sampling Date	Results ( $\mu\text{g}/\text{m}^3$ )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
AQ3	06/08/2024 17:00	24.21	22.52	0	0	53.25	83.65	25.41
	06/08/2024 18:00	28.54	26.52	0	0	55.21	80.25	27.54
	06/08/2024 19:00	29.45	28.65	0	0	54.25	84.45	26.95
	06/08/2024 20:00	26.65	25.65	0	0	53.25	85.69	25.65
	06/08/2024 21:00	28.65	26.65	0	0	55.12	86.56	26.85
	06/08/2024 22:00	26.45	25.45	0	0	54.01	88.65	26.41
	06/08/2024 23:00	24.12	23.69	0	0	53.25	90.45	25.21
	07/08/2024 0:00	25.52	24.58	0	0	55.32	91.45	27.54
	07/08/2024 1:00	24.15	23.65	0	0	54.12	85.69	26.35
	07/08/2024 2:00	29.52	27.65	0	0	54.25	84.65	25.52
	07/08/2024 3:00	24.52	22.35	0	0	55.98	83.69	27.65
	07/08/2024 4:00	23.65	21.15	0	0	54.98	82.69	26.01
	07/08/2024 5:00	20.58	25.45	0	0	55.63	84.56	22.62
	07/08/2024 6:00	24.65	22.65	0	0	54.14	82.65	24.52
	07/08/2024 7:00	25.48	23.65	0	0	55.14	84.12	26.69
	07/08/2024 8:00	26.98	25.45	0	0	54.15	72.56	29.68
	07/08/2024 9:00	28.54	26.65	0	0	55.19	67.52	30.45
	07/08/2024 10:00	26.54	24.45	0	0	54.58	62.56	31.85
	07/08/2024 11:00	25.85	24.58	0	0	53.85	66.56	32.58
	07/08/2024 12:00	26.98	25.65	0	0	55.98	58.52	33.65
07/08/2024 13:00	27.51	25.25	0	0	54.58	54.12	35.78	
07/08/2024 14:00	24.25	22.62	0	0	55.78	52.58	36.45	
07/08/2024 15:00	23.65	20.25	0	0	55.63	54.85	35.41	
07/08/2024 16:00	25.54	24.65	0	0	55.78	56.52	36.89	
Hourly Limit Values	TA Luft	-	-	200	350	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
	<b>24 Hours Average</b>	25.92	24.58	0.00	0.00	54.73	76.04	28.90
Daily Limit Values	TA Luft	50	-	-	-	-	-	-
	EU	50	-	-	-	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-



### Result of AQ3 Location



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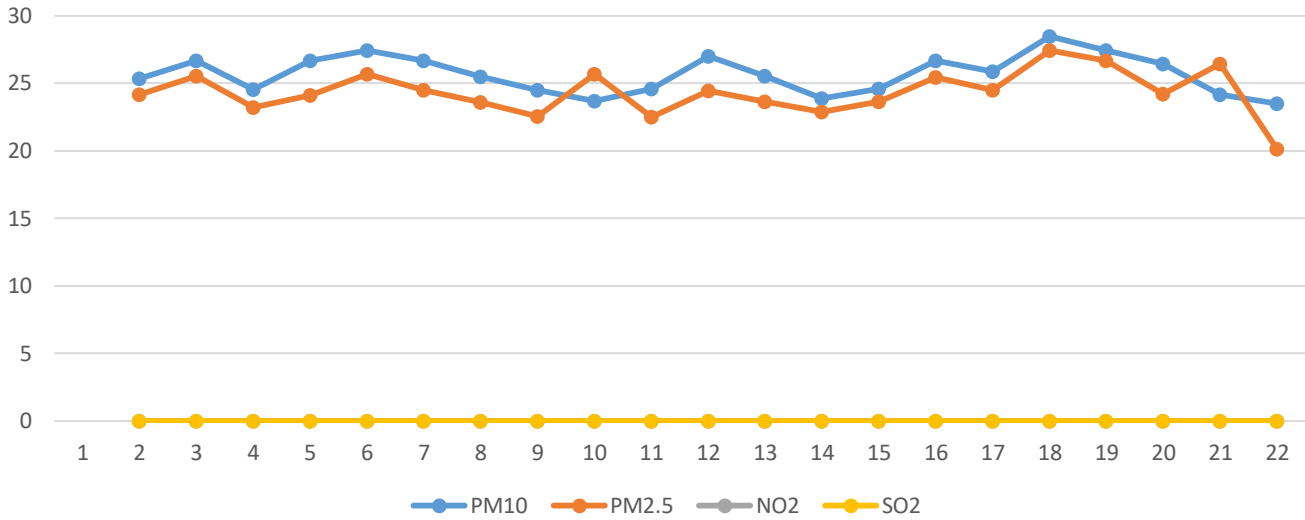
**Measurement Results for Location 4**

Device Code: 223								
Location	Sampling Date	Results (µg/m³)					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
ASR2	06/08/2024 17:00	25.32	24.15	0	0	54.25	72.45	29.65
	06/08/2024 18:00	26.65	25.52	0	0	53.25	74.32	28.62
	06/08/2024 19:00	24.54	23.2	0	0	55.15	82.45	25.65
	06/08/2024 20:00	26.65	24.12	0	0	55.98	85.41	27.32
	06/08/2024 21:00	27.45	25.65	0	0	54.75	85.21	26.36
	06/08/2024 22:00	26.65	24.51	0	0	53.58	84.25	25.65
	06/08/2024 23:00	25.48	23.58	0	0	55.85	85.96	28.25
	07/08/2024 0:00	24.48	22.54	0	0	54.79	88.65	27.65
	07/08/2024 1:00	23.69	25.65	0	0	55.96	87.65	27.65
	07/08/2024 2:00	24.58	22.48	0	0	54.85	86.54	26.96
	07/08/2024 3:00	26.98	24.45	0	0	53.25	87.25	26.35
	07/08/2024 4:00	25.54	23.65	0	0	54.89	86.65	24.65
	07/08/2024 5:00	23.89	22.87	0	0	55.87	87.25	28.63
	07/08/2024 6:00	24.58	23.65	0	0	53.69	87.45	27.65
	07/08/2024 7:00	26.68	25.45	0	0	52.99	84.69	29.65
	07/08/2024 8:00	25.85	24.48	0	0	51.89	75.65	30.25
	07/08/2024 9:00	28.48	27.41	0	0	53.89	70.25	31.54
	07/08/2024 10:00	27.45	26.68	0	0	55.96	73.65	29.65
	07/08/2024 11:00	26.45	24.21	0	0	54.25	71.58	30.41
	07/08/2024 12:00	24.15	26.45	0	0	53.58	64.95	30.42
07/08/2024 13:00	23.51	20.15	0	0	51.89	62.58	34.65	
Hourly Limit Values	TA Luft	-	-	200	350	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
	24 Hours Average	25.67	24.33	0.00	0.00	54.31	80.23	28.46
Daily Limit Values	TA Luft	50	-	-	125			
	EU	50	-	-	125			
	WHO Ambient Air Quality Guideline Value	45	15	25	40			





### Result of ASR2 Location

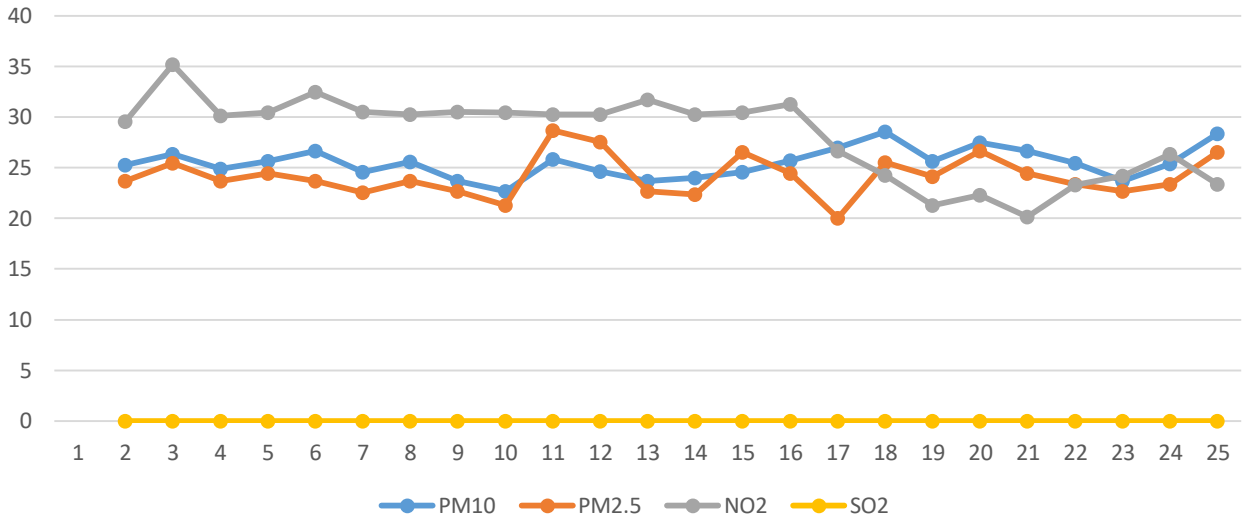


Measurement Results for Location 5

Device Code: AIRS-1								
Location	Sampling Date	Results ( $\mu\text{g}/\text{m}^3$ )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
ASR3	06/08/2024 17:00	25.25	23.65	30.02	0.00	55.25	67.65	71.25
	06/08/2024 18:00	26.35	25.45	36.21	0.00	54.15	69.65	78.32
	06/08/2024 19:00	24.85	23.65	32.89	0.00	53.25	64.21	84.21
	06/08/2024 20:00	25.65	24.45	31.58	0.00	54.48	62.41	84.65
	06/08/2024 21:00	26.65	23.65	33.89	0.00	55.85	62.36	87.32
	06/08/2024 22:00	24.54	22.56	32.58	0.00	54.58	61.11	86.32
	06/08/2024 23:00	25.58	23.65	31.20	0.00	54.58	60.25	87.12
	07/08/2024 0:00	23.65	22.65	32.25	0.00	55.98	59.32	86.35
	07/08/2024 1:00	22.65	21.25	31.74	0.00	54.58	57.65	85.15
	07/08/2024 2:00	25.85	28.65	32.78	0.00	53.89	65.25	85.45
	07/08/2024 3:00	24.65	27.52	31.48	0.00	55.52	68.54	84.25
	07/08/2024 4:00	23.68	22.65	32.58	0.00	54.89	65.45	84.58
	07/08/2024 5:00	23.98	22.36	32.89	0.00	53.98	68.45	86.58
	07/08/2024 6:00	24.58	26.52	31.75	0.00	50.89	70.24	84.58
	07/08/2024 7:00	25.69	24.45	30.25	0.00	53.98	62.25	81.45
	07/08/2024 8:00	26.98	20.01	25.98	0.00	51.59	64.21	68.65
	07/08/2024 9:00	28.54	25.54	26.75	0.00	52.98	61.02	61.25
	07/08/2024 10:00	25.65	24.15	23.99	0.00	55.01	59.54	58.65
	07/08/2024 11:00	27.45	26.65	23.20	0.00	53.25	62.21	60.25
	07/08/2024 12:00	26.65	24.45	21.09	0.00	54.21	64.21	61.25
07/08/2024 13:00	25.45	23.36	24.87	0.00	50.14	65.25	62.41	
07/08/2024 14:00	23.65	22.65	25.87	0.00	52.89	67.52	59.45	
07/08/2024 15:00	25.41	23.36	28.41	0.00	54.99	69.32	60.25	
07/08/2024 16:00	28.36	26.54	24.89	0.00	53.56	71.25	61.25	
Hourly Limit Values	TA Luft	-	-	200	200	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
Average	24 hours Average	25.49	24.16	28.14	0.0 0	53.94	64.55	75.46
Daily Limit Values	TA Luft	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-



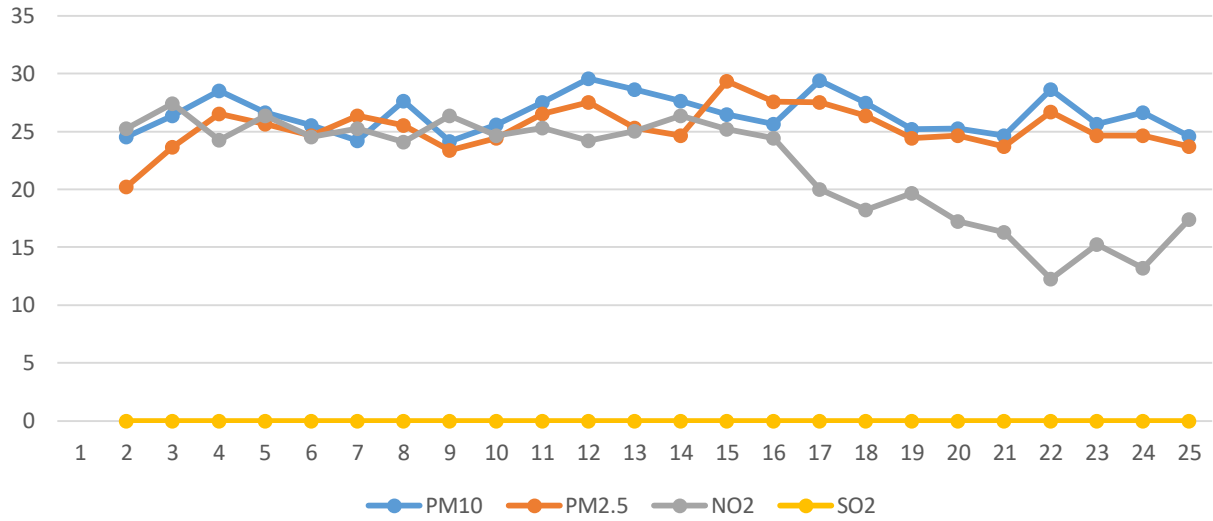
### Result of ASR3 Location



Measurement Results for Location 6

Device Code: 223								
Location	Sampling Date	Results (µg/m³)					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
ASRS	07/08/2024 17:00	24.52	20.25	25.25	0.00	50.59	45.65	65.25
	07/08/2024 18:00	26.35	23.65	27.41	0.00	53.96	54.21	72.12
	07/08/2024 19:00	28.54	26.54	24.25	0.00	55.25	49.63	78.65
	07/08/2024 20:00	26.65	25.65	26.36	0.00	53.25	52.32	76.63
	07/08/2024 21:00	25.52	24.65	24.52	0.00	50.25	49.32	79.65
	07/08/2024 22:00	24.21	26.35	25.23	0.00	52.45	54.32	78.25
	07/08/2024 23:00	27.65	25.52	24.12	0.00	53.89	49.65	80.25
	08/08/2024 0:00	24.15	23.36	26.36	0.00	50.25	50.25	83.25
	08/08/2024 1:00	25.58	24.45	24.65	0.00	51.89	48.65	81.21
	08/08/2024 2:00	27.54	26.52	25.32	0.00	53.89	52.23	85.15
	08/08/2024 3:00	29.54	27.52	24.23	0.00	55.45	50.25	83.25
	08/08/2024 4:00	28.65	25.32	25.02	0.00	50.25	48.65	82.25
	08/08/2024 5:00	27.65	24.65	26.36	0.00	52.45	48.32	82.36
	08/08/2024 6:00	26.45	29.36	25.21	0.00	53.98	47.54	80.36
	08/08/2024 7:00	25.65	27.58	24.45	0.00	51.15	45.21	81.25
	08/08/2024 8:00	29.42	27.52	20.02	0.00	52.45	43.21	67.32
	08/08/2024 9:00	27.45	26.36	18.25	0.00	53.48	41.25	62.02
	08/08/2024 10:00	25.21	24.45	19.65	0.00	55.05	45.21	61.25
	08/08/2024 11:00	25.26	24.65	17.21	0.00	54.01	39.65	65.25
	08/08/2024 12:00	24.65	23.69	16.32	0.00	55.87	35.25	66.32
08/08/2024 13:00	28.65	26.69	12.25	0.00	54.15	28.54	65.12	
08/08/2024 14:00	25.65	24.65	15.25	0.00	52.85	34.21	64.25	
08/08/2024 15:00	26.65	24.65	13.21	0.00	53.98	32.25	62.58	
08/08/2024 16:00	24.58	23.69	17.41	0.00	55.09	37.45	60.25	
Hourly Limit Values	TA Luft	-	-	200	350	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
Average	24 Hours Average	26.51	25.32	22.01	0.00	53.16	45.13	73.51
Daily Limit Values	TA Luft	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-

### Result of ASR5 Location



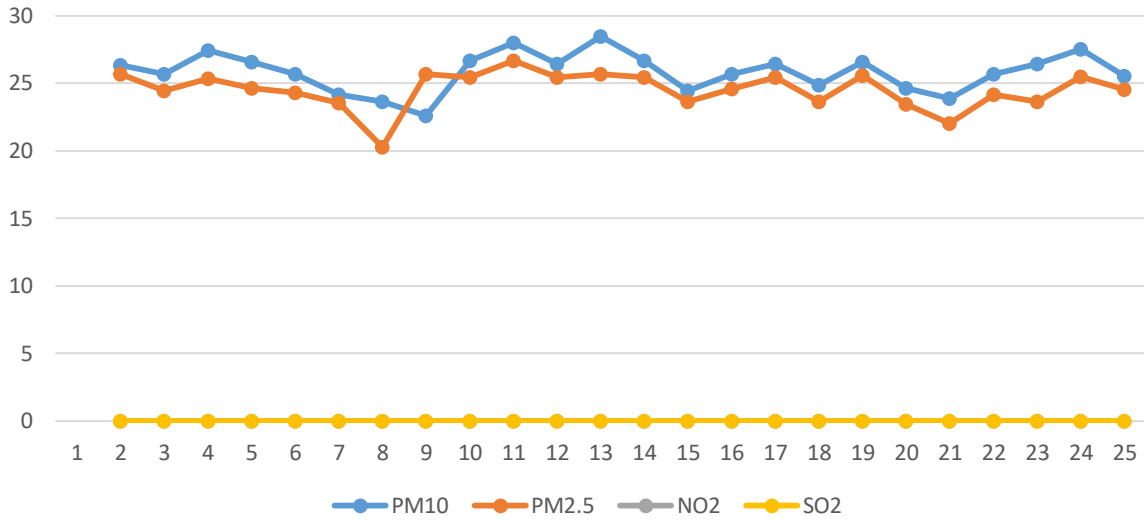
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**Measurement Results for Location 7**

Device Code: 224								
Location	Sampling Date	Results (µg/m³)					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
AQ4	07/08/2024 17:00	26.32	25.65	0	0	55.25	66.56	30.25
	07/08/2024 18:00	25.69	24.45	0	0	54.45	70.25	29.65
	07/08/2024 19:00	27.45	25.32	0	0	53.98	76.36	26.65
	07/08/2024 20:00	26.56	24.65	0	0	51.08	77.65	25.36
	07/08/2024 21:00	25.65	24.32	0	0	55.65	80.25	24.32
	07/08/2024 22:00	24.15	23.56	0	0	54.1	80.65	25.32
	07/08/2024 23:00	23.65	20.25	0	0	52.59	82.36	26.32
	08/08/2024 0:00	22.58	25.65	0	0	53.69	82.25	25.12
	08/08/2024 1:00	26.65	25.45	0	0	55.45	80.25	24.52
	08/08/2024 2:00	27.98	26.65	0	0	52.21	84.25	25.65
	08/08/2024 3:00	26.45	25.45	0	0	55.21	82.32	26.32
	08/08/2024 4:00	28.45	25.65	0	0	55.89	80.25	24.32
	08/08/2024 5:00	26.65	25.45	0	0	54.25	79.63	25.32
	08/08/2024 6:00	24.45	23.65	0	0	55.99	80.25	23.35
	08/08/2024 7:00	25.65	24.56	0	0	50.25	76.65	27.52
	08/08/2024 8:00	26.45	25.42	0	0	52.65	64.25	32.52
	08/08/2024 9:00	24.85	23.65	0	0	53.15	60.25	30.25
	08/08/2024 10:00	26.56	25.56	0	0	54.25	59.65	31.25
	08/08/2024 11:00	24.65	23.45	0	0	54.25	58.52	35.25
	08/08/2024 12:00	23.85	22.02	0	0	55.02	56.36	33.25
08/08/2024 13:00	25.68	24.15	0	0	52.69	58.54	34.2	
08/08/2024 14:00	26.45	23.65	0	0	55.15	60.25	32.25	
08/08/2024 15:00	27.54	25.48	0	0	54.16	63.25	31.25	
08/08/2024 16:00	25.54	24.52	0	0	53.25	58.32	34.01	
Hourly Limit Values	TA Luft	-	-	200	350		-	-
	EU	-	-	200	350		-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-		-	-
Average	24 hours Average	25.83	24.53	0.00	0.00	53.94	71.64	28.51
Daily Limit Values	TA Luft	50	-	-	125		-	-
	EU	50	-	-	125		-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40		-	-



### Result of AQ4 Location



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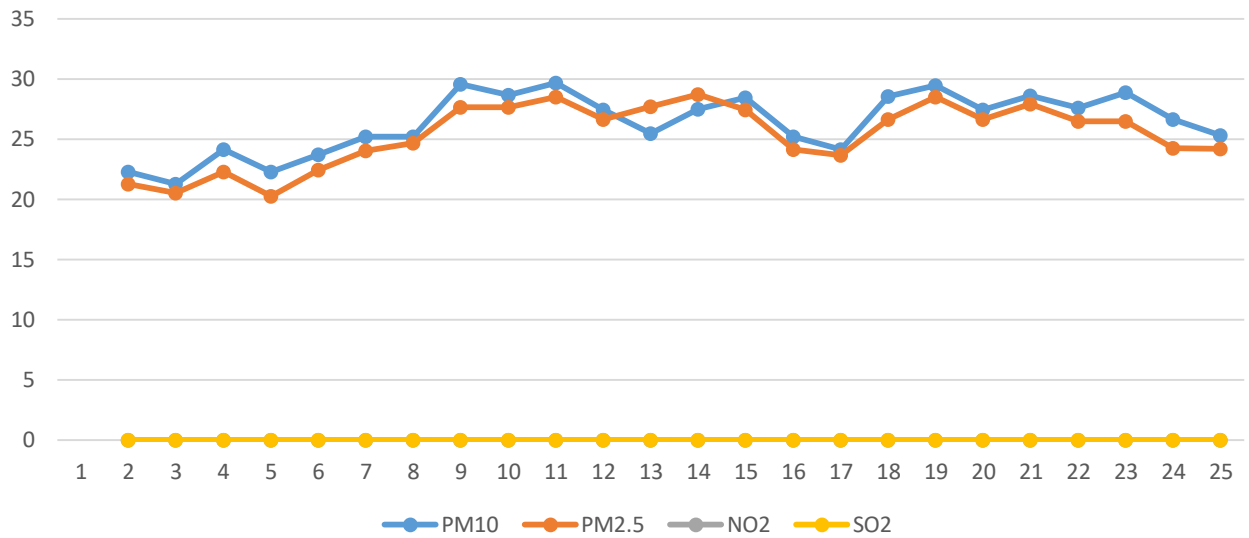
**Measurement Results for Location 8**

Device Code: 224								
Location	Sampling Date	Results ( $\mu\text{g}/\text{m}^3$ )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
Area 12	07/08/2024 10:00	22.25	21.25	0	0	54.25	68.65	33.36
	07/08/2024 11:00	21.25	20.54	0	0	53.69	65.25	31.25
	07/08/2024 12:00	24.12	22.25	0	0	54.25	62.36	32.25
	07/08/2024 13:00	22.25	20.25	0	0	53.69	60.2	35.02
	07/08/2024 14:00	23.69	22.45	0	0	55.95	58.69	31.02
	07/08/2024 15:00	25.21	24.01	0	0	54.78	59.36	32.02
	07/08/2024 16:00	25.2	24.69	0	0	53.67	58.56	30.25
	07/08/2024 17:00	29.56	27.62	0	0	52.02	60.69	30.24
	07/08/2024 18:00	28.68	27.65	0	0	50.19	56.89	26.36
	07/08/2024 19:00	29.65	28.48	0	0	53.45	55.25	28.55
	07/08/2024 20:00	27.45	26.65	0	0	55.65	49.36	26.36
	07/08/2024 21:00	25.45	27.69	0	0	54.19	47.62	28.65
	07/08/2024 22:00	27.48	28.69	0	0	53.87	45.25	27.25
	07/08/2024 23:00	28.45	27.45	0	0	52.45	42.02	25.63
	08/08/2024 00:00	25.21	24.15	0	0	53.98	45.21	28.65
	08/08/2024 01:00	24.12	23.65	0	0	55.05	45.25	26.32
	08/08/2024 02:00	28.54	26.65	0	0	51.08	48.65	30.25
	08/08/2024 03:00	29.45	28.52	0	0	52.69	50.25	25.32
	08/08/2024 04:00	27.45	26.65	0	0	53.87	54.2	27.65
	08/08/2024 05:00	28.59	27.89	0	0	54.25	56.25	25.65
	08/08/2024 06:00	27.58	26.45	0	0	55.35	57.25	27.12
	08/08/2024 07:00	28.87	26.45	0	0	53.25	52.25	26.25
08/08/2024 08:00	26.65	24.26	0	0	52.25	51.02	28.32	
08/08/2024 09:00	25.32	24.2	0	0	53.35	49.32	32.58	
Hourly Limit Values	TA Luft	-	-	200	350	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
Average	24 hours Average	27.68	26.24	0.00	0.00	53.63	54.16	29.01
Daily Limit Values	TA Luft	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-





### Result of AREA 12 Location



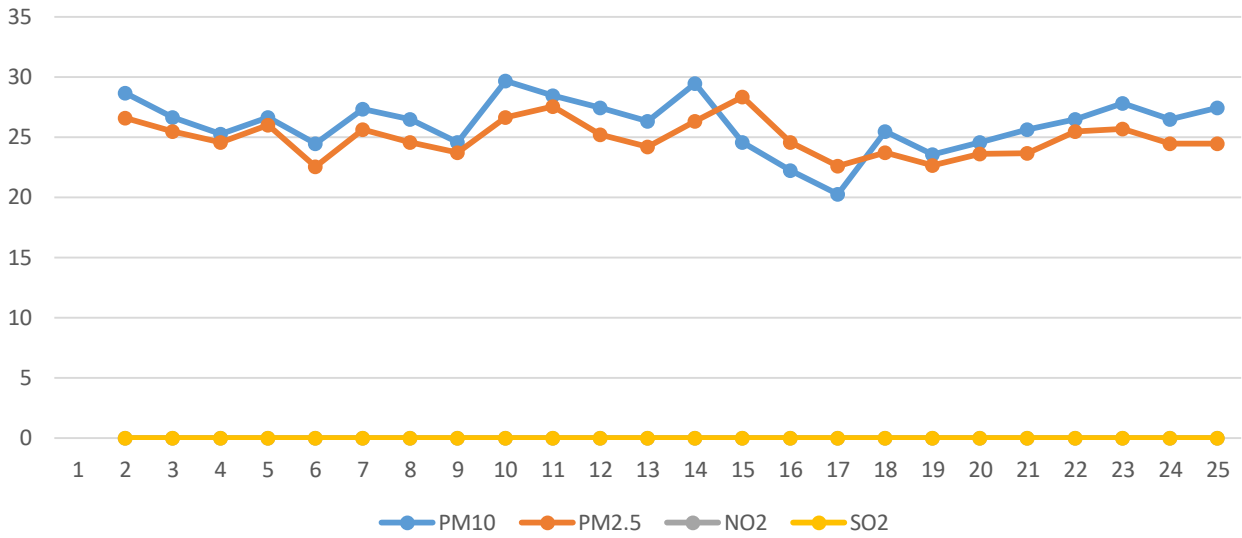
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**Measurement Results for Location 9**

Device Code: 224								
Location	Sampling Date	Results ( $\mu\text{g}/\text{m}^3$ )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
Batching plant	08/08/2024 10:00	32.65	36.56	0	0	50.25	62.15	29.65
	08/08/2024 11:00	38.95	35.45	0	0	53.65	63.32	30.25
	08/08/2024 12:00	38.32	34.56	0	0	52.45	63.21	31.25
	08/08/2024 13:00	32.45	35.98	0	0	51.98	63.25	32.25
	08/08/2024 14:00	24.45	22.56	0	0	53.98	62.21	34.58
	08/08/2024 15:00	33.06	25.65	0	0	50.25	31.02	36.32
	08/08/2024 16:00	30.45	34.58	0	0	52.98	60.12	37.02
	08/08/2024 17:00	29.86	23.69	0	0	53.05	63.14	32.25
	08/08/2024 18:00	29.65	36.65	0	0	55.05	66.36	31.02
	08/08/2024 19:00	32.45	37.52	0	0	51.15	68.62	30.25
	08/08/2024 20:00	37.45	35.21	0	0	52.45	63.25	29.65
	08/08/2024 21:00	26.32	24.21	0	0	53.65	62.25	27.22
	08/08/2024 22:00	34.45	26.32	0	0	55.45	62.12	25.32
	08/08/2024 23:00	36.85	38.32	0	0	54.25	65.41	26.65
	09/08/2024 00:00	25.65	24.58	0	0	53.65	65.25	28.65
	09/08/2024 01:00	32.85	32.58	0	0	50.78	66.25	26.36
	09/08/2024 02:00	32.05	33.69	0	0	53.65	64.25	26.65
	09/08/2024 03:00	30.75	32.65	0	0	51.25	63.32	27.45
	09/08/2024 04:00	29.45	23.58	0	0	52.98	62.25	26.65
	09/08/2024 05:00	31.65	33.65	0	0	53.89	65.15	27.65
	09/08/2024 06:00	29.85	25.45	0	0	54.45	63.25	26.65
09/08/2024 07:00	27.78	25.69	0	0	55.98	65.15	27.65	
09/08/2024 08:00	30.78	34.45	0	0	55.01	64.15	29.65	
09/08/2024 09:00	27.95	24.48	0	0	51.25	63.02	32.02	
Hourly Limit Values	TA Luft	-	-	200	350	-	-	-
	EU	-	-	200	350	-	-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-	-	-	-
Average	24 hours Average	31.50	30.75	0.00	0.00	53.06	62.44	29.71
Daily Limit Values	TA Luft	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-



### Result of batching plant Location



**Report Preparation By:**

**Environ Project & Consultancy Pvt. Ltd**  
1103-1104, Ganesh Glory, Jagat pure Road,  
Gota, S.G. Highway Ahmedabad 382445

**Customer Name/Address**

**Alke Alkatas Joint Venture Pvt Ltd**  
H. H. Moomiyaage, 5A Asaree Hingun K. Male 20265  
MALDIVES



Thilafushi Island, MALDIVES 2024

**Name of Project:** WtE Energy Facility Project

**Order No:** EN-M/2207/417\_01

**Test report:** Ambient Air

**Monitoring Duration:**

23.09.2024-25.09.2024



1103 - 1104, Ganesh Glory, Jagatpur-Chenpur Road, SG Highway, Gota,  
Ahmedabad - 382481.

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## 1) Purpose of Monitoring

The purpose of monitoring, as outlined in the provided details, is to assess and evaluate the air quality in the vicinity of the sensitive receptors affected by The Greater Malé Waste to Energy Project. The report aims to ascertain the levels of various air pollutants, including PM10, PM2.5, NO2, SO2, and TSP (Total Suspended Particulates), to gauge the potential environmental impact of the project on the surrounding area.

By conducting comprehensive air quality monitoring, the report seeks to provide valuable insights into the concentration levels of these pollutants, which are crucial for understanding their potential effects on human health and the environment. Additionally, the data collected will serve as a basis for assessing compliance with regulatory standards and guidelines related to air quality management.

Assessment of Air Quality: The primary objective of monitoring is to assess the quality of air in the vicinity of sensitive receptors impacted by The Greater Malé Waste to Energy Project.

Evaluation of Pollutants: The monitoring aims to evaluate the concentration levels of specific air pollutants, including:

PM10 (Particulate Matter with a diameter of 10 micrometers or less)

PM2.5 (Particulate Matter with a diameter of 2.5 micrometers or less)

NO2 (Nitrogen Dioxide)

SO2 (Sulfur Dioxide) & TSP (Total Suspended Particulates)

Compliance Legal Framework: The data collected through monitoring serves as a basis for assessing compliance with relevant regulatory standards and guidelines governing air quality management.

Decision Support: The monitoring efforts aim to provide stakeholders with accurate and reliable data to support informed decision-making processes related to the project's operations and environmental management.

Environmental Risk Mitigation: By identifying pollutant levels and potential risks, the monitoring facilitates the implementation of appropriate mitigation measures to minimize adverse impacts on public health and the environment.

Environmental Responsibility: Ultimately, the purpose of monitoring is to ensure that the Greater Malé Waste to Energy Project operates in an environmentally responsible manner, mitigating potential harm to air quality and associated ecosystems.

Overall, the purpose of this monitoring effort is to support informed decision-making processes, mitigate potential risks to public health and the environment, and ensure that the Greater Malé Waste to Energy Project operates in an environmentally responsible manner.



## 2) Methods Used for Monitoring

The air quality monitoring stations employed sensor-based technology to assess PM10, PM2.5, TSP, SO2, and NO2 parameters. These stations utilize 'air sensor' technology, a classification recognized by the US EPA, which encompasses non-regulatory instruments characterized by their affordability, portability, capability to measure multiple pollutants simultaneously, and ease of operation compared to traditional regulatory stations. Unlike reference measurement methods reliant on skilled operators for instrument maintenance and calibration, air sensors comprise hardware and software set operable without human intervention, enabling untrained users to monitor air pollution effectively, without necessitating specialized technical expertise.

Sensor specifications that are used for measurement study are shown below:

Parameter		Unit	Value
SO2	Sensitivity	nA/ppm at 2ppm SO <sub>2</sub>	275 to 520
	Range	ppm limit of performance warranty	100
	Linearity	error at 100ppm SO <sub>2</sub> , linear at zero and 10ppm SO <sub>2</sub>	0 to -2
NO2	Sensitivity	nA/ppm at 2ppm NO <sub>2</sub>	-200 to -650
	Range	ppm NO <sub>2</sub> limit of performance warranty	20
	Linearity	ppb error at full scale, linear at zero and 20ppm	
Particles (PM <sub>10</sub> , PM <sub>2.5</sub> and TSP)	Mass concentration precision	%	5
	Mass concentration range	µg/m <sup>3</sup>	0 to 1000
Temperature	Typ. temperature accuracy	°C	0.45
	Operating temperature range	°C	-10 to 50
	Response time (τ63%)	s	<60
Humidity	Typ. relative humidity accuracy	%RH	4.5
	Operating relative humidity range	%RH	0 to 100
	Response time (τ63%)	s	20
All	Temperature Range	°C	-30 to 50
	Humidity Range	% RH	5 to 99

Ensuring the precision of these affordable sensors is paramount when assessing air quality. Through an intelligent calibration process, these low-cost sensors are refined and provide accurate readings comparable to those obtained from reference stations. The Smart Calibration Algorithm comprises operational steps outlined in the accompanying figure.



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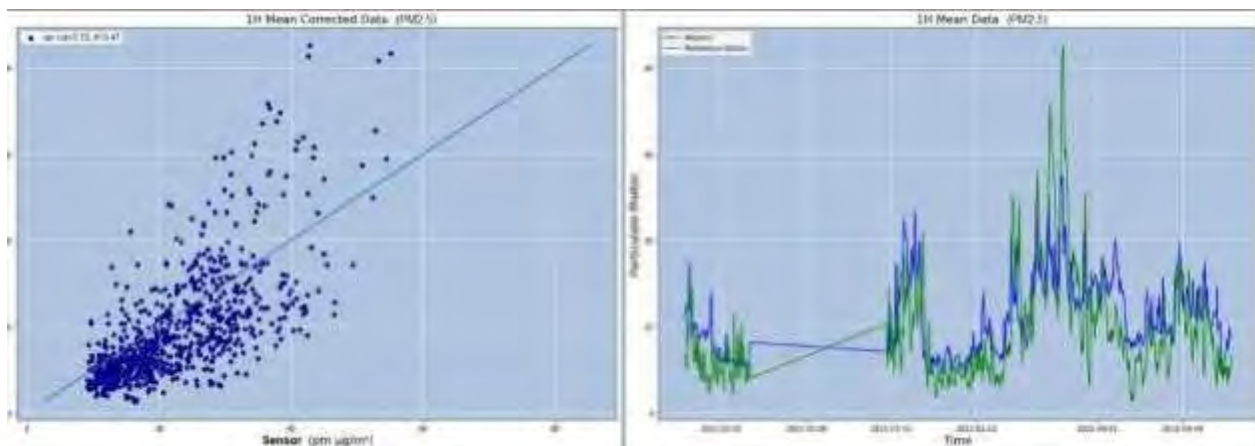
Sensor Units were calibrated using reference stations for a period before the deployment. The calibration process for particle matter and gas pollutants measurement is explained below.

