

Your (**Half Yearly Compliance Report**) has been **Submitted** with following details

Proposal No	SIA/MH/INFRA2/556803/2025
Compliance ID	1221495462
Compliance Number(For Tracking)	EC/COMPLIANCE/1221495462/2026
Reporting Year	2026
Reporting Period	01 Jun(01 Oct - 31 Mar)
Submission Date	30-05-2026
RO/SRO Name	Shri Senthil Kumar Sampath
RO/SRO Email	agmu156@ifs.nic.in
State	MAHARASHTRA
RO/SRO Office Address	Integrated Regional Offices, Nagpur

Note:- SMS and E-Mail has been sent to Shri Senthil Kumar Sampath, MAHARASHTRA with Notification to Project Proponent.

Ref: NMIAL/MOEF/GEN/01420

Date: 30 May 2026

To,
Regional Office (WCZ),
Integrated Regional Office (IRO)
Ministry of Environment, Forest & Climate Change (MoEFCC)
Ground Floor, East Wing, New Secretariat Building,
Civil Lines, Nagpur-440001
Email - apccfcentral-ngp-mef@gov.in

Subject: – Submission of Compliance Report (February 2026 - March 2026) for conditions stipulated in the Environment and CRZ Clearance granted to Navi Mumbai International Airport (NMIA)

Reference: Environment and CRZ Clearance granted to NMIA for Enhancement of Airport Capacity of Navi Mumbai International Airport, vide EC Identification No. EC25C2902MH5775862N and File No. SIA/MH/INFRA2/556803/2025 dated, February 12th, 2026.

Respected Sir/Madam,

With reference to the above subject, it is hereby submitted that the State Environment Impact Assessment Authority (SEIAA), Maharashtra, has accorded Environmental and CRZ Clearance for the Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel Taluka, District Raigad, Maharashtra, vide EC Identification No. EC25C2902MH5775862N and File No. SIA/MH/INFRA2/556803/2025 dated, February 12th, 2026.

As per the General Condition B Operation Phase- Sr. No. XIII of the aforesaid Environment and CRZ Clearance, the Project Proponent is required to submit the status of compliance of the stipulated EC conditions.

Accordingly, we are submitting herewith the Half-Yearly Compliance Report for the period from 12th February 2026 to 31st March 2026 for your kind perusal and records please.

Thank you
Yours faithfully,
For **Navi Mumbai International Airport Pvt. Ltd.**



Ravindra Kumar Thakur
Head – Environment & Sustainability

Encl.: Clause wise EC Compliance Report for the period of February 2026 to March 2026 with Annexures.

- Copy to 1) The Member Secretary, State Level Environment Impact Assessment Authority, Room No. 217, 2nd Floor, Mantralaya, Mumbai – 400 032.
- 2) The Vice Chairman & Managing Director, City & Industrial Development Corporation of Maharashtra Ltd. (CIDCO), CIDCO Bhavan, CBD Belapur, Navi Mumbai- 400614 for information and necessary action.
- 3) The Zonal Officer, Central Pollution Control Board, Survey no. 110, Heerbai Dhankude hall, Baner Road, Pune 411045.
- 4) The Member Secretary, Maharashtra Coastal Zone Management Authority, Environment & Climate Change Department, 15th Floor, New Administration Building, Mantralaya, Mumbai – 400 032.
- 5) Regional Officer, Raigad, Maharashtra Pollution Control Board, Raigad Bhavan 6th Floor, Sector-11, C. B. D. Belapur, Navi Mumbai.
- 6) Monitoring Cell, MoEF&CC, Indira Paryavaran Bhavan, Jor Bagh Road, New Delhi – 3.

**Half Yearly Compliance Report of
Environmental & CRZ Clearance for
Enhancement of Airport Capacity of Navi
Mumbai International Airport (NMIA)**

S17-C New Project Office, Near Ulwe Gaothan Bus
Stop, Amara Marg, Ulwe, Panvel,
Taluka, Raigad, District, Maharashtra

Submitted To:

Integrated Regional Office (IRO),
Ministry of Environment, Forest & Climate Change (MoEF&CC),
Nagpur

Central Pollution Control Board,
Zonal Office, Pune

Maharashtra Pollution Control Board,
Regional office -Raigad

Maharashtra Coastal Zone Management Authority
(MCZMA), Mumbai

Submitted By:

Navi Mumbai International Airport Pvt. Ltd. (NMIAL)
for

Compliance Period from 12th February 2026 to 31st
March 2026

EC COMPLIANCE REPORT
(Compliance Period – 12th February 2026 to 31st March 2026)

Introduction

Environment and CRZ Clearance for Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) has been granted by State Level Environment Impact Assessment Authority (SEIAA), Maharashtra Vide File No. SIA/MH/INFRA2/556803/2025 dated 12th February 2026.

	EC & CRZ Conditions-2026	Compliance Status
	Specific Condition	
1	NMIA during construction shall not disturb the coastal ecology comprising mangroves / mudflats present along the Panvel creek, present outside the northern boundary of the project site.	Complied. During the construction stage, all activities are confined within the approved NMIA project boundary of 1160 ha. No areas outside the project premises have been disturbed. A 60-m-wide North Road constructed by CIDCO along the northern boundary acts as an effective buffer between NMIA and Panvel Creek, including mangroves and mudflats.
2	NMIA should carry out detailed study on the impact of fishing and livelihood of people depending on local fishing folks supposed to be affected by the project directly or indirectly.	Agreed to Comply: Construction activities are confined within the NMIA boundary with no in-water or waterfront works; therefore, there is no direct or indirect impact on fishing activities in surrounding water bodies. A detailed EIA study was conducted for the enhancement of NMIA's airport capacity from 60 to 90 MPPA. This EIA report includes the Impact assessment study and based on this report the Environmental and CRZ Clearance was granted by SEIAA to NMIA on 07 February 2026.
3	The Environmental and CRZ Clearance to the project is primarily under provision of EIA Notification, 2006 and CRZ Notification, 2011. The Project Proponent is under obligation to obtain approvals/clearances under	Being Complied: The project is being implemented in compliance with the EIA Notification, 2006 and CRZ Notification, 2011/ 2019. All applicable statutory approvals and

	EC & CRZ Conditions-2026	Compliance Status
	any other Acts/ Regulations or Statutes as applicable to the project.	clearances required under relevant Acts and Rules are being obtained.
4	PP shall explore the use of non-ozone depleting substances in air conditioning systems.	Being Complied: Non-ozone-depleting refrigerants have been specified for chillers and DX units in the air-conditioning systems to prevent depletion of the ozone layer.
5	Hazardous identification and risk assessment for the project shall be carried out and adequate mitigation measures shall be adopted to ensure that all the safety issues addressed. The documentation shall be reviewed periodically and shall be submitted to the Regional Office MoEFCC, Govt of India along with six-monthly compliance report.	Being Complied. Hazard Identification and Risk Assessment (HIRA) has been carried out and is periodically reviewed. Safety measures are implemented through contractors under the supervision of NMIAL's HSE team. The HIRA document is enclosed Annexure -1 .
6	Green belt development shall be undertaken along the boundaries, away from the landing funnel as proposed. The landscape planning should include plantation of native species.	Being Complied. Green belt development is being implemented in a phased manner in compliance with airport operational safety requirements. Green/ open area equivalent to approximately 33.63% of the NMIA site area has been planned and plantation activities are being undertaken progressively.
7	The project proponent will ensure exploitation of maximum possible potential of solar energy generation in the proposed project area and prefer to use it instead of conventional electricity in order to reduce the Green House Gas Emission causing climate change.	Agreed to Comply: NMIA will be exploring installing site solar power and is also planning to procure renewable energy through off-site sourcing under the Open Access mechanism to reduce greenhouse gas emissions.
8	Project proponent is advised to explore the possibility and getting the cement in a closed container rather through the plastic bag to prevent dust emissions at the time of loading/unloading.	Being Complied: During the construction phase, cement is procured through closed bulkers, avoiding the use of bagged cement and preventing dust emissions during loading and unloading. Photograph of

	EC & CRZ Conditions-2026	Compliance Status
		cement bulker is attached as Annexure -2
9	Used LEDs should be properly collected and disposed off/ sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination.	Agreed to Comply: Used LEDs shall be collected separately and disposed of through MPCB-authorized vendors in accordance with applicable rules to prevent mercury contamination
A	Standard Conditions: -	
I	Statutory Compliance: -	
i	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1980, in case of the diversion of forest land for non-forest purpose involved in the project.	Complied: Necessary approvals / clearances have been taken by CIDCO from the MoEF&CC (stage II Forest clearance vide File No.: 8-95/2012-FC dated 24th April 2017 for diversion of 250.0635 ha area) and Permission for Removal of Mangroves over 108.607 Ha vide Bombay High Court order dated October 29, 2013, as applicable. Copy of forest clearance Stage I & II attached Annexure- 3
ii	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	Complied: National Board Wildlife Clearance (NBWL) obtained vide letter dated August 1, 2013. Copy of NBWL approval attached as Annexure-4.
iii	The project proponent shall prepare a Site Specific Conservation Plan and Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan/ Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six monthly compliance report (in case of the presence of Schedule - I species in the study area).	Being Complied: The NMIA project Site Specific Conservation Plan and Wildlife Management Plan has been submitted to DCF (Wildlife), Thane.

	EC & CRZ Conditions-2026	Compliance Status
iv	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 from the concerned State Pollution Board/Committee.	Being Complied: SEIAA issued an EC Amendment letter No. SIA/MH/INFRA2/556803/2025 dated 02/04/2026 to NMIA and as per this letter CTE requirement condition shall be amended as below: "As per MoEF&CC OM Vide File No. Q-15012/2/2022-CPW-Part(1)/e-240741 dated January 14, 2025, Consent to Establishment from concerned SPCB is not applicable and Environment safeguards from SPCB has been taken into consideration." A copy of the EC Amendment Letter issued by SEIAA is attached as Annexure- 5 NMIA has been granted CTO for Phase I & II of the project for a passenger capacity of 20 MPPA and cargo capacity of 0.57 MTPA by MPCB, vide letter dated 7th October 2025 and it is valid up to August 31, 2027, copy of CTO is attached as Annexure -6.
v	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water/ from the competent authority concerned in case of drawl of surface water required for the project.	Agreed to Comply: No groundwater abstraction shall be carried out during construction or operation phases. Water supply assurance has been obtained from CIDCO for Water Supply to NMIA dated 19th March 2025 as attached Annexure- 7.
vi	Clearance from Directorate General of Civil Aviation (DGCA) and Airports Authority of India (AAI) for safely and project facilities shall be obtained.	Being Complied. Required aviation safety, security and operational approvals for exiting Phase 1& 2 (20 MPPA) have been obtained from DGCA and AAI, copy of Aerodrome license issued by DGCA and copy of height NOCs received from AAI are attached as Annexure- 8
vii	A certificate of adequacy of available power from the agency supplying power to the project along with the	Complied: Approval/NoC from MSETCL for Power Supply to NMIA has been received vide letter No. MSETCL/CO/STU/EHV Cons/

	EC & CRZ Conditions-2026	Compliance Status
	load allowed for the project should be obtained.	NMIA/ NO13379 dated 27 th December 2018 and SE/VC/TECH/VASHI/2023-24/02910 dated. 02 May 2024. Copies of these letters are attached as Annexure- 9 . NMIA ensure to obtain further required clearance from power supply agency.
viii	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department shall be obtained, as applicable by project proponents from the respective competent authorities.	Being Complied: Statutory approvals for fuel storage and other applicable permissions for Phase 1& 2 (20 MPPA) have been obtained and copies of these approvals are attached as Annexure-10 . Further required approvals will be obtained prior to commissioning and operation of further phases.
II	Air Pollution	
i	The project proponent shall install system to carryout Ambient Air Quality monitoring for common I criterion parameters relevant to the main pollutants released (e.g. PM 10 to PM 2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the airport area at least at four locations (one within and three outside the plant area at an angle of 120 each), covering upwind and downwind directions.	Being Complied: Ambient air quality monitoring is being carried out through a MoEF&CC & NABL recognized laboratory at designated locations within and outside the project area. Ambient Air Quality Monitoring reports for the reporting period are enclosed as Annexure-11 .
ii	Diesel power generating sets proposed as source of backup power should be on enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use of low sulphur diesel. The location of the DG sets may be decided with in consultation with State Pollution Control Board.	Being Complied. Installed DG sets are of enclosed type. As per the granted Consent to Operate (CTO), adequate stack height has been provided. The DG sets are operated only during grid power failures and utilizing low sulphur diesel, ensuring compliance with applicable emission and noise standards prescribed by MPCB/CPCB. Details of the DG sets have been submitted to MPCB and based on which the CTO was granted by MPCB vide letter dated 7th October 2025.

	EC & CRZ Conditions-2026	Compliance Status
iii	Soil and other construction materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet.	Being Complied: Water sprinkling, proper storage of excavated materials, and covering of loaded vehicles are being implemented during the construction phase to prevent fugitive dust emissions. Photographs of the same are attached as Annexure-12 .
iv	The excavation working area should be sprayed with water after operation so as to maintain the entire surface wet.	Being Complied: Excavation working areas are being sprayed with water during construction activity.
v	Excavated materials shall be handled and transported in a manner that they do not cause any problems of air pollution.	Being Complied: Excavated material is mostly rock and has minimal soil. However, for such movement of any soil, spraying with water is being carried out. Excavation work area is being sprayed with water during construction activity.
vi	The soil / construction materials carried by the vehicle should be covered by impervious sheeting to ensure that the dusty materials do not leak from the vehicle.	Being Complied: Water sprinkling, covered transportation of materials, proper handling of excavated material and covering of vehicles are being implemented to prevent fugitive dust emissions during construction.
III	Water quality monitoring and preservation:	
i	Run off from chemicals and other contaminants from aircraft maintenance and other areas within the airport shall be suitably contained and treated before disposal. A spillage and contaminant containment plan shall be drawn up and implemented to the satisfaction of the State Pollution Control Board.	Being Complied. Separate stormwater and sewage drainage systems have been provided. Runoff from paved areas are routed through oil-water separators. A Zero Liquid Discharge system has been implemented with 100% treatment and reuse of treated wastewater.
ii	Proper drainage systems, emergency containment in the event of a major spill during monsoon season etc. shall be provided.	Being Complied: Separate stormwater and sewage drainage systems have been provided. Runoff from paved areas is routed through oil-water separators. A Zero Liquid Discharge system has been

	EC & CRZ Conditions-2026	Compliance Status
		implemented with 100% treatment and reuse of treated wastewater.
iii	The runoff from paved structures like Runways, Taxiways, can be routed through drains to oil separation tanks and sedimentation basins before being discharged into rainwater harvesting structures.	Being Complied: The runoff from paved areas like runways and taxiways are routed through oil water separators at various places and further has been discharged into rainwater harvesting ponds. Photographs are Attached as Annexure- 13.
iv	Storm water drains are to be built for discharging storm water from the air-field to avoid flooding/ water logging in project area. Domestic and industrial wastewater shall not be allowed to be discharged into storm water drains.	Being Complied: Separate stormwater and sewage drainage systems have been provided to prevent waterlogging/ flooding in project area. The collected sewage is being treated through onsite STPs, and the treated water is being reused for Landscaping and gardening purposes.
v	Rain water harvesting for roof run-off and surface run-off, as plan submitted should be implemented. Rainwater harvesting structures shall conform to CGWA designs. Before recharging the surface run off, pre-treatment must be done to remove suspended matter, oil and grease.	Being Complied: Surface run-off from apron areas passes through oil water separators before reaching RWH pond. Silt pond has been provided prior to outfall to settle other particulate matters.
vi	Total fresh water use shall not exceed the proposed requirements as provided in the project details. Prior permission from competent authority shall be obtained for use of fresh water.	Being Complied: The total freshwater demand will not be exceeded as per granted Environmental Clearance. Water supply assurance has been obtained from CIDCO for Water Supply to NMIA vide CIDCO/ EE (Hetwane)/ 2025/ 218 dt 19 th March 2025 as attached Annexure-7.
vii	A certificate from the competent authority for discharging, treated effluent / untreated effluents into the public sewer / disposal / drainage systems along with the final disposal point should be obtained.	Being Complied: NMIA is treating and recycling 100% of the sewage/effluent generated and reusing the treated wastewater for cooling tower make-up, flushing, and gardening purposes. A Zero Liquid

	EC & CRZ Conditions-2026	Compliance Status
		Discharge (ZLD) approach has been implemented to ensure that no effluent or sewage is discharged into surrounding water bodies or public sewers.
viii	A detailed drainage plan for rain water shall be drawn up and implemented.	Being Complied: NMIA has prepared the detailed drainage master plan that was reviewed and approved by CWPRS. The same drainage master plan is being implemented.
IV	Noise monitoring and prevention:	
i	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	Being Complied. Regular Ambient Noise monitoring is being carried out & reports in this regard are being submitted to regional office of the Ministry as part of six-monthly compliance report. Environmental monitoring reports for the reporting period are enclosed as Annexure -11.
ii	Noise from vehicles, power machinery and equipment on-site should not exceed the prescribed limit. Equipment should be regularly serviced. Attention should also be given to muffler maintenance and enclosure of noisy equipment's.	Being Complied. Electric vehicles (EVs) are predominantly utilized for operational activities within the project. DG sets are installed in enclosed structures and are operated only during emergency situations. All power machinery and equipment are regularly inspected and maintained in accordance with defined SOPs. Noise levels are consistently monitored and are maintained within the prescribed regulatory limits. The copy of Noise Monitoring reports and DG set monitoring reports are attached as Annexure 11
iii	Acoustic enclosures for DG sets, noise barriers for ground-run bays, ear plugs for operating personnel	Being Complied. Installed DG sets are of enclosed type. As per the granted Consent to Operate

	EC & CRZ Conditions-2026	Compliance Status
	shall be implemented as mitigation measures for noise impact due to ground sources.	(CTO), adequate stack height has been provided. The DG sets should be operated only during power failures and will utilize low sulphur diesel, ensuring compliance with applicable emission and noise standards prescribed by MPCB/ CPCB, monitoring report attached as Annexure-11 . DG sets installed with acoustic enclosures, required PPE are provided to the DG set operator. Photographs of DG sets enclosed as Annexure 22
iv	During airport operation period, noise should be controlled to ensure that it does not exceed the prescribed standards. During nighttime the noise levels measured at the boundary of the building shall be restricted to the permissible levels to comply with the prevalent regulations.	Being Complied: Regular noise monitoring is being conducted. The copies of the Noise Monitoring Reports are attached as Annexure-11 .
V	Energy Conservation measures:	
i.	Energy conservation measures like installation of LED/CFLs/TFLs for the lighting the areas outside the building should be integral part of the project design and should be in place before project commissioning.	Being Complied: Energy efficient light fittings have been provided. Necessary energy conservation measures have been adopted.
VI.	Waste management:	
i.	Soil stockpiles shall be managed in such a manner that dust emission and sediment runoff are minimized. Ensure that soil stockpiles are designed with no slope greater than 2:1 (horizontal/ vertical).	Being Complied: Opportunity to conserve the soil stockpile is limited as most of the excavated soil material is used in green belt development or back filling.
ii	The project activity shall conform to the fly Ash notification issued under the E P. Act of 1986.	Being Complied: Fly ash has been considered in the concrete mix design and is being used during construction.
iii	Solid inert waste found on construction sites consists of	Being Complied:

	EC & CRZ Conditions-2026	Compliance Status
	building rubble, demolition material, concrete; bricks, timber, plastic, glass, metals, bitumen etc. shall be reused/ recycled or disposed of as per Solid Waste Management Rules, 2016 and Construction and Demolition Waste Management Rules, 2016.	Inert material comprising of construction debris has been collected and stored at a designated place within NMIA site. Recyclable material such as glass, metal, cardboard, plastic and paper, etc. are being disposed of through the registered scrap dealer/agency.
iv	Any waste from construction and demolition activities related thereto shall be managed so as to strictly conform to the Construction and Demolition Waste Management Rules, 2016.	Being Complied: Construction and demolition waste generated during development phase is being handled as per The Construction and Demolition (C&D) Waste Management Rules, 2026.
v	The project proponents shall implement a management plan duly approved by the State Pollution Control Board and obtain its permission for the safe handling and disposal of:	Being Complied: NMIAL has prepared and implemented Waste Management Plan for Development and Operation Phase. NMIA also obtained consent to operate (CTO) from MPCB for Handling and Management of Solid and Hazardous Waste.
	a. Trash collected in flight and disposed at the airport including segregation, collection and disposed.	Being Complied: Trash collected from flights is collected and transported to NMIA's centralized solid waste management facility for segregation and dispose of through authorized vendors/ agencies.
	b. Toilet wastes and sewage collected from aircrafts and disposed at the Airport.	Being Complied: Sewage cart trucks collecting sewage from aircraft and transporting it to a Triturator for primary treatment. The sewage then pumped to the sewage treatment plant for further treatment.
	c. Wastes arising out of maintenance and workshops.	Being Complied: Waste arising from maintenance and workshops are being collected and stored at Hazardous Waste Management facility at dedicated

	EC & CRZ Conditions-2026	Compliance Status
		areas and the same is disposed of through authorized vendors.
	D. Wastes arising out of eateries and shops situated inside the airport complex.	Being Complied: Waste from eateries is being collected at NMIA Solid Waste Management (SWM) facility. After segregation Biodegradable waste is being sent to onsite bio-gas plant and non-biodegradable Waste is being disposed of through authorized vendors.
	e. Hazardous and other wastes	Being Complied: Hazardous Wastes is being collected and temporary stored at Hazardous Waste Management Facility and the same shall be disposed through MPCB Authorized Hazardous Waste Management facility
vi.	The solid wastes shall be segregated as per the norms of the Solid Waste Management Rules, 2016. Recycling of waste such as paper, glass (produced from terminals and aircraft caterers), metal (at aircraft maintenance site), plastics (from aircrafts, terminals and offices), wood, waste oil and solvents (from maintenance and engineering operations), kitchen wastes and vegetable oils (from caterers) shall be carried out. Solid wastes shall be disposed in accordance to the Solid Waste Management Rules, 2016 as amended.	Being Complied: Dedicated Solid Waste Management facilities have been provided for waste collection, segregation, safe storage and compliant management as per Solid Waste Management Rules 2025 as amended. Separate storage compartments are being provided for storage of different categories of solid waste. Photographs of solid waste management facility is attached as Annexure 14
vii.	Used CFLs and TFLs should be properly collected and disposed off/ sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination.	Being Complied: Used CFL and TFLs are being collected and shall be disposed of through MPCB authorized vendors.
VII	Green Belt:	

	EC & CRZ Conditions-2026	Compliance Status
i.	Green belt shall be developed in area as provided in project details, with native tree species in accordance with Forest Department. The greenbelt shall inter alia cover the entire periphery of the Airport.	Being complied Green belt/ vegetation within airport is being developed complying with operational safety requirement of airport.
ii.	Topsoil shall be separately stored and used in the development of green belt.	Being Complied: Topsoil is being separately collected and stored for reuse. It will be analysed and utilized for green belt development and site backfilling.
VIII	Public hearing and Human health issues:	
i	Construction site should be adequately barricaded before the construction begins.	Being Complied: Metal sheet barricading is being done around the construction site, and permanent RCC peripheral wall constructed around the airport premises Photographs are enclosed as Annexure -15
ii	Traffic congestion near the entry and exit points from the roads adjoining the airport shall be avoided. Parking should be fully internalized, and no public space should be utilized.	Being Complied: Separate entry and exit points have been provided for construction vehicles and workers. Passenger vehicle access has been planned independently from Amara Marg, with dedicated connectivity to both departure and arrival areas to ensure smooth, safe, and efficient traffic movement. Within the NMIA premises, designated parking areas have been developed for buses, private taxis, and autorickshaws to avoid congestion on surrounding roads. Additionally, dedicated internal roads have been established for offices and other establishments, facilitating seamless circulation of all vehicles within the airport area. During Operation of Phases 1 and 2 (20 MPPA), 2,500 Equivalent Car Units (ECUs) parking infrastructure has been provided within the NMIA site.. No

	EC & CRZ Conditions-2026	Compliance Status
		public spaces will be utilized for parking of NMIA construction or operational vehicles .
iii	Provision of Electro-mechanical doors for toilets meant for disabled passengers. Children nursing/feeding room to be located conveniently near arrival and departure gates.	Being complied Disabled person toilets are being designed as per National Building Code, 2016. Children nursing/ feeding room have been provided as per international best practice for airport passenger services.
iv	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Being Complied: Hazard Identification and Risk Assessment (HIRA) has been carried out and is periodically reviewed. The HIRA document is enclosed Annexure - 1 . Disaster Management Plan (DMP) for is prepared and submitted to Raigad District Disaster Management Authority (DDMA) and State Disaster Management Authority.
v	Provision shall be made for the housing of construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Being Complied: Requisite provisions for labour camp have been made at project site and all required facilities have been provided for workers at Labor camp. Labour Camp Photographs attached as Annexure- 27 .
vi	Occupational health surveillance of the workers shall be done on a regular basis.	Being Complied: All requisite health surveillance facilities have been provided for workers and regular health checkups of workers are also ensured.
	Specific Conditions:	
	SEAC Conditions -	

	EC & CRZ Conditions-2026	Compliance Status
i	Implementation of the EIA and EMP for all construction and operational activities across Phases I to V.	Being complied Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) is being effectively implemented for all construction and operational activities the project. All activities are carried out in strict compliance with the conditions stipulated in Environmental Clearance and other applicable regulatory requirements. The expenditure incurred on EMP implementation till 31 st March 2026 is Approx. Rs. 160 Cr.
ii	Compliance with prescribed norms for air quality, noise levels, and water pollution, along with effective mitigation measures during construction and operation phases.	Being complied – Environmental monitoring has been carried out through an NABL-accredited and MoEF&CC recognized laboratory. All prescribed environmental norms pertaining to air quality, noise levels, and water quality are being strictly adhered to during both the construction and operational phases of the project. Effective mitigation measures have been implemented across the project site and are regularly maintained to ensure continuous compliance with applicable environmental standards and regulatory requirements. The environmental monitoring reports for the reporting period are enclosed as Annexure- 11 .
iii	Adequate provision and proper management of sewage treatment, solid waste management, and disposal systems, as per applicable rules.	Being Complied: Adequate provisions have been implemented across all phases for the management of sewage and solid waste. In Phase I & II (20 MPPA), the generated sewage is being treated in Sewage Treatment Plants (STPs) with a total installed capacity of 5.5 MLD. For solid waste management, two solid waste management facilities and a

	EC & CRZ Conditions-2026	Compliance Status
		biogas plant of 10 Tons Per Day capacity have been provided at the project site
iv	Development and maintenance of green belt as committed, in accordance with MoEF&CC/CPCB/ MIDC guidelines.	Being Compiled: In Phase I & II, approximately 237 hectares of green area is being developed within the airport site. The remaining green belt/area will be developed in subsequent phases of the project.
v	Implementation of CSR/ CER activities as proposed.	Agreed to Comply: CSR will be implemented in accordance with the applicable provisions of the Companies Act
vi	Adherence to all applicable environmental laws, notifications, rules and regulations issued by MoEF&CC and other statutory authorities from time to time.	Agreed to Comply:
	SEIAA Conditions-	
	MCZMA Conditions-	
i	Project activities for the capacity enhancement of the Navi Mumbai Airport shall be carried out as per the provisions of the CRZ Notification, 2019 (as amended from time to time) and guidelines/ clarifications given by MoEF&CC from time to time.	Being complied The provisions of the CRZ Notification, 2019 shall be strictly complied with in accordance with the guidelines issued by MoEF&CC and MCZMA. During the construction phase, all activities shall be confined within the approved project boundary of 1160 hectares.
ii	The enhancement of the capacity of the Navi Mumbai Airport shall be strictly within the existing 1160-hectare of airport area only, for this area, the MoEF&CC, New Delhi has granted the CRZ & EC in the year 2010.	Agreed to Comply: Enhancement of Airport capacity has been planned within existing 1160 ha area.
iii	Site preparation and site restoration in CRZ area should be undertaken	Being Complied No Site preparation and restoration work is required in CRZ area. All the

	EC & CRZ Conditions-2026	Compliance Status
	without damaging the coastal-geomorphological features.	required works in CRZ areas for NMIA development were completed in the year 2018 by CIDCO.
iv	NMIA during the construction phase shall not disturb the coastal ecology present along the Panvel creek, present outside the northern boundary of the project site	Being Complied: During construction stage, all activities shall remain within the boundary of 1160 Ha land area. NMIA ensures that no area out of NMIA premises of 1160 Ha should be disturbed due to the construction activities. Along the northern boundary of the Navi Mumbai International Airport (NMIA), the City and Industrial Development Corporation (CIDCO) has constructed a 60- meter-wide North Road. This road acts as a buffer zone between the NMIA's northern boundary and the Panvel Creek, Gadhi River, including its mangroves and mudflats.
v	Disposal of muck during construction phase should not create any adverse effect on the neighboring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent Authority.	Being Complied: C&D waste is being disposed of as a filler material at a designated place within the NMIA site.
vi	Hon. High Court has granted the approval for mangrove cutting. If any extra mangrove is required to be cut for the proposed enhancement, then Mangrove NoC and prior High Court permission as per order dated 17th Sep., 2018 in PIL 87/2006, shall be obtained by the PP.	Agreed to Comply: No mangrove destruction will be carried out during development works at the project, NMIA ensured that there will be no violation of the Hon'ble High Court order dated 23rd October 2013 in PIL 87 /2006.
vii	NMIA shall set up full-fledged in house Environment Management Cell comprising concern experts for effective implementation of Environment Management Plan.	Being complied. NMIA has an in-house Environment Management Cell led by the Head (Environment and Sustainability), reporting to the Chief Airport Officer NMIA.

	EC & CRZ Conditions-2026	Compliance Status
viii	NMIA shall engage expert agency like BNHS for protection / conservation of biodiversity around the project site.	Being Complied. CIDCO had appointed BNHS to undertake long term Bird Monitoring program of NMIA area and its surroundings during construction and operational phases.
ix	NMIA in consultation in expert agency shall carry out the study of impact of the project on local fishing and livelihood and take efforts to maintain the livelihood of traditional fisher folks	Agreed to Comply: Construction activities are confined within the NMIA boundary with no in-water or waterfront works; therefore, there is no direct or indirect impact on fishing activities in surrounding water bodies. A detailed EIA study was conducted for the enhancement of NMIA's airport capacity from 60 to 90 MPPA. This EIA report includes the Impact assessment study and based on this report the Environmental and CRZ Clearance was granted by SEIAA to NMIA on 07 February 2026.
x	Green belt around the project site shall be development to provide protection against the particulate matter and noise	Being Complied Green belt has been and will be developed within the airport boundary in compliance with the operational safety requirements of the airport.
xi	All the safety measures and Disaster Management Plan should be implemented during construction and operation phase of the project.	Being Complied: Disaster Management Plan (DMP) of NMIA has been prepared and submitted to District Disaster Management Authority (DDMA) Raigad and State Disaster Management Authority.
xii	Project proponent should implement Mitigation measures and Environment Management plan & Disaster Management Plan as suggested in the EIA report, effectively and efficiently during construction and operational phase of the project to ensure that coastal environment is protected.	Being Complied Detailed Construction and Operation phase DMP, EMP and monitoring plan with budgetary allocation have been dealt with in EIA report 2025 and Same is being implemented during construction and operational phases. Photograph implemented EMP

	EC & CRZ Conditions-2026	Compliance Status
		attached as Annexure – 12, 13, 14, 17, 22, 23 and 24.
xiii	All other required permissions from different statutory authorities should be obtained prior to commencement of work.	Being Complied All the required approvals/permissions for the project from different authorities have been obtained. Further required permissions/approvals shall also be obtained. Refer Annexure -8, 9, 16, 18 and 25.
SEIAA Conditions -		
1	PP had obtained approval from CIDCO dated 06.10.2025 and as per the plan their total plot area of the project is 1160 Hectare and they have proposed green belt of 356.268 Ha i.e. 33.632 % of total plot area. ADTP to ensure the compliance of the same.	Being Complied: Green belt/ vegetation has been developed within airports which are complying to operational safety requirement of airport. The NMIA master plan is approved by CIDCO and CIDCO will ensure the compliance of the same.
2	PP to undertake Miyawaki plantation of native and indigenous trees such as Banyan, Peepal, Neem, Jamun and other suitable trees as per the Forest Department, Govt. of Maharashtra circular no SaVaVi-2019/C.R.3/F-11, dated 25 th June, 2019. The said plantation to be completed in the first year of operation of Environmental Clearance under expert guidance of Miyawaki experts/ arborist.	Agreed to Comply Due to Airport operation safety concern Miyawaki Plantation is not feasible at Airport premises therefore, Plantation of trees and Greenbelt development within the airport is being carried out in compliance with all applicable operational safety requirements.
3	PP to strictly observe the Solid Waste Management Rules, 2016 as amended time to time.	Being Complied: Requisite area has been provided for Solid waste collection, for further segregation at solid waste facility by authorized vendor. Waste is being handled in line with the 5R principle (Refuse, Reduce, Reuse, Repurpose, and Recycle) of waste management in line with Solid Waste management rules, 2026.

	EC & CRZ Conditions-2026	Compliance Status
4	Air Quality Index monitoring to be ensured. Dust suppression measures shall be implemented also considering height of the building. Additional measures to be ensured.	Being Complied. Regular Ambient Air quality monitoring is being carried out through NABL & MOEFCC-recognized laboratory. Copies of Monitoring reports for the reporting period are enclosed as Annexure- 11. Dust suppression measures have been provided in construction areas and under construction buildings are covered with green nets.
5	PP to strictly observe the Hazardous and Other Wastes (Management & Trans boundary Movement) Rules, 2016 as amended time to time.	Being Complied: Hazardous Wastes arising from maintenance, workshop and other activities have been stored at dedicated Hazardous Waste facility and is being handled as per Hazardous Waste Management Rules, 2016, amended till date.
6	PP to identify all sources of fugitive air pollution on site and provide pollution control measures to mitigate pollution and meet the standard parameters stipulated in the Environment (Protection) Rules, 1986 amended time to time & Air (Prevention and Control of Pollution) Act, 1981 amended time to time.	Being Complied Fugitive emissions are being effectively controlled through regular water sprinkling in identified areas, along with periodic fumigation to maintain air quality standards. Copies of Ambient Air Quality Monitoring reports for the reporting period are enclosed as Annexure- 11.
7	PP to ensure storage of chemicals as per the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 amended time to time to ensure no release of any chemical to the atmosphere and leakage to the soil.	Being Complied: A dedicated storage area with an impervious flooring system has been provided for the safe storage of hazardous chemicals
8	PP to ensure transport, storage, handling and use of the flammable/toxic chemicals as per conditions stipulated in license/approval of the Petroleum & Explosive Safety Organization (PESO).	Being Complied: PESO approval ATF fuel storage has been obtained attached as Annexure- 16

	EC & CRZ Conditions-2026	Compliance Status
9	PP to obtain approval and License from the Directorate of Industrial Health & Safety (DIHS) for proposed project and implement all condition stipulated therein. PP to carry out Safety Audit as stipulated in the Maharashtra Factories Rules, 1963 and ensure compliance of recommendation pf the Audit.	Being Complied: The NMIA Fuel Farm Facility is covered under the provisions of the Maharashtra Factories Rules, 1963. Layout plan approval for Fuel Form has been obtained form the Directorate of Industrial Health and Safety (DISH) copy of the same is enclosed as Annexure-25 .
10	PP to provide solar energy for illumination of Administrative Building, Street Lights and parking Area.	Agreed to Comply: NMIA exploring installation of onsite solar power and is also planning to procure renewable energy through off-site sourcing under the Open Access mechanism to reduce greenhouse gas emissions.
11	PP to ensure use of briquette /bio coal/ pellets/ or any such suitable product derived from scientific processing of appropriate stream of dry waste/agricultural waste, not less than 50 % of the total fuel requirement to the boiler.	Not Applicable: No Boiler Installation planned at NMIA Project site.
12	PP to provide rooftop Rainwater Harvesting facility.	Being Complied. Rooftop rainwater has been collected and transferred into onsite rainwater harvesting ponds.
13	PP to ensure that Project is a ZLD for unit.	Being Complied. NMIA is recycling and reusing 100% of treated sewage/ wastewater within the airport for cooling tower make-up, flushing, and gardening purposes, thereby achieving Zero Liquid Discharge (ZLD). NMIA shall continue to maintain the ZLD system during future airport operations.
	General Conditions:	
a)	Construction Phase;	
I	The solid waste generated should be properly collected and segregated. Dry/inert solid waste should be disposed of to the approved sites for	Being Complied: Requisite area has been provided for Solid waste collection, for further segregation at solid waste facility by authorized vendors. Waste is being

	EC & CRZ Conditions-2026	Compliance Status
	land filling after recovering recyclable material.	handled in line with 5R principle of waste management in line with Solid Waste management rules, 2026. Biodegradable waste is being treated in the biogas plant and recyclable materials disposed of through MPCB authorized vendors.
II	Disposal of muck, Construction spoils, including bituminous material during construction phase should not create any adverse effect on the neighboring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in the approved sites with the approval of competent authority.	Being Complied: C&D waste is being disposed of as filler material at a designated place within the NMIA site.
III	Any hazardous waste generated during construction phase should be disposed of as per applicable rules and norms with necessary approvals of the Maharashtra Pollution Control Board.	Being Complied Hazardous Wastes arising from maintenance, workshop and other activities have been stored at dedicated Hazardous Waste facility and is being handled as per Hazardous Waste rules, 2016, amended till date.
IV	Adequate drinking water and sanitary facilities should be provided for construction workers at the site. Provision should be made for mobile toilets. The safe disposal of wastewater and solid waste generated during the construction phase should be ensured.	Being Complied: Adequate drinking water and sanitary facilities are being provided for construction workers at the site. Provision for mobile toilets has also been made near construction area. Safe disposal of wastewater and solid waste generated during the construction phase is being ensured through appropriate treatment and disposal mechanisms.
V	Arrangement shall be made so that wastewater and storm water do not get mixed.	Being Complied: Separate drainage system has been provided for Storm water and Wastewater to avoid the mixing of both. Stormwater drainage plan is attached as Annexure-13 .
VI	Water demand during construction should be reduced by use of pre-	Being Complied. NMIA is using Ready mix concrete and explore the uses of

	EC & CRZ Conditions-2026	Compliance Status
	mixed concrete, curing agents and other best practices.	chemical curing compounds to reduce water demand.
VII	The ground water level and its quality should be monitored regularly in consultation with Ground Water Authority	Complied No ground water is being tapped during construction or operation phases. Drinking water is being sourced through CIDCO and copy of CIDCO water supply approval is attached as Annexure - 7
VIII	Permission to draw ground water for construction of basement if any shall be obtained from the competent Authority prior to construction/operation of the project.	Agreed to Comply No ground water is being tapped during construction or operation phases. Drinking water is being sourced through CIDCO and copy of CIDCO water supply approval is attached as Annexure - 7
IX	Fixtures for showers, toilet flushing and drinking should be of low flow either by use of aerators or pressure reducing devices or sensor based control.	Being Complied. All fixtures provided for toilet flushing, and drinking purposes are of low-flow design, incorporating aerators, pressure-reducing devices, or sensor-based controls to ensure efficient water conservation attached as Annexure- 17 .
X	The Energy Conservation Building code shall be strictly adhered to.	Being Complied Energy efficient light fittings have been considered in the design of lighting system. Necessary energy conservation measures have been adopted at all buildings. ECBC 2017 compliance report attached as Annexure- 26 .
XI	All the topsoil excavated during construction activities should be stored for use in horticulture/ landscape development within the project site.	Being Complied: Topsoil has been separately stored and has been used in the development of green belt.
XII	Additional soil for levelling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	Being Complied: The drainage plan for the site has been designed such that rainwater is collected through the internal drainage network, duly desilted, and subsequently discharged towards the

	EC & CRZ Conditions-2026	Compliance Status
		northern side of NMIA into Panvel Creek.
XIII	Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.	Being Complied: Monitoring of Soil & ground water quality around the project site has been carried out through NABL & MoEFCC Certified laboratory regularly and reports are being submitted to MOEFCC and MPCB. . Monitoring report for the reporting period are enclosed herewith as Annexure- 11.
XIV	PP to strictly adhere to all the conditions mentioned in Maharashtra (Urban Areas) Protection and Preservation of Trees Act, 1975 as amended during the validity of Environment Clearance.	Being Complied All necessary permissions for tree cutting/ transplantation have been obtained from the tree authority, and adequate compensatory plantation has been undertaken in accordance with applicable regulations.
XV	The diesel generator sets to be used during construction phase should be low sulphur diesel type and should conform to Environments (Protection) Rules prescribed for air and noise emission standards.	Being Complied: Low-sulphur fuel is being used in DG sets .
XVI	Vehicles hired for transportation of Raw material shall strictly comply with the emission norms prescribed by Ministry of Road Transport & Highways Department. The vehicle shall be adequately covered to avoid spillage/leakages.	Being Complied: Vehicles carrying soil or loose construction materials are adequately covered from the top to prevent spillage and dust emissions. A sample photograph of the same is enclosed as Annexure- 12.
XVII	Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air, and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform	Being Complied. Regular Ambient air quality & noise monitoring are being carried out through a MoEF&CC & NABL recognized laboratory at designated locations within and outside the NMIA project area. Monitoring Reports for

	EC & CRZ Conditions-2026	Compliance Status
	to the stipulated standards by CPCB/MPCB.	the reporting period are enclosed as Annexure-11.
XVIII	Diesel power generating sets proposed as source of backup power for elevators and common area illumination during construction phase should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use low sulphur diesel is preferred. The location of the DG sets may be decided with in consultation with Maharashtra Pollution Control Board.	Being Complied The installed DG sets are of acoustic enclosure type. As per the granted Consent to Operate (CTO), adequate stack height has been provided in accordance with prescribed norms. The DG sets are operated only during power failures and utilize low sulphur diesel, ensuring compliance with the applicable emission and noise standards prescribed by MPCB/CPCB. Details of the DG sets have been duly submitted to MPCB, based on which the CTO was granted vide letter dated 7th October 2025
XIX	Regular supervision of the above and other measures for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings by a separate environment cell /designated person.	Being Complied: Various functional teams of NMIAL including Environment team are continuously supervising construction and operation activities Regular Ambient air quality, Ground Water Quality, Surface Water Quality & Noise Monitoring are being carried out through a MoEF&CC & NABL recognized laboratory at designated locations within and outside the NMIA project area. Monitoring Reports for the reporting period are enclosed as Annexure-11.
B)	Operation phase: -	
I	a) The solid waste generated should be properly collected and segregated. b) Wet waste should be treated by Organic Waste Converter and treated waste (manure) should be utilized in the existing premises for gardening. And, no wet garbage will be disposed outside the premises.	Being Complied: Requisite interim waste collection areas/points have been provided for primary solid waste collection. The collected waste from primary collection points are transported to centralized solid waste management

	EC & CRZ Conditions-2026	Compliance Status
	c) Dry/inert solid waste should be disposed of to the approved sites for land filling after recovering recyclable material.	facilities for further segregation and disposal through authorized vendors. Solid waste is being managed in accordance with the 5R principles of waste management and in compliance with the Solid Waste Management Rules, 2016 (and subsequent amendments). Organic (wet) waste is being processed in the on-site biogas facility, and the generated manure is utilized for greenbelt development within the project site. Approval letter received from for disposal of Inert waste at CIDCO's Chaal Solid waste management facility
II	E-waste shall be disposed through Authorized vendor as per E-waste (Management and Handling) Rules, 2016.	Being Complied: E-waste is being disposed of collected and stored at designated area and shall be disposed of through authorized vendors in accordance with the E-Waste (Management and Handling) Rules, 2016.
III	a) The installation of the Sewage Treatment Plant (STP) should be certified by an independent expert and a report in this regard should be submitted to the MPCB and Environment department before the project is commissioned for operation. Treated effluent emanating from STP shall be recycled/ reused to the maximum extent possible. Treatment of 100% grey water by decentralized treatment should be done. Necessary measures should be made to mitigate the odour problem from STP. b) PP to give 100 % treatment to sewage/Liquid waste and explore the possibility to recycle at least 50 % of	Being Complied: STPs with a combined capacity of 5.5 MLD (4.5 MLD and 1 MLD) have been commissioned I. The treated water is being fully utilized for flushing, gardening, and HVAC applications, with zero liquid discharge from the project. NMIA envisages 100% recycling and reuse of treated sewage water for cooling tower make-up, flushing, and landscaping. Accordingly, STPs with tertiary and quaternary treatment, including Reverse Osmosis (RO), have been proposed, along with a Zero Liquid Discharge (ZLD) system to ensure no effluent is discharged into surrounding water bodies. Photographs of STP enclosed as Annexure- 23.

	EC & CRZ Conditions-2026	Compliance Status
	water, Local authority should ensure this.	
IV	Project proponent shall ensure completion of STP, MSW disposal facility, green belt development prior to occupation of the buildings. As agreed during the SEIAA meeting, PP to explore possibility of utilizing excess treated water in the adjacent area for gardening before discharging it into sewer line No physical occupation or allotment will be given unless all above said environmental infrastructure is installed and made functional including water requirement.	Being Complied. The STP, Solid Waste management facility, and green belt development are being completed. NMIA envisages 100% recycling and reuse of treated sewage water for cooling tower make-up, flushing, and landscaping. Accordingly, STPs with tertiary and quaternary treatment, including Reverse Osmosis (RO), have been proposed, along with a Zero Liquid Discharge (ZLD) status and ensure that no treated water is being discharged into surrounding water bodies.
V	The Occupancy Certificate shall be issued by the Local Planning Authority to the project only after ensuring sustained availability of drinking water, connectivity of sewer line to the project site and proper disposal of treated water as per environmental norms.	Being Complied: Occupancy Certificate (OC) for Terminal-1 Building has been obtained from the Local Planning Authority (CIDCO) Copy of the OC is attached as Annexure-18.
VI	Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.	Being Complied: Separate entry and exit points have been provided for construction vehicles and buses, passenger vehicles, along with designated parking areas within the NMIA site, to prevent congestion on the surrounding roads.
VII	PP to provide adequate electric charging points for electric vehicles (EVs).	Being Complied: Adequate Electric Charging stations are provided at. Airside and landside vehicle parking areas. Photographs of electrical charging stations enclosed as Annexure- 24.
VIII	Green Belt Development shall be carried out considering CPCB guidelines including selection of plant species and in consultation	Being Complied: Green belt development is being implemented in a phased manner in compliance with airport operational safety requirements. Green/open area

	EC & CRZ Conditions-2026	Compliance Status
	with the local DFO/ Agriculture Dept.	equivalent to approximately 33.63% of the NMIA site area has been planned and plantation activities are being undertaken progressively.
IX	A separate environment management cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	Complied: NMIA has an in-house Environment Management Cell led by the Head (Environment and Sustainability), reporting to Chief Airport Officer NMIA.
X	Separate funds shall be allocated for implementation of environmental protection measures/EMP along with item-wise breaks-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes.	Being Complied: Environmental management plan for construction phase and operations phase has been presented in Chapter 10 of EIA-2025 Report along with the budget. The expenditure incurred on EMP implementation till 31 st March 2026 is Approx. Rs. 160 Cr.
XI	The project management shall advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the Marathi language of the local concerned within seven days of issue of this letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the Maharashtra Pollution Control Board and may also be seen at Website at parivesh.nic.in	Complied: NMIA has been granted Environmental Clearance (EC) dated 12th February 2026 for the enhancement of airport capacity from 60 MPPA to 90 MPPA. The public notice in this regard was published on 18th February 2026 in <i>The Indian Express</i> (English) and <i>Loksatta</i> (Marathi) newspapers. Copy of published newspaper is attached as Annexure -19 .
XII	A copy of the clearance letter shall be sent by proponent to the concerned Municipal Corporation and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Complied Environmental clearance letters dated 23 rd Feb 2026 were submitted to Navi Mumbai Municipal Corporation (NMMC) and Panvel Municipal Corporation (PMC), copy the letters are attached as Annexure- 20 .

	EC & CRZ Conditions-2026	Compliance Status
XIII	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically, It shall simultaneously be sent to the Regional Office of MoEFCC, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO ₂ , NO _x (ambient levels as well as stack emissions) or critical sector parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Agreed to Comply: Status of compliance of the stipulated EC conditions including reports of monitored data t and shall be uploaded on NMIAL website https://navimumbai.adaniairports.com/en/report The Environmental Monitoring report data are displayed at North-West Entry gate of NMIA Photograph of the same is attached as Annexure -21. The Status of Compliance stipulated EC conditions shall also be submitted to the Regional Office of MoEFCC, and to the respective Zonal Office of CPCB and SPCB on regular basis.
C)	General EC Conditions: -	
I	PP has to strictly abide by the conditions stipulated by SEAC& SEIAA.	Agreed to Comply: Noted
II	If applicable Consent for Establishment" shall be obtained from Maharashtra Pollution Control Board under Air and Water Act and a copy shall be submitted to the Environment department before start of any construction work at the site.	Not Applicable: SEIAA issued an EC Amendment letter No. SIA/MH/INFRA2/556803/2025 dated 02/04/2026 to NMIA and as per this letter CTE requirement conditions is amended as per MoEF&CC OM Vide File No. Q-15012/2/2022-CPW-Part(1)/e-240741 dated January 14, 2025, Consent to Establishment from Concerned SPCB is not applicable and Environment safeguards from SPCB has been taken into consideration." A copy of the EC Amendment Letter issued by SEIAA is attached as Annexure- 5.
III	Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it was found that construction of the project has been started without obtaining environmental clearance.	Agreed to Comply

	EC & CRZ Conditions-2026	Compliance Status
IV.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEFCC, the respective Zonal Office of CPCB and the SPCB.	Being Complied: Six monthly EC compliance shall be uploaded on NMIA website at the following link. https://navimumbai.adaniairports.com/en/report
V	The environmental statement for each financial year ending 31st March in FORM-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEFCC by e-mail.	Being Complied: Construction phase Environmental statement (FORM-V) financial year 2024-25 is uploaded to MPCB on 17 th September 2025.
VI	No further Expansion or modifications, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the SEIAA. In case of deviations or alterations in the project proposal from those submitted to SEIAA for clearance, a fresh reference shall be made to the SEIAA as applicable to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Agreed to Comply
VII	This environmental clearance is issued subject to obtaining NOC from Forestry & Wildlife angle including clearance from the standing committee of the National Board for Wild life as if applicable & this environment clearance does not necessarily implies that Forestry &	Agreed to Comply

	EC & CRZ Conditions-2026	Compliance Status
	Wild life clearance granted to the project which will be considered separately on merit.	
4	The environmental clearance is being issued without prejudice to the action initiated under EP Act or any court case pending in the court of law and it does not mean that project proponent has not violated any environmental laws in the past and whatever decision under EP Act or of the Hon'ble court will be binding on the project proponent. Hence this clearance does not give immunity to the project proponent in the case filed against him, if any or action initiated under EP Act.	Agreed to Comply
5	This Environment Clearance is issued purely from an environment point of view without prejudice to any court cases and all other applicable permissions/ NOCs shall be obtained before starting proposed work at site.	Agreed to Comply:
6	In case of submission of false document and non-compliance of stipulated conditions, Authority/ Environment Department will revoke or suspend the Environment clearance without any intimation and initiate appropriate legal action under Environmental Protection Act, 1986.	Agreed to Comply
7	Validity of Environment Clearance: The environmental clearance accorded shall be valid as per EIA Notification, 2006, amended from time to time.	Agreed to Comply
8	The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air	Agreed to Comply

	EC & CRZ Conditions-2026	Compliance Status
	(Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the public Liability Insurance Act, 1991 and its amendments.	
9	Any appeal against this Environment clearance shall lie with the National Green Tribunal (Western Zone Bench, Pune), New Administrative Building, 1st Floor, D-Wing, Opposite Council Hall, Pune, if preferred, within 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Agreed to Comply

ANNEXURE 1 –
HAZARD IDENTIFICATION AND
RISK ASSESSMENT (HIRA)
DOCUMENT.



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\RA
Revision No.:02

RA No.: LT/LS/06/42

RISK ASSESSMENT

Work Code	TI-LS/2024/07
Location of Work	Arrival & Departure Ramp Bridge
Work Activity/Task	Foundation, Sub-Structure and Superstructure
Duration of the activity	☐ day(s) ☐ Week(s) ☒ 6 Month(s) ☒ DAY ☐ NIGHT
Date & time of activity being carried out	17.01.2024, 8:00 AM / 7:00 PM- 11 Hours

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. Rachit Shah	Sr. Construction Manager	
2	Mr. Amol Ghawate	Manager	
3	Mr. Pankaj Kumar	Site Engineer	
4	Mr. Jethava Chetankumar	Site Engineer	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS	
No. of employees Required to do the work	200	Work Platforms/Access	Required	Crane/Operators Competency (If so attach document)	YES NO NA
Occupations Trades/Skills required	Site- In charge, Site Engineer, Supervisor, Surveyor, Carpenters, Fitters, Driver/Operator And unskilled workers	Associated Hazards Man/Machine/Environment	Noise, Dust, Heat, Movement of Equipment, material handling, electrical hazards, ergonomic, health.	Any other specific documents required	YES NO NA
Qualifications	• For Drivers/Operators:	Tools/Power tools	Crowbar, Spade,	MATRIX	SEVERITY

Person Preparing the Risk Assessment Name - Mr. Amol Ghawate Date Signature



Code.	EHSNMIAL
Form No.	C-20:26
Issue	2/II:2022

Person Preparing the Risk Assessment Name – NITIN PATIL
Sensitivity: LNT Construction Internal Use Signature  ; _____
NMI/PEHS @ 10/2021 Date/Time ; ____/____/____ ; ____AM/PM



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Code. EHSNMI/IAL

Form No. C-20:26

Issue 2/ji:2022

									Site In-charge / Site Engineer
24	Manual Lifting/ Musculoskeletal disorder/ In case emergency	- Lifting Heavy load. - Poor Posture. - Repetitive work. - Pushing load - Pulling and.	- Back strain. - Spinal or joint dysfunction. - muscle or skeletal pain. - Body strain.	3	2	6	- All workmen will go through manual lifting training before deployment at work. - Workmen should not allow to lift load more than 35 Kg manually. - Adequate supervision shall be provided. - Adequate PPE(shoulder pad) shall be worn by workmen when manually handling load - Workmen will given 10 minutes break in case of repetitive work more than 2 hours. - Trolley should be used for pulling & pushing the load. - First aid box		
25	In case emergency	- Lack of emergency facilities - Lack of training	Major or fatal injury	3	4	12	- Emergency training given to all workers before start of work. - First aid box provide on roof, office and wherever required. - Stretcher will available on roof for emergency. - Emergency numbers display on roof.		

To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1				10			
2				11			
3				12			

Person Preparing the Risk Assessment Name – NITIN PATIL

Sensitivity: LNT Construction Internal Use Signature

NMIAPEHS @ 10/2021

Date/Time ; ____/____/____ ; ____ AM/PM



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Code. EHSNMIAL
Form No. C-20-26
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		- Poor lighting - Electric shock - Fall of material & man - Poor supervision - Lack of emergency facilities	- Electrocution - Major injuries /disability/fatality - Property damage				- Provide sufficient light and access light for the work area. - Site supervisor shall ensure the required lighting arrangement before start to work - Special TBT shall be ensured before start the night shift. - Ensure all the required PPE's for all workmen. - Ensure the availability of night work permit and displayed it. - Supervisor should ensure sufficient man power to do the night work - Site engineer should be continuous present at work location.	Site In-charge / Site Engineer
22	Working at night shift			3	3	9		
23	Roof Housekeeping and waste management	- Sharp edge - Height work - Electrocution	- Fall of person / material - Cut injury - Electric shock	3	3	9	- Material basket shall be made and use. Get TPI done. - All waste material shall be collected and kept at designated area till the disposal is done from the site. - Weekly scrap shall be disposed off thru authorised vendor - Heavy material and wastage roof sheet shifting by crane. - All loose material FOD keep in bags, and removed from roof by basket, and maintain register. - Site engineer should be continuous present at work location.	

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Site In-charge / Site Engineer

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		• Soil / Road condition • Moving and suspended load • Defects in Lifting gears/ Defects in sling	• Major injury • property damage				• Pre inspect position area of crane and outriggers. • Ensure area is Compacted & levelled prior to setup of crane. • Deploy only trained operators. • Only experienced rigger involved in this activity. • Only certified crane shall be used • All lifting gears like D shackle, Wire rope / Web / Chain Sling shall also be used only after certification by competent person. TPI • No lifting without Lifting engineers, riggers & signal man. • Lifting operation stop if wind speed above 40 km per hours. Barricaded all lifting area. • Spreader Beam TPI inspection done by competent person. • All sling check before start of work. • all lifting material properly scurried to avoid any damages.	Site In-charge / Site Engineer / crane operator
19	Crane operations Kalzip sheet lifting by spreader beam			3	4	12		
Person Preparing the Risk Assessment		Name – NITIN PATIL						
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	• Skin hazards • inhalation	• Skin irritation • health hazards				• Use MSDS (Material safety data sheet) for Rockwool handling safety. • Training to all workers how to handle rock wool. • All workmen should worn full sleeve shirt and full pant, Nose mask, safety goggle, hand glove • Rockwool are stored in original packagings until they are used and open packed will be covered by tarpaulin. • All loose Rockwool pieces collect immediately and keep in bag. • Ensure no any Rockwool left on roof at any point daily before close of work	Site In-charge / Site Engineer	
17	Rockwool storage & Rock wool insulation laying on roof			3	2	6		
18	Kalzip sheet production	• Leakage of power • sharp edge • Obstruction in work area • Struck by coil while shifting and fixing • Electrocutation	• Cut Injury • Trip injury, • Fall of material • Hit by coil	3	2	6	• Allot sufficient number of skilled workmen involved sheet production. • Safety helmet, safety shoes, hand gloves shall be provided to the workmen • Authorised drivers shall be engaged to coil shifting work. • Only kazip operator handle the profiling machine. • Equipment & machinery shall be inspected • Earthing should be proper. • Correct rated metal plug tops shall be used for taking power supply. • Only authorized person shall give power supply to the profiling machine. • Damage material strictly do not use. • Avoid use of joint cable for power supply to profiling machine. • Sheet support shall be checked. • Only authorised operator work on profiling machine.	Site In-charge / Site Engineer

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	Material fall down • Working on height • Slip / Trip on roof • Cement board cutting dust	Fall of person / material • electric shock. • Electrocutation • Major injury • inhalation					work personnel to ensure that material are securely tied with nylon rope. • Work personnel shall be maintain proper housekeeping at roof all times • Site engineer to ensure that no any cement board keep near edge • Site engineer to ensure that work personnel use nose mask while cutting of cement board. • Ensure proper use of full body harness with shock observer near roof edge. • Earthing shall be provided to Distribution board. • All electrical connections shall be routed through RCCB/ELCB. • Continue checking of machine • Do not use machine without plug top. • Use cutting face shield while cutting cement board. • Only authorized workmen should be engaged to use of cement board cutting machine. • Use proper cutting wheel to cutting machine. • Ensure machine guard place in proper position in machine..	Site In-charge / Site Engineer
13	Cement board fixing		3	2	6			
14	VCL laying on roof	• Roll fall from height	3	2	6		All VCL roll on roof covered & tied by 12 mm nylon ropes, • Ensure no loose roll is left on roof. • Maintain proper housekeeping on roof.	Site In-charge / Site Engineer

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10	Skylight opening	• Fall	• Major injury • Fatal	3	4	12	• During roof sheeting activity, if any opening/edge generated that shall be protected by hard barricade (which can take 90 kgf load). Skylight opening shall be protected by hard barricade. • Also covering roof opening, skylight, vent etc., with safety net.	Note - Hard barricading material will provide by L&T and install by VIJAYNATH, *covering safety net by L&T
11	Top hat bracket lifting and stacking on roof	• Slip, trip on roof • Sharp edge of bracket	• Minor injury • cut injury • Material damage.	3	2	6	• Only experience & trained person allow on roof. • Observation on roof to be made by engineer. • Obtain height work permit. • Proper lifting top hat bracket in basket. and properly stack on roof. • Ensure no any single piece of top hat bracket on roof. • Safety engineer shall be check of no any loose material on roof. or get tied / remove before closing the work. • Provide & ensure use of cut resistance hand gloves while handling of top hat bracket.	Site In-charge / Site Engineer
12	Top hat bracket fixing on liner sheet	• Loose material on roof • Machine overheating, electricity	• bodily injury • Machine burnout, electric shock. • Electrocution. • Cut injury	3	2	6	• All top hat bracket stack at one place • cut resistance hand gloves use for handling of top hat bracket. • Ensure No any top hat bracket loose on roof. • Earthing shall be provided to Distribution board. • All electrical connections shall be routed through RCCB/ELCB/ • Continue checking of screw machines. • Do not use machine without plug top.	Site In-charge / Site Engineer

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		1. Fall • Sharp edge of sheet. • Machine overheating. • Electrocuton • Loose material on roof	• Fall of person / material • Cut injury • electric shock. • Electrocuton • Major injury				liner sheet fixing	9	• Workers ability shall be check for work at height physically examined and authorized to work at height. • Ensure proper anchor of full body harness in life line near roof edge. • In critical roof slope we will use Retractable fall arrester. • catch net shall be fixed below proposed roof sheeting area and to progressive area • Placed more engineers for effective supervision. • below work area shall be Barricaded and placed worker for trespassers • Work shall be stopped in adverse weather condition. • Allot sufficient number of skilled workmen involved in the job. • Safety helmet, safety shoes anti-skid, cut resistance hand gloves shall be provided to the workmen • Ensure no any single sheet keep on roof. • Earthing shall be provided to Distribution board. • All electrical connections shall be routed through RCCB/ELCB. • All screw machine, hand grinder check and tag before start of work. • Adequate resource (post, barrication pipe, tripod, clamp) shall be made available before starting roof sheeting work. All edges and opening shall be protected proactively.	Site In-charge / Site Engineer Note:- Hard barricading material will provide by L&T and install by VIJAYNATH,
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						Site In-charge / Site Engineer	
8	Aluminum Gutter fixing by argon welding	• Electrocution • Pressurised cylinder	• Machine burnout, electric shock. • Electrocution • Fire . • Cylinder burst • asphyxiation • burn injury	3	3	9	• Earthing shall be provided to Distribution board. • All electrical connections shall be routed through RCCB/ELCB. • Continue checking of machine • Do not use machine without plug top. • Check Argon welding m/c before start of work • Cylinder should be in vertical position in trolley and secured by chain. • Ensure work area clear from combustible material • Hose pipe and valve check before start of work • PPE use (welding face shield, leather hand gloves, helmet , safety shoes etc) • Fire extinguisher shall be near welding work. • Hot permit obtained before start of work • if required barricading provided to below work area on ground level. • Use suitable lifting cage for gas cylinder lifting with TPI

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							Site In-charge / Site Engineer
7	Power distribution	- Leakage of power - Electrocution - Fire - Tripping by ground level cable	- Electrocution - bodily injury - fatality - Burn	3	3	9	- Correct rated industrial plug tops shall be used for taking power supply. - Only electrician shall give power supply to the equipment - Light posts, hand tools etc shall be allowed to shift only after the disconnect electric power supply. - Hand tools and machinery shall be inspected by site engineer and EHS person before deployment. - All DB shall be fitted with RCCB/ELCB. - All high powered equipment shall be provided with earthing. - Damage material strictly do not use. - Avoid Joint in cable, use only without joint cable. - Cable shall be laid properly on ground and roof also.