Description	Methodology	
	NO <sub>2</sub> -SO <sub>2</sub> -O <sub>3</sub>	PM <sub>10</sub> -PM <sub>2.5</sub> -TSP
Installation	Near Reference Station (3/4 meters)	Near Reference Station (3/4 meters)
Pre-Test	Quality Check in zero air conditions	Quality Check in zero air conditions
Co-Located Period	4-5 weeks	8 weeks
Sampling Period	30 seconds. Hourly mean is used because the reference station measurements are hourly.	60 seconds. Hourly mean is used because the reference station measurements are hourly.
Validation	Cross-validation is used. Also, some ranges of measurement are eliminated, where the reference station is not available.	Cross-validation is used. Also, some ranges of measurement are eliminated, where the reference station is not available.
Calibration Procedure	is obtained via R <sup>2</sup> and spearman correlation	is obtained via R <sup>2</sup> and spearman correlation

**Calibration Result for PM**

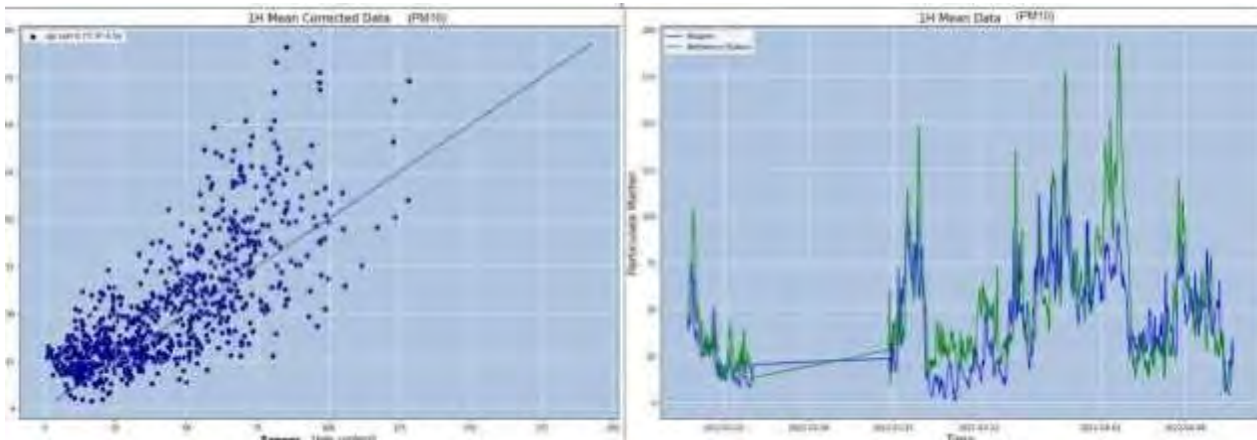
The corrected measurement results after the Smart Calibration Process are shown in the figures below. The correlation between Sensor Unit's PM<sub>2.5</sub> measurements between Reference Station's PM<sub>2.5</sub> measurements for hourly and daily mean of data is 0.73 given by the client, and the correlation between Sensor Unit's PM<sub>10</sub> measurements between Reference Station's PM<sub>10</sub> measurements for hourly and daily mean of data is 0.77 observed by the client.

**Calibration Graph of PM2.5**



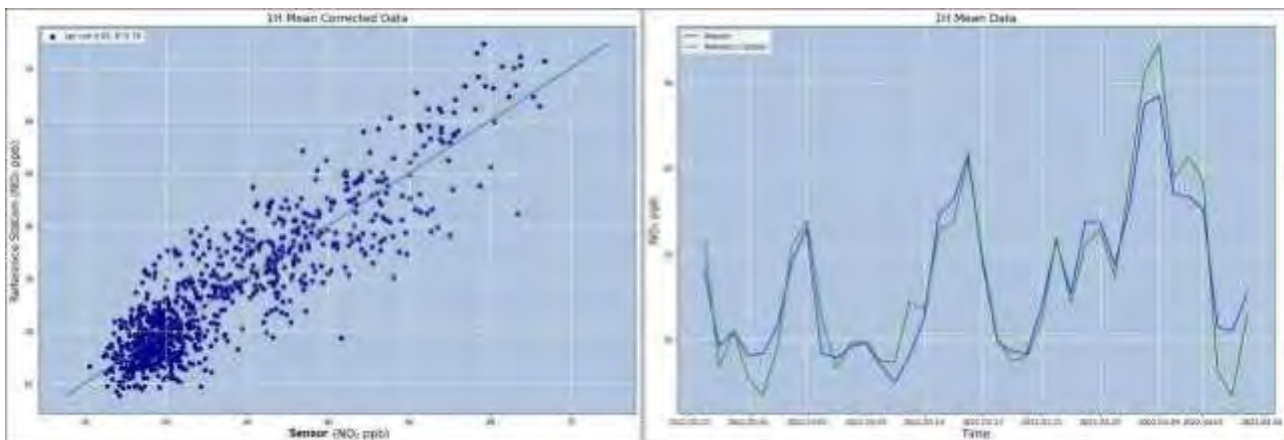


### Calibration Graph of PM<sub>10</sub>



### Calibration Result for Gases

The corrected measurement results after the Smart Calibration Process are shown in the figures below. The correlation between Sensor Unit's NO<sub>2</sub> measurements between Reference Station's NO<sub>2</sub> measurements for hourly and daily mean of data is respectively 0.823, 0.898 observed by the client



### **3) Sampling Methodology**

This section elucidates the practical implementation of the measurement procedures outlined previously. Preliminary preparations encompass crucial calibration processes, both at the factory and in the field. Factory calibrations, typically provided by sensor manufacturers, ensure baseline accuracy. Conversely, field calibrations involve real-world comparison measurements at reference stations. In our case, calibration factors derived from a month-long comparison at a designated reference station within the Turkish air quality monitoring network were employed to refine sensor accuracy.

During the actual measurement phase, meticulous organization and execution are paramount. Utilizing two distinct sets of devices – N r . Area 12 & Batching Plant - measurements are systematically conducted over two days. Sampling point selection is informed by macro-scale assessments as per the ESIA report, followed by on-site visits to pinpoint optimal micro-scale locations for device placement. Measurements are executed within a height range of 1.5 to 4 meters above ground level, ensuring representative sampling. Each sampling point undergoes a comprehensive 24-hour measurement cycle, with sensor devices capturing parameter averages derived from instantaneous readings taken at 1-minute intervals.

Following the measurement phase, post-measurement values are extracted directly from the sensor-equipped air quality measuring devices, facilitating data analysis and interpretation.



#### 4) Sampling Location

One location Nr. Area 12 within the premises and one location is in Nr. Batching Plant within the premises.

Sampling Point Coordinates and Sampling dates:

No	Location	Description	Distance to Source (meters)
1	Nr. Area12	Within the premises	50 Approx
2	Nr. Batching Plant	Within the premises	50 Approx

#### Sampling Points on Satellite



## **5) Legal frame work**

Within the context of the project's objectives, a comprehensive assessment was undertaken to monitor emissions of particle matter (PM10-PM2.5), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and total suspended particulates (TSP). It's imperative to note that the Maldives currently lacks a national air quality policy, necessitating reliance on established international standards for evaluation purposes.

To ensure rigorous evaluation, several authoritative bodies and frameworks were consulted. The World Health Organization (WHO) plays a pivotal role in establishing global guidelines for air quality management. These guidelines, delineated in the "Air quality guidelines for particulate matter, ozone, nitrogen dioxide, and sulfur dioxide" document, provide crucial limit values that serve as benchmarks for assessing air quality.

Moreover, the European Union (EU) has instituted directives to regulate air pollution and protect public health. Notably, the EU Council Directive 2008/50/EC sets forth health-based standards and objectives for various pollutants present in ambient air. Compliance with these directives is crucial for ensuring air quality within EU member states and aligning with international best practices.

Germany, recognized for its stringent environmental regulations, has implemented the Technical Instructions on Air Quality Control (Technische Anleitung Zur Reinhaltung der Luft), commonly referred to as the TA Luft. This regulatory framework establishes limit values aimed at safeguarding both public health and the environment from the deleterious effects of air pollution. These limit values are meticulously determined to protect against harmful emissions and mitigate the potential impact on surrounding communities and ecosystems.

To facilitate a comprehensive evaluation process, a comparative analysis was conducted, juxtaposing the established limit values from WHO guidelines, EU directives, and the TA Luft against the specific parameters selected for the modeling study. This comparative assessment ensures adherence to recognized international standards and provides a robust foundation for evaluating the potential environmental impact of the project's emissions.



Limit Values Stipulated in the International Legislation

Pollutant	Averaging Period	TA Luft	EU	WHO Ambient Air Quality Guideline Value	Project Standards
Particular Matter <10 $\mu\text{m}$ (PM <sub>10</sub> )	24 hours	50 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$	45 $\mu\text{g}/\text{m}^3$	45 $\mu\text{g}/\text{m}^3$
	1-year	40 $\mu\text{g}/\text{m}^3$	40 $\mu\text{g}/\text{m}^3$	15 $\mu\text{g}/\text{m}^3$	15 $\mu\text{g}/\text{m}^3$
Particular Matter <2.5 $\mu\text{m}$ (PM <sub>2.5</sub> )	24 hours	-	-	15 (not to be exceeded more than 3-4 times a year)	15
	1-year	-	20	5	5
Nitrogen Dioxide (NO <sub>x</sub> )	1-hour	200 $\mu\text{g}/\text{m}^3$	200 $\mu\text{g}/\text{m}^3$	-	200 $\mu\text{g}/\text{m}^3$
	24 hours	-	-	25 $\mu\text{g}/\text{m}^3$	25 $\mu\text{g}/\text{m}^3$
	1-year	40 $\mu\text{g}/\text{m}^3$	40 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$
Sulphur Dioxide (SO <sub>2</sub> )	1-hour	350 $\mu\text{g}/\text{m}^3$	350 $\mu\text{g}/\text{m}^3$	-	350 $\mu\text{g}/\text{m}^3$
	24 hours	125 $\mu\text{g}/\text{m}^3$	125 $\mu\text{g}/\text{m}^3$	40 $\mu\text{g}/\text{m}^3$	40 $\mu\text{g}/\text{m}^3$
	1-year	50 $\mu\text{g}/\text{m}^3$	-	-	50 $\mu\text{g}/\text{m}^3$
TSP*	-	-	-	-	-

\*There is no limit value for TSP.



Measurement Results – Nr. Area 12

Device Code: 224								
Location	Sampling Date	Results ( µg/m <sup>3</sup> )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
Nr. Area 12	9/23/2024 10:00	38.96	32.5	0	0	60.75	67.65	24.6
	9/23/2024 11:00	40.25	40.8	0	0	65.8	62.8	26.8
	9/23/2024 12:00	39.1	34.6	0	0	70.4	61.6	22.4
	9/23/2024 13:00	39.5	40.7	0	0	63.8	62.8	28.6
	9/23/2024 14:00	48.6	38.9	0	0	63.2	62.6	29.7
	9/23/2024 15:00	37.5	40.3	0	0	68.12	64.9	30.5
	9/23/2024 16:00	42.9	36.4	0	0	70.5	71.8	27.4
	9/23/2024 17:00	45.5	39.4	0	0	65.8	70.8	25.6
	9/23/2024 18:00	39.6	44.8	0	0	66.3	66.8	24.7
	9/23/2024 19:00	45.54	44.7	0	0	72.3	62.8	25.8
	9/23/2024 20:00	40.4	47.5	0	0	78.4	70.1	25.6
	9/23/2024 21:00	38.7	40.3	0	0	71.6	65.3	29.8
	9/23/2024 22:00	46.8	41.5	0	0	71.9	71.9	26.5
	9/23/2024 23:00	43.5	47.7	0	0	69.3	65.4	32.8
	9/24/2024 0:00	40.5	44.8	0	0	78.7	78.2	32.5
	9/24/2024 1:00	40.5	39.5	0	0	79.5	66.6	26.4
	9/24/2024 2:00	46.9	42.5	0	0	73.8	65.3	26.5
	9/24/2024 3:00	42.5	44.6	0	0	69.7	69.5	26.15
	9/24/2024 4:00	40.5	38.5	0	0	80.5	65.8	26.3
	9/24/2024 5:00	41.8	42.6	0	0	79.4	68.6	28.5
9/24/2024 6:00	38.9	42.6	0	0	78.5	63.5	28.7	
9/24/2024 7:00	40.5	38.7	0	0	77.9	66.7	28.5	
9/24/2024 8:00	42.6	44.8	0	0	71.4	65.8	30.2	
9/24/2024 9:00	36.6	40.3	0	0	68.6	70.5	34.6	
Hourly Limit Values	TA Luft	-	-	200	350		-	-
	EU	-	-	200	350		-	-
	WHO Ambient Air Quality Guideline Value	-	-	-	-		-	-
Average	24 hours Average	41.58	41.2	0	0	71.5	66.98	27.88
Daily Limit Values	TA Luft	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-

Result of Nr. Area 12



Figure 7 Measurement Graphs for Location Nr. Area 12

Measurement Results – Batching Plant

Device Code: 224								
Location	Sampling Date	Results ( µg/m <sup>3</sup> )					Ambient Conditions	
		PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>	TSP (24 Hours Average)	Humidity (%)	Temperature (°C)
Nr. Batching Plant	9/24/2024 10:00	48.41	42.8	0	0	72.89	62.5	23.5
	9/24/2024 11:00	46.6	42.9	0	0	68.85	66.6	27.8
	9/24/2024 12:00	40.21	39.8	0	0	69.58	67.8	29.9
	9/24/2024 13:00	44.7	38.9	0	0	68.69	65.6	33.5
	9/24/2024 14:00	39.6	36.8	0	0	75.5	66.9	33.9
	9/24/2024 15:00	39.5	42.9	0	0	60.78	62.8	37.4
	9/24/2024 16:00	38.4	42.9	0	0	68.9	62.5	28.5
	9/24/2024 17:00	42.8	37.05	0	0	75.69	68.5	29.2
	9/24/2024 18:00	42.9	42.8	0	0	65.8	70.5	28.5
	9/24/2024 19:00	44.8	44.6	0	0	70.9	69.8	29.5
	9/24/2024 20:00	39.7	39.3	0	0	69.56	62.5	30.5
	9/24/2024 21:00	40.5	37.1	0	0	69.8	66.4	28.5
	9/24/2024 22:00	40.3	44.9	0	0	74.87	69.5	26.7
	9/24/2024 23:00	43.6	36.8	0	0	71.4	63.6	30.6
	9/25/2024 0:00	45.3	44.8	0	0	70.5	66.5	29.5
	9/25/2024 1:00	40.7	34.8	0	0	75.8	68.5	30.5
	9/25/2024 2:00	42.6	40.2	0	0	68.6	69.5	27.2
	9/25/2024 3:00	40.4	37.4	0	0	69.8	70.3	28.5
	9/25/2024 4:00	44.6	36.5	0	0	70.1	67.7	32.5
	9/25/2024 5:00	40.7	36.9	0	0	72.5	69.5	29.6
	9/25/2024 6:00	42.8	39.6	0	0	70.5	66.3	28.5
	9/25/2024 7:00	42.9	39.9	0	0	72.6	61.6	28.6
	9/25/2024 8:00	39.8	40.8	0	0	63.8	63.5	31.6
	9/25/2024 9:00	40.8	43.8	0	0	62.5	66.9	33.5
Hourly Limit Values	TA Luft	-	-	200	350		-	-
	EU	-	-	200	350		-	-
	WHO Ambient Air Quality Guideline	-	-	-	-		-	-
Average	24 hours Average	42.19	40.17	0	0	69.99	66.49	29.91
Daily Limit Values	TA Luft	50	-	-	125	-	-	-
	EU	50	-	-	125	-	-	-
	WHO Ambient Air Quality Guideline Value	45	15	25	40	-	-	-



### Result of Batching Plant

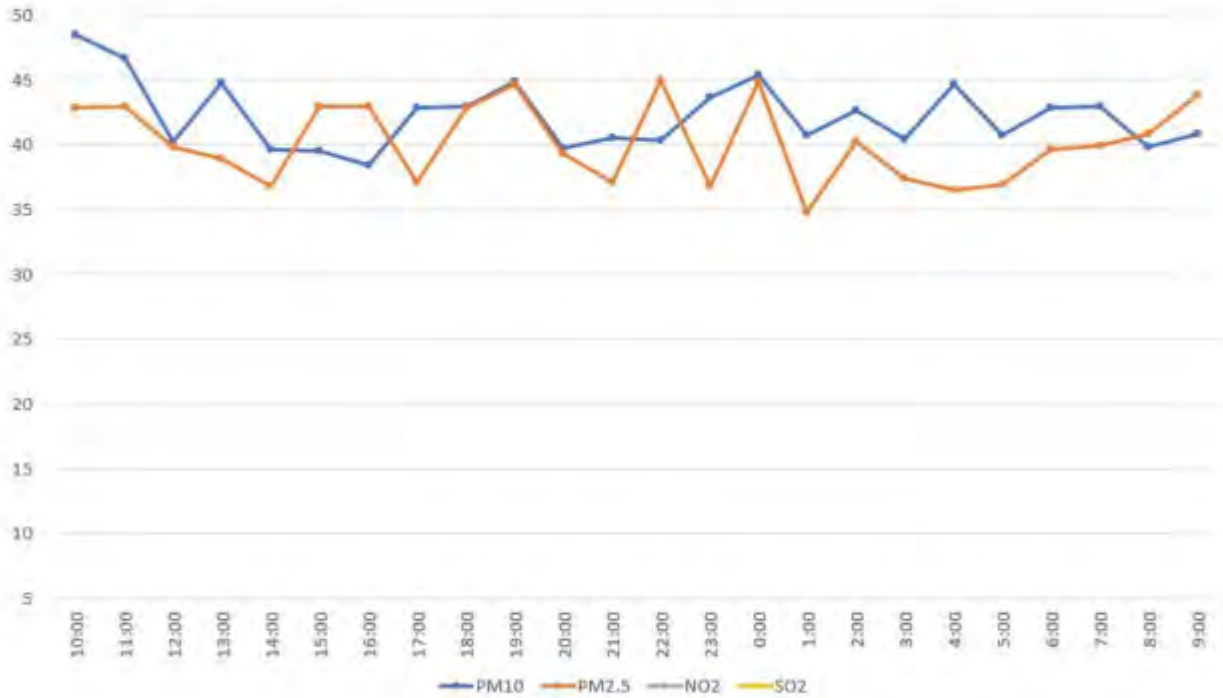


Figure 9 Measurement Graphs for Location Batching Plant

## **7) Assessment**

In conclusion, the ambient air monitoring study conducted aimed to comprehensively assess air pollutants and their impact on ambient air quality. The results obtained were meticulously evaluated against the stringent standards set forth by the TA LUFT, EU Council Directive 2008/50/EC, and WHO limit values. This comprehensive assessment forms the basis of the report presented here.

Following the analysis of air quality measurement studies, it is encouraging to note that the background air quality values observed have demonstrated compliance with established air quality standards. This indicates that the ambient air quality within the monitored areas meets or exceeds the regulatory thresholds set forth by authoritative bodies. Such compliance is indicative of effective environmental management practices and underscores the importance of continued vigilance in monitoring and mitigating air pollution for the protection of public health and the environment.



# Groundwater Quality

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

Page 30 of 47

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

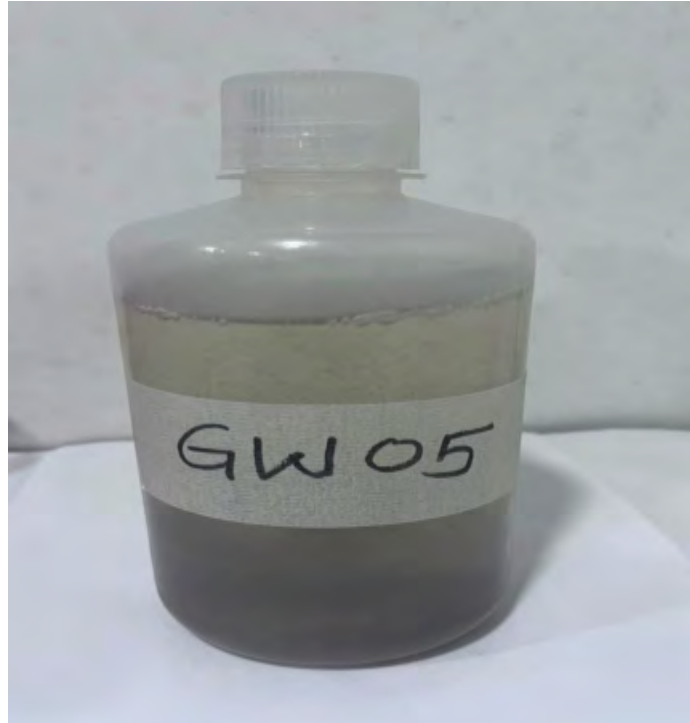
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Ground Water 05

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Turbidity	ND	Max. 1	0.1 NTU	NTU	APHA 23rd ed: 2017 :2130 B
2	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	09	Max. 50	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500 -NO <sub>3</sub> -B
3	Iron (as Fe)	ND	Max. 0.3	0.005 mg/l	mg/L	APHA 23rd ed: 2017: 3125 B(ICP-MS)
4	Manganese (as Mn) *	ND	Max. 0.1	0.001 mg/l	mg/L	
5	Arsenic (as As)	ND	Max. 0.01	0.001 mg/l	mg/L	
6	Cadmium (as Cd)	ND	Max. 0.003	0.0001 mg/l	mg/L	
7	Lead (as Pb)	ND	Max. 0.01	0.001 mg/l	mg/L	
8	Mercury (as Hg)	ND	Max. 0.001	0.00050 mg/l	mg/L	
9	Total Suspended Solids (TSS)	44	5 - 750	1.0 mg/l	mg/L	APHA 23rd ed: 2017 : 2540D
10	Faecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Oil & Grease	01	5	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 5520B
12	pH at 25°C	7.2	6.5-8.5	-	ph	APHA 23rd ed: 2017: 4500H+B
13	Electrical Conductivity at25°C	6761.4	<1000	1µS/cm	µS/ cm	APHA 23rd ed: 2017: 2510 B
14	Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	2.6	Max. 5.0	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500-PC
15	Chloride (as Cl <sup>-</sup> )	97	Max. 200	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 4500-Cl- B
16	Polycyclic Aromatic Hydrocarbons (PAH)*					
17	Naphthalene*	ND	1	1.0	mg/L	CPSD-AN-00090
18	Benzo(a)anthracene*	ND	1	1.0	mg/L	
19	Acenaphthylene*	ND	1	1.0	mg/L	
20	Acenaphthene*	ND	1	1.0	mg/L	
21	Fluorene*	ND	1	1.0	mg/L	
22	Phenanthrene*	ND	1	1.0	mg/L	
23	Pyrene*	ND	1	1.0	mg/L	
24	Chrysene*	ND	1	1.0	mg/L	
25	Benzo(b)fluoranthene*	ND	1	1.0	mg/L	
26	Benzo(k)fluoranthene*	ND	1	1.0	mg/L	
27	Dibenzo(a,h)anthracene*	ND	1	1.0	mg/L	
28	Benzo(g,h,i)perylene*	ND	1	1.0	mg/L	
29	Benzo(j)fluoranthene*	ND	1	1.0	mg/L	
30	Benzo(a)pyrene*	ND	1	1.0	mg/L	
31	Benzo(e)pyrene*	ND	1	1.0	mg/L	
32	Indeno(1,2,3-cd) pyrene*	ND	1	1.0	mg/L	



**Report No: (7424)075-1443**

**Code Name: AAJV**

Aug 29, 2024

Page 01 of 06

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 29, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Ground Water 07

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

### Photo of the Submitted Samples



## **Bureau Veritas Consumer Products Services Lanka (Pvt) Ltd.**

No. 570, Galle Road, Katubedda, Moratuwa, Sri Lanka  
Tel: (9411) 2350111-115 (dedicated lines), Fax: (9411) 112622198 & 199

Email: [bvcp.lanka@lk.bureauveritas.com](mailto:bvcp.lanka@lk.bureauveritas.com)

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# TEST REPORT



Report No: (7424)075-1443

Aug 29, 2024

Code Name: AAJV

Page 02 of 06

## TEST RESULTS

No.	Parameters	Results	Referencerange**	LOQ	Unit	Test Method
1	Turbidity	0.1	Max. 1	0.1 NTU	NTU	APHA 23rd ed: 2017 :2130 B
2	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	2.1	Max. 50	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500 -NO <sub>3</sub> -B
3	Iron (as Fe)	ND	Max. 0.3	0.005 mg/l	mg/L	APHA 23rd ed: 2017: 3125 B(ICP-MS)
4	Manganese (as Mn) *	ND	Max. 0.1	0.001 mg/l	mg/L	
5	Arsenic (as As)	ND	Max. 0.01	0.001 mg/l	mg/L	
6	Cadmium (as Cd)	ND	Max. 0.003	0.0001 mg/l	mg/L	
7	Lead (as Pb)	ND	Max. 0.01	0.001 mg/l	mg/L	
8	Mercury (as Hg)	ND	Max. 0.001	0.00050 mg/l	mg/L	
9	Total Suspended Solids (TSS)	08	5 - 750	1.0 mg/l	mg/L	APHA 23rd ed: 2017 : 2540D
10	Feacal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Oil & Grease	ND	5	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 5520B
12	pH at 25°C	7.9	6.5-8.5	-	ph	APHA 23rd ed: 2017: 4500H+B
13	Electrical Conductivity at25°C	358	<1000	1µS/cm	µS/ cm	APHA 23rd ed: 2017: 2510 B
14	Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	0.1	Max. 5.0	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500-PC
15	Chloride (as Cl <sup>-</sup> )	17.4	Max. 200	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 4500-Cl- B
16	Polycyclic Aromatic Hydrocarbons (PAH)*					
17	Naphthalene*	ND	1	1.0	mg/L	CPSD-AN-00090
18	Benzo(a)anthracene*	ND	1	1.0	mg/L	
19	Acenaphthylene*	ND	1	1.0	mg/L	
20	Acenaphthene*	ND	1	1.0	mg/L	
21	Fluorene*	ND	1	1.0	mg/L	
22	Phenanthrene*	ND	1	1.0	mg/L	
23	Pyrene*	ND	1	1.0	mg/L	
24	Chrysene*	ND	1	1.0	mg/L	
25	Benzo(b)fluoranthene*	ND	1	1.0	mg/L	
26	Benzo(k)fluoranthene*	ND	1	1.0	mg/L	
27	Dibenzo(a,h)anthracene*	ND	1	1.0	mg/L	
28	Benzo(g,h,i)perylene*	ND	1	1.0	mg/L	
29	Benzo(j)fluoranthene*	ND	1	1.0	mg/L	
30	Benzo(a)pyrene*	ND	1	1.0	mg/L	
31	Benzo(e)pyrene*	ND	1	1.0	mg/L	
32	Indeno(1,2,3-cd) pyrene*	ND	1	1.0	mg/L	

# TEST REPORT

Report No: (7424)075-1443

Code Name: AAJV



Aug 29, 2024

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\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

**NOTE:**

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**



# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 29, 2024

Page 04 of 06

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives

**Date of Sample Received:** Aug 14, 2024

**Date of Testing Started:** Aug 15, 2024

**Date of Testing Completed:** Aug 29, 2024

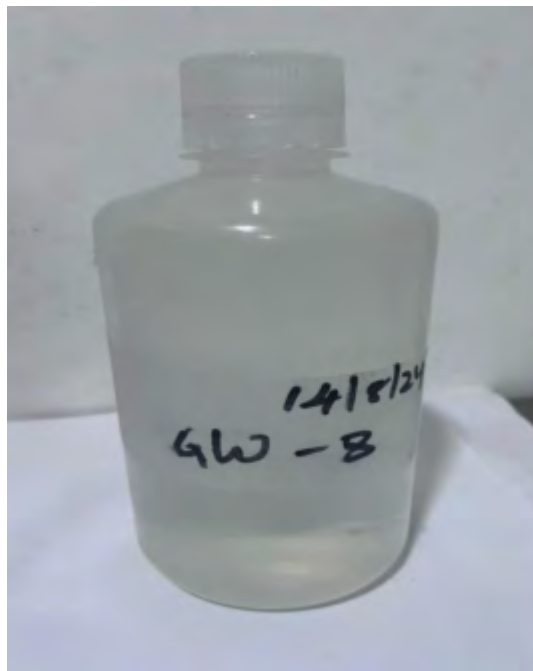
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Ground Water 08

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 29, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Turbidity	0.1	Max. 1	0.1 NTU	NTU	APHA 23rd ed: 2017 :2130 B
2	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	3.4	Max. 50	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500 -NO <sub>3</sub> -B
3	Iron (as Fe)	ND	Max. 0.3	0.005 mg/l	mg/L	APHA 23rd ed: 2017: 3125 B(ICP-MS)
4	Manganese (as Mn) *	ND	Max. 0.1	0.001 mg/l	mg/L	
5	Arsenic (as As)	ND	Max. 0.01	0.001 mg/l	mg/L	
6	Cadmium (as Cd)	ND	Max. 0.003	0.0001 mg/l	mg/L	
7	Lead (as Pb)	ND	Max. 0.01	0.001 mg/l	mg/L	
8	Mercury (as Hg)	ND	Max. 0.001	0.00050 mg/l	mg/L	
9	Total Suspended Solids (TSS)	12	5 - 750	1.0 mg/l	mg/L	
10	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Oil & Grease	ND	5	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 5520B
12	pH at 25°C	7.6	6.5-8.5	-	ph	APHA 23rd ed: 2017: 4500H+B
13	Electrical Conductivity at25°C	537	<1000	1µS/cm	µS/ cm	APHA 23rd ed: 2017: 2510 B
14	Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	0.4	Max. 5.0	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500-PC
15	Chloride (as Cl <sup>-</sup> )	32.6	Max. 200	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 4500-Cl- B
16	Polycyclic Aromatic Hydrocarbons (PAH)*					
17	Naphthalene*	ND	1	1.0	mg/L	CPSD-AN-00090
18	Benzo(a)anthracene*	ND	1	1.0	mg/L	
19	Acenaphthylene*	ND	1	1.0	mg/L	
20	Acenaphthene*	ND	1	1.0	mg/L	
21	Fluorene*	ND	1	1.0	mg/L	
22	Phenanthrene*	ND	1	1.0	mg/L	
23	Pyrene*	ND	1	1.0	mg/L	
24	Chrysene*	ND	1	1.0	mg/L	
25	Benzo(b)fluoranthene*	ND	1	1.0	mg/L	
26	Benzo(k)fluoranthene*	ND	1	1.0	mg/L	
27	Dibenzo(a,h)anthracene*	ND	1	1.0	mg/L	
28	Benzo(g,h,i)perylene*	ND	1	1.0	mg/L	
29	Benzo(j)fluoranthene*	ND	1	1.0	mg/L	
30	Benzo(a)pyrene*	ND	1	1.0	mg/L	
31	Benzo(e)pyrene*	ND	1	1.0	mg/L	
32	Indeno(1,2,3-cd) pyrene*	ND	1	1.0	mg/L	

# TEST REPORT



Report No: (7424)075-1443

Aug 29, 2024

Code Name: AAJV

Page 06 of 06

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.  
**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

**NOTE:**

APHA: American Public Health Association,  
SLS: Sri Lanka Standard,  
ND: Not Detected,  
 $\mu\text{S/cm}$ : Micro Siemens per centimeter  
LOQ: Limit of Quantification,  
mg/L: Milligrams per liter,  
NTU: Nephelometric Turbidity Units,  
 $^{\circ}\text{C}$ : Celcius,  
MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

**Contact information for this report (Technical and General Inquiries and Feedback)**

<b>GENERAL INQUIRIES:</b>		
MOHOMED NAWZER	TEL: +94 764 412 907	E-MAIL: mohomed.nawzer@bureauveritas.com
<b>TECHNICAL INQUIRIES:</b>		
RUWANI AMARASINGHE	TEL: +94 768 229 457	E-MAIL: ruwani.amarasinghe@bureauveritas.com
<b>FEED BACK:</b>		
KUMUDINI RATHNAYAKE – ASST. QA MANAGER	TEL: +94 768 229 455	E-MAIL: kumudinie.rathnayake@bureauveritas.com

REVIEWED BY: HIMASHA JAYAWARDENA

BUREAU VERITAS CONSUMER PRODUCTS SERVICES LANKA (PVT) LTD.  
AUTHORIZED SIGNATORY

APPROVED BY:

  
RUWANI AMARASINGHE

ASSISTANT MANAGER –  
FOOD & MICROBIOLOGY LABORATORY

**END OF THE REPORT**

# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.  
**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

**NOTE:**

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

**Quality of Drinking water, Water used for camp and construction, waste water discharge from STP and dewatering**

# Environmental Monitoring Report

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## **PUBLIC**

Project Number: 51077-003  
Quarterly Report (July-September 2024)  
October 2024

## Maldives: Greater Male Waste-to-Energy Project

### Part D: Appendices

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# TEST REPORT



**Report No:** (7424)069-1371

**Code Name:** AAJV

Jul 10, 2024

Page 1 of 13

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Jul 04, 2024  
**Date of Testing Started:** Jul 05, 2024  
**Date of Testing Completed:** Jul 10, 2024

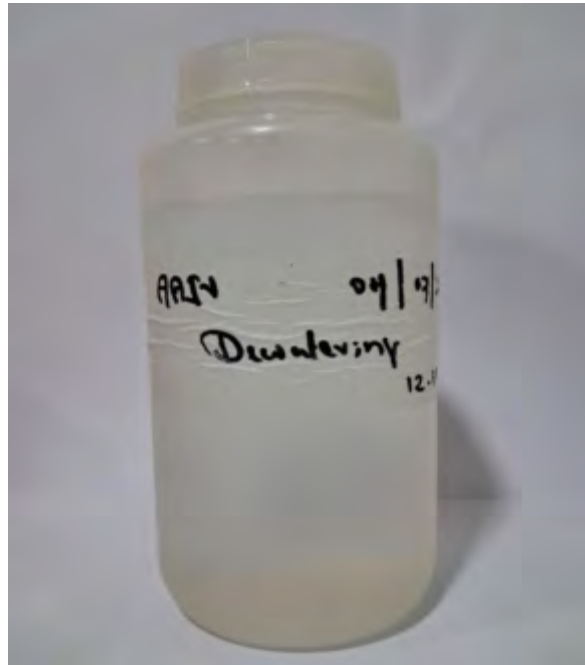
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Dewatering Water

Date of Sample Collection: 04.07.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



**Bureau Veritas Consumer Products Services Lanka (Pvt) Ltd.**

No. 570, Galle Road, Katubedda, Moratuwa, Sri Lanka  
Tel: (9411) 2350111-115 (dedicated lines), Fax: (9411) 112622198 & 199  
Email: [bvcp.lanka@lk.bureauveritas.com](mailto:bvcp.lanka@lk.bureauveritas.com)