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		Improper planning • Loose sheet on roof • Sharp edge	Property damage • Slip, trip • Cut injury					Only experience & trained person allow on roof. • Observation on roof to be made by engineer. • Full body harness with shock absorber use on roof near age and ensure anchor with life line. • Obtain height work permit. • Proper tie up sheets and cement board on roof by nylon rope. • Site will be inspected before closing work by site engineer. • Safety engineer shall be check of no any loose material on roof. Or get tied / remove before closing the work. • Provide & ensure use of cut resistance hand gloves while sheet handling. • Sheet and cement board not stacking in single point on roof.	Site In-charge / Site Engineer
5	Sheet, cement board stacking on roof			3	2	6			
6	Liner Sheet shifting on roof	• Slip , trip on roof • fall of person	• Bodily injury • cut injury • material damage.	3	2	6		Given training to all worker who going on roof. • Only trained/authorized person will allow on roof for work. • Full body harness (with shock absorber) anchor with lifeline while shifting of sheet on slop area and near edge of roof. • Provide slip resistance safety shoes on roof • Edge protection provide and life line tied 2 meter away from the roof. • Ensure housekeeping done daily basis for obstruction free area. • Cut resistance hand gloves provide for sharp edge sheet handling.	Site In-charge / Site Engineer

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	• Soil / Road condition • Moving load • Defects in Lifting gears/ Defects in sling • Suspended Load	• Major bodily injury to workmen • property damage • Hit to fix object, physical injury			• Pre Inspect position area of crane and outriggers. • Ensure area is Compacted & levelled of land surface prior to setup of crane. • Deploy only trained operators. • Only experienced rigger involved in this activity. • Only certified crane shall be used • Operate crane after obtaining Equipment fitness test by Competent Person • All lifting gears like D shackle, Wire rope / Web / Chain Sling shall also be used only after certification by competent person. TPI • No lifting without Lifting engineers, riggers & signal man. • Barricaded all lifting area. • Monthly Inspection by EHS Engineers & erection engineer. • All sling check before start of work. • lifting operation stop if wind speed above 40 km per hours • Use Guide rope both side of load while lifting.	Site In-charge / Site Engineer / crane operator
4	Crane operations liner sheet , cement board, rock wool lifting by crane (100 T)		3	4	12	

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3	Access to roof by scaffolding tower staircase & Tying life line on roof	- Illegal way - Improper staircase - Fall from height, sharp edge - unauthorized entry - scaffolding collapses	- cut injury - fatal - physical injury	2	3	6	- Given training to all workers. - Ensure scaffolding staircase erection done by competent person and green tagged by authorised person - Use only proper scaffolding staircases for reach to roof. - Scaffolding staircase erection on sound soil with proper base plate. - Safety harness double lanyard with shock absorber used on structure. - All workers to carry entry pass. - Periodically inspection /check scaffolding staircase. - Only experienced worker allow this work. - Use 8 mm wire rope for Life line. - Tying lifeline according to slopes, and on roof 2 meters keep away from the edge. - Roof access controller shall be deployed with register at Stair base. NO roof pass NO Permission to go on roof.	Site In-charge / Site Engineer Note:- Roof access staircase will provide by L&T
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		Rash • Vehicle movement • Unloading of sharp edged sheet • Improper stacking. • Ankle cut • Inadequate pedestrian areas and unauthorized movement. • Tripping hazards. • Over loading of crane.	Major injuries • disability • Hit injury				Experienced and licensed drivers shall be work • Driver shall be help of banks man or signaller. • Vehicle shall be with Reverse horn • Equipment & machinery shall be tested & certified. • Allot sufficient number of skilled workmen to the job • Safety helmet, safety shoes, hand gloves shall be provided to the workmen. • Lifting belt & equipment to be checked. (TPI) • Lifting permit to be obtained • sheet shall be stacked size wise with signage posted • Area shall be barricaded. • Stacking single sheet shall be avoided • Coils should be keep proper stacking and with support. • Stacking area shall be barricaded. • Stacking of sheet away from work area. • All lifting load will be calculated and ensure under crane lifting capacity before lifting • Materials shall be secured as per L&T's lifting shifting SOP at source to unload material at site safely. • Advance communication shall be done at source to load material as per SOP.	Site In-charge / Site Engineer
2	Roof liner sheet / coil Unloading (3ton Max) and stacking. By F-15 crane			2	3	6		

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RA No. LNT B&F 03, NMIA-LNT PT-PT1-DS-P1-SH-AR-RP007

RISK ASSESSMENT

Work Code	☒ A	☐ B	☐ C	☐ D
Location of Work	PTB construction site			
Work Activity/Task	Roofing installation work			
Duration of the activity - TBA	☐ day(s)	☐ Week(s)	☐ Month(s)	☐ DAY ☐ NIGHT
Date & time of activity being carried out	____/____/____ AM/PM (TO BE ANNOUNCED)			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Jaychndran Panickar	Project in charge	
2	Bipin Das	Technical Head	
3	Rahul Waghmare	Project Head	
4	Nitin Patil - Review	Head EHS	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS					
No. of employees Required to do the work		Work Platforms/Access		Crane/Operators Competency (If so attach document)		YES	NO	NA	
						☐	☐	☐	
Occupations Trades/Skills required		Associated Hazards (Man/Machine/Environment)		Any other specific documents required		YES	NO	NA	
						☐	☐	☐	
Qualifications (Licenses/Work Permits)		Tools/Power tools (Chisel, Hammer, Grinder)		MATRIX		SEVERITY			
Training (Completed/Required)		Area Illumination (Tower Lights, Pole lights)		PROBABILITY (Likelihood)		1 Negligible	2 First Aid	3 < 2 days	4 Reportable
				1 Unlikely		Low 1	Low 2	Low 3	Medium 4
				2 Possible		Low 2	Low 4	Medium 6	Medium 8

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PPE Required for task (Helmets & Safety Shoes are mandatory)	Plant (Static & Mobile)	NA	3 Very Likely	Low 3	Medium 6	High 9	High 12
			4 Certainly	Low 4	Medium 8	High 12	High 16

Sl.No.	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING			CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who will ensure this happens
				P x	S =	RR		
1	Manpower deployment / mobilization	• inexperience / untrained personnel • inadequate PPE for the task • height phobia • Lack of awareness during emergency.	• Major injuries • disability/ fatality	3	3	9	• All workers should under gone L & T screening / VRWCSPIL induction training. • Competency assessment shall be done for operators, • CV of EHS proposed EHS member shall be produced to L&T EHS dept. After screening/interview, candidate shall be deployed at site. • Task awareness and risk assessment should be communicated with all personnel engaged in the work. • Periodic training should be carried out on use. Care & maintenance of PPEs • Check on their qualification and skill development in respective area of work. • Management should ensure all personnel are well oriented with displayed signage's individual area of work. • All workmen should make know the Do & Don't at site. • All personnel should checked for the medical fitness by approved authority. • Emergency awareness training shall be provided to all workmen as well as staff.	Site In-charge / Site Engineer

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ACTIVITY	Arrival & Departure Ramp	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING			CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who will ensure this happens
					P x	S =	RR		
1	Survey Marking	- Untrained workforce - Survey during adverse weather condition cause poor visibility (i.e. foggy, rainy weather) - Presence of snake or other reptiles	- Cut injury - Eye irritation due to paint. - Heat related health issues. - Stings and bites	2	2	4		- Before commencing activity, TBT shall be conducted. - All required mandatory and job specific PPEs provided - Use the measuring staff which is made up of insulated material (fiber or wooden staff). - Drinking Water and umbrella with non-conductive handle shall be provided. - Lone working shall be avoided. - A trained and certified first-aiders shall be deployed with the crew and a suitable means of transportation shall be available at all times. - A flagman deputed in advance for warning to live traffic. Flagman shall stand on median as per regular practice. - All required mandatory and job specific PPEs being used.	Mr. Amol Ghawate & Mr. Pankaj Chaugule

Person Preparing the Risk Assessment Name - Amol Ghawate Date Signature [Signature]



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4	Equipment/vehicle movement	- Unauthorized operation - Vehicle reversing - Deployment of unfit vehicles - Drunk & Drive - Use of Mobile phone - Intoxication - Dust Generation - Fire in equipment	- Injuries to workers - Hit by falling objects. - Slips, trips and falls Access and egress Property damage	3	4	12	- All workers must wear mandatory PPEs while working at site - Before commencing activity, TBT shall be conducted - Prior to engaging any vehicles on site, it shall be inspected and fit for the purpose. - Provide clear access for vehicles to enter, exit and move on site. - The access roads shall be kept clear from any obstacles. - Trained Flagman/signalman shall be engaged at hazardous areas (Loading point and Junctions) to direct vehicles and do not stand on the downhill side or directly behind a moving or unloading truck. - Make sure the operator has seen you if you are nearby; and make sure trucks can exit from sites when material loaded in that. - All workmen/maintenance technicians shall be inducted and provided with mandatory PPEs which shall be worn all time at site. - Regular monitoring of drivers and operators will be ensured to checked whether they are under the influence of alcohol while at work. Zero tolerance to such unsafe behaviors.	Mr. Amol Ghawate & Mr. Pankaj Chaugule
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Person Preparing the Risk Assessment

Name -

Amol Ghawate

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6	Loading, Unloading, of rebar & shuttering boards by pick and carry crane	- Unauthorized Operation - Fall of material - Fall from height. - Improper use of lifting belts	- Toppling of crane multiple injury - Head Injury by fall of material. - Injury - Fatigue	3	4	12	- Only authorized workmen and operators should be allowed while erection. - Prohibition of mobile phone usage by the crane operator & signal man. - Verifying the weight of an object to be lifted against SWL of the crane with respect to boom length & horizontal angle by referring manufacturer load chart. - Trained Riggers, signal man and lifting supervisors are deployed. Provision of Tag line to control the load oscillations. Usage of right slinging method (hitches) with right lifting gears. - Lift Card should take before doing any lifting activity - Crane hook must have hook latch. Over load, over hoist limit switch is provided and checked for effective functioning. Daily inspection by the operator. Monthly joint inspection by the EHSO and P&M Engineer. - Safe work platform shall be provide for height work and safety harness should be use. - Medical fitness of operators ascertained before employment and periodically checked. - Ensure adequate warning signage's displayed in the work location - Road shall be made leveled, compacted & free from pot holes and well maintained - Crane shall not be left on a slope with the engine of such vehicles or equipment running - All lifting tools & tackles shall have valid TPI Certification - No person allowed under suspended loads & crane swing areas	Mr. Amol Ghawate & Mr. Pankaj Chaugule
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8	Erection of Scaffold	- Scaffold Collapse - Fall of Scaffold - Fall of materials - Fall of Person - Fainting, falling from height - Slip, trip and fall	- Major injury of workmen's - Minor injury of workmen's	3	4	12	- Ground Compacted, levelled & made firm. - Scaffold is not erected near to excavation area and vice versa. - Experienced personnel are engaged. - Scaffolding are erected as per scheme drawing. Supervision is ensured. - Scaffold tag system is implemented. - Towers are connected with 2 spring lock pins. - Scaffold erected as per our standard & Inspected by Form Work Dept. - Trained Scaffold gang is deployed. - Lateral supports at every 6 meters intervals - Verticality of scaffold is ensured to the norm of tolerance 1mm per meter - Person erecting the materials with pulley & rope is allowed stay away from the erection area to safeguard from fall of materials. - Working Platform made with 600 mm width & Secured both sides, with handrails - Use of Full body Harness with Double lanyard is ensured. - Single sheave pulley with closed hook is used and secured well at anchorage location. - Trained Scaffold gang is deployed. - No loose material is allowed to keep at top. Hand tools shall be secured so that it will not even if missed. - Beneath height work is cordoned and deployed one person to ensure no one enters the height work area. - Worker's ability to work at height is physically examined and authorized to work at height. - No work on scaffold is allowed to carry out during raining or immediate after rain. - Adequate illumination of 150lux is ensured at workplace. - Competent supervision shall be improved.	Mr. Amol Ghawate & Mr. Pankaj Chaugule
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Date

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					- Approach roads shall be levelled. - Overloading of concrete shall not be allowed. - Revolution of back mixer drum should be 2 revolutions/ Min. - Concrete shall be loaded within the capacity of the mixer drum. - Always back chute should always be locked and cleaned properly before dispatching the vehicle from the loading or unloading point. - All rotating parts shall be properly guarded. - While placing the Transit Mixer with boom placer /concrete pump nobody shall be allowed to stand in between the TM and boom placer/concrete pump. - All Vehicles have Reverse horns. - Helper/Flagman shall be guiding the TM while placing with boom placer and concrete pump. - Before placing the vehicle, the operator shall be ensuring the surroundings of vehicle that no person is taking rest underneath the vehicle. - Ensure Job rotation to reduce fatigue. - All required mandatory and job specific PPEs provided.				Mr. Amol Ghawate & Mr. Pankaj Chaugule
10	Concreting	- Unsafe Transportation - Concrete spillage over the road. - Exposed Rotating parts of Miller - Person standing between transit mixer and concrete boom placer - Extended working hours of operator	- Crush, - Hit by vehicle - Slippage of bike and land pollution - Entanglement - Hazard - Fatigue	3	3	9			
11	Boom placer operation/Crane Operation	- Unauthorized operation - Use of mobile phone by operator - Maintenance of boom placer/TM - Guards for rotating parts - Holding rubber hose by hand.	- Hit injury / Fall of materials - Hit injury due to erroneous crane movement - Entanglement - Hit injury due to the oscillation of pipe	3	4	12			Mr. Amol Ghawate & Mr. Pankaj Chaugule

Person Preparing the Risk Assessment Name - Amol Ghawate Date Signature [Signature]



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13	Dismantling of Scaffold	- Improper Access/ Work platform in scaffold - Dismantling unit wise - Haphazard lifting pattern - Throwing the material from height	- Fall of Person - Falling of scaffold - Fall of Material - Fall of Material	2	3	6	- Use of Full body Harness with Double lanyard is ensured - Working Platform made with 600 mm width & secured both sides. - Scaffolds are dismantled row wise, before proceeding to next row, the entire components are removed. - Single sheave pulley with closed hook is used and secured well at anchorage location. - Trained Scaffold gang is deployed. - No materials are thrown from height. - Workers are educated in safe material handling operation	Mr. Amol Ghawate & Mr. Pankaj Chougale
14	Weather condition	Rain and wind	Collapse of temporary structure causing Serious Injury.	2	3	6	- Work should be carried out in the presence of a competent person. - Scaffold shall be inspected by authorized inspector after wind - Weather forecast to be updated and decision to be made. - Movement and excavation at waterlogged area shall be avoided.	Mr. Amol Ghawate & Mr. Pankaj Chougale
15	General	- Unauthorized Entry - Fire - Extended work hours - Improper House keeping	- Injury - Burn injuries - Loss of property - Fatigue - Person may Fall due to tripping from Scattering of materials.	2	3	6	- Unauthorized entry will be restricted at work area. - Barrication shall be provided to avoid unauthorized entry. - Don't smoke at workplace premises. - Shut off engine when refueling. - Don't weld / cut nearby flammable materials. - Good housekeeping must be maintained. - Provide adequate fire extinguishers in equipment's. - Work shall be stopped during heavy wind and rain. - Operators are not allowed to work beyond 12 hrs.	Mr. Amol Ghawate & Mr. Pankaj Chougale

To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	P S.No.	Signature	Sl.No.	Name	P S.No.	Signature
01	Mr. Amol Gawate	10004034		06	Mr. Pankaj Chougale	20174120	

Person Preparing the Risk Assessment Name - Amol Ghawate Date Signature

Sensitivity: LNT Construction Internal Use

Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Code. EHSNMIAL

Form No. C-20-26

Issue

RISK ASSESSMENT

RA No. LNT B&F/BORE HOLE/R/00

Location of Work: All Area of NMIAL Project

Work Activity/Task: Soil investigation Boring hole

Duration of the activity:- ☐ day(s) ☐ Week(s) ☐ 6 Month(s) ☐ DAY ☐ NIGHT

Date & time of activity being carried out : 27 / 6 / 2024 8.30 am to 8.30 am AM/PM)

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Sanjay Pandurang Aher	Site in charge	
2	Kathula Raju	Site engineer	
3	J Karmakar	EHSM	
4	Santosh Bhaskar - Review	Head EHS	

PERSONNEL DETAILS			EQUIPMENT/MATERIAL DETAILS				DOCUMENTATIONS			
No. of employees Required to do the work	Occupations Trades/Skills required	Qualifications (Licenses/Work Permits)	Trades/Skills	Work Platforms/Access	Associated Hazards (Man/Machine/Environment)	Tools/Power tools (Chisel, Hammer,)	Chisel, hammer, brush.	Crane/Operators Competency (If so, attach document)	YES	NO
NA	NA	NA	NA	Man, Machine	Man, Machine	Chisel, hammer, brush.	Chisel, hammer, brush.	Any other specific documents required	YES	NO
Required	Required	Required	Required	Area Illumination (Tower Lights, Pole lights)	Area Illumination	Pole Lights	Pole Lights		YES	NO
Mandatory PPEs including Nose Mask, Goggle	Mandatory PPEs including Nose Mask, Goggle	Mandatory PPEs including Nose Mask, Goggle	Mandatory PPEs including Nose Mask, Goggle	Plant	Plant	NA	NA		YES	NO
			MATRIX				SEVERITY			
			PROBABILITY							
			1 Unlikely				1 Negligible			
			2 Possible				2 Low			
			3 Very Likely				3 Low			
							4 Reportable			
							Medium 4			
							Medium 6			
							High 12			

Person Preparing the Risk Assessment Name - J Karmakar Date/Time ; 29 / 06 / 2024; AM/PM

Sensitivity: LNT Construction Internal Use NMI/PEHS @ 10/2021 Page 1 of 6



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Code. EHSNMIAL
Form No. C-20:26
Issue

Required for task (Helmets & Safety Shoes are mandatory)		Yes		(Static & Mobile)		4 Certainly		Low 4		Medium 8		High 12		High 16	
Sl.No.	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You ?	RISK Type of Harm	RISK RATING P x S = RR		What are you going to do to make the job as safe as possible		CONTROLS		ACTION BY Person who will ensure this happens					

Navi Mumbai International Airport Pvt. Ltd Project Environment, Health & Safety Department

Code. EHSNMIAL
Form No. C-20:26
Issue

RISK
ASSESSMENT

Access/egress for workman & machinery	Workmen/vehicle movement	Fall of workmen or damage to machinery	2	3	6	• Separate access (Pedestrian pathway) shall be provided to all workmen and vehicle. • Adequate lighting shall be done on site area. • Adequate reflecting should be provided. • Soil should be checked for its stability. • Rest shed should be provided in the work area • Vehicle should be checked for its fitness • Wheel stopper should be provided • Minimum required should be followed • Driver and helpers should be briefed before starting of work.	Sanjay Aher
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Date/Time ; 29 / 06 / 2024; AM/PM

Signature

Name - J Karmakar

Person Preparing the Risk Assessment
Sensitivity: LNT Construction Internal Use

NMIAPEHS @ 10/2021

Navi Mumbai International Airport Pvt. Ltd Project Environment, Health & Safety Department

Code. EHSNMIAL
Form No. C-20:26
Issue

2	Boring	Pressurized HT line or underground utilities	Contact with electrical lines or other lines	3	2	6	- All workers shall be screened and inducted. - All persons shall use appropriate PPEs. - Work area shall be properly inspected prior to start work. - Any OH line shall be identified and briefed in TBT. - All the utilities shall be identified/ protected/ re- routed as necessary - Work shall be stopped in heavy rains. - All spoils shall be removed from site at regular intervals.	Sanjay Aher
---	--------	--	--	---	---	---	--	-------------

Person Preparing the Risk Assessment: Name - J Karmakar
Sensitivity: LNT Construction Internal Use

Signature

Date/Time : 29 / 06 / 2024; AM/PM

Navi Mumbai International Airport Pvt. Ltd Project Environment, Health & Safety Department

Code. EHSNMIAL

Form No. C-20:26

Issue



3	Caught between the moving parts	Caught between the moving parts	3	3	9	- All rotating parts of the machines shall be properly guarded. - Loose garments shall be strictly prohibited at site. - Maintain safe separation distances from plant, particularly rotating/swinging arms, counterweights (Winch / Chisel) etc. - Do not stand or cross beneath, or downhill of suspended loads.(Winch / Chisel) - All machines should be checked before deployment. - Proper housekeeping should be maintain - Material should be stacked in sequence - All slings should be check with third party certification - Work area to be fenced with the caution tapes to avoid entry of workmen. - No workmen should be allowed into the work radius while chiseling and cleaning in progress	Sanjay Aher
							Sanjay Aher
4	Noise	Exposure to excessive noise	2	2	4	- Hearing protection should be provided - Work rotation shall be done periodically.	Sanjay Aher

To be completed prior to the commencement of the work activity/Task

Signature

Name - J Karmakar

Person Preparing the Risk Assessment
Sensitivity: LNT Construction Internal Use

Date/Time ; 29 / 06 / 2024; AM/PM



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Code. EHSNMIAL
Form No. C-20-28
Issue

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1				10			
2				11			
3				12			
4				13			
5				14			
6				15			
7				16			
8				17			
9				18			

TRAINING ACKNOWLEDGEMENT				Signature	Date
Toolbox talks given by ;	Site Engineer				/ /
	Site Supervisor				/ /
	Safety Officer/Representative				/ /


Signature

Person Preparing the Risk Assessment Name - J. Karmakar
Sensitivity: LNT Construction Internal Use

Date/Time ; 29 / 06 / 2024; AM/PM



N. J. Mumbai International Airport Pvt. Ltd
Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\05
Revision No.:00

RA No. LT/CP/8/005

RISK ASSESSMENT

Work Code	TI-CP/2022/001			
Location of Work	F-12 Crusher Plant			
Work Activity/Task	Crusher Operation			
Duration of the activity	☐ day(s)	☐ Week(s)	☒ DAY	☒ NIGHT
Date & time of activity being carried out	08:00 AM / 08:00 AM -24: 00 Hours			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Girish Krishnamurthy Nandyal	Crusher Incharge	
2	Sankarnarayan As	Construction Manager	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS			
No. of employees Required to do the work	25	Work Platforms/Access	All access provided	Crane/Operators Competency (If so attach document)	YES	NO	NA
Occupations Trades/Skills required	For Crusher Operation – Site Engineer, Crusher Operator, Electrician, Welder, Helper, Rigger, Supervisor	Associated Hazards (Man/Machine/Environment)	- Accidental Hazards (Fall, Trips , stuck, Cut etc.) - Physical Hazards Noise, Vibration, Heat, Radiation - Chemical Hazards Dust				
			Any other specific documents required	☐	☐	☐	

Person Preparing the Risk Assessment

Name - Sankarnarayan

Date 12/10/22

Signature



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\05
Revision No.:00

				MATRIX	SEVERITY			
					PROBABILITY (Likelihood)			
Qualifications (Licenses/Work Permits)	- Certified Electrician engaged, - Work Permits: HOT work Permit, Permit to work on Plant, Machinery, Work at Height (while maintenance)	Tools/Power tools (Chisel Hammer, Grinder)	Necessary tools will be provided i.e Spanner, Hammers, Spade and Grinder		1 Negligible	2 First Aid	3 < 2 days	4 Reportable
Training (Completed/Required)	- EHS Induction to all - Job specific training for operators and Electrician.	Area Illumination (Tower Lights, Pole lights)	Pole lights provided	1 Unlikely	Low 1	Low 2	Low 3	Medium 4
PPE Required for task (Helmets & Safety Shoes are mandatory)	Mandatory PPE's as per employer's requirement such as Safety Helmet, Reflective Jacket, Safety Shoes, Nose Mask, Ear Plug, Goggles	Plant (Static & Mobile)	Static	2 Possible	Low 2	Low 4	Medium 6	Medium 8
				3 Very Likely	Low 3	Medium 6	High 9	High 12
				4 Certainly	Low 4	Medium 8	High 12	High 16

Person Preparing the Risk Assessment

Name - Sankar Narayan

Date 12/07/22

Signature [Signature]



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HRA\05
Revision No.:00

ACTIVITY	Crusher Operation	JOB STEP	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING			CONTROLS	ACTION BY Person who will ensure this happens
					P	X	S = R		
1	Break the Job Down into steps	Unloading the boulders into the dump hopper	- Vehicle fell inside the hopper during dumping - Boulders fell outside the hopper while unloading - Insufficient illumination during night - Hydraulic system failure during unloading - Lock pin not removed while unloading. - Use of Mobile phone - Dust Generation - Intoxication	- Run Over - Rear-End or Head-On Collisions. - Topping of vehicle - Dust Pollution	3	4	12	What are you going to do to make the job as safe as possible - Stopper provided in safe distance from the hopper - Speed limit is restricted to 10 km/ hr. - Safety Devices like Reverse horn, Horn, Mirror etc. are functioning. - Equipment fitness certification system is followed & Validation of Operator fitness is obtained. - Regular maintenance of equipment to done so that hydraulic system works properly. - Overloading should be strictly avoiding. Body height should be maintained proper and dumper capacity should be below mark. - Area shall be frequently cleaned of any stone /rock fallen from a plying dumper - Trained Flagman/signalman should be engaged at such area. - Proper illumination should be provided - Regular water sprinkling during crushing operation. - All workmen including visitors should have wear mandatory PPEs while working in Crusher plant. - Drink & drive should be prohibited in workplace. Regular alcohol testing should be done by concern person	Section In charge/ Site Engineer

Person Preparing the Risk Assessment

Name - Sankar Manojan

Date

Signature [Signature]



N. J. Mumbai International Airport Pvt. Ltd
Project Environment, Health & Safety Department

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2	Boulders feed to Jaw crusher to Surge hopper to cone (By Conveyor Operation)	- Rotating Belts - Fall of materials from conveyor - Dust Generation - Noise & Vibration	- Entanglement of body parts. - Hit injuries - Health hazards	2	4	8	- All moving parts to be guarded and Work Permit system must be implemented while removing of any rotating part for maintenance purpose of Motors/Conveyors etc. - Pull cord / emergency stopper should be provided - Loose clothing must be avoided nearby moving/ rotating parts. - Person shall not be allowed to travel below conveyor while plant is operational. - Conveyor should be cover with water sprinkling during crushing operation. - Display cautionary, Mandatory and Informatory sign boards at designated location. - All workmen including visitors should have wear mandatory PPEs while working in Crusher plant. - Use Ear plugs or ear muff if sound limit exceeds 85dB.	Section in charge/ Site Engineer
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Person Preparing the Risk Assessment

Sensitivity: LNT Construction Internal Use

Name - Sankar Narayanan

Date 12/07/22

Signature [Signature]



3 Heaping of Crushing Material by Loader/Excavator etc. Equipment	• Heavy Earth moving Machinery • Hydraulic system failure during unloading • Lock pin not removed while unloading • Insufficient illumination during night • Use of Mobile phone • Intoxication • Dust Generation	• Run Over • Rear-End or Head-On Collisions. • Topping of vehicle • Dust Pollution	1 2 3 4	• Speed limit is restricted to 10 km/ hr. • Safety Devices like Reverse horn, Horn, Mirror etc. are functioning. • Equipment fitness certification system is followed & Validation of Operator fitness is obtained. • Regular maintenance of equipment to done so that hydraulic system works properly. • Overloading should be strictly avoiding. Body height should be maintained proper and dumper capacity should be below mark. • Area shall be frequently cleaned of any stone /rock fallen from a plying dumper • Trained Flagman/signalman should be engaged at such area. • Proper illumination should be provided • Regular water sprinkling during crushing operation. • All workmen including visitors should have wear mandatory PPEs while working in Crusher plant. • Drink & drive should be prohibited in workplace. Regular alcohol testing should be done by concern person	Section In charge/ Site Engineer
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Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

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Revision No.:00

4	Crusher Plant Maintenance	- Electrical works - Repairing of Motor - Removing of Conveyor belt. - Welding/ Gas Cutting - Oiling \Greasing	- Electrocution - Fall from Height - Fire - Land Pollution	3 4 12	- LOTO-lock out tag out permit system must be implemented for any maintenance or repair operations. - Provide RCCB for distribution boards & its monthly checking. - Use only IP55 DB for distribution. - Use HV rubber gloves during working for electrical lines. - SWP of plant Crusher Plant Operation should be implemented. - Safe work platform shall be provided for height work and safety harness should be use. - Workmen to be screened for working at height. - Adequate fall arrester arrangements to be made such as safety harness with Double lanyard, life line etc. - Welding and cutting hoses should be good condition. - Welding cable and cutting hoses should not mix-up. - Cylinders should be placed in trolley and positions to be maintained. - Mandatory PPE'S like leather Gloves, apron, proper face shield and mask to be used. - Use of fire bucket extinguisher in vicinity of welding/cutting work. - Hot work permit shall be taken before starting the work - Combustible material should be removed from the area and protect nearby combustible materials that cannot be moved - Use of funnel to fill the hydraulic / lubricating oil etc. - Contain the spillage by spill tray. - Oil soak Cotton waste shall be collected separately and disposed as per waste management plan.	Section In charge/ Site Engineer
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Person Preparing the Risk Assessment

Name - Sankar Narayan

Date 12/07/22

Signature [Signature]

Sensitivity: LNT Construction Internal Use



N. J. Mumbai International Airport Pvt. Ltd **Project Environment, Health & Safety Department**

Doc no.: NMIA\LNT\HIRA\05
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5	• Weighbridge Operation • Improper access • Poor Housekeeping • Fall of materials from dumpers • Toppling of vehicle • Rear-End or Head-On Collisions. • Slip and Trips	3	3	9	• Access to the weighbridge should be simple and straightforward. • Handrails with clear signage should indicate where the weighbridge is and outline what drivers must do. • Traffic should always be controlled to ensure correct queuing. one-way traffic flow to be ensured to avoids confusion • Access barriers, traffic lights to be used as part of such a system to help control traffic flow, • Housekeeping need to be done regularly weighbridge surface should be kept clear of debris to avoid slips and trips.	Section In charge/ Site Engineer
6	• Unauthorized Entry • Fire • Heavy wind (cyclone) • Extended work hours • Improper House keeping • Injury • Burn injuries • Loss of property • Fatigue • Person may Fall due to tripping from Scattering of materials, Improper laying of cables.	3	3	9	• Security should be kept at entry and exit points to avoid unauthorized entry at Crusher Plant • Barrication provided to avoid unauthorized entry. • Don't smoke at plant premises. • Shut off engine when refueling. • When fueling ground the funnel to avoid static sparks. • Don't weld / cut nearby flammable materials. • Good housekeeping must be maintained. • Proper storage of oil & gas • Provide adequate fire extinguishers at oil & gas storage area and Hot works. • Work should be stopped during heavy wind and rain. • Operators are not allowed to work beyond 12 hrs. • Proper segregation of materials done, use of scrap bins/area/yard provided for various type of scraps.	Section In charge/ Site Engineer

Person Preparing the Risk Assessment

Name -

Santosh Narayan

Date

12/07/22

Signature

[Signature]



NMI Mumbai International Airport Pvt. Ltd
Project Environment, Health & Safety Department

Ref: NMIL\INT\HIRA\05

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1	Kumaresan R	85899		11	Nandkumar	242607	
2	Sourav Naskar	137776		12	Ponnapan K	20045529	
3	Nitesh Kumar Mishra	20076888		13	Raj Kumar Kanoje	243883	
4	Sawant Shrikrishna Bhagwat	20098669		14			
5	Sankar Mani	20117118		15			
6	Ranganath Prasad Dwivedi	242659		16			
7	P G Pagare	241614		17			
8	Sinddamwar Ganesh Haridas	198075		18			
9	Ashok Kumar Shrivastav	20063261		19			
10	Pranab Palai	20165985		20			

TRAINING ACKNOWLEDGEMENT			Name	Signature	Date
Toolbox talks given by ;	Site Engineer	Sinddamwar Ganesh, Ponnapan K, Nitesh Kumar Mishra, Sankar Mani, Pranab Palai,			
	Site Supervisor	Manoj Gudiya , Arvind , Venson			
	Safety Officer/Representative	Md Rizwan , Jaskaran Singh			

Person Preparing the Risk Assessment Name - Sankar Mani Signature [Signature] Date/Time ; 12 / 07 / 22 ; AM/PM
Sensitivity: LNT Construction Internal Use



Navi Mumbai International Airport Project

Doc no.: NMIA\LT\HIRA\06
Revision No.:00

RA No.: LT/SR/8/006

RISK ASSESSMENT

Work Code	TI-SR/2022/001			
Location of Work	South Runway			
Work Activity/Task	Select Fill and GSB Activity			
Duration of the activity	☐ day(s)	☐ Week(s)	☒ 6 Month(s)	☒ DAY ☒ NIGHT
Date & time of activity being carried out	8:00 AM / 8:00 AM- 24 Hours			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. I Rajasekhar	Sr. Construction Manager	
2	Mr. Siva Raja	Construction Manager	
3	MR. Sarbeshwar Swain	Workmen Supervisor	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS	
No. of employees Required to do the work	20	Work Platforms/Access	NR	Crane/Operators Competency (if so attach document)	YES ☐ NO ☐ NA ☒
Occupations Trades/Skills required	Site- In charge, Site Engineer, Supervisor, Surveyor, Driver/Operator And unskilled worker, Electrician	Associated Hazards (Man/Machine/Environment)	Accidental: Fall, Trips, Cut. Noise, Vibration, Heat, Dust, Movement of Mobile plant and Equipment	Any other specific documents required	YES ☐ NO ☐ NA ☒
Qualifications (Licenses/Work Permits)	- For Drivers/Operators: Valid License + experience certificate - Electrician: License - Night work Permit	Tools/Power tools (Chisel, Hammer, Grinder)	Hammer, Crowbar, Auto level, peg rods	MATRIX	
				SEVERITY	
				1 Negligible	2 First Aid
				3 < 2 days	4 Reportable

S. SWARAJA

Person Preparing the Risk Assessment Name -

Date 30-08-22

Signature



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\06
Revision No.:00

ACTIVITY		SELECT FILL FILLING					RISK RATING		RISK Type of Harm	POTENTIAL HAZARD What Can Harm You?	JOB STEP Break the Job Down into steps	CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who will ensure this happens
Sl.No.		P	X	S	=	RR							
1	Survey work		2	4		8			• LTI • Cut injury • Eye irritation due to paint. • Heat related health issues. • Stings and bites	• Hit by vehicle • Survey equipment Handling • Survey during adverse weather conditions • Use of paint • Continuous exposure to sun light • Threat from reptiles		• Before commencing activity, TBT shall be conducted. • All required mandatory and job specific PPEs provided • Use the measuring staff which is made up of insulated material (fiber or wooden staff). • Drinking Water and umbrella with non-conductive handle shall be provided. • Lone working shall be avoided. • A trained and certified first-aider shall be deployed with crew and a suitable means of transportation shall be available at all time.	• Mr. Dilip Mishra • Mr. Adhikrao Gore • Mr. Sahil Darunde • Mr. Abhishek Dey • Mr. Sanatan Mete

S. SIVARAJA

Person Preparing the Risk Assessment Name -

Date 30-08-22

Signature



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\06

Revision No.:00

3	Dumping, Grading and Rolling	• Taking rest below parked equipment • Untrained and unauthorized operator • Fatigue • Reversing without a banks man • Fall of construction material on approach road.	• LTI • Runover • Toppling • Collisions • Toppling of vehicle • Air Pollution	3	4	12	• Before commencing activity, TBT shall be conducted • Prior to engaging any vehicles on site, it shall be inspected and fit for the purpose. • Defensive Driving Training shall be imparted for driver/Operator • Speed limit is restricted to 20 km/ hr. • As deemed necessary a proper route shall be identified highlighted by bollards. • Breakdown vehicles shall bear hazard / obstacle warning for the oncoming traffic. • Regular preventive maintenance of equipment will be conducted. • Overloading shall be strictly prohibited. • The access roads shall be kept clear from any obstacles. • Trained Flagman/signalman shall be engaged at hazardous areas (Dumping and Junctions) • Proper illumination shall be provided • Regular water sprinkling during operation. • Designated access/egress shall be marked and Zig-Jag /Haphazard movements of vehicles shall be strictly prohibited. • All workmen/maintenance technicians shall be inducted and provided with mandatory PPEs which shall be worn all time at site. • Regular monitoring of drivers and operators will be ensured to checked whether they are under the influence of alcohol while at work. Zero tolerance to such unsafe behaviors.	Mr. Shiv Raja, Mr. K Ramesh, Mr. Amol Savvashe, Mr Samir Swain, Mr. Subhendu Das, Mr. G Naveen
---	------------------------------	--	---	---	---	----	---	---

S. SIVARATA

Person Preparing the Risk Assessment Name -

Date 30-08-22

Signature



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\07
Revision No.:00

RA No. - LT/SR/8/007

RISK ASSESSMENT

Work Code	TI-SR/2022/001
Location of Work	South Runway
Work Activity/Task	Box Culverts & Drain
Duration of the activity	☐ day(s) ☐ Week(s) ☒ 6 Month(s) ☒ DAY ☒ NIGHT
Date & time of activity being carried out	8:00 AM / 8:00 AM- 24 Hours

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. G.S Rao	Sr. Construction Manager	<i>(Signature)</i>
3	Mr. Pradeep Birla	Asst. Construction Manager	<i>(Signature)</i>

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS	
No. of employees Required to do the work	500	Work Platforms/Access	NR	Crane/Operators Competency (If so attach document)	YES NO NA
Occupations Trades/Skills required	Site- In charge, Site Engineer, Supervisor, Surveyor, Driver/Operator, skilled & unskilled worker	Associated Hazards (Man/Machine/Environment)	Accidental: Fall, Trips, Cut, Noise, Vibration, Heat, Dust, Movement of Mobile plant and Equipment	Any other specific documents required	YES NO NA
Qualifications	Driving License for Driver, operator. Induction cards for	Tools/Power tools	Hammer, Crowbar, Auto level, Vibrator,		
			MATRIX	SEVERITY	



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HRA\07
Revision No.:00

ACTIVITY	Box Culverts & Drain	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING			CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who shall be ensure this happens
					P x	S =	RR		
1		• Survey work	• Hit by vehicle • Survey equipment Handling • Survey during adverse weather conditions • Use of paint • Continuous exposure to sun light • Threat from reptiles	• LTI • Cut injury • Eye irritation due to paint. • Heat related health issues. • Stings and bites	2	4	8	• Before commencing activity, TBT shall be conducted. • All required mandatory and job specific PPEs provided • Use the measuring staff which is made up of insulated material (fiber or wooden staff). • Drinking Water and umbrella with non-conductive handle shall be provided. • Lone working shall be avoided. • A trained and certified first-aiders shall be deployed with crew and a suitable means of transportation shall be available at all time.	- Mr. Dilip Mishra - Mr. Adhikrao Gore - Mr. Sahil Darunde - Mr. Abhishek Dey - Mr. Sanatan Mete

Person Preparing the Risk Assessment

Name - Pradip Bish

Signature

Date/Time : / /

AM/PM



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\07
Revision No.:00

3.	Plain cement Concrete	• Unsafe Transportation • Concrete spillage over the road. • Exposed Rotating parts of Miller • Person standing between transit mixer and concrete boom placer • Extended working hours of operator	• Crush, • Hit by vehicle • Spillage of bike and land pollution • Entanglement Hazard • Fatigue	2	4	8	• As deemed necessary a proper route shall be identified highlighted by bollards. • Overloading shall be strictly prohibited • Revolution of back mixer drum should be 2 revolutions/ Min. • Concrete shall be loaded within the capacity of the mixer drum. • Always back chute shall be locked and cleaned properly before dispatching the vehicle from the loading or unloading point. • All rotating parts shall be properly guarded. • While placing the Transit Mixer with boom placer /concrete pump nobody shall be allowed to stand in between the TM and boom placer/concrete pump. • Prior to engaging any vehicles on site, it shall be inspected and fit for the purpose. • Flagman/ Helper shall guide the TM while placing with boom placer and concrete pump. • Before placing the vehicle, the operator shall be ensuring the surrounding of vehicle that no person is taking rest underneath the vehicle. • Ensure no worker shall be work beyond the prescribed limit for working hours as per laws • Ensure Job rotation for reducing fatigue. • All required mandatory and job specific PPEs provided	Mr. Nitin Thatte Mr. Hariharakumar Mr. Birla Mr. Iliyas

Person Preparing the Risk Assessment Name - Pradeep Bula

Signature [Signature]

Date/Time . / /

AM/PM



Navi Mumbai International Airport Project

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5.	• Shuttering	• Fall of shutters • Failure of Lifting equipment • Injury due to sharp edges/nails in old materials • Fall of a person during fixing of shuttering • Collapse of staging • Fire due to shuttering oil used/ contact with any igniting material	• Fractures • strains and sprains • Cut Injury to hand • Serious Injury • Burn Injury	3	4	12	• Shutters shall be lifted by tested lifting tools and tackles. • Before commencing activity, TBT shall be conducted • Prior to engaging any vehicles on site, it shall be inspected and fit for the purpose • Tagline shall be used for shifting of shuttering material. • No worker shall be allowed below the suspended load. • Crane shall be deployed after certification by a competent person. • All the tools, tackles and accessories shall be inspected before taking into use. • Crane shall be position in compacted & levelled ground. • Avoid handling the material with a sharp edge side. • Remove nails from shutters before reuse • Stack & secure the shutters properly • Provided working platform with handrail & mid rail • Before erection, secured the shuttering. • Barricade the area & display warning sign. • Lifeline shall be provided where anchoring is not possible to rigid structure • Standard method of staging shall be adopted. • Use of full body harness with double lanyard shall be ensured • Staging material shall be tied to fixed structure by using a tie member.	Mr. Nitin Thatte Mr. Hariharakumar Mr. Birla Mr. Ilyas



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7	De-shuttering	- Fall of shutters - Failure of Lifting equipment - Injury due to sharp edges/nails in old materials - Fall of a person during fixing of shuttering - Collapse of staging - Fire due to shuttering oil used/ contact with any igniting material	- Fractures - strains and sprains - Cut Injury to hand - Serious Injury - Burn Injury	3	4	12	- Shutters shall be dismantled by tested lifting tools and tackles. - Tagline shall be used for shifting of shuttering material. - No worker shall be allowed below the suspended load. - Crane shall be deployed after certification by a competent person - All the tools, tackles and accessories shall be inspected before taking into use. - Crane shall be position in compacted & levelled ground. - Avoid handling the material with a sharp edge side. - Provided working platform with handrail & mid rail - Barricade the area & display warning sign. - Lifeline shall be provided where anchoring is not possible to rigid structure - Standard method of staging shall be adopted. - Use of full body harness with double lanyard shall be ensured	Mr. Nitin Thatte Mr. Harharakumar Mr. Birla Mr. Iliyas
8	Nature Effects	Rain and wind	Collapse of temporary structure causing Serious Injury.	2	4	8	- Work should be carried out in the presence of competent person. - Scaffold shall be inspected by authorized inspector after wind - Weather forecast to be updated and decision to be made. - Movement and excavation at waterlogged area shall be avoided.	Mr. Nitin Thatte Mr. Harharakumar Mr. Birla Mr. Iliyas

Name - P. Randeep Birla

Person Preparing the Risk Assessment

Signature

Date/Time : / /

AM/PM



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To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They shall abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1	Pradeep Birla	20041900		07			
2	GLOWTHAM	20193430		08			
3				09			
4				10			
5				11			
6				12			

TRAINING ACKNOWLEDGEMENT				Signature	Date
Toolbox talks given by :	Site Engineer	Pradeep Birla			___/___/___
	Site Supervisor				___/___/___
	Safety Officer/Representative				___/___/___

Person Preparing the Risk Assessment

Name - _____

Signature

Date/Time : _____

/

:

AM/PM



Navi Mumbai International Airport Pvt. Ltd
Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\08
Revision No.:00

RA No. LT/HMP/11/008

RISK ASSESSMENT

Work Code	TI-HMP/2022/002		
Location of Work	F-11 Batching Plant & WMM Plant Erection works		
Work Activity/Task	Batching Plant & WMM Plant Erection		
Duration of the activity	☐ day(s)	☐ Week(s)	☐ Month(s)
Date & time of activity being carried out	08:00 AM / 08:00 PM -12: 00 Hours		
	☐ DAY	☒ DAY	☐ NIGHT

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. Soumen	Construction Manager	<i>[Signature]</i>
2	Mr. Mulla Mukhtar	Site Engineer	<i>[Signature]</i>
3	Mr. Shashidhar Tripathy	Site Engineer	<i>[Signature]</i>
4	Mr. Mohan Verma	WMM Plant Operator/Supervisor	<i>[Signature]</i>
5	Mr. Indar Bhan Singh	Batching Plant Operator/ Supervisor	<i>[Signature]</i>

PERSONNEL DETAILS

No. of employees Required to do the work	10
--	----

EQUIPMENT/MATERIAL DETAILS

Work Platforms/Access	All access provided, Ladders etc.	Crane/Operators Competency (If so attach document)	YES ☒ NO ☐ NA ☐
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Person Preparing the Risk Assessment

Name - G. Soumen

Date 11/11/22

Signature *[Signature]*

Sensitivity: LNT Construction Internal Use



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Revision No.:00

Sl.No.	ACTIVITY	Crusher Operation	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING			CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who will ensure this happens
						P x	S =	R		

Person Preparing the Risk Assessment

Name - G. Saumen

Date 11/11/22

Signature [Signature]



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\08
Revision No.:00

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
2	General - Unauthorized Entry - Fire - Heavy wind (cyclone) - Extended work hours - Improper House keeping			3	- Injury - Burn injuries - Loss of property - Fatigue - Person may Fall due to tripping from Scattering of materials, Improper laying of cables.	3	9
					- Security should be kept at entry and exit points to avoid unauthorized entry at Crusher Plant - Barrication provided to avoid unauthorized entry. - Don't smoke at plant premises. - Shut off engine when refueling. - When fueling ground the funnel to avoid static sparks. - Don't weld / cut nearby flammable materials. - Good housekeeping must be maintained. - Proper storage of oil & gas - Provide adequate fire extinguishers at oil & gas storage area and Hot works. - Work should be stopped during heavy wind and rain. - Operators are not allowed to work beyond 12 hrs. - Proper segregation of materials done, use of scrap bins/area/yard provided for various type of scraps.		
							Section In charge/ Site Engineer

To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1							
2							
3							
4							

Person Preparing the Risk Assessment

Name - G. Solemen

Date 11/11/22

Signature [Signature]

Sensitivity: LNT Construction Internal Use



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Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\09
Revision No.:00

RA No. LT/HMP/02/009

RISK ASSESSMENT

Work Code	TI-HMP/2022/002			
Location of Work	F-11 Hot Mix Plant			
Work Activity/Task	Hot Mix Plant Erection			
Duration of the activity	☐ day(s)	☐ Week(s)	☐ Month(s)	☒ DAY ☐ NIGHT
Date & time of activity being carried out	08:00 AM / 08:00 PM -12:00 Hours			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. Soumen	Construction Manager	
2	Mr. Mulla Mukhtar	Site Engineer	
3	Mr. Amol Satpate	Supervisor	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS		
No. of employees Required to do the work	10	Work Platforms/Access	All access provided, Ladders etc.	Crane/Operators Competency (If so attach document)	YES	NO
					☒	☐

Person Preparing the Risk Assessment

Name - Soumen Padhe

Date .. 05/02/23

Signature



Revision No.:00

Person Preparing the Risk Assessment

Date 05/02/23

Signature _____



ACTIVITY		Crusher Operation			RISK RATING			CONTROLS	ACTION BY
Sl.No.	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	P x	S =	R	What are you going to do to make the job as safe as possible	Person who will ensure this happens	

Person Preparing the Risk Assessment

Name - Govt Ashwin

Date 01/02/23

Signature _____



Navi Mumbai International Airport Pvt. Ltd

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Revision No.:00

1	Heavy lifting/use of cranes	- Overloading - Reversing/overturn - Fast movement - Outrigger movement - Crane being defective - Material fall - Hook failure - Crane collapse	Personnel injury, death, fatalities, loss of assets, accident, and collision.	3	3	9	- Only authorized workmen should be allowed while erection. Erection area shall be barricaded & warning boards to be displayed. - Pre-Deployment Inspection to be carried out & Ensure Green card for crane. - Before starting the work TBT to be conducted, Briefing is provided to all workmen about day lifting plan & load details. Only Authorized operators should be allowed. - Verifying the weight of an object to be lifted against SWL of the crane with respect to boom length & horizontal angle by referring manufacturer load chart. - Trained Riggers, signal man and lifting supervisors are deployed. Provision of Tag line to control the load oscillations. Usage of right slinging method (hitches) with right lifting gears. - Crane hook must have hook latch. Over load, over hoist limit switch is provided and checked for effective functioning. Daily inspection by the operator. Lift Card should be taken before doing any lifting activity. - Sling and d shackle should have TC. Prior inspection to be carried out for slings and lifting tools, check for damage. Color coding of lifting tools and tackles shall be follow - Two tag lines shall be provided to stable the load while load lifting & shifting	Mr. Soumen, Mr. Mulla Mukhtar
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Person Preparing the Risk Assessment

Name - _____

Date 05/02/23

Signature

Sensitivity: LNT Construction Internal Use



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Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\09
Revision No.:00

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
2	General			3			
	Unauthorized Entry						
	Fire						
	Heavy wind (cyclone)						
	Extended work hours						
	Improper House keeping						
	Injury						
	Burn injuries						
	Loss of property						
	Fatigue						
	Person may Fall due to tripping from Scattering of materials, Improper laying of cables.						
	3						
	3						
	9						
	Security should be kept at entry and exit points to avoid unauthorized entry at Crusher Plant						
	Barrication provided to avoid unauthorized entry.						
	Don't smoke at plant premises.						
	-Shut off engine when refueling.						
	-When fueling ground the funnel to avoid static sparks.						
	-Don't weld / cut nearby flammable materials.						
	-Good housekeeping must be maintained.						
	-Proper storage of oil & gas						
	-Provide adequate fire extinguishers at oil & gas storage area and Hot works.						
	Work should be stopped during heavy wind and rain.						
	Operators are not allowed to work beyond 12 hrs.						
	Proper segregation of materials done, use of scrap bins/area/yard provided for various type of scraps.						
	Section In charge/ Site Engineer						

To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/ Incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1	Sul Behem	20020201					
2							
3							
4							

Person Preparing the Risk Assessment

Name - Sul Behem

Date - 05/02/23

Signature - [Signature]



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Doc no.: NMIA\LNT\HIRA\09
Revision No.:00

TRAINING ACKNOWLEDGEMENT			Name	Signature	Date
Toolbox talks given by ;	Site Engineer		Amol Bhum		/ /
	Site Supervisor		Amol Sadpute		/ /
	Safety Officer/Representative				/ /

Person Preparing the Risk Assessment

Name - _____

Date 05/02/23

Signature

Sensitivity: LNT Construction Internal Use



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Doc no.: NMIA\LNT\HIRA\12
Revision No.:00

RA No.: LT/GC&W/012

RISK ASSESSMENT

Work Code	TI-GEN/2022/03		
Location of Work	All Site		
Work Activity/Task	Welding & Gas Cutting		
Duration of the activity	☐ day(s)	☐ Week(s)	☒ 24 Month(s)
Date & time of activity being carried out	8:00 AM / 8:00 AMM- 24 Hours		
	☐ DAY	☐ NIGHT	

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. Sanjay Verma	P&M Manager	
2	Mr. N.B Goregaonkar	P&M Foreman	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS			
No. of employees Required to do the work	15	Work Platforms/Access	NR	Crane/Operators Competency (If so attach document)	YES	NO	NA
Occupations Trades/Skills required	Site- In charge, Site Engineer, Supervisor, Driver/Operator, And unskilled worker, Electrician	Associated Hazards (Man/Machine/Environment)		Any other specific documents required	YES	NO	NA
Qualifications (Licenses/Work Permits)	- For Drivers/Operators: Valid License + experience certificate - Electrician: License	Tools/Power tools (Chisel, Hammer, Grinder)					
Training (Completed/Required)	- EHS Induction - Job Specific Training for workmen crew	Area Illumination (Tower Lights, Pole lights)	Light mast of night work				
PPE	Mandatory PPE's as per employer requirement such	Plant					
				MATRIX			
				SEVERITY			
				PROBABILITY (Likelihood)			
				1 Negligible	2 First Aid	3 < 2 days	4 Reportable
				1 Low	2 Low	3 Low	4 Medium
				1 Unlikely	2 Low	3 Medium	4 Medium
				2 Possible	4 Low	6 Medium	8 Medium
				3 Very Likely	6 Medium	9 High	12 High

Person Preparing the Risk Assessment Name - Sanjay Verma Date - 08/07/22 Signature [Signature]



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Revision No.:00

Required for task (Helmets & Safety Shoes are mandatory)	safety helmet, reflective jacket, safety shoe.	(Static & Mobile)		4 Certainly	Low 4	Medium 8	High 12	High 16
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ACTIVITY	Crane Operation
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Person Preparing the Risk Assessment Name - Sagnidh Verma

Date 08/08/22

Signature [Signature]



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Doc no.: NMIA\LNT\HIRA\12
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		• Fall of cylinder while unloading / carrying to the site • Rolling the cylinders on the ground • Leakage of gas cylinder near the valve • Gas cutting hose laid in haphazard manner • Blocking of gas cutting nozzle • Damaged hose • Sparks falling on combustible materials • Failure to use PPEs	• LTI • Explosion • Damaged to cylinder and its valve • Tripping hazard • Fire hazard • Flash back • Backfire • Arm/eye injury • Fatal	3	4	12	• Use of tyre / coir mat for unloading the cylinders from the vehicle. • Use cylinder trolley to transport to site. • Keep the leaking cylinder well away from the site, inform dealer to take away immediately. • Gas hose is not laid on the pathway. • Flashback arrestors is fitted in torch & cylinder • Store of filled & empty cylinders in separately Stored upright • Keeping the cylinders stock away from combustible materials • Condition of hoses is checked frequently. Damaged or tempered hoses are replaced then & there • Appropriate PPE's to be used		
2	Gas cutting								
3	General	• Generation of toxic gases, fumes etc. • Throwing of welding butts at site	• Air Pollution • Land Pollution	2	2	4	• Welding and gas cutting to be done as per the need of the site in well ventilated place. • Welding butts are stored in small box and returned to store dept.		

To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	P S.No.	Signature	Sl.No.	Name	P S.No.	Signature
1				11			
2				12			

Person Preparing the Risk Assessment Name - Sanjay ram Date 08/07/22 Signature [Signature]



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Doc no.: NMIA\LNT\HIRA\12
Revision No.:00

Sl.No.	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING			CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who will ensure this happens
				P x	S =	RR		
1	Welding	- Loose cable - Improper earthing of the parts to be welded. - Machine overheating - Worn out / defective welding holders - Cables lying on access - Welding fumes generation - Sparks falling on combustible materials - Failure to use PPEs	- LTI - Overheating & burning of welding cables - Electrocution - Machine burnout - Tripping hazard - Health Hazard - Fire hazard	3	3	9	- Cable is checked for its tightness by the welder / helper before starting the job - Return earth is given through the welding lead only and no rebar to be used for return path. - All electrical connection is routed through RCCB. - Double earthing is provided. - Welding holders is replaced when found damaged. - HSE Induction is given to workers, supervisors. - Experienced and trained welder is allowed for the welding job. - Cable routing is done away from the pathway. - Welding is performed in open or well-ventilated place. It is to be carried out along the wind direction - Welding cable should not be laid over electrical cable and gas cutting hose.	Site Engineer

Person Preparing the Risk Assessment Name - Sahay nam Date 08/04/22 Signature [Signature]



Navi Mumbai International Airport Project

Doc no.: NMIA\LT\HIRA\12
Revision No.:00

3				13			
4				14			
5				15			
TRAINING ACKNOWLEDGEMENT				Name		Signature	Date
Toolbox talks given by;	Site Engineer						/ /
	Site Supervisor						/ /

Person Preparing the Risk Assessment Name - Septh 1977 Date 08/08/22 Signature [Signature]



Chhatrapati Shivaji Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\15
Revision No.:00

RA No.: LT/CO/15

RISK ASSESSMENT

Work Code	TI-GEN/2022/06			
Location of Work	All Site			
Work Activity/Task	Crane Operation			
Duration of the activity	☐ day(s)	☐ Week(s)	☒ 24 Month(s)	☒ DAY ☐ NIGHT
Date & time of activity being carried out	8:00 AM / 8:00 AMM- 24 Hours			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. Soumen G	P&M Manager	
2	Mr. Sudipta Ghosh	Sr. Construction Manager – P&M	
3	Mr. Kabal Singh	Crane Operator	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS			
No. of employees Required to do the work	15	Work Platforms/Access	NR	Crane/Operators Competency (If so attach document)	YES ☐ NO ☐ NA ☒		
Occupations Trades/Skills required	Site- In charge, Site Engineer, Supervisor, Driver/Operator, And unskilled worker, Electrician	Associated Hazards (Man/Machine/Environment)		Any other specific documents required	YES ☐ NO ☐ NA ☒		
Qualifications (Licenses/Work Permits)	- For Drivers/Operators: Valid License + experience certificate - Electrician: License	Tools/Power tools (Chisel, Hammer, Grinder)		SEVERITY			
Training (Completed/Required)	- EHS Induction - Job Specific Training for workmen crew	Area Illumination (Tower Lights, Pole lights)	Light mast of night work				
		MATRIX		PROBABILITY (Likelihood)			
				1 Negligible	2 First Aid	3 < 2 days	4 Reportable
				1 Unlikely	2 Low	3 Low	4 Medium
				2 Possible	2 Low	4 Medium	8 Medium

Person Preparing the Risk Assessment Name: Soumen Date: 08/07/22 Signature:



Lavi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\15
Revision No.:00

PPE Required for task (Helmets & Safety Shoes are mandatory)	Mandatory PPE's as per employer requirement such safety helmet, reflective jacket, safety shoe.	Plant (Static & Mobile)						
			3 Very Likely	Low 3	Medium 6	High 9	High 12	High 16
			4 Certainly	Low 4	Medium 8	High 12	High 16	

ACTIVITY		Crane Operation					CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who will ensure this happens
Sl.No.	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING				
				P x	S =	RR		
1	Pre-arrangement	• Soil / Road condition					• Approach area development ensuring Compacting & Leveling to be done.	
		• Operating the Crane with Load at Slope	• LTI				• Pre-Inspection of Approach Road & Position area of Crane.	
		• Presence of OH electrical lines in the approach	• Toppling of Mobile crane	2	4	8	• Crane with load at Slope is strictly prohibited.	
		• Parking the Crane at Slope	• Electric shock / Electrocutation				• For frequent operations goal post provision is made.	
							• Trained Operator is deployed.	
							• The Safe Bearing capacity of the soil is considered.	

Person Preparing the Risk Assessment Name - Suresh Date 08/07/2022 Signature [Signature]



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\15
Revision No.:01

2	Lifting Operation - Unauthorized Operation - Nonfunctioning of safety Device - Use of Mobile phone - Excessive working Hours - Inadequate illumination - Outriggers not fully extended / Supported - Defects in Lifting gears - Crane overloading - Wrong rigging practices - Failure to comply with legal requirements - Placing outrigger close to the excavation - Improper communication - Condition of man basket	• LTI • Fall of material • Struck against object • Crane Collapse • Crane toppling • Hit Injury • Fatal	3	4	12	• Only authorized operator to be allowed to operate the crane. • Prohibiting mobile phone usage by the crane operator & Signal man. • Operator to not be allowed to work for more than a shift. • System of providing Illumination of at least 52 Lux in practice. • ASLI, over hoist limit switch & -Boom Limit Switch are provided & checked for its function • Daily inspection by the Operator to be performed. • Weekly Maintenance by the P&M Engr • Provision of Tag line to control the load. • Extending the outriggers fully. Out rigger should rest on heavy planks • Positioning the outriggers min.2 m from the edge of an excavation / pit. • System of obtaining Test Certificate (TPI). • Monthly Inspection by P&M / EHS Dept. • Verifying the weight of an object to be lifted against the crane SWL (Safe Working Load) with respect to boom length and horizontal angle by referring manufacturer chart. • Pre assessing the erection methodology including rigging pattern • Trained Riggers to be deployed. • Restriction of Crane movement with load is limited to max. 200m • Ensure man basket should be inspected by competent person and have valid TPI certificate. • Ensure load should be lifted with all lifting hooks with requisite capacity of slings/lifting belts.
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Person Preparing the Risk Assessment Name - Sarvesh Date 02/07/22 Signature [Signature]



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\15
Revision No.:01

3	General	Noise • CO2 Emission from Cranes • Waste oil (Lubrication & Engine Oil) • Discarded parts	Noise Pollution • Air Pollution • Land Pollution	2	2	4	Weekly maintenance by the P&M Engr • Pollution control check and its recommended maintenance procedures. • Collected and handed over the disposing agency. • Discarded parts collected at P&M workshop	
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o be completed prior to the commencement of the work activity/Task

he personnel listed below have been made aware of and understand the procedures, hazards and control measures out lined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any-accident/incident & Near Misses during work.

Sl.No.	Name	P S .No.	Signature	Sl.No.	Name	P S .No.	Signature
1				11			
2				12			
3				13			
4				14			
5				15			

TRAINING ACKNOWLEDGEMENT		Name	Signature	Date
Toolbox talks given by;	Site Engineer			/ /
	Site Supervisor			/ /

Person Preparing the Risk Assessment Name - Suresh

Date 08/08/22

Signature [Signature]



Navi Mumbai International Airport Pvt. Ltd
Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\21
Revision No.:00

RA No. LT/QAQC/021

RISK ASSESSMENT

Work Code	TI-QC/2022/02			
Location of Work	All Site			
Work Activity/Task	Plate Load Test			
Duration of the activity	☐ day(s)	☐ Week(s)	☐ Month(s)	☒ DAY ☒ NIGHT
Date & time of activity being carried out	08:00 AM / 6:00 PM -10: 00 Hours			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	P. shashi chandra	QA/QC Manager	
2	D. Rajesh	QA/QC Engineer	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS		
No. of employees Required to do the work	15	Work Platforms/Access	All access provided	Crane/Operators Competency (If so attach document)	YES ☐ NO ☐ NA ☐	YES ☐ NO ☐ NA ☐
Occupations Trades/Skills required	For Plate load test – Site Engineer, QA/QC Engineer, Lab technician, Excavator Operator, Driver, Helper, Supervisor	Associated Hazards (Man/Machine/Environment)	- Accidental Hazards (Fall, Trips , stuck , Cut etc.) - Physical Hazards Noise, Vibration, Heat, Radiation - Chemical Hazards Dust	Any other specific documents required	☐	☐

Person Preparing the Risk Assessment

Name - P. shashi chandra

Date 4/05/22

Signature

Sensitivity: LNT Construction Internal Use



Navi Mumbai International Airport Pvt. Ltd

Project Environment, Health & Safety Department

Doc no.: NMIA\LNT\HIRA\21
Revision No.:00

Qualifications (Licenses/Work Permits)	Authorized driver/Operator engaged, Work Permits: Work at Height (while maintenance)	Tools/Power tools (Chisel, Hammer, Grinder)	Necessary tools will be provided i.e Spanner, Hammers, Spad	MATRIX		SEVERITY			
				PROBABILITY (Likelihood)		1 Negligible	2 First Aid	3 < 2 days	4 Reportable
Training (Completed/Required)	EHS Induction to all Job specific training for operators and Electrician.	Area Illumination (Tower Lights, Pole lights)		1 Unlikely	Low	1	Low	2	Medium
				2 Possible	Low	2	Low	4	Medium
PPE Required for task (Helmets & Safety Shoes are mandatory)	Mandatory PPE's as per employer's requirement such as Safety Helmet, Reflective Jacket, Safety Shoes, Nose Mask, Ear Plug, Goggles	Plant (Static & Mobile)	Dumper, Excavator	3 Very Likely	Low	3	Medium	6	High
				4 Certainly	Low	4	Medium	8	High

ACTIVITY	Plate Load Test
Person Preparing the Risk Assessment	Name - <u>P. Shashi Chandan</u>
	Date <u>11/05/22</u>
	Signature <u>[Signature]</u>

Sensitivity: LNT Construction Internal Use

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Sl.No.	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING			CONTROLS What are you going to do to make the job as safe as possible	ACTION BY Person who will ensure this happens
				P x	S =	R		
1	Mobilization of Personnel, Vehicles, Equipment & materials	- Vehicle/ Equipment movements - Adverse weather condition - Presence of flammable material - Manual Lifting - Fire. - Unsafe Driving - Poor visibility due to fog, dust, wind, rain - Road conditions - Insufficient clearance against overhead power lines resulting in contact with equipment during travel - Over speeding - Lack of proper inspection and maintenance.	- Personal Injury - Fatalities - Asset/facilities Damage - Heat Stress - Major /Minor injury to persons in close vicinity, property damage	2	4	8	- Drivers and operators should possess a valid UAE driver license and operator license. - A valid certificate of mobile equipment, rigger, banks man from a third party should be available at the site. - Daily vehicle checklist to be conducted & available in the vehicle. - Safe journey management to be attached. - HSE induction for all the workers. - Appropriate signage must be displayed. - Mandatory & job-specific PPE and material management shall be ensured. - Make sure that everyone is involved in the manual lift and, those affected, are appropriately inducted. - The emergency procedure shall be communicated to all workforce - Fire Extinguisher & first aid box to be kept securely in the vehicle - Emergency standby vehicle shall be available at the site - Ensure competent Banks man for all vehicle movement - Secure loads and equipment properly with strap belts - The vehicle shall be reverse parked in the designated parking place at the site - Stop all vehicles if visibility is less than 100m. - Equipment handling shall comply with ISO 45001:2018/IOSH/OSHA/OSHAD CoP's & Standards. - All the crew must be provided mandatory PPE & worn all the time. - Ensure close and competent supervision. - Associated risk & control shall be communicated to the crew.	

Person Preparing the Risk Assessment

Sensitivity: LNT Construction Internal Use

Name - P. Shashu chandra

Date 11/05/22

Signature



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2	Manual Handling	Manual Lifting	- Back pain and back injuries. - Back pain and back injuries. - Fatigue. - Injury to neck, shoulders, arms or other body parts.	3	2	6	- Work to be accomplished by well trained and competent personnel - Adopt standard safe practice by conducting toolbox - Manual lifting does not exceed 20 kg - PPE to be used - Tools must be carried securely - Safely organizing manual handling tasks, with loads split into smaller ones, and proper rest periods provided. - Manual Handling practices shall comply with ISO 45001:2018/IOSH/OSHA/OSHAD CoP's & Standards.
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Person Preparing the Risk Assessment

Name -

Date 11/05/22

Signature



Revision No.:00

To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1							
2							
3							
4							
5							

Person Preparing the Risk Assessment

Name - P. Shashi Chandra

Date 11/05/22

Signature _____

Sensitivity: LNT Construction Internal Use



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\28
Revision No.:00

RA No.: LT/SR/28

RISK ASSESSMENT

Work Code	TI-SR/2023/05			
Location of Work	Concrete Drain Area Airside			
Work Activity/Task	Backfilling work of Concrete drain and /Box Culverts			
Duration of the activity	☐ day(s)	☐ 1 Week(s)	☒ 6 Month(s)	☒ DAY ☒ NIGHT
Date & time of activity being carried out	8:00 AM / 6:00 AM- 10 Hours			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. Amol Savvashe	Sr. Construction Manager	
2	Mr. Kshetrabashi Das	Sr. Engineer	
3	Mr. Piyush Sahoo	Workmen Supervisor	

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS			
No. of employees Required to do the work	25	Work Platforms/Access	NR	Crane/Operators Competency (If so attach document)	YES	NO	NA
	Occupations Trades/Skills required	Site- In charge, Site Engineer, Supervisor, Surveyor, Driver/Operator And unskilled worker	Associated Hazards Man/Machine/Environment)	Accidental; Noise, Heat, Dust, Movement of Equipment, traffic movement,	Any other specific documents required		
Qualifications (Licenses/Work Permits)	• For Drivers/Operators: Valid License + experience certificate • Excavation Permit • EHS Induction • Job Specific Training for workmen crew • Defensive driving training for drivers	Tools/Power tools (Chisel, Hammer, Grinder)	Crowbar, Spade,	SEVERITY			
		Area Illumination (Tower Lights, Pole lights)	N/A	PROBABILITY (Likelihood)			
Training (Completed/Required)				1 Unlikely	2 Low	3 Low	4 Reportable
				2 Possible	Low 4	Medium 6	Medium 8

Person Preparing the Risk Assessment Name -

Date 18/07/23

Signature



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PPE Required for task (Helmets & Safety Shoes are mandatory)	Mandatory PPE's as per employer requirement such safety helmet, reflective jacket, safety shoe.	Plant (Static & Mobile)	• Dumpers /Tractor • Wheel Loader • Back hoe loader • Water Tanker	3 Very Likely		Low 3	Medium 5	High 9	High 12
				4 Certainly					
							</		

Person Preparing the Risk Assessment Name - _____ Date 18/07/23 Signature



Person Preparing the Risk Assessment Name - _____ Date 18/07/23 Signature _____



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3	Dumping, levelling and Rolling	• Taking rest below parked equipment • Untrained and unauthorized operator • prolonged working hours of operator • Reversing without banks man / reverse horn • Spillage of construction material on service road	• Runover • Toppling	3	4	12	• Providing rest shelter to take rest. • Avoid prolonged working hours • Delay start device provided for the roller / grader. • Wheel chocks provided while parking equipment. • Operator fitness and experience certificate ensured. • Ensured through induction operator card. • Prolonged working activities is being identified and two operators is ensured. • Dynamic entry point shall be fixed to enter the vehicle and separate exit point shall be planned to make movement One way and avoid reversing. • Trained Bank men shall be deployed at all sites. • Overloading of vehicle is checked at weigh bridge & those vehicle are overloaded are not allow at site. • Defensive driving training shall be imparted.	Mr. Amol Savvashe/ Mr. Kshetrabasi Das/Mr. Mahipat Pimpale
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Person Preparing the Risk Assessment Name - _____

Date 18/07/23

Signature



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Revision No.:00

4	Equipment movement on site. (Loading of Material)	- Unauthorized operation - Vehicle reversing - Deployment of unfit vehicles - Drunk & Drive - Use of Mobile phone - Intoxication - Dust Generation - Fire in equipment	- Injuries to workers and others: Traffic and moving plant - impact and crushing injuries - Hit by falling objects - Slips, trips and falls - Access and egress - Property damage	3	4	12	- All workers must wear mandatory PPEs while working at site - Before commencing activity, TBT shall be conducted - Prior to engaging any vehicles on site, it shall be inspected and fit for the purpose. - Provide clear access for vehicles to enter, exit and move on site. - Erect warning signs, barricades and traffic controllers if required; - The access roads shall be kept clear from any obstacles. - Trained Flagman/signalman shall be engaged at hazardous areas (Loading point and Junctions) to direct vehicles and do not stand on the downhill side or directly behind a moving or unloading truck; - Make sure the operator has seen you if you are nearby; and make sure trucks can exit from sites when material loaded in that. - Regular water sprinkling during operation. - All workmen/maintenance technicians shall be inducted and provided with mandatory PPEs which shall be worn all time at site. - Regular monitoring of drivers and operators will be ensured to checked whether they are under the influence of alcohol while at work. Zero tolerance to such unsafe behaviors.	Mr. Amol Sawashe/ Mr. Kshetrabasi Das/Mr. Mahipat Pimpale
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Person Preparing the Risk Assessment Name -

Date 18/07/23

Signature



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5	General	- Unauthorized Entry - Fire - Heavy wind (cyclone) - Extended work hours - Improper House keeping	- Injury - Burn injuries - Loss of property - Fatigue - Person may Fall due to tripping from Scattering of materials.	3	3	9	- Unauthorized entry will be restricted at work area. - Barrication provided to avoid unauthorized entry. - Don't smoke at workplace premises. -Shut off engine when refueling. -Don't weld / cut nearby flammable materials. - Good housekeeping must be maintained. -Provide adequate fire extinguishers in equipment's. - Work shall be stopped during heavy wind and rain. - Operators are not allowed to work beyond 12 hrs.	Mr. Amol Savvashe/ Mr. Kshetrabasi Das/Mr. Mahipat Pimpale
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To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	P S .No.	Signature	Sl.No.	Name	P S .No.	Signature	Date
1				11				
2				12				
3				13				
4				14				
5				15				
TRAINING ACKNOWLEDGEMENT								
Toolbox talks given by;		Site Engineer		Name		Signature		Date
		Site Supervisor						/ /
								/ /

Person Preparing the Risk Assessment Name -

Date 26/04/23

Signature



Navi Mumbai International Airport Project

Doc no.: NMIA\LNT\HIRA\25
Revision No.:00

RA No.: LT/RW/12/25

RISK ASSESSMENT

Work Code	TI-SR/2022/04			
Location of Work	Apron Pipe Drain (East Apron Site)			
Work Activity/Task	Pipe Drain Excavation work			
Duration of the activity	☐ day(s)	☐ Week(s)	☒ 6 Month(s)	☒ DAY ☐ NIGHT
Date & time of activity being carried out	8:00 AM / 6:00 AM- 10 Hours			

RISK ASSESSING TEAM

Sl.No.	Name	Designation	Signature
1	Mr. Abhijith Mathew	Sr. Construction Manager	<i>Abhijith Mathew</i>
2	Mr. KHANESH Kumar	Sr. Engineer	
3	Mr. Piyush Sahoo	Workmen Supervisor	<i>Piyush Sahoo</i>

PERSONNEL DETAILS		EQUIPMENT/MATERIAL DETAILS		DOCUMENTATIONS			
No. of employees Required to do the work	12	Work Platforms/Access	NR	Crane/Operators Competency (If so attach document)	YES	NO	NA
		Associated Hazards Man/Machine/Environment	Accidental: Noise, Heat, Dust, Movement of Equipment, traffic movement,	Any other specific documents required	YES	NO	NA
Occupations Trades/Skills required	Site- In charge, Site Engineer, Supervisor, Surveyor, Driver/Operator And unskilled worker						
Qualifications (Licenses/Work Permits)	- For Drivers/Operators: Valid License + experience certificate - Excavation Permit - EHS Induction - Job Specific Training for workmen crew - Defensive driving training for drivers	Tools/Power tools (Chisel, Hammer, Grinder)	Crowbar, Spade, Motor Pan	MATRIX			
		Area Illumination (Tower Lights, Pole lights)	N/A	SEVERITY			
Training (Completed/Required)		PROBABILITY (Likelihood)		1 Negligible	2 First Aid	3 < 2 days	4 Reportable
				1 Unlikely	Low 2	Low 3	Medium 4
				2 Possible	Low 4	Medium 6	Medium 8

Person Preparing the Risk Assessment Name - *Abhijith Mathew* Date *10/10/22* Signature *Abhijith*



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	Site Supervisor				/	/
	Safety Officer/Representative				/	/

Person Preparing the Risk Assessment Name - _____

Date18/02/22.....

Signature



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To be completed prior to the commencement of the work activity/Task

The personnel listed below have been made aware of and understand the procedures, hazards and control measures outlined in this Risk Assessment. They will abide by the control measures outlined within this document, but not limited to. They have been instructed to report any accident/incident & Near Misses during work.

Sl.No.	Name	Id.No.	Signature	Sl.No.	Name	Id.No.	Signature
1	Mr. Anand S L	20050215		11			
2	Mr. Saurab Iyengar	20144933		12			
3	Mr. Kiran B Koli			13			
4	Mr. Atanu Paul	20143910		14			
5	Harikeshwari S	20090605		15			
6				16			
7				17			
8				18			
9				19			
10				20			

TRAINING ACKNOWLEDGEMENT

Toolbox talks given by ;	Site Engineer	Name	Signature	Date
		Mr. Saurab Iyengar, Mr. Kiran B Koli , Mr. Atanu Paul		/ /

Person Preparing the Risk Assessment Name - ASL Anand Signature ASL Date 16/08/22



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10	General	• Generation of Waste concrete/aggregates. • Electrical Consumption • Generation of wastewater • Tested Cube (Compressive test) • Generation of empty drums of Admixtures	Land Pollution/Flora fauna Resource Depletion Water Pollution	2	3	6	1. waste concrete used for other small Construction work at camp/ office area 2. Aggregates reused in Pathways construction / making boundaries etc. 3. Safety Poles can be prepared. 4. No Idle Operation 5. Power factor is being monitored & maintained 6. Display of Awareness poster for energy Conservation	Mr. Guruprasad Mr. Anand SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh lyenger Mr. Srinivas S
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Person Preparing the Risk Assessment Name - Anand.

Date 19/03/22

Signature [Signature]



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9	QAQC operation	• Critical Unsafe behavior of persons involved in the activity (e-g interaction with running equipment, taking rest in work area, bypassing safety devices, not following permit or LOTO system etc.) • Extended working hours of worker	• Result into injury or immense impact • Environmental impact • Fatigue causing incident resulting into serious injury	3	4	12	1. Ensure no worker is working beyond the prescribed limit for working hours as per laws 2. Ensure Job rotation for reducing fatigue. 3. Ensure use of PPE's for the worker/operators i.e safety shoes, safety helmet, reflective jacket and seat belt etc 4. Eat healthy diet that promotes longer-lasting energy. Avoid fatty and junk foods. 5. Adopt a steady exercise that includes cardiovascular muscle strengthening, and flexibility workouts. 6. Avoid excessive noise, dim lighting and toasty temperature. 7. Stay positive , not to be overwhelmed by negative circumstances	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh Iyenger Mr. Srinivas S
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Person Preparing the Risk Assessment Name - Anand.

Date 18/03/22

Signature [Signature]



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7	Handling of heavy lab equipment's and weight	Chance of falling of heavy lab equipment	Can cause minor / major injury to personnel.	3	3	9	- All Equipment's required to be shifted is fitted with wheel for smooth movement and proper approach ramp is prepared at all probable locations - Use of necessary PPE.	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh Iyenger Mr. Srinivas S
8	Handling of Admixtures for trial mixes	Handling In use of Admixtures for trial mixes	Can cause skin problem i.e. dermatitis, skin burns				All job specific PPEs (hand gloves) has been given	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh Iyenger Mr. Srinivas S

Person Preparing the Risk Assessment Name - Anand

Date 18/03/22

Signature [Signature]



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6	Working with Electrically operated Equipment's	- Loose and open connections causing electric shocks. - Moving parts of the machine - Loose Contact of battery terminal and fuse connection. - Direct contact between positive and negative wires	3	3	9	- All connection is taken through SDB, proper plug top - Continuous cables are being used - All joints are made through male-female connector - All electrical equipment's to be properly earthed. - Connections should be routed through ELCB [30 mA] - Use of proper PPE's - All moving parts of equipment's is ergonomically protected (guarded). - LOTO system is in place - Use job specific PPEs (hand gloves) - Pre deployment fitness system(age bar limit & joint inspection by P&M and EHS Dept) is being followed. - To ensure fitness periodic inspection is being followed through Green card system being followed. - Auto electric physical safety checks for cable overheating, loose contacts and rubbing of wire should be done during pre-deployment and daily by operator.	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh Iyenger Mr. Srinivas S
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Person Preparing the Risk Assessment Name - Anand Date 18/03/22 Signature [Signature]



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4.	Concrete cube testing	cube testing by compression machine leading to flying particles	cube flakes may harm eye or body	2	3	6	1. Use of safety goggles along with other PPE's	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh Iyenger Mr. Srinivas S
5.	Working with Hot air Oven	The hot temperature in Oven	Can cause burning to Personnel	3	3	9	1. Adequate training is given to the users 2. Use of High temperature resistant Hand gloves	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh Iyenger Mr. Srinivas S

Person Preparing the Risk Assessment Name - Anand.

Date 28/03/22

Signature [Signature]



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1.	Mixing of concrete in concrete mixer	- Electric shock due to wet conditions - Cleaning or maintenance of mixer in running condition leading to trapping of Body Parts into the revolving blades	Burns, may causes minor injury due to electrocution or fall on ground Cut, Amputation, fractures.	2	3	- Supply to be routed through ELCB [30 MA]/RCCB - Dual earthing of the equipment is done - Strict supervision - Area should be kept dry. - Use of Hand gloves, Safety shoes - LOTO system in place. - Cleaning activities carried out under strict supervision.	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh lyenger Mr. Srinivas S
2.	Preparation of concrete cubes for testing	- Manual handling of wet concrete - Noise hazard due to vibrating table and concrete mixer	May cause skin diseases Can cause hearing loss	2	3	- Use of proper hand tools for cube preparation. - Use Personal protective equipment - Job rotation in regular interval - Use of suitable personal protective equipment's	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh lyenger Mr. Srinivas S
3.	Handling and storing of cubes	During handling of cubes chance of falling of cube	May cause injuries to foot and Back Pain and other muscular skeletal disorders due to improper work posture	3	3	- Use of kinematic Principles of manual Handling. - Use of hand gloves & safety shoes.	Mr. Guruprasad Mr. Ananad SL Mr. Vijay M Mr. Jeevan f, Mr. Saurabh lyenger Mr. Srinivas S

Person Preparing the Risk Assessment Name - Anand.S.L Date 18/03/22 Signature [Signature]



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Revision No.:00

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ACTIVITY		Asphalt Laying Activity				ACTION BY Person who will ensure this happens
Sl.No.	JOB STEP Break the Job Down into steps	POTENTIAL HAZARD What Can Harm You?	RISK Type of Harm	RISK RATING P x S = RR		
				What are you going to do to make the job as safe as possible		

Person Preparing the Risk Assessment Name - Arund.

Date 28/03/22 Signature [Signature]



RISK ASSESSMENT FOR ACTIVITY NAME:- SURVEYING ACTIVITY

Dept. / Sec./Project: Civil / CSD Addani, Navi Mumbai
Activity/Area/Equipment: Surveying activity
Assessor(s): Mr. Kundan Das
Subcontractor/Workers Representative: Mr. Rajesh Gaikwad
Reviewed By: Mr. Ganesh Mote

Ref. No.: SPCPLJSHPL/01
Assessment Dt.: 29.01.2026
Rev. Dt.:
Next Rev.Dt.:

To Carry out an activity safely

Final Risk Rating should be reduced to 10 or below. Exemption: Work Covered by Permit To Work (PTW) and Vehicle driving.

S.NO	SUB-ACTIVITY NAME	HAZARD(S)/ASPECTS	DIRECT (D)/Indirect (I)	Routine (R)/Non Routine (NR)	RISK/IMPACT	SCALE OF IMPACT/RISK	Legal/Other Requirements to be Complied (Yes/No)	Existing Control Measure(s) with mechanism from hierarchy of Control for each identified hazard/Aspect	Risk/Impact Score			Additional Control Measure(s) Required with mechanism from hierarchy of Control for each identified hazard/Aspect	Final Risk/Impact Score	
									Severity	Likelihood	Risk		Severity	Likelihood
1	Manpower Deputation	Untrained worker	D	R	Personal Injury	Moderate	Y	1. Only Inducted worker shall be deputed at the work place. 2. Give Tool Box Talk to all workers.	3	3	9	Health checkup to be done as per Govt. rules of COVID-19, before induction. TBT to be done before start of work	3	1 3
2	Shifting of instrument manually	Slip & Fall of instrument, Sharp edges.	D	R	Personal Injury, Cut injury, Equipment damage.	Moderate	Y	01. Train persons deployed for the work. 02. Required PPE's like cotton hand gloves etc use by workers. 03. Supervision for monitoring the work.	3	2	6	Access and egress should be marked and safe for person movement.	3	1 3
3	Set up (Assembly) and use of instrument	Sharp edge, material handling . Trip and trip hazards	D	R	Cut injury , Property damage.	Moderate	Y	Only train person deployed for the handling of instruments, Use of PPE's.	3	2	6	Work place area should be even and safe access provided upto the work place.	3	1 3
4	Holding staff at points at outer side of building	Slip , Trip , uneven surface, Open edge	D	R	Personal Injury	Moderate	Y	1. Only train person deployed for the task. 2. Ensure person standing on plane surface with sufficient visibility & light. 3. Ensure use of PPE. Safety Shoes, helmet and reflective jacket .	3	3	9	1. Ensure FBSSH while checking giving points on columns/slabs & other such height work. 2. Ensure use of inspected and certified ladder	3	1 3
5	Shifting of material and Making pillar for Temporary Bench Mark	Slip and Fall of material , sharp edge, material handling , dust, Heat stroke, Skin irritation due to cement and concrete material	D	R	Personal Injury , Skin dermatitis	Moderate	Y	1. Safe access and egress provided to movement of worker. Required PPE's should be provided. material should be stacked properly at work place. 2. Cement, bricks shall be carried from the source by using tractor trolley. Only inspected vehicle shall use for this purpose. Nose mask and other PPE's provided to all worker 3. Safety measures should be taken as per MSDS as Use of Safety hand gloves, safety shoes and helmet as PPE.	3	2	6	For the heat stroke, shimmers shall be provided for the rest in summer season. Use proper PPE	3	1 3
Remember Hierarchy of control									PPE's					
									Substitution	Reduction	Engineering Control Enclosure			

Assessor's /Reviewer's Signature
Mr. Ganesh Mote

Project Incharge Mr. Ganesh Anarso



Initial Occupational Health & Safety Review (IOSHR /HIRA)

IOSHR For Tower Crane Erection (5 Ton)													
Location : Adani CSD Project 1A													
Assessor(s) name including Subcontractor/Workers Representative: Ankur Nait, Swapnil Rajesh, Naregan Rao													
Date : 25.03.2026													
Revision No : 00													
Sl. No.	Task/Activity	Frequency (R/R)	Direct (D) / Indirect (I)	Impact / Injury / Illness / Emergency (E)	Existing Control Measures / Procedures / Documents / Permits / Licenses / Safety & Security of Crane for each identified hazard & Aspect	Legal / Regulatory / Other Requirements	Risk Score (Before Control)	Risk Level (Before Control)	Additional Control Measures (s)	Opportunity / Benefit	Final Risk Score (After Control)	Final Risk Level (After Control)	Assessed By
1	Manpower Deputation	R	D	Personal injury	1. Only inducted worker shall be deputed at the work place. 2. Given Tool Box Talk to all workers.	Yes	3	Low	1. Only medically fit worker shall be deputed at the work place. 2. Depute trained and experienced person at work	Nil	2	Low	P&M Dept.
2	Shifting and Stacking of Tower Mast/ Cabin counter weight by forana	R	D	Personal injury, Property damage	1. For proper shifting of material proper communication equipment should be provided for proper communication. 2. Only inspected tools & tackles to be used. 3. Operator having valid driving licence. 4. Horn & Light of the crane should be in working condition. 5. Proper housekeeping should be maintained at work area. 6. Hand tools should be inspected for any damage before they are used & kept in proper toolkit. 7. Operator having valid driving licence. 8. Banks man should be provided for giving signal. 9. No work and worker should be deployed under suspended load.	Yes	3	Low	1. Signal man should be guide properly by use of side rope. 2. Work area should be clean & clear.	Nil	2	Low	P&M Dept.
3	Erection of Tower Mast by 80 T crane	R	D	Personal injury, Property damage, Fall of material	1. Personal injury, Property damage 2. Fall of material 3. Inappropriate rigging method 4. Uninspected FBH 5. Work area should be barricaded to avoid unauthorized entry. 6. Only inspected (Third party) tools & tackles shall be used for erection work. 7. Crane shall be inspected before in use by PNM dept. 8. Work area shall be barricaded, restrict unauthorized entry. 9. Ground surface shall be levelled.	Yes	4	Medium	1. Work supervisor to be check all hanging part fix properly before removing removing sling 2. Work supervisor arrange training for workers before work procedure commence, including manual material handling. 3. Work shall be carried out under supervision. 4. Experienced person/ Erector shall be carry out rigging & lifting operations.	Nil	3	Low	P&M Dept.

Dept. / Sec./Project: CSD Admt, New Mumbai
Activity/Area/Equipment: Shuttering & Deshuttering for beam & Slab / CSD
Assessor(s): Mr. Kundan, Mr. Narayan, Mr. Kishan
Subcontractor/Workers Representative: Mr. Rahul, Mr. Parikaj
Reviewed By: Ganesh Mote

RISK ASSESSMENT FOR ACTIVITY NAME: Shuttering & Deshuttering of Slab & Beam

Ref. No.: SPCH/CSO 05
Assessment Dt: 03.03.2026
Rev. Dt:
Next Rev.Dt:

Final Risk Rating should be reduced to 10 or below. Exemption: Work Covered by Permit To Work (PTW) and Vehicle driving.															
S.NO	SUB-ACTIVITY NAME	HAZARD(S)/ASPECTS	DIRECT (D)/Indirect (I)	Routine Risk Rating (R)	RISK/IMPACT	SCALE OF IMPACT/RISK	Legal/Other Requirements to be Complied (Yes/No)	Existing Control Measure(s) with mechanism from hierarchy of Control for each identified hazard/Aspect	Severity	Likelihood	Risk	Additional Control Measure(s) Required with mechanism from hierarchy of Control for each identified hazard/Aspect	Severity	Likelihood	Risk
1	Manpower Deployment	Untrained worker	D	R	Personal Injury	Moderate	Yes	1. Only instructed worker shall be deployed at the work place. 2. Given Tool Box Talk to all workers & maintain record.	3	3	9	1. Only fit workers will be deployed for work. 2. Only experienced tools, tackles, farana shall be used for material shifting. 3. Only documents & competent person certificate shall be available for all workers. 4. Access shall be free from obstruction & in proper level. 5. Good communication shall be required while shifting material by crane & manual shifting. 6. Close supervision should be required.	3	2	6
2	Shifting of shuttering material	Fall of the material, fall of person	D	R	Personal Injury	Moderate	Yes	1. Trained people to be used for loading/unloading the shuttering material. Use PPE's 2. Scaffold / staging / platform material should be stocked properly 3. Scaffolds / staging / platform must be clear from obstacle. 4. Use mandatory PPE like Safety shoes, helmet, reflective jacket and gloves, Shoulder pad etc. 5. Conduct JST for material shifting by crane & manual shifting. 6. Close supervision should be required	3	3	9	1. Approved shuttering scheme shall be available 2. Good communication shall be required 3. Authorized scaffolding shall be inspected scaffolding 4. Use good quality platform, plans for erection scaffolding 5. Material shall be stacked properly & not obstructed to access.	3	4	12
3	Scaffolding frame making for shuttering	Fall of the material, fall of person	D	R	Personal Injury	Substantial	Yes	1. Trained people to be used for loading/unloading/ shifting the shuttering material 2. Scaffolding erection area should be in level 3. Material should be inspected & remove damaged material 4. Conduct JST & allow only trained persons (Riggers) on work 5. Scaffolds / staging / platform as per standard & provide hand railing to platform, inspection shall be done before in use 6. Access and egress must be clear from obstacle. 7. Use mandatory PPE like Safety shoes, helmet, reflective jacket, FBSH and gloves. 8. Take required work permit 9. Conduct TBT before work start	4	3	12	1. Approved shuttering scheme shall be available 2. Good communication shall be required 3. Authorized scaffolding shall be inspected scaffolding 4. Use good quality platform, plans for erection scaffolding 5. Material shall be stacked properly & not obstructed to access.	4	2	8
3	Use of Ladder	Fall from Height (material)	D	R	Personal Injury	Moderate	Yes	1. Use of standard certified ladder 2. Angle of ladder shall be maintain 4:1 3. Ladder to rest against the stable surface 4. Use PPE's	3	2	6	1. Ladder shall be tie at both the end.	3	1	3
4	Making of Shuttering frame	1. Sharp object 2. Manually manual handling 3. Unauthorised entry 4. Cutting of ply (Electrocution) 5. Use of hammer 6. Eye vision 7. Facial injury.	D	R	1. Fall injury 2. Personal injury 3. Eye injury 4. Electric shock 5. Death injury 6. Eye vision 7. Facial injury.	Substantial	Yes	1. Work shall be carried out by competent person under proper supervision of foreman / in charge 2. Access and egress must be clear from obstacle. 3. Manually transport of shuttering material with proper PPE 4. Working area should be barricaded to prevent unauthorised entry. 5. Only inspected ply cutter m/c shall be used. 6. Train person only allow to work on ply cutter m/c 7. Use of Safety Goggles, Mask during ply cutting 8. Conduct JST for new worker.	4	3	12	1. Check defects of hammer face before in use. 2. Only skilled & trained person shall be deputa. 3. Hard barricading shall be provide for edge protection 4. Supply cable shall be overhead & joint free	4	2	8
5	Application of shuttering oil to the shuttering frame.	Contact of oil with the hand, Slip trip	D	R	Skin irritation, Slips in the eyes, Personal Injury	Moderate	Yes	1. Proper housekeeping/cleaning of material 2. Use hand gloves & safety goggles 3. Work safety as per MSDS should be followed and take a precaution as per MSDS. Take a special precaution against spillage of oil. 4. Work shall be carried out by competent person under proper supervision of foreman / in charge	3	3	9	1. Avoid work near of hot work area. 2. Use bucket for handling oil to avoid spillage	3	2	6
6	Shuttering work	1. Fall of material / Collapse of shuttering frame 2. Nail Puncturing	D	R	1. Injury/property damage 2. Personal Injury 3. Eye Injury	Substantial	Yes	1. Use of Basic PPE 2. Avoid over crowding on platform & work area. 3. Only train workers deployed for the work. 4. Proper working platform shall be provide. Provide safe for use leg. 5. Proper support shall be provide. Do not keep loose material 6. Access and egress must be clear from obstacle 7. Keep maintain end house keeping on work location. 8. Loose nail should be removed from site, use container for nail. 9. Check defects of hammer face before in use 10. Projected nails shall be bent or removed 11. Work shall be done under close supervision. 12. Use safety goggles 13. Use required TBT	4	3	12	1. Check defects of hammer face before in use. 2. Only skilled & trained person shall be deputa. 3. Hard barricading shall be provide for edge protection 4. Supply cable shall be overhead & joint free 5. Stacking of material should be proper	4	2	8

7	Disturbing work 1. Fall of material / Collapse of shoring 2. Firing of Hot Hammer	D	R	1. Personal injury/property damage 2. Personnel injury	Moderate	Yes	1. Use of Basic PPE, all tools must be inspected on before work for its damage. 2. Before removal of frame staging shall be inspected for use. 3. Do not keep loose material on platform, scaffolding. 4. Below work area shall be barricaded. 5. Proper housekeeping/stacking of material in an isolated area. 6. Access and egress must be clear from obstacles. 7. Only train workers deployed for the work. 8. Work shall be carried out by competent person under proper supervision of foreman / incharge. 9. Loose nail should be removed from site. Used nails keep in wooden boxes. 10. Use safety goggles for eye protection & other PPE's should be used. 11. Take required work permit and conduct TBST	3 3	1. Use proper tools. 2. Check hammer head properly fixed with handle before in use. 3. Keep maintain good house keeping on work location. 4. Supply cable shall be overhead & joint free 5. Ensure proper platform for working to prevent slip, fall	3 2	
8	Placing of ply wood sheets 1. Fall of material 2. Injuring of person	D	R	Personal injury	Substantial	Yes	1. Platform for ply wood shall be confirmed for its existence & same shall be supported by either wooden timber or cuplock vertical & ladder 2. Adequate thickness of ply shall be used & same shall be tested against its suitability viz for beam & slab bottom 12mm thick ply to be used. 3. Proper stacking of ply wood movement on slab during shuffling shall be restricted & gathering of persons shall be avoided at one point to minimize the load on the ply bannesht 4. Ensure close supervision	4 3 12	1. Provide life line for safety belt anchoring 2. Do not move on loose ply & ensure ply shall be fixed by nails	2 8	
9	Work during dark hours Darkness, fall of person, fall of machinery	D	R	Personal injury, damage to property	Moderate	Yes	1. Night work permit to be taken from operations and safety dept. 2. Ensure proper illumination during dark hours. 3. Exposed cables should be at min 2 m height. No exposed electrical wire Earthing. 4. Route shall be barricaded 5. Close supervision should be provided	3 3 9	1. Only authorized person shall handle supply cable, lights, 2. Light post / cable shall be not obstruct material shifting	3 2	
							Engineering Control Reduction Exclusion			Administrative Control Training Safety Barrier	PPE's

Assessor's/Reviewer's Signature -

Mr. Ganesh Mote

(Signature)

Project Incharge: Mr. Krishna Anwar

(Signature)
16/08/2024



RISK ASSESSMENT FOR ACTIVITY NAME:- Reinforcement activity

Dept. / Soc./Project: **Civil / CSD Nav Mumbai**
 Activity/Area/Equipment: **Reinforcement activity**
 Assessor(s): **Mr. Kundan, Mr. Narenra, Mr. Krishna**
 Subcontractor/Workers Representative :
 Reviewed By: **Ganesh Mote**

Ref. No.: **SNOPLCSD04**
 Assessment Dt.: **13.02.2026**
 Rev. Dt:
 Next Rev.Dt:

To Carry out an activity safely																	
Final Risk Rating should be reduced to 10 or below. Exemption: Work Covered by Permit To Work (PTW) and Vehicle driving.																	
S.NO	SUB-ACTIVITY NAME	HAZARD(S)/ASPECTS	DIRECT (D)/Indirect (I)	Routine (R)/Non Routine (NR)	RISK/IMPACT	SCALE OF IMPACT/RISK	Legal & Other Requirements to be Complied (Yes/No)	Existing Control Measure(s) with mechanism from hierarchy of Control for each identified hazard/Aspect	Risk/Impact Score			Final Risk/Impact Score					
									Severity	Likelihood	Risk	Severity	Likelihood				
IOHSR																	
1	Manpower Deputation	Untrained worker	D	R	Personal injury	Moderate	Y	1. Only inducted worker shall be deputed at the work place. 2. Give Tool Box Talk to all workers.	3	3	9	3	1	Health checkup to be done as per Govt. rules of COVID-19, before induction. TBT to be done before start of work	3	1	3
2	Transportation of Reinforcement Steel	a) Injury to personnel due to hit of protruding rods beyond the truck desk.	D	R	Personnel Injury, Cut Injury, Property damage	Moderate	Y	01. Provide red flags at the end of protruding rods. 02. Speed of the trailer truck should be kept minimum. 03. Load material in stable condition	3	2	6	3	1	Access and egress should be marked and safe for person movement.	3	1	3
		b) Slippage of rods from the trailer bed	D	R	Personnel Injury, Cut Injury, Property damage	Moderate	Y	1. Side stoppers should be ensured in the trailer truck. 2. Wooden planks shall be used between the bed of trailer and the rods. 3. Bars should be tied with trailer body	3	2	6	3	1	Regular maintenance of lifting tools and tackle.	3	1	3
3	Loading/Unloading	a) Fall of the load	D	R	body injury/ Property damage	Moderate	Y	1. The Crane capacity should be tested before lifting the load. 2. The weight being lifted should be less than crane capacity.	3	3	9	2	1	Regular maintenance of crane, farana, lifting tools and tackle, guide rope provided.	2	1	2
		b) Hitting of personnel due to way.	D	R	body injury/ Property damage	Moderate	Y	1. The ends of the load should be tied with rope to control the sway. 2. The workman should use proper PPE.	3	3	9	2	1	1. The work should be carried out under proper supervision. 2. Stack material on sleeper after loading.	2	1	2
4	Placing of Reinforcement Steel	a) Fall of the steel bar	D	R	body injury/ Property damage	Moderate	Y	1. The weight being lifted should be less than men capacity. 2. The workman should use proper PPE.	3	3	9	2	2	1. Follow SOP 2. The work should be carried out under proper supervision.	2	2	4
5	Working at height	b) Hitting of personnel due to way.	D	R	body injury/ Property damage	Moderate	Y	1. The ends of the load should be tied with rope to control the sway. 2. The workman should use proper PPE.	3	3	9	2	1	1. The work should be carried out under proper supervision. 2. Stack material on sleeper after loading.	2	1	2
		c) Slip, Trip, uneven surface, Fall of person, Fall of material	D	R	body injury	Moderate	Y	1. Only train person deployed for the task. 2. Ensure person standing on plane surface with sufficient visibility & light. 3. Ensure use of PPE Safety Shoes, helmet and reflective jacket 4. Ensure fall protection such as vertical safety net & horizontal net provided	3	3	9	3	6	1. Ensure FBSS use while working at height 2. Ensure use of Modified stool while working at outer edge.	3	2	6

To Carry out an activity safely										
Final Risk Rating should be reduced to 10 or below. Exemption: Work Covered by Permit To Work (PTW) and Vehicle driving.										
S.NO	SUB-ACTIVITY NAME	HAZARD (S)/ASPECTS	DIRECT (Constructive)	Routine (R)/Non Routine (NR)	RISK/IMPACT	SCALE OF IMPACT/RISK	Legal & Other Requirements to be Complied (Yes/No)	Existing Control Measure(s) with mechanism from hierarchy of control for each identified hazard/Aspect	Risk/Impact Score	
									Severity	Likelihood
6	Operation of Reinforcement cutting & bending Machine	Failure of Safety Guard/ Tripping of Guard/ Un-attentive Operator	D	R	body injury	Moderate	Y	1. Use of basic PPEs. 2. Train worker in bar cutting operation. Only authorised persons should carry out Cutting and bending operation 3. Ensure proper housekeeping is around work area. Scrap shall be segregated in isolated area. 4. Checking of Emergency switch, panel board, Starter, guard, earthing, RCCB	3	6
7	Handling of Reinforcement bar/ Scrap	Hazardously scattered Reinforcement bars/ Scraps	D	R	Cut Injury Trip Hazard Leg Injury	Moderate	Y	1. Use of basic PPE 2. Segregation of Reinforcement bar according to size and shape 3. Marking of Fins/compartments for stacking of steel	3	6
8	Work during dark hours	Darkness, fall of person, fall of machinery	D	R	body injury/ Property damage	Moderate	Y	1. Night work permit to be taken from concern engg. and safety dept 2. Ensure proper illumination during dark hours. 3. Electrical cable should lead min 2 m height. No exposed electrical wire.	3	6
Remember Hierarchy of control									PPEs	
									Engineering Control Reduction Exposure	
									Substitution	
									Elimination	
									Final Risk/Impact Score	
									Severity	Likelihood
									Additional Control Measure(s) Required with mechanism from hierarchy of control for each identified hazard/Aspect	
									Final Risk/Impact Score	
									Severity	Likelihood

(Signature)

Assessor's /Reviewer's Signature-Ganesh Mote

(Signature)
Project Incharge Krishna Anarase

RISK ASSESSMENT FOR PCC work

Dept. / Sec./Project: Civil / CSD Adani, Navi Mumbai

Activity/Area/Equipment: PCC work

Assessor(s): Mr. Kundan, Mr. Narenra, Mr. Krishna

Subcontractor/Workers Representative - Mr. Amod

Reviewed By: Mr. Ganesh Mote

Ref. No.: SPCPL/SHPL/03

Assessment Dt.: 03.02.2026

Rev. Dt:

Next Rev.Dt:

To Carry out an activity safely Final Risk Rating should be reduced to 10 or below. Exemption: Work Covered by Permit To Work (PTW) and Vehicle driving.											
SR. NO.	SUB ACTIVITY NAME	HAZARD(S)/ASPECTS	DIRECT (D)/Indirect (I)	Routine (R)/Non Routine (NR)	Person(s) at Risk/IMPACT	Scale of Impact/Risk	Legal/Other Requirement to be Complied (Yes/No)	Existing Control Measure(s) with mechanism from hierarchy of Control for each identified hazard/Aspect	Risk Impact Score		Final Risk/Impact Score
									Severity	Likelihood	
IOSHR											
1	Manpower Mobilization	Untrained worker mobilization	D		Personal injury / Spread of Pandemic	Moderate	Yes	A) Conduct physical fitness test of worker before his employment from authorised Practitioner. B) Visually check the physical fitness of worker before start of work. C) Provide close and continues supervision. D) Use language which most of worker easily known. E) Take feedback from worker about what they know. F) Provide continues supervision G) Inspected Ladder shall be use and SOP of ladder to be followed. H) One person should be hold ladder while ascending and descending. I) Ladder should be tied to firm / heavy structure J) Ladder should be placed in 1:4 ratio K) Ladder always placed minimum 1 meter above to ground level. L) Ensure the shoring and bracing of the scaffold to be nailed prior to use. M) Ensure Obstruction free access. N) Manual material handling process has to follow. O) Ensure regular collection of Nails or store it in box.	3 3 9	A) Ask Medical and travel history respective to covid 19. B) Conduct screening and check symptoms of COVID 19 from Authorised Practitioner. C) If identified any symptoms of COVID 19, Immediate send him to the nearest hospital for testing and quarantine the all person in contact with him. D) Maintained social distance E) Wash your hands frequently, wear mask continuously and report to only Demarked Access to be use F) Only Trained labour to be deployed G) Wear cotton hand gloves for better grip.	3 2 6
2	Provision of access	Improper Access & Egress to pit Sharp Edge Protruding nails while Shuttering & Dethuttering of material Fall of Transit Mixer in Pit	D	R	Personal injury Personal injury-skin cut Personal injury-fatal injury	Moderate Moderate Substantial	Yes Yes Yes	A) Only Inspected vehicle with inspection tags allowed for work. B) Marked the path of vehicle and ensure while reversing the vehicle the banksman will be available. C) Ensure banksman will not stand at the exact back side center of vehicle. D) Ensure TM stopper used for Transit mixer while concrete work. E) Ensure Hand glove, Nose mask & safety goggles for avoidance contact with concrete F) Ensure authorized electrician for electrical work & all connection by electrician only G) Used only inspected power hand tools like rubber m/c, cutting etc. H) Cable should be routed from the height above at least 1 meter. I) All cable should be labeled J) All providing illumination between 60-100 lux. K) Night work shall be execute under supervision of execution with safety person. L) Ensure Night work permit, Fresh manpower for Night work M) In dry conditions, frequent watering spraying of haul roads and working areas in wet conditions, provide non-slippery access and working areas	4 3 12	Regular Housekeeping to be done after completion of work Use proper hand tools Provide barricade to every excavated pit Traffic warden to be placed at every intersections Close supervision shall be required for the activity Every Equipment shall be inspected by competent person & maintain record Regular Housekeeping to be done after completion of work Use proper hand tools Avoid open ended Electrical Connection Display hazard signages near Electric equipment Every equipment should be earthed Separate TB of night work Deploy in parallel labours for night work to avoid tired persons Use required PPE to avoid injury Regular Housekeeping to be done after completion of work Use proper hand tools	3 1 3 4 2 8
3	Material Handling	Exposure to PCC material	D	R	Skin Irritation	Moderate	Yes	A) Ensure Hand glove, Nose mask & safety goggles for avoidance contact with concrete B) Ensure authorized electrician for electrical work & all connection by electrician only C) Used only inspected power hand tools like rubber m/c, cutting etc. H) Cable should be routed from the height above at least 1 meter. I) All providing illumination between 60-100 lux. K) Night work shall be execute under supervision of execution with safety person. L) Ensure Night work permit, Fresh manpower for Night work M) In dry conditions, frequent watering spraying of haul roads and working areas in wet conditions, provide non-slippery access and working areas	2 3 6	Regular Housekeeping to be done after completion of work Use proper hand tools Avoid open ended Electrical Connection Display hazard signages near Electric equipment Every equipment should be earthed Separate TB of night work Deploy in parallel labours for night work to avoid tired persons Use required PPE to avoid injury Regular Housekeeping to be done after completion of work Use proper hand tools	2 2 4
4	Illustration	Improper Electrical connections Poor illumination while working in darkness	D	R	Electrical Shock Personal injury	Moderate Moderate	Yes Yes	A) Ensure Hand glove, Nose mask & safety goggles for avoidance contact with concrete B) Ensure authorized electrician for electrical work & all connection by electrician only C) Used only inspected power hand tools like rubber m/c, cutting etc. H) Cable should be routed from the height above at least 1 meter. I) All providing illumination between 60-100 lux. K) Night work shall be execute under supervision of execution with safety person. L) Ensure Night work permit, Fresh manpower for Night work M) In dry conditions, frequent watering spraying of haul roads and working areas in wet conditions, provide non-slippery access and working areas	3 3 9 3 2 6	Regular Housekeeping to be done after completion of work Use proper hand tools Avoid open ended Electrical Connection Display hazard signages near Electric equipment Every equipment should be earthed Separate TB of night work Deploy in parallel labours for night work to avoid tired persons Use required PPE to avoid injury Regular Housekeeping to be done after completion of work Use proper hand tools	3 2 6 3 1 3
5	Concrete placing	Dust, wet slippery surface	D	R	Skin Irritation, Lung infection	Moderate	Yes	A) Ensure Hand glove, Nose mask & safety goggles for avoidance contact with concrete B) Ensure authorized electrician for electrical work & all connection by electrician only C) Used only inspected power hand tools like rubber m/c, cutting etc. H) Cable should be routed from the height above at least 1 meter. I) All providing illumination between 60-100 lux. K) Night work shall be execute under supervision of execution with safety person. L) Ensure Night work permit, Fresh manpower for Night work M) In dry conditions, frequent watering spraying of haul roads and working areas in wet conditions, provide non-slippery access and working areas	2 3 6	Regular Housekeeping to be done after completion of work Use proper hand tools Avoid open ended Electrical Connection Display hazard signages near Electric equipment Every equipment should be earthed Separate TB of night work Deploy in parallel labours for night work to avoid tired persons Use required PPE to avoid injury Regular Housekeeping to be done after completion of work Use proper hand tools	2 2 4
Remember Hierarchy of control									Final Risk/Impact Score Severity Likelihood		

Assessor's /Reviewer's Signature -
Mr Ganesh Mote

Project Incharge - Mr.Krishna Agarwal



RISK ASSESSMENT FOR EXCAVATION AND BACK FILLING BY BUCKET

Dept. / Sec./Project : Civil /CSD Adani Navli Mumbai
Activity/Area/Equipment:Excavation by bucket / / Back hoe loader
Assessor(s): Mr.Ajay Pali
Subcontractor/Workers Representative -
Reviewed By: Mr.Ganesh Mote

Ref. No.: SPC/SH/HR/02
Assessment Dt.:01.02.2028
Rev. Dt:
Next Rev.Dt:

To Carry out an activity safely Final Risk Rating should be reduced to 16 or below. Exemption: Work Covered by Permit To Work (PTW) and Vehicle driving												
SR.NO.	SUB ACTIVITY NAME	HAZARD(S)/ASPECTS	DIRECT (D)/Indirect (I)	Routine (R)/Non Routine (NR)	Person(s) at Risk/IMPACT	Scale of Impact/Risk	Legal/Other Requirements to be Complied (Yes/No)	Existing Control Measure(s) with mechanism from Hierarchy of Control for each identified hazard/Aspect	Risk		Additional Control Measure(s) Required with mechanism from Hierarchy of Control for each identified hazard/Aspect	Final Risk Rating
									Severity	Likelihood		
IOSHR												
1	Manpower Mobilization	Untrained worker mobilization	D	R	Personal Injury / Property Damage	Moderate	Yes	A) Conduct physical fitness test of worker before his employment from authorised Practitioner. B) Verify status the physical fitness of worker before start of work. C) Provide training to worker. D) Use language which most of worker easily known. E) Take feedback from workers about what they know. F) Provide continuous supervision. G) Height Factor Test to be carried out	3	3	9	3
2	Inspection of vehicle, underground utilities	Untrained Equipment, Vehicle mobilization	D	R	Personal Injury- Auto Injury	Moderate	Yes	A) No operator and area to operate vehicle without having valid license B) Provide job specific training to worker. C) Monitor activity under close supervision. D) Follow IOSHR, vehicle inspection process. E) No vehicle allow in premises without having its valid legal documents.	3	3	9	3
		Underground Utilities	D	R	Personal Injury	Moderate	Yes	A) Undergo utility services line in relation to the drawing which is provided by the client. B) Follow safety services mention on the As Built Drawing.	3	3	9	3
3	Swing movement	Striking by the swing movement of the arm	D	R	Personal Injury- fracture possibility	Moderate	Yes	A) Excavation to be done when people are working inside. B) No person shall allow to stand in prohibited area of boom. C) Barricade to working area.	3	3	9	3
4	Excavation	Collapse of sides	D	R	Personal Injury-	Moderate	Yes	A) Ensure benching or Step cutting or provide safety net B) Check the situation frequently and follow with permit system C) Proper shoring water management plan must be implemented during rainy season in the excavated area	3	3	9	3
5	Maintenance	Flooding of excavated soil	D	R	Personal Injury-	Moderate	Yes	A) Signage shall be displayed to clearly demarcate the safe traffic movement. B) Banksmen who have knowledge of road safety should provided to manage traffic	3	3	9	3
		Slack in moving vehicle / Equipment, Impaired Traffic Management	D	R	Personal Injury-	Moderate	Yes	Regularly water or chemical spraying of haul road and working areas	2	3	6	2
6	Vehicle Movement	Dust, greasy surface	D	R	Slur, Irritation, Lung Infection	Moderate	Yes	A) Work Permit system to follow B) Monitor Machine driver Maintenance Schedule Prepared	3	3	9	3
		No safe access and Egress, Untrained driver, Bad line condition, Impaired vehicle maintenance	D	NR	Personal Injury-	Moderate	Yes					
Remember Hierarchy of control									Engineering Control PPE's	Administrative Control Training Substitution JSA/Job Safety Analysis	Others	
Assessor's Reviewer's Signature - Mr. Ganesh Mohan												
Project Incharge - Mr. Krishna Kumar												

Assessor's /Reviewer's Signature - Mr.Ganesh Mote

Project Incharge - Mr.Krishna Anuse

ANNEXURE 2 –
PHOTOGRAPHS OF CEMENT
BULKER

Annexure 2 – Cement Bulkers



ANNEXURE 3 –
COPY OF STAGE I & II FOREST
CLERANCE

F. No. 8-95/2012-FC
Government of India
Ministry of Environment & Forests
(FC Division)

Paryavaran Bhawan,
C.G.O Complex, Lodhi Road,
New Delhi - 110510.
Dated: 17th December, 2013.

To
The Principal Secretary (Forests),
Government of Maharashtra,
Mantralaya, Mumbai.

Sub: Diversion of 250.0635 ha of forest land in favour of General Manager (Airport) CIDCO Ltd., Navi Mumbai for establishment of Navi Mumbai International Airport in Alibag Forest Division in District Raigad of Maharashtra- regarding.

Sir,

I am directed to refer to the State Government's letter no. FP/MI/Others/663/2012 dated 20.11.2012 on the above subject seeking prior approval of the Central Government under the Forest (Conservation) Act, 1980 and to say that the proposal has been examined by the Forest Advisory Committee constituted by the Central Government under section-3 of the said Act.

After careful examination of the proposal of the State Government and on the basis of the recommendation of the Forest Advisory Committee, the Central Government hereby conveys the 'in-principle' approval for diversion of 250.0635 ha of forest land in favour of General Manager (Airport) CIDCO Ltd., Navi Mumbai for establishment of Navi Mumbai International Airport in Alibag Forest Division in District Raigad of Maharashtra subject to fulfilment of the following conditions:

- i. Legal status of the diverted forest land shall remain unchanged
- ii. Compensatory Afforestation over the non-forest land equal in extent to the forest land (i.e. over 250.0635 ha) being diverted shall be raised and maintained by the State Forest Department at the cost of the User Agency.
- iii. The non-forest land identified for raising compensatory afforestation shall be transferred and mutated in favour of the State Forest Department before issue of the Stage-II clearance.
- iv. The land identified for the purpose of CA shall be clearly depicted on a Survey of India toposheet of 1:50,000 scale.
- v. The non-forest land transferred and mutated in favour of the State Forest Department shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act, 1927 latest within a period of six months from the date of issue of Stage-II approval. The Nodal Officer shall report compliance in this regard along with a copy of the original notification declaring the non-forest land under Section 4 or Section 29 of the



Indian Forest Act, 1927, as the case may be, within the stipulated period to the Central Government for information and record;

- vi. The User Agency shall transfer the cost of raising and maintaining the compensatory afforestation, at the current wage rate, to the State Forest Department. The scheme may include appropriate provision for anticipated cost increase for works scheduled for subsequent years.
- vii. User Agency shall deposit the Net Present Value (NPV) of the diverted forest land with the State Forest Department as per the orders of the Hon'ble Supreme Court dated 30.10.2002, 01.08.2003 and 28.03.2008 in I.A. No. 566 in WP(C) No. 202/1995 and the guidelines issued by this Ministry vide letter No. S-1/98-FC(Pl.II) dated 18.09.2003 and 22.09.2003 in this regard.
- viii. Additional amount of the NPV of the diverted forest land, if any, becoming due after finalization of the same by the Hon'ble Supreme Court of India on receipt of the report from the Expert Committee, shall be charged by the State Government from the User Agency. The User Agency shall furnish an undertaking to this effect.
- ix. All the funds received from the User Agency under the project shall be transferred to Ad-hoc CAMPA in saving accounts pertaining to the State concerned.
- x. Afforestation of mangrove species over an area equivalent in extent to mangrove forest area being diverted has to be raised and maintained by the user agency at their own cost in consultation with the State Forest Department. It will be in addition to the mangrove area to be raised under CRZ approval.
- xi. The User Agency will undertake comprehensive soil conservation measures at the project cost in consultation with the State Forest Department.
- xii. The User Agency will assist the State Government in conservation and preservation of flora and fauna of the area in accordance with the plan prepared by the Chief Wildlife Warden of the State.
- xiii. All conditions imposed by the Standing Committee of the National Board for Wildlife, communicated vide MoEF's letter no. 6-43/2007-WL (29th Meeting) dated 1.08.2013, will be complied with.
- xiv. A Monitoring Committee will monitor the implementation of different measures stipulated herein and will submit six monthly report to the Ministry in this regard. The Committee will be comprised of Principal Chief Conservation of Forests as Chairman, representative of the Regional Office, Bhopal, representative of Bombay Natural History Society and representative of CIDCO and Conservator of Forests (territorial), who will be the Member Secretary of the Monitoring Committee.
- xv. The R&R Plan approved by the State Government shall be submitted before Stage-II approval.
- xvi. State Government shall ensure that settlement of displaced people does not take place in the forest land.
- xvii. Any trees shall be felled only when it becomes necessary and that too under strict supervision of State Forest Department, and at the cost of the User Agency.



- xviii. No labour camp shall be established on the forest land. The User Agency shall also provide fuels preferably alternate fuels to the labourers and staff working at the site so as to avoid any damage to the nearby forest areas.
- xix. In future, user agency shall not submit any proposal for extension of the project or any other project ancillary/related to this project in the forest land between the present project site and Karnala Bird Sanctuary.
- xx. The boundary of the diverted forest land shall be demarcated on the ground with four feet high cement concrete pillar with its serial number and forward and back bearing inscribed on it.
- xxi. The layout and plan shall not be changed without prior approval of the Central Government.
- xxii. The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;
- xxiii. Ex-situ conservation of endemic species of flora/fauna lost/disturbed in the process of execution of the project may be ensured.
- xxiv. No damage to the flora and fauna of the area shall be caused.
- xxv. The user agency in consultation with the State Government shall create and maintain alternate habitat/home for the avifauna, whose nesting trees area to be cleared in this project. Birds nests artificially made out of eco-friendly material shall be used in the area, including forest area and human settlements, adjoining the forest area being diverted for the project.
- xxvi. The forest land shall not be used for any purpose other than that specified in the proposal and shall, under no circumstances, be transferred to any one without prior approval of the Central Government.
- xxvii. All other conditions proposed by the State Government at the time of submission of the proposal to the Central Government shall be complied with by the User Agency.
- xxviii. The State Government shall complete settlement of rights, in terms of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, if any, on the forest land to be diverted and submit the documentary evidence as prescribed by this Ministry in its letter No. 11-9/1998-FC (pt.) dated 03.08.2009, in support thereof
- xxix. Rehabilitation of project affected families, if any, shall be done as per the National Rehabilitation policy / State Rehabilitation policy whichever is better in consultation with the State Forest Department at the cost of user agencies.
- xxx. The user agency shall submit the annual self compliance report in respect of the above conditions to the State Government and to the concerned Regional Office of the Ministry regularly.
- xxxi. Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife; and



- xxxii. The User Agency and the State Government shall ensure compliance to provisions of the all Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project.
- xxxiii. Any other condition that the Addl. PCCF (Central), Regional Office, Bhopal may impose from time to time for the protection and improvement of flora and fauna in the forest area.

After receipt of the compliance report on the fulfilment of the above mentioned conditions from the State Government, formal approval will be considered in this regard under Section-2 of the Forest (Conservation) Act, 1980. The transfer of forest land to the User Agency shall not be affected by the State Government till formal order approving the diversion of forest land is issued by the Central Government.

Yours faithfully,

(Priya Ranjan)

Sr. Assistant Inspector General of Forests

Copy to:-

1. The Principal Chief Conservator of Forests, Government of Maharashtra, Nagpur.
2. The Addl. PCCF (Central), Regional Office, Bhopal, MoEF.
3. The Nodal Officer (FCA), O/o the PCCF, Government of Maharashtra, Nagpur.
4. User Agency (M/s Rewas Ports Ltd., Jai Center, 1st Floor, 34 P D'Mello Road, Opp Red Gate, Mumbai 400 009.
5. Monitoring Cell, FC Division, MoEF, New Delhi.
6. Guard File.

(Priya Ranjan)

Sr. Assistant Inspector General of Forests

F. No. 8-95/2012-FC
Government of India
Ministry of Environment, Forests and Climate Change
(Forest Conservation Division)

Indira Paryavaran Bhawan,
Aliganj, Jorbagh Road,
New Delhi – 110003
Dated: 24 April, 2017

To,

The Principal Secretary (Forests),
Government of Maharashtra,
Mantralaya, Mumbai.

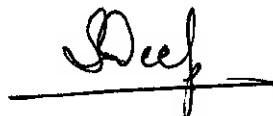
Sub: Diversion of 250.0635 ha of forest land in favour of General Manager (Airport), CIDCO Ltd., Navi Mumbai for establishment of Navi Mumbai International Airport in Alibag Forest Division in District Raigad of Maharashtra- regarding.

Sir,

I am directed to refer to the State Government of Maharashtra's letter No. FP/MH/Others/663/2012 dated 20.11.2012 on the subject cited above seeking prior approval of the Central Government under the Forest (Conservation) Act, 1980. After careful consideration of the proposal by the Forest Advisory Committee (FAC) constituted under Section-3 of the said Act, **In-principle approval/Stage-I Clearance** was granted vide this Ministry's letter of even number dated 17.12.2013 subject to fulfilment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the approval and has requested the Central Government to grant final approval.

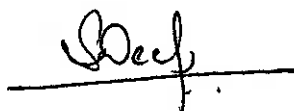
In this connection, I am directed to say that on the basis of the compliance report furnished by the Government of Maharashtra vide their letters No. 17/NC/II/I.D.12060/(49)/2373/15-16 dated 18.03.2016, No. FLD-1315/C.R.352/part-2/F-10 dated 07.09.2016, No. FLD-1315/C.R.352/part-2/F-10 dated 03.11.2016 and no. Desk-17/NC/II/I.D.12060/(49)/2372/16-17 dated 21.03.2017, and **recommendation for deletion of condition no. (xx) and modification of condition No.(xix) of stage-I clearance dated 17.12.2013 by Forestry Advisory Committee in its meeting held on 12.07.2016 and approval of competent authority for the same, the Final /Stage-II approval** of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 250.0635 ha of forest land in favour of General Manager (Airport), CIDCO Ltd., Navi Mumbai for establishment of Navi Mumbai International Airport in Alibag Forest Division in District Raigad of Maharashtra subject to fulfilment of the following conditions:

- (i) Legal status of the diverted forest land shall remain unchanged;
- (ii) Compensatory afforestation (CA) over the non-forest land equal in extent to the forest land being diverted (i.e. over 250.0635 ha) shall be raised within three years from the date of issue of stage –II clearance and maintained thereafter as per approved plan by the State Forest Department at the cost of the User Agency. The CA will be done at the rate of 1000 plants per ha. (i.e. 2,50,063 plants) over the non-forest land. However, as now forest land identified for CA has only 120.75 ha plantable area which can accommodate only 67,073 plants. The remaining 1,82,990 plants shall be planted over degraded forest land under the control of State Forest Department as identified in the compliance report submitted by State Govt. vide their letter no. Desk-17/NC/II/I.D.12060/(49)/2372/16-17 dated 21.03.2017;
- (iii) The State Govt. shall ensure that afforestation of mangrove species over an area equivalent in extent to mangrove forest area being diverted has to be raised within three years from the date of stage –II clearance and maintained at the cost of user agency in consultation with the



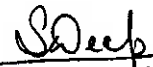
State Forest Department. It will be in addition to the mangrove area to be raised under CRZ approval;

- (iv) **In future, user agency shall not submit any proposal for extension of project or any other project ancillary/related to this project in forest land falling in eco sensitive zone of Karnala bird sanctuary;**
- (v) The non-forest land transferred and mutated in favour of the State Forest Department shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act, 1927 latest within a period of six months from the date of issue of Stage-II approval. The Nodal Officer shall report compliance in this regard along with a copy of the original notification declaring the non-forest land under Section 4 or Section 29 of the Indian Forest Act, 1927, as the case may be, within the stipulated period to the Central Government for information and record;
- (vi) The User Agency will undertake comprehensive soil conservation measures at the project cost in consultation with the State Forest Department;
- (vii) The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;
- (viii) The User Agency will assist the State Government in conservation and preservation of flora and fauna of the area in accordance with the plan prepared by the Chief Wildlife Warden of the State;
- (ix) The State Govt. shall ensure to comply with all the conditions imposed by the Standing Committee of the National Board for Wildlife, communicated vide MoEF's letter no. 6-43/2007-WL (29th Meeting) dated 1.08.2013;
- (x) The User Agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India;
- (xi) The Monitoring Committee as constituted vide order no. FLD-1312/CR 352(part-II)/ F-10 dated 25.07.2014 by Govt. of Maharashtra shall monitor the implementation of different measures stipulated and submit six monthly report to the Ministry/Regional Office Nagpur;
- (xii) The approved R&R Plan shall be implemented by the State Government;
- (xiii) Rehabilitation of project affected families, if any, shall be done as per the National Rehabilitation policy / State Rehabilitation policy whichever is better in consultation with the State Forest Department at the cost of user agency;
- (xiv) State Government shall ensure that settlement of displaced people does not take place in the forest land;
- (xv) Any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department;
- (xvi) The layout plan of the proposal shall not be changed without the prior approval of the Central Government;
- (xvii) No labour camp shall be established on the forest land;
- (xviii) The User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas;
- (xix) The State Govt. shall ensure that the User Agency implement the conservation plan prepared by BNHS in connection with conservation of flora & fauna;
- (xx) The user agency will abide by the applicable recommendations of the State Government including State Forest/Wildlife Departments;
- (xxi) The forest land shall not be used for any purpose other than that specified in the proposal;



- (xxii) The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government;
- (xxiii) No damage to the flora and fauna of the adjoining area shall be caused;
- (xxiv) The State Government shall ensure the complete compliance on settlement of rights, in terms of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, if any, on the forest land to be diverted and submit the documentary evidence as prescribed by this Ministry in its letter No. 11-9/1998-FC (pt.) dated 03.08.2009 read with 05.07.2013, in support thereof. **The State Government shall accept the conditions put in Gram Sabha Resolution. The State Government shall provide undertaking to MoEF&CC, before commencement of work, that the State Government will comply with all provisions of FRA -2006 as specified by Ministry of tribal affairs;**
- (xxv) The User Agency shall submit the annual self compliance report in respect of the above stated conditions to the State Government, concerned Regional Office and to this Ministry by the end of March every year;
- (xxvi) Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife; and
- (xxvii) The user agency shall comply all the provisions of the all Acts, Rules, Regulations, Guidelines & Hon'ble Court Order (s) pertaining to this project, if any, for the time being in force, as applicable to the project.

Yours faithfully,



(Sandeep Sharma)

Assistant Inspector General of Forests

Copy to:

1. The Principal Chief Conservator Forests, Government of Maharashtra, Nagpur.
2. Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (WZ), Kendriya Paryavaran Bhawan, E-5, Arera Colony, Link Road-3, Ravi Shankar Nagar, Bhopal-462016.
3. The Nodal Officer, O/o the PCCF, Government of Maharashtra, Nagpur.
4. User Agency (Executive Engineer, Raigad Irrigation No-2, Konkan Bhavan, Navi Mumbai.
5. Monitoring Cell.
6. Guard file.



(Sandeep Sharma)

Assistant Inspector General of Forests

ANNEXURE 4 –
NATIONAL BOARD FOR WILDLIFE
(NBWL) CLEARANCE

13th SC-NBWL (29th Meeting)
Government of India
Ministry of Environment and Forests
Wildlife Division

Paryavaran Bhawan
CGO Complex, Lodhi Road,
New Delhi-110003
Dated: 01.08.2013.