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# TEST REPORT



Report No: (7424)069-1371

Code Name: AAJV

Jul 10, 2024

Page 2 of 13

## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Fecal Coliforms	ND	100	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
2	pH	7.6	6.5-8.5	-	-	APHA-4500-H <sup>+</sup>
3	Temperature	27.4	18-32	-	°C	APHA-2550 B
4	Total Dissolved Solids	36,400	EC * 0.67	1.0 mg/l	mg/l	APHA-2540-C
5	Total Suspended Solids (TSS)	11	50	1.0 mg/l	mg/l	APHA-2540-B
6	Dissolved Oxygen	6.7	6.5-8.0	0.2 mg/l	mg/l	APHA-4500-O
7	Electrical Conductivity	54,600	35,000-60,000	1µS/cm	µS/cm	APHA-2510
8	Turbidity	01	< 5	0.1 NTU	NTU	APHA-2130-B
9	Salinity	3.6	3.2-4.2%	0.001 %	%	APHA-2520-B
10	Ammonia - N	1.8	10	0.1 mg/l	mg/l	APHA-4500-NH <sub>3</sub> <sup>-</sup>
11	Hydrogen Sulphide (H <sub>2</sub> S)	<0.01	0.5	0.01 mg/l	mg/l	APHA-4500-D
12	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	3.6	15	0.1 mg/l	mg/l	APHA-4500-NO <sub>2</sub> <sup>-</sup>
13	Phosphate as P	0.9	2	0.01 mg/l	mg/l	APHA-2540-C
14	Total Hydrocarbon	< 0.1	10	0.1 ppm	ppm	Inhouse -Laboratory Method
15	Oil & Grease	<01	5	1.0 mg/l	mg/l	APHA-5520-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



**Report No:** (7424)069-1371

**Code Name:** AAJV

Jul 10, 2024

Page 3 of 13

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Jul 04, 2024  
**Date of Testing Started:** Jul 05, 2024  
**Date of Testing Completed:** Jul 10, 2024

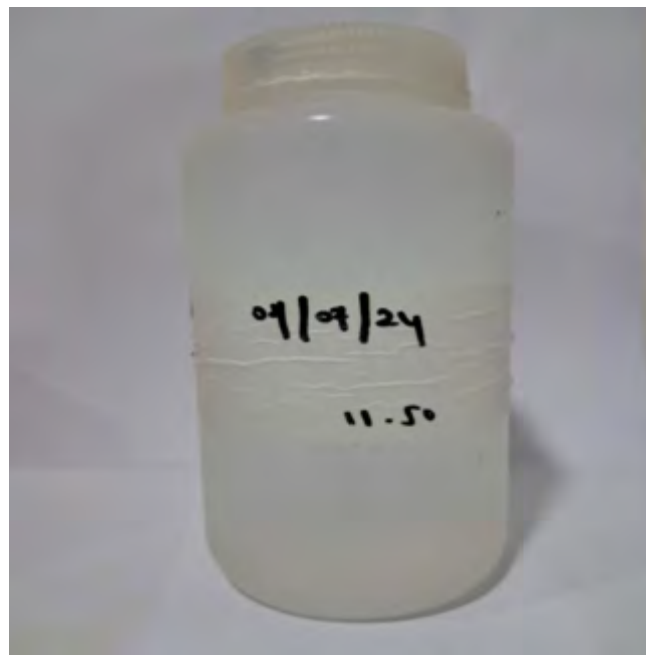
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Camp and Construction Water

Date of Sample Collection: 04.07.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



# TEST REPORT



Report No: (7424)069-1371

Code Name: AAJV

Jul 10, 2024

Page 4 of 13

## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination
2	pH	7.7	6.5-8.5	-	-	APHA-4500-B
3	Turbidity	0.1	< 1.0	0.1 NTU	NTU	APHA-2130-B
4	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
5	Electrical Conductivity	423	<1000	1µS/cm	µS/cm	APHA-2510-B
6	Total Hardness	9.8	<75	1.0 mg/l	mg/L	APHA-2340-C
7	Total Suspended Solids (TSS)	05	5-750	1.0 mg/l	mg/L	APHA-2540-B
8	Total Dissolved solids	282	<500	1.0 mg/l	mg/L	APHA-2540-C
9	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
10	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
12	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
13	Hydrogen Sulphide	<0.01	<0.05	0.01 mg/l	mg/L	APHA: 2017
14	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
15	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO3-B
16	Chloride (as Cl <sup>-</sup> )	18.5	<200	1.0 mg/l	mg/L	APHA-4500Cl-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)069-1371

**Code Name:** AAJV

Jul 10, 2024

Page 5 of 13

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Jul 04, 2024  
**Date of Testing Started:** Jul 05, 2024  
**Date of Testing Completed:** Jul 10, 2024

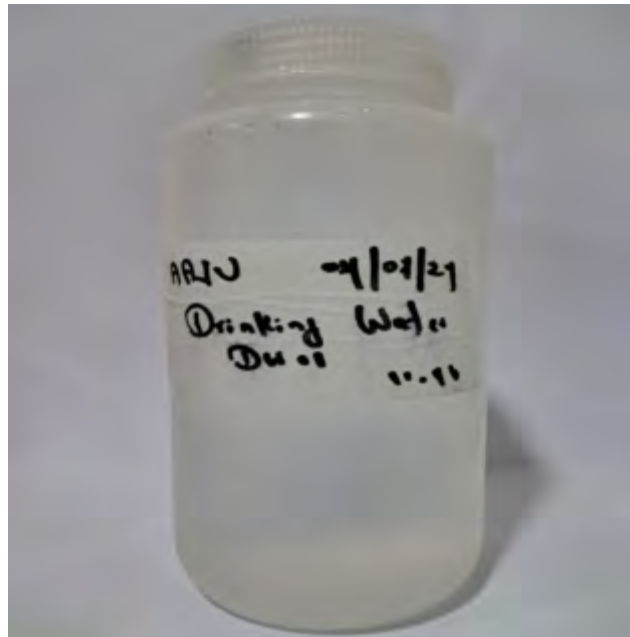
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 01

Date of Sample Collection: 04.07.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



# TEST REPORT



Report No: (7424)069-1371

Code Name: AAJV

Jul 10, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.8	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	ND	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	15	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	10	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	1.8	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)069-1371

**Code Name:** AAJV

Jul 10, 2024

Page 7 of 13

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Jul 04, 2024  
**Date of Testing Started:** Jul 05, 2024  
**Date of Testing Completed:** Jul 10, 2024

**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 02

Date of Sample Collection: 04.07.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)069-1371  
Code Name: AAJV

Jul 10, 2024  
Page 8 of 13

## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.8	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	ND	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	168	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	112	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> ) <sup>-</sup> *	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	9.7	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.  
**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,  
SLS: Sri Lanka Standard,  
ND: Not Detected,  
µS/cm: micro Siemens per centimeter  
LOQ: Limit of Quantification,  
mg/L: milligrams per liter,  
NTU: Nephelometric Turbidity Units  
°C : Celcius,  
MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



Report No: (7424)069-1371

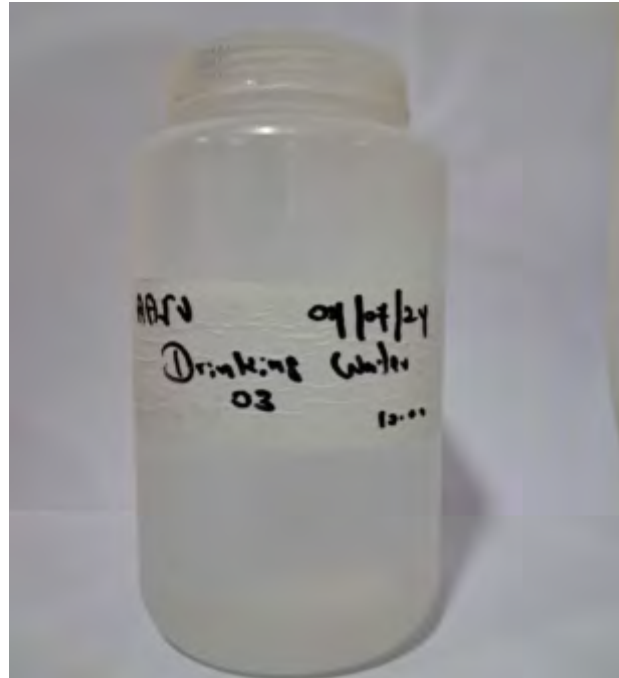
Code Name: AAJV

Jul 10, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Jul 04, 2024  
**Date of Testing Started:** Jul 05, 2024  
**Date of Testing Completed:** Jul 10, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle  
**Sample Identified by the Client as:**  
Drinking Water 03  
Date of Sample Collection: 04.07.2024  
**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples





# TEST REPORT



Report No: (7424)069-1371  
Code Name: AAJV

Jul 10, 2024  
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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.6	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	0.1	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	458.9	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	307	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	19.1	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



**Report No:** (7424)069-1371

**Code Name:** AAJV

Jul 10, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Jul 04, 2024  
**Date of Testing Started:** Jul 05, 2024  
**Date of Testing Completed:** Jul 10, 2024

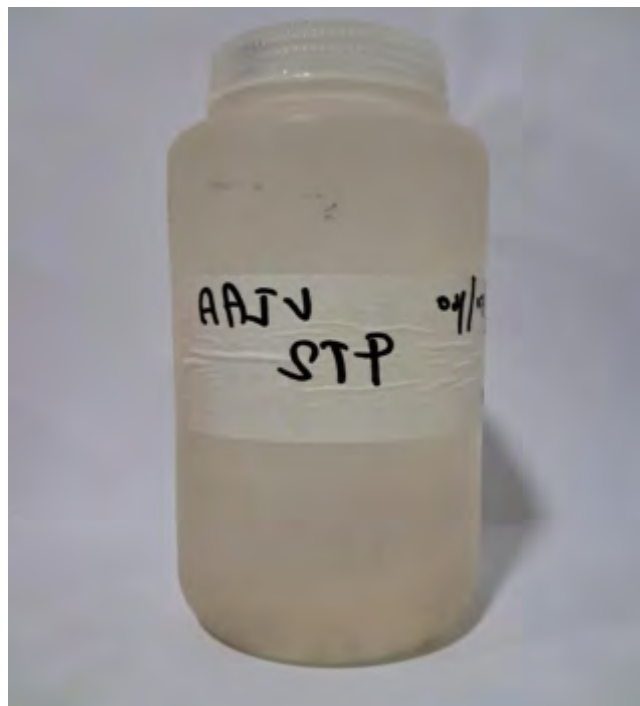
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
STP

Date of Sample Collection: 04.07.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)069-1371  
Code Name: AAJV

Jul 10, 2024  
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## TEST RESULTS

No.	Parameters	Results	Reference Range **	LOQ	Unit	Test Method
1	Fecal Coliforms	ND	1	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
2	Total Coliforms	13	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
3	E.Coli	ND	0.01	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
4	pH	6.9	5.0-9.5	-	-	APHA-4500-H <sup>+</sup>
5	Temperature	26.3	44	-	°C	APHA-2550 B
6	Total Suspended Solids	24	150	1.0 mg/l	mg/l	APHA-2540-D
7	Ortho Phosphate as P	0.2	10	0.1 mg/l	mg/l	APHA-2540-C
8	Oil & Grease	ND	5	1.0 mg/l	mg/l	APHA-5520-B
9	Dissolved Oxygen	6.2	6-8	0.2 mg/l	mg/l	APHA-4500-O
10	Free Residual Chlorine	< 0.01	0.2-0.8	0.01 mg/l	mg/l	APHA-4500-Cl
11	Electrical Conductivity	930	35,000-60,000	1µS/cm	µS/cm	APHA-2510-B
12	Chemical Oxygen Demand	29	50	5 mg/l	mg/l	APHA-5220-D
13	Biological Oxygen Demand	08	40	5 mg/l	mg/l	APHA-5210-B
14	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	4.1	15	0.1 mg/l	mg/l	APHA-4500NO <sub>3</sub> -B
15	Ammonia - N	1.6	10	0.1 mg/l	mg/l	APHA-4500-NH <sub>3</sub> <sup>-</sup>
16	Total Nitrogen (as N)*	4.0	10	0.001 mg/l	mg/l	APHA 23rd ed: 2017 - 4500-Norg B
17	Surfactants	0.2	10	0.1 mg/l	mg/l	APHA-5540-C
18	Phenolic Compounds	0.01	1	0.005 mg/l	mg/l	APHA-5530-D
19	Sum of metals (Pb, Cr, Ni, Cd, Se, As, Fe, Al, Sb, Cu, Mn, , Hg)	0.12	5	-	mg/l	In House Method
20	Acute Toxicity	ND	0	-	mg/l	In House Method

# TEST REPORT



Report No: (7424)069-1371  
Code Name: AAJV

Jul 10, 2024  
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\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.  
**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

**NOTE:**

APHA: American Public Health Association,  
SLS: Sri Lanka Standard,  
ND: Not Detected,  
µS/cm: micro Siemens per centimeter  
LOQ: Limit of Quantification,  
mg/L: milligrams per liter,  
NTU: Nephelometric Turbidity Units,  
°C : Celcius,  
MPN / 100mL- Most Probable Number per hundred milliliter,  
ICP-MS- Inductively Coupled Plasma Mass Spectrometry

**COMMENT :** The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives


**Contact information for this report (Technical and General Inquiries and Feedback)**

<b>GENERAL INQUIRIES:</b>		
MOHOMED NAWZER	TEL: +94 764 412 907	E-MAIL: mohomed.nawzer@bureauveritas.com
<b>TECHNICAL INQUIRIES:</b>		
RUWANI AMARASINGHE	TEL: +94 768 229 457	E-MAIL: ruwani.amarasinghe@bureauveritas.com
<b>FEED BACK:</b>		
KUMUDINI RATHNAYAKE – ASST. QA MANAGER	TEL: +94 768 229 455	E-MAIL: kumudinie.rathnayake@bureauveritas.com

REVIEWED BY: HIMASHA JAYAWARDENA

BUREAU VERITAS CONSUMER PRODUCTS SERVICES LANKA (PVT) LTD.  
AUTHORIZED SIGNATORY

APPROVED BY:

  
RUWANI AMARASINGHE

ASSISTANT MANAGER –  
FOOD & MICROBIOLOGY LABORATORY

**END OF THE REPORT**



# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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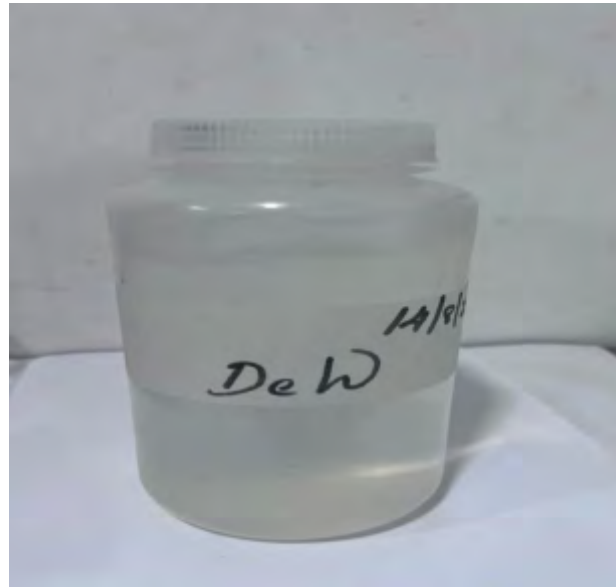
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Dewatering Water

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



**Bureau Veritas Consumer  
Products Services Lanka (Pvt)  
Ltd.**

No. 570, Galle Road, Katubedda, Moratuwa, Sri Lanka  
Tel: (9411) 2350111-115 (dedicated lines), Fax: (9411)  
112622198 & 199  
Email: [bvcp.lanka@lk.bureauveritas.com](mailto:bvcp.lanka@lk.bureauveritas.com)

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# TEST REPORT



Report No: (7424)075-1443

Code Name: AAJV

Aug 19, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Fecal Coliforms	ND	100	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
2	pH	7.5	6.5-8.5	-	-	APHA-4500-H <sup>+</sup>
3	Temperature	29.4	18-32	-	°C	APHA-2550 B
4	Total Dissolved Solids	27,800	EC * 0.67	1.0 mg/l	mg/l	APHA-2540-C
5	Total Suspended Solids (TSS)	31	50	1.0 mg/l	mg/l	APHA-2540-B
6	Dissolved Oxygen	6.5	6.5-8.0	0.2 mg/l	mg/l	APHA-4500-O
7	Electrical Conductivity	41,700	<=Sea Water	1µS/cm	µS/cm	APHA-2510
8	Turbidity	1.4	< 5	0.1 NTU	NTU	APHA-2130-B
9	Salinity	3.9	3.2-4.2%	0.001 %	%	APHA-2520-B
10	Ammonia - N	2.8	10	0.1 mg/l	mg/l	APHA-4500-NH <sub>3</sub> <sup>-</sup>
11	Hydrogen Sulphide (H <sub>2</sub> S)	<0.01	0.5	0.01 mg/l	mg/l	APHA-4500-D
12	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	5.6	15	0.1 mg/l	mg/l	APHA-4500-NO <sub>2</sub> <sup>-</sup>
13	Phosphate as P	1.3	2	0.01 mg/l	mg/l	APHA-2540-C
14	Total Hydrocarbon	< 0.1	10	0.1 ppm	ppm	Inhouse –Laboratory Method
15	Oil & Grease	<01	5	1.0 mg/l	mg/l	APHA-5520-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



Report No: (7424)075-1443

Code Name: AAJV

Aug 19, 2024

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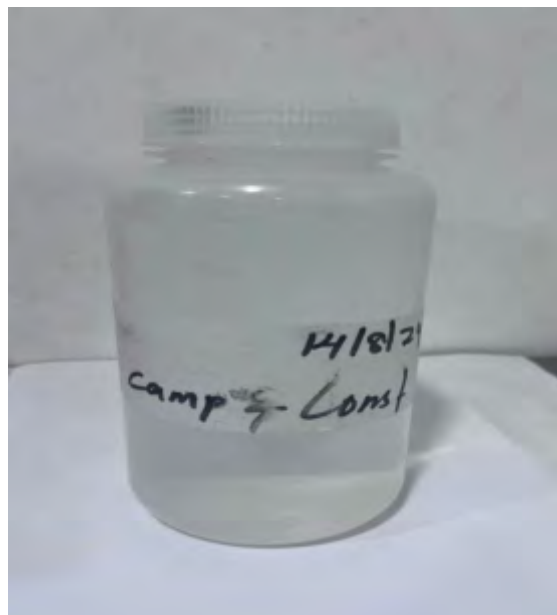
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Camp and Construction Water

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



# TEST REPORT



Report No: (7424)075-1443

Code Name: AAJV

Aug 19, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination
2	pH	7.2	6.5-8.5	-	-	APHA-4500-B
3	Turbidity	0.2	< 1.0	0.1 NTU	NTU	APHA-2130-B
4	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
5	Electrical Conductivity	482.6	<1000	1μS/cm	μS/cm	APHA-2510-B
6	Total Hardness	10.4	<75	1.0 mg/l	mg/L	APHA-2340-C
7	Total Suspended Solids (TSS)	03	5-750	1.0 mg/l	mg/L	APHA-2540-B
8	Total Dissolved solids	323	<500	1.0 mg/l	mg/L	APHA-2540-C
9	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
10	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
12	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
13	Hydrogen Sulphide	<0.01	<0.05	0.01 mg/l	mg/L	APHA: 2017
14	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
15	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO3-B
16	Chloride (as Cl <sup>-</sup> )	18.5	<200	1.0 mg/l	mg/L	APHA-4500Cl-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**



# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

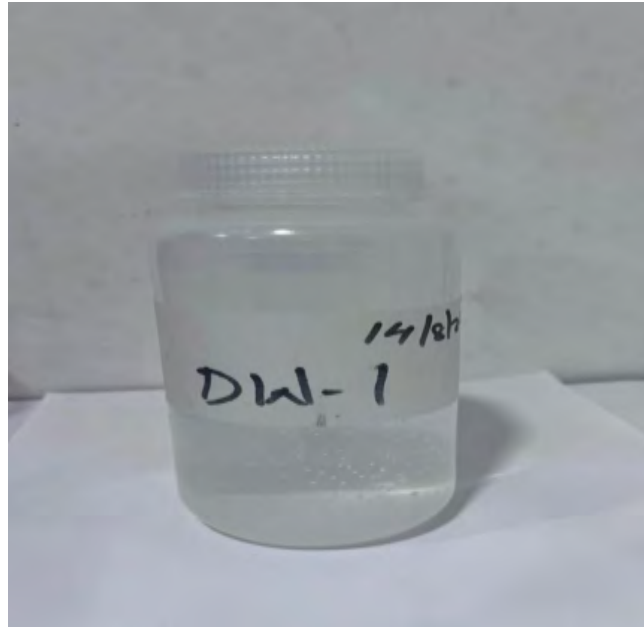
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 01

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



# TEST REPORT



Report No: (7424)075-1443

Code Name: AAJV

Aug 19, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	6.8	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	ND	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	435	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	290	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	14.5	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 02

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Code Name: AAJV

Aug 19, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	6.9	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	ND	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	108	<1000	1 $\mu$ S/cm	$\mu$ S/cm	APHA-2510-B
5	Total Dissolved solids	72	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	9.7	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

Page 9 of 47

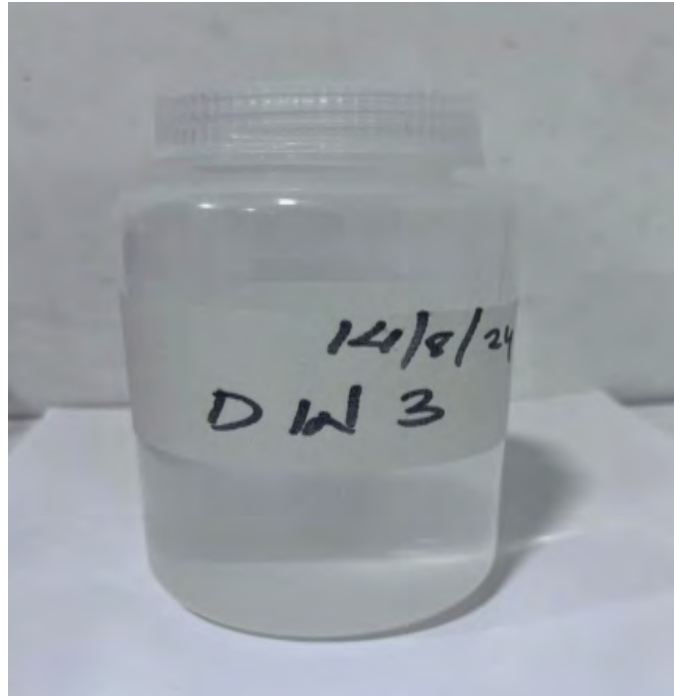
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 03

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443  
Code Name: AAJV

Aug 19, 2024  
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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.1	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	0.1	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	149	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	11	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	6.1	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

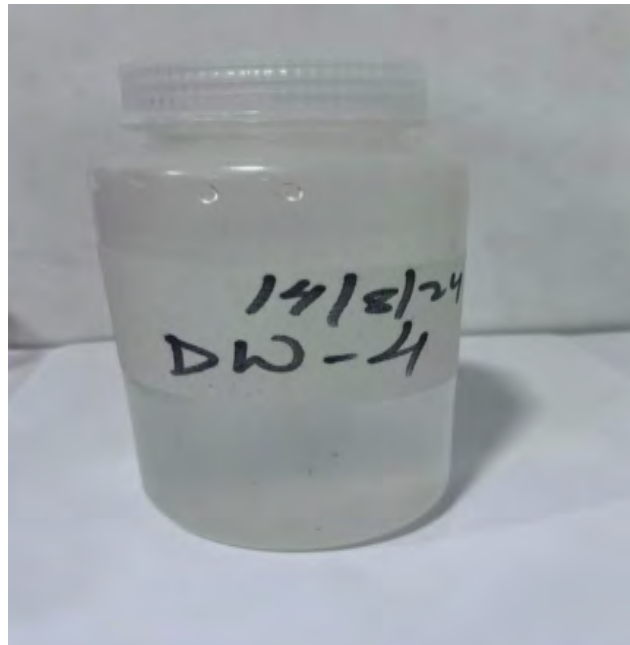
Aug 19, 2024

Page 11 of 47

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle  
**Sample Identified by the Client as:**  
Drinking Water 04  
Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443  
Code Name: AAJV

Aug 19, 2024  
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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.3	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	ND	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	158	<1000	1 $\mu$ S/cm	$\mu$ S/cm	APHA-2510-B
5	Total Dissolved solids	11	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	6.3	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**



# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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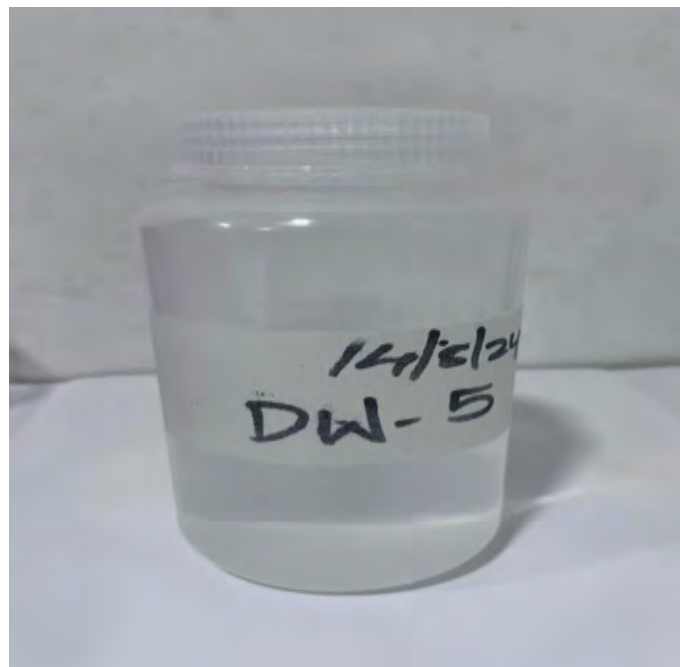
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 05

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443  
Code Name: AAJV

Aug 19, 2024  
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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.3	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	ND	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	109	<1000	1 $\mu$ S/cm	$\mu$ S/cm	APHA-2510-B
5	Total Dissolved solids	06	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	2.7	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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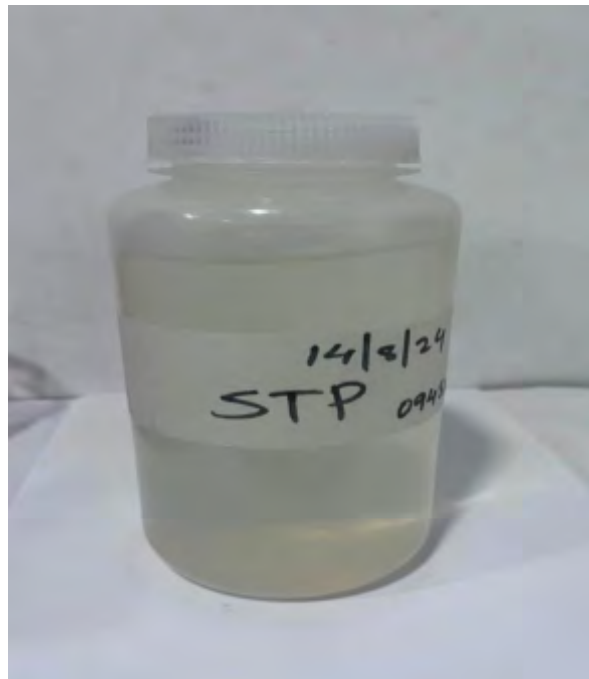
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
STP

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



**Report No: (7424)075-1443**  
**Code Name: AAJV**

Aug 19, 2024  
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## TEST RESULTS

No.	Parameters	Results	Reference Range **	LOQ	Unit	Test Method
1	Fecal Coliforms	ND	1	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
2	Total Coliforms	09	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
3	E.Coli	ND	0.01	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
4	pH	6.8	5.0-9.5	-	-	APHA-4500-H <sup>+</sup>
5	Temperature	27.4	44	-	°C	APHA-2550 B
6	Total Suspended Solids	19	150	1.0 mg/l	mg/l	APHA-2540-D
7	Ortho Phosphate as P	0.7	10	0.1 mg/l	mg/l	APHA-2540-C
8	Oil & Grease	ND	5	1.0 mg/l	mg/l	APHA-5520-B
9	Dissolved Oxygen	6.4	6-8	0.2 mg/l	mg/l	APHA-4500-O
10	Free Residual Chlorine	< 0.01	0.2-0.8	0.01 mg/l	mg/l	APHA-4500-Cl
11	Electrical Conductivity	654	<=Sea Water	1μS/cm	μS/cm	APHA-2510-B
12	Chemical Oxygen Demand	21	50	5 mg/l	mg/l	APHA-5220-D
13	Biological Oxygen Demand	09	40	5 mg/l	mg/l	APHA-5210-B
14	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	5.0	15	0.1 mg/l	mg/l	APHA-4500NO <sub>3</sub> -B
15	Ammonia - N	2.8	10	0.1 mg/l	mg/l	APHA-4500-NH <sub>3</sub> <sup>-</sup>
16	Total Nitrogen (as N)*	5.0	10	0.001 mg/l	mg/l	APHA 23rd ed: 2017 - 4500-Norg B
17	Surfactants	0.2	10	0.1 mg/l	mg/l	APHA-5540-C
18	Phenolic Compounds	0.01	1	0.005 mg/l	mg/l	APHA-5530-D
19	Sum of metals (Pb, Cr, Ni, Cd, Se, As, Fe, Al, Sb, Cu, Mn, , Hg)	0.11	5	-	mg/l	In House Method
20	Acute Toxicity	ND	0	-	mg/l	In House Method

# TEST REPORT



**Report No: (7424)075-1443**  
**Code Name: AAJV**

Aug 19, 2024  
Page 17 of 47

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

**NOTE:**

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu\text{S/cm}$ : micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units,

$^{\circ}\text{C}$  : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

ICP-MS- Inductively Coupled Plasma Mass Spectrometry

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

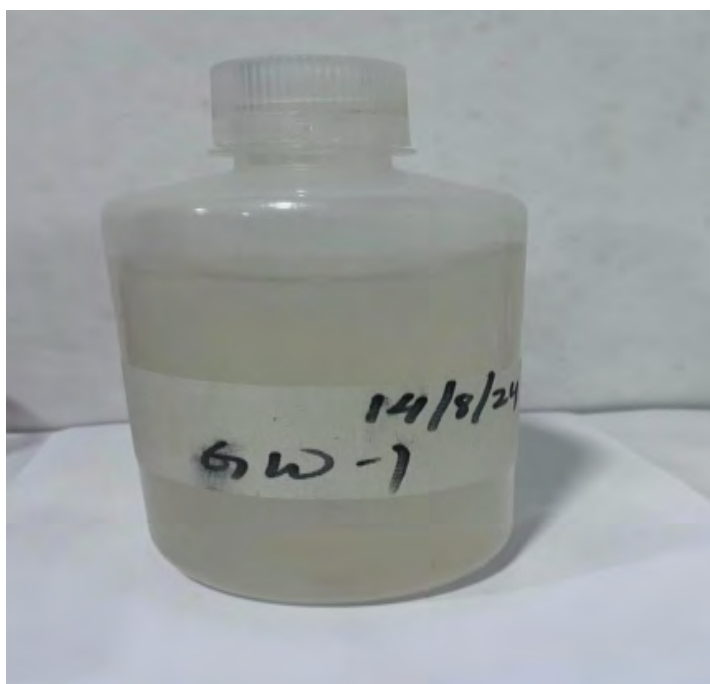
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Ground Water 01

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Turbidity	0.1	Max. 1	0.1 NTU	NTU	APHA 23rd ed: 2017 :2130 B
2	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	2.3	Max. 50	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500 -NO <sub>3</sub> -B
3	Iron (as Fe)	ND	Max. 0.3	0.005 mg/l	mg/L	APHA 23rd ed: 2017: 3125 B(ICP-MS)
4	Manganese (as Mn) *	ND	Max. 0.1	0.001 mg/l	mg/L	
5	Arsenic (as As)	ND	Max. 0.01	0.001 mg/l	mg/L	
6	Cadmium (as Cd)	ND	Max. 0.003	0.0001 mg/l	mg/L	
7	Lead (as Pb)	ND	Max. 0.01	0.001 mg/l	mg/L	
8	Mercury (as Hg)	ND	Max. 0.001	0.00050 mg/l	mg/L	
9	Total Suspended Solids (TSS)	3	5 - 750	1.0 mg/l	mg/L	
10	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Oil & Grease	ND	5	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 5520B
12	pH at 25°C	8.5	6.5-8.5	-	ph	APHA 23rd ed: 2017: 4500H+B
13	Electrical Conductivity at25°C	135	<1000	1µS/cm	µS/ cm	APHA 23rd ed: 2017: 2510 B
14	Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	0.1	Max. 5.0	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500-PC
15	Chloride (as Cl <sup>-</sup> )	10.4	Max. 200	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 4500-Cl- B
16	Polycyclic Aromatic Hydrocarbons (PAH)*					
17	Naphthalene*	ND	1	1.0	mg/L	CPSD-AN-00090
18	Benzo(a)anthracene*	ND	1	1.0	mg/L	
19	Acenaphthylene*	ND	1	1.0	mg/L	
20	Acenaphthene*	ND	1	1.0	mg/L	
21	Fluorene*	ND	1	1.0	mg/L	
22	Phenanthrene*	ND	1	1.0	mg/L	
23	Pyrene*	ND	1	1.0	mg/L	
24	Chrysene*	ND	1	1.0	mg/L	
25	Benzo(b)fluoranthene*	ND	1	1.0	mg/L	
26	Benzo(k)fluoranthene*	ND	1	1.0	mg/L	
27	Dibenzo(a,h)anthracene*	ND	1	1.0	mg/L	
28	Benzo(g,h,i)perylene*	ND	1	1.0	mg/L	
29	Benzo(j)fluoranthene*	ND	1	1.0	mg/L	
30	Benzo(a)pyrene*	ND	1	1.0	mg/L	
31	Benzo(e)pyrene*	ND	1	1.0	mg/L	
32	Indeno(1,2,3-cd) pyrene*	ND	1	1.0	mg/L	

# TEST REPORT



**Report No: (7424)075-1443**

Aug 19, 2024

**Code Name: AAJV**

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\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

**NOTE:**

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**



# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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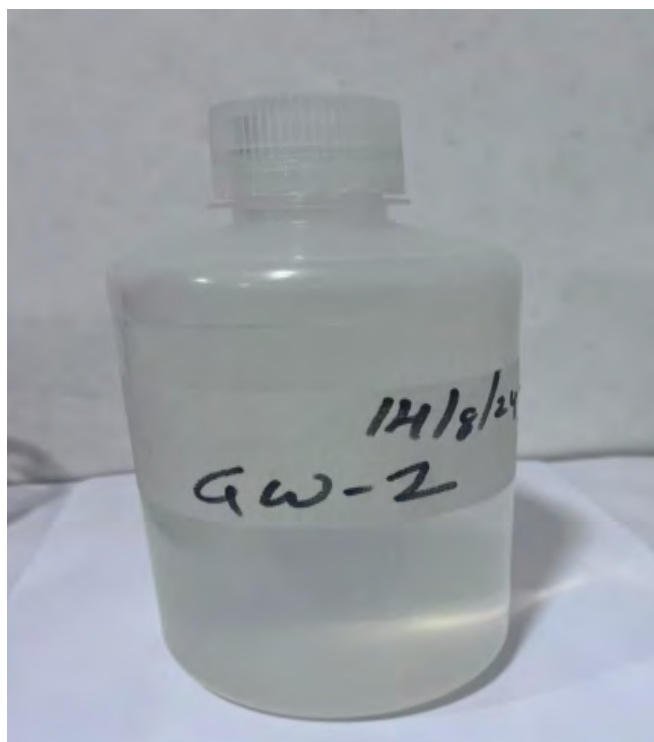
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Ground Water 02