10

The Principal Secretary (Forests),
Department of Forests,
Government of Maharashtra,
Mantralaya Mumbai,
Nagpur-400032.

Sub: Minutes of the 29th meeting of Standing Committee of NBWL.

Sir,

During the 29th meeting of Standing Committee of NBWL held on 6th June 2013 under the chairpersonship of Hon'ble Minister of State (Independent Charge) for Environment and Forests, the following proposals pertaining to your State were considered. The relevant portions of the decision taken in respect of the proposals are reproduced below:

1. **Proposal for construction of Navi Mumbai International Airport (NMIA) at Panvel atuk, District. Raigad in Maharashtra in 10 km eco-sensitive zone/Area (ESA) of Karnala Bird sanctuary (KBS)**

The Member Secretary informed the committee that this proposal was discussed during the 28th Meeting of Standing Committee of NBWL and after discussions, the committee had decided that a team comprising of Dr. Asad Rahmani and Shri Kishor Rithe would conduct site inspection and submit a report to the Standing Committee of NBWL for consideration. Subsequently, Dr. Asad Rahmani of Bombay Natural History Society (BNHS) informed the MoEF that BNHS had accepted the study from project proponent CIDCO and hence he would be unable to be a part of site inspection team as it would be a conflict of interest for him. Therefore, Additional Director General of Forest (Wildlife), Dr. Divyabhanusinh Chauda and Kishor Rithe were directed to conduct the site inspection vide letter (no. 634/2013WL) dated 3rd May 2013. However, Dr. Chauda could not join the site inspection team due to his other engagements.

The site inspection was conducted on 6th and 10th May 2013 and after inspection, the team had recommended the proposal with certain conditions. An important observation that came out during the site inspection was that Shri. Debi Goenka of the Conservation Action Trust, Mumbai had filed a Public Interest Litigation (PIL) on mangrove protection which will be applicable to mangrove area to be destroyed by proposed project of NMIA.

The committee, after discussions, unanimously decided to recommend the proposal subject to the following conditions, as stipulated in the site inspection report:

- i. As there are several project proposals coming to SC-NBWL around KBS, it is recommended that the CWLW should compile the information and proceed to assess the cumulative impact of those projects on KBS landscape (which includes several PAs mentioned by CWLW and surrounding wildlife habitats (together with forest, wetlands and mangroves), and plan about compensating/mitigating the damages collectively. For any further project in 10km ESZ of KBS, this condition must be given due consideration.
- ii. Air traffic at NMIA should not use the airspace above the KBS as promised during the meeting. The annual report "Baseline Survey of Avian fauna at and around NMIA" produced by BNHS has, though sufficient enough, suggested conservation measures in 10 km radius of NMIA. The potential wildlife habitats (wetlands, forest and mangroves) which comes in 10km ESZ of KBS should also be considered for implementing conservation measures.

iii. In order to have alternate site for migratory birds visiting wetland within proposed NMIA site, Sewri coast wetland should be considered to be developed. The Sewri coast wetland of 1037.3 ha is a marshland protected from Arabian sea near the mouth of Thane creek. Thousands of flamingoes along with many other migratory water birds about 150 species (17 are globally threatened) inhabit this marsh partly covered by mangrove. The Government of Maharashtra should nominate the same for Ramsar site.

6343
7/9/2013

Contd.../2

The project is a 1.5 km long and 0.5 km wide captive power plant. As the project is a captive power plant, the Government should see if any approval from the Ministry of Power is required. Mangrove system has a unique aquatic fauna which carries a great importance. There is dense mangrove cover towards north side of the proposed NMIA site and parts of it also occur inside the NMIA site. To compensate for the loss of important mangrove forest portion inside the NMIA site, the mangrove forest bordering NMIA site (including the mangrove Park) should be declared as a mangrove sanctuary.

- v. The project proponent should pay 3% of project cost for a fixed deposit with the wildlife department so that the interest amount can be spent on conservation of mangrove in the entire Mumbai wildlife circle.
- vi. The government of Maharashtra has presently notified only 12.11 sq.km area as KBS though there are more wildlife potential forest lands available between the KBS and the NMIA site. As those lands will be vulnerable for encroachments, we recommend that the state government should notify all such forest patches between the KBS and the NMIA as sanctuary before granting the final clearance. This will not only help to stop further encroachments on forest lands around NMIA site (unlike encroachments around existing Mumbai airport) but also will help to reduce the risk of having any air traffic accident due to garbage attracted bird movements.
- vii. Looking at the encroachments around SGAP and the existing Mumbai airport, the Government of Maharashtra need to ensure that the families be relocated at relocation site-2 (55 Ha) at Dapoli which requires 40 ha land and at relocation site-3 at Vahai on Amra Marg should not further encroach upon any forest land around these sites or in 10 km ESZ of KBS. There are 10 settlements from 7 revenue villages which need to be acquired for NMIA project and to be relocated at these three sites.
- viii. The project proponent should construct the boundary wall specially for relocation site-2 (along with 100 ha non-aeronautical activity area) during the construction of the project. This will also help to minimise the garbage issue which attracts birds and other wild animals and also stop encroachments on surrounding forest areas.
- ix. Project proponent should allocate enough display space at the prominent location in the NMIA (As per the requirement of CWLW Maharashtra) free of cost to depict and highlight / publicise the importance of protected areas of Maharashtra to the tourists arriving at NMIA till the lifetime of NMIA.
- x. CWLW Maharashtra should incorporate the measures in the Management plan of KBS.
2. **Proposal to set up an 80,000 TPA capacity plant for manufacturing Viscose Staple Fibre at Additional Patalganga Plot No.M1 and M2 at village: Sarsai, Dist.: Raigarh, Maharashtra.**

The Member Secretary gave a brief introduction about the proposal. Mr. Kishore Rithe mentioned that the area of Karnala bird sanctuary is just 12.11 sq.km and several other projects have been proposed around this small sanctuary. The SC-NBWL has just recommended the Navi Mumbai airport too. Though the project is proposed in MIDC area, state has to reconsider about such polluting industries in this MIDC specially after recommending the Navi Mumbai international airport in ESA of Karnala. The project location is just 1.5 km from the boundary of KBS and it has a captive power plant (which will use 265 tonne of coal per day) inside it. The CWLW has already expressed concerns on the fact that the plant will release solid waste of 1095 tonne/year and sludge waste of 3200 up to 58,400 tonne/year from coal fired boiler. The treated industrial effluents released into saline water zone of the Patalganga River which flows near the sanctuary. The plant would seriously impact the nearby Patalganga river and wetlands such as Apta lake and Jambhawali river where sanctuary animals/birds do visits. He said that we should reject this proposal on this ground.

Dr. Asad Rahmani mentioned that since the nearby areas of the sanctuary is Maharashtra State Industrial Development Corporation area, not much wildlife is seen in the vicinity but discharge of effluent in Patalganga is a serious issue.

The representative of the user agency informed that the project had already obtained Environmental Clearance and that their plant had the capacity for double effluent treatment before discharging into the sea and it is being ensured that no toxic materials are released into the river. He added that as far as gaseous emissions were concerned, it was mainly Hydrogen Sulphide and Carbon-di- Sulphide. He added that there would be a 16 MW power plant with coal being imported from Indonesia as well as taken from India and lime injection systems will be established to reduce Sulphur emission.

The Member Secretary gave a brief account of the proposal. He added that he has seen the site during his inspection of Navi Mumbai airport site. This proposal was initially not recommended by the Chief Wildlife Warden as there was other alternative routes available. He suggested that this may not be agreed to as alternate routes which is outside the Sanctuary is available.

Chief Wildlife Warden clarified that the project is within the already established MIDC industrial area and any effluents of the project are not affecting the WLS.

Taking note of the observations of the members, Chairperson asked for the final views of members. Shri Kishor Rithe was of the view that the project should be rejected. It was decided to take a view on this matter later.

3. **Diversion of 1.65 ha of forestland from Karnala Bird Sanctuary for widening of existing 2 lane to 4 lane divided carriageway configuration for Panyel-Indapur (km 0.000 to km 84.000) section of NH-17, Maharashtra (Both within Karnala Bird Sanctuary and within 10 kms from Karnala Bird Sanctuary).**

The Member Secretary gave a brief account of the proposal. He added that he has seen the site during his inspection of Navi Mumbai airport site. This proposal was initially not recommended by the Chief Wildlife Warden as there was other alternative routes available. He suggested that this may not be agreed to as alternate routes which is outside the Sanctuary is available.

Shri Kishor Rithe stated that he had inspected the site as a member of the state Board for Wildlife and the widening of the road from 2 lane to 4 lane within the sanctuary cannot be considered as alternate route is also available. The CWLW of Maharashtra may circulate the site inspection report of the state committee to the members of Standing Committee of NBWL.

After discussion, the committee unanimously decided to reject the proposal and request the NHAI to follow alternate route outside Sanctuary.

The above recommendation(s) are subject to the existing directives of Hon'ble Supreme Court and provisions of Forests (Conservation) Act, 1980.

Yours faithfully



(Vivek Saxena)

Deputy Inspector General of Forests (WL)

Copy to:

1. The Chief Wildlife Warden, Government of Maharashtra, Ram Giri Road, Civil Line, Van Bhawan, Nagpur-440 001.
2. The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office(WZ), E-5, Arera Colony, Link road-3, Bhopal-462016.
3. The Joint Secretary, I.A. Division, MoEF.
4. The Inspector General of Forests, FC Division, MoEF.



(Vivek Saxena)

Deputy Inspector General of Forests (WL)

F.No.6-48/2015 WL (34th Meeting)
Government of India
Ministry of Environment, Forests & Climate Change
Wildlife Division

Indira Paryavaran Bhawan
Jor Bag Road, Aliganj
New Delhi-110003
Dated: 30.06.2015.

The Principal Secretary (Forests)
Department of Forests
Government of Maharashtra
Manatralaya Mumbai
Nagpur-400032.

Sub: Minutes of the 34th Meeting of Standing Committee of NBWL.

Sir,

During the 34th Meeting of Standing Committee of NBWL held on 2nd June 2015 under the Chairmanship of Hon'ble Minister of State (Independent Charge) for Environment, Forests and Climate Change, the following proposals pertaining to your State were considered. The relevant portion of the decision taken in respect of the proposals is reproduced below:

"1. Proposal for rationalisation of the boundary for Maldhok Bird Sanctuary, Maharashtra.

The Member Secretary informed the Committee that the state government had conveyed that it had decided to adhere to the earlier proposal of rationalising boundaries of the Maldhok Bird Sanctuary.

Dr.H. S. Singh suggested that the Ministry must take concrete steps to conserve Great Indian Bustard (GIB) before deciding on the rationalisation proposals. He added that Ministry should prepare an integrated plan for breeding and conservation of GIB covering the States of Gujarat, Maharashtra and Rajasthan. The Project may be funded from CAMPA and must be submitted immediately and action must start on it before it is too late.

Member Secretary informed that an action plan is already in place and action on this plan is on way in the states. The chair suggested that the states take a holistic view of GIB conservation and also suggested to WH to provide inputs in preparing an integrated scheme for GIB conservation plan in consultation with Rajasthan, Gujarat and Maharashtra. After discussions, the committee asked the Ministry to prepare integrated GIB conservation plan within a month and propose rationalisation based on the requirement of the conservation plan.

2. Navi Mumbai International Airport (NMIA): Amendment to condition (iv) of the recommendation of SC-NBWL (8.5 km from Karnala WL sanctuary)

The member secretary briefed the Committee on the representation of CIDCO seeking waiver of the condition (iv), stipulated by SC-NBWL, to declare adjoining NMLA area as mangrove sanctuary. He added that Govt. of Maharashtra had also recommended the CIDCO's request basing it on the BNHS study. The said study has stated that adjoining NMLA site should be made unattractive to birds in view of aircraft safety, human safety and airport safety.

Director, WH explained the case with an identical case of Brisbane Airport and emphasized that the air ports adjoining the mangroves should be made unattractive to birds.

After discussions, the Standing Committee recommended to waive the aforesaid condition in view of human safety and considering that Government of Maharashtra's decision to declare alternative site, namely, Thane Creek as Flamingo Sanctuary for conservation.

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3. **Widening of existing 2 lane to 4 lane divided carriageway for Panvel-Indapur (Km 0.000 to km.84.000) section of NH-17 in the State of Maharashtra. Proposal for diversion of land within sanctuary and the eco-sensitive zone.**

The member secretary briefed the committee on the proposal and its rejection by SC-NBWL in its 1st meeting held on 22nd December 2009 and also in its 29th meeting held on 6th June 2013 (submitted for diversion of 1.65 ha of sanctuary area). The proposal involves diversion of forest land within and outside (ESZ) of the Karnala bird sanctuary. In both these meetings, SC-NBWL had advised NHAI to take alternative alignment outside the sanctuary. In the 31st meeting of SC NBWL held on 12-13th August 2014 the proposal had been recommended for outside sanctuary area (within 10 km from boundary of sanctuary) by the SC-NBWL, with conditions stipulated by SBWL, that restricted the widening upto 1 km distance, on both sides, from the boundary of sanctuary area.

Now, a copy of the earlier proposal has been resubmitted for reconsideration with the recommendation of State Government for permitting widening within the Karnala Bird Sanctuary. The State Government has mentioned that the stretch of 3.5 km (1.5 km within the sanctuary and 1 km each on both ends of road outside the sanctuary) will be the permanent bottleneck for traffic and will hinder the traffic speed on the highway.

The chair opined that widening within the sanctuary will smoothen the traffic and reduce the foul emissions from recurring traffic jams, which are harmful for the birds and other wildlife. After discussions, the Standing Committee recommended the project and directed that a team comprising of a representative of WIL, NHAI and Chief Wildlife Warden of Maharashtra would undertake a site visit, agree on feasible mitigation measures including those for reptiles, within and outside sanctuary along the proposed 3.5 km stretch, within a month.

4. **Proposed Residential & Commercial Project under Slum rehabilitation authority, Mulund near Veena Nagar opposite LBS Marg, Mulund (West) Ta. Kurla, Maharashtra**

The member secretary briefed the committee on the proposal. Dr. Sukumar added that the Committee should take a different view for the urban development activities around the national parks/sanctuaries located in urban settings.

After discussions, the committee deferred the proposal in view of non-finalization of ESZ proposal of Sanjay Gandhi National Park.

The above recommendation(s) are subject to the existing directives of Hon'ble Supreme Court and provisions of Forests (Conservation) Act, 1980.

Yours faithfully

R. Rajasekhar
(Rajasekhar Ratti)

Scientist 'C'/Deputy Director (WL)

Copy to:

1. The Chief Wildlife Warden, Government of Maharashtra, Ram Giri Road, Civil Line, Van Bhawan, Nagpur-440 001.
2. The Addl.Pr. Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office(WZ), E-5, Arera Colony, Link road-3, Bhopal-462016.
3. The General Manager, National Highways Authority of India (Ministry of Shipping, Road Transport and Highways) G-5 & 6, Sector-10, Dwarka, New Delhi-110075.
4. The Managing Director, CIDCO, CIDCO Bhavan, CBD Belapur, Navi Mumbai- 400614
5. The Director, Ariisto Developer, 701 7th Floor Dev Bhoomi, Andheri, Mumbai.
6. The Joint Secretary, I.A. Division, MoEF & CC.
7. The Inspector General of Forests, FC Division, MoEF & CC.

R. Rajasekhar
(Rajasekhar Ratti)

Scientist 'C'/Deputy Director (WL)

ANNEXURE 5 –
EC CORRIGENDUM LETTER
RECEIVED FROM SEIAA

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

No. SIA/MH/INFRA2/556803/2025
Environment & Climate Change
Department
Room No. 217, 2nd Floor,
Mantralaya, Mumbai- 400032.
Date- 02.04.2026

To
M/s. Navi Mumbai International Airport Pvt. Ltd.
At Ulwe, Panvel, Taluka, Raigad,
District, Maharashtra

Subject : Environmental & CRZ Clearance granted by SEIAA for Enhancement of
Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe,
Panvel, Taluka, Raigad, District, Maharashtra

Reference : EC Letter vide no. EC25C2902MH5775862N dated 12.02.2026

This has reference to your communication on the above-mentioned subject. Your Proposal was considered in 318th (Day-1) meeting of State Level Environment Impact Assessment Authority (SEIAA) held on 19th January, 2026 and SEIAA decided to grant Environment Clearance. The Environmental clearance for proposed project issued on PARIVESH portal. PP requested to made correction in EC letter. The correction in EC letter as below-

EC page No./Topic	As per EC granted dated 12.02.2026.	Corrections shall be read as
Subject line of EC	EC- Page Nos. 1 & 6 – EC subject mentions only 'Environment Clearance' instead of Environment & CRZ Clearance.	EC subject shall be read as below: "Environment & CRZ Clearance for Enhancement of Airport Capacity of Navi Mumbai International Airport at Ulwe, Panvel Taluka, District Raigad, Maharashtra by Navi Mumbai International Airport Pvt. Ltd."
Inclusion of Built-up Area /construction area details in the EC letter	The Built-up area /construction area details as mentioned in MoM of 318 th Meeting of SEIAA held on 19 th January 26 (MoM Page No. 211) need to be included in the EC letter.	Area shall be read in the EC: "Construction Activity: • Built-up Area for Proposed Enhancement (90 MPPA)

EC page No./Topic	As per EC granted dated 12.02.2026.	Corrections shall be read as
		• The total built-up/FSI area component for the proposed 90 MPPA enhancement is 52,82,719.083 sq. m, inclusive of 33,34,474.240 sq. m of BUA/FSI for the Landside Commercial Development. • Total Proposed Construction The total proposed construction area at NMIA in the final phase is 13,778,895.354 sq.m, covering all buildings, structures, pavements, runways, taxiways, aprons, and associated facilities.
EC Page No. 3 & 12- CTE Requirement from MPCB	As per the EC Condition (Page No. 3) A. Standard Conditions -I. Statutory Compliance - iv. "The PP shall obtained Consent to Establish/operate under the provision of Air Act, 1981 and Water Act, 1974 from the concerned SPCB". As per the EC Condition (Page No. 12) C. General EC Conditions -II. "If applicable Consent to Establishment (CTE) shall be obtained from MPCB under Air Act and Water Act and copy shall be submitted to the Environment Department before start of any construction work at the Site"	CTE requirement condition shall be amended as below: "As per MoEF&CC OM Vide File No. Q-15012/2/2022-CPW-Part(1)/e-240741 dated January 14, 2025, Consent to Establishment from Concerned SPCB is not applicable and Environment safeguards from SPCB has been taken into consideration."
EC- Page No. 9; SEIAA Conditions	Serial No. 5 is left blank.	Renumbering of the Conditions from 1-13

EC page No./Topic	As per EC granted dated 12.02.2026.	Corrections shall be read as
EC page No. 2 Serial No. 7	The Serial No. 7 States that "The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) notification 2006 & further amendments thereto and after the recommendations of the State Environment Impact Assessment Authority (SEIAA) Appraisal Committee hereby decided to grant EC for instant proposal of M/s. Charudatta Deshmukh under the provision of EIA Notification 2006 and as amended thereof:	The Serial No. 7 shall be read as below: "The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) notification 2006 & further amendments thereto and after the recommendations of the State Environment Impact Assessment Authority (SEIAA) Appraisal Committee hereby decided to grant EC for instant proposal of M/s. Navi Mumbai International Airport Pvt. Ltd under the provision of EIA Notification 2006 and as amended thereof."

All the other terms and conditions mentioned in the EC letter dated 12.02.2026 shall remain the same.


Jayashree Bhoj (IAS)
(Member Secretary, SEIAA)

ANNEXURE 6 –
CTE & CTO for Phase I & II
(20 MPPA)

MAHARASHTRA POLLUTION CONTROL BOARD

Tel: 24010706/24010437
Fax: 24023516
Website: <http://mpcb.gov.in>
Email: cac-cell@mpcb.gov.in



Kalpataru Point, 2nd, 3rd
and 4th floor, Opp. Cine
Planet Cinema, Near Sion
Circle, Sion (E),
Mumbai-400022

RED/L.S.I (R23)/ Rev. ORANGE/I.D.S./(2)
No:- Format1.0/CAC/UAN No.MPCB-
CONSENT-0000257169/CO/2510000523

Date: 07/10/2025

To,
Navi Mumbai International Airport Pvt. Ltd.,
Villages Vadghar (Chinchpada), Kopar, Pargaon
(Kohli), Pargaon-Dungi, Owale (Upper and Lower
Owale + Waghivali Wada), Ulwe (Ulwe + Ganeshpuri),
Targhar (Targhar + Kombadbhuje), Waghivali-Khar,
Tal. Panvel, Dist. Raigad.



Sub: 1st Consent to Operate (Part)

- Ref:**
1. Consent to Establish obtained from Board Vide UAN No. Format1.0/CAC/UAN No.MPCB-CONSENT-0000128221/CE/2206000673 dtd. 15/06/2022.
 2. Environmental Clearance (EC) obtained from IA.III Section of the Ministry of Environment, Forest and Climate Change (MoEF&CC) of the Government of India vide File No. - 21-60/2021-IA-III dtd. 01/12/2021
 3. Minutes of Engg & Others 9th CAC Meeting of 2025-26 (Booklet No. 9) held on dtd. 23.09.2025.

Your application No.MPCB-CONSENT-0000257169 Dated 11.08.2025

For: Grant of Consent to Operate under Section 26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule 6 and Rule 18(7) of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016 is considered and the consent is hereby granted subject to the following terms and conditions and as detailed in the schedule I, II, III & IV annexed to this order:

1. **The consent to operate is granted for a period up to 31/08/2027**
2. **The capital investment of the project is Rs.19646 Crs. (As per undertaking submitted by pp)**

3. **Consent is valid for Airport Activity:**

Sr No	Product	Maximum Quantity	UOM
Products			
1	Operation of Airport : Phase-I & II with passenger capacity of 20 MPPA and cargo capacity of 0.57 MTPA with Terminal Building, Terminal Hotel, Reserved housing & Apartments for staff of AAI, CISF Barracks, Control Tower ATC Building, South runway (3.7 Kms), Air Cargo Building, access roads, associated apron, taxi way, parking area, MLCP, Fuel farm area, Drainage system, Compound wall, Security fence & Utilities such as power supply, water supply & sanitation STP, Solid waste management facility on part Built-Up Area (BUA) -	607174.796	Sq.M

On total plot area of 1,16,00,000 Sq. Mtr., i.e. 1160 Ha and applied part operate on BUA 607174.796 Sq. Mtr against total proposed BUA 627335.678 Sq. Mtr.

4. **Conditions under Water (P&CP), 1974 Act for discharge of effluent:**

Sr No	Description	Permitted (in CMD)	Standards to	Disposal Path
1.	Trade effluent	0.0	As per Schedule-I	Not Applicable
2.	Domestic effluent	4190	As per Schedule-I	Recycle 100% to achieve ZLD

5. **Conditions under Air (P& CP) Act, 1981 for air emissions:**

Sr No.	Stack No.	Description of stack / source	Number of Stack	Standards to be achieved
1	S1 to S27	DG Sets	27	As per Schedule -II

6. **Non-Hazardous Wastes:**

Sr No	Type of Waste	Quantity	UoM	Treatment	Disposal
1	Food Waste & Garbage from Terminal & PTB	7.671	Ton/D	Bio-gas plant for Bio-gas generation followed by composting facility	The waste generated from Biogas will be used as manure
2	Waste from Flight Catering Facilities	2.192	Ton/D	Bio-gas plant for Bio-gas generation followed by composting facility	The waste generated from Biogas will be used as manure
3	Cargo Handling Waste	5.000	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal

Sr No	Type of Waste	Quantity	UoM	Treatment	Disposal
4	Waste from Aircraft Maintenance	3.557	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal
5	Waste from GSE Workshop	0.356	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal
6	STP Sludge	3.335	Ton/D	Drying	Used as manure for gardening
7	Other Solid Waste	5.750	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal

7. **Conditions under Hazardous & Other Wastes (M & T M) Rules 2016 for Collection, Segregation, Storage, Transportation, Treatment and Disposal of hazardous waste:**

Sr No	Category No./ Type	Quantity	UoM	Treatment	Disposal
1	5.1 Used or spent oil	10	Ton/Y	Recycle	Sale to authorised party
2	3.3 Sludge and filters contaminated with oil	2	Ton/Y	Incineration	CHWTSDF
3	5.2 Wastes or residues containing oil	110	Ton/D	Incineration	CHWTSDF
4	23.1 Wastes or residues (not made with vegetable or animal materials)	200	Ton/Y	Incineration	CHWTSDF
5	21.1 Process wastes, residues and sludges	47	Ton/Y	Incineration	CHWTSDF
6	33.1 Empty barrels /containers /liners contaminated with hazardous chemicals /wastes	5	Ton/Y	Recycle	Sale to authorised party / CHWTSDF

8. **Conditions under Batteries (Management & Handling) Rules, 2001:**

Sr No	Type of Waste	Quantity	UoM	Disposal Path
1	Battery Waste	10.00	Ton/Y	Authorized Re-processor.

Specific Conditions for used Batteries:

- The applicant shall ensure that used batteries are not disposed of in any manner other than by depositing with the authorized dealer/ manufacturer/ registered recycler/ importer/ re-conditioner or at the designated collection center.
- The applicant shall file half-yearly return in Form VIII to the M.P.C. Board.
- Bulk consumers to their user units may auction used batteries to registered recyclers only.

9. **Conditions under E-Waste Management:**

Sr No	Type of Waste	Quantity	UoM	Disposal Path
1	E-waste	25.00	Ton/Y	Authorized Re-processor.

10. **Treatment and Disposal of Biomedical Waste generated to CBMWTSDf:**

Sr.No	Category	Type of Waste	Quantity not to exceed (Kg/M)	Segregation Color coding	Treatment & Disposal
1	Yellow	a) Soiled Waste	250.00	Yellow colored non- chlorinated plastic bags or containers	CBMWTSDf
2	Red	Contaminated waste (Recyclable)	100.00	Red colored non chlorinated plastic bags or containers	CBMWTSDf
3	White (Translucent)	Waste sharps including Metals	100.00	Puncture proof, Leak proof, tamper proof container	CBMWTSDf
4	Blue	a) Glassware	50.00	Puncture proof & leak proof boxes or containers with blue colored marking.	CBMWTSDf

11. The Board reserves the right to review, amend, suspend, revoke this consent and the same shall be binding on the industry.
12. This consent should not be construed as exemption from obtaining necessary NOC/ permission from any other Government authorities.
13. The industry shall obtain necessary permission from the Directorate of Industrial Safety and Health (DISH).
14. The applicant shall comply with Board circular for D.G. Set bearing No. MPCB/JD(APC)/NCAP/DG Set/B-0090 dtd. 02/06/2023.
15. PP shall provide separate treatment facility for the treatment of wastewater generated from the aircraft maintenance hangers including for the contaminated surface runoff from the airport area containing oils, grease, etc.
16. PP shall ensure proper Operation and Maintenance of Sewage Treatment Plant (STP) to achieve the consented prescribed standards.
17. PP shall provide and operate organic waste digester followed by composting facility/bio-digester followed by composting facility for the treatment of biodegradable waste.
18. PP shall comply with Plastic Waste Management Rules, 2016 and Maharashtra hereby amends the Maharashtra Plastic and Thermocol Products (Manufacture, Uses, Sale, Transport, Handling and Storage) Notification, 2018 & its amendments thereafter

19. PP shall comply with Environmental Clearance (EC) obtained from IA.III Section of the Ministry of Environment, Forest and Climate Change (MoEF&CC) of the Government of India vide File No. - 21-60/2021-IA-III dtd. 01/12/2021
20. PP shall not carry out any trade effluent-generating activity until an Effluent Treatment Plant (ETP) is provided and a valid Consent to Operate for the said activity is obtained from MPCB Board.
21. This consent is issued pursuant to the decision of the 9th CAC Meeting of 2025-26 (Booklet No. 9) held on dtd. 23.09.2025.
22. The applicant shall make an application for renewal of consent 60 days prior to date of expiry of the consent.
23. The industry shall create an Environment Cell by appointing an Environmental Engineer OR Expert for looking after day-to-day activities related to Environment OR Pollution control.

This consent is issued on the basis of information/documents submitted by the Applicant/Project Proponent, if it has been observed that the information submitted by the Applicant/Project Proponent is false, misleading or fraudulent, the Board reserves its right to revoke the consent & further legal action will be initiated against the Applicant/Project Proponent.



Avinash

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Signed by: **Dr. Avinash Dinkne**
Member Secretary
For and on behalf of
Maharashtra Pollution Control Board
ms@mpcb.gov.in
2025-10-07 16:35:38 IST

Received Consent fee of -

Sr.No	Amount(Rs.)	Transaction/DR.No.	Date	Transaction Type
1	39292000.00	MPCB-DR-36412	03/09/2025	NEFT

Copy to:

1. Regional Officer, MPCB, Raigad and Sub-Regional Officer, MPCB, Raigad I
- They are directed to ensure the compliance of the consent conditions.
2. Chief Accounts Officer, MPCB, Sion, Mumbai
3. CAC Desk - for record & updation purposes.

SCHEDULE-I

Terms & conditions for compliance of Water Pollution Control:

1. A] Generation - As per your application the treated effluent generation is Nil.
B] Treatment - NA
C] Disposal - NA
2. A] As per your application, you have provided Sewage Treatment Plant for the treatment of 4190.0 CMD of sewage.
B] The Applicant shall operate the sewage treatment system to treat the sewage so as to achieve the following standards.

Sr.No	Parameters	Standards (mg/l)	
1	Suspended Solids	Not to exceed	20
2	BOD 3 days 27°C	Not to exceed	10
3	COD	Not to exceed	50
4	NH4 N	Not to exceed	5
5	N-total	Not to exceed	10
6	Fecal Coliform	Not to exceed	less than 100

- C] The treated effluent/sewage shall be 60% recycled for secondary purposes such as toilet flushing, air conditioning, cooling tower makeup, firefighting, etc., and remaining shall be discharged on land for gardening within premise after confirming above standards. In no case, effluent shall find its way outside premises.
3. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification thereof & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions. The Applicant shall obtain prior consent of the Board to take steps to establish the unit or establish any treatment and disposal system or an extension or addition thereto.
 4. The industry shall ensure replacement of pollution control system or its parts after expiry of its expected life as defined by manufacturer so as to ensure the compliance of standards and safety of the operation thereof.
 5. The Applicant shall comply with the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and as amended, by installing water meters and other provisions as contained in the said act:

Sr. No.	Purpose for water consumed	Water consumption quantity (CMD)
1.	Industrial Cooling, spraying in mine pits or boiler feed	130.00
2.	Domestic purpose	4327.00
3.	Processing whereby water gets polluted & pollutants are easily biodegradable	0.00
4.	Processing whereby water gets polluted & pollutants are not easily biodegradable and are toxic	0.00

<i>Sr. No.</i>	<i>Purpose for water consumed</i>	<i>Water consumption quantity (CMD)</i>
5.	Gardening	00.00

6. The Applicant shall provide Specific Water Pollution control system as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance/ CREP guidelines.



SCHEDULE-II**Terms & conditions for compliance of Air Pollution Control:**

1. As per your application, you have provided the Air pollution control (APC) system and erected following stack (s) to observe the following fuel pattern:

Stack No.	Source	APC System provided/proposed	Stack Height(in mtr)	Type of Fuel	Sulphur Content(in %)	Pollutant	Standard
S1 to S2	DG Sets 62.50 KVA x 2	Stack	6.00	HSD 24 Kg/Hr	1.0	SO ₂	11.52 Kg/Day
S3 to S4	DG Set (400 KVA x 2)	Stack	8.00	HSD 166 Kg/Hr	1.0	SO ₂	79.68 Kg/Day
S5 to S7	DG Set (500 KVA x 3)	Stack	8.00	HSD 304 Kg/Hr	1.0	SO ₂	145.92 Kg/Day
S8	DG Set 650 KVA	Stack	8.00	HSD 125 Kg/Hr	1.0	SO ₂	60 Kg/Day
S9-S10	DG Sets 1010 KVA x 2	Stack	30.00	HSD 402 Kg/Hr	1.0	SO ₂	192.96 Kg/Day
S11	DG Set 1500 KVA	Stack	30.00	HSD 302 Kg/Hr	1.0	SO ₂	144.96 Kg/Day
S12-S13	DG Sets 2000 KVA x 2	Stack	30.00	HSD 756 Kg/Hr	1.0	SO ₂	362.88 Kg/Day
S14-S16	DG Sets 3000 KVA x 3	Stack	27.00	HSD 1830 Kg/Hr	1.0	SO ₂	878.40 Kg/Day
S17 to S22	DG Sets 750 KVA x 6	Stack	8.00	HSD 974 Kg/Hr	1.0	SO ₂	467.52 Kg/Day
S23 to S27	DG Sets 250 KVA x 5	Stack	8.00	HSD 268 Kg/Hr	1.0	SO ₂	128.64 Kg/Day

2. The Applicant shall provide Specific Air Pollution control equipments as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance / CREP guidelines.
3. The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
4. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).

SCHEDULE-III**Details of Bank Guarantees:**

Sr. No	Consent (C2E/C2O/C2R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
1	C2O	Rs. 25.0 Lakhs	15 days/To be extended	Towards Compliance of Consent Conditions and O&M PCS	31/08/2027	31/08/2028

****Existing BG obtained for above purpose if any, may be extended for period of validity as above.**

If the above Bank Guarantee is not submitted within stipulated period, then 12% interest will be levied as a penalty as per circular dtd 29/02/2024 No. BO/MPCB/AS(T)/Circular/B-240229FTS0122

BG Forfeiture History

Srno.	Consent (C2E/C2O/C2R)	Amount of BG Imposed	Submission Period	Purpose of BG	Amount of BG Forfeiture	Reason of BG Forfeiture
NA						

BG Return details

Srno.	Consent (C2E/C2O/C2R)	BG Imposed	Purpose of BG	Amount of BG Returned
NA				



SCHEDULE-IV

General Conditions:

1. Consumers or bulk consumers of electrical and electronic equipment listed in Schedule I shall ensure that e-waste generated by them is channelised through collection centre or dealer of authorised producer or dismantler or recycler or through the designated take back service provider of the producer to authorised dismantler or recycler
2. Bulk consumers of electrical and electronic equipment listed in Schedule I shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the concerned State Pollution Control Board
3. Consumers or bulk consumers of electrical and electronic equipment listed in Schedule I shall ensure that such end-of-life electrical and electronic equipment are not admixed with e-waste containing radioactive material as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and rules made there under;
4. Bulk consumers of electrical and electronic equipment listed in Schedule I shall file annual returns in Form-3, to the concerned State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates. In case of the bulk consumer with multiple offices in a State, one annual return combining information from all the offices shall be filed to the concerned State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates.
5. Specific Conditions for storage, Handling and Disposal of Waste from Electrical & Electronic equipment (WEEE):

1. **Collection of WEEE** - The applicant must provide appropriate and dedicated vehicles duly identified as per the norms for transportation of Hazardous Waste. The applicant shall obtain all the required permits for transportation of WEEE from competent authority. The applicant shall ensure the safe transport of the WEEE without any spillage during transportation.

Storage for disassembled parts: The applicant must provide appropriate storage for disassembled spare parts from WEEE. Some spare parts (e.g. motors and compressors) will contain oil and/or other fluids. Such part must be appropriately segregated and stored in containers that are secured such that oil and other fluids cannot escape from them. These containers must be stored on an area with an area with an impermeable surface and a sealed drainage system.

2. **Storage for other components and residues:** Other components and residues arising from the treatment of WEEE will need to be contained following their removal for disposal or recovery. Where they contain hazardous substances they should be stored on impermeable surface and in appropriate containers or bays with weatherproof covering. Containers should be clearly labelled to identify their contents and must be secured so that liquids, including rain water cannot enter them. Components should be segregated having regard to their eventual destinations and the compatibility of the component types. All batteries should be handled and stored having regard to the potential fire risk associated with them.
3. **Balances :** WEEE Guidelines also requires that sites for handling of WEEE have "balances to measure the weight of the segregated waste". The objective is to ensure that a record of weights can be maintained of WEEE entering a facility and components and materials leaving each site (together with their destinations). The nature of the weighing equipment should be appropriate for the type and quantity of WEEE being processed.

4. Plastic, which cannot be recycled and is hazardous in nature, is recommended to be land filled in nearby CHWTSDf.
 5. Ferrous and nonferrous metal recycling facilities fall under the purview of existing environmental regulations for air, water, noise, land and soil pollution and generation of hazardous waste and the same should be followed.
 6. CFCS should be either reused or incinerated in common hazardous waste Incineration facilities at CHWTSDf.
 7. Waste Oil should be either reused or incinerated in common hazardous waste incineration facilities.
 8. PCB's containing capacitors shall be incinerated in common hazardous waste incineration facilities at CHWTSDf.
 9. Mercury recovery and lead recycling facilities from batteries fall under the Hazardous & Other Wastes (M & TM) Rules, 2016.
 10. Existing environmental regulations for air; water; noise, land and soil pollution and generation of hazardous waste and the same should be followed. In case Mercury or lead recovery is very low, they can be temporarily stored at e-waste recycling facility and later disposed in TSDF.
 11. The industry shall maintain records of the e-waste purchased, processed in Form-2 and shall file annual returns of its activities of previous year in Form-3 as per Rules 11(9) & 13(3)(vii) of the E-Waste(M) Rules, 2016; on or before 30th day of June of every year.
6. The Energy source for lighting purpose shall preferably be LED based
 7. The PP shall harvest rainwater from roof tops of the buildings and storm water drains to recharge the ground water and utilize the same for different industrial applications within the plant
 8. Conditions for D.G. Set
 - a) Noise from the D.G. Set should be controlled by providing an acoustic enclosure or by treating the room acoustically.
 - b) Industry should provide acoustic enclosure for control of noise. The acoustic enclosure/ acoustic treatment of the room should be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on higher side. A suitable exhaust muffler with insertion loss of 25 dB (A) shall also be provided. The measurement of insertion loss will be done at different points at 0.5 meters from acoustic enclosure/room and then average.
 - c) Industry should make efforts to bring down noise level due to DG set, outside industrial premises, within ambient noise requirements by proper siting and control measures.
 - d) Installation of DG Set must be strictly in compliance with recommendations of DG Set manufacturer.
 - e) A proper routine and preventive maintenance procedure for DG set should be set and followed in consultation with the DG manufacturer which would help to prevent noise levels of DG set from deteriorating with use.
 - f) D.G. Set shall be operated only in case of power failure.
 - g) The applicant should not cause any nuisance in the surrounding area due to operation of D.G. Set.
 - h) The applicant shall comply with the notification of MoEFCC, India on Environment (Protection) second Amendment Rules vide GSR 371(E) dated 17.05.2002 and its amendments regarding noise limit for generator sets run with diesel.

9. The applicant shall maintain good housekeeping.
10. The non-hazardous solid waste arising in the factory premises, sweepings, etc. be disposed of scientifically so as not to cause any nuisance / pollution. The applicant shall take necessary permissions from civic authorities for disposal of solid waste.
11. The applicant shall not change or alter the quantity, quality, the rate of discharge, temperature or the mode of the effluent/emissions or hazardous wastes or control equipments provided for without previous written permission of the Board. The industry will not carry out any activity, for which this consent has not been granted/without prior consent of the Board.
12. The industry shall ensure that fugitive emissions from the activity are controlled so as to maintain clean and safe environment in and around the factory premises.
13. The industry shall submit quarterly statement in respect of industries obligation towards consent and pollution control compliance's duly supported with documentary evidences (format can downloaded from MPCB official site).
14. The industry shall submit official e-mail address and any change will be duly informed to the MPCB.
15. The industry shall achieve the National Ambient Air Quality standards prescribed vide Government of India, Notification No. B-29016/20/90/PCI-L dated. 18.11.2009 as amended.
16. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification thereof & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions. The Applicant shall obtain prior consent of the Board to take steps to establish the unit or establish any treatment and disposal system or an extension or addition thereto.
17. The industry shall ensure replacement of pollution control system or its parts after expiry of its expected life as defined by manufacturer so as to ensure the compliance of standards and safety of the operation thereof.
18. The PP shall provide personal protection equipment as per norms of Factory Act
19. Industry should monitor effluent quality, stack emissions and ambient air quality monthly/quarterly.
20. Whenever due to any accident or other unforeseen act or even, such emissions occur or is apprehended to occur in excess of standards laid down, such information shall be forthwith Reported to Board, concerned Police Station, office of Directorate of Health Services, Department of Explosives, Inspectorate of Factories and Local Body. In case of failure of pollution control equipments, the production process connected to it shall be stopped.
21. The applicant shall provide an alternate electric power source sufficient to operate all pollution control facilities installed to maintain compliance with the terms and conditions of the consent. In the absence, the applicant shall stop, reduce or otherwise, control production to abide by terms and conditions of this consent.
22. The industry shall recycle/reprocess/reuse/recover Hazardous Waste as per the provision contain in the Hazardous and Other Wastes (M & TM) Rules 2016, which can be recycled /processed /reused /recovered and only waste which has to be incinerated shall go to incineration and waste which can be used for land filling and cannot be recycled/reprocessed etc. should go for that purpose, in order to reduce load on incineration and landfill site/environment.

23. An inspection book shall be opened and made available to the Board's officers during their visit to the applicant.
24. Industry shall strictly comply with the Water (P&CP) Act, 1974, Air (P&CP) Act, 1981 and Environmental Protection Act, 1986 and industry specific standard under EP Rules 1986 which are available on MPCB website (www.mpcb.gov.in).
25. Separate drainage system shall be provided for collection of trade and sewage effluents. Terminal manholes shall be provided at the end of the collection system with arrangement for measuring the flow. No effluent shall be admitted in the pipes/sewers downstream of the terminal manholes. No effluent shall find its way other than in designed and provided collection system.
26. Neither storm water nor discharge from other premises shall be allowed to mix with the effluents from the factory.
27. The industry should not cause any nuisance in surrounding area.
28. The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standard in respect of noise to less than 75 dB (A) during day time and 70 dB (A) during night time. Day time is reckoned in between 6 a.m. and 10 p.m. and night time is reckoned between 10 p.m. and 6 a.m.
29. The industry shall create the Environmental Cell by appointing an Environmental Engineer, Chemist and Agriculture expert for looking after day to day activities related to Environment and irrigation field where treated effluent is used for irrigation.
30. The applicant shall provide ports in the chimney/(s) and facilities such as ladder, platform etc. for monitoring the air emissions and the same shall be open for inspection to/and for use of the Board's Staff. The chimney(s) vents attached to various sources of emission shall be designated by numbers such as S-1, S-2, etc. and these shall be painted/ displayed to facilitate identification.
31. The industry should comply with the Hazardous and Other Wastes (M & TM) Rules, 2016 and submit the Annual Returns as per Rule 6(5) & 20(2) of Hazardous and Other Wastes (M & TM) Rules, 2016 for the preceding year April to March in Form-IV by 30th June of every year.
32. The applicant shall install a separate meter showing the consumption of energy for operation of domestic and industrial effluent treatment plants and air pollution control system. A register showing consumption of chemicals used for treatment shall be maintained.
33. The applicant shall bring minimum 33% of the available open land under green coverage/ plantation. The applicant shall submit a yearly statement by 30th September every year on available open plot area, number of trees surviving as on 31st March of the year and number of trees planted by September end.
34. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification thereof & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions.
35. The firm shall submit to this office, the 30th day of September every year, the Environment Statement Report for the financial year ending 31st March in the prescribed FORM-V as per the provisions of Rule 14 of the Environment (Protection) (second Amendment) Rules, 1992.

36. The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
37. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).
38. The applicant shall provide facility for collection of environmental samples and samples of trade and sewage effluents, air emissions and hazardous waste to the Board staff at the terminal or designated points and shall pay to the Board for the services rendered in this behalf.

This certificate is digitally & electronically signed.

MAHARASHTRA POLLUTION CONTROL BOARD

Tel: 24010706/24010437
Fax: 24023516
Website: <http://mpcb.gov.in>
Email: cac-cell@mpcb.gov.in



Kalpataru Point, 2nd and
4th floor, Opp. Cine Planet
Cinema, Near Sion Circle,
Sion (E), Mumbai-400022

RED/L.S.I (R23)

Date: 15/06/2022

No:- Format1.0/CAC/UAN No.MPCB-
CONSENT-0000128221/CE/2206000673

To,
Navi Mumbai International Airport Pvt. Ltd.,
Villages Vadghar (Chinchpada), Kopar, Pargaon
(Kohli), Pargaon-Dungi, Owale (Upper and Lower
Owale + Waghivali Wada), Ulwe (Ulwe + Ganeshpuri),
Targhar (Targhar + Kombadbhuje), Waghivali-Khar,
Tal. Panvel, Dist. Raigad.



Sub: Grant consent to establish for revised construction built up area, under RED category.

Ref:

1. Previous Environment & CRZ Clearance accorded vide dated 22.11.2010.
2. Previous Consent to Establish granted by Board vide dated 05.10.2021.
3. Revalidation of Environment & CRZ Clearance accorded vide dated 20.12.2017 which is transferred vide dated 17.08.2020.
4. Revalidation of Environment & CRZ Clearance accorded vide 28.11.2021
5. Minutes of 3rd CAC meeting held on 24.05.2022.

Your application No.MPCB-CONSENT-0000128221 Dated 23.12.2021

For: grant of Consent to Establish under Section 25 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule 6 of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016 is considered and the consent is hereby granted subject to the following terms and conditions and as detailed in the schedule I, II, III & IV annexed to this order:

1. **The consent to establish is granted for a period up to 05/10/2026**
2. **The capital investment of the project is Rs.19647 Crs. (As per undertaking submitted by pp Existing - 16250 + Expansion - 3397. Total CI - 19647)**
3. Construction of Airport of Phase-I & II with passenger capacity of 20 MPPA and cargo capacity of 0.57 MTPA., on total plot area of 1,16,00,000 Sq. Mtr., i.e. 1160 Ha & Construction BUA 6,27,335.678 Sq. mtr., for land development of Terminal Building, Terminal Hotel, Reserved housing & Apartments for staff of AAI, CISF Barracks, Control Tower ATC Building, South runway (3.7 Kms), Air Cargo Building, access roads, associated apron, taxi way, parking area, MLCP, Fuel Farm, area. Drainage system, Airport maintenance hangers, Compound wall, Security fence & Utilities such as power supply, water supply & sanitation STP, Solid waste management facility.

4. **Conditions under Water (P&CP), 1974 Act for discharge of effluent:**

Sr No	Description	Permitted (in CMD)	Standards to	Disposal Path
1.	Trade effluent	400	As per Schedule-I	The overflow of ETP outlet will be further treated in STP
2.	Domestic effluent	4210	As per Schedule-I	60% Recycle for secondary purposes & remaining on land for gardening

5. **Conditions under Air (P& CP) Act, 1981 for air emissions:**

Sr No.	Stack No.	Description of stack / source	Number of Stack	Standards to be achieved
1	S-1 to S-2	DG Set (14 x 880 KVA)- 12,320 KVA	2	As per Schedule -II

6. **Non-Hazardous Wastes:**

Sr No	Type of Waste	Quantity	UoM	Treatment	Disposal
1	Food Waste & Garbage from Terminal & PTB	7.671	Ton/D	Bio-gas plant for Bio-gas generation followed by composting facility	The waste generated from Biogas will be used as manure
2	Waste from Flight Catering Facilities	2.192	Ton/D	Bio-gas plant for Bio-gas generation followed by composting facility	The waste generated from Biogas will be used as manure
3	Cargo Handling Waste	5.000	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal
4	Waste from Aircraft Maintenance	3.557	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal
5	Waste from GSE Workshop	0.356	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal
6	STP Sludge	3.335	Ton/D	Drying	Used as manure for gardening
7	Other Solid Waste	5.750	Ton/D	Segregation	Sale to authorized vendor for further treatment & disposal

7. **Conditions under Hazardous & Other Wastes (M & T M) Rules 2016 for treatment and disposal of hazardous waste:**

Sr No	Category No./ Type	Quantity	UoM	Treatment	Disposal
1	5.1 Used or spent oil	10	Ton/Y	Recycle	Sale to authorised party
2	3.3 Sludge and filters contaminated with oil	2	Ton/Y	Incineration	CHWTSDF
3	5.2 Wastes or residues containing oil	310	Ton/D	Incineration	CHWTSDF
4	21.1 Process wastes, residues and sludges	47	Ton/Y	Recycle	CHWTSDF
5	33.1 Empty barrels /containers /liners contaminated with hazardous chemicals /wastes	5	Ton/Y	Recycle	CHWTSDF

8. **Conditions under Batteries (Management & Handling) Rules, 2001:**

Sr No	Type of Waste	Quantity	UoM	Disposal Path
1	Battery Waste	10.00	Ton/Y	Authorized Re-processor.

Specific Conditions for used Batteries:

- The applicant shall ensure that used batteries are not disposed of in any manner other than by depositing with the authorized dealer/ manufacturer/ registered recycler/ importer/ re-conditioner or at the designated collection center.
- The applicant shall file half-yearly return in Form VIII to the M.P.C. Board.
- Bulk consumers to their user units may auction used batteries to registered recyclers only.

9. **Conditions under E-Waste Management:**

Sr No	Type of Waste	Quantity	UoM	Disposal Path
1	E-waste	25.00	Ton/Y	Authorized Re-processor.

10. **Treatment and Disposal of Biomedical Waste generated to CBMWTSDf:**

Sr.No	Category	Type of Waste	Quantity not to exceed (Kg/M)	Segregation Color coding	Treatment & Disposal
1	Yellow	a) Soiled Waste	500.00	Yellow colored non-chlorinated plastic bags or containers	CBMWTSDf

- The Board reserves the right to review, amend, suspend, revoke this consent and the same shall be binding on the industry.
- This consent should not be construed as exemption from obtaining necessary NOC/ permission from any other Government authorities.
- PP shall comply with the conditions stipulated in EC/CRZ clearance & consent.
- PP shall provided STP of adequate capacity to achieve the consented parameter BOD - 10 mg/l.

15. PP shall provide separate treatment facility for the treatment of wastewater generated from the aircraft maintenance hangers including for the contaminated surface runoff from the airport area containing oils, grease, etc.
16. The treated effluent shall be 60% recycled for secondary purposes such as toilet flushing, air conditioning, cooling tower makeup, firefighting, etc., and remaining shall be utilized on land for gardening with water metering system.
17. PP shall provide organic waste digester followed by composting facility/bio-digester followed by composting facility for the treatment of biodegradable waste.
18. PP shall carryout carbon audit & submit the report.
19. PP shall submit the plan for plastic recycling before 1st Operate.
20. PP shall submit the management plan towards the disposal of cargo waste disposal.
21. PP shall submit the plan/commitment towards adoption of E-Vehicle policy.
22. PP shall submit BG of Rs. 25.0 Lakh towards compliance of EC & consent conditions.
23. PP shall comply with revalidation of Environment Clearance conditions obtained on 28.11.2021
24. This consent is issued with the overriding effect to earlier consider issued vide No.:- Format1.0/CAC/UAN No.0000100222/CE-2110000162 dated 05.10.2021
25. This consent is issued pursuant to the decision of the 3rd Consent Appraisal Committee Meeting held on 24.05.2022.
26. The applicant shall obtain Consent to Operate from Maharashtra Pollution Control Board before actual commencement of the Unit/Activity.



Received Consent fee of -

Sr.No	Amount(Rs.)	Transaction/DR.No.	Date	Transaction Type
1	6794000.00	MPCB-DR-9776	13/01/2022	RTGS

Copy to:

1. Regional Officer, MPCB, Raigad and Sub-Regional Officer, MPCB, Raigad !
- They are directed to ensure the compliance of the consent conditions.
2. Chief Accounts Officer, MPCB, Sion, Mumbai
3. CAC Desk - for record & updation purposes.

SCHEDULE-I

Terms & conditions for compliance of Water Pollution Control:

1. A] As per your application, you have proposed to provide ETP comprising primary treatment of capacity 400 CMD to treat the effluent generated to the tune of 400 CMD. This primary treated effluent further treated in STP of combine capacity 5500 CMD.
- B] The Applicant shall operate the effluent treatment plant (ETP) to treat the trade effluent so as to achieve the following standards prescribed by the Board or under EP Act, 1986 and Rules made there under from time to time, whichever is stringent:

Sr.No	Parameters	Limiting concentration not to exceed in mg/l, except for pH
(1)	pH	6.0 -8.5
(2)	BOD (3 days 27°C)	10
(3)	COD	50
(4)	TSS	20
(5)	Oil & Grease	10
(6)	TDS	2100
(7)	Chloride	600
(8)	Sulphate	1000

- C] The treated effluent shall be 60% recycled for secondary purposes such as toilet flushing, air conditioning, cooling tower makeup, firefighting, etc., and remaining shall be discharged on land for gardening within premise after confirming above standards. In no case, effluent shall find its way outside premises.
2. A] As per your application, you have proposed to provide 2 Nos of Sewage Treatment Plants of designed capacity 4500 CMD & 1000 CMD with SBR technology for the treatment of 4210 CMD of sewage.
- B] Industry shall comply prescribed standards & disposal path as prescribed at Sr. No. 1 B & C of schedule I.
3. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification there of & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions. The Applicant shall obtain prior consent of the Board to take steps to establish the unit or establish any treatment and disposal system or an extension or addition thereto.

4. The industry shall ensure replacement of pollution control system or its parts after expiry of its expected life as defined by manufacturer so as to ensure the compliance of standards and safety of the operation thereof.
5. The Applicant shall comply with the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and as amended, by installing water meters and other provisions as contained in the said act:

Sr. No.	Purpose for water consumed	Water consumption quantity (CMD)
1.	Industrial Cooling, spraying in mine pits or boiler feed	1972.00
2.	Domestic purpose	4880.00
3.	Processing whereby water gets polluted & pollutants are easily biodegradable	430.00
4.	Processing whereby water gets polluted & pollutants are not easily biodegradable and are toxic	0.00
5.	Gardening	0

6. The Applicant shall provide Specific Water Pollution control system as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance/ CREP guidelines.

SCHEDULE-II

Terms & conditions for compliance of Air Pollution Control:

1. As per your application, you have proposed to provide the Air pollution control (APC) system and also to erect following stack (s) to observe the following fuel pattern:

Stack No.	Source	APC System provided/proposed	Stack Height(in mtr)	Type of Fuel	Sulphur Content(in %)	Pollutant	Standard
S-1 to S-2	DG Set (14 x 880 KVA)	Stack	6.00	HSD 135 Kg/Hr	1.0	SO2	64.8 Kg/Day

2. The Applicant shall provide Specific Air Pollution control equipments as per the conditions of EP Act, 1986 and rule made there under from time to time/ Environmental Clearance / CREP guidelines.
3. The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
4. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).

SCHEDULE-III

Details of Bank Guarantees:

Sr. No	Consent (C2E/C2O/C2R)	Amt of BG Imposed	Submission Period	Purpose of BG	Compliance Period	Validity Date
1	C2E	Rs. 25.0 Lakh	15 days/To be extended	Towards compliance of EC & consent conditions	31.05.2026	30.11.2026

The above Bank Guarantee(s) shall be submitted by the applicant in favour of Regional Officer at the respective Regional Office within 15 days from the date of issue of Consent.

BG Forfeiture History

Srno.	Consent (C2E/C2O/C2R)	Amount of BG Imposed	Submission Period	Purpose of BG	Amount of BG Forfeiture	Reason of BG Forfeiture
NA						

BG Return details

Srno.	Consent (C2E/C2O/C2R)	BG Imposed	Purpose of BG	Amount of BG Returned
NA				

SCHEDULE-IV

General Conditions:

1. Consumers or bulk consumers of electrical and electronic equipment listed in Schedule I shall ensure that e-waste generated by them is channelised through collection centre or dealer of authorised producer or dismantler or recycler or through the designated take back service provider of the producer to authorised dismantler or recycler
2. Bulk consumers of electrical and electronic equipment listed in Schedule I shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the concerned State Pollution Control Board
3. Consumers or bulk consumers of electrical and electronic equipment listed in Schedule I shall ensure that such end-of-life electrical and electronic equipment are not admixed with e-waste containing radioactive material as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and rules made there under;
4. Bulk consumers of electrical and electronic equipment listed in Schedule I shall file annual returns in Form-3, to the concerned State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates. In case of the bulk consumer with multiple offices in a State, one annual return combining information from all the offices shall be filed to the concerned State Pollution Control Board on or before the 30th day of June following the financial year to which that return relates.

5. Specific Conditions for storage, Handling and Disposal of Waste from Electrical & Electronic equipment (WEEE):

1. **Collection of WEEE** - The applicant must provide appropriate and dedicated vehicles duly identified as per the norms for transportation of Hazardous Waste. The applicant shall obtain all the required permits for transportation of WEEE from competent authority. The applicant shall ensure the safe transport of the WEEE without any spillage during transportation.

Storage for disassembled parts: The applicant must provide appropriate storage for disassembled spare parts from WEEE. Some spare parts (e.g. motors and compressors) will contain oil and/or other fluids. Such part must be appropriately segregated and stored in containers that are secured such that oil and other fluids cannot escape from them. These containers must be stored on an area with an area with an impermeable surface and a sealed drainage system.

2. **Storage for other components and residues:** Other components and residues arising from the treatment of WEEE will need to be contained following their removal for disposal or recovery. Where they contain hazardous substances they should be stored on impermeable surface and in appropriate containers or bays with weatherproof covering. Containers should be clearly labelled to identify their contents and must be secured so that liquids, including rain water cannot enter them. Components should be segregated having regard to their eventual destinations and the compatibility of the component types. All batteries should be handled and stored having regard to the potential fire risk associated with them.
3. **Balances :** WEEE Guidelines also requires that sites for handling of WEEE have "balances to measure the weight of the segregated waste". The objective is to ensure that a record of weights can be maintained of WEEE entering a facility and components and materials leaving each site (together with their destinations). The nature of the weighing equipment should be appropriate for the type and quantity of WEEE being processed.
4. Plastic, which cannot be recycled and is hazardous in nature, is recommended to be land filled in nearby CHWTSDf.
5. Ferrous and nonferrous metal recycling facilities fall under the purview of existing environmental regulations for air, water, noise, land and soil pollution and generation of hazardous waste and the same should be followed.
6. CFCS should be either reused or incinerated in common hazardous waste Incineration facilities at CHWTSDf.
7. Waste Oil should be either reused or incinerated in common hazardous waste incineration facilities.
8. PCB's containing capacitors shall be incinerated in common hazardous waste incineration facilities at CHWTSDf.
9. Mercury recovery and lead recycling facilities from batteries fall under the Hazardous & Other Wastes (M & TM) Rules, 2016.
10. Existing environmental regulations for air; water; noise, land and soil pollution and generation of hazardous waste and the same should be followed. In case Mercury or lead recovery is very low, they can be temporarily stored at e-waste recycling facility and later disposed in TSDF.
11. The industry shall maintain records of the e-waste purchased, processed in Form-2 and shall file annual returns of its activities of previous year in Form-3 as per Rules 11(9) & 13(3)(vii) of the E-Waste(M) Rules, 2016; on or before 30th day of June of every year.

6. The Energy source for lighting purpose shall preferably be LED based

7. The PP shall harvest rainwater from roof tops of the buildings and storm water drains to recharge the ground water and utilize the same for different industrial applications within the plant
8. Conditions for D.G. Set
 - a) Noise from the D.G. Set should be controlled by providing an acoustic enclosure or by treating the room acoustically.
 - b) Industry should provide acoustic enclosure for control of noise. The acoustic enclosure/ acoustic treatment of the room should be designed for minimum 25 dB (A) insertion loss or for meeting the ambient noise standards, whichever is on higher side. A suitable exhaust muffler with insertion loss of 25 dB (A) shall also be provided. The measurement of insertion loss will be done at different points at 0.5 meters from acoustic enclosure/room and then average.
 - c) Industry should make efforts to bring down noise level due to DG set, outside industrial premises, within ambient noise requirements by proper siting and control measures.
 - d) Installation of DG Set must be strictly in compliance with recommendations of DG Set manufacturer.
 - e) A proper routine and preventive maintenance procedure for DG set should be set and followed in consultation with the DG manufacturer which would help to prevent noise levels of DG set from deteriorating with use.
 - f) D.G. Set shall be operated only in case of power failure.
 - g) The applicant should not cause any nuisance in the surrounding area due to operation of D.G. Set.
 - h) The applicant shall comply with the notification of MoEFCC, India on Environment (Protection) second Amendment Rules vide GSR 371(E) dated 17.05.2002 and its amendments regarding noise limit for generator sets run with diesel.
9. The applicant shall maintain good housekeeping.
10. The non-hazardous solid waste arising in the factory premises, sweepings, etc. be disposed of scientifically so as not to cause any nuisance / pollution. The applicant shall take necessary permissions from civic authorities for disposal of solid waste.
11. The applicant shall not change or alter the quantity, quality, the rate of discharge, temperature or the mode of the effluent/emissions or hazardous wastes or control equipments provided for without previous written permission of the Board. The industry will not carry out any activity, for which this consent has not been granted/without prior consent of the Board.
12. The industry shall ensure that fugitive emissions from the activity are controlled so as to maintain clean and safe environment in and around the factory premises.
13. The industry shall submit quarterly statement in respect of industries obligation towards consent and pollution control compliance's duly supported with documentary evidences (format can downloaded from MPCB official site).
14. The industry shall submit official e-mail address and any change will be duly informed to the MPCB.
15. The industry shall achieve the National Ambient Air Quality standards prescribed vide Government of India, Notification No. B-29016/20/90/PCI-L dated. 18.11.2009 as amended.
16. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification thereof & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions. The Applicant shall obtain prior consent of the Board to take steps to establish the unit or establish any treatment and disposal system or an extension or addition thereto.
17. The industry shall ensure replacement of pollution control system or its parts after expiry of its expected life as defined by manufacturer so as to ensure the compliance of standards and safety of the operation thereof.
18. The PP shall provide personal protection equipment as per norms of Factory Act

19. Industry should monitor effluent quality, stack emissions and ambient air quality monthly/quarterly.
20. Whenever due to any accident or other unforeseen act or even, such emissions occur or is apprehended to occur in excess of standards laid down, such information shall be forthwith Reported to Board, concerned Police Station, office of Directorate of Health Services, Department of Explosives, Inspectorate of Factories and Local Body. In case of failure of pollution control equipments, the production process connected to it shall be stopped.
21. The applicant shall provide an alternate electric power source sufficient to operate all pollution control facilities installed to maintain compliance with the terms and conditions of the consent. In the absence, the applicant shall stop, reduce or otherwise, control production to abide by terms and conditions of this consent.
22. The industry shall recycle/reprocess/reuse/recover Hazardous Waste as per the provision contain in the Hazardous and Other Wastes (M & TM) Rules 2016, which can be recycled /processed /reused /recovered and only waste which has to be incinerated shall go to incineration and waste which can be used for land filling and cannot be recycled/reprocessed etc. should go for that purpose, in order to reduce load on incineration and landfill site/environment.
23. An inspection book shall be opened and made available to the Board's officers during their visit to the applicant.
24. Industry shall strictly comply with the Water (P&CP) Act, 1974, Air (P&CP) Act, 1981 and Environmental Protection Act, 1986 and industry specific standard under EP Rules 1986 which are available on MPCB website (www.mpcb.gov.in).
25. Separate drainage system shall be provided for collection of trade and sewage effluents. Terminal manholes shall be provided at the end of the collection system with arrangement for measuring the flow. No effluent shall be admitted in the pipes/sewers downstream of the terminal manholes. No effluent shall find its way other than in designed and provided collection system.
26. Neither storm water nor discharge from other premises shall be allowed to mix with the effluents from the factory.
27. The industry should not cause any nuisance in surrounding area.
28. The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standard in respect of noise to less than 75 dB (A) during day time and 70 dB (A) during night time. Day time is reckoned in between 6 a.m. and 10 p.m. and night time is reckoned between 10 p.m. and 6 a.m.
29. The industry shall create the Environmental Cell by appointing an Environmental Engineer, Chemist and Agriculture expert for looking after day to day activities related to Environment and irrigation field where treated effluent is used for irrigation.
30. The applicant shall provide ports in the chimney/(s) and facilities such as ladder, platform etc. for monitoring the air emissions and the same shall be open for inspection to/and for use of the Board's Staff. The chimney(s) vents attached to various sources of emission shall be designated by numbers such as S-1, S-2, etc. and these shall be painted/ displayed to facilitate identification.
31. The industry should comply with the Hazardous and Other Wastes (M & TM) Rules, 2016 and submit the Annual Returns as per Rule 6(5) & 20(2) of Hazardous and Other Wastes (M & TM) Rules, 2016 for the preceding year April to March in Form-IV by 30th June of every year.

32. The applicant shall install a separate meter showing the consumption of energy for operation of domestic and industrial effluent treatment plants and air pollution control system. A register showing consumption of chemicals used for treatment shall be maintained.
33. The applicant shall bring minimum 33% of the available open land under green coverage/ plantation. The applicant shall submit a yearly statement by 30th September every year on available open plot area, number of trees surviving as on 31st March of the year and number of trees planted by September end.
34. The Board reserves its rights to review plans, specifications or other data relating to plant setup for the treatment of waterworks for the purification thereof & the system for the disposal of sewage or trade effluent or in connection with the grant of any consent conditions.
35. The firm shall submit to this office, the 30th day of September every year, the Environment Statement Report for the financial year ending 31st March in the prescribed FORM-V as per the provisions of Rule 14 of the Environment (Protection) (second Amendment) Rules, 1992.
36. The Applicant shall obtain necessary prior permission for providing additional control equipment with necessary specifications and operation thereof or alteration or replacement/alteration well before its life come to an end or erection of new pollution control equipment.
37. The Board reserves its rights to vary all or any of the condition in the consent, if due to any technological improvement or otherwise such variation (including the change of any control equipment, other in whole or in part is necessary).
38. The applicant shall provide facility for collection of environmental samples and samples of trade and sewage effluents, air emissions and hazardous waste to the Board staff at the terminal or designated points and shall pay to the Board for the services rendered in this behalf.

This certificate is digitally & electronically signed.

ANNEXURE 7 –
WATER SUPPLY LETTER
RECEIVED FROM CIDCO



CITY AND INDUSTRIAL DEVELOPMENT CORPORATION OF MAHARASHTRA LIMITED

Ref.: CIDCO/EE (Hetawane)/2025/219 (CIN - U99999 MH 1970 SGC - 014574)

Date: 19/03/2025

To,
M/s. Navi Mumbai International Airport Pvt. Ltd.,
517-C, New Project Office,
Near Ulwe Gaothan Bus Stop,
Amara Marg, Ulwe, Navi Mumbai – 410 206

Subject: - Granting of Permanent Commercial Water Connection to Navi Mumbai International Airport Pvt. Ltd.

Ref.: - 1) CIDCO/EE(Hetawane)/2024/553, Dtd. 31.07.2024
2) CIDCO/EE(Hetawane)/2024/687, Dtd. 11.09.2024
3) Your Letter No. NMIAL/CIDCO/GEN/1051, dated 18/03/2025

Sir/Madam,

Pursuant to reference letter on the above subject, this is to inform you that, your application for Permanent Commercial Water Supply Connection of 200 mm dia at Commercial rate has been sanctioned vide above referred letter at Sr. No. (1) & (2). The Calibration Report of water meter calibrated by M/s. G. G. Consultant & Contractor on 12/03/2025 submitted vide letter at Ref. No. (3) is reviewed and found in order. The initial water meter reading at the time of calibration of water meter is 12.716 cum and the same would be considered for future billing purposes. As per your request, it is to inform that the Commercial water supply connection sanctioned to NMIAL would be operational from 19/03/2025 adhering to all the terms and conditions of the agreement. Any subsequent changes or additional requirements as per policy decision will be communicated to you from time to time.

Thanking you.

Yours faithfully,

(V. B. Patil)

Executive Engineer (Hetawane)
CIDCO Ltd., 5th Floor, Raigad Bhavan,
CBD-Belapur, Navi Mumbai 400614

ANNEXURE 8 -
DGCA & AAI
CLEARANCE/APPROVAL LETTERS



सत्यमेव जयते

**GOVERNMENT OF INDIA
OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
DGCA COMPLEX, OPP. SAFDARJUNG AIRPORT, NEW DELHI-110003**

Application Id 2026/ASD/Renewal/0000003933

License No. AL/Public/112

AERODROME LICENSE - PUBLIC USE

The Director General of Civil Aviation, in exercise of the powers under Rule 78 of the Aircraft Rules, 1937 delegated vide S.O. No. 727 (E) dated the 4 October, 1994, hereby grants license to,

Navi Mumbai International Airport Private Limited (NMIAL)

for

Navi Mumbai International Airport

Latitude : 18° 59' 39.78" N , Longitude : 073° 04' 12.95" E

The ARFF category of the aerodrome and other details are as contained in its Aerodrome Manual.

This license authorizes the aerodrome to be used as regular place of landing and departure to all persons on equal terms and conditions for operation by aircraft requiring specifications of runway and associated facilities including granted exemptions equal to or less than those indicated in the aerodrome Manual, subject to the conditions as contained in schedule-I and for a period as shown in Schedule-II hereto

The license is liable to be suspended/modified/ withdrawn/ and/or any limitations or conditions may be imposed, if any violation of the provisions of the Bharatiya Vayayan Adhiniyam 2024, Aircraft Rules 1937, or any orders/ directions/ requirements issued under the said Act, rules or of the limitations or conditions as in schedule-I are observed.

This Aerodrome License is not transferable.

Date of Issue: **30-09-2025**
New Delhi

DIRECTOR GENERAL OF CIVIL AVIATION

Signature Not Verified

Signed by: Faiz Ahmed
Kidwai

Director General

Date: 27-Mar-2026 16:20:17

GENERAL CONDITIONS

1. The Licensee shall ensure that aerodrome facilities, equipment, services and procedures are operated and /or maintained properly and efficiently in accordance with the Aerodrome Manual submitted to DGCA, the applicable standards set out in the CARs and conditions specified in this license.
2. The Licensee shall ensure that the copies of the Aerodrome Manual and Safety Management System (SMS) Manual, accepted by DGCA are always kept complete and current. The Licensee shall ensure that each member of the aerodrome operating staff is aware of the contents of the every part of the aerodrome manual and SMS manual, relevant to his duties and undertakes his duties in conformity with the relevant provisions of these manuals.
3. The Licensee shall ensure that an adequate number of qualified and skilled personnel are employed to perform all critical activities for the operation and maintenance of its aerodrome, and that a programme to upgrade the competency for the personnel is in place.
4. The Licensee shall notify the agency responsible for Aeronautical Information Services and the air traffic control unit immediately of any obstacles, obstructions or hazards, change in level of service at the aerodrome as set out in any publication by the aeronautical information services or variation from the Standards; closure of the movement area of the aerodrome; significant change in aerodrome facility or the physical layout of the aerodrome; and any other condition that could affect aviation safety at the aerodrome and against which precautions are warranted.
5. The Licensee shall notify the agency responsible for Aeronautical Information Services of any change to any aerodrome facility or equipment or level of service at the aerodrome which has been planned in advance and which is likely to affect the accuracy of the information contained in any publication by the agency before effecting the change.
6. The licensee shall be responsible to ensure that all security and anti-hijacking arrangements stipulated from time to time by the Bureau of Civil Aviation Security for the aerodrome are complied with.
7. When so demanded by an officer duly authorised under the Aircraft Rules, 1937, this license and any other relevant documents shall be produced for inspection.
8. The licensee shall be responsible for payment to the concerned authorities of all applicable charges pertaining to the services provided by such authorities in connection with the aerodrome operation such as water supply, electricity supply, telephone lines etc.
9. Licensee shall maintain record of all aircraft landing at and taking-off from the aerodrome.
10. The Licensee shall have legally tenable agreement with CNS provider(s) to ensure continuity and reliability of CNS and ATM to aircraft in the airspace associated with aerodrome, and that proper coordination with the agencies responsible for aeronautical information services, meteorological and other areas related to safety are established.

Signature Not Verified
Signed by: Fariz Ahmed
Kiwai
Director General
Date: 21 Mar 2026 10:17

11. The aerodrome shall at all reasonable times be open to use by any aircraft in the service of the Central Government.
12. The licensee shall ensure that during the validity of the license the capability of the services/facilities, etc. are not degraded below the notified level.
13. The licensee is to submit the application for renewal in prescribed proforma along with relevant enclosures and fee, at least 2 months before expiry of license to the Director General of Civil Aviation. The license may be renewed if DGCA is satisfied that all requirements have been fulfilled.
14. Other requirements of Central Government and State Government as applicable shall be complied with.
15. The aerodrome meets the design criteria and reference code **4F** as defined in the CAR Section 4 Series B Part I and designed for operation of **A380-800** type or equivalent aircraft.
16. The licensee shall maintain ARFF category defined in the Aerodrome manual or as notified through AIS/NOTAM issued in this regards.
17. The aerodrome is licensed for use in IFR(All Weather)/~~VFR(Day)~~ conditions.
18. Any other conditions :-
 - i. Actions required to be completed by the licensee for consideration of renewal of license validity as contained in Annexure-I, hereto.

Portion of map showing exact location of aerodrome.



Signature Not Verified
 Signed by: Faiz Ahmed
 Kidwai
 Director General
 Date: 27-Mar-2026 16:20:17

VALIDITY OF THE LICENSE

Navi Mumbai International Airport

FROM	TO	SIGNED AUTHORITY
30-09-2025	29-03-2026 (Provisional)	FAIZ AHMED KIDWAI
30-03-2026	29-09-2030	FAIZ AHMED KIDWAI

Signature Not Verified

Signed by: Faiz Ahmed
Kidwai
Director General

Date: 27-Mar-2026 16:20:17

Annexure to Sl. No. 18 of General Conditions of license.

Actions required to be taken by the licensee for consideration of extension of license validity of Navi Mumbai International Airport :

1. Submit the quarterly progress report on pending observations contained in this office inspection report and on self-assessed non-compliances based on CAR provisions.
2. Submit exemption application complete in all respect for non-compliances identified (if any) for aerodrome facilities in CAR Section 4 Series B Part I and observations raised by DGCA.
3. Continue to develop the operating procedures for all activities required to be performed for operation and maintenance of the aerodrome and carry out safety assessment of the same.
4. Submit updated SMS Implementation status at the aerodrome.

Signature Not Verified

Signed by: Faiz Ahmed
Kidwai

Director General

Date: 27-Mar-2026 16:20:17

ANNEXURE 9 -
POWER SUPPLY LETTER
RECEIVED FROM MSETCL



(A Govt. of Maharashtra Undertaking)
CIN: U40109MH2005SGC153645
Phone.No.(O):022-022-2789 6730 2789
FaxNo.2789 3012



Office of Superintending Engineer, Vashi Circle,,
Vidhut', 1st Floor, Plot No.5, Secto
Maharashtra State Electricity Distribution Co. Ltd
Vashi, Navi Mumbai - 400703
Email ID:-sevashi@gmail.com

No. SE / VC / TECH / VASHI/2023-24 /

02910

Date 02 MAY 2024

To,
M/s Navi Mumbai International Airport Pvt. Ltd.(NMIAPL),
Ulwe, Tal-Panvel,
Dist. Raigad,

Sub:- Execution of work by you by paying 1.3% supervision Charges to the M.S.E.D.C.L. CD-7000 KVA, CL-19200 KW on 2 no's of U/G 33 KV feeder in respect of M/s Navi Mumbai International Airport Pvt. Ltd. Ulwe, Tal-Panvel, Dist. Raigad, ConsumerNo.028429054710

- Ref: 1. Applicant's application Dt. 11.06.2018 Office IW no .8047 Application ID 14667266
2. Applicant's application Dt. 11.06.2018 Office IW no .8048 Application ID 14666588
3. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2018-19/4055 Dtd. 21.06.2018.
4. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2018-19/005533 Dtd.06.09.2018
5. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2018-19/008171 Dtd. 14.12.2018
6. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2018-19/000663 Dtd. 28.01.2019
7. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2018-19/003513 Dtd. 27.05.2019
8. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2018-19/004155 Dtd. 19.06.2019.
9. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2019-20/00463 Dtd. 20.01.2020.
10. CE/EHV/PC O&M/Zone/VSH/Grid.Co./No.00301 Dt.05.02.2020
11. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/2019-20/00987 Dtd. 10.02.2020
12. Applicant letter dtd. 19.07.2022
13. SE/VC/T/HT-NSC/NMIA/11795089/005267 Dt. 19.09.2022
14. Application letter dtd 21.10.2022
15. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/06406 Dtd. 21.11.2022
16. Applicant letter IW No.17518 dtd. 09.12.2022 (Enclosed copy of CE EHV Letter 8213 dtd. 21.11.2023 and CE (STU) Grid connectivity letter 13379 dtd. 27.12.2018)
17. TOL No. SE/VC/T/HT-NSC/NMIA/11795089/007175 Dtd. 30.12.2022
18. SE(TQA) email dtd. 05.01.2023, 22.02.2023
19. T.O. Email dtd. 22.02.2023 to applicant.
20. Applicant email Dtd. 28.02.2023 to SE(TQA) and others
21. NMIAL Letter IW No. 9634 dtd. 18.09.2023
22. T.O. Email dtd. 18.09.2023
23. Consumer email dtd. 20.09.2023(regarding provision of land for 220KV EHV substation inside NMIA premises)
24. T.O.L SE/VC/Tech/2023-24/05356 Dtd.21.09.2023
25. CE/EHV/PC O&M/Zone/EHV/VSH/02604 Dtd.05.10.2023
26. SE/TC/KR/Vashi/NMIA/33KV/00458 Dtd. 09.10.2023
27. SE/EHV(O&M) Circle/PNL/Tech/ORC/02126 Dtd. 13.10.2023
28. Approval of point of supply vide letter SE/TC/KR/Vashi/NMIA/33KV/00468 Dtd. 16.10.2023
29. SE/EHV (O&M)/Circle/PNL/Tech/T-16A/02233 Dtd.30.10.2023
30. CE/EHV/PC O&M /Zone/ORC/VSH/Tech/02840 Dtd.30.10.2023
31. AEE/CBD/T/1012 Dtd.31.10.2023
32. CE EHV email dtd. 01.11.2023
33. EE/Nerul/Tech/Feasibility/01605 dtd.01.11.2023
34. EE/EHV/O&M/DIVN/PNL/T/00107 Dtd. 31.01.2024
35. NMIA Letter IW No.2864 dtd.12.03.2024 Application ID-54692216
36. T.O.L /SE/VC/2023-24/02032 Dtd.18.03.2024
37. SE/TC/KR/Vashi/NMIA/33KV/00203 Dtd.20.03.2024
38. EE/Nerul/Tech/Feasibility/402 Dtd.22.03.2024
39. CE/EHV/PC O&M/ZONE/VSH/TECH/No. 00856 dtd.27.03.2024
40. T.O.L SE/VC/TECH/VASHI/2023-24/ 02286 Dtd.28.03.2024
41. CE(Test)/HTC/Navi Mumbai International Airport/Ulwe/Raigad/18528 dtd.18.04.2024
42. ON Dtd. 01.11.2023
43. SE/VC/Tech/1.3%DDF/HT Load sanction new connection/2024-25/07 dtd.19.04.2024

This has reference to your above cited letter, wherein you have requested to permit to execute the work involved in releasing fresh HT power supply on express feeder at above

plot by paying 1.3 % supervision charges on the estimated cost to the Company. In view of your request permission is hereby granted to execute the works by engaging LEC, subject to following conditions.

1. The work should be carried out as per the requirement and specification of M.S.E.D.C.L. & as per the approved drawing (As per new method of construction only).
2. The work should be got executed through licensed and experienced Electrical Contractor only.
3. The material to be used should be got approved by our SE(TQA) Kalyan and Ex. Engineer (T) Vashi Dn. before taking them to the site.
4. The work should be carried out under the supervision of M.S.E.D.C.L. Engineer nominated by the Executive Engineer, Nerul Dn.
5. The material to be used should be of good quality & having M.S.E.D.C.L. specifications.
6. Before commencement of work concerned Sub-division officer should be informed and at every stage of work prior intimation should be given to our Executive Engineer Nerul division
7. The work should be carried out at your own risk only.
8. I.E. Rules should be observed.
9. You will have to use crimped joints where ever necessary.
10. The work is liable for rejection if the same is not found up to the standard.
11. After completion of work you will have to intimate a sketch alongwith bill of material used for above work in three copies.
12. Permission for charging the line & equipment from Electrical Inspector is required to be obtained by you at your end.
13. If difference in estimated cost and actual cost is observed necessary additional charges will have to be paid by you before release of connection.
14. You will have to take guarantee of transformer, H.T. breaker, HT cables etc. for 5 years, and for other materials one year.

If the above terms & conditions are acceptable to you, it is requested to arrange to pay following charges Rs. 1530133/- (Rs Fifteen Lakhs Thirty Thousand One Hundred Thirty three only) towards 1.3 % supervision charges on estimated cost (Rs. 99747881.02/-) & Rs. NIL/- towards Charges for inspection, sealing, approval etc. on metering cubical to be procured at your cost.

All above is non refundable please note. The other charges remain unchanged. There is no change in terms and conditions mentioned in our earlier letter.
Thanking you.


SUPERINTENDING ENGINEER
MSEDCL, Vashi Circle,

COPY TO:

1. The Executive Engineer, MSEDCL, C.C.O & M Dn. Nerul

As per request of consumer he is being permitted to execute the work as mentioned above. Necessary detailed guidelines may be issued to consumer from your end. The arrangement for Supervising above work may be made from your end.

The actual cost of work should be informed to this office for recovery of balance due if any as per condition No.13 above. He should also ensure that the work is carried out as per estimate and as per standard method of construction. The asset Charging permission should be taken from this office.

2. The Executive Engineer, MSEDCL, Testing Div., Vashi.
3. The Addl. Exe. Engr. MSEDCL, CBD Sub - division.
4. The Sr. Manager (F & A), Vashi Circle, Vashi.
5. The Junior Manager, MSEDCL, Nerul Div., Nerul.

ANNEXURE 10 –
PESO APPROVAL FOR DIESEL
STORAGE



भारत सरकार

Government of India

वाणिज्य और उद्योग मंत्रालय

Ministry of Commerce & Industry

पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो)

Petroleum & Explosives Safety Organisation (PESO)

ए-1 और ए-2 विंग, पाँचवा तल, केंद्रीय कार्यालय परिसर, सी.बी.डी. बेलापुर

नवी मुंबई (महाराष्ट्र) - 400614

A1 & A2 wing, 5th Floor,

C.G.O. complex, CBD Belapur, Navi Mumbai (M.S.),

Mumbai - 400614

E-mail jtcemumbai@explosives.gov.in

Phone/Fax No 022 - 27575946, 27573881

संख्या /No. PWC/MH/15/2579 (P631889)

दिनांक /Dated 23/10/2025

सेवा में /To,

M/s. NAVI MUMBAI INTERNATIONAL AIRPORT PRIVATE LIMITED,
11th Floor, V Times Square, Plot No. 3, Sector 15,,
CBD Belapur,
Belapur,
Mumbai,
Taluka: Mumbai,
District: MUMBAI,
State: Maharashtra
PIN: 400614

विषय /Sub Survey No, 64 4(Part), Ulwe, Ulwe, Panvel, Taluka: Panvel, District: RAIGAD, State: Maharashtra, PIN: 410206 में पेट्रोलियम वर्ग B का अधिष्ठापन -अनुज्ञप्ति जारी करने के बारे में ।
Petroleum Class B Installation at Survey No, 64 4(Part), Ulwe, Ulwe, Panvel, Taluka: Panvel, District: RAIGAD, State: Maharashtra, PIN: 410206 Grant of License regarding.

महोदय
/Sir(s),

कृपया आपके पत्र क्रमांक OIN2118078 दिनांक 17/10/2025 का अवलोकन करें ।

Please refer to your letter No OIN2118078 dated 17/10/2025

विषयान्तर्गत अधिष्ठापन में निम्नलिखित पेट्रोलियम पदार्थों के वर्ग तथा मात्रा के भंडारण के लिए पेट्रोलियम नियम, 2002 के अधीन प्ररूप - XV में स्वीकृत, दिनांक 31/12/2027 तक वैध अनुज्ञप्ति संख्या PWC/MH/15/2579 (P631889) दिनांक 23/10/2025 भेजी जा रही है ।

Licence No PWC/MH/15/2579 (P631889) dated 23/10/2025 granted in Form XV under the Petroleum Rules, 2002 and valid till 31/12/2027 for the storage of the following kinds and quantities of Petroleum at the subject installation is forwarded herewith

पेट्रोलियम का विवरण /Description of Petroleum	किलोलीटर्स में अनुज्ञाप क्षमता /Quantity licenced in KL
वर्ग A प्रपुंज पेट्रोलियम /Petroleum Class A in bulk	NIL
वर्ग A प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class A otherwise than in bulk	NIL
वर्ग B प्रपुंज पेट्रोलियम /Petroleum Class B in bulk	30.00 KL
वर्ग B प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class B otherwise than in bulk	NIL
वर्ग C प्रपुंज पेट्रोलियम /Petroleum Class C in bulk	NIL
वर्ग C प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class C otherwise than in bulk	NIL
कुल क्षमता /Total Capacity	30.00 KL

कृपया पेट्रोलियम नियम 2002 के अधीन बनाए गए नियम 148 में दी गई प्रक्रिया का कड़ाई से पालन करें और अनुज्ञप्ति के नवीकरण हेतु समस्त दस्तावेजों को अनुज्ञप्ति की वैधता समाप्ति की तारीख या उससे पूर्व इस कार्यालय को प्रेषित करें ।

Please follow the procedure strictly as laid down in rule 148 of the Petroleum Rules, 2002 and submit complete documents for further renewal of the licence to this office. so as to reach on or before the date on which licence expires

यह अनुमोदन/ अनुमति अन्य प्राधिकारियों से आवश्यक अनुमति/क्लीयरन्स प्राप्त करने से या यथा लागू अन्य विधियों से छूट नहीं देती है ।

This approval/permission, however, does not absolve from obtaining necessary permission/clearance from other authorities or under other statutes as applicable

भवदीय /Yours faithfully,

((अमित कुमार))
(Amit Kumar)
विस्फोटक नियंत्रक
Controller of Explosives
कृते संयुक्त मुख्य विस्फोटक नियंत्रक
For Jt. Chief Controller of Explosives
नवी मुंबई (महाराष्ट्र)/Mumbai

Copy forwarded to :-

1 The Commissioner of Police, RAIGAD(Maharashtra) with reference to his NOC No P/MH/RGD/NA/8/(N12630) Dated 14/10/2025

For Jt. Chief Controller of Explosives
Mumbai

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क तथा अन्य विवरण के लिए हमारी वेबसाइट <http://peso.gov.in> देखें)
(For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

Note:-This is system generated document does not require signature.

ANNEXURE 11 –
ENVIRONMENTAL MONITORING
REPORTS FOR THE PERIOD OF
OCTOBER 25– MARCH 2026

**ENVIRONMENTAL COMPLIANCE MONITORING REPORT
for
Navi Mumbai International Airport (NMIA)**



Sponsor:

Navi Mumbai International Airport Pvt. Ltd. (NMIAL)

Period:

October 2025 to March 2026

PREPARED BY



**ADITYA ENVIRONMENTAL SERVICES PVT.LTD.
MOEFCC Recognized Laboratory under EP Act 1986
Accredited under ISO 9001: 2015 & OHSAS 18001: 2007 by ICQS
www.aespl.co.in**

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1. INTRODUCTION

Mumbai Metropolitan Region (MMR) comprises of areas in and around Mumbai city and includes parts of Mumbai, Thane and Raigad Districts in Maharashtra. Mumbai is known as the commercial capital of India and the MMR is an industrially and technologically advanced region, which has experienced rapid growth in income and employment. The increase in trading, business and financial services demands the highest order of infrastructure. There is a need for enhancement of the available capacity of the airport, as the existing airport in Mumbai is under tremendous pressure to meet the air traffic demands of this vibrant region. Realizing this need, the Government of Maharashtra conceptualized the Navi Mumbai International Airport (NMIA) project and appointed City and Industrial Development Corporation of Maharashtra Ltd. (CIDCO) as the Nodal Agency for implementation of the project. This project was taken up on Public Private Partnership (PPP) basis, on approval of the Government of India and the Government of Maharashtra. After an open global bidding process, CIDCO issued Letter of Award dated 25th October 2017 to Mumbai International Airport Pvt Ltd (MIAL) for development of the project.

The objective of the monitoring is to understand the Ambient Air quality, Ambient Noise quality, Ground water quality, soil and marine water quality at Navi Mumbai International Airport site and nearby villages.

The focus of compliance monitoring is to assess the reporting period environmental conditions in and around the surrounding project area to check for possible impacts on environment at an early stage so that necessary actions can be initiated. The assignment comprises monitoring of following parameters:

- Ambient Air Monitoring
- Ambient Noise Level Monitoring
- Soil
- Ground/Surface Water/Drinking water
- Marine Water for Biological and Physicochemical Parameters
- DG Stack Monitoring



Prepared By:
Dhan Thapa

Environmental Consultant





Checked By:
Kalpita Pathare

Aditya Environmental Services Pvt. Ltd.

2. SCOPE OF MONITORING WORK

2.1 Scope of Monitoring Work as per Work Order:

The scope of monitoring work as per the Work Order are as given below:

Table 2-1 Scope of Environmental Monitoring Work as per Work Order

Sr. No.	Parameters – as per Annexure B	Location	Frequency	Samples/ Year
1.	Ambient Air Quality: As per NAAQS standards Published by CPCB (12 Parameters)	9	9 Stations per Month	108
2.	Noise: Parameters: Leq Noise level - Day time & Night time separately as per CPCB norms.	10	10 Stations per Month	120
3.	Ground Water Quality: As per IS 10500:2012 Revised (RA 2018)	5	5 Stations per Month	60
4.	Soil: Parameters: pH, Texture, EC, Na, Available N, Available K, Available Phosphorus, Sulphate, Chloride, Ca, Mg, Fe, Mn, Cu, Hg, Cd, As, Pb, Zn, Al, Ni, Co, Cr, Na	8	8 Stations (Quarterly)	32
5.	Marine/Surface Water Quality parameters: Physico Chemical parameters: PH, Temperature, Turbidity, EC, Salinity (ppt), Chemical Parameters: DO, BOD, Magnesium, Hardness, Alkalinity, Chloride, Sulphate, Fluoride, Sodium, Potassium, Phenol, Total phosphorus, Total Nitrogen. Heavy Metals: Fe, Zn, Mg, Mn, Cd, Cr, Hg, Pb Bacteriological parameters: Coliform Colonies (MPN). Marine Biology: Chlorophyll, Phaeophytin, Phytoplankton, Zooplankton, Benthos, Diversity indices	10	10 stations (Quarterly)	40
6.	DG Set Stack Monitoring	1	1 station (Quarterly)	4

2.2 Locations of Monitoring:

Details of monitoring stations for Ambient Air Quality, Ambient Noise, Soil, Ground Water, drinking water, STP, Marine Water- physicochemical & biological showing station d are as given below:

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Dhan Thapa

Environmental Consultant



Kalpita Pathare

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Kalpita Pathare

Aditya Environmental Services Pvt. Ltd.

Table 2-2 Details of Ambient Air Quality Monitoring Stations

Station Code	Station	Remarks
A1	Owale	Residential Village
A2	Pargaon	Receptor oriented – 400 m from proposed runway
A3	Ulwe Node	Area near highway
A4	NMIA Project Site	Within project site
A5	Kille Gaothan	Receptor oriented – on main access road
A6	L&T Site Office	Within Project site
A7	Diwale Koliwada	Receptor oriented – on main access road
A8	Jui	Eastern end of NMIA, outside project site
A9	Panvel	Residential zone
A10	PT-1 - Multi Level Car Parking MLCP	Industrial Zone
A11	Passenger Departure (L2)- Entry Up-ramp	Industrial Zone
A12	Solid Waste Facility East	Industrial Zone



Figure 2-1 Ambient Air Monitoring Locations

* Ambient Air Monitoring stations can be changed on the basis of access to villages situated within NMIA project site and other locations.

[Signature]



[Signature]

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Dhan Thapa

Checked By:
Kalpita Pathare

Environmental Consultant

Aditya Environmental Services Pvt. Ltd.

(October 2025 - March 2026)

Table 2-3 Ambient Noise Level Monitoring Stations

Sr. No.	Station Name	Category of area
N1	Owale	Residential Area
N2	Pargaon	Sensitive area (Mixed category)
N3	Ulwe Node	Sensitive Area
N4	Karanjade	Residential Area
N5	NMIA Project site	Within Airport site
N6	Kille Gaothan	Receptor oriented – on main access road
N7	L&T Site Office	Within Airport site
N8	Diwale Koliwada	Receptor oriented – on main access road
N9	Jui	Eastern end, outside project site
N10	Panvel	Residential Area (Mixed category)
N11	PT-1 - Multi Level Car Parking MLCP	Industrial Zone
N12	Passenger Departure (L2)- Entry Up-ramp	Industrial Zone
N13	Solid Waste Facility	Industrial Zone



Figure 2-2 Noise Level Monitoring Locations

[Signature]

Prepared By:
Dhan Thapa

Environmental Consultant



[Signature]

Checked By:
Kalpita Pathare

Aditya Environmental Services Pvt. Ltd.

Table 2-4 Soil Quality Monitoring Stations

Station Code	Stations Name
S1	Chinchpada
S2	Koli
S3	Kopar
S4	Ulwe
S5	NMIA project Site
S6	Kombadbhuje
S7	Pargaon
S8	Owale



Figure 2-3 Soil Sampling Locations

* Soil Sampling locations can be changed on the basis of access to villages situated within NMIA project site and other locations.

Dhan Thapa

Prepared By:
Dhan Thapa

Environmental Consultant



Kalpita Pathare

Checked By:
Kalpita Pathare

Aditya Environmental Services Pvt. Ltd.

(October 2025 - March 2026)

Table 2-5 Details of Ground Water Quality Monitoring Stations

Station Code	Month	Station Code	Month
	October, December, February		November, January, March
GW1	Open well at Kille Gaothan	GW II	Dugwell at Owale
GW2	Dugwell at Ulwe	GW III	Open well at Dapoli
GW3	Dugwell at Pargaon		
GW4	Open well at Jui		
GW5	Open well at Panvel		

Table 2-6 Details of Drinking Water and STP Quality Monitoring Stations

Station Code	December 2025	January 2026	February 2026	March 2026
DW1	NMIA Project Office	NMIA New Project office	NMIA Old Project Office	Aircraft water filling station (U11A)
DW 2		Staff Facility Centre	AMB 1st Floor	AMB 1 st Floor
DW 3		AOSF Canteen	ARFF Canteen ground floor	ATC Tower
DW 4		Fuel Farm office	PT-1 Passenger Arrival -Near bus Gate Area	Terminal Canteen
DW 5		Cargo Terminal Canteen	PT-1 Passenger Arrival - Forecourt near Lift	PT-1 Passenger Arrival - 009
DW 6		PT-1 Passenger Arrival -Near Belt no. 9	PT-1 Passenger Departure -Near Retail Shop 9	PT-1 Passenger Arrival - 004
DW 7		PT-1 Passenger Arrival -Near Forecourt	PT-1 Passenger Departure -Near Gate no.14 Forecourt	PT-1 Passenger Departure - L2 Retail Shop
DW 8		PT-1 Passenger Departures near Zone A	Aircraft Water Filling Station (U11A)	PT-1 Passenger Departure - Gate No.15
DW 9		PT-1 Passenger Departure near Zone C	Water Plant (U1A)	NMIA Old Project Office
DW 10		Aircraft Water Filling Station (U11A)		New NMIA Project Office II Floor
DW 11		Water Plant (U1A)		Staff Facility
DW 12				AOSF
DW 13				Water Plant (U1A)
STP 1	STP UF Outlet			



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Figure 2-4 Ground Water and Drinking Sampling Locations

*Ground water sampling locations can be changed on the basis of access to villages situated within NMIA project site and other locations.

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Table 2-7 Details of Marine Water Quality Monitoring Stations

Station Code	Station details / Location
MW1	Extreme end of Gadhi River (upstream side)
MW2	Near Chinchpada village (2 km from MW1) in Gadhi River
MW3	Near Jui Village (1.8 from MW2) in Gadhi River
MW4	At Junction of Ulwe and Gadhi Rivers in Panvel Creek
MW5	Near Vaghivali village (2 km from MW4) in Gadhi River
MW6	Near CBD Belapur (1.5 km from MW5) in Panvel Creek
MW7	Near Vaghivali Creek Junction (800 m from MW6) in Gadhi River
MW8	Near Rathi bander in Panvel Creek
MW9	Mouth of Panvel Creek
MW10	Ulwe River near Owle Village



Figure 2-5 Marine Water Sampling Locations

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Table 2-8 Details Stack Monitoring Stations

Station Code	November 2025	January 2026	February 2026
DG 1	NMIA Project site	AOSF	DSS 1, 3000 KVA
DG 2		NMIA New Project office	DSS 2, 3000 KVA
DG 3		ASR No. 2	DSS 3, 3000 KVA
DG 4		ASR No.1	RSS, 500 KVA
DG 5		Data Centre No.1	AMB, 400 KVA
DG 6		Data Centre No.2	CCR (W), 750 KVA
DG 7			CCR (E), 750KVA
DG 8			ARFF & ATC, 500 KVA
DG 9			ARFF & ATC, 250 KVA



Figure 2-6 DG Stack monitoring Locations

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2.3 Period/Time of Sampling (October 2025 to March 2026):

The sampling survey was planned to be carried out as per the schedule mentioned in Table below.

Table 2-9 Period/Time of Sampling for this Survey

Month	Parameter	Sampling Stations	Dates of Sampling	Time Period
October 2025	AAQ	A1, A2, A3	14.10.2026	24 hours
		A7, A8, A9	15.10.2026	
		A4, A5, A6	16.10.2026	
	Noise Level	N1, N2, N3, N4	14.10.2026	24 hours starting from 06:00am
		N8, N9, N10	15.10.2026	
		N5, N6, N7	16.10.2026	
	Ground water	GW1, GW2, GW3, GW4, GW5	14.10.2026	Grab Sample
November 2025	AAQ	A1, A2, A3	10.11.2026	24 hours
		A4, A5, A6	11.11.2026	
		A7, A8, A9	12.11.2026	
	Noise Level	N1, N2, N3, N4	10.11.2026	24 hours starting from 10:00am
		N5, N7, N7	11.11.2026	
		N8, N9, N10	12.11.2026	
	Ground water	GW II, GW III	10.11.2026	Grab Sample
	DG Set	DG 1	12.11.2026	Grab Sample
December 2025	AAQ	A1, A2, A3	15.12.2026	24 hours
		A4, A6, A9	16.12.2026	
		A5, A7, A8	17.12.2026	
	Noise Level	N1, N2, N3, N4	15.12.2026	24 hours starting from 10:00am
		N5, N7, N10	16.12.2026	
		N6, N8, N9	17.12.2026	
	Ground water	GW1, GW2, GW3	15.12.2026	Grab Sample
		GW5	16.12.2026	
	Drinking Water	GW4, DW1	17.12.2026	Grab Sample
	Soil	S1, S2, S3, S8	16.12.2026	Grab Sample
		S4, S5, S6, S7	17.12.2026	
	Marine Water	MW4, MW5, MW6, MW7, MW8, MW9	19.12.2026	Grab Sample
		MW1, MW2, MW3, MW10	20.12.2026	
January 2026	AAQ	A1, A2, A3	01.01.2026	24 hours
		A4, A5, A6	02.01.2026	
		A7, A8, A9	03.01.2026	
	Noise Level	N1, N2, N3, N4	01.01.2026	24 hours starting from 06:00am
		N5, N6, N7	02.01.2026	
		N8, N9, N10	03.01.2026	
	Ground Water	GWII, GWIII	01.01.2026	Grab Sample
	Drinking water	DW 1, DW2, DW3, DW4, DW5, DW6, DW7, DW8, DW10	02.01.2026	

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Month	Parameter	Sampling Stations	Dates of Sampling	Time Period
		DW9, DW11	03.01.2026	
	DG Set	DG1, DG2, DG3, DG4, DG5, DG6	02.01.2026	
	STP water	STP 1	09.01.2026	
February 2026	AAQ	A1, A2, A3	09.02.2026	24 hours
		A5, A7, A9	10.02.2026	
		A4, A6, A8	11.02.2026	
		A10, A11	13.02.2026	
	Noise Level	N1, N2, N3, N4	09.02.2026	24 hours starting from 06:00am
		N5, N6, N7	10.02.2026	
		N8, N9, N10	11.02.2026	
	DG Set	N11, N12	13.02.2026	
		DG 1, DG2, DG3, DG4, DG5, DG6, DG7, DG8, DG9	11.02.2026	
	Ground Water	GW2, GW3, GW4	10.02.2026	Grab Sample
		GW1, GW5	12.02.2026	
	Drinking Water	DW 1, DW2, DW3, DW4, DW5, DW6, DW7, DW8, DW9	13.02.2026	Grab Sample
	STP Water	STP 1	13.02.2026	Grab Sample
march 2026	AAQ	A5, A7, A8	16.03.2026	24 hours
		A4, A17	17.03.2026	
		A1, A2	18.03.2026	
	Noise Level	N4, N6, N8, N10	16.03.2026	24 hours starting from 06:00am
		N5, N13	17.03.2026	
		N1, N2	18.03.2026	
	Ground Water	GWII, GWIII	16.03.2025	Grab Sample
	Drinking water	DW1, DW2, DW3, DW4, DW5, DW6, DW7, DW8, DW9, DW10, DW11, DW12, DW13	17-18.03.2026	
	Soil	S1, S2, S3, S4, S5, S6, S7, S8	19.03.2026	Grabe Sample
	Marine Water	MW4, MW5, MW6, MW7, MW8, MW9	20.03.2026	Grab sample
		MW1, MW2, MW3, MW10	21.03.2026	

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3. METHODOLOGY ADOPTED FOR ENVIRONMENTAL MONITORING**3.1 AMBIENT AIR QUALITY****3.1.1 Reconnaissance Survey:**

Reconnaissance survey in study area (10 km around proposed airport site) shows that sources of air pollution include the following:

- Airport land development work and predevelopment work
- Heavy traffic along Amara Marg, NH4/4B and Uran / JNPT Road
- Construction activity in Ulwe node and nearby areas
- Industries in Panvel (private), MIDC Taloja (6 km NE of site) & MIDC TTC (4 km N of site)
- Burning of poor-quality fuels in villages to the south of proposed site (Airport)

In order to arrest the deterioration in air quality, Govt. of India has enacted Air (Prevention and Control of Pollution) Act in 1981. The responsibility has been further emphasized under the Environment (Protection) Act, 1986. The National Ambient Air Quality Standards (NAAQS) have been published by CPCB in November 2009 giving methods for measurement.

3.1.2 Methodology for Ambient Air Quality Monitoring:

To monitor Air Pollutants in Ambient air following method of analysis adopted.

Table 3-1 Technique and Methods Adopted for Analysis of AAQ Parameters

S N	Parameter	Technique	Method of Analysis
1.	PM ₁₀	Respirable Dust Sampler (Gravimetric Method)	IS 5182 (Part 23) RA2022
2.	PM _{2.5}	Fine Respirable Dust (Gravimetric Method)	IS 5182 (Part 24) RA2024
3.	SO ₂	Modified West and Gaeke Method	IS 5182 (Part 2/Sec 1) 2023
4.	NO _x	Jacob & Hochheiser Method	IS 5182 (Part 6) RA2022
5.	NH ₃	Indophenol Blue method	IS 5182 (part 25) RA 2023
6.	CO	Gas Chromatography Method	IS 5182 (part 10) RA2019
7.	Ozone	Spectrophotometric method	IS 5182 (part 09) RA2019
8.	Benzene[C ₆ H ₆]	Gas Chromatography	IS 5182 (part 11) RA2022
9.	Benzopyrene	Solvent extraction followed by GC	IS 5182 (part 12) 2019
10.	Lead	ICPOES after sampling EPM filter Paper	CPCB Manual Volume I: 2013
11.	Arsenic [As]		APHA Air method 822-3rdEd
12.	Nickel [Ni]		CPCB Manual Volume I: 2013



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Figure 3-1 Ambient Air Quality Monitoring

3.1.3 Selection of air sampling location

Selection of representative location is very important. The following precautions have been taken while installing AAQM stations:

- It is away from source & other interferences
- Samplers are installed at free flowing well mixed area (3 m) above ground level
- Only Calibrated Air Samplers are used
- The samples are transported to the laboratory at the earliest for further analysis
- Gaseous samples were preserved in cold box before taking them to laboratory

3.2 AMBIENT NOISE LEVEL

3.2.1 Reconnaissance Survey:

Reconnaissance survey in study area (10 km around proposed airport site) shows that sources of air pollution include the following:

- Airport land development work and predevelopment works
- Heavy traffic along Amara Marg, NH4/4B and Uran / JNPT Road
- Construction activity in Ulwe node and nearby areas
- Industries in Panvel (private), MIDC Taloja (6km NE of site) & MIDC TTC (4 km N of site)

Noise pollution in urban areas is now being recognized as a major environmental issue around the world. With increasing awareness of the adverse impacts of noise on human health, more and more people are becoming less tolerant to environmental noise. The objective of this exercise is to assess the baseline status within study area and to compare the noise levels with Ambient Noise Standards as prescribed under Environmental Protection Act, 1986.

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3.2.2 Methodology for Sample Collection

Integrated Sound Level Meter C390 was used for undertaking the surveys and installed on tripods at the selected locations over a 24-hour period. This Meter is then taken to the laboratory where the data collected is downloaded onto PC using specialized software. Noise is measured in decibel (dB) and 'A' weighting is used for this entire monitoring since in this method of frequency weighting, the signal generated reproduces the way the human ear responds to a range of acoustic frequencies. Leq: The equivalent continuous Sound Pressure Level for a particular duration. The Day-Night Equivalent Sound Level refers to average sound exposure over a 24- hour period. Leq day & night values are calculated from hourly Leq values, with the Leq values for the nighttime increased by 10 dB to reflect the greater disturbance potential from nighttime noises.



Center C-390 Sound level Meter with data logger



Figure 3-2 Ambient Noise level Monitoring

3.3 Soil

The purpose of soil testing is to identify contamination of soil due to land development works and the soil fertility from a viewpoint of use for landscape development.

3.3.1 Reconnaissance Survey:

The southern side of the study area is rural in character and large tracts are being cultivated as paddy fields. Soil is also seen plentifully at the bottom of hills where it supports large vegetation. However, the northern portion of study area is mostly urban in character since it has seen largescale development being part of Navi Mumbai.

3.3.2 Methodology of Sample Collection:

Soil samples are collected after removing top two inches – which may contain high amount of organic carbon and humus. The soil area and volume could be a large field, a small garden, or simply the root zone of a single tree or shrub. The most difficult step in soil testing is accurately representing the desired area of soil. When the sampling area is determined, a sufficient number of soil cores taken to acquire a representative sample. This is generally 10 to 20 cores. The depth of sample for surface soils was taken from 0 to 6 inches or as deep as the primary tillage.

Soil samples collected from proposed project stations by using stainless steel soil sampling probe, packed in labeled polythene bags & send for analyze the physicochemical characteristics. The sample

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so collected is then made representative by coning- quartering and then stored in plastic bags, sealed and then sent to laboratory for analysis.



Figure 3-3 Soil Sample Collection

3.4 GROUND WATER SAMPLING

3.4.1 Reconnaissance Survey:

Villages to the south of the airport site use ground water from open/bore well for drinking and other domestic purposes. Ground water gets contaminated due to bad sanitary habits such as washing of utensils, cattle and bathing and location of septic tanks near the open wells.

3.4.2 Methodology of Sampling:

Ground water samples are collected by using containers and the sampling container is rinsed before using them for storing water samples. Ground water samples are stored in two separate containers for Physicochemical & Microbiological analysis and preservatives added as recommended by Standard Methods APHA, stored in cold storage box and transferred to the laboratory for further analysis.



Figure 3-4 Ground Water Sampling

3.5 MARINE WATER, SEDIMENTS & PLANKTON SAMPLING EQUIPMENTS

3.5.1 Reconnaissance Survey:

The site for the project is located in four different micro water sheds – viz Panvel creek, Gadhi river, Kasardi river, Ulwe river. The study area represents complex hydrodynamic systems. The Ulwe river

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flows down through the mountains (to the south) towards the centre of project site and has been diverted/retrained as part of the project. The Gadhi River flows from the East to the West and is partly retrained towards the northern part of the site. The river Gadhi receives sewage from Panvel town and nearby areas. Both the rivers drain into the Panvel creek flowing adjacent to the North of site which drains into the Arabian sea to the west. The Panvel creek also receives treated effluents from CETP at MIDC Taloja and sewage from NMMC STPs in Nerul.

3.5.2 Methodology of Sampling:

3.5.2.1 Niskin Bottle - Marine Water Sampler

This Water Sampler is used to collect samples at various water depths and can operate at any depth on a cable or line with a messenger.



3.5.2.2 Plankton Net - Biological Samples

This plankton net operates a cable or lined by hand or behind a boat, it can be towed vertically or horizontally. Nets comes in varieties of size (Mesh no 00 equal an aperture of 0.30 inches)



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3.5.2.3 Grab Sampler - For Marine Sediments

Sediment grab operates at any depth on a cable or line by free fall (without a messenger). It is extremely heavy and can take samples of the hardest rocky ocean bottoms.



Grab Sampler

3.5.2.4 Selection of Stations, Preservation and Transportation of Samples:

Marine water samples were collected from sampling locations in Gadhi river, Ulwe river and Panvel creek at the locations indicated by NMIAL – in all, 10 samples were collected from 10 sampling locations for physicochemical and biological samples (Stations 1 to 4 are in Gadhi River & Station 5 & 8 are Panvel creek while station 9 Mouth of Panvel creek and Station 10 in Ulwe river. A good amount of mangrove vegetation was noted on either side of stream 2, 3, 4 and 7. Sampling locations were approached by boats (wherever possible) and collection done irrespective of tide. Sampling was done only for surface water. The samples were preserved and taken to the laboratory using a vehicle on the same day.

3.6 Laboratory Credentials

Sampling and analysis were done by the laboratory of Aditya Environmental Services Pvt Ltd located at Plot P-1, MIDC Commercial plots, Mohopada, Tal Panvel, Dist. Raigad.

- Environmental Laboratory is recognized by Ministry of Environment & Forest (MoEFCC), Govt. of India under Environment (Protection) Act, 1986.
- Laboratory is also certified ISO 9001:2015 and OHSAS 18001:2007.
- Laboratory is accredited under ISO/IEC 17025:2005 (vide Certificate No. TC-7085) for water, wastewater and soil parameters.
- Environmental sampling conducted by our experienced, qualified environmental staff & Analysis and reporting by approved Government Analyst.
- Instruments used for sampling are from reputed manufacturers & are regularly calibrated.
- Chemicals used are Analytical Reagent grade and from reputed manufacturer.
- Analytical Instrumentation used in the laboratory is regularly calibrated.
- Laboratory has a regular program of Preventive & Annual Maintenance for all critical equipment.

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- Ground Water, Soil Analysis - using APHA, BIS, ASTM & CPCB standards Methods for water Analysis.
- Standard Methods Adopted in the laboratory are those prescribed by APHA, BIS, ASTM & CPCB for water, waste & marine water analysis using methods as per NIO (National Institute of Oceanography) Manual.
- Laboratory has CRMs (Certified Reference Material) for heavy metals from reputed manufacturers for heavy metals and Standard Sea water which we use for analysis.
- Laboratory is regularly participating in Proficiency testing with reputed Organizations like Central Pollution Control Board (CPCB), Goa State Pollution Control Board and others as also Intra laboratory QC testing to check performance of our chemists.
- Overall approach & methodology is with Annexure IA Scope of the work & the Best practices as per prevailing norms of Central Pollution Board /Ministry of Environment & Forest etc. /Internationally adopted practices.

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4. COMPILATION OF DATA & INFERENCE

4.1 Ambient air quality monitoring report

4.1.1 AAQM Data

Ambient Air Quality was monitored at various locations for relevant parameters as per NAAQS standards published by CPCB in November 2009. Data is compiled and presented below:

Table 4-1 Ambient Air Quality monitoring at various stations during October 2025

Sampling Locations	Owale Village	Pargaon	Ulwe Node	NMIA Project Site	Kille Gavthan	L&T Office	Diwale Koliwada	Panvel	Jui Village	Limit #	Unit
Sampling Date	14.10.2025			15.10.2025			16.10.2025				
SO ₂	26.4	23.4	24.4	25.3	23.5	26.4	21.4	25.3	22.4	80*	µg/m ³
NO _x	37.6	34.6	36.8	35.5	36.0	38.2	31.6	32.4	30.9	80*	µg/m ³
PM ₁₀	77.6	73.3	75.2	71.6	66.2	76.1	69.5	72.3	74.0	100*	µg/m ³
PM _{2.5}	25.4	24.6	28.3	23.3	22.5	25.0	21.6	23.7	24.1	60*	µg/m ³
Ozone (O ₃)	15.3	14.4	17.0	15.5	15.8	16.7	14.6	16.1	13.4	180**	µg/m ³
Lead (Pb)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	1***	µg/m ³
CO	0.63	0.59	0.56	0.58	0.52	0.60	0.52	0.55	0.57	4**	mg/m ³
Benzene (C ₆ H ₆)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	8***	µg/m ³
Benzopyrene	BDL(DL-0.5)	BDL(DL-0.5)	BDL(DL-0.5)	BDL(DL-0.5)	BDL(DL-0.5)	BDL(DL-0.5)	BDL(DL-0.5)	BDL(DL-0.5)	BDL(DL-0.5)	1***	ng/m ³
Arsenic (As)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	8***	ng/m ³
Nickel (Ni)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	20***	ng/m ³
NH ₃	28.8	26.8	24.8	27.2	27.7	29.7	23.3	25.8	22.4	400*	µg/m ³

BDL - Below Detectable Limit (Note # Limits as per National Ambient Air Quality Standards NAAQS, 2009)

[*] 24 hour monitoring value; [**] 1 hour monitoring value; [***] Annual monitoring value

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Results

Particulate Matter (PM₁₀): Maximum value of PM₁₀ is observed at Owale (AAQ-1) as 77.6 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 66.2 µg /m³ in October 2025.

Particulate Matter (PM_{2.5}): Maximum value of PM_{2.5} is observed at Ulwe node (AAQ-3) as 28.3 µg /m³ with minimum value observed at Diwale Koliwada (AAQ-7) as 21.6 µg /m³ in October 2025.

Sulphur Dioxide (SO₂): Maximum value of SO₂ is observed at Owale (AAQ-1) & L&T Site Office (AAQ-6) as 26.4 µg /m³ with minimum value observed at Diwale Koliwada (AAQ-7) as 21.4 µg /m³ in October 2025.

Oxides of Nitrogen (NOX): Maximum value of NO₂ is observed at L&T Site Office (AAQ-6) as 38.2 µg /m³ with minimum value observed at Jui (AAQ-9) as 30.9 µg /m³ in October 2025.

Carbon Monoxide (CO): Maximum value for CO is observed at Owale (AAQ-1) as 0.63 mg/m³ with minimum value observed at Kille Gavthan (AAQ-5) & Diwale Koliwada (AAQ-7) as 0.52 mg/m³ in October 2025.

Ozone (O₃): Maximum value for O₃ is observed at Ulwe node (AAQ-3) as 17.0 µg /m³ with minimum value observed at Jui (AAQ-9) as 13.4 µg /m³ in October 2025.

Ammonia (NH₃): Maximum value for NH₃ is observed at L&T Site Office (AAQ-6) as 29.7 µg /m³ with minimum value observed at Jui (AAQ-9) as 22.4 µg /m³ in October 2025.

All above parameters are observed to be following permissible limits as per NAAQ Standards in October 2025. Also, parameters such as Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(a)Pyrene (BaP) and Benzene (C6H6) were found to be within the prescribed limits in October 2025.



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Table 4-2 Ambient Air Quality monitoring at various stations during November 2025

Sampling Locations	Owale	Pargaon High School	Ulwe Node	NMIA Project site	Kill Gavthan	L & T Site Office	Diwale Koliwada	Panvel	Jui Village	Limit #	Unit
Sampling Date	10.11.2025			11.11.2025			12.11.2025				
SO ₂	25.9	22.4	24.5	27.3	21.4	26.9	23.4	24.4	26.3	80*	µg/m ³
NO _x	37.2	32.7	35.4	38.7	33.4	36.7	34.1	36.1	37.4	80*	µg/m ³
PM ₁₀	72.5	69.7	70.4	82.1	65.3	80	73.5	78.4	75.3	100*	µg/m ³
PM _{2.5}	24.5	21.2	23.7	27.5	19.1	26.2	25.4	26.6	24.1	60*	µg/m ³
Ozone (O ₃)	15.5	13.7	13.2	18.7	16.7	17.8	15.5	14.6	17.3	180**	µg/m ³
Lead (Pb)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	1***	µg/m ³
CO	0.62	0.6	0.58	0.75	0.56	0.7	0.59	0.64	0.61	4**	mg/m ³
Benzene (C ₆ H ₆)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	8***	µg/m ³
Benzopyrene	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	1***	ng/m ³
Arsenic (As)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	8***	ng/m ³
Nickel (Ni)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	20***	ng/m ³
NH ₃	25.2	23.5	23.9	30.7	28.6	28.2	22.6	25.6	27.7	400*	µg/m ³

BDL-Below Detectable Limit (Note # Limits as per National Ambient Air Quality Standards NAAQS,2009)

[*] 24 hour monitoring value; [**] 1 hour monitoring value; [***] Annual monitoring value



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(October 2025 -March 2026)

Results:

Particulate Matter (PM₁₀): Maximum value of PM₁₀ is observed at NMIA Project Site (AAQ-4) as 82.10 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 65.30 µg /m³ in November 2025

Particulate Matter (PM_{2.5}): Maximum value of PM_{2.5} is observed at NMIA Project Site (AAQ-4) as 27.50 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 19.10 µg /m³ in November 2025

Sulphur Dioxide (SO₂): Maximum value of SO₂ is observed at NMIA Project Site (AAQ-4) as 27.30 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 21.40 µg /m³ in November 2025

Oxides of Nitrogen (NO_x): Maximum value of NO_x is observed at NMIA Project Site (AAQ-4) as 38.70 µg /m³ with minimum value observed at Pargaon (AAQ-2) as 32.70 µg /m³ in November 2025

Carbon Monoxide (CO): Maximum value for CO is observed at NMIA Project Site (AAQ-4) as 0.75 mg/m³ with minimum value observed at Kille Gavthan (AAQ-5) as 0.56 mg/m³ in November 2025

Ozone (O₃): Maximum value for O₃ is observed at NMIA Project Site (AAQ-4) as 18.70 µg /m³ with minimum value observed at Ulwe Node (AAQ-3) as 13.20 µg /m³ in November 2025

Ammonia (NH₃): Maximum value for NH₃ is observed at NMIA Project Site (AAQ-4) as 30.70 µg /m³ with minimum value observed at Diwale Koliwada (AAQ-7) as 22.60 µg /m³ in November 2025

All above parameters are observed to be following permissible limits as per NAAQ Standards in November 2025

Also, parameters such as Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(a)Pyrene (BaP) and Benzene (C₆H₆) were found to be within the prescribed limits in November 2025.



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(October 2025 - March 2026)

Table 4-3 Ambient Air Quality monitoring at various stations during December 2025

Sampling Locations	Owale Village	Pargaon	Ulwe Node	NMIA Project site	Kille Gaonhan	L & T Site Office	Diwale Koliwada	Panvel	Jui	Limit #	Unit
Sampling Date	16.12.2025			17.12.2025			18.12.2025				
SO ₂	24.2	21.3	22.2	28.1	24.2	26.1	25.1	27.1	25.1	80*	µg/m ³
NO _x	36.7	34.5	35.2	39.5	36.0	37.4	37.4	39.5	35.2	80*	µg/m ³
PM ₁₀	79.8	76.3	82.2	85.6	69.0	89.0	75.8	78.5	80	100*	µg/m ³
PM _{2.5}	30.8	29.1	34.1	30.8	23.7	32.5	30	32.5	27.5	60*	µg/m ³
Ozone (O ₃)	15.8	14.6	16.3	19.1	17.2	18.0	16.3	18	16.3	180**	µg/m ³
Lead (Pb)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	1***	µg/m ³
CO	0.67	0.62	0.63	0.72	0.62	0.67	0.68	0.70	0.62	4**	mg/m ³
Benzene (C ₆ H ₆)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	8***	µg/m ³
Benzopyrene	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	1***	ng/m ³
Arsenic (As)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	8***	ng/m ³
Nickel (Ni)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	BDL(DL-0.2)	20***	ng/m ³
NH ₃	26.3	24.0	25.4	29.6	29.1	27.3	26.8	27.3	26.8	400*	µg/m ³

BDL-Below Detectable Limit (Note # Limits as per National Ambient Air Quality Standards NAAQS,2009)

[*] 24 hour monitoring value; [**] 1 hour monitoring value; [***] Annual monitoring value



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(October 2025 -March 2026)

Results:

Particulate Matter (PM₁₀): Maximum value of PM₁₀ is observed at L&T Site office (AAQ-6) as 89.0 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 69.0 µg /m³ in December 2025.

Particulate Matter (PM_{2.5}): Maximum value of PM_{2.5} is observed at Ulwe Node (AAQ-3) as 34.1 /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 23.7 µg /m³ in December 2025.

Sulphur Dioxide (SO₂): Maximum value of SO₂ is observed at NMIA Project office (AAQ-4) as 28.1 µg /m³ with minimum value observed at Pargaon (AAQ-2) as 21.3 µg /m³ in December 2025.

Oxides of Nitrogen (NO_x): Maximum value of NO₂ is observed at NMIA Project Office (AAQ-4) as 39.5 µg /m³ with minimum value observed at Pargaon (AAQ-2) as 34.5 µg /m³ in December 2025.

Carbon Monoxide (CO): Maximum value for CO is observed at NMIA Project office (AAQ-4) as 0.72 mg/m³ with minimum value observed at Pargaon (AAQ-2) & Kille Gavthan (AAQ-5) as 0.62 mg/m³ in December 2025.

Ozone (O₃): Maximum value for O₃ is observed at NMIA Project office (AAQ-4) as 19.1 µg /m³ with minimum value observed at Pargaon (AAQ-2) as 14.6 µg /m³ in December 2025.

Ammonia (NH₃): Maximum value for NH₃ is observed at NMIA Project office (AAQ-4) as 29.6 µg /m³ with minimum value observed at Paragon (AAQ-2) as 24.0 µg/m³ in December 2025.

All above parameters are observed to be following permissible limits as per NAAQ Standards in December 2025. Also, parameters such as Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(a)Pyrene (BaP) and Benzene (C₆H₆) were found to be within the prescribed limits in December 2025.



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(October 2025 - March 2026)

Table 4-4 Ambient Air Quality monitoring at various stations during January 2026

Sampling Locations	Owale Village	Pargaon	Ulwe Node	PT-1 Passenger Arrival (L0)	Kille Gaothan	PT-1 Passenger Departure (L2)- Near Gate no 3	Diwale Koliwada	Jui	Panvel	Limit #	Unit
Sampling Date		01.01.2026						03.01.2026			
SO ₂	21.3	24.9	22.6	23.6	25.2	20.7	22.3	24.2	25.2	80*	µg/m ³
NO _x	29.6	35.3	33.4	38.6	36.2	33.4	34.1	35.1	37.4	80*	µg/m ³
PM ₁₀	72.6	81.3	76.5	92.2	85.7	92.4	80.7	87.8	84.1	100*	µg/m ³
PM _{2.5}	21.6	27.1	24.2	25	31.3	52.3	31.3	36.2	33.7	60*	µg/m ³
Ozone (O ₃)	15.5	18.3	17.2	17.5	17.8	19.5	17.2	18.1	19.2	180**	µg/m ³
Lead (Pb)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	1***	µg/m ³
CO	0.64	0.73	0.69	0.75	0.77	0.79	0.69	0.72	0.74	4**	mg/m ³
Benzene (C ₆ H ₆)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	8***	µg/m ³
Benzopyrene	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	1***	ng/m ³
Arsenic (As)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	8***	ng/m ³
Nickel (Ni)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	20***	ng/m ³
NH ₃	25.4	29.2	27.3	28.7	30.6	26.8	25.4	27.3	28.7	400*	µg/m ³

BDL - Below Detectable Limit (Note # Limits as per National Ambient Air Quality Standards NAAQS, 2009)

[*] 24 hour monitoring value; [**] 1 hour monitoring value; [***] Annual monitoring value



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(October 2025 - March 2026)

Results

Particulate Matter (PM₁₀): Maximum value of PM₁₀ is observed at PT-1 Passenger Departure (L2)- Near Gate no 3 (AAQ-6) as 92.40 µg /m³ with minimum value observed at Owale (AAQ-1) as 72.60 µg /m³ in January 2026

Particulate Matter (PM_{2.5}): Maximum value of PM_{2.5} is observed at PT-1 Passenger Departure (L2)- Near Gate no 3 (AAQ-6) as 52.30 µg /m³ with minimum value observed at Owale (AAQ-1) as 21.60 µg /m³ in January 2026

Sulphur Dioxide (SO₂): Maximum value of SO₂ is observed at Kille Gavthan (AAQ-5) as 25.20µg /m³ with minimum value observed at PT-1 Passenger Departure (L2)- Near Gate no 3 (AAQ-6) as 20.70 µg /m³ in January 2026

Oxides of Nitrogen (NO_x): Maximum value of SO₂ is observed at PT-1 Passenger Arrival (L0) (AAQ-4) as 38.60 µg /m³ with minimum value observed at Owale (AAQ-1) as 29.60µg /m³ in January 2026

Carbon Monoxide (CO): Maximum value for CO is observed at PT-1 Passenger Arrival (L0) (AAQ-4) as 17.50 mg/m³ with minimum value observed at Owale (AAQ-1) as 0.64 mg/m³ in January 2026

Ozone (O₃): Maximum value for O₃ is observed at PT-1 Passenger Departure (L2)- Near Gate no 3 (AAQ-6) as 19.50 µg /m³ with minimum value observed at PT-1 Passenger Arrival (L0) (AAQ-4) as 0.75 µg /m³ in January 2026

Ammonia (NH₃): Maximum value for NH₃ is observed at Kille Gavthan (AAQ-5) as 30.60 µg /m³ with minimum value observed at Owale (AAQ-1) as 25.40 µg /m³ in January 2026

All above parameters are observed to be following permissible limits as per NAAQ Standards in January 2026

Also, parameters such as Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(a)Pyrene (BaP) and Benzene (C6H6) were found to be within the prescribed limits in January 2026



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(October 2025 - March 2026)

Table 4-5 Ambient Air Quality monitoring at various stations during February 2026

Sampling Locations	Owale Village	Pargaon	Ulwe Node	NMIA Project site	Kille Gaothan	I & T Site Office	Diwale Koliwada	Jul	Panvel	PT-1 MLCP	PT-1 (L2)- Entry up ramp	Limit #	Unit
Sampling Date	09. 02. 2026				10. 02. 2026				11. 02. 2026				
SO ₂	25.1	24.2	28.1	29.0	22.2	27.1	25.1	23.2	26.1	25.5	24.5	80*	µg/m ³
NO _x	38.8	36.7	40.9	40.2	31.5	41.6	35.4	37.4	37.4	39.7	36.2	80*	µg/m ³
PM ₁₀	82.6	87.1	89.0	88.2	79.4	90.7	84.5	81.7	86.6	89.1	85.9	100*	µg/m ³
PM _{2.5}	30.4	31.6	34.1	37.0	27.0	35.8	33.7	35.4	34.5	33.7	35.0	60*	µg/m ³
Ozone (O ₃)	17.5	19.1	20.0	21.1	16.0	19.4	18.3	19.4	18.3	20.3	17.7	180**	µg/m ³
Lead (Pb)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	1***	µg/m ³
CO	0.69	0.75	0.8	0.81	0.6	0.79	0.66	0.69	0.78	0.76	0.72	4**	mg/m ³
Benzene (C ₆ H ₆)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	8***	µg/m ³
Benzopyrene	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	1***	ng/m ³
Arsenic (As)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	8***	ng/m ³
Nickel (Ni)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	20***	ng/m ³
NH ₃	27.7	28.2	30.1	28.7	29.1	29.6	27.7	31.5	29.1	30.1	27.7	400*	µg/m ³

BDL - Below Detectable Limit (Note # Limits as per National Ambient Air Quality Standards NAAQS, 2009)

[*] 24 hour monitoring value; [**] 1 hour monitoring value; [***] Annual monitoring value



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Results:

Particulate Matter (PM₁₀): Maximum value of PM₁₀ is observed at L&T Site Office (AAQ-6) as 90.7 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 79.40 µg /m³ in February 2026

Particulate Matter (PM_{2.5}): Maximum value of PM_{2.5} is observed at NMIA Project office (AAQ-4) as 37.0 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 27.0 µg /m³ in February 2026

Sulphur Dioxide (SO₂): Maximum value of SO₂ is observed at NMIA Project Office (AAQ-4) as 29.0 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 22.2 µg /m³ in February 2026

Oxides of Nitrogen (NO_x): Maximum value of NO_x is observed at L&T Site Office (AAQ-6) as 41.60 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 31.5 µg /m³ in February 2026

Carbon Monoxide (CO): Maximum value for CO is observed at NMIA Project Office (AAQ-4) as 0.81 mg/m³ with minimum value observed at Kille Gavthan (AAQ-5) as 0.60 mg/m³ in February 2026

Ozone (O₃): Maximum value for O₃ is observed at NMIA Project Office (AAQ-4) as 21.1 µg /m³ with minimum value observed at Kille Gavthan (AAQ-5) as 16.0 µg /m³ in February 2026

Ammonia (NH₃): Maximum value for NH₃ is observed at Jui (AAQ-8) as 31.5 µg /m³ with minimum value observed at Diwale Koliwada (AAQ-7) as 27.7 µg /m³ in February 2026

All above parameters are observed to be following permissible limits as per NAAQ Standards in February 2026

Also, parameters such as Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(a)Pyrene (BaP) and Benzene (C₆H₆) were found to be within the prescribed limits in February 2026

Also, parameters such as Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(a)Pyrene (BaP) and Benzene (C₆H₆) were found to be within the prescribed limits in February 2026.