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Turbidity	ND	Max. 1	0.1 NTU	NTU	APHA 23rd ed: 2017 :2130 B
2	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	44.1	Max. 50	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500 -NO <sub>3</sub> -B
3	Iron (as Fe)	ND	Max. 0.3	0.005 mg/l	mg/L	APHA 23rd ed: 2017: 3125 B(ICP-MS)
4	Manganese (as Mn) *	ND	Max. 0.1	0.001 mg/l	mg/L	
5	Arsenic (as As)	ND	Max. 0.01	0.001 mg/l	mg/L	
6	Cadmium (as Cd)	ND	Max. 0.003	0.0001 mg/l	mg/L	
7	Lead (as Pb)	ND	Max. 0.01	0.001 mg/l	mg/L	
8	Mercury (as Hg)	ND	Max. 0.001	0.00050 mg/l	mg/L	
9	Total Suspended Solids (TSS)	59	5 - 750	1.0 mg/l	mg/L	APHA 23rd ed: 2017 : 2540D
10	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Oil & Grease	ND	5	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 5520B
12	pH at 25°C	7.8	6.5-8.5	-	ph	APHA 23rd ed: 2017: 4500H+B
13	Electrical Conductivity at25°C	35,850	<1000	1µS/cm	µS/ cm	APHA 23rd ed: 2017: 2510 B
14	Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	2.8	Max. 5.0	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500-PC
15	Chloride (as Cl <sup>-</sup> )	152.7	Max. 200	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 4500-Cl- B
16	Polycyclic Aromatic Hydrocarbons (PAH)*					
17	Naphthalene*	ND	1	1.0	mg/L	CPSD-AN-00090
18	Benzo(a)anthracene*	ND	1	1.0	mg/L	
19	Acenaphthylene*	ND	1	1.0	mg/L	
20	Acenaphthene*	ND	1	1.0	mg/L	
21	Fluorene*	ND	1	1.0	mg/L	
22	Phenanthrene*	ND	1	1.0	mg/L	
23	Pyrene*	ND	1	1.0	mg/L	
24	Chrysene*	ND	1	1.0	mg/L	
25	Benzo(b)fluoranthene*	ND	1	1.0	mg/L	
26	Benzo(k)fluoranthene*	ND	1	1.0	mg/L	
27	Dibenzo(a,h)anthracene*	ND	1	1.0	mg/L	
28	Benzo(g,h,i)perylene*	ND	1	1.0	mg/L	
29	Benzo(j)fluoranthene*	ND	1	1.0	mg/L	
30	Benzo(a)pyrene*	ND	1	1.0	mg/L	
31	Benzo(e)pyrene*	ND	1	1.0	mg/L	
32	Indeno(1,2,3-cd) pyrene*	ND	1	1.0	mg/L	

# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

Page 23 of 47

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.  
**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

**NOTE:**

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

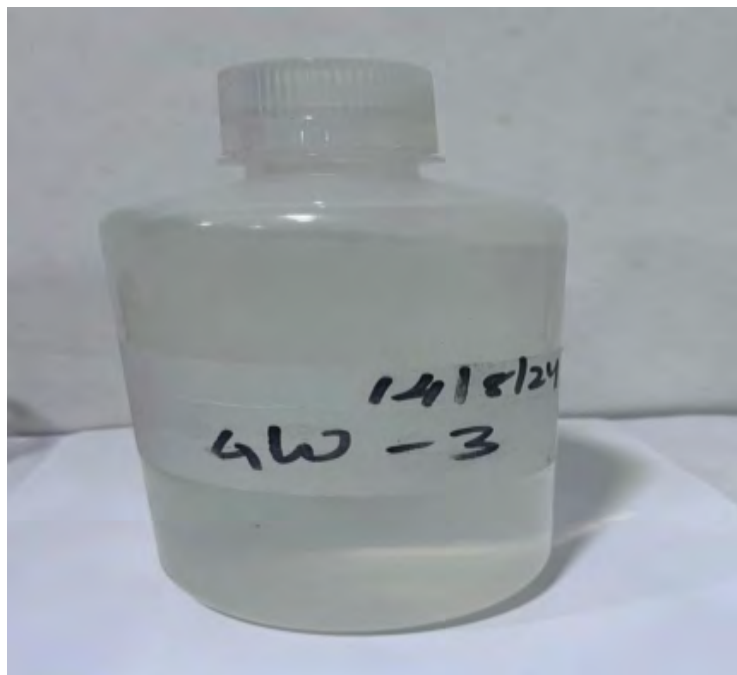
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Ground Water 03

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Turbidity	0.1	Max. 1	0.1 NTU	NTU	APHA 23rd ed: 2017 :2130 B
2	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	3.1	Max. 50	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500 -NO <sub>3</sub> -B
3	Iron (as Fe)	ND	Max. 0.3	0.005 mg/l	mg/L	APHA 23rd ed: 2017: 3125 B(ICP-MS)
4	Manganese (as Mn) *	ND	Max. 0.1	0.001 mg/l	mg/L	
5	Arsenic (as As)	ND	Max. 0.01	0.001 mg/l	mg/L	
6	Cadmium (as Cd)	ND	Max. 0.003	0.0001 mg/l	mg/L	
7	Lead (as Pb)	ND	Max. 0.01	0.001 mg/l	mg/L	
8	Mercury (as Hg)	ND	Max. 0.001	0.00050 mg/l	mg/L	
9	Total Suspended Solids (TSS)	07	5 - 750	1.0 mg/l	mg/L	APHA 23rd ed: 2017 : 2540D
10	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Oil & Grease	ND	5	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 5520B
12	pH at 25°C	7.8	6.5-8.5	-	ph	APHA 23rd ed: 2017: 4500H+B
13	Electrical Conductivity at25°C	1707	<1000	1µS/cm	µS/ cm	APHA 23rd ed: 2017: 2510 B
14	Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	0.9	Max. 5.0	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500-PC
15	Chloride (as Cl <sup>-</sup> )	43.1	Max. 200	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 4500-Cl- B
16	Polycyclic Aromatic Hydrocarbons (PAH)*					
17	Naphthalene*	ND	1	1.0	mg/L	CPSD-AN-00090
18	Benzo(a)anthracene*	ND	1	1.0	mg/L	
19	Acenaphthylene*	ND	1	1.0	mg/L	
20	Acenaphthene*	ND	1	1.0	mg/L	
21	Fluorene*	ND	1	1.0	mg/L	
22	Phenanthrene*	ND	1	1.0	mg/L	
23	Pyrene*	ND	1	1.0	mg/L	
24	Chrysene*	ND	1	1.0	mg/L	
25	Benzo(b)fluoranthene*	ND	1	1.0	mg/L	
26	Benzo(k)fluoranthene*	ND	1	1.0	mg/L	
27	Dibenzo(a,h)anthracene*	ND	1	1.0	mg/L	
28	Benzo(g,h,i)perylene*	ND	1	1.0	mg/L	
29	Benzo(j)fluoranthene*	ND	1	1.0	mg/L	
30	Benzo(a)pyrene*	ND	1	1.0	mg/L	
31	Benzo(e)pyrene*	ND	1	1.0	mg/L	
32	Indeno(1,2,3-cd) pyrene*	ND	1	1.0	mg/L	

# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.  
**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

**NOTE:**

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

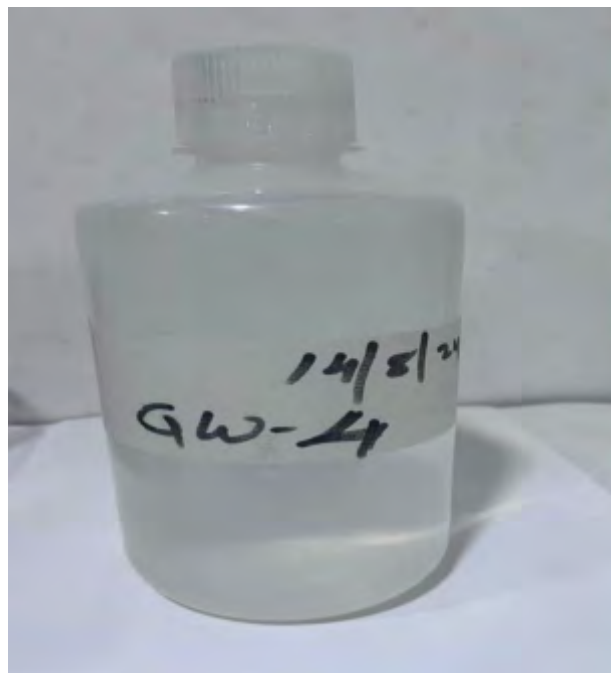
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Ground Water 04

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Turbidity	ND	Max. 1	0.1 NTU	NTU	APHA 23rd ed: 2017 :2130 B
2	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	2.8	Max. 50	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500 -NO <sub>3</sub> -B
3	Iron (as Fe)	ND	Max. 0.3	0.005 mg/l	mg/L	APHA 23rd ed: 2017: 3125 B(ICP-MS)
4	Manganese (as Mn) *	ND	Max. 0.1	0.001 mg/l	mg/L	
5	Arsenic (as As)	ND	Max. 0.01	0.001 mg/l	mg/L	
6	Cadmium (as Cd)	ND	Max. 0.003	0.0001 mg/l	mg/L	
7	Lead (as Pb)	ND	Max. 0.01	0.001 mg/l	mg/L	
8	Mercury (as Hg)	ND	Max. 0.001	0.00050 mg/l	mg/L	
9	Total Suspended Solids (TSS)	06	5 - 750	1.0 mg/l	mg/L	APHA 23rd ed: 2017 : 2540D
10	Feacal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Oil & Grease	01	5	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 5520B
12	pH at 25°C	7.9	6.5-8.5	-	ph	APHA 23rd ed: 2017: 4500H+B
13	Electrical Conductivity at25°C	1385.1	<1000	1µS/cm	µS/ cm	APHA 23rd ed: 2017: 2510 B
14	Total Phosphates (as PO <sub>4</sub> <sup>3-</sup> )	ND	Max. 5.0	0.1 mg/l	mg/L	APHA 23rd ed: 2017: 4500-PC
15	Chloride (as Cl <sup>-</sup> )	38	Max. 200	1.0 mg/l	mg/L	APHA 23rd ed: 2017: 4500-Cl- B
16	Polycyclic Aromatic Hydrocarbons (PAH)*					
17	Naphthalene*	ND	1	1.0	mg/L	CPSD-AN-00090
18	Benzo(a)anthracene*	ND	1	1.0	mg/L	
19	Acenaphthylene*	ND	1	1.0	mg/L	
20	Acenaphthene*	ND	1	1.0	mg/L	
21	Fluorene*	ND	1	1.0	mg/L	
22	Phenanthrene*	ND	1	1.0	mg/L	
23	Pyrene*	ND	1	1.0	mg/L	
24	Chrysene*	ND	1	1.0	mg/L	
25	Benzo(b)fluoranthene*	ND	1	1.0	mg/L	
26	Benzo(k)fluoranthene*	ND	1	1.0	mg/L	
27	Dibenzo(a,h)anthracene*	ND	1	1.0	mg/L	
28	Benzo(g,h,i)perylene*	ND	1	1.0	mg/L	
29	Benzo(j)fluoranthene*	ND	1	1.0	mg/L	
30	Benzo(a)pyrene*	ND	1	1.0	mg/L	
31	Benzo(e)pyrene*	ND	1	1.0	mg/L	
32	Indeno(1,2,3-cd) pyrene*	ND	1	1.0	mg/L	



# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

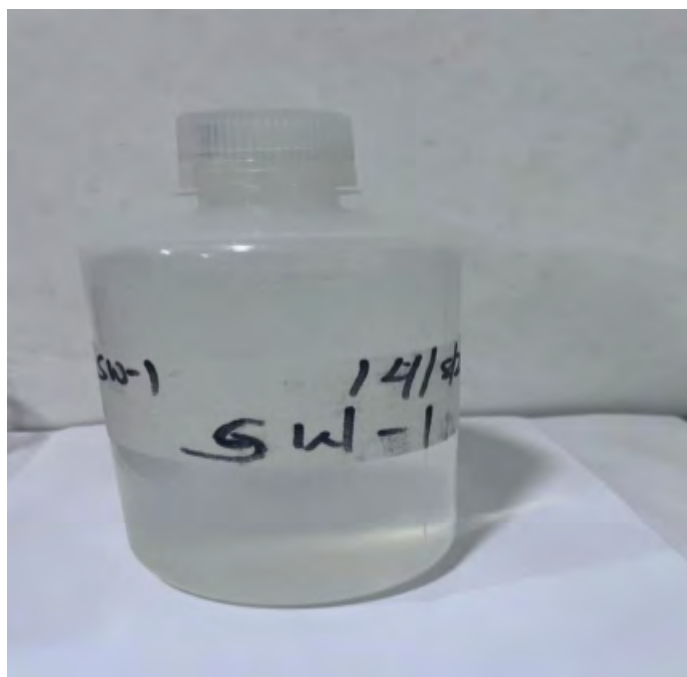
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Sea Water 01

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Salinity	35	32-42	0.001 %	%	APHA-2520-B
2	Total Suspended Solids (TSS)	58	50	1.0 mg/l	mg/L	APHA-2540-C
3	Oil & Grease	ND	0.1	1.0 mg/l	mg/L	APHA-5520-B
4	Feecal Coliform	ND	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
5	Nitrite as NO <sub>2</sub>	7.4	5	0.1 mg/l	mg/L	APHA-4500-NO <sub>2</sub> -
6	pH at 25°C	7.5	6.5-8.0	-	-	APHA-4500-H <sup>+</sup>
7	Chemical Oxygen Demand	15	200	5 mg/l	mg/L	APHA-5220-D
8	Biological Oxygen Demand	2.1	20	5 mg/l	mg/L	APHA-5210-B
9	Turbidity	2.0	3	0.1 NTU	NTU	APHA-2130-B
10	Electrical Conductivity	58400	<=Sea Water	1μS/cm	μs/cm	APHA-2510
11	Total Inorganic Nitrogen	5.7	70	0.001 mg/l	mg/L	APHA-4500-N
12	Total Phosphates (as PO <sub>4</sub> ) <sub>3</sub>	0.1	3	0.01 mg/l	mg/L	APHA-2540-C
13	Sulphate	<0.1	2	0.1 mg/l	mg/L	APHA-4500-D
14	Ammonia - N	2	2	0.1 mg/l	mg/L	APHA-4500-NH <sub>3</sub> <sup>-</sup>
15	Temperature	28.1	18-32	-	°C	APHA-2550 B
16	Arsenic as As	< 0.005	0.01	0.001 mg/l	mg/L	APHA-3125-B
17	Cadmium as Cd	<0.005	0.05	0.0001 mg/l	mg/L	APHA-3125-B
18	Lead as Pb	0.003	0.5	0.001 mg/l	mg/L	APHA-3125-B
19	Chromium VI	<0.005	0.1	0.005 mg/l	mg/L	APHA-3125-B
20	Total Chromium (as Cr)	< 0.004	0.5	0.005 mg/l	°C	APHA-3125-B
21	Mercury as Hg	< 0.001	0.02	0.00050 mg/l	mg/L	APHA-3125-B
22	Nickel as Ni	<0.001	1	0.001 mg/l	mg/L	APHA-3125-B
23	Zinc as Zn	0.011	2	0.005 mg/l	mg/L	APHA-3125-B
24	Copper as Cu	0.004	0.5	0.005 mg/l	mg/L	APHA-3125-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

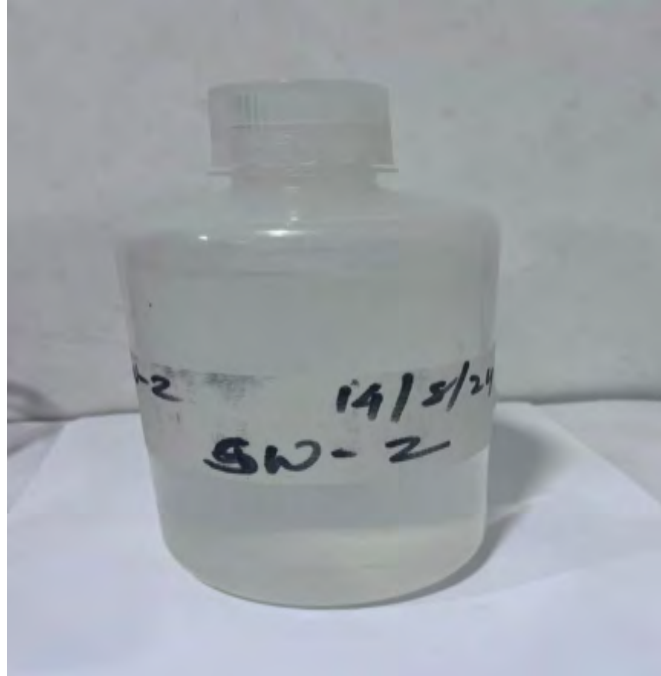
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Sea Water 02

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Salinity	35	32-42	0.001 %	%	APHA-2520-B
2	Total Suspended Solids (TSS)	72	50	1.0 mg/l	mg/L	APHA-2540-C
3	Oil & Grease	ND	0.1	1.0 mg/l	mg/L	APHA-5520-B
4	Feecal Coliform	ND	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
5	Nitrite as NO <sub>2</sub>	2.2	5	0.1 mg/l	mg/L	APHA-4500-NO <sub>2</sub> -
6	pH at 25°C	7.5	6.5-8.0	-	-	APHA-4500-H <sup>+</sup>
7	Chemical Oxygen Demand	48	200	5 mg/l	mg/L	APHA-5220-D
8	Biological Oxygen Demand	20	20	5 mg/l	mg/L	APHA-5210-B
9	Turbidity	2.1	3	0.1 NTU	NTU	APHA-2130-B
10	Electrical Conductivity	60,300	<=Sea Water	1μS/cm	μs/cm	APHA-2510
11	Total Inorganic Nitrogen	6.2	70	0.001 mg/l	mg/L	APHA-4500-N
12	Total Phosphates (as PO <sub>4</sub> ) <sub>3</sub>	0.9	0.02	0.01 mg/l	mg/L	APHA-2540-C
13	Sulphate	<0.1	2	0.1 mg/l	mg/L	APHA-4500-D
14	Ammonia - N	2.6	2	0.1 mg/l	mg/L	APHA-4500-NH <sub>3</sub> <sup>-</sup>
15	Temperature	28.1	18-32 °C	-	°C	APHA-2550 B
16	Arsenic as As	< 0.005	0.1	0.001 mg/l	mg/L	APHA-3125-B
17	Cadmium as Cd	< 0.005	0.05	0.0001 mg/l	mg/L	APHA-3125-B
18	Lead as Pb	0.019	0.5	0.001 mg/l	mg/L	APHA-3125-B
19	Chromium VI	<0.005	0.1	0.005 mg/l	mg/L	APHA-3125-B
20	Total Chromium (as Cr)	0.003	0.5	0.005 mg/l	°C	APHA-3125-B
21	Mercury as Hg	< 0.001	0.02	0.00050 mg/l	mg/L	APHA-3125-B
22	Nickel as Ni	< 0.001	1	0.001 mg/l	mg/L	APHA-3125-B
23	Zinc as Zn	0.035	2	0.005 mg/l	mg/L	APHA-3125-B
24	Copper as Cu	0.021	0.5	0.005 mg/l	mg/L	APHA-3125-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

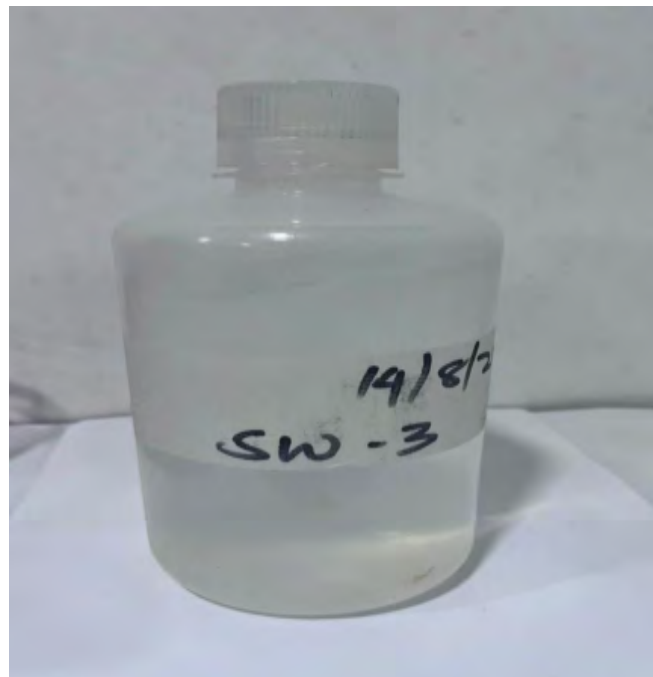
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Sea Water 03

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Salinity	33	32-42	0.001 %	%	APHA-2520-B
2	Total Suspended Solids (TSS)	68	50	1.0 mg/l	mg/L	APHA-2540-C
3	Oil & Grease	ND	0.1	1.0 mg/l	mg/L	APHA-5520-B
4	Feacal Coliform	ND	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
5	Nitrite as NO <sub>2</sub>	1.8	5	0.1 mg/l	mg/L	APHA-4500-NO <sub>2</sub> -
6	pH at 25°C	7.5	6.5-8.0	-	-	APHA-4500-H <sup>+</sup>
7	Chemical Oxygen Demand	45	200	5 mg/l	mg/L	APHA-5220-D
8	Biological Oxygen Demand	18	20	5 mg/l	mg/L	APHA-5210-B
9	Turbidity	2.4	3	0.1 NTU	NTU	APHA-2130-B
10	Electrical Conductivity	58,800	<=Sea Water	1μS/cm	μs/cm	APHA-2510
11	Total Inorganic Nitrogen	5.6	70	0.001 mg/l	mg/L	APHA-4500-N
12	Total Phosphates (as PO <sub>4</sub> ) <sub>3</sub>	0.7	0.02	0.01 mg/l	mg/L	APHA-2540-C
13	Sulphate	<0.1	2	0.1 mg/l	mg/L	APHA-4500-D
14	Ammonia - N	2.3	2	0.1 mg/l	mg/L	APHA-4500-NH <sub>3</sub> <sup>-</sup>
15	Temperature	27.2	18-32 °C	-	°C	APHA-2550 B
16	Arsenic as As	< 0.005	0.1	0.001 mg/l	mg/L	APHA-3125-B
17	Cadmium as Cd	< 0.005	0.05	0.0001 mg/l	mg/L	APHA-3125-B
18	Lead as Pb	0.015	0.5	0.001 mg/l	mg/L	APHA-3125-B
19	Chromium VI	<0.005	0.1	0.005 mg/l	mg/L	APHA-3125-B
20	Total Chromium (as Cr)	0.003	0.5	0.005 mg/l	°C	APHA-3125-B
21	Mercury as Hg	< 0.001	0.02	0.00050 mg/l	mg/L	APHA-3125-B
22	Nickel as Ni	< 0.001	1	0.001 mg/l	mg/L	APHA-3125-B
23	Zinc as Zn	0.028	2	0.005 mg/l	mg/L	APHA-3125-B
24	Copper as Cu	0.016	0.5	0.005 mg/l	mg/L	APHA-3125-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024

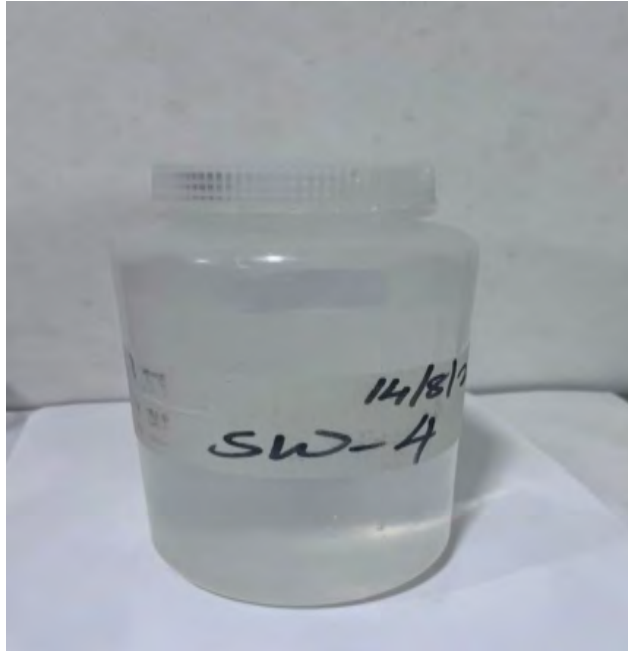
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Sea Water 04

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Salinity	31	32-42	0.001 %	%	APHA-2520-B
2	Total Suspended Solids (TSS)	60	50	1.0 mg/l	mg/L	APHA-2540-C
3	Oil & Grease	ND	0.1	1.0 mg/l	mg/L	APHA-5520-B
4	Feecal Coliform	ND	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
5	Nitrite as NO <sub>2</sub>	1.8	5	0.1 mg/l	mg/L	APHA-4500-NO <sub>2</sub> -
6	pH at 25°C	7.5	6.5-8.0	-	-	APHA-4500-H <sup>+</sup>
7	Chemical Oxygen Demand	43	200	5 mg/l	mg/L	APHA-5220-D
8	Biological Oxygen Demand	15	20	5 mg/l	mg/L	APHA-5210-B
9	Turbidity	2.2	3	0.1 NTU	NTU	APHA-2130-B
10	Electrical Conductivity	55,650	<=SeaWater	1μS/cm	μs/cm	APHA-2510
11	Total Inorganic Nitrogen	5.4	70	0.001 mg/l	mg/L	APHA-4500-N
12	Total Phosphates (as PO <sub>4</sub> ) <sub>3</sub>	0.6	0.02	0.01 mg/l	mg/L	APHA-2540-C
13	Sulfide	<0.1	2	0.1 mg/l	mg/L	APHA-4500-D
14	Ammonia - N	2.1	2	0.1 mg/l	mg/L	APHA-4500-NH <sub>3</sub> <sup>-</sup>
15	Temperature	27.4	18-32 °C	-	°C	APHA-2550 B
16	Arsenic as As	< 0.005	0.1	0.001 mg/l	mg/L	APHA-3125-B
17	Cadmium as Cd	< 0.005	0.05	0.0001 mg/l	mg/L	APHA-3125-B
18	Lead as Pb	0.011	0.5	0.001 mg/l	mg/L	APHA-3125-B
19	Chromium VI	0.005	0.1	0.005 mg/l	mg/L	APHA-3125-B
20	Total Chromium (as Cr)	0.005	0.5	0.005 mg/l	°C	APHA-3125-B
21	Mercury as Hg	< 0.001	0.02	0.00050 mg/l	mg/L	APHA-3125-B
22	Nickel as Ni	< 0.001	1	0.001 mg/l	mg/L	APHA-3125-B
23	Zinc as Zn	0.020	2	0.005 mg/l	mg/L	APHA-3125-B
24	Copper as Cu	0.012	0.5	0.005 mg/l	mg/L	APHA-3125-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**



# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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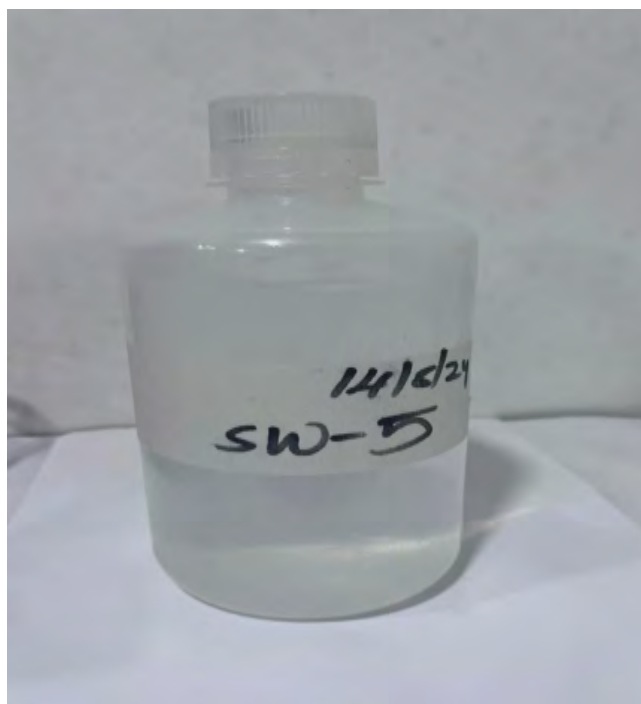
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Sea Water 05

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Salinity	34	32-42	0.001 %	%	APHA-2520-B
2	Total Suspended Solids (TSS)	71	50	1.0 mg/l	mg/L	APHA-2540-C
3	Oil & Grease	ND	0.1	1.0 mg/l	mg/L	APHA-5520-B
4	Feacal Coliform	ND	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
5	Nitrite as NO <sub>2</sub>	2.2	5	0.1 mg/l	mg/L	APHA-4500-NO <sub>2</sub> -
6	pH at 25°C	7.5	6.5-8.0	-	-	APHA-4500-H <sup>+</sup>
7	Chemical Oxygen Demand	48	200	5 mg/l	mg/L	APHA-5220-D
8	Biological Oxygen Demand	20	20	5 mg/l	mg/L	APHA-5210-B
9	Turbidity	2.5	3	0.1 NTU	NTU	APHA-2130-B
10	Electrical Conductivity	59,400	<=SeaWater	1μS/cm	μs/cm	APHA-2510
11	Total Inorganic Nitrogen	5.9	70	0.001 mg/l	mg/L	APHA-4500-N
12	Total Phosphates (as PO <sub>4</sub> ) <sub>3</sub>	0.9	0.02	0.01 mg/l	mg/L	APHA-2540-C
13	Sulfide	<0.1	2	0.1 mg/l	mg/L	APHA-4500-D
14	Ammonia - N	2.5	2	0.1 mg/l	mg/L	APHA-4500-NH <sub>3</sub> <sup>-</sup>
15	Temperature	27.9	18-32 °C	-	°C	APHA-2550 B
16	Arsenic as As	< 0.005	0.1	0.001 mg/l	mg/L	APHA-3125-B
17	Cadmium as Cd	< 0.005	0.05	0.0001 mg/l	mg/L	APHA-3125-B
18	Lead as Pb	0.018	0.5	0.001 mg/l	mg/L	APHA-3125-B
19	Chromium VI	<0.004	0.1	0.005 mg/l	mg/L	APHA-3125-B
20	Total Chromium (as Cr)	0.004	0.5	0.005 mg/l	°C	APHA-3125-B
21	Mercury as Hg	< 0.001	0.02	0.00050 mg/l	mg/L	APHA-3125-B
22	Nickel as Ni	< 0.001	1	0.001 mg/l	mg/L	APHA-3125-B
23	Zinc as Zn	0.031	2	0.005 mg/l	mg/L	APHA-3125-B
24	Copper as Cu	0.019	0.5	0.005 mg/l	mg/L	APHA-3125-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives

**Date of Sample Received:** Aug 14, 2024

**Date of Testing Started:** Aug 15, 2024

**Date of Testing Completed:** Aug 19, 2024

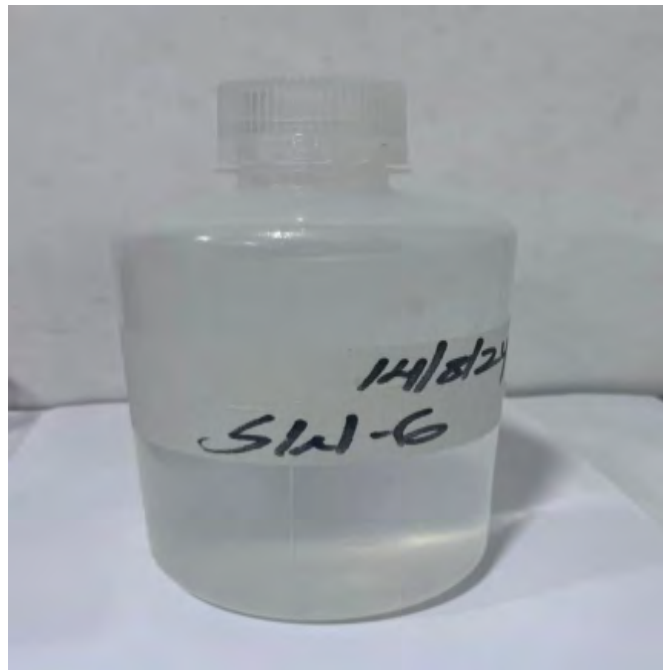
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Sea Water 06

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Salinity	36	32-42	0.001 %	%	APHA-2520-B
2	Total Suspended Solids (TSS)	75	50	1.0 mg/l	mg/L	APHA-2540-C
3	Oil & Grease	ND	0.1	1.0 mg/l	mg/L	APHA-5520-B
4	Feacal Coliform	ND	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
5	Nitrite as NO <sub>2</sub>	2.3	5	0.1 mg/l	mg/L	APHA-4500-NO <sub>2</sub> -
6	pH at 25°C	7.5	6.5-8.0	-	-	APHA-4500-H <sup>+</sup>
7	Chemical Oxygen Demand	48	200	5 mg/l	mg/L	APHA-5220-D
8	Biological Oxygen Demand	23	20	5 mg/l	mg/L	APHA-5210-B
9	Turbidity	2.7	3	0.1 NTU	NTU	APHA-2130-B
10	Electrical Conductivity	61,200	<=SeaWater	1μS/cm	μs/cm	APHA-2510
11	Total Inorganic Nitrogen	6.2	70	0.001 mg/l	mg/L	APHA-4500-N
12	Total Phosphates (as PO <sub>4</sub> )	1.2	0.02	0.01 mg/l	mg/L	APHA-2540-C
13	Sulfide	<0.1	2	0.1 mg/l	mg/L	APHA-4500-D
14	Ammonia - N	2.8	2	0.1 mg/l	mg/L	APHA-4500-NH <sub>3</sub> <sup>-</sup>
15	Temperature	28.3	18-32 °C	-	°C	APHA-2550 B
16	Arsenic as As	< 0.005	0.1	0.001 mg/l	mg/L	APHA-3125-B
17	Cadmium as Cd	0.005	0.05	0.0001 mg/l	mg/L	APHA-3125-B
18	Lead as Pb	0.020	0.5	0.001 mg/l	mg/L	APHA-3125-B
19	Chromium VI	0.005	0.1	0.005 mg/l	mg/L	APHA-3125-B
20	Total Chromium (as Cr)	0.005	0.5	0.005 mg/l	°C	APHA-3125-B
21	Mercury as Hg	< 0.001	0.02	0.00050 mg/l	mg/L	APHA-3125-B
22	Nickel as Ni	< 0.001	1	0.001 mg/l	mg/L	APHA-3125-B
23	Zinc as Zn	0.034	2	0.005 mg/l	mg/L	APHA-3125-B
24	Copper as Cu	0.021	0.5	0.005 mg/l	mg/L	APHA-3125-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



**Report No:** (7424)075-1443

**Code Name:** AAJV

Aug 19, 2024

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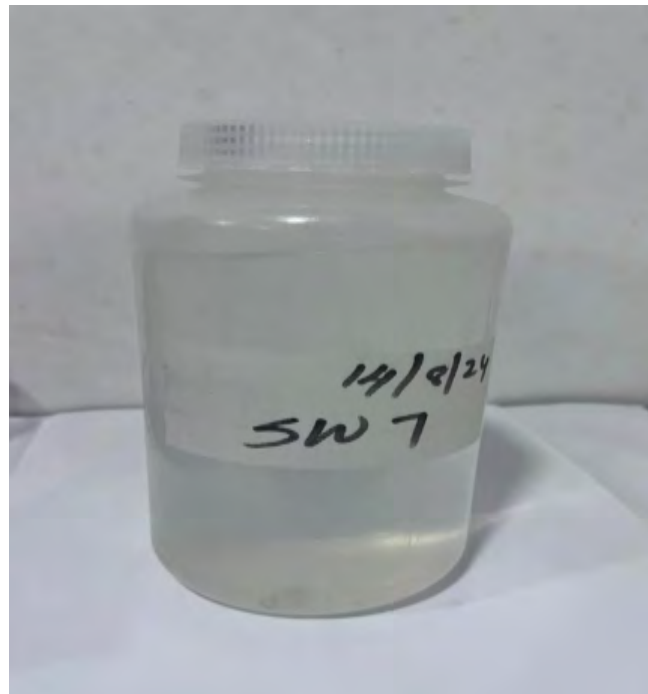
**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Aug 14, 2024  
**Date of Testing Started:** Aug 15, 2024  
**Date of Testing Completed:** Aug 19, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Sea Water 07

Date of Sample Collection: 08.14.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Salinity	32	32-42	0.001 %	%	APHA-2520-B
2	Total Suspended Solids (TSS)	58	50	1.0 mg/l	mg/L	APHA-2540-C
3	Oil & Grease	ND	0.1	1.0 mg/l	mg/L	APHA-5520-B
4	Feacal Coliform	ND	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
5	Nitrite as NO <sub>2</sub>	1.5	5	0.1 mg/l	mg/L	APHA-4500-NO <sub>2</sub> -
6	pH at 25°C	7.4	6.5-8.0	-	-	APHA-4500-H <sup>+</sup>
7	Chemical Oxygen Demand	42	200	5 mg/l	mg/L	APHA-5220-D
8	Biological Oxygen Demand	13	20	5 mg/l	mg/L	APHA-5210-B
9	Turbidity	2.2	3	0.1 NTU	NTU	APHA-2130-B
10	Electrical Conductivity	55,950	<=SeaWater	1μS/cm	μs/cm	APHA-2510
11	Total Inorganic Nitrogen	5.1	70	0.001 mg/l	mg/L	APHA-4500-N
12	Total Phosphates (as PO <sub>4</sub> ) <sub>3</sub>	0.6	0.02	0.01 mg/l	mg/L	APHA-2540-C
13	Sulfide	<0.1	2	0.1 mg/l	mg/L	APHA-4500-D
14	Ammonia - N	2.0	2	0.1 mg/l	mg/L	APHA-4500-NH <sub>3</sub> <sup>-</sup>
15	Temperature	26.3	18-32 °C	-	°C	APHA-2550 B
16	Arsenic as As	< 0.005	0.1	0.001 mg/l	mg/L	APHA-3125-B
17	Cadmium as Cd	< 0.005	0.05	0.0001 mg/l	mg/L	APHA-3125-B
18	Lead as Pb	0.011	0.5	0.001 mg/l	mg/L	APHA-3125-B
19	Chromium VI	<0.005	0.1	0.005 mg/l	mg/L	APHA-3125-B
20	Total Chromium (as Cr)	0.004	0.5	0.005 mg/l	°C	APHA-3125-B
21	Mercury as Hg	< 0.001	0.02	0.00050 mg/l	mg/L	APHA-3125-B
22	Nickel as Ni	< 0.001	1	0.001 mg/l	mg/L	APHA-3125-B
23	Zinc as Zn	0.018	2	0.005 mg/l	mg/L	APHA-3125-B
24	Copper as Cu	0.010	0.5	0.005 mg/l	mg/L	APHA-3125-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



Report No: (7424)075-1443

Aug 19, 2024

Code Name: AAJV

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## Contact information for this report (Technical and General Inquiries and Feedback)

<b>GENERAL INQUIRIES:</b>		
MOHOMED NAWZER	TEL: +94 764 412 907	E-MAIL: mohomed.nawzer@bureauveritas.com
<b>TECHNICAL INQUIRIES:</b>		
RUWANI AMARASINGHE	TEL: +94 768 229 457	E-MAIL: ruwani.amarasinghe@bureauveritas.com
<b>FEED BACK:</b>		
KUMUDINI RATHNAYAKE – ASST. QA MANAGER	TEL: +94 768 229 455	E-MAIL: kumudinie.rathnayake@bureauveritas.com

REVIEWED BY: HIMASHA JAYAWARDENA

BUREAU VERITAS CONSUMER PRODUCTS SERVICES LANKA (PVT) LTD.  
AUTHORIZED SIGNATORY

A handwritten signature in blue ink, appearing to read 'RUWANI', is written over a horizontal line.