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(October 2025 -March 2026)

Table 4-6 Ambient Air Quality monitoring at various stations during March 2026

Sampling Locations	Owale Village	Pargaon	NMIA Project site	Kille Gavthan	Diwale Koliwada	Panvel	Solid waste Facility East	Limit #	Unit
Sampling Date	18.03.2026	17.03.2026	16.03.2026				17.03.2026		
SO ₂	22.6	23.3	27.8	25.2	25.8	26.8	26.8	80*	µg/m ³
NO _x	31.8	35.0	41.2	32.9	38.5	40.5	38.8	80*	µg/m ³
PM ₁₀	77.2	83.7	86.6	82.6	87.2	85.3	89.2	100*	µg/m ³
PM _{2.5}	28.8	31.7	34.2	30.8	28.3	36.7	37.5	60*	µg/m ³
Ozone (O ₃)	18.6	17.2	19.8	20.0	21.7	21.2	20.6	180* *	µg/m ³
Lead (Pb)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	1*	µg/m ³
CO	0.70	0.73	0.85	0.66	0.75	0.79	0.81	4**	mg/m ³
Benzene (C ₆ H ₆)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	5***	µg/m ³
Benzopyrene	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	BDL (DL-0.5)	1***	ng/m ³
Arsenic (As)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	6***	ng/m ³
Nickel (Ni)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	BDL (DL-0.2)	20***	ng/m ³
NH ₃	28.2	26.8	29.6	31.4	30.0	29.6	28.6	400*	µg/m ³

BDL-Below Detectable Limit (Note # Limits as per National Ambient Air Quality Standards NAAQS,2009)

[*] 24 hour monitoring value; [**] 1 hour monitoring value; [***] Annual monitoring value



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(October 2025 - March 2026)

Results:

Particulate Matter (PM₁₀): Maximum value of PM₁₀ is observed at Diwale Koliwada (AAQ-7) as 87.2 µg /m³ with minimum value observed at Owale (AAQ-1) as 77.2 µg /m³ in March 2026.

Particulate Matter (PM_{2.5}): Maximum value of PM_{2.5} is observed at Panvel (AAQ-9) as 36.7 µg /m³ with minimum value observed at Diwale Koliwada (AAQ-7) as 28.3 µg /m³ in March 2026.

Sulphur Dioxide (SO₂): Maximum value of SO₂ is observed at NMIA Project office (AAQ-4) as 27.8 µg /m³ with minimum value observed at Owale (AAQ-2) as 22.6 µg /m³ in March 2026.

Oxides of Nitrogen (NO_x): Maximum value of NO_x is observed at NMIA Project Office (AAQ-4) as 41.2 µg /m³ with minimum value observed at Owale (AAQ-1) as 31.8 µg /m³ in March 2026.

Carbon Monoxide (CO): Maximum value for CO is observed at NMIA Project office (AAQ-4) as 0.85 mg/m³ with minimum value observed at Kille Gavthan (AAQ-5) as 0.66 mg/m³ in March 2026.

Ozone (O₃): Maximum value for O₃ is observed at NMIA Project office (AAQ-7) as 21.7 µg /m³ with minimum value observed at Pargaon (AAQ-2) as 17.2 µg /m³ in March 2026.

Ammonia (NH₃): Maximum value for NH₃ is observed at Kille Gavthan (AAQ-5) as 31.4 µg /m³ with minimum value observed at Pargaon (AAQ-2) as 26.8 µg/m³ in March 2026.

All above parameters are observed to be following permissible limits as per NAAQ Standards in March 2026.

Also, parameters such as Lead (Pb), Arsenic (As), Nickel (Ni), Benzo(a)Pyrene (BaP) and Benzene (C6H6) were found to be within the prescribed limits in March 2026.



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4.1.2 Inference of AAQM Data

The concentration of Particulate Matter – 10 μ (PM₁₀) was observed in range of 41.5 – 93.4 $\mu\text{g}/\text{m}^3$ and level of Particulate Matter - 2.5 μ (PM 2.5) were noted ranged from 11.6 to 38.7 $\mu\text{g}/\text{m}^3$. PM10 and PM 2.5 are under limits as per NAAQ Standards. Gaseous pollutants - Nitrogen Oxide, Sulfur Dioxide, Carbon Monoxide, Ozone and Ammonia are under NAAQS norms during collection period during October 2025 to March 2026 (Refer Tables 4.1 to 4.6 above) Lead, Benzopyrene, Arsenic, Nickel were found below detectable level.

4.2 AMBIENT NOISE LEVEL MONITORING REPORT

4.2.1 Noise Level Data

Ambient Noise level was monitored over 24 hours' duration for Day and Nighttime as per Schedule - II of Environmental Protection Act 1986 for Industrial, Commercial, Residential and Sensitive Area (Refer Table 2.3).

Results of analysis are compiled below:

Table 4-7 Ambient Noise Level monitoring during October 2025 –March 2026

Stn Code	Sampling Location	Sampling Date	Observed Value (Leq) (dB(A))						Limiting Standard (Leq) as per EP Act Schedule II. dB(A)	
			Day Time			Nighttime				
			Max	Min	Avg	Max	Min	Avg	Day Time	Nighttime
N1	Owale	14.10.2025	54.0	46.2	51.2	44.4	41.2	43.3	55	45
N2	Pargaon		54.9	46.2	52.8	44.1	40.5	42.3	55	45
N3	Ulwe Node		54.3	46.1	51.0	44.1	41.8	43.0	55	45
N4	Karanjade		54.8	48.3	50.2	44.7	42.1	43.7	55	45
N5	NMIA Project Site	16.10.2025	63.9	52.8	57.3	53.6	50.3	52.1	75	70
N7	Kille Gavthan		54.8	45.0	50.7	44.8	42.3	43.8	55	45
N4	L&T Site Office		62.8	53.6	57.7	54.9	53.2	53.9	75	70
N8	Diwale Koliwada	15.10.2025	54.8	48.3	52.4	44.7	42.3	43.9	55	45
N9	Jui		54.6	45.8	51.2	44.7	43.2	44.1	55	45
N10	Panvel		54.8	47.3	52.3	44.8	40.2	42.8	55	45
N1	Owale	10.11.2025	55.5	50.2	53.0	43.8	40.5	41.9	55	45
N2	Pargaon		55.9	51.5	53.9	44.3	40.7	42.3	55	45
N3	Ulwe Node		55.4	49.5	53.2	46.9	40.2	42.2	55	45
N4	Karanjade		54.7	51.0	53.5	43.5	40.6	42.1	55	45

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(October 2025 - March 2026)

Stn Code	Sampling Location	Sampling Date	Observed Value (Leq) (dB(A))						Limiting Standard (Leq) as per EP Act Schedule II. dB(A)	
			Day Time			Nighttime				
			Max	Min	Avg	Max	Min	Avg	Day Time	Nighttime
N5	NMIA Project Site	11.11.2025	60.5	51.5	55.4	53.1	50.5	51.3	75	70
N6	Kille Gavthan		55.7	46.2	51.5	44.1	40.2	41.8	55	45
N7	L&T Site Office		63.4	53.1	56.3	53.1	50.5	51.7	75	70
N8	Diwale Koliwada	12.11.2025	55.7	46.5	51.6	42.5	40.1	41.5	55	45
N9	Jui		56.9	49.1	53.8	43.5	40.5	42.3	55	45
N10	Panvel		55.8	46.3	52.4	45.2	40.5	42.2	55	45
N1	Owale	15.12.2025	55.3	50.1	52.9	45.1	40.2	41.8	55	45
N2	Pargaon		55.8	51.4	53.8	45.1	40.3	42.0	55	45
N3	Ulwe Node		54.6	51.3	53.3	43.9	40.1	41.3	55	45
N4	Karanjade		55.2	50.4	53.1	44.8	40.3	42.2	55	45
N4	NMIA Project Site	16.12.2025	59.8	52.5	55.5	54.1	49.1	51.2	75	70
N5	Kille Gavthan		55.1	46.3	51.5	44.5	40.1	42.1	55	45
N6	L&T Site Office		62.8	53.2	56.4	51.3	50.1	51.3	75	70
N8	Diwale Koliwada	16. 12.2025	55.1	47.2	51.5	43.1	40.1	41.6	55	45
N9	Jui		56.2	50.1	53.2	43.5	40.2	41.5	55	45
N10	Panvel		55.2	46.1	52.3	44.1	40.2	42.0	55	45
N1	Owale	01.01.2026	55.6	39.5	49.1	32.4	39.4	35.5	55	45
N2	Pargaon		54.8	51.1	53.0	44.4	41.5	42.8	55	45
N3	Ulwe Node		54.8	49.7	52.2	46.1	41.6	43.9	55	45
N4	Karanjade		55.1	44.8	52.0	43.9	40.4	41.7	55	45
N5	PT – 1 Passenger Arrival	05.01.2026	73.7	63.6	69.9	71.3	67.8	69.8	75	70
N6	Kille Gavthan		54.8	44.6	50.6	44.3	40.5	42.5	55	45
N7	PT – 1 Passenger Departure		66.6	74.7	70.9	69	66.2	67.6	75	70
N8	Diwale Koliwada	03.01.2026	57.2	43.6	51.3	46.4	39.3	42.0	55	45
N9	Jui		56.1	43.4	50.5	46.6	40.2	43.0	55	45
N10	Panvel		57.0	47.4	52.7	45.6	42.0	43.7	55	45
N1	Owale	09.02.2026	55.6	40.2	49.8	39.7	34.3	36.4	55	45
N2	Pargaon		47.3	56.8	52.7	44.3	39.4	41.8	55	45
N3	Ulwe Node		58.1	47.9	53.9	49.2	41.4	43.8	55	45
N4	Karanjade		57.1	48.3	53.8	44	41.3	42.7	55	45
N5	PT – 1 Passenger Departure	10.02.2026	70.0	50.8	57.7	51.3	48.7	49.7	75	70
N6	Kille Gavthan		57.1	49.4	53.6	48.1	41.9	44.4	55	45

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(October 2025 - March 2026)

Stn Code	Sampling Location	Sampling Date	Observed Value (Leq) (dB(A))						Limiting Standard (Leq) as per EP Act Schedule II. dB(A)	
			Day Time			Nighttime			Day Time	Nighttime
			Max	Min	Avg	Max	Min	Avg		
N7	L&T Site Office	11.02.2026	64.9	55.1	56.8	55.1	54.8	54.9	75	70
N8	Diwale Koliwada		57.4	45.1	51.0	44.1	40.0	41.9	55	45
N9	Jui		57.8	42.5	50.8	46.3	40.5	43.6	55	45
N10	Panvel		58.3	33.6	53.3	45.8	41.5	43.3	55	45
N1	Owale	18.03.2026	56.8	45.8	52.9	45.7	39.3	42.4	55	45
N2	Pargaon		50.5	51.8	45.6	39.5	34.2	37.7	55	45
N4	Karanjade	17.03.2026	55.8	42.8	51.3	43.2	40.6	41.6	55	45
N5	NMIA Project site	17.03.2026	63.0	57.9	61.0	59.9	50.8	56.0	75	70
N6	Kille Gaothan	16.03.2026	55.5	43.3	51.1	44.9	40.5	42.1	55	45
N8	Diwale Koliwada		56.5	44.6	51.6	42.2	36.5	39.9	55	45
N10	Panvel		55.3	47.7	53.3	46.3	41.8	43.3	55	45
N13	Solid Waste Facility	17.03.2026	59.1	45.4	53.1	58.3	44.0	51.7	75	70

4.2.2 Inference of Noise Data

During daytime, the average Noise level was observed in the range of 45.6- 70.9 dB(A) & Nighttime levels were observed at 35.5 – 69.8 dB(A) during sampling period. Following observations are made about average Noise levels in the monitoring carried out in different months:

- In October 2025 average Noise level during daytime and night time is under the Limit of Standard (Leq) as per EP Act Schedule II.
- In November 2025 average Noise level during daytime and night time is under the Limit of Standard (Leq) as per EP Act Schedule II.
- In December 2025 average Noise level during daytime and night time is under the Limit of Standard (Leq) as per EP Act Schedule II.
- In January 2026 average Noise level during daytime and nighttime were under the Limit of Standard (Leq) as per EP Act Schedule II.
- In February 2026 average Noise level during daytime and nighttime were under the Limit of Standard (Leq) as per EP Act Schedule II.
- In March 2026 average Noise level during night time and nighttime noise level were under the Limit of Standard (Leq) as per EP Act Schedule II.

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4.3 SOIL QUALITY MONITORING REPORT

4.3.1 Soil Analysis Data (December 2025 and March 2026)

Data on soil analysis is compiled and presented below for the sampling period:



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(October 2025 - March 2026)

Table 4-8 Soil analysis of various stations in study area during December 2025

Sr. No.	Locations	Chinchpada	Koli	Kopar	Ulwe	NMIA Project site	Pargaon	Owale	Unit
15.12.2025 to 16.12.2025									
1.	pH	7.11	7.12	7.52	7.64	7.98	7.47	8.52	--
2.	Coarse sand	18	19	19	18	17	16	17	
3.	Clay	40	37	38	38	39	36	40	%
	Silt	20	24	18	24	19	25	16	
4.	Fine Sand	22	20	20	20	25	23	27	%
	Class	Clay	Clay	Clay	Clay	Clay	Clay	Clay	
5.	Conductivity	337.6	277.8	71.26	326.2	390.4	223.4	290.8	µS/cm
6.	Organic Carbon	0.34	0.83	0.55	0.62	0.40	0.42	0.19	%
7.	Available Nitrogen	0.011	0.012	0.012	0.019	0.014	0.019	0.018	%
8.	Available Phosphorus	76	85	76	86	86	87	97	kg/ha
9.	Available Potassium	28	25	29	25.5	28	34	32.7	kg/ha
10.	Chloride	23	22	21.6	23	21.3	20	16.9	mg/kg
11.	Sulphate as SO ₄	34.3	19.3	26.8	29.5	36.5	32.1	24.8	mg/kg
12.	Calcium as Ca	14.6	10.4	10.6	10.2	11.2	12.6	8.2	meq/l
13.	Magnesium as Mg	70	60	70	60	60	60	60	meq/l
14.	Sodium as Na	60	50	60	50	50	50	50	kg/ha
15.	Manganese as Mn	0.08	1.04	<0.02	1.10	2.18	1.20	1.12	mg/kg
16.	Copper as Cu	1.00	0.04	0.24	1.05	1.02	0.90	1.12	mg/kg
17.	Cadmium as Cd	0.22	0.06	0.42	0.28	0.14	0.24	0.24	mg/kg



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(October 2025 - March 2026)

Sr. No.	Locations	Chinchpada	Koli	Kopar	Ulwe	NMIA Project site	Kombadbhuje	Pargaon	Owale	Unit
	Sampling Date	15.12.2025 to 16.12.2025								
18.	Cobalt as Co	< 0.02	0.32	1.18	< 0.02	0.14	0.26	0.28	0.12	mg/kg
19.	Zinc as Zn	1.20	1.24	1.51	3.48	2.20	1.88	2.00	2.20	mg/kg
20.	Nickel as Ni	0.06	1.38	1.60	0.84	1.11	1.12	0.04	1.00	mg/kg
21.	Aluminium as Al	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/kg
22.	Arsenic as As	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/kg
23.	Mercury as Hg	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/kg
24.	Chromium as Cr	2.00	0.18	1.62	3.01	2.32	2.16	1.68	2.10	mg/kg
25.	Iron as Fe	3.12	2.48	3.21	3.58	2.48	3.00	2.12	3.00	mg/kg
26.	Lead as Pb	0.14	0.14	0.12	0.20	0.04	0.16	0.12	0.05	mg/kg



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4.3.2 Soil Data Inference during December 2025:

It has been observed that the pH of the soil ranged from 7.11 to 8.52 indicating that the soils are Acidic to Alkaline in nature. The soil in the study area is mostly clay. The observed electrical conductivity ranged from 71.26 $\mu\text{S}/\text{cm}$ to 390.4 $\mu\text{S}/\text{cm}$.

The nitrogen concentrations are in the range of 0.011 % to 0.019 %. The phosphorous concentrations are in the range of 76 to 97 kg/ha. indicating that soils have medium of phosphorus. The very less phosphorus recorded at NIMA project site; medium at Chinchpada; on an average sufficient at Kopar and Owale; Sufficient at Owale, Pargaon and Koli; and more than sufficient Phosphorus at Kombadbhuje.

The potassium concentrations range between 22 kg/ha to 34 kg/ha which indicate that the soils have very less quantity of potassium at all sampling locations.

Source: Standard soil classification as per Handbook of Agriculture, Indian Council of Agricultural Research.



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(October 2025 - March 2026)

Table 4-9 Soil analysis of various stations in study area during March 2026

Sr. No.	Locations	Sampling Date	Chinchpada	Koli	Kopar	Ulwe	NMIA Project site	Kombadhuje	Pargaan	Owale	Unit
1.	pH	7.29	7.26	6.39	7.65	7.47	7.70	7.70	7.70	7.72	--
	Coarse sand	14	14	19	22	20	18	14	16		
2.	Texture	54	56	51	42	40	38	56	52		%
	Silt	16	16	18	16	18	16	18	14		
	Fine Sand	16	14	12	20	22	28	12	18		
3.	Class	Clay	Clay	Clay	Clay	Clay	Clay	Clay	Clay		
4.	Conductivity	472.7	250.2	309.7	289.9	403.8	225.4	351.6	497.5		µS/cm
5.	Organic Carbon	0.62	0.17	0.89	0.21	0.6	0.40	0.25	0.28		%
6.	Available Nitrogen	0.014	0.010	0.012	0.018	0.014	0.014	0.019	0.018		%
7.	Available Phosphorus	86	92	85	97	98	95	86	94		kg/ha
8.	Available Potassium	35.45	28.36	43.96	29.07	21.98	21.27	35.45	49.63		kg/ha
9.	Chloride	24.6	18	22	22	18	18	20	14		mg/kg
10.	Sulphate as SO ₄	50.8	60.1	33.2	53.4	50	43.4	54.5	41.1		mg/kg
11.	Calcium as Ca	9.0	10.2	6.6	7.0	13.4	15.6	14.9	9.5		meq/l
12.	Magnesium as Mg	60	30	70	40	50	60	50	40		meq/l
13.	Sodium as Na	70	70	60	70	60	60	60	80		kg/ha



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(October 2025 - March 2026)

Sr. No.	Locations Sampling Date	Chinchpada	Koli	Kopar	Ulwe	NMIA Project site 19.03.2026	Kombadbuje	Pargaon	Owale	Unit
14.	Manganese as Mn	0.54	0.12	< 0.02	0.48	1.10	1.24	1.42	0.24	mg/kg
15.	Copper as Cu	1.28	0.21	0.22	0.88	0.80	1.24	0.36	0.28	mg/kg
16.	Cadmium as Cd	0.28	0.18	0.24	0.18	< 0.02	0.28	0.12	0.22	mg/kg
17.	Cobalt as Co	0.14	0.26	0.24	0.08	0.18	0.14	0.04	0.08	mg/kg
18.	Zinc as Zn	2.54	3.24	3.48	3.8	2.40	2.80	2.84	3.21	mg/kg
19.	Nickel as Ni	0.56	0.84	0.65	< 0.02	1.40	0.80	0.02	0.88	mg/kg
20.	Aluminium as Al	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/kg
21.	Arsenic as As	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/kg
22.	Mercury as Hg	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	mg/kg
23.	Chromium as Cr	1.20	0.68	1.48	1.24	1.58	1.80	1.72	1.24	mg/kg
24.	Iron as Fe	4.54	4.22	4.58	4.58	3.80	4.2	2.48	5.20	mg/kg
25.	Lead as Pb	0.04	< 0.02	0.10	< 0.02	< 0.02	0.04	0.04	< 0.02	mg/kg



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4.3.3 Soil Data Inference during March 2026

It has been observed that the pH of the soil ranged from 6.39 to 7.72 indicating that the soils are Moderately acidic to alkaline nature of soil. The soil in the study area is mostly clay. The electrical conductivity was observed to be in the range of 225.4 to 546.4 $\mu\text{S}/\text{cm}$.

The nitrogen concentrations are in the range of 0.010% to 0.019%. The phosphorous concentrations are in the range of 85 kg/ha to 98 kg/ha. The phosphorus concentration is indicating that soils have medium of phosphorus.

The potassium concentrations range between 21.27 kg/ha to 49.63 kg/ha, which indicates that the soils have very less quantity of potassium.

Source: Standard soil classification as per Handbook of Agriculture, Indian Council of Agricultural Research.



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(October 2025 -March 2026)

4.4 GROUND WATER QUALITY ANALYSIS REPORT**4.4.1 GW Analysis Data during October 2025**

Ground water samples were collected in October 2025.

Table 4-10 Ground water analysis at various stations during October 2025

Sr. No.	Sampling Locations	Unit	Kille Gaothan	Ulwe	Pargaon	Jui	Panvel
	Sampling month		14.10.2025				
1.	Colour	Hazen	5.0	5.0	< 5.0	5.0	< 5.0
2.	pH	--	7.2	7.0	7.0	7.0	7.0
3.	Total Dissolved Solids	mg/l	660	220	90	260	340
4.	Ammonia (as N)	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5.	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6.	Calcium as Ca	mg/l	32	24	14.4	28.8	48
7.	Chlorides	mg/l	180	45	22	64	72
8.	Fluoride	mg/l	0.32	0.34	0.32	0.32	0.34
9.	Iron	mg/l	0.04	0.034	0.034	0.03	0.04
10.	Magnesium as Mg	mg/l	53.5	4.4	4.9	13.6	18
11.	Sulphate	mg/l	95	25	8.2	52	60
12.	Alkalinity	mg/l	250	126	48	92	150
13.	Hardness	mg/l	300	78	56	128	194
14.	Odour	mg/l	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15.	Turbidity	--	<1.0	<1.0	<1.0	<1.0	<1.0
16.	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4	0.4
17.	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
18.	Detergents	mg/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
19.	Arsenic	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
20.	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
21.	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22.	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
23.	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
24.	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
25.	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26.	Selenium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
27.	Lead	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
28.	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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(October 2025 - March 2026)

Sr. No.	Sampling Locations	Unit	Kille Gaothan	Ulwe	Pargaon	Jui	Panvel
	Sampling month		14.10.2025				
29.	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
30.	Cadmium	mg/l	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
31.	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
32.	Sulphide	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
33.	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
34.	Chloramines	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0
35.	Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
36.	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
37.	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
38.	Alachlor	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
39.	Atrazine	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
40.	Aldrin	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
41.	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
42.	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
43.	Butachlor	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
44.	Chloropyrifos	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
45.	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
46.	DDT	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
47.	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
48.	Ethion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
49.	Lindane	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
50.	Malathion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
51.	Methyl parathion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
52.	Manocrotophos	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
53.	Phorate	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
54.	Coliforms	MPN/100ml	>1600	>1600	>1600	>1600	>1600
55.	E-Coli	MPN/100 ml	Present	Present	Present	Present	Present

4.4.2 GW Analysis Inference:

Analysis results indicate pH ranges from 7.0 to 7.2 and is observed to be within desirable limit of 6.5 to 8.5. Total hardness is in the range of 56 to 300 mg/l and is observed to be within permissible limit

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of 600 mg/l at all locations. Iron concentration is found to be in the range of 0.03 to 0.04 mg/l and is observed to be within desirable limit of 1.0 mg/l at all locations.

Chlorides concentration is in the range of 22 to 180 mg/l and is observed to be within desirable limit of 250 mg/l at all locations. Fluoride concentration is in the range 0.32 to 0.34 mg/l and is observed to be within desirable limit of 1.5 mg/l at all locations. Total Dissolved Solids are in the range of 90 to 660 mg/l, and is observed to be within desirable limit of 500 mg/l at all locations except at Kille Gaothan and are also within the permissible limit of 2000 mg/l.

The ground water samples collected from all locations and are analyzed for physical, chemical and biological parameters. The chemical and physical characteristics of the analyzed ground water samples show that the samples are potable as per IS 10500-RA2018. The biological characteristics of the analyzed ground water samples show that the samples are not potable as per IS 10500-RA2018.

4.4.3 GW Analysis Data during November 2025

Ground water samples were collected in November 2025.

Table 4-11 Ground water analysis at various stations during November 2025

Sr. No.	Sampling Locations	Unit	Owale	Dapoli
	Sampling month		10.11.2025	
1.	Colour	Hazen	<5.0	5.0
2.	pH	--	6.8	6.8
3.	Total Dissolved Solids	mg/l	440	570
4.	Ammonia (as N)	mg/l	< 0.2	< 0.2
5.	Boron	mg/l	< 0.05	< 0.05
6.	Calcium as Ca	mg/l	20.8	31.2
7.	Chlorides	mg/l	92	98
8.	Fluoride	mg/l	0.32	0.34
9.	Iron	mg/l	0.034	0.034
10.	Magnesium as Mg	mg/l	62.2	67.6
11.	Sulphate	mg/l	87	92
12.	Alkalinity	mg/l	220	364
13.	Hardness	mg/l	308	356
14.	Odour	mg/l	Agreeable	Agreeable
15.	Turbidity	NTU	<1.0	<1.0
16.	Free Residual Chlorine	mg/l	0.4	0.4

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Sr. No.	Sampling Locations	Unit	Owale	Dapoli
	Sampling month		10.11.2025	
17.	Aluminium	mg/l	< 0.01	< 0.01
18.	Detergents	mg/l	< 0.04	< 0.04
19.	Arsenic	mg/l	< 0.005	< 0.005
20.	Barium	mg/l	< 0.01	< 0.01
21.	Copper	mg/l	< 0.01	< 0.01
22.	Manganese	mg/l	< 0.01	< 0.01
23.	Chromium	mg/l	< 0.01	< 0.01
24.	Zinc	mg/l	< 0.01	< 0.01
25.	Nitrate	mg/l	< 0.5	< 0.5
26.	Selenium	mg/l	< 0.005	< 0.005
27.	Lead	mg/l	< 0.005	< 0.005
28.	Molybdenum	mg/l	< 0.01	< 0.01
29.	Nickel	mg/l	< 0.01	< 0.01
30.	Cadmium	mg/l	< 0.001	< 0.001
31.	Phenolic compounds	mg/l	< 0.001	< 0.001
32.	Sulphide	mg/l	< 0.02	< 0.02
33.	Mercury	mg/l	< 0.001	< 0.001
34.	Chloramines	mg/l	< 2.0	< 2.0
35.	Silver	mg/l	< 0.01	< 0.01
36.	Cyanide	mg/l	< 0.05	< 0.05
37.	Polynuclear Aromatic Hydrocarbons	mg/l	< 0.025	< 0.025
38.	Alachlor	mg/l	< 0.5	< 0.5
39.	Atrazine	µg/l	< 0.5	< 0.5
40.	Aldrin	µg/l	< 0.01	< 0.01
41.	Alpha HCH	µg/l	< 0.01	< 0.01
42.	Beta HCH	µg/l	< 0.01	< 0.01
43.	Butachlor	µg/l	< 5.0	< 5.0
44.	Chloropyriphos	µg/l	< 0.05	< 0.05
45.	Delta HCH	µg/l	< 0.01	< 0.01
46.	DDT	µg/l	< 0.01	< 0.01
47.	Endosulphan	µg/l	< 0.01	< 0.01
48.	Ethion	µg/l	< 0.05	< 0.05
49.	Lindane	µg/l	< 0.01	< 0.01
50.	Malathion	µg/l	< 0.05	< 0.05
51.	Methyl parathion	µg/l	< 0.01	< 0.01

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Sr. No.	Sampling Locations	Unit	Owale	Dapoli
	Sampling month		10.11.2025	
52.	Manocrotophos	µg/l	< 0.5	< 0.5
53.	Phorate	µg/l	< 0.5	< 0.5
54.	Coliforms	MPN/100ml	>1600	>1600
55.	E-Coli	MPN/100 ml	Present	Present

4.4.4 GW Analysis Inference:

Analysis results indicate pH range 6.8 and is observed to be within desirable limit of 6.5 to 8.5. Total hardness is in the range of 308 to 356 mg/l and is observed to be within permissible limit of 600 mg/l at all locations. Iron concentration is found to be in the range 0.034 mg/l and is observed to be within desirable limit of 1.0 mg/l at all locations.

Chlorides concentration is in the range of 92 to 98 mg/l and is observed to be within desirable limit of 250 mg/l at all locations. Fluoride concentration is in the range 0.32 to 0.34 mg/l and is observed to be within desirable limit of 1.5 mg/l at all locations. Total Dissolved Solids are in the range of 440 to 570 mg/l, and is observed to be within desirable limit of 500 mg/l at Owale and exceeds its limit at Dapoli and are also within the permissible limit of 2000 mg/l.

The ground water samples collected from all locations and are analyzed for physical, chemical and biological parameters. The chemical and physical characteristics of the analyzed ground water samples show that the samples are potable as per IS 10500-RA2018. The biological characteristics of the analyzed ground water samples show that the samples are not potable as per IS 10500-RA2018.

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4.4.5 GW Analysis Data during December 2025

Ground water samples were collected in December 2025.

Table 4-12 Ground water analysis at various stations during December 2025

Sr. No.	Sampling Locations	Unit	Kille Gavthan	Ulwe	Pargaon	Jui	Panvel
	Sampling month		15.12.2026			16.12.2026	17.12.2026
1.	Colour	Hazen	5.0	5.0	5.0	5.0	5.0
2.	pH	--	7.2	7.7	7.3	6.8	7.2
3.	Total Dissolved Solids	mg/l	760	190	450	270	360
4.	Ammonia (as N)	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5.	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6.	Calcium as Ca	mg/l	44	16	60	28	56
7.	Chlorides	mg/l	245	32	65	44	68
8.	Fluoride	mg/l	0.34	0.32	0.32	0.32	0.34
9.	Iron	mg/l	0.038	0.034	0.04	0.032	0.036
10.	Magnesium as Mg	mg/l	60	11.7	17	14.6	17.5
11.	Sulphate	mg/l	120	28	80	48	60
12.	Alkalinity	mg/l	190	104	240	136	210
13.	Hardness	mg/l	356	88	218	130	212
14.	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15.	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4	0.4
16.	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0
17.	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
18.	Detergents	mg/l	<0.04	< 0.04	< 0.04	< 0.04	< 0.04
19.	Arsenic	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
20.	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
21.	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22.	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
23.	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
24.	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
25.	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26.	Selenium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
27.	Lead	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
28.	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
29.	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
30.	Cadmium	mg/l	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
31.	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
32.	Sulphide	mg/l	< 0.02	< 0.05	< 0.02	< 0.05	< 0.02

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Sr. No.	Sampling Locations	Unit	Kille Gavthan	Ulwe	Pargaon	Jui	Panvel
	Sampling month		15.12.2026			16.12.2026	17.12.2026
33.	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
34.	Chloramines	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0
35.	Mneral Oil	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5
36.	Silver	mg/l	< 0.01	< 0.1	< 0.01	< 0.1	< 0.01
37.	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
38.	Polynuclear Aromatic Hydrocarbons	mg/l	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
39.	Alachlor	mg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
40.	Atrazine	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
41.	Aldrin	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
42.	Alpha HCH	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
43.	Beta HCH	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
44.	Butachlor	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
45.	Chloropyriphos	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
46.	Delta HCH	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
47.	DDT	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
48.	Endosulphan	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
49.	Ethion	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
50.	Lindane	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
51.	Malathion	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
52.	Methyl parathion	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
53.	Manocrotophos	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
54.	Phorate	µg/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
55.	Coliforms	MPN/100ml	>1600	>1600	>1600	>1600	>1600
56.	E-Coli	MPN/100 ml	Present	Present	Present	Present	Present

4.4.6 GW Analysis Inference:

Analysis results indicate pH ranges from 6.8 to 7.7 and is observed to be within desirable limit of 6.5 to 8.5. Total hardness is in the range of 60 to 356 mg/l and is observed to be within permissible limit of 600 mg/l at all locations. Iron concentration is found to be in the range of 0.03 to 0.04 mg/l and is observed to be within desirable limit of 1.0 mg/l at all locations.

Chlorides concentration is in the range of 32 to 245 mg/l and is observed to be within desirable limit of 250 mg/l at all locations. Fluoride concentration is in the range 0.32 to 0.34 mg/l and is observed to be within desirable limit of 1.5 mg/l at all locations. Total Dissolved Solids are in the range of 190

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to 760 mg/l, and is observed to be within desirable limit of 500 mg/l at all locations except at Kille Gaothan and are also within the permissible limit of 2000 mg/l.

The ground water samples collected from all locations and are analyzed for physical, chemical and biological parameters. The chemical and physical characteristics of the analyzed ground water samples show that the samples are potable as per IS 10500-RA2018. The biological characteristics of the analyzed ground water samples show that the samples are not potable as per IS 10500-RA2018.



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4.4.7 GW Analysis Data during January 2026

Ground water samples were collected in January 2026.

Table 4-13 Ground water analysis at various stations during January 2026

Sr. No.	Sampling Locations	Unit	Owale	Dapoli
	Sampling month		01.01.2026	
1.	Colour	Hazen	5.0	5.0
2.	pH	--	7.3	7.2
3.	Total Dissolved Solids	--	420	400
4.	Ammonia (as N)	NTU	< 0.2	< 0.2
5.	Boron	mg/l	< 0.05	< 0.05
6.	Calcium as Ca	mg/l	28.8	54.4
7.	Chlorides	mg/l	62	42
8.	Fluoride	mg/l	0.34	0.36
9.	Iron	mg/l	0.034	0.032
10.	Magnesium as Mg	mg/l	49.6	38.4
11.	Sulphate	mg/l	95	80
12.	Alkalinity	mg/l	256	330
13.	Hardness	mg/l	276	294
14.	Odour	--	Agreeable	Agreeable
15.	Turbidity	NTU	<1.0	<1.0
16.	Free Residual Chlorine	mg/l	0.4	0.4
17.	Aluminium	mg/l	< 0.01	< 0.01
18.	Detergents	mg/l	< 0.04	< 0.04
19.	Arsenic	mg/l	< 0.005	< 0.005
20.	Barium	mg/l	< 0.01	< 0.01
21.	Copper	mg/l	< 0.01	< 0.01
22.	Manganese	mg/l	< 0.01	< 0.01
23.	Chromium	mg/l	< 0.01	< 0.01
24.	Zinc	mg/l	< 0.01	< 0.01
25.	Nitrate	mg/l	< 0.5	< 0.5
26.	Selenium	mg/l	< 0.005	< 0.005
27.	Lead	mg/l	< 0.005	< 0.005
28.	Molybdenum	mg/l	< 0.01	< 0.01
29.	Nickel	mg/l	< 0.01	< 0.01
30.	Cadmium	mg/l	< 0.001	< 0.001
31.	Phenolic compounds	mg/l	< 0.001	< 0.001


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Sr. No.	Sampling Locations	Unit	Owale	Dapoli
	Sampling month		01.01.2026	
32.	Sulphide	mg/l	< 0.02	< 0.02
33.	Mercury	mg/l	< 0.001	< 0.001
34.	Chloramines	mg/l	<2.0	<2.0
35.	Silver	mg/l	< 0.01	< 0.01
36.	Cyanide	mg/l	< 0.05	< 0.05
37.	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025
38.	Alachlor	mg/l	< 0.5	< 0.5
39.	Atrazine	µg/l	< 0.5	< 0.5
40.	Aldrin	µg/l	< 0.01	< 0.01
41.	Alpha HCH	µg/l	< 0.01	< 0.01
42.	Beta HCH	µg/l	< 0.01	< 0.01
43.	Butachlor	µg/l	< 5.0	< 5.0
44.	Chloropyriphos	µg/l	< 0.05	< 0.05
45.	Delta HCH	µg/l	< 0.01	< 0.01
46.	DDT	µg/l	< 0.01	< 0.01
47.	Endosulphan	µg/l	< 0.01	< 0.01
48.	Ethion	µg/l	< 0.05	< 0.05
49.	Lindane	µg/l	< 0.01	< 0.01
50.	Malathion	µg/l	< 0.05	< 0.05
51.	Methyl parathion	µg/l	< 0.01	< 0.01
52.	Manocrotophos	µg/l	< 0.5	< 0.5
53.	Phorate	µg/l	< 0.5	< 0.5
54.	Coliforms	MPN/100ml	>1600	>1600
55.	E-Coli	MPN/100 ml	Present	Present

4.4.8 GW Analysis Inference:

Analysis results indicate pH range 7.2 to 7.3 and is observed to be within desirable limit of 6.5 to 8.5. Total hardness is in the range of 276 to 294 mg/l and is observed to be within permissible limit of 600 mg/l at all locations. Iron concentration is found to be in the range of 0.034 to 0.036mg/l and is observed to be within desirable limit of 1.0 mg/l at all locations.

Chlorides concentration is in the range of 42 to 62 mg/l and is observed to be within desirable limit of 250 mg/l at all locations. Fluoride concentration is in the range 0.34 to 0.36 mg/l and is observed to be within desirable limit of 1.5 mg/l at all locations. Total Dissolved Solids are in the range of 400



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to 420 mg/l, and is observed to be within desirable limit of 500 mg/l at all locations and are also within the permissible limit of 2000 mg/l.

The ground water samples collected from all locations and are analyzed for physical, chemical and biological parameters. The chemical and physical characteristics of the analyzed ground water samples show that the samples are potable as per IS 10500-RA2018. The biological characteristics of the analyzed ground water samples show that the samples are not potable as per IS 10500-RA2018.



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4.4.9 GW Analysis Data during February 2026

Ground water samples were collected in February 2026.

Table 4-14 Ground water analysis at various stations during February 2026

Sr. No.	Sampling Locations	Unit	Kille Gaiothan	Ulwe	Pargaon	Jui	Panvel
	Sampling month		12/02/2026	10.02.2026		11.02.2026	12.02.2026
1.	Colour	Hazen	5.0	5.0	5.0	5.0	5.0
2.	pH	--	7.8	7.2	7.2	7.1	8.0
3.	Total Dissolved Solids	mg/l	1600	140	350	220	360
4.	Ammonia (as N)	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5.	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6.	Calcium as Ca	mg/l	208	16	54.4	30.4	34.4
7.	Chlorides	mg/l	800	21	58	40	48
8.	Fluoride	mg/l	0.36	0.36	0.36	0.36	0.34
9.	Iron	mg/l	0.032	0.032	0.032	0.032	0.034
10.	Magnesium as Mg	mg/l	145.8	7.3	19.4	10.2	31.6
11.	Sulphate	mg/l	135	6.9	50	18	56
12.	Alkalinity	mg/l	198	110	236	150	238
13.	Hardness	mg/l	860	70	210	118	216
14.	Odour	mg/l	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15.	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0
16.	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4	0.4
17.	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
18.	Detergents	mg/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
19.	Arsenic	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
20.	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
21.	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22.	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
23.	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
24.	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
25.	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26.	Selenium	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
27.	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
28.	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
29.	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Sr. No.	Sampling Locations	Unit	Kille Gaothan	Ulwe	Pargaon	Jui	Panvel
	Sampling month		12/02/2026	10.02.2026		11.02.2026	12.02.2026
30.	Cadmium	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
31.	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
32.	Sulphide	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
33.	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
34.	Chloramines	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0
35.	Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
36.	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
37.	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
38.	Alachlor	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
39.	Atrazine	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
40.	Aldrin	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
41.	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
42.	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
43.	Butachlor	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
44.	Chloropyriphos	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
45.	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
46.	DDT	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
47.	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
48.	Ethion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
49.	Lindane	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
50.	Malathion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
51.	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
52.	Manocrotophos	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
53.	Phorate	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
54.	Coliforms	µg/l	>1600	>1600	>1600	>1600	>1600
55.	E-Coli	MPN/100ml	Present	Present	Present	Present	Present

4.4.10 GW Analysis Inference:

Analysis results indicate pH range 7.1 to 8.0 and is observed to be within desirable limit of 6.5 to 8.5. Total hardness is in the range of 30 to 860 mg/l exceeding permissible limit at Kille Gaothan and observed within permissible limit of 600 mg/l at all other locations. Iron concentration is found to

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be in the range of 0.032 to 0.034mg/l and is observed to be within desirable limit of 1.0 mg/l at all locations.

Chlorides concentration is in the range of 21 to 800 mg/l and is observed to be within permissible limit of 1000 mg/l at all locations. Fluoride concentration is in the range 0.34 to 0.36 mg/l and is observed to be within desirable limit of 1.5 mg/l at all locations. Total Dissolved Solids are in the range of 40 to 1600 mg/l, and it exceeds desirable limit at Kille Gaothan and observed within desirable limit of 500 mg/l at all locations and are also within the permissible limit of 2000 mg/l.

The ground water samples collected from four locations and are analyzed for physical, chemical and biological parameters. The chemical and physical characteristics of the analyzed ground water samples show that the samples are potable as per IS 10500-RA2018. The biological characteristics of the analyzed ground water samples show that the samples are not potable as per IS 10500-RA2018.


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4.4.11 GW Analysis Data during March 2026

Ground water samples were collected in March 2026.

Table 4-15 Ground water analysis at various stations during March 2026

Sr. No.	Sampling Locations	Unit	Owale	Dapoli
	Sampling month		16.03.2026	
1.	Colour	Hazen	5.0	5.0
2.	pH	--	7.4	7.2
3.	Total Dissolved Solids	mg/l	430	460
4.	Ammonia (as N)	mg/l	< 0.2	< 0.2
5.	Boron	mg/l	< 0.05	< 0.05
6.	Calcium as Ca	mg/l	72	65.6
7.	Chlorides	mg/l	70	75
8.	Fluoride	mg/l	0.36	0.38
9.	Iron	mg/l	0.034	0.032
10.	Magnesium as Mg	mg/l	33	32.6
11.	Sulphate	mg/l	88	84
12.	Alkalinity	mg/l	280	280
13.	Hardness	mg/l	316	298
14.	Odour	mg/l	Agreeable	Agreeable
15.	Turbidity	NTU	<1.0	<1.0
16.	Free Residual Chlorine	mg/l	0.4	0.4
17.	Aluminium	mg/l	< 0.01	< 0.01
18.	Detergents	mg/l	< 0.04	< 0.04
19.	Arsenic	mg/l	< 0.005	< 0.005
20.	Barium	mg/l	< 0.01	< 0.01
21.	Copper	mg/l	< 0.01	< 0.01
22.	Manganese	mg/l	< 0.01	< 0.01
23.	Chromium	mg/l	< 0.01	< 0.01
24.	Zinc	mg/l	< 0.01	< 0.01
25.	Nitrate	mg/l	< 0.5	< 0.5
26.	Selenium	mg/l	< 0.005	< 0.005
27.	Lead	mg/l	< 0.005	< 0.005
28.	Molybdenum	mg/l	< 0.01	< 0.01
29.	Nickel	mg/l	< 0.01	< 0.01
30.	Cadmium	mg/l	< 0.001	< 0.001
31.	Phenolic compounds	mg/l	< 0.001	< 0.001

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Sr. No.	Sampling Locations	Unit	Owale	Dapoli
	Sampling month		16.03.2026	
32.	Sulphide	mg/l	< 0.02	< 0.02
33.	Mercury	mg/l	< 0.001	< 0.001
34.	Chloramines	mg/l	< 2.0	< 2.0
35.	Silver	mg/l	< 0.01	< 0.01
36.	Cyanide	mg/l	< 0.05	< 0.05
37.	Polynuclear Aromatic Hydrocarbons	mg/l	< 0.025	< 0.025
38.	Alachlor	mg/l	< 0.5	< 0.5
39.	Atrazine	µg/l	< 0.5	< 0.5
40.	Aldrin	µg/l	< 0.01	< 0.01
41.	Alpha HCH	µg/l	< 0.01	< 0.01
42.	Beta HCH	µg/l	< 0.01	< 0.01
43.	Butachlor	µg/l	< 5.0	< 5.0
44.	Chloropyriphos	µg/l	< 0.05	< 0.05
45.	Delta HCH	µg/l	< 0.01	< 0.01
46.	DDT	µg/l	< 0.01	< 0.01
47.	Endosulphan	µg/l	< 0.01	< 0.01
48.	Ethion	µg/l	< 0.05	< 0.05
49.	Lindane	µg/l	< 0.01	< 0.01
50.	Malathion	µg/l	< 0.05	< 0.05
51.	Methyl parathion	µg/l	< 0.01	< 0.01
52.	Manocrotophos	µg/l	< 0.5	< 0.5
53.	Phorate	µg/l	< 0.5	< 0.5
54.	Coliforms	MPN/100 ml	> 1600	> 1600
55.	E-Coli	MPN/100 ml	Present	Present

4.4.12 GW Analysis Inference:

Analysis results indicate pH range 7.2 to 7.4 and is observed to be within desirable limit of 6.5 to 8.5. Total hardness is in the range of 298 to 316 mg/l and is observed to be within permissible limit of 600 mg/l at all locations. Iron concentration is found to be in the range of 0.032 to 0.034 mg/l and is observed to be within desirable limit of 1.0 mg/l at all locations.

Chlorides concentration is in the range of 70 to 75 mg/l and is observed to be within desirable limit of 250 mg/l at all locations. Fluoride concentration is in the range 0.36 to 0.38 mg/l and is observed to be within desirable limit of 1.5 mg/l at all locations. Total Dissolved Solids are in the range of 430

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to 460 mg/l, and is observed to be within desirable limit of 500 mg/l at all locations and are also within the permissible limit of 2000 mg/l.

The ground water samples collected from all locations and are analyzed for physical, chemical and biological parameters. The chemical and physical characteristics of the analyzed ground water samples show that the samples are potable as per IS 10500-RA2018. The biological characteristics of the analyzed ground water samples show that the samples are not potable as per IS 10500-RA2018.



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4.5 DRINKING WATER QUALITY ANALYSIS REPORT

NMIA project site was selected for analysis of drinking water during December 2025, January 2026, February 2026 and March 2025.

Table 4-16 Drinking water analysis during December 2025

Sr. No.	Sampling Locations Sampling month	Unit	NMIA Project site 17.12.2025
1.	Colour	Hazen	<5.0
2.	pH	--	7.5
3.	Total Dissolved Solids	mg/l	80
4.	Ammonia as N	mg/l	< 0.2
5.	Boron	mg/l	< 0.05
6.	Calcium as Ca	mg/l	12.8
7.	Chlorides	mg/l	17
8.	Fluoride	mg/l	0.32
9.	Iron	mg/l	0.03
10.	Magnesium as Mg	mg/l	6.8
11.	Sulphate	mg/l	8.0
12.	Alkalinity	mg/l	56
13.	Hardness	mg/l	60
14.	Turbidity	NTU	<0.1
15.	Free Residual Chlorine	mg/l	0.4
16.	Odour	mg/l	Agreeable
17.	Aluminium	mg/l	< 0.01
18.	Detergents	mg/l	< 0.04
19.	Arsenic	mg/l	< 0.01
20.	Barium	mg/l	< 0.01
21.	Copper	mg/l	< 0.01
22.	Manganese	mg/l	< 0.01
23.	Chromium	mg/l	< 0.01
24.	Zinc	mg/l	< 0.01
25.	Nitrate	mg/l	< 0.5
26.	Selenium	mg/l	< 0.01
27.	Lead	mg/l	< 0.01
28.	Molybdenum	mg/l	< 0.01
29.	Nickel	mg/l	< 0.01
30.	Cadmium	mg/l	< 0.003
31.	Phenolic compounds	mg/l	< 0.001
32.	Sulphide	mg/l	< 0.05

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Sr. No.	Sampling Locations Sampling month	Unit	NMIA Project site 17.12.2025
33.	Mercury	mg/l	< 0.001
34.	Chloramines	mg/l	<2.0
35.	Silver	mg/l	< 0.1
36.	Cyanide	mg/l	< 0.05
37.	Polynuclear Aromatic Hydrocarbons	mg/l	< 0.0001
38.	Alachlor	mg/l	< 1.0
39.	Atrazine	µg/l	< 1.0
40.	Aldrin	µg/l	< 1.0
41.	Alpha HCH	µg/l	< 1.0
42.	Beta HCH	µg/l	< 1.0
43.	Butachlor	µg/l	< 1.0
44.	Chloropyriphos	µg/l	< 1.0
45.	Delta HCH	µg/l	< 1.0
46.	DDT	µg/l	< 1.0
47.	Endosulphan	µg/l	< 1.0
48.	Ethion	µg/l	< 1.0
49.	Lindane	µg/l	< 1.0
50.	Malathion	µg/l	< 1.0
51.	Methyl parathion	µg/l	< 1.0
52.	Monocrotophos	µg/l	< 1.0
53.	Phorate	µg/l	< 1.0
54.	Coliforms	µg/l	Absent
55.	E-Coli	MPN/100ml	Absent

4.5.1 Drinking Water Analysis Inference:

The analysis results indicate the pH value is 7.5 and is observed within the desirable limit of 6.5 to 8.5, beyond this range water will affect the mucous membrane and/or water supply system. The total hardness was observed 60 mg/l and is observed within the permissible limit of 600 mg/l. The total hardness beyond the permissible limit causes encrustation in water supply structure and adverse effects on domestic use. The iron concentration is found 0.030 mg/l and is observed within the acceptable limit of 1.0 mg/l. Beyond the desirable limit taste/appearance are affected, has adverse effect on domestic uses and water supply structures, and promotes iron bacteria.

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The chlorides concentration is 17 mg/l and is observed to be within the acceptable limit of 250 mg/l. Beyond this limit, taste, corrosion and palatability are affected. The fluoride concentration is 0.32 mg/l and is observed within the acceptable limit of 1.0 mg/l, high fluoride may cause fluorosis. The value of TDS is observed 80 mg/l and is observed within the desirable limit of 500 mg/l and is also within the permissible limit of 2000 mg/l. The Drinking water samples were collected from 1 location and analyzed for physical, chemical and biological parameters. Which shows that the samples are potable as per IS 10500-RA2018.

Table 4-17 Drinking water analysis during January 2026

Sr. No.			Unit	Results		
	Sampling Locations			DW 1	DW 2	DW 3
	Sampling Months			02/01/2026		
1	Colour		Hazen	<5.0	<5.0	<5.0
2	pH		--	6.9	7.1	7.0
3	Total Dissolved Solids		mg/l	70	50	80
4	Ammonia as N		mg/l	< 0.2	< 0.2	< 0.2
5	Boron		mg/l	< 0.05	< 0.05	< 0.05
6	Calcium as Ca		mg/l	12	8.0	17.6
7	Chlorides		mg/l	10	9.0	12
8	Fluoride		mg/l	0.32	0.32	0.32
9	Iron		mg/l	0.030	0.030	0.030
10	Magnesium as Mg		mg/l	4.9	3.9	3.4
11	Sulphate		mg/l	13	8.1	20
12	Alkalinity		mg/l	46	34	48
13	Hardness		mg/l	50	36	58
14	Odour		mg/l	Agreeable	Agreeable	Agreeable
15	Turbidity		NTU	<1.0	<1.0	<1.0
16	Free Residual Chlorine		mg/l	0.4	0.4	0.4
17	Aluminium		mg/l	< 0.01	< 0.01	< 0.01
18	Detergents		mg/l	< 0.04	< 0.04	< 0.04
19	Arsenic		mg/l	< 0.005	< 0.005	< 0.005
20	Barium		mg/l	< 0.01	< 0.01	< 0.01

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Sr. No.		Unit	Results		
	Sampling Locations		DW 1	DW 2	DW 3
	Sampling Months		02/01/2026		
21	Copper	mg/l	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	<2.0	<2.0	<2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05
39	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025	<0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0
46	Chloropyriphos	µg/l	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01
49	DDT	µg/l	< 0.01	< 0.01	< 0.01
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.05	< 0.05	< 0.01
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01

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Sr. No.		Unit	Results		
	Sampling Locations		DW 1	DW 2	DW 3
	Sampling Months		02/01/2026		
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5
57	Phorate	MPN/100ml	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	Absent	Absent	Absent
59	E-Coli	MPN/100ml	Absent	Absent	Absent

Continued from previous table

Sr. No.		Units	Results				
	Sampling Locations		DW 4	DW 5	DW 6	DW 7	DW 8
	Sampling Months		02/01/2026				
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0
2	pH	--	6.9	7.0	6.8	6.8	7.4
3	Total Dissolved Solids	mg/l	80	70	50	50	20
4	Ammonia (as N)	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6	Calcium as Ca	mg/l	16	16	8.8	8.0	1.6
7	Chlorides	mg/l	11	9.0	12	10	3.0
8	Fluoride	mg/l	0.34	0.32	0.32	0.32	0.3
9	Iron	mg/l	0.030	0.030	0.030	0.030	0.030
10	Magnesium as Mg	mg/l	4.9	3.4	3.4	2.9	1.45
11	Sulphate	mg/l	18	14	8.0	7.6	5.2
12	Alkalinity	mg/l	54	56	24	26	10
13	Hardness	mg/l	60	54	36	32	10
14	Odour	mg/l	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0
16	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4	0.4
17	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Sr. No.		Units	Results				
	Sampling Locations		DW 4	DW 5	DW 6	DW 7	DW 8
	Sampling Months		02/01/2026				
18	Detergents	mg/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
19	Arsenic	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
20	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
21	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
39	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
46	Chloropyriphos	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Sr. No.	Sampling Locations	Units	Results				
			DW 4	DW 5	DW 6	DW 7	DW 8
	Sampling Months		02/01/2026				
49	DDT	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.01	< 0.01	< 0.01	< 0.05	< 0.05
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
57	Phorate	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	Absent	Absent	Absent	Absent	Absent
59	E-Coli	MPN/100ml	Absent	Absent	Absent	Absent	Absent

Continued from previous table

Sr. No.	Sampling Location	UoM	Results		
			03.01.2026		
	Sampling Location		DW 9	DW 10	DW 11
	Sampling Month				
1	Colour	Hazen	<5.0	<5.0	<5.0
2	pH	--	6.8	7.3	6.6
3	Total Dissolved Solids	mg/l	20	30	70
4	Ammonia as N	mg/l	< 0.2	< 0.2	< 0.2
5	Boron	mg/l	< 0.05	< 0.05	< 0.05
6	Calcium as Ca	mg/l	2.4	3.2	8.0
7	Chlorides	mg/l	4.0	4.0	14
8	Fluoride	mg/l	0.30	0.3	0.3
9	Iron	mg/l	0.030	0.030	0.030
10	Magnesium as Mg	mg/l	1.5	1.9	7.3
11	Sulphate	mg/l	5.2	6.0	16
12	Alkalinity	mg/l	10	18	34
13	Hardness	mg/l	12	16	50
14	Odour	mg/l	Agreeable	Agreeable	Agreeable
15	Turbidity	NTU -	<1.0	<1.0	<1.0

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Kalpita Pathare

(October 2025 -March 2026)

Sr. No.	Sampling Location	UoM	Results		
			03.01.2026		
	Sampling Month		DW 9	DW 10	DW 11
16	Free Chlorine Residual	mg/l	0.4	0.4	0.4
17	Aluminium	mg/l	< 0.01	< 0.01	< 0.01
18	Detergents	mg/l	< 0.04	< 0.04	< 0.04
19	Arsenic	mg/l	< 0.005	< 0.005	< 0.005
20	Barium	mg/l	< 0.01	< 0.01	< 0.01
21	Copper	mg/l	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	< 2.0	< 2.0	< 2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05
39	Polynuclear Aromatic Hydrocarbons	mg/l	< 0.025	< 0.025	< 0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0
46	Chloropyriphos	µg/l	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01

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Sr. No.	Sampling Location	UoM	Results		
			03.01.2026		
			DW 9	DW 10	DW 11
	Sampling Month				
49	DDT	µg/l	< 0.01	< 0.01	< 0.01
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.05	< 0.05	< 0.05
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5
57	Phorate	µg/l	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	Absent	Absent	Absent
59	E-Coli	MPN/100ml	Absent	Absent	Absent

Table 4-18 Drinking water analysis during February 2026

Sr. No.		Unit	Results			
	Sampling Locations		DW 1	DW 2	DW 3	DW 4
	Sampling Months		13.02.2026			
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0
2	pH	--	7.3	7.7	7.8	7.8
3	Total Dissolved Solids	mg/l	70	70	100	40
4	Ammonia as N	mg/l	< 0.2	< 0.2	< 0.2	< 0.2
5	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05
6	Calcium as Ca	mg/l	12	13.6	22.4	8.0
7	Chlorides	mg/l	10	8.0	16	7.0
8	Fluoride	mg/l	0.32	0.32	0.34	0.32
9	Iron	mg/l	0.031	0.031	0.034	0.03
10	Magnesium as Mg	mg/l	3.9	3.4	2.91	2.43
11	Sulphate	mg/l	7.7	12	18	8.0
12	Alkalinity	mg/l	56	50	66	24
13	Hardness	mg/l	54	48	68	30
14	Odour	mg/l	Agreeable	Agreeable	Agreeable	Agreeable
15	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0

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Checked By:
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Environmental Consultant

Aditya Environmental Services Pvt. Ltd.

(October 2025 -March 2026)

Sr. No.		Unit	Results			
	Sampling Locations		DW 1	DW 2	DW 3	DW 4
	Sampling Months		13.02.2026			
16	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4
17	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
18	Detergents	mg/l	< 0.04	< 0.04	< 0.04	< 0.04
19	Arsenic	mg/l	< 0.005	< 0.005	< 0.005	< 0.005
20	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
21	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	< 2.0	< 2.0	< 2.0	< 2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05
39	Polynuclear Aromatic Hydrocarbons	mg/l	< 0.025	< 0.025	< 0.025	< 0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0	< 5.0

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Sr. No.	Sampling Locations	Unit	Results			
			DW 1	DW 2	DW 3	DW 4
	Sampling Months		13.02.2026			
46	Chloropyriphos	µg/l	< 0.05	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
49	DDT	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.05	< 0.05	< 0.01	< 0.01
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5	< 0.5
57	Phorate	µg/l	< 0.5	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	Absent	Absent	Absent	Absent
59	E-Coli	MPN/100ml	Absent	Absent	Absent	Absent

Continued from previous table

Sr. No.	Sampling Locations	Units	Results				
			DW 5	DW 6	DW 7	DW 8	DW 9
	Sampling Months		13.02.2026				
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0
2	pH	--	7.9	7.8	7.6	7.6	7.4
3	Total Dissolved Solids	mg/l	50	60	20	20	70
4	Ammonia (as N)	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6	Calcium as Ca	mg/l	12.8	8.8	0.8	4.0	8
7	Chlorides	mg/l	9.0	7.0	4	5.0	8
8	Fluoride	mg/l	0.32	0.32	0.3	30	0.32
9	Iron	mg/l	0.031	0.03	0.031	0.03	0.032
10	Magnesium as Mg	mg/l	0.97	2.91	3.4	0.97	7.3
11	Sulphate	mg/l	6.0	6.0	5.4	3.2	10
12	Alkalinity	mg/l	40	48	12	12	58

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Sr. No.		Units	Results				
	Sampling Locations		DW 5	DW 6	DW 7	DW 8	DW 9
	Sampling Months		13.02.2026				
13	Hardness	mg/l	36	34	16	14	50
14	Odour	mg/l	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0
16	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4	0.4
17	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
18	Detergents	mg/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
19	Arsenic	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
20	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
21	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
39	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Sr. No.		Units	Results				
	Sampling Locations		DW 5	DW 6	DW 7	DW 8	DW 9
	Sampling Months		13.02.2026				
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
46	Chloropyrifhos	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
49	DDT	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
57	Phorate	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	Absent	Absent	Absent	Absent	Absent
59	E-Coli	MPN/100ml	Absent	Absent	Absent	Absent	Absent

4.5.2 Drinking Water Analysis Inference:

The analysis results indicate the pH range of 7.3 to 7.9 and is observed within the desirable limit of 6.5 to 8.5, beyond this range water will affect the mucous membrane and/or water supply system. The total hardness is in the range of 14 to 68 mg/l and is observed within the permissible limit of 600 mg/l. The total hardness beyond the permissible limit causes encrustation in water supply structure and adverse effects on domestic use. The iron concentration is found in the range of 0.03 to 0.034 mg/l and is observed within the acceptable limit of 1.0 mg/l. Beyond the desirable limit taste/appearance are affected, has adverse effect on domestic uses and water supply structures, and promotes iron bacteria. The chlorides concentration is in the range of 4 to 16 mg/l and is observed to be within the acceptable limit of 250 mg/l. Beyond this limit, taste, corrosion and palatability are affected.

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The fluoride concentration is 0.30 to 0.34 mg/l and is observed within the acceptable limit of 1.0 mg/l at all locations, high fluoride may cause fluorosis. The value of TDS is observed from 20 to 100 mg/l and is observed within the desirable limit of 500 mg/l at all locations and are also within the permissible limit of 2000 mg/l. The Drinking water samples were collected from two locations and analyzed for physical, chemical and biological parameters. Which shows that the samples are potable as per IS 10500-RA2018.

Table 4-19 Drinking water analysis during March 2026

Sr. No.		Unit	Results		
	Sampling Locations		DW 1	DW 2	DW 3
	Sampling Months		18.03.2026		
1	Colour	Hazen	<5.0	<5.0	<5.0
2	pH	--	7.4	7.5	7.6
3	Total Dissolved Solids	mg/l	20	20	30
4	Ammonia as N	mg/l	< 0.2	< 0.2	< 0.2
5	Boron	mg/l	< 0.05	< 0.05	< 0.05
6	Calcium as Ca	mg/l	4.0	0.8	5.6
7	Chlorides	mg/l	8.0	5.0	7.0
8	Fluoride	mg/l	0.32	0.32	0.32
9	Iron	mg/l	0.031	0.032	0.03
10	Magnesium as Mg	mg/l	1.9	3.4	1.9
11	Sulphate	mg/l	0.2	2.6	3.2
12	Alkalinity	mg/l	12	14	20
13	Hardness	mg/l	18	16	22
14	Odour	mg/l	Agreeable	Agreeable	Agreeable
15	Turbidity	NTU	<1.0	<1.0	<1.0
16	Free Residual Chlorine	mg/l	0.4	0.4	0.4
17	Aluminium	mg/l	< 0.01	< 0.01	< 0.01
18	Detergents	mg/l	< 0.04	< 0.04	< 0.04
19	Arsenic	mg/l	< 0.005	< 0.005	< 0.005
20	Barium	mg/l	< 0.01	< 0.01	< 0.01
21	Copper	mg/l	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01

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(October 2025 - March 2026)

Sr. No.		Unit	Results		
	Sampling Locations		DW 1	DW 2	DW 3
	Sampling Months		18.03.2026		
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	< 2.0	< 2.0	< 2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05
39	Polynuclear Aromatic Hydrocarbons	mg/l	< 0.025	< 0.025	< 0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0
46	Chloropyrifos	µg/l	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01
49	DDT	µg/l	< 0.01	< 0.01	< 0.01
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.05	< 0.05	< 0.05
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5
57	Phorate	µg/l	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	> 1600	> 1600	> 1600
59	E-Coli	MPN/100ml	Present	Present	Present

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Sr. No.		Units	Results				
	Sampling Locations		DW 4	DW 5	DW 6	DW 7	DW 8
	Sampling Months		18.03.2026				
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0
2	pH	--	6.8	6.8	6.7	6.9	6.8
3	Total Dissolved Solids	mg/l	70	70	30	40	50
4	Ammonia (as N)	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6	Calcium as Ca	mg/l	10.4	8.0	4.8	7.2	6.4
7	Chlorides	mg/l	16	18	8.0	7.0	10
8	Fluoride	mg/l	0.32	0.32	0.32	0.32	0.32
9	Iron	mg/l	0.03	0.03	0.03	0.03	0.031
10	Magnesium as Mg	mg/l	6.8	6.8	2.43	2.92	5.4
11	Sulphate	mg/l	6.8	7.0	2.4	6.4	7.7
12	Alkalinity	mg/l	50	40	18	32	34
13	Hardness	mg/l	54	48	22	30	38
14	Odour	mg/l	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0
16	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4	0.4
17	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
18	Detergents	mg/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
19	Arsenic	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
20	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
21	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

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Sr. No.	Sampling Locations	Units	Results				
			DW 4	DW 5	DW 6	DW 7	DW 8
	Sampling Months		18.03.2026				
39	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
46	Chloropyrifos	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
49	DDT	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.05	< 0.05	< 0.01	< 0.01	< 0.01
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
57	Phorate	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	Absent	Absent	Absent	Absent	Absent
59	E-Coli	MPN/100ml	Absent	Absent	Absent	Absent	Absent

Continued from previous table

Sr. No.	Sampling Location	Units	Results				
			DW 9	DW 10	DW 11	DW 12	DW 13
	Sampling Month		17.03.2026				
1	Colour	Hazen	<5.0	<5.0	<5.0	<5.0	<5.0
2	pH	--	6.8	6.9	6.8	6.9	6.8
3	Total Dissolved Solids	mg/l	70	60	40	70	70
4	Ammonia as N	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5	Boron	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
6	Calcium as Ca	mg/l	13.6	13.6	8.0	10.4	13.6
7	Chlorides	mg/l	19	18	7.0	16	18
8	Fluoride	mg/l	0.32	0.3	0.32	0.32	0.34
9	Iron	mg/l	0.03	0.031	0.03	0.031	0.034
10	Magnesium as Mg	mg/l	3.9	2.9	1.5	4.9	3.9
11	Sulphate	mg/l	7.2	5.4	2.8	5.8	8

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Sr. No.	Sampling Location	Units	Results				
			DW 9	DW 10	DW 11	DW 12	DW 13
	Sampling Month		17.03.2026				
12	Alkalinity	mg/l	36	32	30	44	44
13	Hardness	mg/l	34	46	26	36	50
14	Odour	mg/l	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
15	Turbidity	NTU -	<1.0	<1.0	<1.0	<1.0	<1.0
16	Free Residual Chlorine	mg/l	0.4	0.4	0.4	0.4	0.4
17	Aluminium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
18	Detergents	mg/l	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
19	Arsenic	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
20	Barium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
21	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
22	Manganese	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
23	Chromium	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
24	Zinc	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
25	Nitrate	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
26	Selenium	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
27	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
28	Molybdenum	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
29	Nickel	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
30	Cadmium	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
31	Phenolic compounds	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
32	Sulphide	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
33	Mercury	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
34	Chloramines	mg/l	<2.0	<2.0	<2.0	<2.0	<2.0
36	Silver	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
37	Cyanide	mg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
39	Polynuclear Aromatic Hydrocarbons	mg/l	<0.025	<0.025	<0.025	<0.025	<0.025
40	Alachlor	mg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
41	Atrazine	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
42	Aldrin	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
43	Alpha HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
44	Beta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
45	Butachlor	µg/l	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
46	Chloropyrifos	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
47	Delta HCH	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
49	DDT	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

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Sr. No.		Units	Results				
			DW 9	DW 10	DW 11	DW 12	DW 13
	Sampling Location						
	Sampling Month		17.03.2026				
50	Endosulphan	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
51	Ethion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
52	Lindane	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
54	Malathion	µg/l	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
55	Methyl parathion	µg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
56	Monocrotophos	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
57	Phorate	µg/l	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
58	Coliforms	µg/l	Absent	Absent	Absent	Absent	Absent
59	E-Coli	MPN/100ml	Absent	Absent	Absent	Absent	Absent

4.5.3 Drinking Water Analysis Inference:

The analysis results indicate the pH range of 6.7 to 7.6 and is observed within the desirable limit of 6.5 to 8.5, beyond this range water will affect the mucous membrane and/or water supply system. The total hardness is in the range of 16 to 54 mg/l and is observed within the permissible limit of 600 mg/l. The total hardness beyond the permissible limit causes encrustation in water supply structure and adverse effects on domestic use. The iron concentration is found 0.030 to 0.034 mg/l and is observed within the acceptable limit of 1.0 mg/l. Beyond the desirable limit taste/appearance are affected, has adverse effect on domestic uses and water supply structures, and promotes iron bacteria.

The chlorides concentration is in the range of 5 mg/l to 19 mg/l and is observed to be within the acceptable limit of 250 mg/l. Beyond this limit, taste, corrosion and palatability are affected. The fluoride concentration is 0.30 to 0.34 mg/l and is observed within the acceptable limit of 1.0 mg/l at all locations, high fluoride may cause fluorosis. The value of TDS is observed from 20 to 70 mg/l and is observed within the desirable limit of 500 mg/l at all locations and are also within the permissible limit of 2000 mg/l. The Drinking water samples were collected from two locations and analyzed for physical, chemical and biological parameters. Which shows that the samples are potable as per IS 10500-RA2018.

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4.6 STP Water quality Analysis report

One location is selected for analysis of sewage water within NMIA Project site during January 2026 and February 2026.

Table 4-20 STP Water Quality

Sr. No.	Parameter	STP 1		
		January 2026	February 2026	MPCB Consent Limits
1.	pH @ 25°C	7.1	7.1	6.0 to 8.5
2.	Suspended Solids@103°C, mg/l	6.0	8.0	< 20
3.	Chemical Oxygen Demand, mg/l	30	30	< 50
4.	Biochemical Oxygen Demand @ 27°C for 3 days, mg/l	6.9	7.1	< 10
5.	Total Dissolved Solids @ 180°C, mg/l	2000	1990	< 2100
6.	Chloride as Cl ⁻ , mg/l	550	570	< 600
7.	Sulphates as SO ₄ ²⁻ , mg/l	52.4	105	< 1000
8.	Oil & Grease, mg/l	< 2.0	< 2.0	< 10

Water sample is within permissible limits prescribed by MPCB.



Figure 4-1 Collection of Sewage Water

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4.7 QUARTERLY MARINE WATER QUALITY ANALYSIS REPORT DURING December 2025

Surface Marine water samples were collected for different Physiochemical and Biological parameters from 10 stations on 19th and 20th December 2025. The analysis part is mentioned in subsequent sections below.



Figure 4-2 Collection of Marine Water and sediment samples during December 2025

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4.7.1 Analytical Data - Physicochemical Parameters during December 2025**Table 4-21 Marine water physicochemical analysis at various stations during December 2025**

Sr. No.	Parameter	MW 1	MW 2	MW 3	MW 4	MW 5	MW 6	MW7	MW 8	MW9	MW 10	Unit
		S	S	S	S	S	S	S	S	S	S	
1.	pH	7.6	7.2	6.9	6.8	6.8	6.9	6.9	6.9	7.0	7.6	--
2.	Temperature	28	28	28	28	28	28	29	29	29	29	°C
3.	Turbidity	1.2	1.2	1.4	1.4	1.8	1.4	1.6	1.8	1.4	1.8	NTU
4.	Conductivity	1216	15	32	56.4	60	63	64	64	66	30.6	mS/Cm
5.	Salinity	0.28	8.8	20.3	26.8	31.2	26.4	29.4	30.3	31.4	19.8	ppt
6.	Iron as Fe	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg/l
7.	Magnesium as Mg	34	602	1042	908.8	1392	1343	1244	1300	1411	770	mg/l
8.	Manganese as Mn	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg/l
9.	Fluoride	0.34	0.34	0.34	0.38	0.38	0.38	0.36	0.38	0.34	0.34	mg/l
10.	Sulphate	49.4	1104	1340	1769	2457	2656	2502	2597	2670	1598	mg/l
11.	Phenolic compound	14	22	34	45	52	34	46	54	58	32	µg/l
12.	Alkalinity	174	166	242	174	164	146	172	140	140	136	mg/l
13.	Hardness as CaCO ₃	256	2850	4950	4500	6500	6350	6050	6300	6700	4000	mg/l
14.	Zinc as Zn	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg/l
15.	Cadmium as Cd	< 0.01	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	mg/l
16.	BOD	1.1	1.2	1.8	1.8	1.4	1.6	1.6	1.2	1.2	1.8	mg/l
17.	Chloride	1120	1160	1233	1100	50	1180	1120	1200	1830	2020	mg/l
18.	DO	2.4	3.1	3.2	3.2	3.3	3.3	3.4	2.8	2.6	3.0	mg/l
19.	Total Nitrogen as N	4.1	4.2	2.6	3.2	4.0	3.2	3.2	3.1	3.2	3.4	µmol/l
20.	Phosphorus as P	1.1	0.88	0.88	1.8	1.6	2.1	1.6	1.5	1.8	1.1	µmol/l
21.	Sodium as Na	90	145	148	130	142	132	132	138	128	138	mg/l
22.	Potassium as K	26	100	82	90	94	90	100	104	98	98	mg/l
23.	Lead as Pb	< 0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	mg/l
24.	Mercury as Hg	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	mg/l
25.	Chromium as Cr	<0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg/l

4.7.2 Inference - Physicochemical Parameters during December 2025

The pH value ranged from 6.9 to 7.6 at surface represents Acidic to basic nature of water. Salinity was low from MW1 to MW2 due to influx of fresh water and in increasing trends in creek waters during collection Period of sampling as proceedings from Gadhi river to Panvel creek.

Dissolved Oxygen level was observed low at MW1 during collection of time due to seasonal variation. BOD value suggests the presence of organic matter present in water body which comes as domestic sewage discharge from surrounding areas (villages, STPs of NMMC in Nerul) and effluents from CETP at MIDC Taloja. The concentration of Magnesium was low at MW1 (Refer Table 4.17).

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4.7.3 Analytical Data - Biological Parameters during December 2025

Biological parameters viz. Phytopigments, Phytoplankton, Zooplankton, Benthos and Microbiology were analyzed, and compiled data is presented below:

Table 4-22 Marine Water biological analysis of stations (MW1 to MW5) during December 2025

Parameter	MW 1	MW 2	MW3	MW4	MW5
	S	S	S	S	S
Phytoplankton					
Chlorophyll (mg/m ³)	35.28	37.42	33.15	39.01	41.70
Pheophytin (mg/m ³)	11.12	47.90	131.5	49.66	3.90
Population (no x 10 ³ /L)	184.8	201.6	297.6	234.4	209.6
Total Genera (No)	17	16	15	14	15
Major Genera	Agmenellum (22.5%), Scenedesmus (19.0%) Oscillatoria (15.6%), Actinastrum (7.4%)	Coscinodiscus (35.7%), Agmenellum (11.5%), Cyclotella (10.3%) Skeletonema (8.7%)	Thalassiosira (26.9%), Coscinodiscus (26.3%), Skeletonema (18.8%), Cyclotella (11.3%)	Skeletonema (45.8%), Cyclotella (38.2%), Thalassiosira (9.9%), Agmenellum (1.1%)	Cyclotella (25.57%), Navicula (25.57%), Thalassiosira (19.08%), Skeletonema (15.65%)
Diversity Index	2.25	2.10	1.85	1.22	1.81
Zooplankton					
Population (no x 10 ³ /100m ³)	31	19	3	2	1
Total Group (No)	5	4	1	2	4
Major Groups	Copepods (59.46%), Decapoda larvae (24.32%) Gastropods (10.81%)	Gastropods (47.83%), Copepods (30.43%)	Copepods (100%)	Copepods (99.9%), Acetes (0.1%)	Copepods (99.79%), Decapod (0.11%), Lamellibranch (0.05%), Polychaetes (0.05%)
Biomass (mg/100m ³)	33.3	41.67	16.7	0.3	0.3
Diversity Index	1.09	1.19	<0.1	<0.1	<0.1
Macrobenthos					
Population (no x 10 ² /m ²)	<1	<1	<1	573	451
Total Group (No)	<1	<1	<1	1	1
Major Groups	<1	<1	<1	Polychaete (100%)	Polychaete (100%)
Biomass (gm/m ²)	<1	<1	<1	0.41	1.03
Diversity Index	<0.1	<0.1	<0.1	<0.1	<0.1
Microbiology					
Total Coliform (MPN/100 ml)	>1600	>1600	>1600	>1600	>1600

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Table 4-23 Marine Water biological analysis of stations (MW6 to MW10) during December 2025

Parameter	MW 6	MW 7	MW8	MW9	MW10
	S	S	S	S	S
Phytoplankton					
Chlorophyll (mg/m ³)	19.25	31.01	4.28	7.48	40.10
Pheophytin (mg/m ³)	9.52	2.41	0.16	1.12	15.66
Population (no x 10 ⁴ /L)	86.4	178.4	24.8	56.8	186.4
Total Genera (No)	9	9	7	8	13
Major Genera	<i>Cyclotella</i> (48.1%), <i>Thalassiosira</i> (30.6%), <i>Skeletonema</i> (13.0%), <i>Leptocylindrus</i> (3.7%)	<i>Skeletonema</i> (60.1%), <i>Cyclotella</i> (22.0%), <i>Thalassiosira</i> (9.9%), <i>Pseudonitzschia</i> (3.1%)	<i>Cyclotella</i> (54.8%), <i>Skeletonema</i> (25.8%), <i>Navicula</i> (6.5%), <i>Nitzschia</i> (3.2%)	<i>Skeletonema</i> (67.6%), <i>Cyclotella</i> (15.5%), <i>Thalassiosira</i> (9.9%), <i>Rhizosolenia</i> (1.4%)	<i>Leptocylindrus</i> (42.1%), <i>Oscillatoria</i> (34.8%), <i>Cyclotella</i> (6.0%), <i>Navicula</i> (4.3%)
Diversity Index	1.32	0.88	1.30	1.08	1.54
Zooplankton					
Population (no x 10 ³ /100m ³)	4	3.52	0.20	4	3
Total Group (No)	4	7	4	9	1
Major Groups	<i>Copepods</i> (96.69%), <i>Medusae</i> (2.58%), <i>Decapods</i> (0.60%), <i>Polychaetes</i> (0.14%)	<i>Copepods</i> (98.27%), <i>Decapods</i> (0.93%), <i>Medusae</i> (0.40%), <i>Polychaetes</i> (0.18%)	<i>Copepods</i> (44.53%), <i>Decapods</i> (28.91%), <i>Medusae</i> (24.22%), <i>Polychaetes</i> (2.34%)	<i>Copepods</i> (88.85%), <i>Decapods</i> (8.24%), <i>Medusae</i> (2.15%), <i>Lucifer</i> (0.24%)	<i>Copepods</i> (100%)
Biomass (ml/100m ³)	0.9	0.7	0.8	0.9	16.7
Diversity Index	0.17	0.11	1.15	0.44	<0.1
Macrobenthos					
Population (no x 10 ² /m ²)	2726	226	1233	486	<1
Total Group (No)	1	1	3	3	<1
Major Groups	<i>Polychaete</i> (100%)	<i>Polychaete</i> (100%)	<i>Polychaete</i> (78.87%), <i>Bivalve</i> (16.90%), <i>Crab</i> (4.23%)	<i>Polychaete</i> (67.86%), <i>Bivalve</i> (28.57%), <i>Amphipods</i> (3.57%)	<1
Biomass (gm/m ²)	18.35	2.05	1300.65	27.87	<1
Diversity Index	<0.1	<0.1	0.62	0.74	<0.1
Microbiology					
Total Coliform (MPN/100 ml)	>1600	>1600	>1600	>1600	>1600



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4.7.4 Inferences - Biological Parameters during December 2025

4.7.4.1 Phytoplankton

In December 2025, Chlorophyll ranged from 4.28 to 41.7 mg/m³ and pheophytin ranged 0.16 to 131.5 mg/m³; at surface water of all 10 stations. Phytopigments were observed highest at MW5 and lowest at MW8 respectively.

Phytoplankton population density ranges from 24.8 -297.6 x 10³/l at surface water of all 10 stations. Highest phytoplankton population at surface water of MW3 may be due to influx of domestic water from surrounding villages; total generic groups ranges from 7-17 nos. at surface water of all 10 stations. Maximum generic diversity 17 no. is observed at surface water of Station MW1 and lowest at MW8 respectively during December 2025 (Refer Table 4.22 and 4.23).

Thalassiosira, *Skeletonema*, *Navicula*, and *Cyclotella* are most common ones, followed by rest of observed genera like *Pleurosigma*, *Nitzschia* and *Leptocylindrus*. The other freshwater phytoplankton genera found are *Scenedesmus*, *Anabaena*, *Closterium*, *Phacus* and *Pediastrum* in Gadhi River (MW1) and Ulwe river (MW10) respectively. Graphical representations of Phytopigments, phytoplankton population and total genera is represented in **Figure 4.3**.

The graph below shows the Phytopigments, population of phytoplankton is more at MW3; and less at station MW8, which represents there is discharge of sewage and domestic waste. The phytoplankton trend with respect to total number of genera is high at Station MW1 and lowest at MW8. Some of the major genera seen were photographed and shown in **Figure 4.4**.

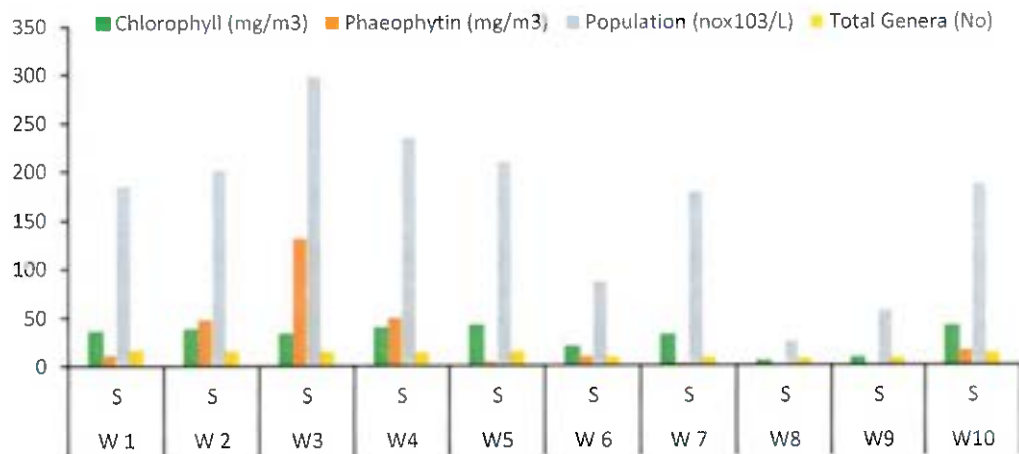


Figure 4-3 Representation of phytopigments, phytoplankton population & Total genera

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Kalpita Pathare

December 2025

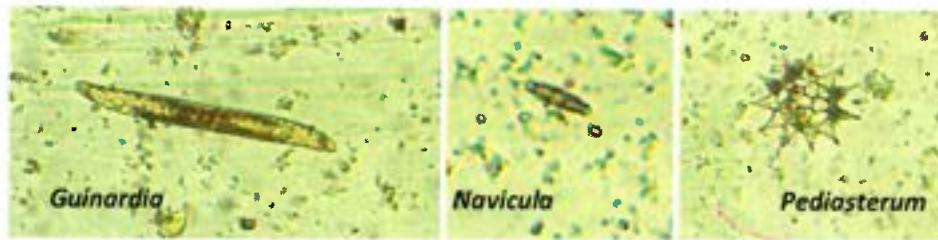


Figure 4-4 Phytoplankton found in samples for December 2025

4.7.4.2 Zooplankton

In December 2025, the zooplankton biomass ranged from 0.3 to 41.67 ml/100 m³ with population density of 0.2 to 31 x 10³/100 m³ while having faunal groups ranging from 1-9 nos. The zooplankton was noted with a good population and group diversity. Copepods, Decapods, Medusae and Polychaetes were common groups observed, **Figure 4.5** represents zooplankton standing stock graphically and **Figure 4.6** represents photos of peculiar zooplankton genera. The graph below represents that standing stock reported from all stations; MW8 shows lowest population respectively as compared to MW1 with highest population; and MW4 and MW5 show lowest biomass and MW2 shows highest biomass, respectively.

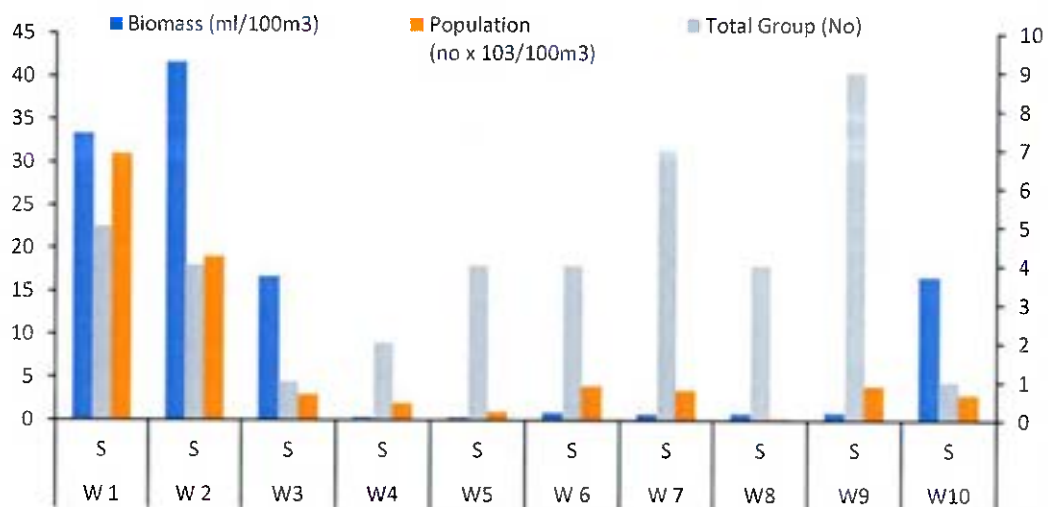


Figure 4-5 Representation of Zooplankton Biomass, Population & Total group for December 2025

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Figure 4-6 Zooplankton found in samples for December 2025

4.7.4.3 Macrofauna

In December 2025, macro-benthic biomass ranged from <1 to 1300.65 gm/ m² with population ranging from <1 to 2726/m². Total group 1 to 3 was observed. Low biomass noted at MW1, MW2, MW3 and MW10 and high biomass at MW8. Low population was noted at MW1, MW2, MW3 and MW10 and high population observed at MW6. The faunal group found were majorly Polychaete. **Figure 4.7** shows the % composition of benthic organisms for study period. Figure 4.8 shows peculiar organisms found.

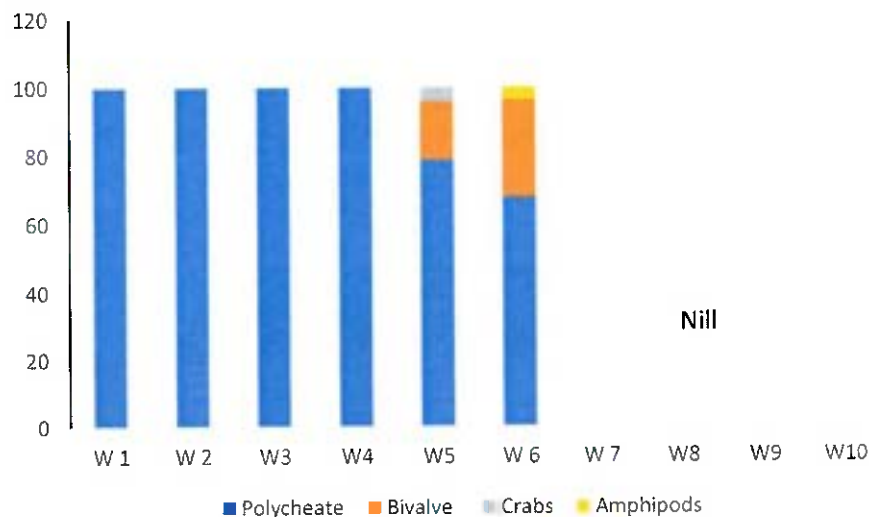


Figure 4-7 % Composition of Benthic organisms for December 2025

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Figure 4-8 Benthic organism Found in samples for December 2025

4.7.4.4 Microbiology

Coliform microbes were present at all stations in surface level. No specific trend was observed.

4.8 QUARTERLY MARINE WATER QUALITY ANALYSIS REPORT DURING March 2026

Surface Marine water samples were collected for different Physiochemical and Biological parameters for 10 stations on 20th and 21st March 2026. The analysis part is mentioned in subsequent sections below.



(October 2025 -March 2026)



Figure 4-9 Collection of Marine Water samples during March 2026

4.8.1 Analytical Data - Physicochemical Parameters during March 2026

Table 4-24 Marine water physicochemical analysis at various stations during March 2026

Sr. No.	Parameter	MW 1	MW 2	MW 3	MW 4	MW 5	MW 6	MW 7	MW 8	MW9	MW 10	Unit
		S	S	S	S	S	S	S	S	S	S	
1.	pH	7.2	7.3	7.1	6.8	6.8	6.9	7.0	7.1	7.3	7.2	--
2.	Temperature	28	28	28	26	27	28	28	28	28	28	°C
3.	Turbidity	1.4	1.6	1.4	1.3	1.4	1.6	1.8	1.6	1.6	1.4	NTU
4.	Conductivity	22.3	25.8	21.2	29	27.5	28.9	23.8	27.3	27.3	18.05	mS/Cm
5.	Salinity,	31	17.2	27.7	24.6	39.4	40.7	32.3	32.5	26.8	34	ppt
6.	Iron as Fe,	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg/l
7.	Magnesium as Mg	930.7	629.4	976.8	812	1275	1380	1028	1174	1237	1108	mg/l
8.	Manganese as Mn	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg/l
9.	Fluoride	0.36	0.38	0.38	0.36	0.36	0.34	0.38	0.38	0.34	0.38	mg/l
10.	Sulphate	1718	1266	1196	1648	2998	2610	2029	2475	1380	1964	mg/l
	Phenolic compound	58	65	78	70	47	45.9	45	52	72	63	µg/l
11.	Alkalinity	88	92	84	64	78	72	66	84	64	68	mg/l
12.	Hardness as CaCO ₃	4720	3120	4800	4000	6250	6680	5040	6560	5520	5880	mg/l
13.	Zinc as Zn	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	mg/l

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Sr. No.	Parameter	MW 1	MW 2	MW 3	MW 4	MW 5	MW 6	MW 7	MW 8	MW 9	MW 10	Unit
		S	S	S	S	S	S	S	S	S	S	
14.	Cadmium as Cd	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.01	mg/l
15.	BOD	2.2	1.9	1.8	1.6	1.8	1.6	1.6	1.6	1.6	2.0	mg/l
16.	Chloride	15250	13000	18250	14000	23250	24000	19000	27000	9750	26500	mg/l
17.	DO	3.5	3.6	3.6	3.4	3.4	3.6	3.4	3.2	3.6	3.2	mg/l
18.	Total Nitrogen as N	10	6.3	11.2	8.6	7.5	7.5	2.5	9.8	8.7	2.5	µmol/l
19.	Phosphorus as P	20	14	19	11.2	9.2	4.2	66	3.2	14	7.8	µmol/l
20.	Sodium as Na	109	107	122	125	82	65	118	118	125	118	mg/l
21.	Potassium as K	88	39	86	91	109	113	70	54	100	57	mg/l
22.	Lead as Pb	< 0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	mg/l
23.	Mercury as Hg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	mg/l
24.	Chromium as Cr	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/l

4.8.1.1 Inference - Physicochemical Parameters during March 2026

The pH value ranged from 6.8 to 7.3 at surface, which shows basic neutral to alkaline nature of water. The salinity was observed low at station MW2 due to influx of fresh water during collection Period of sampling.

Dissolved Oxygen level was observed low during collection of time due to seasonal variation at all locations. BOD value suggests the presence of organic matter in the water body which comes as domestic sewage discharge from surrounding areas (villages, STPs of NMMC in Nerul) and effluents from CETP at MIDC Taloja.

The concentration of Magnesium was high at all locations and Iron was low at all stations (Refer Table 4.24).

4.8.1.2 Analytical Data - Biological Parameters during March 2026

Biological parameters viz. Phytoplankton, Zooplankton, Benthos and Microbiology were analyzed, and compiled data is presented below:

Table 4-25 Marine Water biological analysis of stations (MW1 to MW5) during March 2026

Parameter	MW 1	MW 2	MW 3	MW 4	MW 5
	S	S	S	S	S
Phytoplankton					
Chlorophyll (mg/m ³)	2.30	39.03	34.86	133.44	115.53

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Parameter	MW 1	MW 2	MW 3	MW 4	MW 5
	S	S	S	S	S
Pheophytin (mg/m ³)	1.41	8.0	0.95	28.41	13.17
Population (no x 10 ³ /L)	18.4	270.4	112	6216.0	823.2
Total Genera (No)	16	14	15	14	15
Major Genera	<i>Skeletonema</i> (76.5%), <i>Leptocylindrus</i> (5.9%), <i>Scenedesmus</i> (4.7%), <i>Thalassiosira</i> (2.4%)	<i>Chaetoceros</i> (94.7%), <i>Thalassiosira</i> (1.2%), <i>Euglena</i> (0.9%), <i>Biddulphia</i> (0.3%)	<i>Skeletonema</i> (39.3%), <i>Chaetoceros</i> (37.9%), <i>Thalassiosira</i> (11.4%), <i>Bactreistrum</i> (2.1%)	<i>Thalassiosira</i> (96.5%), <i>Scenedesmus</i> (2.6%), <i>Chaetoceros</i> (0.5%), <i>Oscillatoria</i> (0.1%)	<i>Thalassiosira</i> (97.2%), <i>Oscillatoria</i> (0.5%), <i>Euglena</i> (0.4%), <i>Skeletonema</i> (0.4%)
Diversity Index	1.10	2.23	1.50	0.18	0.20
Zooplankton					
Population (no x 10 ³ /100m ³)	5	2.86	2.01	167	12
Total Group (No)	9	8	9	1	1
Major Groups	Acetes (96.16%), Decapods (1.17%), Lucifer (0.98%), Chaetognaths (0.93%)	Acetes (87.96%), Lucifer (3.90%), Decapods (3.62%), Chaetognaths (2.20%)	Acetes (65.44%), Lucifer (11.48%), Decapods (11.08%), Chaetognaths (8.44%)	Copepods (100%)	Copepods (100%)
Biomass (mg/100m ³)	124.5	56.6	30.2	16.7	16.7
Diversity Index	0.22	0.54	1.13	<0.1	<0.1
Macrobenthos					
Population (no /m ²)	191	1545	191	69	52
Total Group (No)	1	3	1	1	1
Major Groups	Polychaete (100%)	Polychaete (53.93%), Bivalve (44.94%), Crab (1.12%)	Polychaete (90.91%), Crab (9.09%)	Polychaete (100%)	Polychaete (100%)
Biomass (gm/m ²)	3.33	262.65	197.25	1.33	0.74
Diversity Index	<0.01	0.74	0.30	<0.01	<0.01
Microbiology					
Total Coliform (MPN/100 ml)	>1600	>1600	>1600	>1600	>1600

Table 4-26 Marine Water biological analysis of stations (MW6 to MW10) during March 2026

Parameter	MW 6	MW 7	MW 8	MW 9	MW 10
	S	S	S	S	S
Phytoplankton					
Chlorophyll (mg/m ³)	166.42	62.87	9.14	4.01	123.76
Pheophytin (mg/m ³)	9.31	1.13	4.14	3.10	26.61
Population (no x 10 ³ /L)	1279.2	196.8	200	80.8	1265.6
Total Genera (No)	13	17	13	14	11

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Parameter	MW 6	MW 7	MW 8	MW 9	MW 10
	S	S	S	S	S
Major Genera	<i>Thalassiosira</i> (93.8%), <i>Skeletonema</i> (3.8%), <i>Chaetoceros</i> (1.4%), <i>Nitzschia</i> (0.2%)	<i>Thalassiosira</i> (40.7%), <i>Skeletonema</i> (33.7%), <i>Chaetoceros</i> (15.9%), <i>Navicula</i> (2.0%)	<i>Skeletonema</i> (92.00 %), <i>Chaetoceros</i> (1.60%), <i>Thalassiosira</i> (1.20%), <i>Oscillatoria</i> (0.80%)	<i>Skeletonema</i> (80.2%), <i>Scenedesmus</i> (4.0%), <i>Pseudonitzschia</i> (4.0%), <i>Oscillatoria</i> (2.0%)	<i>Thalassiosira</i> (94.8%), <i>Euglena</i> (1.8%), <i>Pleurosigma</i> (1.1%), <i>Navicula</i> (0.9%)
Diversity Index	0.31	1.49	0.47	0.97	0.30
Zooplankton					
Population (no x 10 ³ /100m ³)	101	<1	469	3	12
Total Group (No)	1	2	6	6	1
Major Groups	Copepods (94.95%), Decapod Larvae (3.39%), Cladocera (1.12%), Medusa (0.26%)	Copepods (99.5%), Amphipods (0.5%)	Acetes (63.54%), Lucifer (13.95%), Decapod (8.75%), Copepods (6.82%)	Acetes (95.2%), Lucifer (1.71%), Copepods (1.39%), Decapods (1.18%)	Copepods (100%)
Biomass (mg/100m ³)	16.7	0.3	20.2	54.7	16.67
Diversity Index	<0.01	<0.01	1.15	0.27	<0.01
Macrobenthos					
Population (no /m ²)	3785	399	469	1429	35
Total Group (No)	1	1	2	2	1
Major Groups	Polychaete (100 %)	Polychaete (100%),	Polychaete (81.48%), Bivalve (18.52%)	Polychaete (88.37%), Bivalve (11.63%)	Polychaete (100%)
Biomass (gm/m ²)	46.55	4.43	9.06	74.80	0.65
Diversity Index	<0.1	<0.01	0.17	0.36	<0.01
Microbiology					
Total Coliform (MPN/100 ml)	>1600	>1600	>1600	>1600	>1600

4.8.2 Inferences - Biological Parameters during March 2026

4.8.6.1 Phytoplankton

In March 2026, Chlorophyll ranged from 2.3 to 166.42 mg/m³ and pheophytin ranged 0.95 to 28.41 mg/m³ at surface water of all 10 stations. The **Figure 4.10** below shows graphical representation of phytopigments at different stations.

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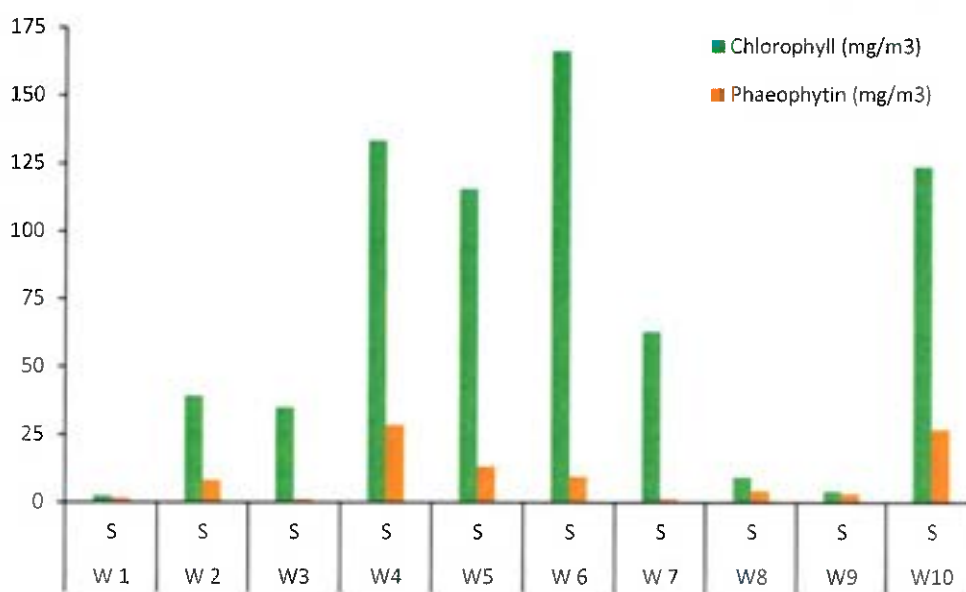


Figure 4-10 Representation of phytopigments for March 2026

The phytoplankton population ranged from 18.4 to 6216 (no x 10³/l) with highest population noted at Station MW4 and Lowest at Station MW1. Total generic groups range from 11-17 nos. at surface water of all 10 stations. Maximum generic diversity 17 no. is observed at surface water of Station MW7 during March 2026 (Refer Table 4.25 and 4.26).

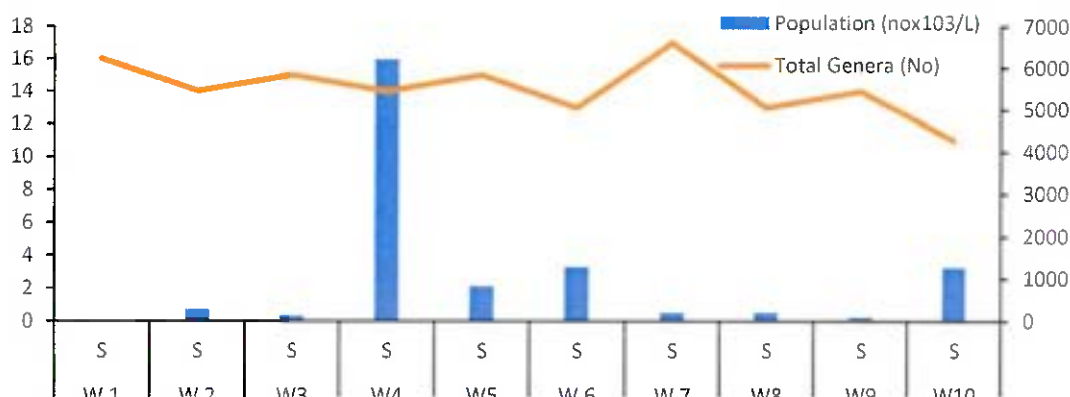


Figure 4-11 Representation of phytoplankton population & Total genera March 2026

Thalassiosira, *Skeletonema*, *Chaetoceros* and *Nitzschia* are most common ones, followed by rest of observed genera like *Pleurosigma*, *Navicula*, *Gyrosigma* and *Oscillatora*. The other freshwater

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phytoplankton genera found are *Scenedesmus*, *Phacus*, *Agmenellum* and *Pediastrum* in Gadhi River (MW1) and Ulwe river (MW10) respectively. Graphical representations of phytoplankton population and total genera are represented in **Figure 4.11**, graph below shows the population of phytoplankton is maximum at MW8; and less at station MW1. The phytoplankton trend with respect to the total number of genera is high at Station MW7 and low at station MW10 respectively. Some of the major genera seen were photographed and shown in **Figure 4.12**.

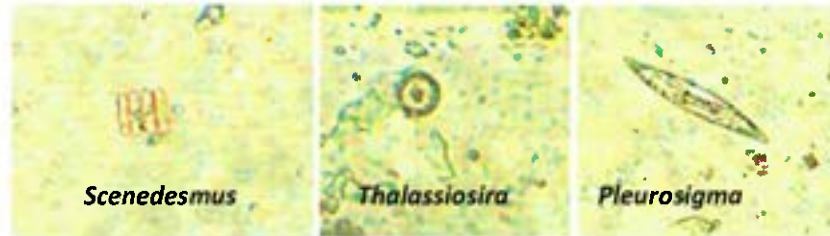


Figure 4-12 Phytoplankton found in samples for March 2026

4.7.3.2 Zooplankton

In March 2026, the zooplankton biomass ranged from 0.3 to 124.5 ml/100 m³ with population density of 0.33 to 469 x 10³/100m³ while having faunal group ranging from 1-9 nos. The zooplankton was noted with good population and group diversity. Acetes, Copepods, Decapods, Lucifers & Chaetognaths were common groups observed, **Figure 4.13** represents zooplankton standing stock graphically and **Figure 4.14** represents photos of peculiar zooplankton found in marine water body.

The graph below represents that the average standing stock reported from all stations; Station MW4 has lowest population as compared to Station MW7 with highest population; and Station MW4 shows lowest biomass and Station MW1 and MW2 shows the highest biomass, respectively.

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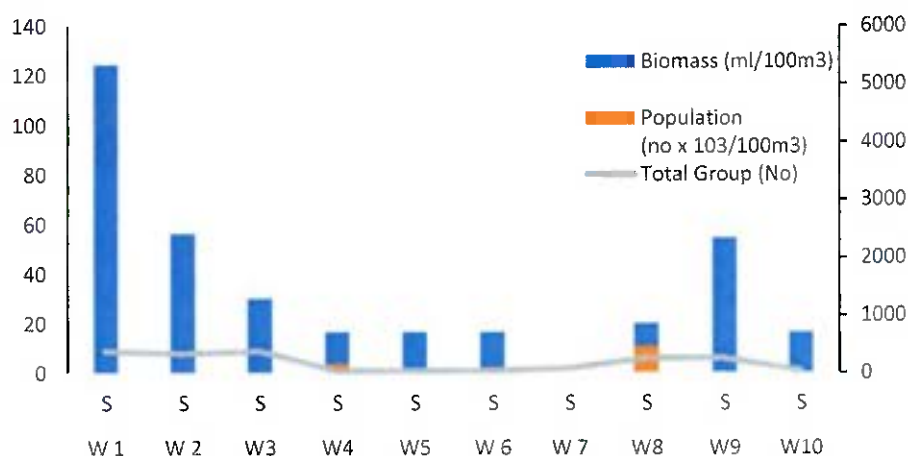


Figure 4-13: Representations of Zooplankton Biomass, Population & Total group for March 2026



Figure 4-14 Zooplankton found in samples for March 2026

4.8.3 4.7.3.3 Macrofauna

In March 2026, macro-benthic biomass ranged from 0.65 to 262.65 gm/ m² with population ranging from 35 to 3785 /m². The total group ranges from 1 to 3. The lowest biomass was noted at MW10 and high biomass at MW2. The high population observed at MW4. The faunal group found were majorly Polychaetes. The % composition and peculiar Benthic organism are shown in **Figure 4.15** and **4.16** respectively.

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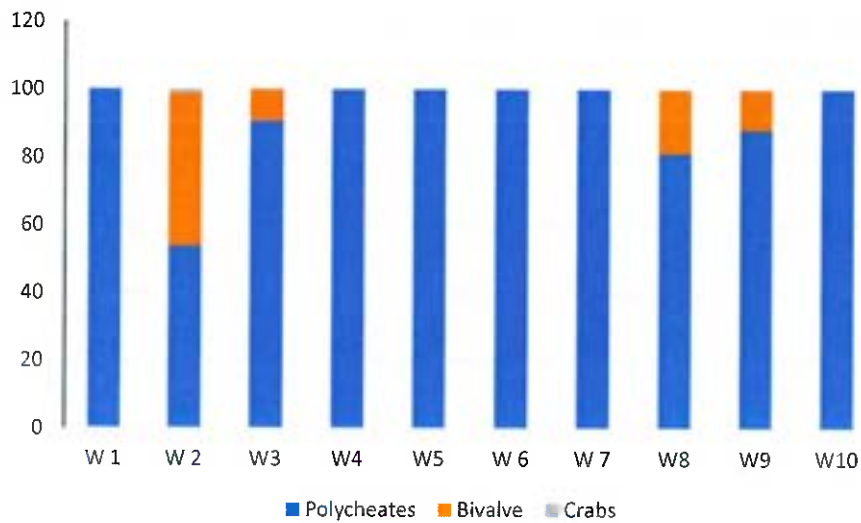


Figure 4-15 % composition of Benthic organisms for March 2026



Figure 4-16 Benthic organism found in samples for March 2026

4.8.4 4.7.3.5 Microbiology

Coliform microbes were present at all stations at surface level. No specific trend was observed.

4.9 DG SET Monitoring

4.9.1 Stack Monitoring

The stack monitoring was done at NMIA project Site. The table below represents results of Gaseous emission for the months of November 2025, January 2026 and February 2026.

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Table 4-27 Stack Monitoring of DG Set during November 2025

Sampling Locations	DG 1	MPCB Limit	Unit
Sampling Date	12.11.2025		
Gas Temperature	122	-	(°C)
Gas Velocity	7.8	-	(m/s)
Gas Flow Rate	2193	-	(Nm ³ /hr.)
Particulate Matter	29.4	150	(mg/Nm ³)
Sulphur Dioxide	20.0		(mg/Nm ³)
Sulphur Dioxide	1.06	-	(Kg/Day)
Oxides of Nitrogen	38.6	-	(mg/Nm ³)
NMHC	6.1	-	(mg/Nm ³)



Figure 4-17 DG Stack Sampling during November 2025

The monitoring undertaken indicates the stack Air Quality Values for Particulate matter is under limit set by MPCB.

4.9.2 Noise monitoring

The Noise generated from DG Set was monitored at NMIA project Site. The tables below represent results of noise generated for the months of November 2025, January 2026 and February 2026.

Table 4-28 Noise Quality of DG Set during November 2026

Reading from 0.5 m away from DG Set		
Direction	DG 1	
	12.11.2025	
	Door Closed	Door Opened
East	74.3	99.8
West	74.4	99.3
South	74.2	99.6
North	74	99.7
Avg.	74.2	99.6
Difference	25.4	

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Figure 4-18 Noise monitoring for DG Set during November 2026

The monitoring undertaken indicates the DG Noise Quality value for insertion loss is within consent limit.

Table 4-29 Stack Monitoring of DG Set during January 2026

Sampling Locations	DG 1	DG 2	DG 3	DG 4	DG 5	DG 6	MPCB Limit	Unit
Sampling Date	02.01.2026		03.01.2026					
Gas Temperature	137	146	132	129	149	159	-	(°C)
Gas Velocity	2.9	6.9	7.2	7.2	8.0	7.7	-	(m/s)
Gas Flow Rate	325	346	333	339	3120	2939	-	(Nm ³ /hr.)
Particulate Matter	42.6	39.7	30.2	33.5	46.7	51.1	150	(mg/Nm ³)
Sulphur Dioxide	30.1	28.5	23.4	25.1	34.4	32.1		(mg/Nm ³)
Sulphur Dioxide	0.2	0.24	0.19	0.21	2.6	2.3	-	(Kg/Day)
Oxides of Nitrogen	52.8	38.6	39.2	43.5	56.9	60.5	-	(mg/Nm ³)
NMHC	6.9	6.2	5.9	6.0	7.2	6.9	-	(mg/Nm ³)

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(October 2025 -March 2026)



Figure 4-19 DG Stack Sampling during January 2026

The monitoring undertaken indicates the stack Air Quality Values for Particulate matter is under limit set by MPCB.

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Table 4-30 Noise Quality of DG Set during January 2026

Reading from 0.5 m away from DG Set												
Direction	DG 1		DG 2		DG 3		DG 4		DG 5		DG 6	
	02.01.2025						03.01.2025					
	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened
	East	73.5	99.6	74.3	99.8	73.8	98.9	74.0	99.6	74.3	99.8	73.5
West	73.6	99.4	74.2	99.2	73.6	99.2	73.8	99.5	74.0	99.6	73.7	99.6
South	73.5	99.8	74.1	99.4	73.8	99.6	74.2	99.2	74.1	99.5	73.7	98.9
North	73.8	99.5	74.3	99.6	74.1	99.4	74.0	99.1	74.1	99.5	73.5	99.3
Avg.	73.6	99.6	74.2	99.5	73.8	99.3	74.0	99.4	74.1	99.6	73.6	99.3
Difference	26.0		25.3		25.5		25.4		25.5		25.7	

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Figure 4-20 Noise monitoring for DG Set during January 2026

The monitoring undertaken indicates the DG Noise Quality value for insertion loss is within consent limit.

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Table 4-31 Stack Monitoring of DG Set February 2026

Sampling Locations	DG 1	DG 2	DG 3	DG 4	DG 5	DG 6	DG 7	DG 8	DG 9	MPCB Limit	Unit
Sampling Date	11.02.2026					12.02.2026					
Gas Temperature	165	152	155	129	140	157	139	160	119	-	(°C)
Gas Velocity	7.7	7.6	7.4	7.2	8.2	7.9	7.6	7.5	6.6	-	(m/s)
Gas Flow Rate	5014	5099	4920	919	1026	938	954	888	873	-	(Nm ³ /hr.)
Particulate Matter	56.3	52.6	49.2	31.4	28.8	40.2	37.6	32.5	30.4	150	(mg/Nm ³)
Sulphur Dioxide	19.2	23.4	25.3	16.7	13.3	16.7	18.3	16.7	15.0		(mg/Nm ³)
Sulphur Dioxide	2.3	2.8	2.9	0.4	0.3	0.4	0.4	0.4	0.3	-	(Kg/Day)
Oxides of Nitrogen	61.7	64.7	60.8	40.5	39.5	49.9	44.3	50.9	51.8	-	(mg/Nm ³)
NMHC	8.3	7.8	8.1	6.4	6.5	6.7	5.9	6.2	6.7	-	(mg/Nm ³)



Dhan Thapa

Prepared By:
Dhan Thapa

Environmental Consultant



Kalpita Pathare

Checked By:
Kalpita Pathare

Aditya Environmental Services Pvt. Ltd.

(October 2025 -March 2026)



Figure 4-21 DG Stack Sampling during February 2026

The monitoring undertaken indicates the stack Air Quality Values for Particulate matter is under limit set by MPCB.

Dhan Thapa

Prepared By:
Dhan Thapa



Kalpita Pathare

Checked By:
Kalpita Pathare

(October 2025 - March 2026)

Table 4-32 Noise Quality of DG Set February 2026

Direction	Reading from 0.5 m away from DG Set															
	DG 1		DG 2		DG 3		DG 4		DG 5		DG 6		DG 7		DG 8	
	11.02.2026		11.02.2026		11.02.2026		11.02.2026		11.02.2026		11.02.2026		12.02.2026		12.02.2026	
	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened	Door Closed	Door Opened
East	73.2	99.0	73.9	99.3	73.6	98.8	73.2	98.9	73.4	98.5	73.5	99	73.7	98.9	73.1	99.0
West	73.5	98.8	74.2	99.7	73.8	99.7	74.5	99.8	73.4	99.0	73.8	98.9	74.0	99.5	73.5	99.2
South	73.4	98.7	73.8	99.9	74.0	99.9	73.5	99.9	73.2	98.7	73.4	99.5	73.9	98.7	73.8	98.7
North	73.4	99.0	74.5	98.9	73.4	98.5	73.5	98.9	73.6	99.0	73.0	98.7	73.8	99.8	73.8	98.9
Avg.	73.4	98.9	74.1	99.5	73.4	99.2	73.7	99.4	73.4	98.8	73.4	99.0	73.9	99.2	73.6	99.0
Difference	25.5		25.4		25.5		25.7		25.4		25.6		25.3		25.4	
															95.3	



Prepared By:
Dhan Thapa




Checked By:
Kalpita Pathare

Environmental Consultant

Aditya Environmental Services Pvt. Ltd.



Dhan Thapa

Prepared By:
Dhan Thapa



Kalpita Pathare

Checked By:
Kalpita Pathare

(October 2025 - March 2026)



Figure 4-22 Noise monitoring for DG Set during February 2026

The monitoring undertaken indicates the DG Noise Quality value for insertion loss is within consent limit.

[Signature]

Prepared By:
Dhan Thapa

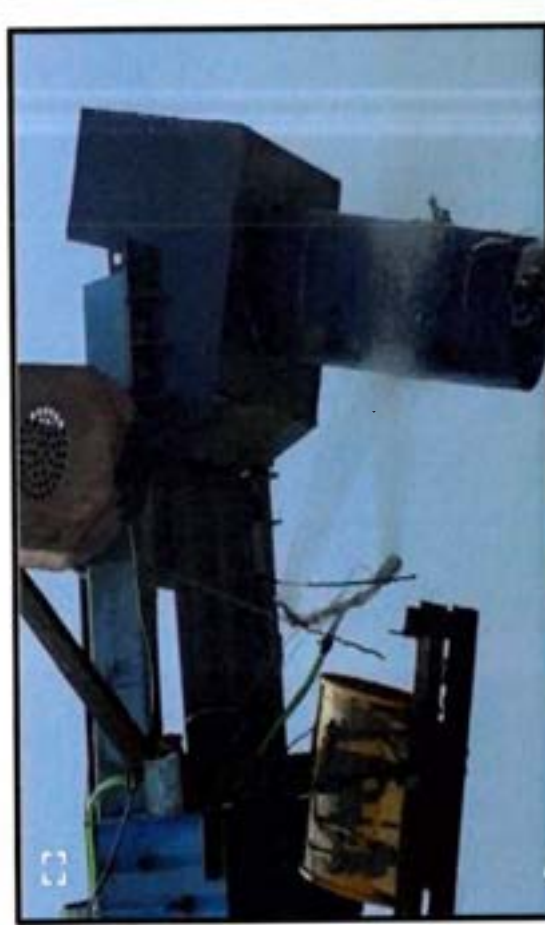


[Signature]

Checked By:
Kalpita Pathare

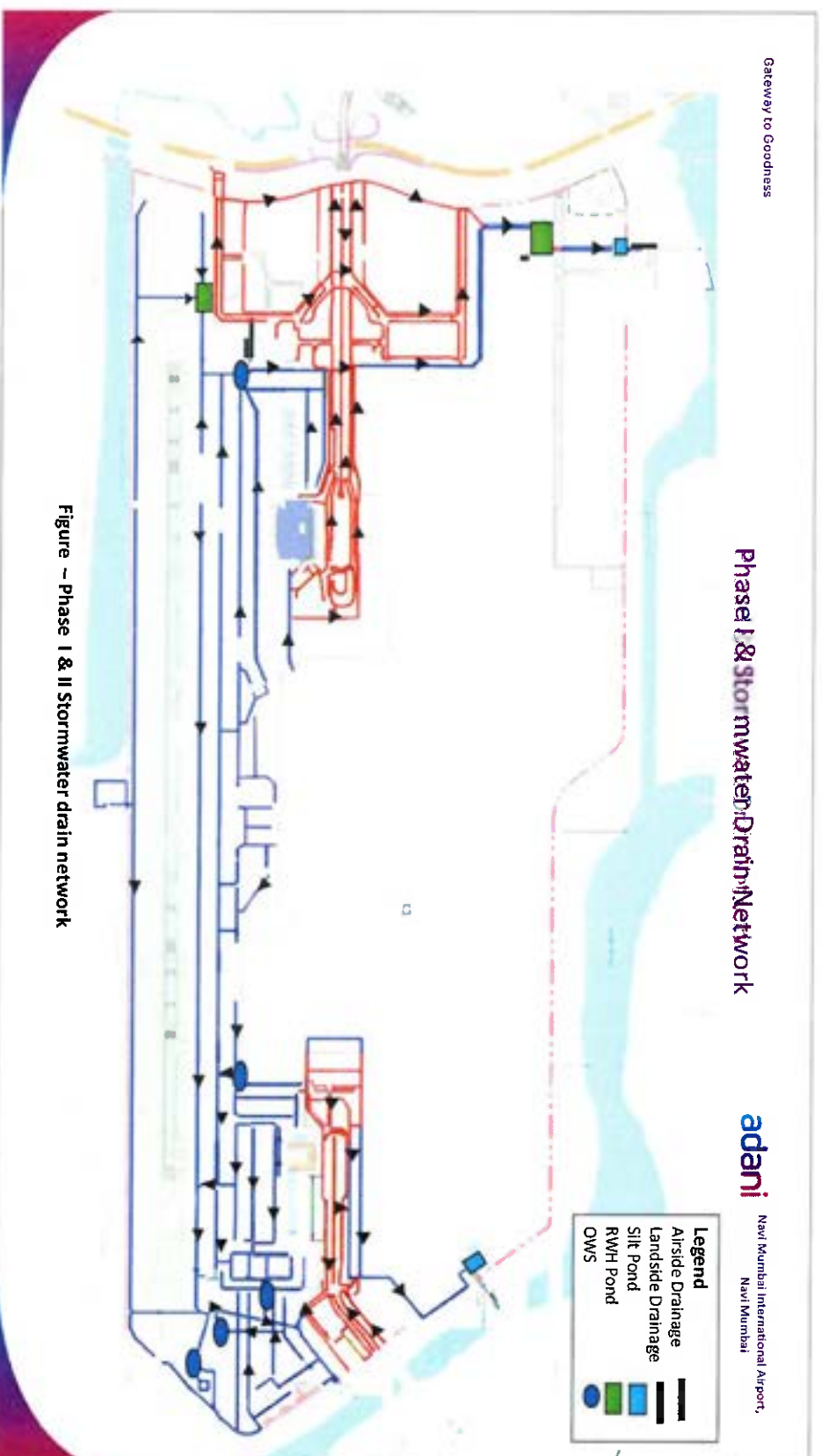
ANNEXURE 12 –
PHOTOGRAPHS OF DUST
SUPPRESSION
FOR FUGITIVE DUST EMISSION
CONTROL





ANNEXURE 13 –
STORMWATER DRAINAGE PLAN
WITH RWH AND OWS

ANNEXURE 13 - STORMWATER DRAINAGE PLAN WITH RWH AND OWS



Rainwater Harvesting Pond South -East Side of Airport



ANNEXURE 14 –
PHOTOGRAPHS OF SOLID WASTE
MANAGEMENT FACILITY &
BIOGAS PLANT

ANNEXURE 14 –Solid Waste Facility for segregation and storage of Solid Waste



BIOGAS PLANT FOR TREATMENT OF WET WASTE-



ANNEXURE 15 –
PHOTOGRAPHS OF METAL SHEET
BARRICADING FOR
CONSTRUCTION AREA

ANNEXURE-15 - PHOTOGRAPHS OF METAL BARRICADING FOR CONSTRUCTION AREA





ANNEXURE 16 –
PESO CERTIFICATE FOR FUEL
FARM



भारत सरकार
Government of India
वाणिज्य और उद्योग मंत्रालय
Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पैसो)
Petroleum & Explosives Safety Organisation (PESO)
ए-1 और ए-2 विंग, पाँचवा तल, केंद्रीय कार्यालय परिसर, सी.बी.डी. बेलापुर
नवी मुंबई (महा.)- 400614
A1 & A2 wing, 5th Floor,
C.G.O. complex, CBD Belapur, Navi Mumbai (M.S.),
Mumbai - 400614

E-mail : jtcemumbai@explosives.gov.in

Phone/Fax No : 022 - 27575946, 27573881

संख्या /No. : P/WC/MH/15/6540 (P562332)

दिनांक /Dated : 27/03/2025

सेवा में
/To,

M/s. NAVI MUMBAI INTERNATIONAL AIRPORT PRIVATE LIMITED,
11th Floor, V Times Square, Plot No. 3, Sector 15,,
CBD Belapur,
Belapur,
Mumbai,
Taluka: Mumbai,
District: MUMBAI,
State: Maharashtra
PIN: 400614

विषय : Survey No, Part – 93, 96, 102, 103, 104, 105,, Hissa No. Part 1, 3, 5, 10, 2, 1A, 4B, 5A, 3, 4A, 3A, 7, 2A, 1,
/Sub : 4, 5, 2, 1B, 1A, 3A, 3A, 4B, 6, 8, 4, Koper and Wadghar, Panvel, Taluka: Panvel, District: RAIGAD, State: Maharashtra, PIN: 410206 में पेट्रोलियम वर्ग B का अधिष्ठापन -अनुज्ञप्ति जारी करने के बारे में ।

Petroleum Class B Installation at Survey No, Part – 93, 96, 102, 103, 104, 105,, Hissa No. Part 1, 3, 5, 10, 2, 1A, 4B, 5A, 3, 4A, 3A, 7, 2A, 1, 4, 5, 2, 1B, 1A, 3A, 3A, 4B, 6, 8, 4, Koper and Wadghar, Panvel, Taluka: Panvel, District: RAIGAD, State: Maharashtra, PIN: 410206 Grant of License regarding.

महोदय
/Sir(s),

कृपया आपके पत्र क्रमांक OIN1943115 दिनांक 11/03/2025 का अवलोकन करें ।

Please refer to your letter No. OIN1943115 dated 11/03/2025

विषयान्तर्गत अधिष्ठापन में निम्नलिखित पेट्रोलियम पदार्थों के वर्ग तथा मात्रा के भंडारण के लिए पेट्रोलियम नियम, 2002 के अधीन प्ररूप - XV में स्वीकृत, दिनांक 31/12/2029 तक वैध अनुज्ञप्ति संख्या P/WC/MH/15/6540 (P562332) दिनांक 27/03/2025 भेजी जा रही है ।

Licence No. P/WC/MH/15/6540 (P562332) dated 27/03/2025 granted in Form XV under the Petroleum Rules, 2002 and valid till 31/12/2029 for the storage of the following kinds and quantities of Petroleum at the subject installation is forwarded herewith.

पेट्रोलियम का विवरण /Description of Petroleum	किलोलीटरों में अनुज्ञप्त क्षमता /Quantity licenced in KL
वर्ग क प्रपुंज पेट्रोलियम /Petroleum Class A in bulk	NIL
वर्ग क प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class A, otherwise than in bulk	NIL

वर्ग ख प्रपुंज पेट्रोलियम /Petroleum Class B in bulk	24500.00 KL
वर्ग ख प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class B, otherwise than in bulk	NIL
वर्ग ग प्रपुंज पेट्रोलियम /Petroleum Class C in bulk	NIL
वर्ग ग प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class C,otherwise than in bulk	NIL
कुल क्षमता /Total Capacity	24500.00 KL

कृपया पेट्रोलियम नियम 2002 के अधीन बनाए गए नियम 148 में दी गई प्रक्रिया का कड़ाई से पालन करें और अनुज्ञप्ति के नवीकरण हेतु समस्त दस्तावेजों को अनुज्ञप्ति की वैधता समाप्ति की तारीख या उससे पूर्व **Jt. Chief Controller of Explosives, West Circle, Mumbai** को प्रेषित करें।

Please follow the procedure strictly as laid down in rule 148 of the Petroleum Rules, 2002 and submit complete documents for the Renewal of the licence to **Jt. Chief Controller of Explosives, West Circle, Mumbai**, so as to reach his office on or before the date on which Licence expires.