APPROVED BY: \_\_\_\_\_  
RUWANI AMARASINGHE  
ASSISTANT MANAGER –  
FOOD & MICROBIOLOGY LABORATORY

**END OF THE REPORT**



# TEST REPORT



**Report No:** (7424)141-7002

**Code Name:** AAJV

Sep 13, 2024

Page 1 of 20

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Sep 05, 2024  
**Date of Testing Started:** Sep 06, 2024  
**Date of Testing Completed:** Sep 13, 2024

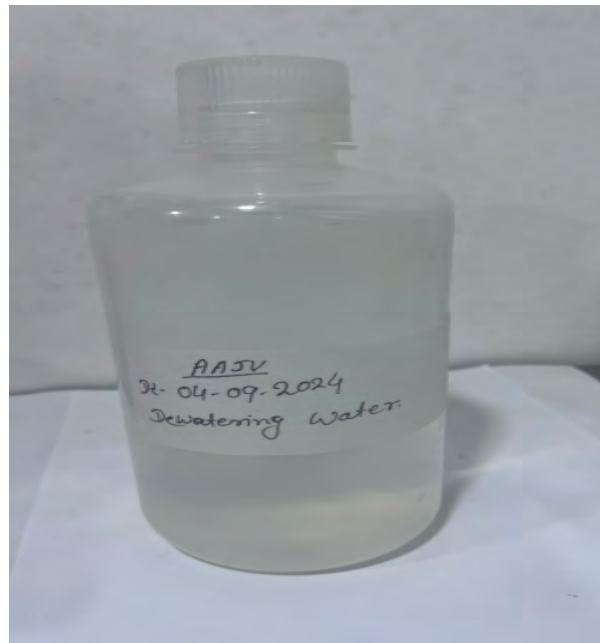
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Dewatering Water

Date of Sample Collection: 09.05.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



**Bureau Veritas Consumer Products Services Lanka (Pvt) Ltd.**

No. 570, Galle Road, Katubedda, Moratuwa, Sri Lanka  
Tel: (9411) 2350111-115 (dedicated lines), Fax: (9411) 112622198 & 199  
Email: [bvcp.lanka@lk.bureauveritas.com](mailto:bvcp.lanka@lk.bureauveritas.com)

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# TEST REPORT



Report No: (7424)141-7002

Code Name: AAJV

Sep 13, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Fecal Coliforms	ND	100	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
2	pH	7.4	6.5-8.5	-	-	APHA-4500-H <sup>+</sup>
3	Temperature	27.9	18-32	-	°C	APHA-2550 B
4	Total Dissolved Solids	35,205	EC * 0.67	1.0 mg/l	mg/l	APHA-2540-C
5	Total Suspended Solids (TSS)	24	50	1.0 mg/l	mg/l	APHA-2540-B
6	Dissolved Oxygen	6.2	6.5-8.0	0.2 mg/l	mg/l	APHA-4500-O
7	Electrical Conductivity	52,307	35,000-60,000	1µS/cm	µS/cm	APHA-2510
8	Turbidity	1.3	< 5	0.1 NTU	NTU	APHA-2130-B
9	Salinity	3.8	3.2-4.2%	0.001 %	%	APHA-2520-B
10	Ammonia - N	1.2	10	0.1 mg/l	mg/l	APHA-4500-NH <sub>3</sub> <sup>-</sup>
11	Hydrogen Sulphide (H <sub>2</sub> S)	<0.01	0.5	0.01 mg/l	mg/l	APHA-4500-D
12	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	0.7	15	0.1 mg/l	mg/l	APHA-4500-NO <sub>2</sub> <sup>-</sup>
13	Phosphate as P	0.1	2	0.01 mg/l	mg/l	APHA-2540-C
14	Total Hydrocarbon	< 0.1	10	0.1 ppm	ppm	Inhouse –Laboratory Method
15	Oil & Grease	<01	5	1.0 mg/l	mg/l	APHA-5520-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: Micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives**

# TEST REPORT



Report No: (7424)141-7002

Code Name: AAJV

Sep 13, 2024

Page 3 of 20

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Sep 05, 2024  
**Date of Testing Started:** Sep 06, 2024  
**Date of Testing Completed:** Sep 13, 2024

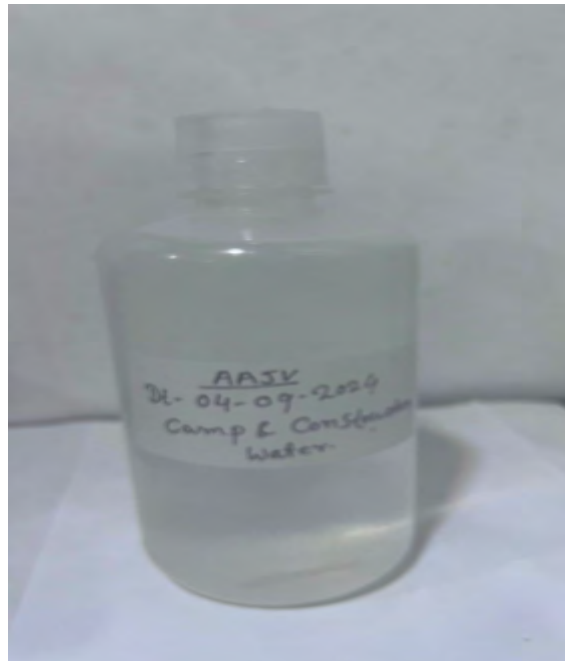
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Camp and Construction Water

Date of Sample Collection: 09.05.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



# TEST REPORT



Report No: (7424)141-7002

Code Name: AAJV

Sep 13, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination
2	pH	7.7	6.5-8.5	-	-	APHA-4500-B
3	Turbidity	0.06	< 1.0	0.1 NTU	NTU	APHA-2130-B
4	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-C1
5	Electrical Conductivity	465	<1000	1µS/cm	µS/cm	APHA-2510-B
6	Total Hardness	19.1	<75	1.0 mg/l	mg/L	APHA-2340-C
7	Total Suspended Solids (TSS)	09	5-750	1.0 mg/l	mg/L	APHA-2540-B
8	Total Dissolved solids	340	<500	1.0 mg/l	mg/L	APHA-2540-C
9	Feacal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
10	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
11	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
12	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
13	Hydrogen Sulphide	<0.01	<0.05	0.01 mg/l	mg/L	APHA: 2017
14	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
15	Nitrate (as NO <sub>3</sub> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO3-B
16	Chloride (as Cl <sup>-</sup> )	27.7	<200	1.0 mg/l	mg/L	APHA-4500Cl-B

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives.**

### NOTE:

APHA: American Public Health Association,

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LOQ: Limit of Quantification,

mg/L: Milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



Report No: (7424)141-7002

Code Name: AAJV

Sep 13, 2024

Page 5 of 20

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Sep 05, 2024  
**Date of Testing Started:** Sep 06, 2024  
**Date of Testing Completed:** Sep 13, 2024

**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 01

Date of Sample Collection: 09.05.2024

**Sample Drawn By BVCPS** NO

**Photo of the Submitted Samples**



# TEST REPORT



Report No: (7424)141-7002

Code Name: AAJV

Sep 13, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	6.9	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	0.10	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	447	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	298	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	14.2	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)141-7002

**Code Name:** AAJV

Sep 13, 2024

Page 7 of 20

**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Sep 05, 2024  
**Date of Testing Started:** Sep 06, 2024  
**Date of Testing Completed:** Sep 13, 2024

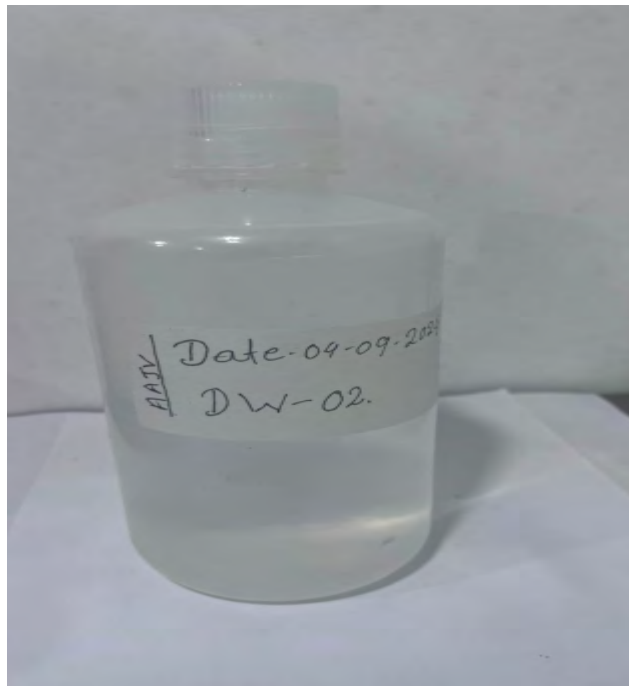
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 02

Date of Sample Collection: 09.05.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)141-7002

Code Name: AAJV

Sep 13, 2024

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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.5	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	0.11	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	100	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	95	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	5.8	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



Report No: (7424)141-7002

Code Name: AAJV

Sep 13, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives  
**Date of Sample Received:** Sep 05, 2024  
**Date of Testing Started:** Sep 06, 2024  
**Date of Testing Completed:** Sep 13, 2024  
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle  
**Sample Identified by the Client as:**  
Drinking Water 03  
Date of Sample Collection: 09.05.2024  
**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples





# TEST REPORT



Report No: (7424)141-7002  
Code Name: AAJV

Sep 13, 2024  
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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.1	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	0.15	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	130	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	75	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	6.0	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)141-7002

**Code Name:** AAJV

Sep 13, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives

**Date of Sample Received:** Sep 05, 2024

**Date of Testing Started:** Sep 06, 2024

**Date of Testing Completed:** Sep 13, 2024

**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 04

Date of Sample Collection: 09.05.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)141-7002  
Code Name: AAJV

Sep 13, 2024  
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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.7	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	0.08	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	145	<1000	1 $\mu$ S/cm	$\mu$ S/cm	APHA-2510-B
5	Total Dissolved solids	80	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> ) <sup>*</sup>	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	6.6	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

$\mu$ S/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)141-7002

**Code Name:** AAJV

Sep 13, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives

**Date of Sample Received:** Sep 05, 2024

**Date of Testing Started:** Sep 06, 2024

**Date of Testing Completed:** Sep 13, 2024

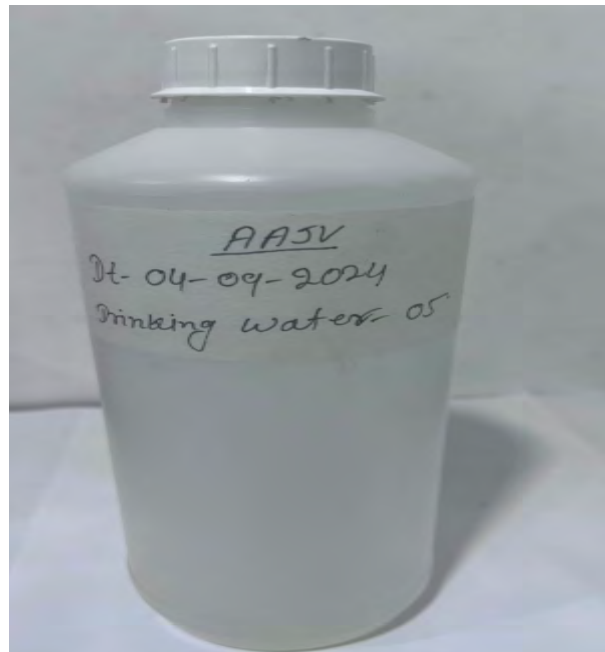
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
Drinking Water 05

Date of Sample Collection: 09.05.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)141-7002  
Code Name: AAJV

Sep 13, 2024  
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## TEST RESULTS

No.	Parameters	Results	Referencerange **	LOQ	Unit	Test Method
1	pH	7.8	6.5-8.5	-	-	APHA-4500-B
2	Turbidity	0.23	< 1.0	0.1 NTU	NTU	APHA-2130-B
3	Residual free chlorine*	<0.01	0.04-0.2	0.01 mg/l	mg/L	APHA-4500-Cl
4	Electrical Conductivity	130	<1000	1µS/cm	µS/cm	APHA-2510-B
5	Total Dissolved solids	75	<500	1.0 mg/l	mg/L	APHA-2540-C
6	Feecal Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
7	Total Coliform	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
8	Escherichia coli	ND	0/100ml	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
9	Iron (as Fe)	ND	<0.3	0.005 mg/l	mg/L	APHA-3120B
10	Ammonia - N	<0.1	<0.5	0.1 mg/l	mg/L	APHA-4500-F
11	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	ND	<50	0.1 mg/l	mg/L	APHA-4500NO <sub>3</sub> -B
12	Chloride (as Cl <sup>-</sup> )	5.3	<200	1.0 mg/l	mg/L	APHA-4500Cl-B
13	Physical Appearance	Clear	Clear/Colorless	-	Clear/Colorless	Visual Examination

\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

### NOTE:

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

µS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Satisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**

# TEST REPORT



**Report No:** (7424)141-7002

**Code Name:** AAJV

Sep 13, 2024

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**Customer:** Alke Alkatas Joint Venture (Pvt) Ltd  
**Address :** H.H. Moomiyaage, 5A, Asaree Hingun. 20265 Male, Republic of Maldives

**Date of Sample Received:** Sep 05, 2024

**Date of Testing Started:** Sep 06, 2024

**Date of Testing Completed:** Sep 13, 2024

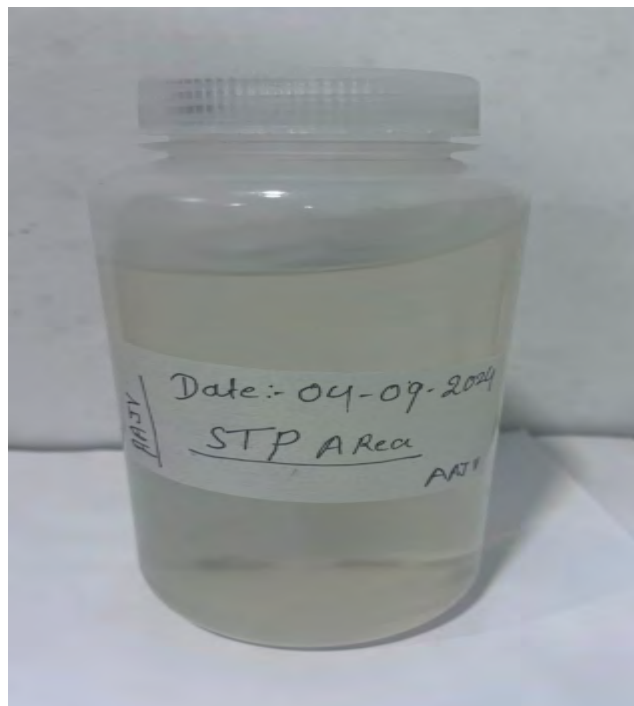
**Sample Description:** **Sample Received as:**  
A water sample contained in sealed plastic bottle

**Sample Identified by the Client as:**  
STP

Date of Sample Collection: 09.05.2024

**Sample Drawn By BVCPS** NO

## Photo of the Submitted Samples



# TEST REPORT



Report No: (7424)141-7002  
Code Name: AAJV

Sep 13, 2024  
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## TEST RESULTS

No.	Parameters	Results	ReferenceRange **	LOQ	Unit	Test Method
1	Fecal Coliforms	ND	1	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
2	Total Coliforms	07	400	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
3	E.Coli	ND	0.01	-	MPN/100ml	SLS 1461:Part 1/Section 3:2013
4	pH	6.7	5.0-9.5	-	-	APHA-4500-H <sup>+</sup>
5	Temperature	27.4	44	-	°C	APHA-2550 B
6	Total Suspended Solids	26	150	1.0 mg/l	mg/l	APHA-2540-D
7	Ortho Phosphate as P	0.6	10	0.1 mg/l	mg/l	APHA-2540-C
8	Oil & Grease	ND	5	1.0 mg/l	mg/l	APHA-5520-B
9	Dissolved Oxygen	6.1	6-8	0.2 mg/l	mg/l	APHA-4500-O
10	Free Residual Chlorine	< 0.01	0.2-0.8	0.01 mg/l	mg/l	APHA-4500-Cl
11	Electrical Conductivity	780	35,000-60,000	1µS/cm	µS/cm	<= Sea water
12	Chemical Oxygen Demand	38	50	5 mg/l	mg/l	APHA-5220-D
13	Biological Oxygen Demand	13	40	5 mg/l	mg/l	APHA-5210-B
14	Nitrate (as NO <sub>3</sub> <sup>-</sup> )*	5.0	15	0.1 mg/l	mg/l	APHA-4500NO <sub>3</sub> -B
15	Ammonia - N	2.2	10	0.1 mg/l	mg/l	APHA-4500-NH <sub>3</sub> <sup>-</sup>
16	Total Nitrogen (as N)*	3.5	10	0.001 mg/l	mg/l	APHA 23rd ed: 2017 - 4500-Norg B
17	Surfactants	0.1	10	0.1 mg/l	mg/l	APHA-5540-C
18	Phenolic Compounds	ND	1	0.005 mg/l	mg/l	APHA-5530-D
19	Sum of metals (Pb, Cr, Ni, Cd, Se, As, Fe, Al, Sb, Cu, Mn, , Hg)	0.14	5	-	mg/l	In House Method
20	Acute Toxicity	ND	0	-	mg/l	In House Method

# TEST REPORT



**Report No: (7424)141-7002**

**Code Name: AAJV**

Sep 13, 2024

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\*Test not covered ISO 17025: 2017 by Sri Lanka Accreditation Board for conformity assessment.

**Reference range \*\*as per Supply Water Quality Standard, Environment Protection Agency, Maldives**

**NOTE:**

APHA: American Public Health Association,

SLS: Sri Lanka Standard,

ND: Not Detected,

μS/cm: micro Siemens per centimeter

LOQ: Limit of Quantification,

mg/L: milligrams per liter,

NTU: Nephelometric Turbidity Units,

°C : Celcius,

MPN / 100mL- Most Probable Number per hundred milliliter,

ICP-MS- Inductively Coupled Plasma Mass Spectrometry

**COMMENT : The Testing Results revealed that hygiene of Tested Water Sample is Unsatisfactory as per the Reference range \*\*specified as per Supply Water Quality Standard, Environment Protection Agency EPA, Maldives.**



# TEST REPORT



Report No: (7424)141-7002

Sep 13, 2024

Code Name: AAJV

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## Contact information for this report (Technical and General Inquiries and Feedback)

<b>GENERAL INQUIRIES:</b>		
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RUWANI AMARASINGHE	TEL: +94 768 229 457	E-MAIL: ruwani.amarasinghe@bureauveritas.com
<b>FEED BACK:</b>		
KUMUDINI RATHNAYAKE – ASST. QA MANAGER	TEL: +94 768 229 455	E-MAIL: kumudinie.rathnayake@bureauveritas.com

REVIEWED BY: HIMASHA JAYAWARDENA

BUREAU VERITAS CONSUMER PRODUCTS SERVICES LANKA (PVT) LTD.  
AUTHORIZED SIGNATORY

APPROVED BY:

RUWANI AMARASINGHE

ASSISTANT MANAGER –  
FOOD & MICROBIOLOGY LABORATORY

**END OF THE REPORT**

**Noise Level**

Environmental monitoring Report Pre-Construction–Stage WtE Facility  
at Thilafushi

Noise Level Measurements (July 2024)

Prepared by: Mahmood Riyaz



28th July 2024

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# 1. INTRODUCTION

This is the ambient noise level monitoring report prepared as part of the pre-construction environmental monitoring of the waste to energy (WtE) facility at Thilafushi, Maldives. This report presents methodologies and results of the ambient noise level measurements conducted to fulfill the requirements of the EIA and the Project Environmental Management Plan that is being developed to meet the anticipated environment impacts, health and safety, as well as to ensure the sustainability of the Project.

# 2. NOISE LEVEL

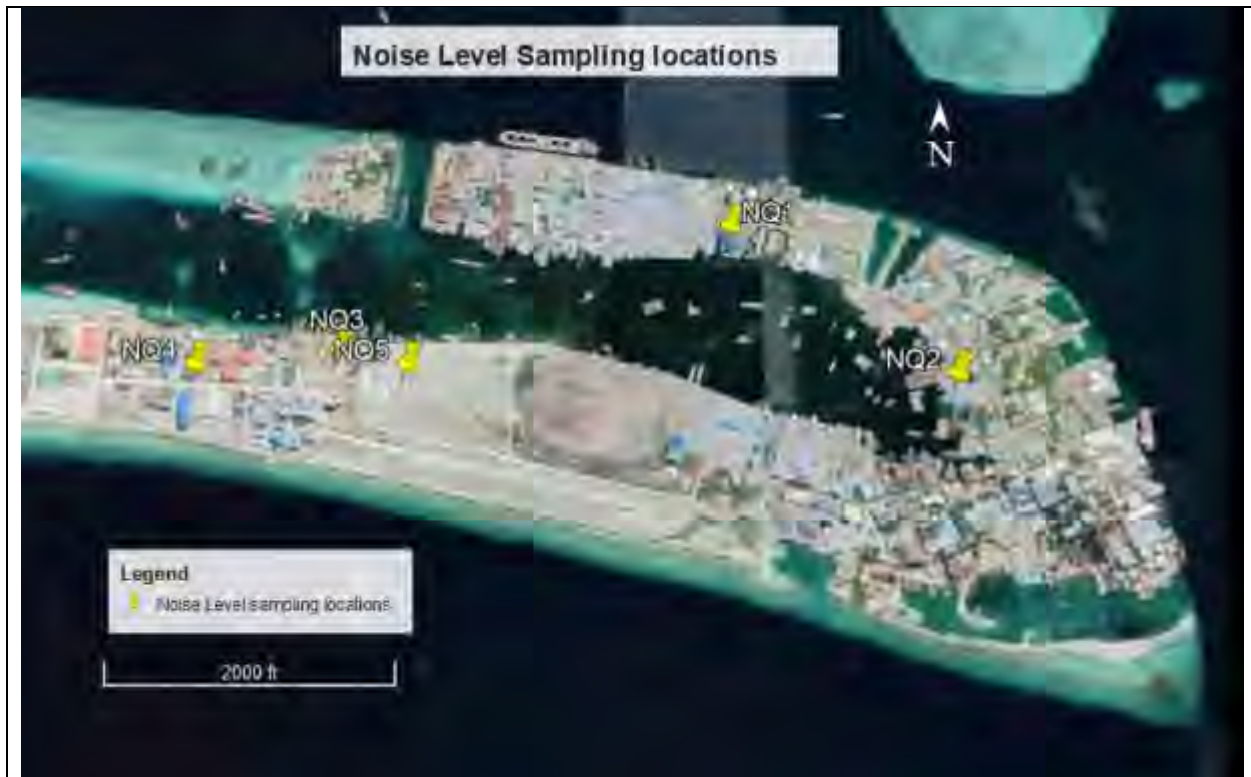
As part of the pre-construction monitoring of Thilafushi Waste to Energy facility, ambient noise levels measurements were repeated at the same five locations used in the EIA report. Ambient noise level measurement was done using a handheld sound level meter (ET-958 Professional Sound Level Meter) Measurements are recorded in NQ1, and NQ2 NQ3, NQ4 and NQ5 from 20<sup>th</sup> July 2024 13: 00 to 21<sup>st</sup> July 2024 13:00 continuously for 24 hours. Table 1 summarizes the explanation on the selection of baseline monitoring stations given in the EIA report. Figure 1 is the map that shows the sampling locations. Graph showing the noise levels in five locations is in Figure 2

At each station hourly 7-8 readings are recorded for a duration of 30-50seconds at each location. Average of ambient noise level in dB(A) was recorded and the average noise of each location is calculated Table 2. Ambient noise levels recorded with the EIA levels presented in the EIA report is given in Table 2

**Table 1: Locations selected for Ambient Noise Level Measurements**

Station name	Geographic Coordinates	Reason for selection
NQ1	4°10'26.4 N, 73°28'59.9 E	Included in the original EIA
NQ2	4°10'56.6 N, 73°26'53.3 E	Included in the original EIA
NQ3	4°10'58.3 N, 73°26'09.6 E	Included in the original EIA
NQ4	4°10'57.3 N, 73°25'59.4 E	Included in the original EIA
NQ5	4°10'57.3 N, 73°26'14.4 E	Included in the original EIA

Figure 1: Ambient noise level sampling locations

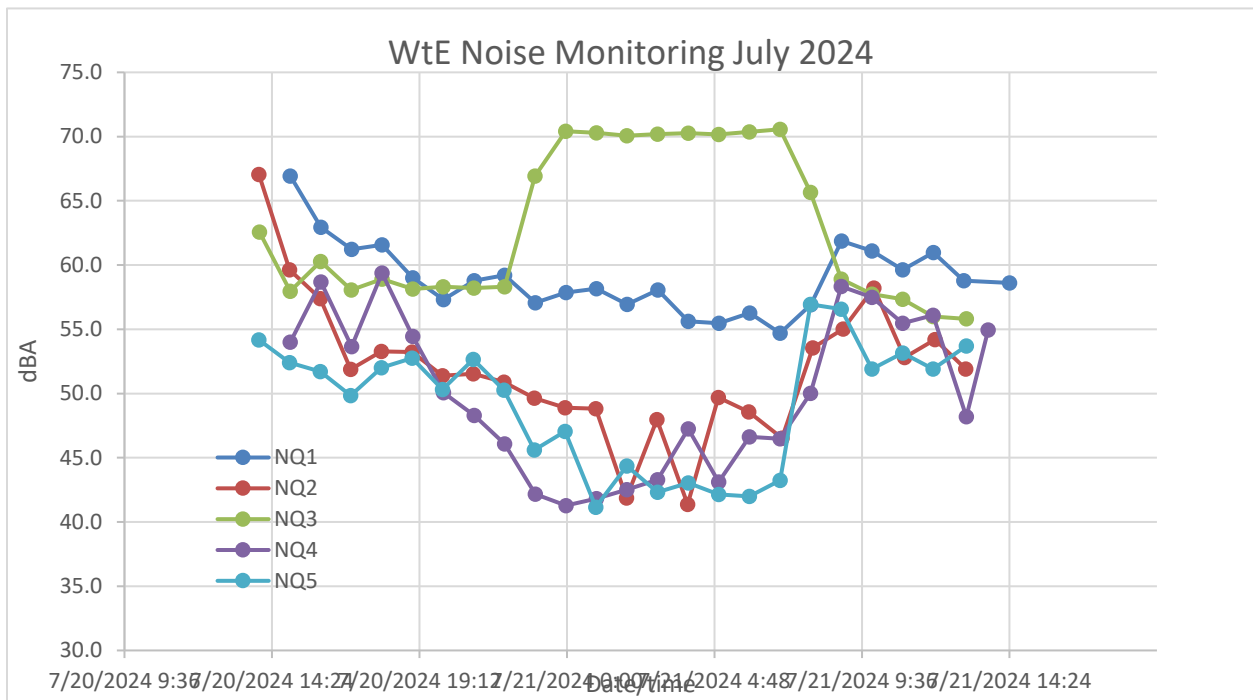


## 2.1 Results

**Table 2: Noise measurement records in (dBA), 20-21 July 2024 Thilafushi**

NQ1		NQ2		NQ3		NQ4		NQ5	
Date and time)	dB(A)	Date/time	dB(A)	Date/time	dB(A)	Date/time	dB(A)	Date/time	dB(A)
7/20/2024 14:59	66.9	7/20/2024 13:58	67.1	7/20/2024 13:59	62.6	7/20/2024 14:59	54.0	7/20/2024 13:58	54.2
7/20/2024 15:59	62.9	7/20/2024 14:58	59.6	7/20/2024 14:59	58.0	7/20/2024 15:59	58.7	7/20/2024 14:58	52.4
7/20/2024 16:59	61.2	7/20/2024 15:58	57.4	7/20/2024 15:59	60.3	7/20/2024 16:59	53.7	7/20/2024 15:58	51.7
7/20/2024 17:59	61.6	7/20/2024 16:57	51.9	7/20/2024 16:59	58.1	7/20/2024 17:59	59.4	7/20/2024 16:57	49.8
7/20/2024 18:59	59.0	7/20/2024 17:57	53.3	7/20/2024 17:58	58.9	7/20/2024 18:59	54.4	7/20/2024 17:57	52.0
7/20/2024 19:58	57.3	7/20/2024 18:57	53.2	7/20/2024 18:58	58.1	7/20/2024 19:58	50.1	7/20/2024 18:57	52.8
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7/20/2024 22:58	57.1	7/20/2024 21:56	50.9	7/20/2024 21:57	58.3	7/20/2024 22:58	42.2	7/20/2024 21:56	50.3
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7/21/2024 1:57	56.9	7/21/2024 0:56	48.8	7/21/2024 0:57	70.3	7/21/2024 1:57	42.5	7/21/2024 0:56	41.2
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7/21/2024 6:56	54.7	7/21/2024 5:55	48.6	7/21/2024 5:56	70.4	7/21/2024 6:56	46.5	7/21/2024 5:56	42.0
7/21/2024 7:56	56.9	7/21/2024 6:59	46.5	7/21/2024 6:56	70.6	7/21/2024 7:55	50.0	7/21/2024 6:56	43.2
7/21/2024 8:56	61.9	7/21/2024 7:59	53.5	7/21/2024 7:55	65.7	7/21/2024 8:55	58.3	7/21/2024 7:55	56.9
7/21/2024 9:55	61.1	7/21/2024 8:59	55.0	7/21/2024 8:55	58.9	7/21/2024 9:55	57.5	7/21/2024 8:55	56.6
7/21/2024 10:55	59.6	7/21/2024 9:59	58.2	7/21/2024 9:55	57.7	7/21/2024 10:55	55.5	7/21/2024 9:55	51.9
7/21/2024 11:55	61.0	7/21/2024 10:59	52.8	7/21/2024 10:55	57.3	7/21/2024 11:55	56.1	7/21/2024 10:55	53.2
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7/21/2024 14:24	58.6	7/21/2024 12:58	51.9	7/21/2024 12:59	55.8	7/21/2024 13:42	54.9	7/21/2024 12:59	53.7
Average dB(A)	59.0		51.9		63.0		50.0		49.2
Daytime	60.4		54.7		59.7		54.2		52.2
Night time	56.9		47.9		67.5		44.1		45.1
WHO guideline for ambient noise level		<b>70</b>							


**Figure 2. Graph showing the Ambient noise level recorded**



There are no designated national standards for ambient noise level in outdoor industrial area in the Maldives. Compared to WHO and ADB specified noise level standards for outdoors industrial and commercial area the noise level in Thilafushi island and the subproject area is below the noise level standards. The results show that in all stations ambient noise level is below the threshold levels except for NQ3 where the noise level was at its threshold level from from 12 AM and 06AM on 21<sup>st</sup> July 2024. Also in general the average noise level is highest in NQ3 this is because this is the main area where work is going on currently, mainly pilling and concrete work is undergoing it is in a close proximity to the measuring station.



## Annex 1. Noise level Hourly recorded

			
	<b>Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)</b>		
Client	ALAKJV WtE	Station No	NQ1 Thilafushi
Location	4°10'26.4 N, 73°28'59.9 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Few Showers mainly fine weather	Temperature:31.5°C
Start time	7/20/2024 14:59		Wind 3-13 mph East/SE
End time	7/21/2024 14:24		
Date/time	dBa	Remarks noise level	
7/20/2024 14:59	66.9	Conversation	
7/20/2024 15:59	62.9	Conversation	
7/20/2024 16:59	61.2	Conversation	
7/20/2024 17:59	61.6	Conversation	
7/20/2024 18:59	59.0	Quiet Office	
7/20/2024 19:58	57.3	Quiet Office	
7/20/2024 20:58	58.8	Quiet Office	
7/20/2024 21:58	59.2	Quiet Office	
7/20/2024 22:58	57.1	Quiet Office	
7/20/2024 23:57	57.9	Quiet Office	
7/21/2024 0:57	58.2	Quiet Office	
7/21/2024 1:57	56.9	Quiet Office	
7/21/2024 2:57	58.1	Quiet Office	
7/21/2024 3:57	55.6	Quiet Office	
7/21/2024 4:56	55.5	Quiet Office	
7/21/2024 5:56	56.3	Quiet Office	
7/21/2024 6:56	54.7	Quiet Office	
7/21/2024 7:56	56.9	Quiet Office	
7/21/2024 8:56	61.9	Conversation	
7/21/2024 9:55	61.1	Conversation	
7/21/2024 10:55	59.6	Quiet Office	
7/21/2024 11:55	61.0	Conversation	
7/21/2024 12:55	58.8	Quiet Office	
7/21/2024 14:24	58.6	Quiet Office	
Average	59.0		
Day time avr	60.4		
Night time average	56.9		



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ2 Thilafushi
Location	4°10'56.6 N, 73°26'53.3 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Few Showers mainly fine weather	Temperature:31.5°C
Start time	7/20/2024 13:58		
End time	7/21/2024 12:58		Wind 3-13 mph East/SE

Date/time	dB(A)	Remarks noise level
7/20/2024 13:58	67.1	Conversation
7/20/2024 14:58	59.6	Quiet Office
7/20/2024 15:58	57.4	Quiet Office
7/20/2024 16:57	51.9	Quiet Office
7/20/2024 17:57	53.3	Quiet Office
7/20/2024 18:57	53.2	Quiet Office
7/20/2024 19:57	51.4	Quiet Office
7/20/2024 20:57	51.5	Quiet Office
7/20/2024 21:56	50.9	Quiet Office
7/20/2024 22:56	49.7	Quiet Library
7/20/2024 23:56	48.9	Quiet Library
7/21/2024 0:56	48.8	Quiet Library
7/21/2024 1:56	41.9	Quiet Library
7/21/2024 2:55	48.0	Quiet Library
7/21/2024 3:55	41.4	Quiet Library
7/21/2024 4:55	49.7	Quiet Library
7/21/2024 5:55	48.6	Quiet Library
7/21/2024 6:59	46.5	Quiet Library
7/21/2024 7:59	53.5	Quiet Office
7/21/2024 8:59	55.0	Quiet Office
7/21/2024 9:59	58.2	Quiet Office
7/21/2024 10:59	52.8	Quiet Office
7/21/2024 11:58	54.2	Quiet Office
7/21/2024 12:58	51.9	Quiet Office

Average 51.9  
 Day time avr 54.7  
 Night time average 47.9



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ3 Thilafushi
Location	4°10'58.3 N, 73°26'09.6 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Few Showers mainly fine weather	Temperature:31.5°C
Start time	7/20/2024 13:59		Wind 3-13 mph East/SE
End time	7/21/2024 12:59		

Date/time	dBA	Remarks Noise level
7/20/2024 13:59	62.6	Conversation
7/20/2024 14:59	58.0	Quiet Office
7/20/2024 15:59	60.3	Conversation
7/20/2024 16:59	58.1	Quiet Office
7/20/2024 17:58	58.9	Quiet Office
7/20/2024 18:58	58.1	Quiet Office
7/20/2024 19:58	58.3	Quiet Office
7/20/2024 20:58	58.2	Quiet Office
7/20/2024 21:57	58.3	Quiet Office
7/20/2024 22:57	66.9	Conversation
7/20/2024 23:57	70.4	Restaurent
7/21/2024 0:57	70.3	Restaurent
7/21/2024 1:57	70.1	Restaurent
7/21/2024 2:56	70.2	Restaurent
7/21/2024 3:56	70.3	Restaurent
7/21/2024 4:56	70.2	Restaurent
7/21/2024 5:56	70.4	Restaurent
7/21/2024 6:56	70.6	Restaurent
7/21/2024 7:55	65.7	Conversation
7/21/2024 8:55	58.9	Quiet Office
7/21/2024 9:55	57.7	Quiet Office
7/21/2024 10:55	57.3	Quiet Office
7/21/2024 11:55	56.0	Quiet Office
7/21/2024 12:59	55.8	Quiet Office

Average 63.0  
 Day time avr 59.7  
 Night time average 67.5



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ4 Thilafushi
Location	4°10'57.3 N,73°25'59.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Few Showers mainly fine weather	Temperature:31.5°C
Start time	7/20/2024 14:59		Wind 3-13 mph East/SE
End time	7/21/2024 13:42		

Date/time	dBA	Remarks Noise level
7/20/2024 14:59	54.0	Quiet Office
7/20/2024 15:59	58.7	Quiet Office
7/20/2024 16:59	53.7	Quiet Office
7/20/2024 17:59	59.4	Quiet Office
7/20/2024 18:59	54.4	Quiet Office
7/20/2024 19:58	50.1	Quiet Office
7/20/2024 20:58	48.3	Quiet Library
7/20/2024 21:58	46.1	Quiet Library
7/20/2024 22:58	42.2	Quiet Library
7/20/2024 23:57	41.3	Quiet Library
7/21/2024 0:57	41.8	Quiet Library
7/21/2024 1:57	42.5	Quiet Library
7/21/2024 2:56	43.3	Quiet Library
7/21/2024 3:56	47.2	Quiet Library
7/21/2024 4:56	43.1	Quiet Library
7/21/2024 5:56	46.6	Quiet Library
7/21/2024 6:56	46.5	Quiet Library
7/21/2024 7:55	50.0	Quiet Office
7/21/2024 8:55	58.3	Quiet Office
7/21/2024 9:55	57.5	Quiet Office
7/21/2024 10:55	55.5	Quiet Office
7/21/2024 11:55	56.1	Quiet Office
7/21/2024 12:59	48.2	Quiet Library
7/21/2024 13:42	54.9	Quiet Office

Average 50.0  
 Day time avr 54.2  
 Night time average 44.1



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ5 Thilafushi
Location	4°10'57.3 N, 73°26'14.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Few Showers mainly fine weather	Temperature:31.5°C
Start time	7/20/2024 13:58		Wind 3-13 mph East/SE
End time	7/21/2024 12:59		

Date/time	dBA	Remarks Noise level
7/20/2024 13:58	54.2	Quiet Office
7/20/2024 14:58	52.4	Quiet Office
7/20/2024 15:58	51.7	Quiet Office
7/20/2024 16:57	49.8	Quiet Library
7/20/2024 17:57	52.0	Quiet Office
7/20/2024 18:57	52.8	Quiet Office
7/20/2024 19:57	50.3	Quiet Office
7/20/2024 20:57	52.7	Quiet Office
7/20/2024 21:56	50.3	Quiet Office
7/20/2024 22:56	45.6	Quiet Library
7/20/2024 23:56	47.0	Quiet Library
7/21/2024 0:56	41.2	Quiet Library
7/21/2024 1:57	44.4	Quiet Library
7/21/2024 2:56	42.3	Quiet Library
7/21/2024 3:56	43.1	Quiet Library
7/21/2024 4:56	42.1	Quiet Library
7/21/2024 5:56	42.0	Quiet Library
7/21/2024 6:56	43.2	Quiet Library
7/21/2024 7:55	56.9	Quiet Office
7/21/2024 8:55	56.6	Quiet Office
7/21/2024 9:55	51.9	Quiet Office
7/21/2024 10:55	53.2	Quiet Office
7/21/2024 11:55	51.9	Quiet Office
7/21/2024 12:59	53.7	Quiet Office
	52.04	
Average	49.2	
Day time avr	52.2	
Night time average	45.1	

Environmental monitoring Report Pre-Construction–Stage WtE Facility  
at Thilafushi

Noise Level Measurements (August 2024)

Prepared by: Mahmood Riyaz



28th August 2024

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# 1. INTRODUCTION

This is the ambient noise level monitoring report prepared as part of the pre-construction environmental monitoring of the waste to energy (WtE) facility at Thilafushi, Maldives. This report presents methodologies and results of the ambient noise level measurements conducted to fulfill the requirements of the EIA and the Project Environmental Management Plan that is being developed to meet the anticipated environment impacts, health and safety, as well as to ensure the sustainability of the Project.

# 2. NOISE LEVEL

As part of the pre-construction monitoring of Thilafushi Waste to Energy facility, ambient noise levels measurements were repeated at the same five locations used in the EIA report. Ambient noise level measurement was done using a handheld sound level meter (ET-958 Professional Sound Level Meter) Measurements are recorded in NQ1, and NQ2 NQ3, NQ4 and NQ5 from 25<sup>th</sup> August 2024 13: 00 to 26<sup>th</sup> August 2024 13:00 continuously for 24 hours. Table 1 summarizes the explanation on the selection of baseline monitoring stations given in the EIA report. Figure 1 is the map that shows the sampling locations. Graph showing the noise levels in five locations is in Figure 2

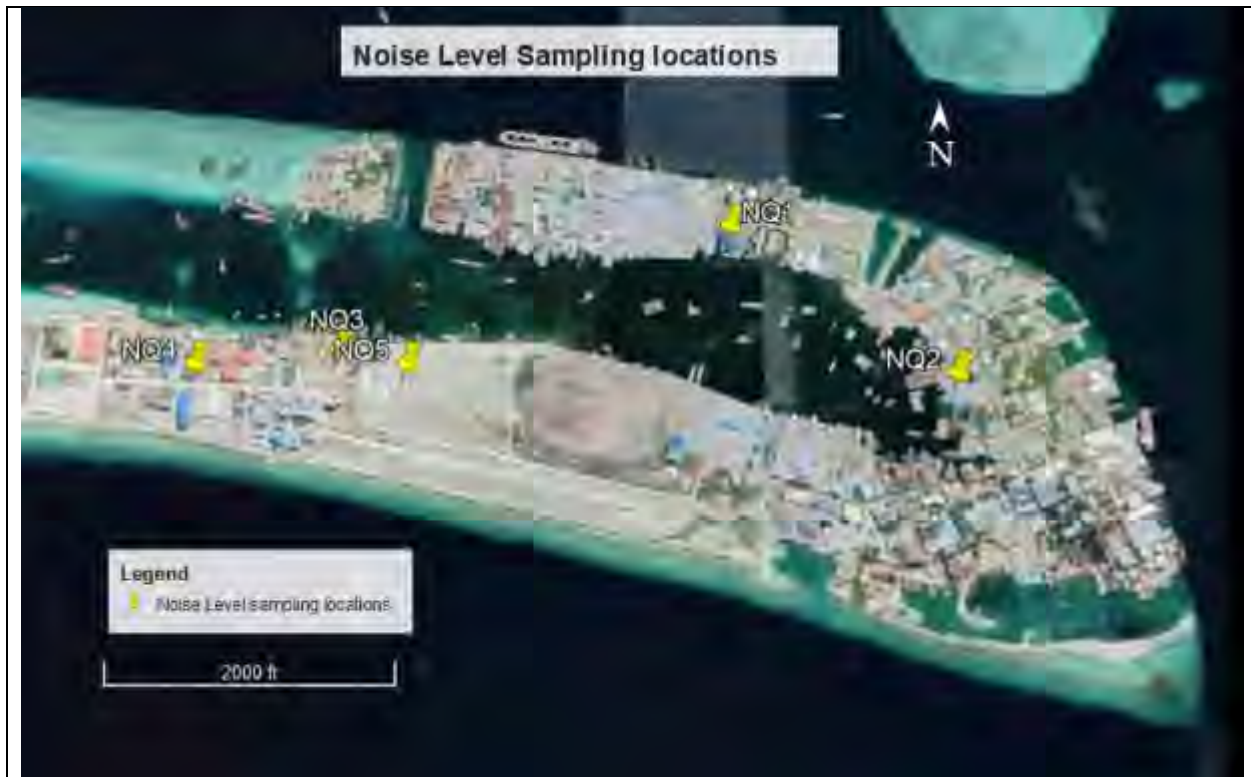
At each station hourly 7-8 readings are recorded for a duration of 30-50seconds at each location. Average of ambient noise level in dB(A) was recorded and the average noise of each location is calculated Table 2. Ambient noise levels recorded with the EIA levels presented in the EIA report is given in Table 2

**Table 1: Locations selected for Ambient Noise Level Measurements**

Station name	Geographic Coordinates	Reason for selection
NQ1	4°10'26.4 N, 73°28'59.9 E	Included in the original EIA
NQ2	4°10'56.6 N, 73°26'53.3 E	Included in the original EIA
NQ3	4°10'58.3 N, 73°26'09.6 E	Included in the original EIA
NQ4	4°10'57.3 N, 73°25'59.4 E	Included in the original EIA
NQ5	4°10'57.3 N, 73°26'14.4 E	Included in the original EIA



Figure 1: Ambient noise level sampling locations

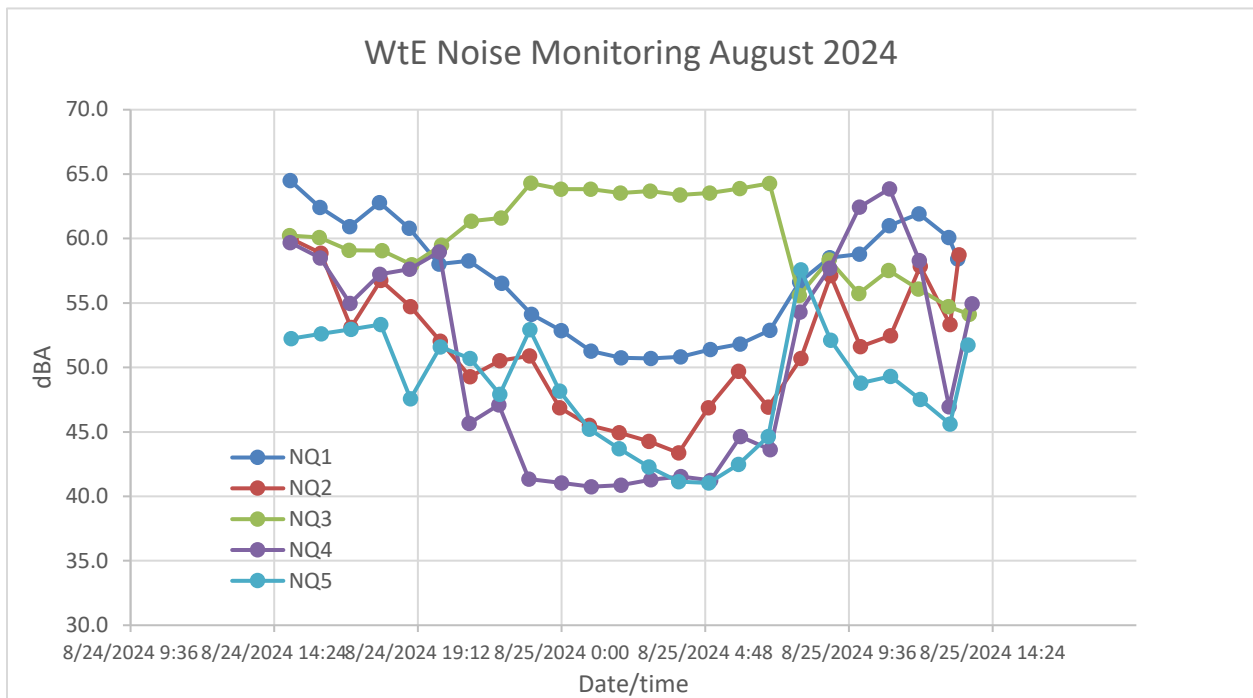


## 2.1 Results

**Table 2: Noise measurement records in (dBA), 25-26 August 2024 Thilafushi**


NQ1		NQ2		NQ3		NQ4		NQ5	
Date and time)	dB(A)	Date/time	dB(A)	Date/time	dB(A)	Date/time	dB(A)	Date/time	dB(A)
8/24/2024 14:55	64.5	8/24/2024 14:58	60.0	8/24/2024 14:54	60.2	8/24/2024 14:56	59.7	8/24/2024 14:58	52.3
8/24/2024 15:55	62.4	8/24/2024 15:57	58.9	8/24/2024 15:54	60.1	8/24/2024 15:55	58.5	8/24/2024 15:57	52.6
8/24/2024 16:55	60.9	8/24/2024 16:57	53.1	8/24/2024 16:54	59.1	8/24/2024 16:55	55.0	8/24/2024 16:57	53.0
8/24/2024 17:54	62.8	8/24/2024 17:57	56.8	8/24/2024 17:59	59.1	8/24/2024 17:55	57.2	8/24/2024 17:57	53.3
8/24/2024 18:54	60.8	8/24/2024 18:57	54.7	8/24/2024 18:59	58.0	8/24/2024 18:55	57.6	8/24/2024 18:57	47.6
8/24/2024 19:54	58.0	8/24/2024 19:56	52.1	8/24/2024 19:59	59.5	8/24/2024 19:54	59.0	8/24/2024 19:56	51.6
8/24/2024 20:54	58.3	8/24/2024 20:56	49.3	8/24/2024 20:59	61.3	8/24/2024 20:54	45.7	8/24/2024 20:56	50.7
8/24/2024 21:59	56.5	8/24/2024 21:56	50.5	8/24/2024 21:58	61.6	8/24/2024 21:54	47.1	8/24/2024 21:56	47.9
8/24/2024 22:59	54.1	8/24/2024 22:56	50.9	8/24/2024 22:58	64.3	8/24/2024 22:54	41.3	8/24/2024 22:56	52.9
8/24/2024 23:59	52.9	8/24/2024 23:55	46.9	8/24/2024 23:58	63.8	8/24/2024 23:59	41.0	8/24/2024 23:55	48.2
8/25/2024 0:59	51.3	8/25/2024 0:55	45.5	8/25/2024 0:58	63.8	8/25/2024 0:59	40.8	8/25/2024 0:55	45.2
8/25/2024 1:58	50.7	8/25/2024 1:55	45.0	8/25/2024 1:57	63.5	8/25/2024 1:59	40.9	8/25/2024 1:55	43.7
8/25/2024 2:58	50.7	8/25/2024 2:55	44.3	8/25/2024 2:57	63.7	8/25/2024 2:59	41.3	8/25/2024 2:55	42.3
8/25/2024 3:58	50.8	8/25/2024 3:54	43.4	8/25/2024 3:57	63.4	8/25/2024 3:58	41.5	8/25/2024 3:54	41.2
8/25/2024 4:58	51.4	8/25/2024 4:54	46.9	8/25/2024 4:57	63.5	8/25/2024 4:58	41.2	8/25/2024 4:54	41.0
8/25/2024 5:57	51.8	8/25/2024 5:54	49.7	8/25/2024 5:56	63.9	8/25/2024 5:58	44.6	8/25/2024 5:54	42.5
8/25/2024 6:57	52.9	8/25/2024 6:54	46.9	8/25/2024 6:56	64.3	8/25/2024 6:58	43.6	8/25/2024 6:54	44.7
8/25/2024 7:57	56.6	8/25/2024 7:59	50.7	8/25/2024 7:56	55.6	8/25/2024 7:57	54.3	8/25/2024 7:59	57.6
8/25/2024 8:57	58.5	8/25/2024 8:59	57.1	8/25/2024 8:56	58.4	8/25/2024 8:57	57.7	8/25/2024 8:59	52.1
8/25/2024 9:56	58.8	8/25/2024 9:59	51.6	8/25/2024 9:55	55.7	8/25/2024 9:57	62.5	8/25/2024 9:59	48.8
8/25/2024 10:56	61.0	8/25/2024 10:59	52.5	8/25/2024 10:55	57.5	8/25/2024 10:57	63.9	8/25/2024 10:59	49.3
8/25/2024 11:56	61.9	8/25/2024 11:58	57.8	8/25/2024 11:55	56.1	8/25/2024 11:56	58.3	8/25/2024 11:58	47.5
8/25/2024 12:56	60.1	8/25/2024 12:58	53.3	8/25/2024 12:55	54.7	8/25/2024 12:56	47.0	8/25/2024 12:58	45.6
8/25/2024 13:14	58.4	8/25/2024 13:16	58.7	8/25/2024 13:36	54.1	8/25/2024 13:42	54.9	8/25/2024 13:34	51.8
Average dB(A)	56.9		51.5		60.2		50.6		48.5
Daytime	60.2		54.8		57.8		56.5		51.0
Night time	52.3		47.0		63.6		42.3		45.0
WHO guideline for ambient noise level	<b>70</b>								

**Figure 2. Graph showing the Ambient noise level recorded**



There are no designated national standards for ambient noise level in outdoor industrial area in the Maldives. Compared to WHO and ADB specified noise level standards for outdoors industrial and commercial area the noise level in Thilafushi island and the subproject area is below the noise level standards. The results show that in all stations ambient noise level is below the threshold levels. In general, the average noise level is highest in NQ3 this is because this is the main area where work is going on currently, mainly pilling and concrete work is undergoing it is in a close proximity to the measuring station.

## Annex 1. Noise level Hourly recorded

			
<b>Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)</b>			
Client	ALAKJV WtE	Station No	NQ1 Thilafushi
Location	4°10'26.4 N, 73°28'59.9 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Fine weather is forecasted for the whole country After two weeks of bad weather	Temperature:32.0°C
Start time	8/24/2024 14:55		Wind 3-13 mph SW/W
End time	8/25/2024 13:14		
Date/time	dBa	Remarks	noise level
8/24/2024 14:55	64.5	Conversation	
8/24/2024 15:55	62.4	Conversation	
8/24/2024 16:55	60.9	Conversation	
8/24/2024 17:54	62.8	Conversation	
8/24/2024 18:54	60.8	Conversation	
8/24/2024 19:54	58.0	Quiet Office	
8/24/2024 20:54	58.3	Quiet Office	
8/24/2024 21:59	56.5	Quiet Office	
8/24/2024 22:59	54.1	Quiet Office	
8/24/2024 23:59	52.9	Quiet Office	
8/25/2024 0:59	51.3	Quiet Office	
8/25/2024 1:58	50.7	Quiet Office	
8/25/2024 2:58	50.7	Quiet Office	
8/25/2024 3:58	50.8	Quiet Office	
8/25/2024 4:58	51.4	Quiet Office	
8/25/2024 5:57	51.8	Quiet Office	
8/25/2024 6:57	52.9	Quiet Office	
8/25/2024 7:57	56.6	Quiet Office	
8/25/2024 8:57	58.5	Quiet Office	
8/25/2024 9:56	58.8	Quiet Office	
8/25/2024 10:56	61.0	Conversation	
8/25/2024 11:56	61.9	Conversation	
8/25/2024 12:56	60.1	Conversation	
8/25/2024 13:14	58.4	Quiet Office	
Average	56.9		
Day time avr	60.2		
Night time average	52.3		



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ2 Thilafushi
Location	4°10'56.6 N, 73°26'53.3 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Fine weather is forecasted for the whole country After two weeks of bad weather	Temperature:32.0°C
Start time	8/24/2024 14:58		Wind 3-13 mph SW/W
End time	8/25/2024 13:16		

Date/time	dBA	Remarks noise level
8/24/2024 14:58	60.0	Quiet Office
8/24/2024 15:57	58.9	Quiet Office
8/24/2024 16:57	53.1	Quiet Office
8/24/2024 17:57	56.8	Quiet Office
8/24/2024 18:57	54.7	Quiet Office
8/24/2024 19:56	52.1	Quiet Office
8/24/2024 20:56	49.3	Quiet Library
8/24/2024 21:56	50.5	Quiet Office
8/24/2024 22:56	50.9	Quiet Office
8/24/2024 23:55	46.9	Quiet Library
8/25/2024 0:55	45.5	Quiet Library
8/25/2024 1:55	45.0	Quiet Library
8/25/2024 2:55	44.3	Quiet Library
8/25/2024 3:54	43.4	Quiet Library
8/25/2024 4:54	46.9	Quiet Library
8/25/2024 5:54	49.7	Quiet Library
8/25/2024 6:54	46.9	Quiet Library
8/25/2024 7:59	50.7	Quiet Office
8/25/2024 8:59	57.1	Quiet Office
8/25/2024 9:59	51.6	Quiet Office
8/25/2024 10:59	52.5	Quiet Office
8/25/2024 11:58	57.8	Quiet Office
8/25/2024 12:58	53.3	Quiet Office
8/25/2024 13:16	58.7	Quiet Office

Average	51.5
Day time avr	54.8
Night time average	47.0



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ3 Thilafushi
Location	4°10'58.3 N, 73°26'09.6 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Fine weather is forecasted for the whole country After two weeks of bad weather	Temperature:32.0°C
Start time	8/24/2024 14:54		Wind 3-13 mph SW/W
End time	8/25/2024 13:36		

Date/time	dB(A)	Remarks	Noise level
8/24/2024 14:54	60.2	Conversation	
8/24/2024 15:54	60.1	Conversation	
8/24/2024 16:54	59.1	Quiet Office	
8/24/2024 17:59	59.1	Quiet Office	
8/24/2024 18:59	58.0	Quiet Office	
8/24/2024 19:59	59.5	Quiet Office	
8/24/2024 20:59	61.3	Conversation	
8/24/2024 21:58	61.6	Conversation	
8/24/2024 22:58	64.3	Conversation	
8/24/2024 23:58	63.8	Conversation	
8/25/2024 0:58	63.8	Conversation	
8/25/2024 1:57	63.5	Conversation	
8/25/2024 2:57	63.7	Conversation	
8/25/2024 3:57	63.4	Conversation	
8/25/2024 4:57	63.5	Conversation	
8/25/2024 5:56	63.9	Conversation	
8/25/2024 6:56	64.3	Conversation	
8/25/2024 7:56	55.6	Quiet Office	
8/25/2024 8:56	58.4	Quiet Office	
8/25/2024 9:55	55.7	Quiet Office	
8/25/2024 10:55	57.5	Quiet Office	
8/25/2024 11:55	56.1	Quiet Office	
8/25/2024 12:55	54.7	Quiet Office	
8/25/2024 13:36	54.1	Quiet Office	
Average	60.2		
Day time avr	57.8		
Night time average	63.6		



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ4 Thilafushi
Location	4°10'57.3 N,73°25'59.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Fine weather is forecasted for the whole country After two weeks of bad weather	Temperature:32.0°C
Start time	8/24/2024 14:56		
End time	8/25/2024 13:42		Wind 3-13 mph SW/W

Date/time	dba	Remarks	Noise level
8/24/2024 14:56	59.7	Quiet Office	
8/24/2024 15:55	58.5	Quiet Office	
8/24/2024 16:55	55.0	Quiet Office	
8/24/2024 17:55	57.2	Quiet Office	
8/24/2024 18:55	57.6	Quiet Office	
8/24/2024 19:54	59.0	Quiet Office	
8/24/2024 20:54	45.7	Quiet Library	
8/24/2024 21:54	47.1	Quiet Library	
8/24/2024 22:54	41.3	Quiet Library	
8/24/2024 23:59	41.0	Quiet Library	
8/25/2024 0:59	40.8	Quiet Library	
8/25/2024 1:59	40.9	Quiet Library	
8/25/2024 2:59	41.3	Quiet Library	
8/25/2024 3:58	41.5	Quiet Library	
8/25/2024 4:58	41.2	Quiet Library	
8/25/2024 5:58	44.6	Quiet Library	
8/25/2024 6:58	43.6	Quiet Library	
8/25/2024 7:57	54.3	Quiet Office	
8/25/2024 8:57	57.7	Quiet Office	
8/25/2024 9:57	62.5	Conversation	
8/25/2024 10:57	63.9	Conversation	
8/25/2024 11:56	58.3	Quiet Office	
8/25/2024 12:56	47.0	Quiet Library	
8/25/2024 13:42	54.9	Quiet Office	
Average	50.6		
Day time avr	56.5		
Night time average	42.3		

**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ5 Thilafushi
Location	4°10'57.3 N, 73°26'14.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Fine weather is forecasted for the whole country After two weeks of bad weather	Temperature:32.0°C
Start time	8/24/2024 14:58		Wind 3-13 mph SW/W
End time	8/25/2024 13:34		
<b>Date/time</b>	<b>dBA</b>	<b>Remarks Noise level</b>	
8/24/2024 14:58	52.3	Quiet Office	
8/24/2024 15:57	52.6	Quiet Office	
8/24/2024 16:57	53.0	Quiet Office	
8/24/2024 17:57	53.3	Quiet Office	
8/24/2024 18:57	47.6	Quiet Library	
8/24/2024 19:56	51.6	Quiet Office	
8/24/2024 20:56	50.7	Quiet Office	
8/24/2024 21:56	47.9	Quiet Library	
8/24/2024 22:56	52.9	Quiet Office	
8/24/2024 23:55	48.2	Quiet Library	
8/25/2024 0:55	45.2	Quiet Library	
8/25/2024 1:55	43.7	Quiet Library	
8/25/2024 2:55	42.3	Quiet Library	
8/25/2024 3:54	41.2	Quiet Library	
8/25/2024 4:54	41.0	Quiet Library	
8/25/2024 5:54	42.5	Quiet Library	
8/25/2024 6:54	44.7	Quiet Library	
8/25/2024 7:59	57.6	Quiet Office	
8/25/2024 8:59	52.1	Quiet Office	
8/25/2024 9:59	48.8	Quiet Library	
8/25/2024 10:59	49.3	Quiet Library	
8/25/2024 11:58	47.5	Quiet Library	
8/25/2024 12:58	45.6	Quiet Library	
8/25/2024 13:34	51.8	Quiet Office	
Average	48.5		
Day time avr	51.0		
Night time average	45.0		



Environmental monitoring Report Pre-Construction–Stage WtE Facility  
at Thilafushi

Noise Level Measurements (September 2024)

Prepared by: Mahmood Riyaz



28th September 2024

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# 1. INTRODUCTION

This is the ambient noise level monitoring report prepared as part of the pre-construction environmental monitoring of the waste to energy (WtE) facility at Thilafushi, Maldives. This report presents methodologies and results of the ambient noise level measurements conducted to fulfill the requirements of the EIA and the Project Environmental Management Plan that is being developed to meet the anticipated environment impacts, health and safety, as well as to ensure the sustainability of the Project.

# 2. NOISE LEVEL

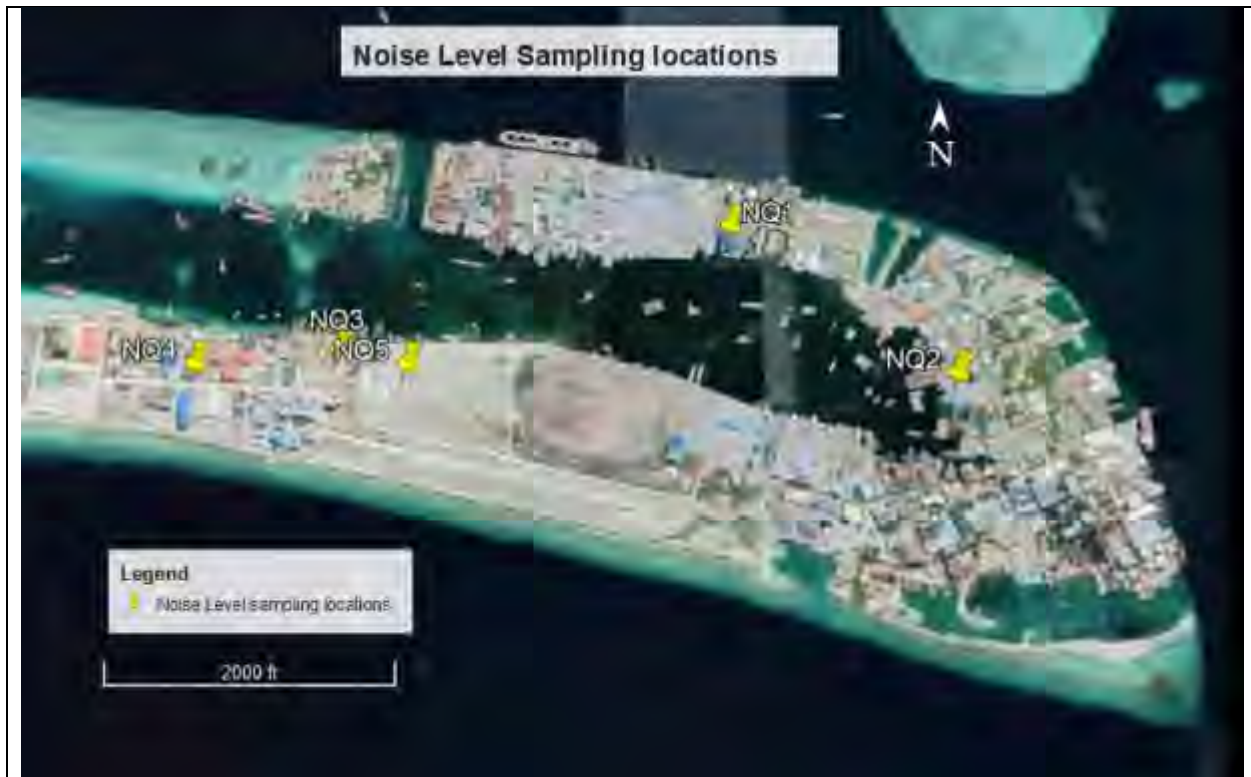
As part of the pre-construction monitoring of Thilafushi Waste to Energy facility, ambient noise levels measurements were repeated at the same five locations used in the EIA report. Ambient noise level measurement was done using a handheld sound level meter (ET-958 Professional Sound Level Meter) Measurements are recorded in NQ1, and NQ2 NQ3, NQ4 and NQ5 from 16<sup>th</sup> September 2024 13: 00 to 17<sup>th</sup> September 2024 13:00 continuously for 24 hours. Table 1 summarizes the explanation on the selection of baseline monitoring stations given in the EIA report. Figure 1 is the map that shows the sampling locations. Graph showing the noise levels in five locations is in Figure 2

At each station hourly 7-8 readings are recorded for a duration of 30-50seconds at each location. Average of ambient noise level in dB(A) was recorded and the average noise of each location is calculated Table 2. Ambient noise levels recorded with the EIA levels presented in the EIA report is given in Table 2

**Table 1: Locations selected for Ambient Noise Level Measurements**

Station name	Geographic Coordinates	Reason for selection
NQ1	4°10'26.4 N, 73°28'59.9 E	Included in the original EIA
NQ2	4°10'56.6 N, 73°26'53.3 E	Included in the original EIA
NQ3	4°10'58.3 N, 73°26'09.6 E	Included in the original EIA
NQ4	4°10'57.3 N, 73°25'59.4 E	Included in the original EIA
NQ5	4°10'57.3 N, 73°26'14.4 E	Included in the original EIA

Figure 1: Ambient noise level sampling locations

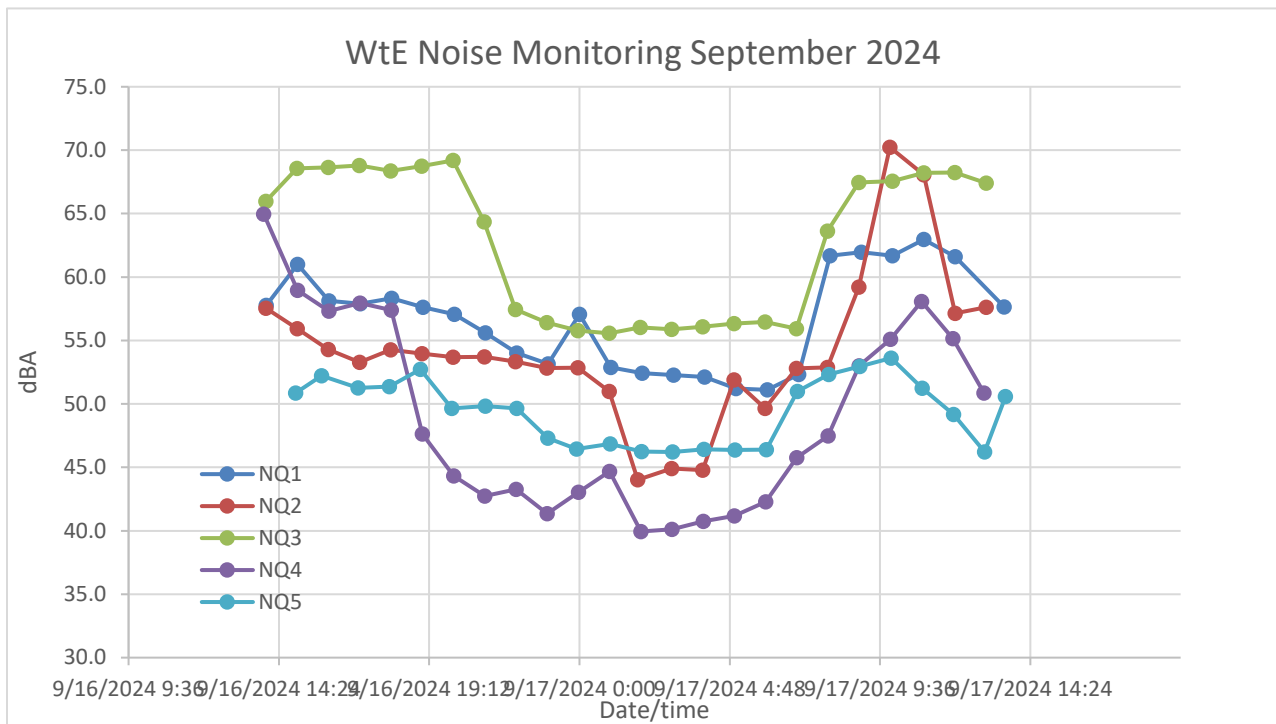


## 2.1 Results

**Table 2: Noise measurement records in (dBA), 16-17 September 2024 Thilafushi**


NQ1		NQ2		NQ3		NQ4		NQ5	
Date and time)	dB(A)	Date/time	dB(A)	Date/time	dB(A)	Date/time	dB(A)	Date/time	dB(A)
9/16/2024 13:59	57.8	9/16/2024 13:59	57.6	9/16/2024 13:59	66.0	9/16/2024 13:55	65.0	9/16/2024 14:56	50.9
9/16/2024 15:00	61.0	9/16/2024 14:58	55.9	9/16/2024 14:58	68.6	9/16/2024 14:59	59.0	9/16/2024 15:46	52.2
9/16/2024 16:00	58.1	9/16/2024 15:58	54.3	9/16/2024 15:58	68.7	9/16/2024 15:59	57.3	9/16/2024 16:55	51.3
9/16/2024 17:00	57.9	9/16/2024 16:58	53.3	9/16/2024 16:58	68.8	9/16/2024 16:59	57.9	9/16/2024 17:55	51.4
9/16/2024 18:00	58.3	9/16/2024 17:58	54.3	9/16/2024 17:58	68.4	9/16/2024 17:59	57.4	9/16/2024 18:55	52.7
9/16/2024 19:00	57.6	9/16/2024 18:58	54.0	9/16/2024 18:58	68.8	9/16/2024 18:58	47.6	9/16/2024 19:55	49.7
9/16/2024 20:00	57.1	9/16/2024 19:57	53.7	9/16/2024 19:57	69.2	9/16/2024 19:58	44.3	9/16/2024 20:59	49.8
9/16/2024 21:00	55.6	9/16/2024 20:57	53.7	9/16/2024 20:57	64.4	9/16/2024 20:58	42.7	9/16/2024 21:59	49.6
9/16/2024 22:00	54.0	9/16/2024 21:57	53.3	9/16/2024 21:57	57.5	9/16/2024 21:58	43.3	9/16/2024 22:59	47.3
9/16/2024 23:00	53.2	9/16/2024 22:57	52.8	9/16/2024 22:57	56.4	9/16/2024 22:58	41.4	9/16/2024 23:54	46.5
9/17/2024 0:00	57.1	9/16/2024 23:57	52.8	9/16/2024 23:56	55.8	9/16/2024 23:57	43.0	9/17/2024 0:59	46.8
9/17/2024 1:00	52.9	9/17/2024 0:56	51.0	9/17/2024 0:56	55.6	9/17/2024 0:57	44.7	9/17/2024 1:58	46.2
9/17/2024 2:00	52.4	9/17/2024 1:51	44.0	9/17/2024 1:56	56.0	9/17/2024 1:57	39.9	9/17/2024 2:58	46.2
9/17/2024 3:00	52.3	9/17/2024 2:56	44.9	9/17/2024 2:56	55.9	9/17/2024 2:57	40.1	9/17/2024 3:58	46.4
9/17/2024 4:00	52.1	9/17/2024 3:56	44.8	9/17/2024 3:56	56.1	9/17/2024 3:57	40.8	9/17/2024 4:58	46.4
9/17/2024 5:00	51.2	9/17/2024 4:56	51.9	9/17/2024 4:55	56.3	9/17/2024 4:56	41.2	9/17/2024 5:58	46.4
9/17/2024 6:00	51.1	9/17/2024 5:55	49.6	9/17/2024 5:55	56.5	9/17/2024 5:56	42.3	9/17/2024 6:57	51.0
9/17/2024 7:00	52.3	9/17/2024 6:55	52.8	9/17/2024 6:55	55.9	9/17/2024 6:56	45.8	9/17/2024 7:57	52.3
9/17/2024 8:00	61.7	9/17/2024 7:55	52.9	9/17/2024 7:55	63.6	9/17/2024 7:56	47.5	9/17/2024 8:57	53.0
9/17/2024 9:00	62.0	9/17/2024 8:55	59.2	9/17/2024 8:55	67.5	9/17/2024 8:56	53.0	9/17/2024 9:57	53.6
9/17/2024 10:00	61.7	9/17/2024 9:55	70.2	9/17/2024 9:59	67.6	9/17/2024 9:55	55.1	9/17/2024 10:57	51.2
9/17/2024 11:00	63.0	9/17/2024 10:59	68.1	9/17/2024 10:59	68.2	9/17/2024 10:55	58.1	9/17/2024 11:56	49.2
9/17/2024 12:00	61.6	9/17/2024 11:59	57.1	9/17/2024 11:59	68.3	9/17/2024 11:55	55.2	9/17/2024 12:56	46.2
9/17/2024 13:33	57.7	9/17/2024 12:59	57.6	9/17/2024 12:59	67.4	9/17/2024 12:55	50.9	9/17/2024 13:36	50.6
Average dB(A)	56.6		54.2		62.8		48.9		49.5
Daytime	59.1		57.2		66.9		53.9		51.0
Night time	53.2		49.9		57.0		41.9		47.3
WHO guideline for ambient noise level		<b>70</b>							

**Figure 2. Graph showing the Ambient noise level recorded**



There are no designated national standards for ambient noise level in outdoor industrial area in the Maldives. Compared to WHO and ADB specified noise level standards for outdoors industrial and commercial area the noise level in Thilafushi island and the subproject area is below the noise level standards. The results show that in all stations ambient noise level is below the threshold levels. In general, the average noise level is highest in NQ3 this is because this is the main area where work is going on currently, mainly pilling and concrete work is undergoing it is in a close proximity to the measuring station.

## Annex 1. Noise level Hourly recorded

			
<b>Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)</b>			
Client	ALAKJV WtE	Station No	NQ1 Thilafushi
Location	4°10'26.4 N, 73°28'59.9 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Scattered shower with few thuderstroms	Temperature:32.3°C
Start time	9/16/2024 13:59		Wind 5-15 mph NW/W
End time	9/17/2024 13:33		
Date/time	dBA	Remarks	noise level
9/16/2024 13:59	57.8	Quiet Office	
9/16/2024 15:00	61.0	Conversation	
9/16/2024 16:00	58.1	Quiet Office	
9/16/2024 17:00	57.9	Quiet Office	
9/16/2024 18:00	58.3	Quiet Office	
9/16/2024 19:00	57.6	Quiet Office	
9/16/2024 20:00	57.1	Quiet Office	
9/16/2024 21:00	55.6	Quiet Office	
9/16/2024 22:00	54.0	Quiet Office	
9/16/2024 23:00	53.2	Quiet Office	
9/17/2024 0:00	57.1	Quiet Office	
9/17/2024 1:00	52.9	Quiet Office	
9/17/2024 2:00	52.4	Quiet Office	
9/17/2024 3:00	52.3	Quiet Office	
9/17/2024 4:00	52.1	Quiet Office	
9/17/2024 5:00	51.2	Quiet Office	
9/17/2024 6:00	51.1	Quiet Office	
9/17/2024 7:00	52.3	Quiet Office	
9/17/2024 8:00	61.7	Conversation	
9/17/2024 9:00	62.0	Conversation	
9/17/2024 10:00	61.7	Conversation	
9/17/2024 11:00	63.0	Conversation	
9/17/2024 12:00	61.6	Conversation	
9/17/2024 13:33	57.7	Quiet Office	
Average	56.6		
Day time avr	59.1		
Night time average	53.2		



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ2 Thilafushi
Location	4°10'56.6 N, 73°26'53.3 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Scattered shower with few thuderstroms	Temperature:32.3°C
Start time	9/16/2024 13:59		Wind 5-15 mph NW/W
End time	9/17/2024 12:59		

Date/time	dBA	Remarks noise level
9/16/2024 13:59	57.6	Quiet Office
9/16/2024 14:58	55.9	Quiet Office
9/16/2024 15:58	54.3	Quiet Office
9/16/2024 16:58	53.3	Quiet Office
9/16/2024 17:58	54.3	Quiet Office
9/16/2024 18:58	54.0	Quiet Office
9/16/2024 19:57	53.7	Quiet Office
9/16/2024 20:57	53.7	Quiet Office
9/16/2024 21:57	53.3	Quiet Office
9/16/2024 22:57	52.8	Quiet Office
9/16/2024 23:57	52.8	Quiet Office
9/17/2024 0:56	51.0	Quiet Office
9/17/2024 1:51	44.0	Quiet Library
9/17/2024 2:56	44.9	Quiet Library
9/17/2024 3:56	44.8	Quiet Library
9/17/2024 4:56	51.9	Quiet Office
9/17/2024 5:55	49.6	Quiet Library
9/17/2024 6:55	52.8	Quiet Office
9/17/2024 7:55	52.9	Quiet Office
9/17/2024 8:55	59.2	Quiet Office
9/17/2024 9:55	70.2	Restaurent
9/17/2024 10:59	68.1	Conversation
9/17/2024 11:59	57.1	Quiet Office
9/17/2024 12:59	57.6	Quiet Office

Average	54.2
Day time avr	57.2
Night time average	49.9





**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ3 Thilafushi
Location	4°10'58.3 N, 73°26'09.6 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Scattered shower with few thuderstroms	Temperature:32.3°C
Start time	9/16/2024 13:59		Wind 5-15 mph NW/W
End time	9/17/2024 12:59		

Date/time	dba	Remarks	Noise level
9/16/2024 13:59	66.0	Conversation	
9/16/2024 14:58	68.6	Conversation	
9/16/2024 15:58	68.7	Conversation	
9/16/2024 16:58	68.8	Conversation	
9/16/2024 17:58	68.4	Conversation	
9/16/2024 18:58	68.8	Conversation	
9/16/2024 19:57	69.2	Conversation	
9/16/2024 20:57	64.4	Conversation	
9/16/2024 21:57	57.5	Quiet Office	
9/16/2024 22:57	56.4	Quiet Office	
9/16/2024 23:56	55.8	Quiet Office	
9/17/2024 0:56	55.6	Quiet Office	
9/17/2024 1:56	56.0	Quiet Office	
9/17/2024 2:56	55.9	Quiet Office	
9/17/2024 3:56	56.1	Quiet Office	
9/17/2024 4:55	56.3	Quiet Office	
9/17/2024 5:55	56.5	Quiet Office	
9/17/2024 6:55	55.9	Quiet Office	
9/17/2024 7:55	63.6	Conversation	
9/17/2024 8:55	67.5	Conversation	
9/17/2024 9:59	67.6	Conversation	
9/17/2024 10:59	68.2	Conversation	
9/17/2024 11:59	68.3	Conversation	
9/17/2024 12:59	67.4	Conversation	
Average	62.8		
Day time avr	66.9		
Night time average	57.0		



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ4 Thilafushi
Location	4°10'57.3 N,73°25'59.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Scattered shower with few thunderstroms	Temperature:32.3°C
Start time	9/16/2024 13:55		Wind 5-15 mph NW/W
End time	9/17/2024 12:55		

Date/time	dBA	Remarks	Noise level
9/16/2024 13:55	65.0	Conversation	
9/16/2024 14:59	59.0	Quiet Office	
9/16/2024 15:59	57.3	Quiet Office	
9/16/2024 16:59	57.9	Quiet Office	
9/16/2024 17:59	57.4	Quiet Office	
9/16/2024 18:58	47.6	Quiet Library	
9/16/2024 19:58	44.3	Quiet Library	
9/16/2024 20:58	42.7	Quiet Library	
9/16/2024 21:58	43.3	Quiet Library	
9/16/2024 22:58	41.4	Quiet Library	
9/16/2024 23:57	43.0	Quiet Library	
9/17/2024 0:57	44.7	Quiet Library	
9/17/2024 1:57	39.9	Whisper	
9/17/2024 2:57	40.1	Quiet Library	
9/17/2024 3:57	40.8	Quiet Library	
9/17/2024 4:56	41.2	Quiet Library	
9/17/2024 5:56	42.3	Quiet Library	
9/17/2024 6:56	45.8	Quiet Library	
9/17/2024 7:56	47.5	Quiet Library	
9/17/2024 8:56	53.0	Quiet Office	
9/17/2024 9:55	55.1	Quiet Office	
9/17/2024 10:55	58.1	Quiet Office	
9/17/2024 11:55	55.2	Quiet Office	
9/17/2024 12:55	50.9	Quiet Office	
Average	48.9		
Day time avr	53.9		
Night time average	41.9		



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ5 Thilafushi
Location	4°10'57.3 N, 73°26'14.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Scattered shower with few thuderstroms	Temperature:32.3°C
Start time	9/16/2024 14:56		Wind 5-15 mph NW/W
End time	9/17/2024 13:36		

Date/time	dBA	Remarks Noise level
9/16/2024 14:56	50.9	Quiet Office
9/16/2024 15:46	52.2	Quiet Office
9/16/2024 16:55	51.3	Quiet Office
9/16/2024 17:55	51.4	Quiet Office
9/16/2024 18:55	52.7	Quiet Office
9/16/2024 19:55	49.7	Quiet Library
9/16/2024 20:59	49.8	Quiet Library
9/16/2024 21:59	49.6	Quiet Library
9/16/2024 22:59	47.3	Quiet Library
9/16/2024 23:54	46.5	Quiet Library
9/17/2024 0:59	46.8	Quiet Library
9/17/2024 1:58	46.2	Quiet Library
9/17/2024 2:58	46.2	Quiet Library
9/17/2024 3:58	46.4	Quiet Library
9/17/2024 4:58	46.4	Quiet Library
9/17/2024 5:58	46.4	Quiet Library
9/17/2024 6:57	51.0	Quiet Office
9/17/2024 7:57	52.3	Quiet Office
9/17/2024 8:57	53.0	Quiet Office
9/17/2024 9:57	53.6	Quiet Office
9/17/2024 10:57	51.2	Quiet Office
9/17/2024 11:56	49.2	Quiet Library
9/17/2024 12:56	46.2	Quiet Library
9/17/2024 13:36	50.6	Quiet Office
Average	49.5	
Day time avr	51.0	
Night time average	47.3	

# 1. NOISE MONITORING ASSESSMENT REPORT

## Purpose

The noise monitoring assessment was conducted in July 2024 at the WTE construction site as part of the site's occupational health monitoring. This site features static and moving equipment, machinery and power-operated tools that operate continuously, leading to high noise exposure for employees and the nearby public.

## Noise level Monitoring at work site

The hand-held device (Flus – ET958) was utilized for noise measurement at the WTE construction site. Measurements were taken at various distances, including very close proximity, 1 meter, 2 meters, and 3 meters away meters from the noise source of power tools such as drilling machines, cutters, pumps, air compressors and heavy equipment and machinery

## Frequency

Monitoring will be carried out at least once a month on each shift day and night, each shift considered as 8hrs per day, during the shift noise level monitoring will be conducted at the boundary of the project site and workplaces within the project site.

Measurements of the noise level in construction areas of the Thilafushi Waste-to-energy facility will be conducted in the mentioned locations with at least three readings in each shift; at the source of noise generation, the readings will be recorded at intervals of 1 in set sample rates. Minimum, Maximum, and Average ambient noise levels in dB(A) will be recorded, and the average noise of each location will be calculated. Average daytime and nighttime noise levels are obtained

## Monitoring Location

The overall noise level in a particular area will be assessed, the report takes into account both the ambient noise level and any noise generated by sources in the area as below, as applicable

- Bunker Area
- Process Area
- Batching Plant
- Generator Locations
- Steel yards,
- Carpentry Workshops
- Workshop
- Warehouse
- Accommodations

## Parameters

Additionally, during the assessment, the team considered the relevant local regulations and international standards, including the IFC EHS guideline section 7 on noise assessment.

Noise sources	Day time (07:00-22:00) (dBa)	Night time (22:00-07:00) (dBa)
Industrial; Commercial	70	70

## Noise Level Monitoring Within Project as per CEMP

Noise level monitoring within the project site, the ET-958 Professional Sound Level Meter (the Type 1 meter) was utilized. Ambient noise level measurement used a handheld sound level meter (ET-958 Professional Sound Level Meter).

## Monitoring locations and Frequency

The overall noise level in a particular area within the project NQ3 and NQ5 was assessed, and the report takes into account both the ambient noise level and any noise generated by sources in the area. The locations where the ambient and source noise levels will be measured have already been determined in the EIA.

The monitoring frequency is monthly periods according to the monitoring schedule.

### Noise Monitoring Location Within Project Site

Station name	Geographic Coordinates	Sources
NQ3	4°10'58.3 N, 73°26'09.6 E	Approved CEMP, EIA
NQ5	4°10'57.3 N, 73°26'14.4 E	Approved CEMP, EIA

## Findings/ Recommendation

Sl. No	Findings	Recommendation	Corrective Action	Target Date
1	At the batching plant area generator noise was very high (Maximum 107 DB) at very close proximity	However, the generator is located 50m away from the worker's exposed area	Periodical maintenance such as oil and filter has been changed	Ongoing
2	Generator No. 3 near the process area and steel yard noise level was (Maximum 96.6) at very close proximity,	However, the generator is located 50m away from the worker's exposed area	Periodical maintenance such as oil and filter has been changed	Ongoing
3	14" Cutting Machine's average noise was 97.6db, however, the noise level was as per manufacturer standards	Advised user to be worn Ear muff SNR rated 27.06 dB	Workers used ear protection devices while using a cutting machine	Ongoing

4	Wood Cutting Machine's average noise was 88.05, however, the noise level was as per manufacturer standards	Advised user to be worn Ear muff SNR rated 27.06 dB	Workers used ear protection devices while using a cutting machine	Ongoing
5	The pile-cutting machine noise level was 112.02db	Advised user to be worn Ear muff and err plug SNR rated 27.06 dB	Workers used double ear protection devices while using a cutting machine	Ongoing

### Overall Findings

- Moving equipment's noise level was at an acceptable level as per the machine manufacturing standards
- The power tools equipment's noise level was acceptable as per the machine manufacturing recommended standards
- Within the project location noise level was acceptable (refer to the attached report)

For further reference the attached pictures and assessment reports in the report as an appendix

### Overall Recommendation

- Advised mechanic to conduct periodic maintenance including oil changes, filter replacements and general servicing and find the source of excessive noise
- Advised workers to wear hearing protection very close to excessive noise equipment area
- Close monitoring by the supervisor where the workers are working near the noise generation equipment and strictly implemented to worm hearing protection



Batching Plant Generator



Batching Plant Generator



Generator No 1



Concrete Mixer



Dewatering Pump



Moving Equipment



Cutting Machine



Cutting Machine



**NOISE ASSESSMENT**

Month of Assessment: - JULY-2024

SN.	Equipment Name	Location	Noise level DB (Distance)				Average	Operating Hours / Days	Remarks
			Very close	1mtr	2mtr	3mtr			
1.	(VILLA) Diesel Generator <sup>(01)</sup>	Batching plant	111.4	106.6	102.2	97.8	104.5	08H/01D	50m away from plant
2.	Cooling tower	Batching plant	86.9	81.9	79.0	77.4	81.225	08H/01D	
3.	chiller plant	Batching plant	85.0	82.1	78.9	75.3	80.325	08H/01D	
4.	Diesel Generator <sup>01</sup>	Batching plant	104.8	92.8	89.3	86.4	93.325	12H/01D	
5.	Gamma No-03.	Batching plant	103.9	96.3	92.4	90.4	95.75	03H/01D	
6.	water discharge pump <sup>04</sup>	Bunkers area	95.9	91.3	87.5	84.5	89.8	23H/01D/A	
7.	JCB (Bull)	process area	102.1	97.9	93.5	90.3	95.95	10H/01D	
8.	Diesel Generator <sup>03.</sup>	process area	101.0	97.2	92.6	86.3	94.272	12H/01D	50m away from the site
9.	14" cutting machine.	Steel yard.	103.4	98.3	96.0	92.7	97.6	06H/01D	He is using ear muffs
10.	BOMT Mobile crane	Steel yard	91.1	85.4	83.3	81.3	85.275	08H/01D	SRR 27.6

Assessment By	Reviewed By
Name: <u>Shankh Singh</u>	Name: <u>Shamathanam (HSM)</u>
Signature with date: <u>[Signature]</u> 13/07/2024	Signature with date: <u>[Signature]</u> 13/07/2024

**NOISE ASSESSMENT**

Month of Assessment: - JULY - 2024

SN.	Equipment Name	Location	Noise level DB (Distance)				Average	Operating Hours / Days	Remarks
			Very close	1mtr	2mtr	3mtr			
1.	Machine wood cutting	Steel yard	91.2	87.9	86.6	86.4	88.025	06H/01D	using earmuff. CMK-04 EN 352-01 (SNR: 27.5DB)
2.	Machine wood cutting	Steel yard	92.8	91.9	89.3	85.6	89.9	06H/01D	using earmuff. CMK-04 EN 352-01 (SNR: 27.5DB)
3.	pile cutting machine (Bunker)		119.5	113.5	109.9	105.5	112.2	05H/01D	using double protection earplug & earmuff. CMK-04 EN 352
4.	Trans mixer miller	Batching plant	93.4	90.2	86.2	82.2	88.00	08H/01D	
5.	V-Loader	Batching plant	99.6	94.3	89.5	87.5	92.625	08H/01D	
6.	FURD Road Roller	Bunker area	102.7	97.2	93.2	89.7	95.7	04H/01D	
7.									
8.									
9.									
10.									

Assessment By	Reviewed By
Name: <u>Shakti Singh</u>	Name: <u>Shamsher Singh (HSE)</u>
Signature with date: <u>[Signature]</u> 14/07/2024	Signature with date: <u>[Signature]</u>

NOISE ASSESSMENT

Month of Assessment: JULY-2024

SN.	Equipment Name	Location	Noise level DB (Distance)				Average	Operating Hours / Days	Remarks
			Very close	1mtr	2mtr	3mtr			
1.	HI-UP Crane	Bunker area	91.0	85.2	84.4	82.1	85.65	08H/02D	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

Assessment By	Reviewed By
Name: <u>Shanti Singh</u>	Name: <u>Dhanrajaram (HSE)</u>
Signature with date: <u>[Signature]</u> 13/07/2024	Signature with date: <u>[Signature]</u> 13/07/2024



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ3 Thilafushi
Location	4°10'58.3 N, 73°26'09.6 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Few Showers mainly fine weather	Temperature:31.5°C
Start time	7/20/2024 13:59		Wind 3-13 mph East/SE
End time	7/21/2024 12:59		

Date/time	dBA	Remarks Noise level
7/20/2024 13:59	62.6	Conversation
7/20/2024 14:59	58.0	Quiet Office
7/20/2024 15:59	60.3	Conversation
7/20/2024 16:59	58.1	Quiet Office
7/20/2024 17:58	58.9	Quiet Office
7/20/2024 18:58	58.1	Quiet Office
7/20/2024 19:58	58.3	Quiet Office
7/20/2024 20:58	58.2	Quiet Office
7/20/2024 21:57	58.3	Quiet Office
7/20/2024 22:57	66.9	Conversation
7/20/2024 23:57	70.4	Restaurent
7/21/2024 0:57	70.3	Restaurent
7/21/2024 1:57	70.1	Restaurent
7/21/2024 2:56	70.2	Restaurent
7/21/2024 3:56	70.3	Restaurent
7/21/2024 4:56	70.2	Restaurent
7/21/2024 5:56	70.4	Restaurent
7/21/2024 6:56	70.6	Restaurent
7/21/2024 7:55	65.7	Conversation
7/21/2024 8:55	58.9	Quiet Office
7/21/2024 9:55	57.7	Quiet Office
7/21/2024 10:55	57.3	Quiet Office
7/21/2024 11:55	56.0	Quiet Office
7/21/2024 12:59	55.8	Quiet Office

Average 63.0  
 Day time avr 59.7  
 Night time average 67.5



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ5 Thilafushi
Location	4°10'57.3 N, 73°26'14.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Few Showers mainly fine weather	Temperature:31.5°C
Start time	7/20/2024 13:58		Wind 3-13 mph East/SE
End time	7/21/2024 12:59		

Date/time	dBA	Remarks Noise level
7/20/2024 13:58	54.2	Quiet Office
7/20/2024 14:58	52.4	Quiet Office
7/20/2024 15:58	51.7	Quiet Office
7/20/2024 16:57	49.8	Quiet Library
7/20/2024 17:57	52.0	Quiet Office
7/20/2024 18:57	52.8	Quiet Office
7/20/2024 19:57	50.3	Quiet Office
7/20/2024 20:57	52.7	Quiet Office
7/20/2024 21:56	50.3	Quiet Office
7/20/2024 22:56	45.6	Quiet Library
7/20/2024 23:56	47.0	Quiet Library
7/21/2024 0:56	41.2	Quiet Library
7/21/2024 1:57	44.4	Quiet Library
7/21/2024 2:56	42.3	Quiet Library
7/21/2024 3:56	43.1	Quiet Library
7/21/2024 4:56	42.1	Quiet Library
7/21/2024 5:56	42.0	Quiet Library
7/21/2024 6:56	43.2	Quiet Library
7/21/2024 7:55	56.9	Quiet Office
7/21/2024 8:55	56.6	Quiet Office
7/21/2024 9:55	51.9	Quiet Office
7/21/2024 10:55	53.2	Quiet Office
7/21/2024 11:55	51.9	Quiet Office
7/21/2024 12:59	53.7	Quiet Office
	52.04	
Average	49.2	
Day time avr	52.2	
Night time average	45.1	

# 1. NOISE MONITORING ASSESSMENT REPORT

## Purpose

The noise monitoring assessment was conducted in August 2024 at the WTE construction site as part of the site's occupational health monitoring. This site features static and moving equipment, machinery and power-operated tools that operate continuously, leading to high noise exposure for employees and the nearby public.

## Noise level Monitoring at work site

The hand-held device (Flus – ET958) was utilized for noise measurement at the WTE construction site. Measurements were taken at various distances, including very close proximity, 1 meter, 2 meters, and 3 meters away from the noise source of power tools such as drilling machines, cutters, pumps, air compressors and heavy equipment and machinery.

## Frequency

Monitoring will be carried out at least once a month on each shift day and night, each shift considered as 8hrs per day, during the shift noise level monitoring will be conducted at the boundary of the project site and workplaces within the project site.

Measurements of the noise level in construction areas of the Thilafushi Waste-to-energy facility will be conducted in the mentioned locations with at least three readings in each shift; at the source of noise generation, the readings will be recorded at intervals of 1 in set sample rates. Minimum, Maximum, and Average ambient noise levels in dB(A) will be recorded, and the average noise of each location will be calculated. Average daytime and nighttime noise levels are obtained.

## Monitoring Location

The overall noise level in a particular area will be assessed, the report takes into account both the ambient noise level and any noise generated by sources in the area as below, as applicable

- Bunker Area
- Process Area
- Batching Plant
- Generator Locations
- Steel yards,
- Carpentry Workshops
- Workshop
- Warehouse
- Accommodations

**Parameters**

Additionally, during the assessment, the team considered the relevant local regulations and international standards, including the IFC EHS guideline section 7 on noise assessment.

Noise sources	Day time (07:00-22:00) (dBa)	Night time (22:00-07:00) (dBa)
Industrial; Commercial	70	70

**Noise Level Monitoring Within Project as per CEMP**

Noise level monitoring within the project site, the ET-958 Professional Sound Level Meter (the Type 1 meter) was utilized. Ambient noise level measurement used a handheld sound level meter (ET-958 Professional Sound Level Meter).

**Monitoring locations and Frequency**

The overall noise level in a particular area within the project NQ3 and NQ5 was assessed, and the report takes into account both the ambient noise level and any noise generated by sources in the area. The locations where the ambient and source noise levels will be measured have already been determined in the EIA.

The monitoring frequency is monthly periods according to the monitoring schedule.

*Noise Monitoring Location Within Project Site*

Station name	Geographic Coordinates	Sources
NQ3	4°10'58.3 N, 73°26'09.6 E	Approved CEMP, EIA
NQ5	4°10'57.3 N, 73°26'14.4 E	Approved CEMP, EIA

**Findings/ Recommendation**

Sl. No	Findings	Recommendation	Corrective Action	Target Date
1	At the batching plant area generator noise was very high (Maximum 107 DB) at very close proximity	However, the generator is located 50m away from the worker's exposed area	Periodical maintenance such as oil and filter has been changed	Ongoing
2	Generator No. 3 near the process area and steel yard noise level was (Maximum 96.6) at very close proximity,	However, the generator is located 50m away from the worker's exposed area	Periodical maintenance such as oil and filter has been changed	Ongoing
3	14" Cutting Machine's average noise was 97.6db, however, the noise level was as per manufacturer standards	Advised user to be worn Ear muff SNR rated 27.06 dB	Workers used ear protection devices while using a cutting machine	Ongoing

**Overall Findings**

- Moving equipment's noise level was at an acceptable level as per the machine manufacturing standards
- The power tools equipment's noise level was acceptable as per the machine manufacturing recommended standards
- Within the project location noise level was acceptable (refer to the attached report)

For further reference the attached pictures and assessment reports in the report as an appendix

**Overall Recommendation**

- Advised mechanic to conduct periodic maintenance including oil changes, filter replacements and general servicing and find the source of excessive noise
- Advised workers to wear hearing protection very close to excessive noise equipment area
- Close monitoring by the supervisor where the workers are working near the noise generation equipment and strictly implemented to wear hearing protection





Batching Plant Generator



Batching Plant Generator



Generator No 1



Fork Lift



Dewatering Pump



Moving Equipment



Cutting Machine



Concrete Mixer

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- AUGUST-2024

Date:- 17-08-2024 to 22-08-2024

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
01	forklift	Laboratory area	92.1	92.8	93.1	91.8	90.1	92.3	-	
02	Carmia - 03	Bunker area	104.6	103	104.6	103.6	104.1	103.9		
03	Diesel Generator	Batching plant	99.7	99.7	99.1	98.3	98.9	100.1		
04	Diesel Generator (Vila)	Batching plant	105.2	104.1	105.2	103.9	105.3	104.1		
05	Sony V-Loader	Batching plant	99.2	98.2	99.3	97.8	96.9	99.9		
06	Discharge water pump	Bunker area	91.3	91.8	92.3	91.6	93.1	91.9		
07	TATA Concrete pump	Bunker area	87.0	88.6	86.7	89.1	87.6	86.9		
08	water discharge pump	process area	95.0	96.6	97.3	95.6	94.9	94.1		
09	mobile crane-50ton	process area	87.0	86.1	87.2	87.3	88.04	87.1		
10	Hyup crane	process area	90.0	90.3	91.4	92.3	89.9	91.0		

Assessment By:- Name:- Shakti Singh Signature With Date:- <i>[Signature]</i> 10/8/24	Reviewed By:- Name:- SUJITH S Signature With Date:- <i>[Signature]</i>
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DAILY NOISE ASSESSMENT CHECKLIST

Month of Assesment:- AUGUST-2024

Date:- 01-08-2024

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noice level DB	Noice level DB	Noice level DB	Noice level DB	Noice level DB	Noice level DB	Noice level DB	
01	Diesel Generator <sup>01</sup>	Bathing plant	-	-	-	-	-	84.2	-	From S
02	Water discharge pump <sup>02</sup>	Bunkar area	-	-	-	-	-	83.9	-	
03	well point water pump	process area	-	-	-	-	-	41.3	-	
04	Steel cutting machine	Steel yard	-	-	-	-	-	87.4	-	
05	Diesel Generator <sup>03</sup>	process area	-	-	-	-	-	84.8	-	
06	mobile crane <sup>02</sup>	process area	-	-	-	-	-	70.7	-	
07	water discharge pump	bunkar area	-	-	-	-	-	80.5	-	
08	JCB "bulls"	Bunkar area	-	-	-	-	-	89.3	-	
09										
10										

Assessment By:- <i>Shamir Singh</i>	Reviewed By:- <i>Subash</i>
Name:-	Name:-
Signature With Date:-	Signature With Date:-

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- August-2024

Date:- 24-08-2024 to 30/08/24

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
01	Work light	ware house	91.2	92.3	89.01	91.06	90.5	91.1	-	
02	Corona-03	Bunker area	104.5	103.6	102.4	104.02	105.6	103.9	-	
03	Diesel Generator	Batching plant	99.1	98.3	97.9	99.2	96.9	97.1	-	
04	Diesel Generator	Batching plant villa	106.9	105.2	103.3	104.1	106.6	105.2	-	
05	Sanyo v-loader	Batching plant	99.1	98.3	98.2	99.9	97.5	95.9	-	
06	Discharge water pump	Bunker area	90.3	91.5	92.6	89.3	91.9	92.0	-	
07	Tata Concrete pump	process area	85.3	86.4	89.1	88.0	84.4	86.3	-	
08	Water Discharge pump	process area	95.1	96.2	94.5	97.1	95.9	96.6	-	
09	Mobile crane	process area	89.3	86.2	85.9	89.1	86.3	88.1	-	
10	Hyup crane	Bunker area	89.1	88.3	90.1	91.9	88.2	89.1	-	

Assessment By:- Name:- Shakti Singh Signature With Date:- 24/08/24	Reviewed By:- Name:- Signature With Date:-
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**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**



**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ3 Thilafushi
Location	4°10'58.3 N, 73°26'09.6 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Fine weather is forecasted for the whole country After two weeks of bad weather	Temperature:32.0°C
Start time	8/24/2024 14:54		Wind 3-13 mph SW/W
End time	8/25/2024 13:36		

Date/time	dB(A)	Remarks	Noise level
8/24/2024 14:54	60.2	Conversation	
8/24/2024 15:54	60.1	Conversation	
8/24/2024 16:54	59.1	Quiet Office	
8/24/2024 17:59	59.1	Quiet Office	
8/24/2024 18:59	58.0	Quiet Office	
8/24/2024 19:59	59.5	Quiet Office	
8/24/2024 20:59	61.3	Conversation	
8/24/2024 21:58	61.6	Conversation	
8/24/2024 22:58	64.3	Conversation	
8/24/2024 23:58	63.8	Conversation	
8/25/2024 0:58	63.8	Conversation	
8/25/2024 1:57	63.5	Conversation	
8/25/2024 2:57	63.7	Conversation	
8/25/2024 3:57	63.4	Conversation	
8/25/2024 4:57	63.5	Conversation	
8/25/2024 5:56	63.9	Conversation	
8/25/2024 6:56	64.3	Conversation	
8/25/2024 7:56	55.6	Quiet Office	
8/25/2024 8:56	58.4	Quiet Office	
8/25/2024 9:55	55.7	Quiet Office	
8/25/2024 10:55	57.5	Quiet Office	
8/25/2024 11:55	56.1	Quiet Office	
8/25/2024 12:55	54.7	Quiet Office	
8/25/2024 13:36	54.1	Quiet Office	
Average	60.2		
Day time avr	57.8		
Night time average	63.6		

**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ5 Thilafushi
Location	4°10'57.3 N, 73°26'14.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Fine weather is forecasted for the whole country After two weeks of bad weather	Temperature:32.0°C
Start time	8/24/2024 14:58		
End time	8/25/2024 13:34		Wind 3-13 mph SW/W

Date/time	dBA	Remarks Noise level
8/24/2024 14:58	52.3	Quiet Office
8/24/2024 15:57	52.6	Quiet Office
8/24/2024 16:57	53.0	Quiet Office
8/24/2024 17:57	53.3	Quiet Office
8/24/2024 18:57	47.6	Quiet Library
8/24/2024 19:56	51.6	Quiet Office
8/24/2024 20:56	50.7	Quiet Office
8/24/2024 21:56	47.9	Quiet Library
8/24/2024 22:56	52.9	Quiet Office
8/24/2024 23:55	48.2	Quiet Library
8/25/2024 0:55	45.2	Quiet Library
8/25/2024 1:55	43.7	Quiet Library
8/25/2024 2:55	42.3	Quiet Library
8/25/2024 3:54	41.2	Quiet Library
8/25/2024 4:54	41.0	Quiet Library
8/25/2024 5:54	42.5	Quiet Library
8/25/2024 6:54	44.7	Quiet Library
8/25/2024 7:59	57.6	Quiet Office
8/25/2024 8:59	52.1	Quiet Office
8/25/2024 9:59	48.8	Quiet Library
8/25/2024 10:59	49.3	Quiet Library
8/25/2024 11:58	47.5	Quiet Library
8/25/2024 12:58	45.6	Quiet Library
8/25/2024 13:34	51.8	Quiet Office
Average	48.5	
Day time avr	51.0	
Night time average	45.0	

# 1. NOISE MONITORING ASSESSMENT REPORT

## Purpose

The noise monitoring assessment was conducted in September 2024 at the WTE construction site as part of the site's occupational health monitoring. This site features static and moving equipment, machinery and power-operated tools that operate continuously, leading to high noise exposure for employees and the nearby public.

## Noise level Monitoring at work site

The hand-held device (Flus – ET958) was utilized for noise measurement at the WTE construction site. Measurements were taken at various distances, including very close proximity, 1 meter, 2 meters, and 3 meters away meters from the noise source of power tools such as drilling machines, cutters, pumps, air compressors and heavy equipment and machinery

## Frequency

Monitoring will be carried out at least once a month on each shift day and night, each shift considered as 8hrs per day, during the shift noise level monitoring will be conducted at the boundary of the project site and workplaces within the project site.

Measurements of the noise level in construction areas of the Thilafushi Waste-to-energy facility will be conducted in the mentioned locations with at least three readings in each shift; at the source of noise generation, the readings will be recorded at intervals of 1 in set sample rates. Minimum, Maximum, and Average ambient noise levels in dB(A) will be recorded, and the average noise of each location will be calculated. Average daytime and nighttime noise levels are obtained

## Monitoring Location

The overall noise level in a particular area will be assessed, the report takes into account both the ambient noise level and any noise generated by sources in the area as below, as applicable

- Bunker Area
- Process Area
- Batching Plant
- Generator Locations
- Steel yards,
- Carpentry Workshops
- Workshop
- Warehouse
- Accommodations



## Parameters

Additionally, during the assessment, the team considered the relevant local regulations and international standards, including the IFC EHS guideline section 7 on noise assessment.

Noise sources	Day time (07:00-22:00) (dBa)	Night time (22:00-07:00) (dBa)
Industrial; Commercial	70	70

## Noise Level Monitoring Within Project as per CEMP

Noise level monitoring within the project site, the ET-958 Professional Sound Level Meter (the Type 1 meter) was utilized. Ambient noise level measurement used a handheld sound level meter (ET-958 Professional Sound Level Meter).

## Monitoring locations and Frequency

The overall noise level in a particular area within the project NQ3 and NQ5 was assessed, and the report takes into account both the ambient noise level and any noise generated by sources in the area. The locations where the ambient and source noise levels will be measured have already been determined in the EIA.

The monitoring frequency is monthly periods according to the monitoring schedule.

### Noise Monitoring Location Within Project Site

Station name	Geographic Coordinates	Sources
NQ3	4°10'58.3 N, 73°26'09.6 E	Approved CEMP, EIA
NQ5	4°10'57.3 N, 73°26'14.4 E	Approved CEMP, EIA

## Findings/ Recommendation

Sl. No	Findings	Recommendation	Corrective Action	Target Date
1	At the batching plant area generator noise was very high (Maximum 105 DB) at very close proximity	However, the generator is located 50m away from the worker's exposed area	Periodical maintenance such as oil and filter has been changed	Ongoing
2	Generator No. 2 near Bunker Area noise level was (Maximum 100.2) at very close proximity,	However, the generator is located 50m away from the worker's exposed area	Periodical maintenance such as oil and filter has been changed	Ongoing
3	14" Cutting Machine's average noise was 95.4db, however, the noise level was as per manufacturer standards	Advised user to be worn Ear muff SNR rated 27.06 dB	Workers used double ear protection devices while using a cutting machine	Ongoing

**Overall Findings**

- Moving equipment's noise level was at an acceptable level as per the machine manufacturing standards
- The power tools equipment's noise level was acceptable as per the machine manufacturing recommended standards
- Within the project location noise level was acceptable (refer to the attached report)

For further reference the attached pictures and assessment reports in the report as an appendix

**Overall Recommendation**

- Advised mechanic to conduct periodic maintenance including oil changes, filter replacements and general servicing and find the source of excessive noise
- Advised workers to wear double hearing protection very close to excessive noise equipment area
- Close monitoring by the supervisor where the workers are working near the noise generation equipment and strictly implemented to wear hearing protection



BATCHING PLANT GENERATOR



BATCHING PLANT GENERATOR



DEWATERING PUMP



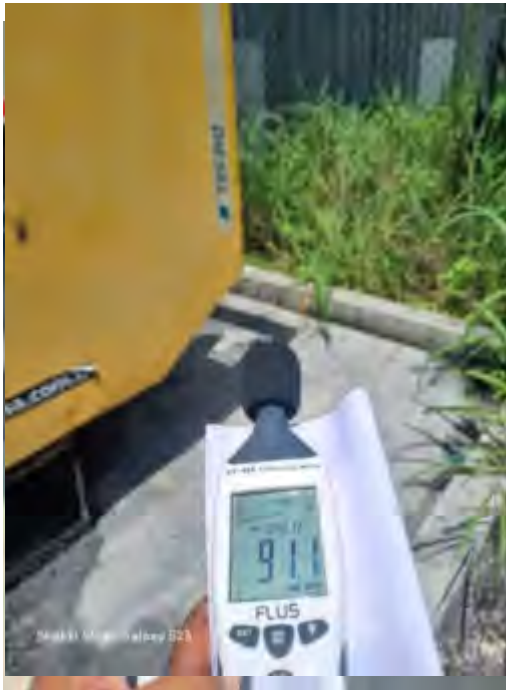
JCB



CRANE



CARMIXER



Diesel Generator no 1



Diesel Generator no 1

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- September - 2024

Date:- 21/09/2024 to 27/09/24

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
01	Diesel Generator <sup>01</sup>	Batching plant	93.1	95.3	92.3	94.1	96.3	94.4	—	
02	Diesel generator <sup>03</sup>	process area	92.9	91.0	91.3	92.7	92.4	90.9	—	
03	Saw cutting machine	Steel yard	96.3	94.9	95.5	98.6	94.2	96.3	—	
04	Fork lift	Steel yard	92.6	91.3	95.2	93.4	94.1	95.2	—	
05	JCB (Bull)	Bunker area	101.5	103.3	104.1	102.5	103.9	101.1	—	
06	50ton Crane	Bunker area	91.5	93.3	92.1	93.4	94.6	91.9	—	
07	Discharge water pump	— " —	91.1	93.5	90.6	90.2	91.4	93.3	—	
08	Hyup crane	— " —	83.5	85.3	86.3	87.4	86.3	89.1	—	
09	Conmix -03	— " —	103.1	101.9	104.6	104.3	103.2	105.1	—	
10	80 ton Crane	Batching plant	85.9	86.3	83.9	86.1	85.6	87.5	—	

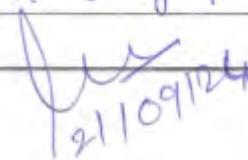
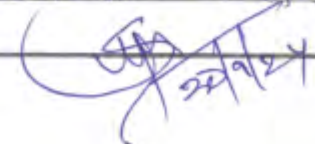
Assessment By:- Name:- Shafiq Syah	Reviewed By:- Name:- SUZITHI (SUSILAKARAN)
Signature With Date:- 21/09/24	Signature With Date:- 21/9/24

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assesment:- September - 2024

Date:- 21/09/24 to 27/09/24

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
11	Diesel generator <sup>(02)</sup>	Bunker area	101.3	101.1	99.9	100.2	101.3	100.9	-	
12	Diesel generator <sup>(04)</sup>	Bunker area	98.9	96.3	97.2	99.5	98.1	96.9	-	
13	Chiller plant	Batching plant	81.9	80.1	82.3	81.7	82.4	83.1	-	
14	v-loader	- 11 -	92.3	91.1	90.9	91.3	90.3	89.2	-	
15	Diesel Generator	- 11 -	104.8	103.4	105.2	105.1	105.3	104.3	-	
16		/								
17										
18										
19										
20										

Assessment By:- Name:- Shakti Singh	Reviewed By:- Name:- SUDHANU SUDHANAN
Signature With Date:-  21/09/24	Signature With Date:-  22/9/24

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- September - 2024

Date:- 28/09/2024 To - 30/09/24

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
01	Diesel Generator 01	Batching plant	92.9	91.1	93.2	[ ]				
02	Diesel Generator 03	process area	91.3	90.6	91.1					
03	Sand cutting machine	Steel yard	95.4	95.5	96.4					
04	fork lift	warehouse	93.2	93.3	91.3					
05	5CB Bull.	Bunker area	102.1	101.1	100.6					
06	50 ton Crane	- 11 -	90.4	91.0	90.2					
07	Discharge water pump	- 11 -	90.6	90.4	89.1					
08	Hyup crane	steel yard	82.2	81.3	82.4					
09	Curmia - 03	Bunker area	102.3	101.4	103.3					
10	80 ton Crane	- 11 -	85.8	84.1	85.3					

Assessment By:- Name:- Shauki Singh	Reviewed By:- Name:- SUDITH SUDHAKARAN
Signature With Date:- 28/09/2024	Signature With Date:- 28/09/24

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- September - 2024

Date:- 28/09/2024 To- 30/09/2024

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
11	Diesel Generator <sup>(02)</sup>	Bunker area	102.6	101.1	103.3	[ ]				
12	Diesel Generator <sup>(04)</sup>	— 11 —	99.3	96.4	98.2					
13	Chiller plant	Batching plant	82.4	81.3	83.4					
14	V-Loader	— 11 —	91.1	90.1	92.1					
15	Diesel Generator	— 11 —	103.9	101.0	100.3					
16	Ford Road Roller	Bunker area	98.3	97.2	99.1					
17										
18										
19										
20										

Assessment By:- Name:- <u>Shivani Singh</u>	Reviewed By:- Name:- <u>SUJITHA SUDHAKARAN</u>
Signature With Date:- <u>[Signature]</u> 11/09/24	Signature With Date:- <u>[Signature]</u> 30/9/24

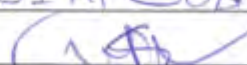


DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- September-2024

Date:- 14/09/2024 to 20/09/2024

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
01	Diesel Generator <sup>Village</sup>	Batching plant	105.1	103.2	104.4	101.9	106.3	105.4	—	
02	vr loader	Batching plant	91.1	92.3	89.9	91.6	90.3	92.2	—	
03	Chiller plant	Batching plant	81.7	82.3	80.9	83.1	81.0	82.3	—	
04	Diesel Generator (04)	Bunker area	99.5	98.9	100.1	98.0	99.8	97.6	—	
05	Diesel Generator (02)	Bunker area	100.2	101.3	99.9	98.6	101.1	100.3	—	
06	80Ton Mobile crane	Bunker area	86.1	85.4	84.9	87.1	86.2	84.3	—	
07	Commin - 03	process area	104.2	104.1	102.0	101.9	105.1	103.6	—	
08	Discharge <sup>Pump</sup> water	Bunker area	90.1	89.1	91.3	90.9	92.6	87.9	—	
09	50Ton mobile crane	process area	93.4	93.9	93.2	91.6	92.6	94.3	—	
10	Hyup crane	Steel yard.	86.3	87.4	85.3	86.9	85.6	84.9	—	

Assessment By:- Name:- Shauki Syaf	Reviewed By:- Name:- GUSTAF SUHARMAN
Signature With Date:- 14/09/24	Signature With Date:- 

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- September - 2024

Date:- 14/09/2024 to 20/09/24

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
11	JCB (Bull)	Steel yard	101.3	102.6	101.1	103.3	104.9	105.1	—	
12	Fork lift	Steel yard	93.4	94.6	95.3	93.1	91.8	92.9	—	
13	Saw cutting machine	Steel yard	98.6	96.3	97.4	98.3	95.9	96.2	—	
14	Diesel Generator <sup>(03)</sup>	process area	92.7	91.4	93.3	94.1	92.0	91.9	—	
15	Diesel Generator <sup>(01)</sup>	batching plant	94.4	93.3	94.4	95.3	92.5	91.1	—	
16										
17										
18										
19										
20										

Assessment By:- Name:- Shaker Singh	Reviewed By:- Name:- SUDHAN (SUDHAN)
Signature With Date:- 14/09/24	Signature With Date:-

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assesment:- *September, 2024*

Date:- *07/09/2024 to 13/09/2024*

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
01	Steel Cutting machine	Steelyard.	65.3	66.4	64.6	64.6	65.3	66.2		
02	Diesel Generator 02	process area	87.5	86.6	88.3	87.5	89.9	87.03		
03	JCB ("Bull")	Bunker area	105.1	104.5	103.3	106.7	106.0	105.3		
04	Loomlion soton	Bunker area	83.5	84.3	83.9	82.7	83.3	84.2		
05	Discharge water pit	Bunker area	84.3	86.2	86.1	85.9	82.3	86.1		
06	Diesel Generator 04	Bunker area	96.1	94.3	95.1	97.1	96.9	96.3		
07	Diesel Generator 03	Bunker area	90.9	93.2	91.3	90.4	90.9	91.9		
08	Diesel Generator <sup>(Mica)</sup> 05	Batching plant	96.4	98.3	99.2	97.2	97.2	98.3		
09	W Loader	Batching plant	95.4	96.3	94.8	95.8	94.5	96.5		
10	TATA concrete pump	Batching plant	85.3	86.4	87.2	86.7	86.6	87.6		

Assessment By:- <i>Shashi Singh</i>	Reviewed By:- <i>SUDJITH SUDHAKARAN</i>
Name:- <i>Shashi Singh</i>	Name:- <i>SUDJITH SUDHAKARAN</i>
Signature With Date:- <i>[Signature] 07/09/2024</i>	Signature With Date:- <i>[Signature]</i>

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assesment:- September, 2024

Date:- 07/09/2024 to 13/09/24

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
11	Hy up Crane	Steel yards	86.9	85.9	87.4	87.6	88.3	87.9		

Assessment By:- Name:- <i>Shashi Singh</i>	Reviewed By:- Name:- <i>SUDHAKARAN</i>
Signature With Date:- <i>[Signature]</i> 07/09/2024	Signature With Date:- <i>[Signature]</i>

DAILY NOISE ASSESSMENT CHECKLIST

Month of Assessment:- September 2024

Date:- 01/09/24 to 06/09/2024

Days:-			Sat	Sun	Mon	Tue	Wed	Thu	Fri	Remarks
SN	Equipment Name	Location	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	Noise level DB	
01	Steel cutting machine	Steel yard	-	64.6	65.1	66.2	64	63	-	
02	Diesel generator 03	process area	-	87.5	86.6	88.3	87.6	85.3		
03	JCB "Bull"	Bunker area	-	106.1	105.9	106.3	105.6	103.9		
04	Air Blower	Bunker area	-	-	-	-	90.1	90.2		
05	Lotion 80ton Crane	Bunker area	-	82.8	85.7	86.9	87.3	83.8		
06	Discharge water pump	Bunker area	-	85.9	84.3	83.6	82.3	86.4		
07	Diesel generator 04	Bunker area	-	97.1	96.1	98.2	97.3	96.6		
08	Diesel generator 03	Bunker area	-	90.3	91.4	92.5	91.4	90.5		
09	Diesel generator (Vib)	Batching plant	-	97.2	98.4	96.7	98.5	99.1		
10	V-Loader	Batching plant	-	94.6	95.3	93.9	95.2	95.4		

Assessment By:- Shaleet Singh

Name:-

Signature With Date:-

*[Signature]*  
01/09/2024  
Enr. officer

Reviewed By:-

Name:-

Signature With Date:-

*[Signature]*  
SUDHAKAR

**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No.	NQ3 Thilafushi
Location	4°10'58.3 N, 73°26'09.6 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Scattered shower with few thuderstroms	Temperature:32.3°C
Start time	9/16/2024 13:59		Wind 5-15 mph NW/W
End time	9/17/2024 12:59		

Date/time	dBa	Remarks Noise level
9/16/2024 13:59	66.0	Conversation
9/16/2024 14:58	68.6	Conversation
9/16/2024 15:58	68.7	Conversation
9/16/2024 16:58	68.8	Conversation
9/16/2024 17:58	68.4	Conversation
9/16/2024 18:58	68.8	Conversation
9/16/2024 19:57	69.2	Conversation
9/16/2024 20:57	64.4	Conversation
9/16/2024 21:57	57.5	Quiet Office
9/16/2024 22:57	56.4	Quiet Office
9/16/2024 23:56	55.8	Quiet Office
9/17/2024 0:56	55.6	Quiet Office
9/17/2024 1:56	56.0	Quiet Office
9/17/2024 2:56	55.9	Quiet Office
9/17/2024 3:56	56.1	Quiet Office
9/17/2024 4:55	56.3	Quiet Office
9/17/2024 5:55	56.5	Quiet Office
9/17/2024 6:55	55.9	Quiet Office
9/17/2024 7:55	63.6	Conversation
9/17/2024 8:55	67.5	Conversation
9/17/2024 9:59	67.6	Conversation
9/17/2024 10:59	68.2	Conversation
9/17/2024 11:59	68.3	Conversation
9/17/2024 12:59	67.4	Conversation
Average	62.8	
Day time avr	66.9	
Night time average	57.0	

**Thilafushi WtE Project Environmental Monitoring (Ambient Noise level)**

Client	ALAKJV WtE	Station No	NQ5 Thilafushi
Location	4°10'57.3 N, 73°26'14.4 E	Consultant	Mahmood Riyaz
Technician	Hussain Fazeel	Scattered shower with few thuderstroms	Temperature:32.3°C
Start time	9/16/2024 14:56		
End time	9/17/2024 13:36		Wind 5-15 mph NW/W

Date/time	dB(A)	Remarks Noise level
9/16/2024 14:56	50.9	Quiet Office
9/16/2024 15:46	52.2	Quiet Office
9/16/2024 16:55	51.3	Quiet Office
9/16/2024 17:55	51.4	Quiet Office
9/16/2024 18:55	52.7	Quiet Office
9/16/2024 19:55	49.7	Quiet Library
9/16/2024 20:59	49.8	Quiet Library
9/16/2024 21:59	49.6	Quiet Library
9/16/2024 22:59	47.3	Quiet Library
9/16/2024 23:54	46.5	Quiet Library
9/17/2024 0:59	46.8	Quiet Library
9/17/2024 1:58	46.2	Quiet Library
9/17/2024 2:58	46.2	Quiet Library
9/17/2024 3:58	46.4	Quiet Library
9/17/2024 4:58	46.4	Quiet Library
9/17/2024 5:58	46.4	Quiet Library
9/17/2024 6:57	51.0	Quiet Office
9/17/2024 7:57	52.3	Quiet Office
9/17/2024 8:57	53.0	Quiet Office
9/17/2024 9:57	53.6	Quiet Office
9/17/2024 10:57	51.2	Quiet Office
9/17/2024 11:56	49.2	Quiet Library
9/17/2024 12:56	46.2	Quiet Library
9/17/2024 13:36	50.6	Quiet Office
<b>Average</b>	<b>49.5</b>	
<b>Day time avr</b>	<b>51.0</b>	
<b>Night time average</b>	<b>47.3</b>	

**Illumination Level**



## 2. LIGHT ILLUMINATION SURVEY REPORT

### Purpose

The light illumination assessment was conducted on 14<sup>th</sup> July 2024 at the WTE construction site as part of the site's occupational health monitoring and to comply with the night work procedure.

The illumination assessment aimed to ensure that proper illumination has been implemented at the WTE worksite, pedestrian access, warehouse, yards and worker accommodations as per the recommended local and international regulations and guidelines such as the IFC EHS Guideline

### Methodology

The hand-held device (KLEIK TOOLS) was utilized for light illumination assessment at the WTE construction site.

The measurements were taken at various locations across the construction site including work areas, pedestrian access, warehouse, yards and worker accommodation. The assessment was conducted during the nighttime to capture different lighting condition

The measurement captured in the lux parameter (lux)1x

### Compliance and Recommended Illumination

The table below shows the recommended average and minimum illumination at a typical location as per the IFC EHS Guideline

Location / Activity	Light Intensity
Emergency light	10 lux
Outdoor non working areas	20 lux
Simple orientation and temporary visits (machine storage, garage, warehouse)	50 lux
Workspace with occasional visual tasks only (corridors, stairways, lobby, elevator, auditorium, etc.)	100 lux
Medium precision work (simple assembly, rough machine works, welding, packing, etc.)	200 lux
Precision work (reading, moderately difficult assembly, sorting, checking, medium bench and machine works, etc.), offices.	500 lux
High precision work (difficult assembly, sewing, color inspection, fine sorting etc.)	1,000 – 3,000 lux

## Monitoring Location

The overall light assessment illumination level in a particular area will be assessed, the report takes into account both the Day time assessment such as natural lighting and shadow and the night-time assessment such as Artificial lighting uniformity and Glare in the area as below as applicable

- Bunker Area
- Process Area
- Steel yards,
- Carpentry Workshops
- Workshop
- Warehouse
- Accommodations
- Offices

## Findings/ Recommendation

Sl.NO	Findings	Recommendation	Corrective Action	Target Date
1	The walkway to the site bunker area illumination was very low	Suggested the installation of supplementary lighting in areas with adequate illumination as per the assessment report	Additional lights have been ordered in place	15.08.2024
2	The walkway for accommodation area illumination was very low	Advised Electrician to adjust lighting fixtures where proposed changes to the placement, and angle intensity of lighting fixtures to improve visibility and safety as per the assessment report	Additional solar power lights have been placed in the accommodation area	Completed
3	Near first aid, illumination was very low	Advised Electrician to be placed additional lighting	Additional lights have been ordered in place	15.08.2024
4	Overall work site area illumination was satisfied	Same to maintained	No Action required	N/A

For further reference the attached pictures and assessment reports in the report as an appendix

Pictures and Reports



Bunker Area



Office Area



Batching Plant Area



Steel and Carpentry Yard



Walkway to Site Area



Warehouse Area



Accommodation Area



Accommodation Area

ILLUMINATION ASSESSMENT

Date of Assessment: 14 July 2024

SN.	Location	Area	Illumination Level (FC/LUX)	Remarks
1.	Main office	front side	44.2 Lux	
2.	Camp Area	New Labour Areas	18.9 Lux	
3.	"	forman Area	22.9 Lux	
4.	"	first Aid room	0.0 Lux	illumination is too low
5.	WTE site	walkway to bunker	0.0 Lux	need to fix lighting pole
6.	"	bunker Area	196.5 Lux	
7.	WTE site	"	22.6 Lux	
8.	WTE site	Process Area	120.9 Lux	
9.	WTE site	"	67.7 Lux	
10.	WTE site	Generator No. 1	26.2 Lux	



Assessment By	Reviewed By
Name: <u>Amrit Kumar (HSE/AG)</u>	Name: <u>Shamshad (HSE/M)</u>
Signature with date: <u>[Signature] 14/07/2024</u>	Signature with date: <u>[Signature] 15/07/2024</u>

ILLUMINATION ASSESSMENT

Date of Assessment: 14 July 2024

SN.	Location	Area	Illumination Level (FC/LUX)	Remarks
1.	WTE Site	Sedimentation Pool	108.6 Lux	
2.	"	"	29.6 Lux	
3.	WTE Site	Steel Yard.	221.7 Lux	
4.	"	"	246.6 Lux	
5.	WTE Site	Batching Plant	130.7 Lux	
6.	"	"	52.2 Lux	
7.				
8.				
9.				
10.				



Assessment By	Reviewed By
Name: <u>Amit Kumar</u>	Name: <u>Shamshad (CHSM)</u>
Signature with date: <u>[Signature] 14/07/2024</u>	Signature with date: <u>[Signature] 14/07/2024</u>

## 2. LIGHT ILLUMINATION SURVEY REPORT

### Purpose

The light illumination assessment was conducted in 08<sup>th</sup> August 2024 at the WTE construction site as part of the site's occupational health monitoring and to comply with the night work procedure.

The illumination assessment aimed to ensure that proper illumination has been implemented at the WTE worksite, pedestrian access, warehouse, yards and worker accommodations as per the recommended local and international regulations and guidelines such as the IFC EHS Guideline

### Methodology

The hand-held device (KLEIK TOOLS) was utilized for light illumination assessment at the WTE construction site.

The measurements were taken at various locations across the construction site including work areas, pedestrian access, warehouse, yards and worker accommodation. The assessment was conducted during the nighttime to capture different lighting condition

The measurement captured in the lux parameter (lux)1x

### Compliance and Recommended Illumination

The table below shows the recommended average and minimum illumination at a typical location as per the IFC EHS Guideline

Location / Activity	Light Intensity
Emergency light	10 lux
Outdoor non working areas	20 lux
Simple orientation and temporary visits (machine storage, garage, warehouse)	50 lux
Workspace with occasional visual tasks only (corridors, stairways, lobby, elevator, auditorium, etc.)	100 lux
Medium precision work (simple assembly, rough machine works, welding, packing, etc.)	200 lux
Precision work (reading, moderately difficult assembly, sorting, checking, medium bench and machine works, etc.), offices.	500 lux
High precision work (difficult assembly, sewing, color inspection, fine sorting etc.)	1,000 – 3,000 lux

## Monitoring Location

The overall light assessment illumination level in a particular area will be assessed, the report takes into account both the Day time assessment such as natural lighting and shadow and the night-time assessment such as Artificial lighting uniformity and Glare in the area as below as applicable

- Bunker Area
- Process Area
- Steel yards,
- Carpentry Workshops
- Workshop
- Warehouse
- Accommodations
- Offices

## Findings/ Recommendation

SI.NO	Findings	Recommendation	Corrective Action	Target Date
1	The walkway to the site bunker area illumination was very low	Suggested the installation of supplementary lighting in areas with adequate illumination as per the assessment report	Tower Lights installed during the extended working hours	Ongoing
2	The walkway for accommodation area illumination was very low	Advised Electrician to adjust lighting fixtures where proposed changes to the placement, and angle intensity of lighting fixtures to improve visibility and safety as per the assessment report	Additional solar power lights have been placed in the accommodation area	Completed
3	Near first aid, illumination was very low	Advised Electrician to be placed additional lighting	Additional lights have been ordered in place	15.08.2024 Lights not yet received.
4	Overall work site area illumination is ok.	Same to maintained	No Action required	N/A

For further reference the attached pictures and assessment reports in the report as an appendix



Pictures and Reports



Bunker Area



Office Area



Batching Plant Area



Steel and Carpentry Yard



Walkway to Site Area



APC Area



Accommodation Area



Dewatering Pond Area

ILLUMINATION ASSESSMENT

Date of Assessment: 08/08/2024

SN.	Location	Area	Illumination level (FC/LUX)	Remarks
1.	WTE Site	Steel Yard	94.3 Lux	
2.	WTE Site	"	54.3 Lux	
3.	WTE Site	Process Area	85.1 Lux	
4.	WTE Site	"	121.5 Lux	
5.	Batching Plant	near office	41.1 Lux	
6.	Batching Plant	working Area	48.4 Lux	
7.	WTE Site	Bunker Area	53.2 Lux	
8.	WTE Site	Bunker Area	38.2 Lux	
9.	WTE Site	Office to Site <sup>wellway</sup>	0.0 Lux	Need to Improvement with new lights
10.	Main office	Assemble Area	18.7 Lux	



Assessment By Name: <u>Amrit Kumar</u>	Reviewed By Name: <u>SUTIRI S</u>
Signature with date: <u>[Signature] 08/08/2024</u>	Signature with date: <u>[Signature]</u>

**ILLUMINATION ASSESSMENT**

Date of Assessment : 08/08/2024

SN.	Location	Area	Illumination level (FC/LUX)	Remarks
1.	Accommodation Area	new labour Accommodation	21.5 Lux	
2.	"	formen's room	12.8 Lux	
3.	"	first Aid room	12.0 Lux	need to fix lighting Pole
4.	WTL Site	Selemmodation Pool	87.9 Lux	
5.				
6.				
7.				
8.				
9.				
10.				



Assessment By	Reviewed By
Name: <u>Amir Sumar</u>	Name: <u>SUTJIT S</u>
Signature with date: <u>[Signature] 08/08/2024</u>	Signature with date: <u>[Signature]</u>

## 2. LIGHT ILLUMINATION SURVEY REPORT

### Purpose

The light illumination assessment was conducted in 23<sup>rd</sup> September 2024 at the WTE construction site as part of the site's occupational health monitoring and to comply with the night work procedure.

The illumination assessment aimed to ensure that proper illumination has been implemented at the WTE worksite, pedestrian access, warehouse, yards and worker accommodations as per the recommended local and international regulations and guidelines such as the IFC EHS Guideline

### Methodology

The hand-held device (KLEIK TOOLS) was utilized for light illumination assessment at the WTE construction site.

The measurements were taken at various locations across the construction site including work areas, pedestrian access, warehouse, yards and worker accommodation. The assessment was conducted during the nighttime to capture different lighting condition

The measurement captured in the lux parameter (lux)1x

### Compliance and Recommended Illumination

The table below shows the recommended average and minimum illumination at a typical locations as per the IFC EHS Guideline

Location / Activity	Light Intensity
Emergency light	10 lux
Outdoor non working areas	20 lux
Simple orientation and temporary visits (machine storage, garage, warehouse)	50 lux
Workspace with occasional visual tasks only (corridors, stairways, lobby, elevator, auditorium, etc.)	100 lux
Medium precision work (simple assembly, rough machine works, welding, packing, etc.)	200 lux
Precision work (reading, moderately difficult assembly, sorting, checking, medium bench and machine works, etc.), offices.	500 lux
High precision work (difficult assembly, sewing, color inspection, fine sorting etc.)	1,000 – 3,000 lux

## Monitoring Location

The overall light assessment illumination level in a particular area will be assessed, the report takes into account both the Day time assessment such as natural lighting and shadow and the night-time assessment such as Artificial lighting uniformity and Glare in the area as below as applicable

- Bunker Area
- Process Area
- Steel yards,
- Carpentry Workshops
- Workshop
- Warehouse
- Accommodations
- Offices

## Findings/ Recommendation

SI.NO	Findings	Recommendation	Corrective Action	Target Date
1	The walkway to the site bunker area illumination was very low	Suggested the installation of supplementary lighting in areas with adequate illumination as per the assessment report	Tower Lights installed during the extended working hours	Ongoing
2	The security gate 02 illumination was very low	Advised Electrician to adjust lighting fixtures where proposed changes to the placement, and angle intensity of lighting fixtures to improve visibility and safety as per the assessment report	Additional solar power lights have been placed in the accommodation area	Ongoing
3	Warehouse Area, illumination was very low	Advised Electrician to be placed additional lighting	Additional lights have been ordered in place	Ongoing Lights not yet received.
4	Overall work site area illumination is ok.	Same to maintained	No Action required	N/A

For further reference the attached pictures and assessment reports in the report as an appendix



Bunker Area



Process Area



Bunker Area



Security Gate no 3



Steel Yard Area



Office Area



Accommodation Area



Walkway to site



ILLUMINATION ASSESSMENT

Date of Assessment: 23/09/2024

SN.	Location	Area	Illumination Level (FC/LUX) ✓	Reference level	Remarks
1.	Security Gate <sup>02</sup>	front Side	69.2		
2.	Security Gate <sup>2</sup>	Road area	0.0		Suggested for lighting
3.	Process area.	Center side	24.6		
4.	Steel yard.	Cutting area	138.3.		
5.	Security Gate <sup>3</sup>	front Side	357.8		
6.	Bunker area	Road area	7.0		
7.	ware house	Road area	0.0		Suggested for lighting
8.	Accommodation <sup>01</sup>	front Side.	1.4		
9.	Accommodation <sup>03</sup>	Road Side	3.6		
10.	Accommodation <sup>02</sup>	front Side	3.3.		



Assessment By Name: <u>Shakti Singh</u>	Reviewed By Name: <u>SUJITH (SUDHAKARAN)</u>
Signature with date: <u>[Signature]</u> <u>23/09/2024</u>	Signature with date: <u>[Signature]</u> <u>24/9/24</u>

**ILLUMINATION ASSESSMENT**

Date of Assessment: 23/09/2024

SN.	Location	Area	Illumination Level (FC/LUX)	Reference level	Remarks
1.	Central office	front side	46.4		
2.	Bunker area	North side	85.1		
3.	Bunker area	South side	2.2		
4.	Bunker area	East side	7.5		
5.	Bunker area	West side	106.8		
6.	Laboratory area	Road side	129.0		
7.	Batching plant	Road side	73.6		
8.	Batching plant	Cement silos <sup>area</sup>	45.0		
9.	Batching plant	Cooling tower area	30.5		
10.	Batching plant	material storage <sup>area</sup>	40.6		



Assessment By	Reviewed By
Name: <u>Shakti Singh</u>	Name: <u>Sujitha (Sudhakaran)</u>
Signature with date: <u>[Signature]</u> <u>23/09/2024</u>	Signature with date: <u>[Signature]</u>

**ILLUMINATION ASSESSMENT**

Date of Assessment: 23/09/2024

SN.	Location	Area	Illumination Level (FC/LUX)	Reference level	Remarks
1.	First Aid Center	Front Side	0.2		Suggested for lighting
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					



Assessment By	Reviewed By
Name: <u>Shakti Singh</u>	Name: <u>Sudhakar</u>
Signature with date: <u>[Signature]</u> <u>23/09/2024</u>	Signature with date: <u>[Signature]</u>

## **Appendix 4: Other Site Photos (from Contractor)**

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## 6 TRAINING

Spill Response & Containment & Emergency Eye Wash & Shower usage training was given  
MDV-AAK-HSEXX-XX-PL-MGT- 0010



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## 7 PICTURES OF SAPMLING FOR ENVIRONMENTAL MONITORING

### 7.1 NOISE MONITORING IN JULY 2024



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**7.2 WATER FOR CONSTRUCTION AND WASTEWATER TREATMENT**



**Drinking Water Sampling**



**STP Effluent Sampling**



**Dewatering Effluent Sampling  
Supply Water for Camp And**



**Construction Sampling**

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## 8. Inspections

### 8.1 SPILL KIT INSPECTIONS



### 8.2 CHEMICAL STORE INSPECTION



## 9 CONDITION OF DISPOSAL AREA





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## TRAINING

WASTE MANAGEMENT AND SEGREGATION as per MDV-AAK-HSEXX-XX-PL-MGT-0009, Spill Control & Containment Plan as per MDV-AAK-HSEXX-XX-PL-MGT-0010 and Water Prevention & Management

Training subjects are:

- Classification of Waste
- Importance of Proper disposal
- Effects of Chemicals and Hazardous Materials to the Environment.
- Chemical Handling
- PPE Requirements While Working with Chemicals.
- Spill Management
- Water prevention



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## 1 PICTURES OF SAPMLING FOR ENVIRONMENTAL MONITORING

### 7.1 AMBIENT AIR MONITORING IN AUG 2024



### 7.2 NOISE MONITORING IN AUG 2024



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**7.3 WATER SAMPLING PHOTOS**



**Drinking Water Sampling**



**STP Effluent Sampling**



**Ground Water Sampling**



**Supply Water for Camp And  
Construction Sampling**

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**Groundwater Sampling**



**Marine Water Sampling**

**7.4 WASTE DISPOSAL AREA**



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## TRAINING

Waste Management and Segregation as per MDV-AAK-HSEXX-XX-PL-MGT-0009, Spill Control & Containment Plan as per MDV-AAK-HSEXX-XX-PL-MGT-0010 and Chemical & Management Plan as per MDV-AAK-HSEXX-XX-PL-MGT-0012

Training subjects are:

- Classification of Waste
- Importance of Proper disposal
- Effects of Chemicals and Hazardous Materials to the Environment.
- Chemical Handling
- PPE Requirements While Working with Chemicals.
- Spill Management
- Water prevention



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## 6 PICTURES OF SAPMLING FOR ENVIRONMENTAL MONITORING

### 6.1 NOISE MONITORING IN SEP 2024



### 6.2 WATER SAMPLING PHOTOS



**Drinking Water Sampling**



**STP Effluent Sampling**

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**Supply Water for Camp and  
Construction Sampling**



**Dewatering Water Sampling**

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## 7 INTERNAL WEEKLY INSPECTIONS

### 7.1 CHEMICAL STORE INSPECTION



### NEW CHEMICAL STORE





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### 7.2 SPILL KIT INSPECTION



### 7.3 EYE WASH & SHOWER



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## 8. WASTE DISPOSAL AREA