यह अनुमोदन/ अनुमति अन्य प्राधिकारियों से आवश्यक अनुमति/क्लीयरन्स प्राप्त करने से या यथा लागू अन्य विधियों से छूट नहीं देती है।

This approval/permission, however, does not absolve from obtaining necessary permission/clearance from other authorities or under other statutes as applicable.

भवदीय /Yours faithfully,

((आर.रावत)
(R. Rawat))
संयुक्त मुख्य विस्फोटक नियंत्रक
Jt. Chief Controller of Explosives
नवी मुंबई (महा.)/Mumbai

Copy forwarded to :-

1. The Dy. Commissioner, RAIGAD(Maharashtra) with reference to his NOC No 1227/2024-N7617 Dated 27/01/2025

Jt. Chief Controller of Explosives
Mumbai

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क तथा अन्य विवरण के लिए हमारी वेबसाइट <http://peso.gov.in> देखें)
(For more information regarding status, fees and other details please visit our website <http://peso.gov.in>)

Note:-This is system generated document does not require signature.

Disclaimer : This page gives the latest action taken by this organization on your application. This page is made available for the information of concerned applicant/licensee only. All efforts have been made to secure this information. However, PESO will not be responsible for any misuse of the information by unauthorized persons including the hackers.

ANNEXURE 17 –
PHOTOGRAPHS OF WATER
SAVING FIXTURE INSTALLED AT
AIPORT BUILDINGS

ANNEXURE 17 – WATER SAVING FIXTURE



ANNEXURE 18 –
OCCUPANCY CERTIFICATE OF
PASSENGER TERMINAL BUILDING-1



स्वातंत्र्याचा अमृत महोत्सव



CITY AND INDUSTRIAL DEVELOPMENT CORPORATION OF MAHARASHTRA LIMITED

(CIN - U99999 MH 1970 SGC - 014574)

REGD. OFFICE:

"NIRMAL", 2nd Floor, Nariman Point,
Mumbai - 400 021.
PHONE : 00-91-22-6650 0900
FAX : 00-91-22-2202 2509

HEAD OFFICE:

CIDCO Bhavan, CBD Belapur,
Navi Mumbai - 400 614.
PHONE: 00-91-22-6791 8100
FAX : 00-91-22-6791 8166

Ref. No.

CIDCO/BP-18219/TPO(NM)/2025/747

Date :

Date : 06.10.2025

To,

**M/s.Navi Mumbai International Airport Private Limited,
Chhatrapati Shivaji International Airport.
1st floor, Terminal 1B, Santacruz (E),
Mumbai-400099.**

ASSESSMENT ORDER FOR OCCUPANCY CERTIFICATE & OTHER CHARGES NO. 2025/747

Sub.: Payment of Occupancy charges for Passenger Terminal Building – 1 (Headhouse only) on Plot no.PT1, of Navi Mumbai International Airport at Sector 17, Pushpak Node ,Taluka - Panvel, Dist-Raigad.

Ref.: Your Proposal No.CIDCO/BP-18219/TPO(NM & K)/2022 dated 11/11/2022.
Appeal Order passed by UDD u/s 124 G of M R & T P Act 1966 dated 24/4/2023.

ORDER OF ASSESSMENT OF DEVELOPMENT CHARGES. (AS PER MAHARASHTRA REGIONAL & TOWN PLANNING (AMENDED) ACT 2010)

1)	Name of Assesse	:	M/s.Navi Mumbai International Airport Private Limited
2)	Location	:	Passenger Terminal Building – 1 (Headhouse only) Plot no.PT1, of Navi Mumbai International Airport at Sector 17, Pushpak Node ,Taluka - Panvel, Dist-Raigad
3)	Plot Use	:	Commercial
4)	Plot Area	:	66886.362
5)	Permissible FSI (Base)	:	1.00
6)	Rates as per ASR	:	5230

Sr no.	Budget Heads	Particulars		Amount
		Formula	Formula	Total
1	Security Deposit	Total Built up Area * Rate	187054.88 * 20	0
2	Scrutiny Fees	Gross Built up Area * Rate	154330.06 * 5	771650
3	VUTP	BUA area X RR rate X 4%	118721.2 X 5230 X 4%	24836475
4	Tree	Plot area/100x1000	0	0
		Total Assessed Charges for Security Deposit & Scrutiny fees		25608125.0

7) Date of Assessment : 01.10.2025

8) Payment Details

Sr. No.	Challan Number	Challan Date	Challan Amount	Receipt/Reference Number	Receipt Date	Mode
1	CIDCO/BP/2025/1709	01.10.2025	25608125.0	5587231566956	03.10.2025	NEFT/RTGS

Yours faithfully,

06.10.25
Associate Planner (BP)
CIDCO

PART OCCUPANCY COMPLETION CERTIFICATE

CIDCO/BP-18219/TPO(NM & K)/2025/747

Date : 06.10.2025

To,

M/s.Navi Mumbai International Airport Private Limited,

11th floor,V TIMES SQUARE,

PLOT NO 3,SECTOR 15,CBD Belapur,

Navi Mumbai 400614

Subject: Part Occupancy Certificate for Operational Construction of Proposed Passenger Terminal Building – 1 (PT-1) (Headhouse Only), on Plot no. PT-1, of Navi Mumbai International Airport, Sector 17, Pushpak Node, Taluka - Panvel, Dist-Raigad.

Ref: 1) CC vide CIDCO/BP-18219/TPO(NM)/2022/5006 dt: 15.09.2023 (C/255 and C/347).
2) Architect's application received to this office dated 10.09.2025

Dear Sir,

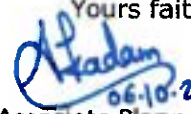
Please find enclosed herewith the necessary Occupancy Certificate for **Passenger Terminal Building – 1 (PT-1) (Headhouse only)** Building on above mentioned plot along with as built drawing duly approved.

You shall carry out Structural Audit of this development from Structural Engineer after every 5 years from the date of occupancy certificate granted and submit the copy of structural audit to Estate section.

The Developers/Project Architect shall take a note that, you have submitted as built drawing regarding change made at site. The area for which Part OC granted is shown separately on plan.

Hence, as per condition mentioned in commencement certificate vide ref 1 above.

You shall comply with all the terms and conditions mentioned in IE's Remarks regarding the said Structure.

Yours faithfully,

06.10.25
Associate Planner (BP)
CIDCO

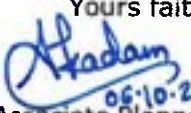
PART OCCUPANCY COMPLETION CERTIFICATE

CIDCO/BP-18219/TPO(NM)/2025/747

Date : 06.10.2025

I hereby certify that the development of **Passenger Terminal Building – 1 (PT-1) (Headhouse)** Building Ground + 3 floor above [Total BUA = 118721.20 Sq.mtrs, Plot no.PT-1, Sector - 17 at **Pushpak** of Navi Mumbai completed under the supervision of **Tushar Mawale** Architect has been inspected on 30.09.2025 and I declare that the development has been carried out in accordance with the General Development Control Regulations and the conditions stipulated in the Commencement Certificate dated **15th Sepetember 2023** and that the development is fit for the use for which it has been carried out.

Thanking You.

Yours faithfully,

06.10.25
Associate Planner (BP)
CIDCO

ANNEXURE 19 –
ADVERTISEMENT OF
ENVIRONMENTAL CLEARANCE
(EC) PUBLISHED IN MARATHI &
ENGLISH NEWSPAPER

Granted Environment & CRZ Clearance Public Notice was published in Marathi newspaper "Loksatta," on **18th February 2026** for the Mumbai, Pune, and Nagpur editions, and on **19th February 2026** for the Ahmednagar and Aurangabad editions

लोकसत्ता

WWW.LOKSATTA.COM

★ मुंबई, बुधवार, १८ फेब्रुवारी २०२६ ५

सार्वजनिक सूचना

हे सार्वजनिक सुचनेद्वारे कळविण्यात येत आहे की नवी मुंबई आंतरराष्ट्रीय विमानतळ प्रायव्हेट लिमिटेड यांना 'नवी मुंबई आंतरराष्ट्रीय विमानतळा (NMIA) ची क्षमता उलवे, पनवेल, तालुका रायगड जिल्हा, महाराष्ट्र येथे वाढविणे' ह्याकरिता राज्य पर्यावरण परिणाम मूल्यमापन प्राधिकरण (SEIAA), महाराष्ट्र यांच्याकडून पर्यावरण मंजूरी प्राप्त झाली आहे. ही मंजूरी EC ओळख क्रमांक EC25C2902MH5775862N, दिनांक 12 फेब्रुवारी 2026 अन्वये प्रदान करण्यात आली आहे. सदर मंजूरी पत्राची प्रत महाराष्ट्र प्रदूषण नियंत्रण मंडळाकडे तसेच पर्यावरण, वन व हवामान बदल मंत्रालय (MoEF&CC) यांच्या संकेतस्थळावर उपलब्ध आहे: <https://parivesh.nic.in/>

Granted Environment & CRZ Clearance Public Notice was published in Marathi newspaper, "**The Indian Express**," on **18th February 2026** for the Mumbai, Pune, and Nagpur editions,

THE INDIAN EXPRESS

WEDNESDAY, FEBRUARY 18, 2026 7

Public Notice

This is to bring to the public notice that Navi Mumbai International Airport Pvt. Ltd. has been accorded with Environment Clearance for the 'Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel, Taluka, Raigad, District, Maharashtra', by State Environment Impact Assessment Authority (SEIAA), Maharashtra, vide EC identification No EC25C2902MH5775862N dated February 12, 2026. The copy of the said clearance letter is available with the Maharashtra Pollution Control Board and on the MoEF&CC website <https://parivesh.nic.in/>.

ANNEXURE 20 –
ACKNOWLEDGEMENT COPY OF
ENVIRONMENT CLEARANCE
LETTER SUBMITTED TO NAVI
MUMBAI MUNICIPAL
CORPORATION AND PANVEL
MUNICIPAL CORPORATION



**Navi Mumbai
International Airport**

No. NMIAL/NMMC/GEN/01358

Date: 23rd February 2026

To,
The Commissioner,
Navi Mumbai Municipal Corporation
Plot No. 15A, Sector 1, 2,
Palm Beach Road,
CBD Belapur, Navi Mumbai,
Maharashtra 400614

Subject: Submission of copy of Environment Clearance granted by SEIAA for
"Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA)"
at Ulwe, Panvel Taluka, Raigad District Maharashtra.

Respected Sir/Madam,

Navi Mumbai International Airport Private Limited (NMIAL) has been granted the Environment & CRZ Clearance by the Maharashtra State Environment Impact Assessment Authority (SEIAA) for the project titled "Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel Taluka, Raigad District." The clearance has been issued vide EC Identification No. EC25C2902MH5775862N and File No. SIA/MH/INFRA2/558603/2025, dated February 12, 2026.

In accordance with *General Condition (B) XII* of the Environmental Clearance, we are submitting herewith a copy of the aforementioned Environment Clearance for your kind information and records.

Thanking you,

Yours faithfully,
For Navi Mumbai International Airport Pvt. Ltd.

Ravindra Thakur
Head – Environment & Sustainability

23/2/26
लेखनिका
नवी मुंबई महानगरपालिका

Enclosures: Environment Clearance granted by SEIAA to NMIA vide EC Identification No
EC25C2902MH5775862N dated February 12th, 2026



सत्यमेव जयते

File No: SIA/MH/INFRA2/556803/2025

Government of India

**Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), MAHARASHTRA)**



Dated: 12/02/2026



To,

Charudatta Deshmukh
NAVI MUMBAI INTERNATIONAL AIRPORT PRIVATE LIMITED
Navi Mumbai International Airport Private Limited, S17-C, New Project Office, Near Ulwe Gaothan
Bus Stop, Amara Marg, Ulwe, Navi Mumbai, Taluka Panvel, RAIGAD, MAHARASHTRA, , 400702
charudatta.d@adani.com

Subject: Grant of EC under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

This is in reference to your application for Grant of EC under the provision of the EIA Notification 2006-regarding in respect of project Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel, Taluka, Raigad, District, Maharashtra by Navi Mumbai International Airport Private Limited (NMIAL) submitted to Ministry vide proposal number SIA/MH/INFRA2/556803/2025 dated 07/11/2025.

2. The particulars of the proposal are as below:

(i) EC Identification No.	EC25C2902MH5775862N
(ii) File No.	SIA/MH/INFRA2/556803/2025
(iii) Clearance Type	EC
(iv) Category	B2
(v) Project/Activity Included Schedule No.	7(a) Airports Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel, Taluka, Raigad, District, Maharashtra by Navi Mumbai International Airport Private Limited (NMIAL)
(vii) Name of Project	NAVI MUMBAI INTERNATIONAL AIRPORT PRIVATE LIMITED
(viii) Name of Company/Organization	RAIGAD, MAHARASHTRA
(ix) Location of Project (District, State)	SEIAA
(x) Issuing Authority	no
(xi) Applicability of General Conditions	no
(xii) Applicability of Specific Conditions	no



Navi Mumbai
International Airport

No. NMIAL/PMC/GEN/01357

Date: 23rd February 2026

To,
The Commissioner,
Panvel Municipal Corporation
Swami Nityanand Rd,
Opp. GOKHALE Marriage Hall,
Tal-Panvel, Dist-Raigad,
Maharashtra - 410206

Subject: Submission of copy of Environment Clearance granted by SEIAA for "Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA)" at Ulwe, Panvel Taluka, Raigad District Maharashtra

Respected Sir/Mam,

Navi Mumbai International Airport Private Limited (NMIAL) has been granted the Environment & CRZ Clearance by the Maharashtra State Environment Impact Assessment Authority (SEIAA) for the project titled "Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel Taluka, Raigad District." The clearance has been issued vide EC Identification No. EC25C2902MH5775862N and File No. SIA/MH/INFRA2/558603/2025, dated February 12, 2026.

In accordance with *General Condition (B) XII* of the Environmental Clearance, we are submitting herewith a copy of the aforementioned Environment Clearance for your kind information and records.

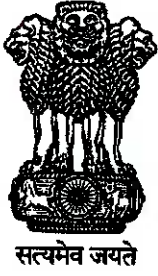
Thanking you,

Yours faithfully,
For Navi Mumbai International Airport Pvt. Ltd.

Ravindra Thakur
Head – Environment & Sustainability

23/2/26
लेखनिक
आवक-आवक
पनवेल महानगरपालिका
पनवेल-रावगड

Enclosures: Environment Clearance granted by SEIAA to NMIA vide EC Identification No EC25C2902MH5775862N dated February 12th, 2026



File No: SIA/MH/INFRA2/556803/2025
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment
Authority(SEIAA), MAHARASHTRA)



Dated: 12/02/2026



To,

Charudatta Deshmukh
NAVI MUMBAI INTERNATIONAL AIRPORT PRIVATE LIMITED
Navi Mumbai International Airport Private Limited, S17-C, New Project Office, Near Ulwe Gaothan
Bus Stop, Amara Marg, Ulwe, Navi Mumbai, Taluka Panvel, RAIGAD, MAHARASHTRA, , 400702
charudatta.d@adani.com

Subject: Grant of EC under the provision of the EIA Notification 2006-regarding.

Sir/Madam,

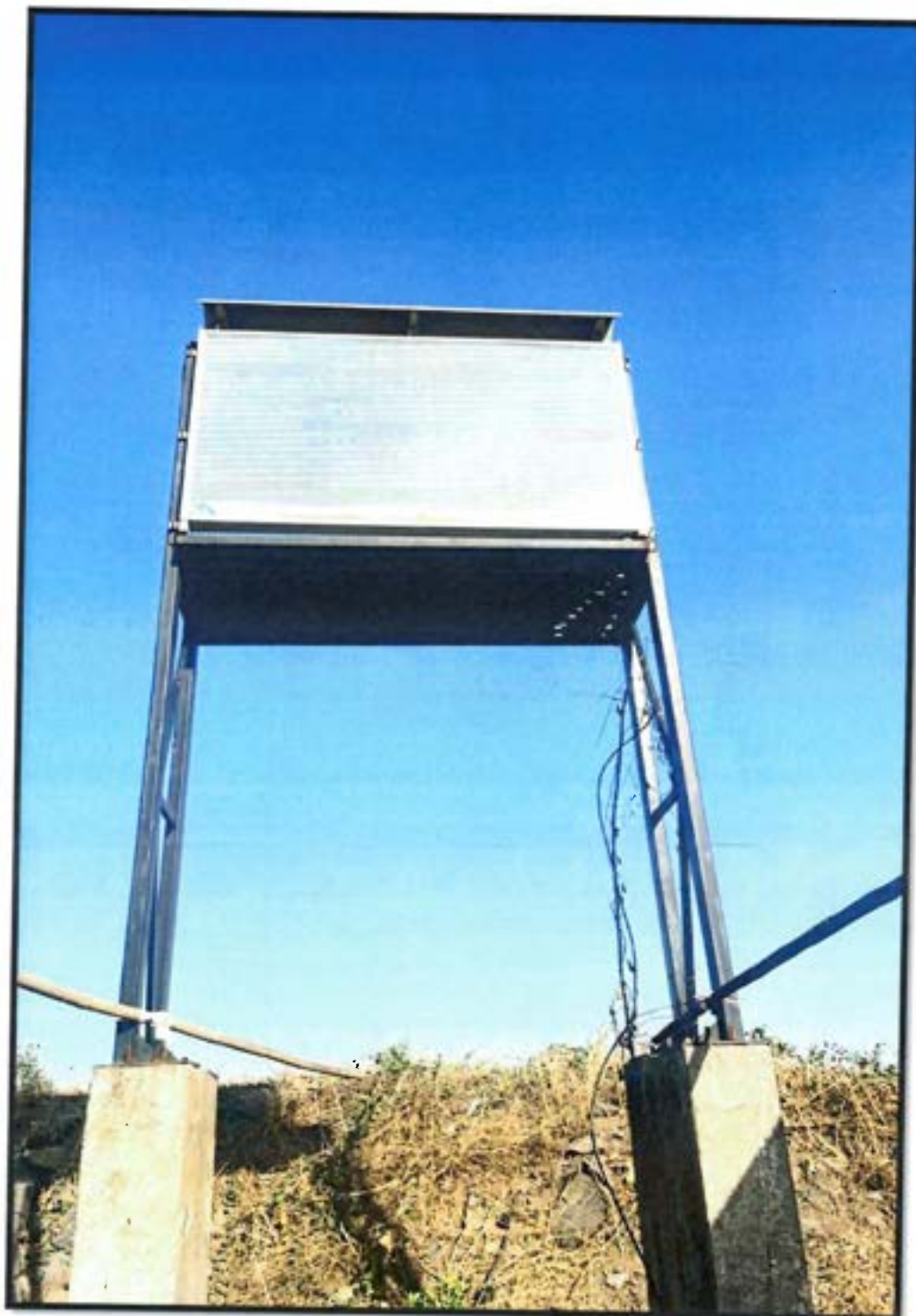
This is in reference to your application for Grant of EC under the provision of the EIA Notification 2006-regarding in respect of project Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel, Taluka, Raigad, District, Maharashtra by Navi Mumbai International Airport Private Limited (NMIAL) submitted to Ministry vide proposal number SIA/MH/INFRA2/556803/2025 dated 07/11/2025.

2. The particulars of the proposal are as below:

(i) EC Identification No.	EC25C2902MH5775862N
(ii) File No.	SIA/MH/INFRA2/556803/2025
(iii) Clearance Type	EC
(iv) Category	B2
(v) Project/Activity Included Schedule No.	7(a) Airports Enhancement of Airport Capacity of Navi Mumbai International Airport (NMIA) at Ulwe, Panvel, Taluka, Raigad, District, Maharashtra by Navi Mumbai International Airport Private Limited (NMIAL)
(vii) Name of Project	NAVI MUMBAI INTERNATIONAL AIRPORT PRIVATE LIMITED
(viii) Name of Company/Organization	RAIGAD, MAHARASHTRA
(ix) Location of Project (District, State)	SEIAA
(x) Issuing Authority	no
(xi) Applicability of General Conditions	no
(xii) Applicability of Specific Conditions	no

ANNEXURE 21 –
PHOTOGRAPH OF
ENVIRONMENTAL MONITORING
DATA DISPLAYED AT NMIA GATE

ANNEXURE 21 –
MONITORING DATA DISPLAY AT THE ENTRANCE



ANNEXURE 22 –
PHOTOGRAPHS OF DG SETS WITH
ACOUSTIC ENCLOSURE

ANNEXURE 22- DG SET ARE KEPT WITH ACOUSTIC ENCLOSURE.



ANNEXURE 23 -
PHOTOGRAPH OF STP

ANNEXURE 23 - STP 4.5 MLD



RO Facility Provided at STP



UF Facility Provided at STP



ANNEXURE 24 –
PHOTOGRAPHS OF EV CHARGING
STATIONS

ANNEXURE 24 – EV Charging Stations.



ANNEXURE 25 –
FUEL FARM LAYOUT PLAN
APPROVAL FOR FACTORY
LICENCE



महाराष्ट्र शासन

औद्योगिक सुरक्षा व आरोग्य संचालनालय

JOINT DIRECTOR INDUSTRIAL SAFETY & HEALTH RAIGAD Room No 522, 5th Floor Konkan Bhavan CBD Belapur Navi Mumbai, 400 614

Ref No: 122000000042061

दिनांक : 07/10/2025

प्रति

भोगवटादार / व्यवस्थापक,

Navi Mumbai International Airport Private Limited
FUEL FARM, HISSA NO PART
1,3,5,10,2,1A,4B,5A,3,4A,3A,7,2A,1,4,5,2,1B,1A,3A,3A,4
B,6,8,4,KOPER AND WADGAHR, PANVEL,KOPER AND
WADGHAR,Panvel,Raigarh,MAHARASHTRA,410206

विषय: कारखाने अधिनियम, १९४८ खाली कारखाने नकाशे मंजुरीबाबत, इमारत त्याची बांधणी/ कारखान्याची पुनर्रचना किंवा वाढीव बांधकाम .

संदर्भ: आपले पत्र क्र. १०००८६६६२५२१

दिनांक : १२/०९/२०२५

उपरोक्त विषयाच्या संदर्भात नकाशाच्या दोन प्रतीपैकी एक प्रत मंजूर करून खालील अटीनुसार देण्यात येत आहे.

अटी

- 1 Provisions of Schedule XXIII prescribed under Rule 114 of Maharashtra Factories Rules, 1963 in respect of highly flammable liquids and flammable Compressed Gases shall be complied with
- 2 Emergency exit provisions shall be in accordance with 70(9) of Maharashtra Factories Rules, 1963
- 3 Fire fighting arrangement shall be provided in accordance with provisions of Rule 71-B of Maharashtra Factories Rules, 1963
- 4 Certificate of Stability shall be obtained in form No.1-A and copy shall be submitted to office as per Rule 3-A of Maharashtra Factories Rules, 1963
- 5 Provisions of Schedule XXIII prescribed under Rule 114 of Maharashtra Factories Rules, 1963 in respect of highly flammable liquids and flammable Compressed Gases shall be complied with
- 6 Site Notification Report shall be prepared as per Rule-7 of the Maharashtra Factories (Control of Industrial Major Accident Hazards) Rules 2003 and its copy shall be submitted to this Office
- 7 Safety Report & Safety Audit Reports shall be prepared in accordance with the Rule-9 of the Maharashtra Factories (Control of Industrial Major Accident Hazards) Rules 2003, and compliance of the recommendations suggested there under shall be submitted to this Office
- 8 On Site Emergency Plan containing details specified in Schedule-6 under the Rule 12 of the Maharashtra Factories (Control of Industrial Major Accident Hazards) Rules, 2003 shall be prepared and copy of the same furnished to this Office
- 9 Dyke wall of adequate capacity shall be provided to storage tanks of flammable chemicals
- 10 Necessary approval from Chief Controller of Explosive shall be obtained

Signature valid
Digitally Signed by
Vikram V Kadamwar
Date: 10/10/2025 6:37:12 PM



महाराष्ट्र शासन

औद्योगिक सुरक्षा व आरोग्य संचालनालय

JOINT DIRECTOR INDUSTRIAL SAFETY & HEALTH RAIGAD Room No 522, 5th Floor Konkan Bhavan CBD Belapur Navi Mumbai,
400 614

आपला विश्वासू

सह संचालक

औद्योगिक सुरक्षा व आरोग्य, रायगड

ANNEXURE-26

ECBC 2027 COMPLIANCE REPORT

ANNEXURE-26
ECBC 2017 COMPLIANCE REPORT OF NMIA

ECBC 2017 COMPLIANCE REPORT

ANNEXURE-26
ECBC 2017 COMPLIANCE REPORT OF NMIA

Introduction

At the proposed Terminal 1 and Ancillary Buildings necessary Green Building measures will be followed for minimum conservation of energy in line with "Energy Conservation Building Code -2017", "National

Building Code 2016" and ASHRAE requirements. The Terminal is targeted to achieve LEED Certification Gold from the United States Green Building Council (USGBC), and all other building shall follow a minimum energy requirement as per ECBC. The building falls under the category of Assembly, and the energy conservation measures which will be adopted are described below. The report has an Annexure which can be referred for compliance

Building Envelope

Generally, the building envelope is comprised of a series of components and system that protect the interior space from the effects of the environment like precipitation, wind, temperature, humidity and ultraviolet radiation. Through the optimization of various building elements such as the roof, windows and openings, and building envelope, cost and emissions can be cut down while increasing indoor comfort. Reduced dependence on non-renewables by promoting daylight and natural ventilation plays a vital role in the reduction of annual energy consumption.

Fenestration, Walls & Roof

Building

The U value & SHGC shall be determined for the overall fenestration which shall include the sash and frame. The values considered for Terminal 1 facade are U – 2 W/m² K, Roof with a U value of 0.20 W/m² K and wall having a value of 0.40 W/m² K. The Solar heat gain Coefficient for Facade and Skylight shall be 0.25.

Daylight

Assembly buildings and other buildings where day lighting will interfere with the functions or processes of 50% (or more) of the building floor area is exempted from meeting the requirement as per Table 4-1 in ECBC 2017. Hence daylighting are not considered for all the areas.

COMFORT SYSTEM AND CONTROLS

Nowadays, due to the high demand for HVAC system installation in buildings, designing an effective controller to decrease the energy consumption of the devices while meeting the thermal comfort demands in buildings are the most important goals. The other factors are how efficiently we use the outside air for occupant wellbeing, bringing outside air can have an impact on the power consumption of the overall however there are controls to efficient modulate the outside air for energy reduction.

Ventilation

Habitat space is ventilated as per Ashrae 62.1 2010, and where cross-reference for spaces are not available in Ashrae 62.1 2010, NBC 2016 has been followed.

Buildings ventilated using mixed-mode mechanical ventilation has Demand Control ventilation which has been integrated with Carbon dioxide sensors (CO₂) to optimize the fresh air requirement based on the Outdoor and Indoor CO₂ level. This reduces the

ANNEXURE-26
ECBC 2017 COMPLIANCE REPORT OF NMIA

tonnage on the chiller based on diversified load, which has a considerable energy saving in the Air Handling Unit.

HVAC:

1. Ventilation

(a) All habitable spaces shall be ventilated with outdoor air in accordance with the requirements of ECBC 2017 Clause# 5.2.1 and guidelines specified in the National Building Code 2016 (Part 8: Building Services, Section 1: Lighting and Natural Ventilation, Subsection 5: Ventilation).

(b) Ventilated spaces shall be provided with outdoor air using one of the following:

- i. Natural ventilation
- ii. Mechanical ventilation
- iii. Mixed mode ventilation

Compliance Strategy:

The project has only mechanical ventilated spaces and the air changes shall be between 4 to 8 ACH in all mechanical ventilation spaces.

1.1 Natural Ventilation Design Requirements

Naturally ventilated buildings or spaces in a mixed-mode ventilated buildings shall:

- (a) Comply with guidelines provided for natural ventilation in NBC.
- (b) Have minimum BEE 3-star rated ceiling fans, if provided with ceiling fans.
- (c) Have exhaust fans complying with minimum efficiency requirements of fans in table below, if provided.

TABLE-1
MECHANICAL AND MOTOR EFFICIENCY REQUIREMENTS FOR FAN IN ECBC BUILDINGS

System Type	Fan Type	Mechanical Efficiency	Motor Efficiency (As per IS 12615)
Air-Handling Unit	Supply, return and exhaust	60%	IE-2

Compliance Strategy:

- There are no naturally ventilated spaces in the project.
- The ceiling fans shall have at least BEE 3-Star rating.
- All exhaust fan motors shall be in compliance with the ECBC norms of at least IE-2 efficiency.

1.2 Mechanical Ventilation Air Quantity Design Requirements

Buildings that are ventilated using a mechanical ventilation system or spaces in mixed-mode ventilated buildings that are ventilated with a mechanical system, either completely or in conjunction with natural ventilation systems, shall:

- (a) Install mechanical systems that provide outdoor air change rate as per NBC; and
- (b) Have a ventilation system controlled by CO sensors for basement carpark spaces with total car park space greater than or equal to 600 m².

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ECBC 2017 COMPLIANCE REPORT OF NMIA

Compliance Strategy:

- The outdoor air change rate shall be as per the NBC standard equivalent to 4 – 8 ACH.
- As there is no basement parking system in the project, providing CO sensors for basement car parks are not applicable.

1.3 Demand Control Ventilation

Mechanical ventilation systems shall have demand control ventilation if they provide outdoor air greater than 1,500 liters per second, to a space greater than 50 m², with occupant density exceeding 40 people per 100 m² of the space, and are served by one or more of the following systems:

- (a) An air side economizer
- (b) Automatic outdoor modulating control of the outdoor air damper

Compliance Strategy:

- CO₂ sensors shall be provided for complying the ECBC requirement along with the automatic outdoor modulating control for controlling the outdoor air damper.

2. Minimum Space Conditioning Equipment Efficiencies

2.1 Chillers

(a) Chillers shall meet or exceed the minimum efficiency requirements presented in table below under ANSI/ AHRI 550/ 590 conditions.

ECBC Building		
Chiller Capacity (kW _r)	COP	IPLV
<260	4.7	5.8
≥260 & <530	4.9	5.9
≥530 & <1,050	5.4	6.5
≥1,050 & <1,580	5.8	6.8
≥1,580	6.3	7.0

Compliance Strategy:

- Water cooled centrifugal chillers are proposed with efficiency in compliance with the ECBC standard of COP equal to 6.3 and IPLV of 7.
- Air Cooled chillers are not proposed in the project

Water Cooled Chillers:

Equipment Efficiencies & Control

- Chiller shall comply with the requirement of ANSI/AHRI 550/590 Conditions.
- The cooling tower is provided with VFD, and the logic is based on the wet bulb conditions.
- All the Air handling units shall be with minimum 60% efficiency with VFD for fan control and space shall have pressure independent Variable Air Volume (VAV).
- The pumping system will be with primary constant speed and Secondary Variable speed integrated with a differential pressure sensor to achieve saving in part-load conditions by decreasing the water flow rate. Minimum efficiency of the pumps will be 70%

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2.2 Variable Refrigerant Flow

Variable Refrigerant Flow (VRF) systems shall meet or exceed the efficiency requirements specified in Table below as per the ANSI/AHRI Standard 1230 while the Indian Standard on VRF is being developed. Standards and Labeling requirements for VRF shall take precedence over the current minimum requirement.

For Heating or cooling or both			
Type	Size category (kW _r)	EER	IEER
VRF Air Conditioners, Air cooled	< 40	3.28	4.36
	>= 40 and < 70	3.26	4.34
	>= 70	3.02	4.07

NOTE: The revised EER and IEER values as per Indian Standard for VRF corresponding to values in this table will supersede as and when the revised standards are published.

Compliance Strategy:

- VRF systems are not proposed in the project and hence the compliance to this section is not applicable

2.3 Air Conditioning and Condensing Units Serving Computer Rooms

Air conditioning and condensing units serving computer rooms shall meet or exceed the energy efficiency requirements listed in Table below.

Equipment type	Net Sensible Cooling Capacity ^a	Minimum SCOP-127 ^b	
		Down flow	Up flow
All types of computer room ACs Air/ Water/ Glycol	All capacity	2.5	2.5

a. Net Sensible cooling capacity = Total gross cooling capacity - latent cooling capacity - Fan power
b. Sensible Coefficient of Performance (SCOP-127): A ratio calculated by dividing the net sensible cooling capacity in watts by the total power input in watts (excluding reheater and dehumidifier) at conditions defined in ASHRAE Standard 127-2012 Method of Testing for Rating Computer and Data Processing Room Unitary Air Conditioners)

Compliance Strategy:

- The air conditioning system proposed for serving the computer rooms and server rooms shall comply the ECBC norms of SCOP.

2.4 Controls

To comply with the Code, buildings shall meet the requirements of ECBC 2017 Clause# 5.2.3.1 through ECBC 2017 Clause# 5.2.3.5.

2.4.1 Time clock

Mechanical cooling and heating systems in Universities and Training Institutions of all sizes and all Shopping Complexes with built up area greater than 20,000 m² shall be controlled by time clocks that:

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ECBC 2017 COMPLIANCE REPORT OF NMIA

- (a) Can start and stop the system under different schedules for three different day-types per week,
- (b) Are capable of retaining programming and time setting during loss of power for a period of at least 10 hours, and
- (c) Include an accessible manual override that allows temporary operation of the system for up to 2 hours.

2.4.2 Temperature Controls

Mechanical heating and cooling equipment in all buildings shall be installed with controls to manage the temperature inside the conditioned zones. Each floor or a building block shall be installed with at least one control to manage the temperature. These controls should meet the following requirements:

- (a) Where a unit provides both heating and cooling, controls shall be capable of providing a temperature dead band of 3.0°C within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum.
- (b) Where separate heating and cooling equipment serve the same temperature zone, temperature controls shall be interlocked to prevent simultaneous heating and cooling.
- (c) Separate thermostat control shall be installed in each
 - i. Guest room of Resort and star hotel,
 - ii. Room less than 30 m² in business,
 - iii. Air-conditioned class room, lecture room, and computer room of educational,
 - iv. In-patient and out-patient room of healthcare

2.4.3 Occupancy Controls

Occupancy controls shall be installed to de-energize or to throttle to minimum the ventilation and/or air conditioning systems when there are no occupants in:

- (a) Each guest room in a resort and star hotel
- (b) Each public toilet in a star hotel or business with built up area more than 20,000 m²
- (c) Each conference and meeting room in a star hotel or business
- (d) Each room of size more than 30 m² in educational buildings

2.4.4 Fan Controls

Cooling towers in buildings with built up area greater than 20,000 m², shall have fan controls based on wet bulb logic, with either:

- (a) Two speed motors, pony motors, or variable speed drives controlling the fans, or
- (b) Controls capable of reducing the fan speed to at least two third of installed fan power

2.4.5 Dampers

All air supply and exhaust equipment, having a Variable Frequency Drive (VFD), shall have dampers that automatically close upon:

- (a) Fan shutdown, or,
- (b) When spaces served are not in use
- (c) Backdraft gravity damper is acceptable in the system with design outdoor air of the system is less than 150 liters per second in all climatic zones except cold climate, provided backdraft dampers for ventilation air intakes are protected from direct exposure to wind.

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(d) Dampers are not required in ventilation or exhaust systems serving naturally conditioned spaces.

(e) Dampers are not required in exhaust systems serving

Compliance Strategy:

- As the project is operational round the clock throughout the year, providing timer clock, temperature controls, occupancy controls are not applicable.
- The Cooling tower fans are configured with Variable Frequency Drive (VFDs) for complying the ECBC norms.

As per ECBC 2017 Clause# 5.2.3.1 shall be address by building management system;

ECBC 2017 Clause# 5.2.3.2 - Thermostats are provided to comply the norms; and

ECBC 2017 Clause# 5.2.3.3 - Occupancy sensors shall be provide to meet the norms.

2.5 Piping and Ductwork

2.5.1 Piping Insulation

Piping for heating, space conditioning, and service hot water systems shall meet the insulation requirements listed in Table below. Insulation exposed to weather shall be protected by aluminum sheet metal, painted canvas, or plastic cover. Cellular foam insulation shall be protected as above, or be painted with water retardant paint.

Operating Temperature (°C)	Pipe size (mm)	
	<25	>=40
	Insulation R value (m2.K/W)	
Heating System		
94°C to 121°C	0.9	1.2
60°C to 94°C	0.7	0.7
40°C to 60°C	0.4	0.7
Cooling System		
4.5°C to 15°C	0.4	0.7
< 4.5°C	0.9	1.2
Refrigerant Piping (Split systems)		
4.5°C to 15°C	0.4	0.7
< 4.5°C	0.9	1.2

2.5.2 Ductwork and Plenum Insulation

Ductwork and plenum shall be insulated in accordance as per table below.

TABLE-2
DUCTWORK INSULATION (R VALUE IN m² k/m REQUIREMENT

Duct Location	Supply Ducts	Return Ducts
Exterior	R1.4	R-0.6
Unconditional Space	R-0.6	None
Buried	R-0.6	None

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ECBC 2017 COMPLIANCE REPORT OF NMIA

Compliance Strategy:

- The insulation materials used for piping, ductworks and in plenum spaces shall comply with the resistance value as specified in the ECBC norms.

2.6 System Balancing

2.6.1 General

System balancing shall be done for systems serving zones with a total conditioned area exceeding 500 m².

2.6.2 Air System Balancing

Air systems shall be balanced in a manner to first minimize throttling losses; then, for fans with fan system power greater than 0.75 kW, fan speed shall be adjusted to meet design flow conditions.

2.6.3 Hydronic System Balancing

Hydronic systems shall be proportionately balanced in a manner to first minimize throttling losses; then the pump impeller shall be trimmed or pump speed shall be adjusted to meet design flow conditions.

Compliance Strategy:

- The system balancing shall be done as per the ECBC requirement during the commissioning stage of the project.

2.7 Condensers

2.7.1 Condenser Locations

Condensers shall be located such that the heat sink is free of interference from heat discharge by devices located in adjoining spaces, and do not interfere with other such systems installed nearby.

Compliance Strategy:

- The condenser location shall be free from any interference by heat discharged from devices located in adjoining spaces.

2.8 Service Water Heating

2.8.1 Heating Equipment Efficiency

Service water heating equipment shall meet or exceed the performance and minimum efficiency requirements presented in available Indian Standards

- (a) Solar water heater shall meet the performance/ minimum efficiency level mentioned in IS 13129 Part (1&2)
- (b) Gas Instantaneous water heaters shall meet the performance/minimum efficiency level mentioned in IS 15558 with above 80% Fuel utilization efficiency.
- (c) Electric water heater shall meet the performance/ minimum efficiency level mentioned in IS 2082.

2.8.2 Other Water Heating System

Supplementary heating system shall be designed to maximize the energy efficiency of the system and shall incorporate the following design features in cascade:

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ECBC 2017 COMPLIANCE REPORT OF NMIA

- (a) Maximum heat recovery from hot discharge system like condensers of air conditioning units,
- (b) Use of gas fired heaters wherever gas is available, and
- (c) Electric heater as last resort.

2.8.3 Piping Insulation

Piping insulation shall comply with ECBC 2017 Clause# 5.2.6.1. The entire hot water system including the storage tanks, pipelines shall be insulated conforming to the relevant IS standards on materials and applications.

2.8.4 Heat Traps

Vertical pipe risers serving storage water heaters and storage tanks not having integral heat traps and serving a non-recirculating system shall have heat traps on both the inlet and outlet piping.

Compliance Strategy:

- Providing hot water system is not a part of contractor scope, hence this compliance is not applicable.
- ECBC 2017 Clause# 5.2.9 service water heating not applicable

2.9 Lighting and Controls

Lighting control systems serve to provide the right amount of light where and when it is needed. Lighting control systems are employed to maximize the energy savings from the lighting system, satisfy building codes, or comply with green building and energy conservation programs.

2.9.1 Interior and Exterior lighting and Control

The Interior lighting control for the Terminal will be equipped with automatic control devices like dimmable luminaires and time clock dependent based on daylight (PV) sensors. The back of the house like office will have an individual on/off control switch and the services areas will have occupancy sensor for Lighting Control. The Connected lighting power density requirement followed for Interior, and Exterior lighting shall be as per ASHRAE 90.1 2010. Exterior lighting shall be provided with automatic control.

The natural daylight will be integrated with the building to comply with the ECBC requirement.

2.9.2 Electrical and Renewable Energy System

Clean, renewable energy is one of the most important actions we can take to reduce our impact on the environment. Electricity production is our #1 source of greenhouse gases, more than all of our driving and flying combined. Clean energy also reduces harmful smog, toxic build-ups in our air and water, and the impacts caused by coal mining and gas extraction. Energy efficiency is a key step to reducing our impact on climate change and creating a sustainable energy future.

2.9.3 Lighting Control

• **Automatic Lighting Shutoff**

(a) 90% of interior lighting fittings in building or space of building larger than 300 m² shall be equipped with automatic control device.

(b) Additionally, occupancy sensors shall be provided in

ANNEXURE-26
ECBC 2017 COMPLIANCE REPORT OF NMIA

- i. All building types greater than 20,000 m² BUA, in
 - a. All habitable spaces less than 30 m², enclosed by walls or ceiling height partitions.
 - b. All storage or utility spaces more than 15 m² in all building types with BUA greater than 20,000 m².
 - c. Public toilets more than 25 m², controlling at least 80 % of lighting fitted in the toilet. The lighting fixtures, not controlled by automatic lighting shutoff, shall be uniformly spread in the area.
- ii. In corridors of all Hospitality greater than 20,000 m² BUA, controlling minimum 70% and maximum 80% of lighting fitted in the public corridor. The lighting fixtures, not controlled by automatic lighting shut off, shall be uniformly spread in the area.
- iii. In all business and all conference or meeting rooms.

(c) Automatic control device shall function on either:

- i. A scheduled basis at specific programmed times. An independent program schedule shall be provided for areas of no more than 2,500 m² and not more than one floor, or,
- ii. Occupancy sensors that shall turn off the lighting fixtures within 15 minutes of an occupant leaving the space. Light fixtures controlled by occupancy sensors shall have a wall-mounted, manual switch capable of turning off lights when the space is occupied.

Compliance Strategy:

- Occupancy sensors shall be provided in all applicable areas as recommended in ECBC.
- Providing programmable timers is not applicable as the project is operational for 24 Hours.

• Space Control

Each space enclosed by ceiling-height partitions shall have at least one control device to independently control the general lighting within the space. Each control device shall be activated either manually by an occupant or automatically by sensing an occupant. Each control device shall

(a) Control a maximum of 250 m² for a space less than or equal to 1,000 m², and a maximum of 1,000 m² for a space greater than 1,000 m².

(b) Have the capability to override the shutoff control required in ECBC 2017 Clause# 6.2.1.1 for no more than 2 hours, and

(c) Be readily accessible and located

Compliance Strategy:

Occupancy sensors and manual switches shall be provided for complying the ECBC norms.

• Control in Daylight Areas

(a) Luminaires, installed within day lighting extent from the window as calculated in ECBC 2017 Clause# 4.2.3, shall be equipped with either a manual control device to shut off luminaires, installed within day lit area, during potential daylight time of a day or automatic control device that:

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- i. Has a delay of minimum 5 minutes, or,
 - ii. Can dim or step down to 50% of total power.
- (b) Overrides to the daylight controls shall not be allowed.

Compliance Strategy:

Necessary control device for shutting down the luminaires located within the day light zone shall be provided as per the ECBC norms.

- **Exterior Lighting Control**

(a) Lighting for all exterior applications not exempted in table below shall be controlled by a photo sensor or astronomical time switch that is capable of automatically turning off the exterior lighting when daylight is available or the lighting is not required.

TABLE-3
EXTERIOR LIGHT APPLICATION

Parameter	Description
Exterior Light Application	Building entrance (with canopy)
	Building entrance (w/o canopy)
	Building exit
	Building façade
	Emergency signs, ATM kiosks, Security areas façade
	Driveways and parking (open/external)
	Pedestrian walkways
	Stairways
	Landscaping
	Outdoor sales area

Compliance Strategy:

- Astronomical time switch shall be provided for automatically turning off the exterior lighting when daylight is available or the lighting is not required;
- Lighting for all exterior applications, of Schools and Business with built up area greater than 20,000 m², shall have lamp efficacy not less than 80 lumens per watt, 90 lumens per watt, and 100 lumens per watt, for ECBC Buildings unless the luminaire is controlled by a motion sensor or exempt for emergency & security lighting; and
- The Lamp efficacy of the light fixtures proposed to be installed in the project shall be ≥ 80 lumens per watt.

- **Additional Control**

The following lighting applications shall be equipped with a control device to control such lighting independently of general lighting:

Display/ Accent Lighting. Display or accent lighting greater than 300 m² area shall have a separate control device.

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Compliance Strategy:

- Necessary control device for independently controlling the display lights installed in the project shall be provided as per the ECBC requirement.
- Hotel Guest Room Lighting. Guest rooms and guest suites in a hotel shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles.
- Task Lighting. Supplemental task lighting including permanently installed under shelf or under cabinet lighting shall have a control device integral to the luminaires or be controlled by a wall-mounted control device provided the control device complies with ECBC 2017 Clause# 2.1.2.
- Nonvisual Lighting. Lighting for nonvisual applications, such as plant growth and food-warming, shall be equipped with a separate control device.
- Demonstration Lighting. Lighting equipment that is for sale or for demonstrations in lighting education shall be equipped with a separate control device accessible only to authorized personnel.
- Control device integral to the luminaires or a wall mounted control device shall be provided for controlling all task lightings.
- Internally-illuminated exit signs shall not exceed 5 Watts per face.

3.0 Electrical and Renewal Energy Systems

Energy Recovery

The energy recovery is through Enthalpy wheel which can recover the temperature and moisture load through exhaust from the conditioned zone, which otherwise would have been exhausted to the atmosphere without any recovery.

Electrical

Transformer considered shall be dry type and will be as per the ECBC norms. All the Motors used, whether, in HVAC, Fire Fighting or Public Health Services shall be energy efficient. Renewable energy in the form of Solar Panel will be provided on the roof of Terminal 1 with 5% of the total electrical load requirement.

3.1 Transformers

3.1.1 Maximum Allowable Power Transformer Losses

Power transformers of the proper ratings and design must be selected to satisfy the minimum acceptable efficiency at 50% and full load rating.

Permissible total loss values shall not exceed 5% of the maximum total loss values mentioned in IS 1180 for oil type transformers in voltage class above 11 kV but not more than 22 kV

Compliance Strategy:

- The Oil type transformers proposed to be installed in the project shall comply to the losses values as specified in the ECBC for both 50% and 100% load.
- 7.5% of the maximum total loss values mentioned in above IS 1180 for oil type transformers in voltage class above 22 kV and up to and including 33 kV

3.1.2 Measurement and Reporting of Transformer Losses

All measurement of losses shall be carried out by using calibrated digital meters of class 0.5 or better accuracy and certified by the manufacturer. All transformers of capacity of 500 kVA and above would be equipped with additional metering class current

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transformers (CTs) and potential transformers (PTs) additional to requirements of Utilities so that periodic loss monitoring study may be carried out.

3.1.3 Voltage Drop

Voltage drop for feeders shall not exceed 2% at design load. Voltage drop for branch circuit shall not exceed 3% at design load.

Compliance Strategy:

The Voltage drop for feeders shall not exceed 2% at design load and shall not exceed 3% at design load in the branch circuit.

3.2 Energy Efficient Motors

Motors shall comply with the following:

(a) Three phase induction motors shall conform to Indian Standard (IS) 12615 and shall fulfil the following efficiency requirements:

ECBC Buildings shall have motors of IE 2 (high efficiency) class or a higher class

(b) All permanently wired polyphase motors of 0.375 kW or more serving the building and expected to operate more than 1,500 hours per year and all permanently wired polyphase motors of 50kW or more serving the building and expected to operate more than 500 hour per year, shall have a minimum acceptable nominal full load motor efficiency not less than levels specified in the latest version of IS 12615.

(c) Motors of horsepower differing from those listed in the table shall have efficiency greater than that of the next listed kW motor.

(d) Motor horsepower ratings shall not exceed 20% of the calculated maximum load being served.

(e) Motor nameplates shall list the nominal full-load motor efficiencies and the full-load power factor.

(f) Motor users should insist on proper rewinding practices for any rewound motors. If the proper rewinding practices cannot be assured, the damaged motor should be replaced with a new, efficient one rather than suffer the significant efficiency penalty associated with typical rewind practices. Rewinding practices from BEE guideline for energy efficient motors shall be followed.

(g) Certificates shall be obtained and kept on record indicating the motor efficiency. Whenever a motor is rewound, appropriate measures shall be taken so that the core characteristics of the motor is not lost due to thermal and mechanical stress during removal of damaged parts. After rewinding, a new efficiency test shall be performed and a similar record shall be maintained.

Compliance Strategy:

The efficiency of all motors (vertical multistage, hydro-pneumatic and monobloc pumps, HVAC motors) will be minimum IE-2 except for submersible pumps and motors as submersible pumps and motors are not categorised into IE classes as per global pump manufacturer's standards.

3.2.1 Diesel Generator (DG) Sets

BEE star rated DG sets shall be used in all compliant buildings. DG sets in buildings greater than 20,000 m² BUA shall have minimum 3 stars rating in ECBC Buildings

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Compliance Strategy:

- The Diesel Generator (DG) sets shall of minimum BEE 3 Star rating as per ECBC norms.

3.4 Check-Metering and Monitoring

(a) Services exceeding 1000 kVA shall have permanently installed electrical metering to record demand (kVA), energy (kWh), and total power factor. The metering shall also display current (in each phase and the neutral), voltage (between phases and between each phase and neutral), and total harmonic distortion (THD) as a percentage of total current.

(b) Services not exceeding 1000 kVA but over 65 kVA shall have permanently installed electric metering to record demand (kW), energy (kWh), and total power factor (or kVARh).

(c) Services not exceeding 65 kVA shall have permanently installed electrical metering to record energy (kWh).

(d) In case of tenant-based building, metering should be provided at a location from where each tenant could attach the services.

Compliance Strategy:

- Electrical meters for measuring the demand (kVA), energy (kWh), total power factor, current, voltage and Total Harmonic Distortions (THD) shall be provided for complying the ECBC requirement.
- Also metering for individually measuring the energy components like HVAC, Lighting, hot water system, plug loads and renewable energy shall be installed.

3.5 Power Factor Correction

All 3 phase shall maintain their power factor at the point of connection as follows:

- 0.97 for ECBC Building

Compliance Strategy:

All 3 Phase shall maintain power factor at the point of connection as 0.97 for complying the ECBC requirement.

3.6 Power Distribution Systems

The power cabling shall be sized so that the distribution losses do not exceed

- (a) 3% of the total power usage in ECBC Buildings

Record of design calculation for the losses shall be maintained. Load calculation shall be calculated up to the panel level.

Compliance Strategy:

The power cabling shall be sized in such a way that the distribution losses shall not exceed 3% of the total power usage as per ECBC norms.

3.7 Uninterruptible Power Supply (UPS)

In all buildings, UPS shall meet or exceed the energy efficiency requirements listed in Table below. Any Standards and Labeling program by BEE shall take precedence over requirements listed in this section.

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UPS Size	Energy Efficiency Requirements at 100% Load
kVA < 20	90.2%
20 ≤ kVA ≤ 100	91.9%
kVA > 100	93.8%

Compliance Strategy:

The energy efficiency of the UPS shall meet or exceed the ECBC requirements as listed in the above table according to the UPS size.

3.8 Renewable Energy Systems

All buildings shall have provisions for installation of renewable energy systems in the future on rooftops or the site.

3.8.1 Renewable Energy Generating Zone (REGZ)

(a) A dedicated REGZ equivalent to at least 25 % of roof area or area required for generation of energy equivalent to 1% of total peak demand or connected load of the building, whichever is less, shall be provided in all buildings.

(b) The REGZ shall be free of any obstructions within its boundaries and from shadows cast by objects adjacent to the zone

Exception to ECBC 2017 Clause# 3.8.1: Projects with solar hot water and/ or solar power generation systems.

3.8.2 Main Electrical Service Panel

Minimum rating shall be displayed on the main electrical service panel. Space shall be reserved for the installation of a double pole circuit breaker for a future solar electric installation.

Compliance Strategy:

- Renewable Energy Generating Zone (REGZ) shall be provided for generating atleast 1% of the total peak demand of connected load of the building.
- The REGZ shall be free of any obstructions within its boundaries and from shadows cast by objects adjacent to the zone.
- The minimum rating shall be displayed on the main electric service panel along with a double pole circuit breaker for future solar electric installation.

ECBC-2017: MANDATORY COMPLIANCE REPORT

Terminal 1			
Section	Category	Requirement- ECBC 2017	Compliance
ECBC 4	Building Envelope	Mandatory Requirement	
		<u>Fenestration</u> U-factors and SHGC shall be determined for the overall fenestration product (including the sash and frame) in accordance with ISO-15099 by an accredited independent laboratory, and labelled or certified by the manufacturer.	U Value - 2 W/m2K SHGC - 0.25

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Terminal 1			
Section	Category	Requirement- ECBC 2017	Compliance
		U-Value - 3 W/m2K SHGC - 0.27	
		Prescriptive Requirements	
		Roof - 0.33 W/m2K	Roof - 0.2 W/m2K
		Walls - 0.40 W/m2K	Walls - 0.40 W/m2K
		Skylight U - 4.25 W/m2K SHGC - 0.35	Skylight U - 4.25 W/m2K SHGC - 0.25
		Mandatory Requirement	
ECBC 5	Comfort System and Control	Mechanical Ventilation air quantity requirement as per NBC	Ventilation requirement as per ASHRAE 62.1 2010
			CO2 sensor provided to monitor/control the outdoor/indoor carbon dioxide level which is used to modulate the fresh air Damper.
		Demand Control Ventilation	
		Equipment efficiencies Table 5-1 Chiller COP - 6.3	Will be Complied
		Variable Refrigerant Flow >= 70 kW ; EER - 3.02	Not applicable for Terminal 1.
		Computer room Air conditioning COP - 2.5	Will be complied
		Cooling Tower Fan control based on Wet bulb logic	Complied Cooling tower fan is with VFD
		Prescriptive Requirements	
		AHU Efficiency 60% , IE2	Will be Complied
		Pump Efficiency 70%	Will be Complied
			Complied - All the Air handling unit and Treated
		Fan Control with VFD	Complied
		Secondary Pump with VFD	Complied
			Complied
		Energy Recovery wheel for air flow higher than 1000 CFM	
ECBC 6	Lighting and Controls	Mandatory Requirement	
		Lighting Control	Lighting Control Provided with Dimmable luminaries & Time clock dependant operation
		Control in Day light Areas	Lighting control for the areas where the

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ECBC 2017 COMPLIANCE REPORT OF NMIA

Terminal 1			
Section	Category	Requirement- ECBC 2017	Compliance
			day light is available and is compiled in line with ECBC norms.
		Exterior Lighting Control	Lighting for external applications shall be controlled by photo sensors or timers that will be capable of automatically turning off the external lighting when the daylight is available
		Prescriptive Requirements	
		Interior Lighting Power Density as per Table 6-1	Will be complied
		Exterior Power lighting as per Table 6-7	Will be complied
ECBC 7	Electrical and Renewable Energy System	Mandatory Requirement	
		Transformers - Dry type Table 7-1	Will be complied
		Energy Efficient Motors - IE2	Will be complied
		Diesel Generator - Minimum 3 Star	Will be complied
		Metering and Monitoring	Will be complied
		Power factor correction - 0.97	Will be complied
		Power distribution system:- distribution losses not to exceed 3% of the total power usage	Will be complied
		UPS - energy efficiency requirements @ 100% load, Refer Table 7.4	Will be complied
		Renewable Energy system - 1 % of the total Electrical load	Will be complied

Terminal 1 & Ancillary Building Energy & Water Conservation Measures

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ECBC 2017 COMPLIANCE REPORT OF NMIA

Airports consume significant levels of energy for space cooling in terminals, external and internal lighting systems and the operation of the luggage conveyance system. Terminal 1 will be targeting USGC (United States Green Building Council) LEED Gold Certification.

The Terminal 1 airport will adopt the following energy and water conservation measures:

- Provision of skylights for Passenger Terminal Building - utilizes sunlight throughout the day without the use of artificial lighting;
- Provision of glass (double seal) façade - allows natural light into the building and restricts heat entry;
- Provision of dimming system for lighting.
- Provision of Variable Frequency Drives (VFDs) for HVAC pumps and Air handling units.
- Provision of VFDs for STP air blowers.
- Provision of a dual lighting system for main access roads.
- Provision of LED lights instead of fluorescent lamps.
- Treated fresh air unit with Variable Frequency Drive (VFD) and Enthalpy wheel for energy recovery, which in turn will reduce the chiller power consumption.
- Provision of cooling tower fan with VFD.
- Provision of an energy-efficient chilling system with non-CFC based refrigerants.
- Building demands should be managed by the provision of water-efficient fixtures, namely Sinks and Toilets.
- STP recycled water for Cooling tower, Irrigation and Flushing.
- Solar Energy to the maximum extent will be used.
- Heating, Ventilation & Cooling (HVAC) shall be controlled by well designed
- Building management system (BMS)

Energy and Water Conservation measures adopted for Ancillary buildings.

- Provision of DX Variable Refrigerant flow for Building cooling which will reduce the energy consumptions.
- Building demands should be managed by the provision of water-efficient fixtures, namely
- Sinks and Toilets
- Use of Energy Efficient Luminaries viz LED & CFL lamps.
- Efficient building envelope with low U value and SHGC for windows, low U value for walls & roof
- Provision of Solar Energy to the maximum extent.
- Recycled water for irrigation and flushing.
- Provision of an energy-efficient DX system with non-CFC based refrigerants.

Solar energy to the maximum extent will be used, and the possibility of wind energy will be explored to minimize the usage of conventional energy sources.

The proposed airport project will comply with standards included in ASHRAE & NBC for lighting levels, HVAC, comfort levels, natural ventilation and other system performance criteria. Other requirements of ECBC 2017 & ASHRAE 90.1 like building envelope, heating ventilation and air conditioning system, lighting schedule will be considered during the construction and operational phase of the NMIA project. As an airport for future, NMIA will be developed as a green airport, with a key objective of environmental sustainability through energy optimization, recycling of waste, reduction in carbon footprint, utilization of solar energy, natural day-lighting along with other sustainable measures in planning, development and operations of NMIA.

ANNEXURE-27

NMIA LABOUR CAMP FACILITIES

Annexure - 27

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Airport, Navi Mumbai

DETAILS OF WORKMAN ACCOMMODATION FACILITIES PROVIDED AT NMIA PROJECT SITE

DETAILS OF WORKMAN ACCOMMODATION FACILITY



The workmen habitat is being developed to accommodate more than 6300 workmen considering the applicable regulation of the state

- Fenced
- Security manned
- Medical/first aid facility
- Internal roads
- Portable and fixed fire fighting system
- Lawn for the sports and games

The colony has always maintained in a serene atmosphere to retain the maximum workforce those fell away from home.

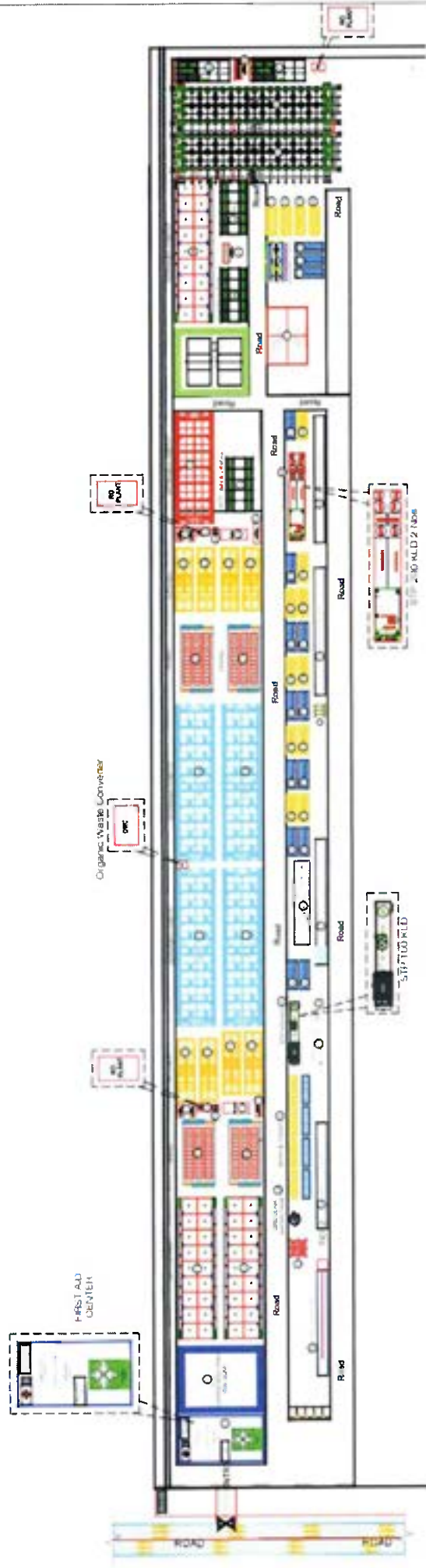
More than 75 men are assigned in control of a camp boss and Camp manager to monitor on day-to-day basis.

The colony offers a wide verities of recreation and other sport activities to involve workmen to spend their leisure times after the exhaustive works are as follows

- Indoor activities
- Volleyball
- Badminton
- Weekly movies

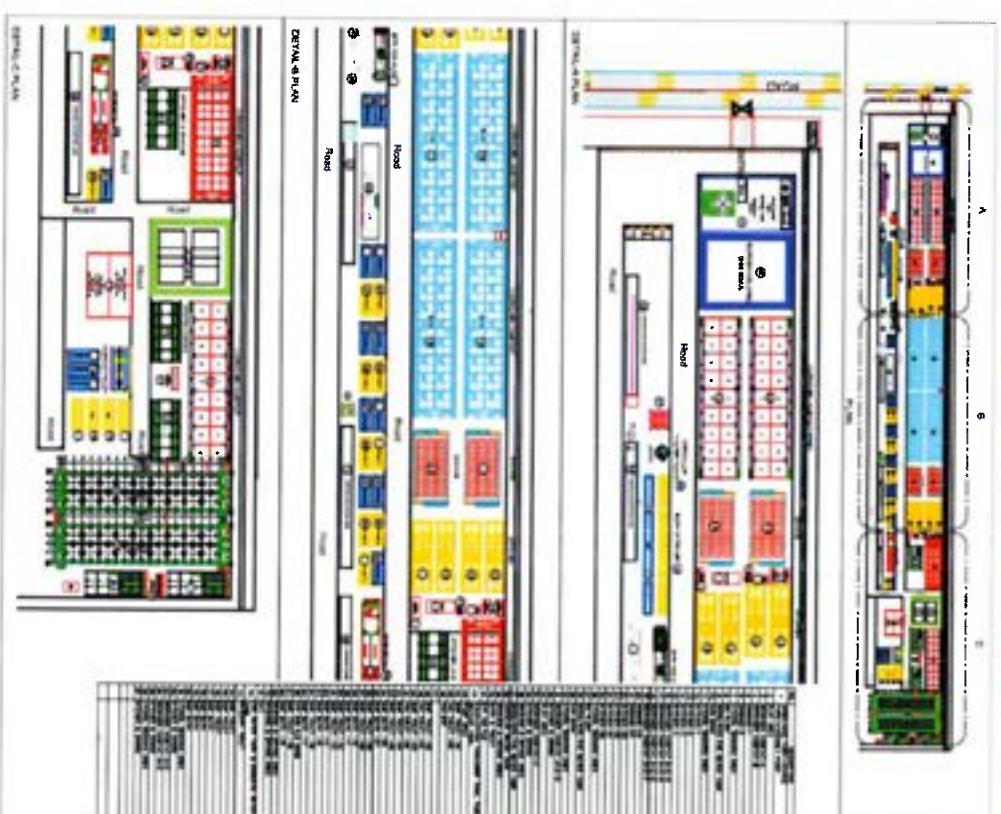
WORKMAN CAMP - LAYOUT PLAN

Navi Mumbai International
Airport, Navi Mumbai



WORKMAN CAMP - LAYOUT PLAN

Navi Mumbai International
Airport, Navi Mumbai



SECURITY ARRANGEMENT IN WORKMAN CAMP



The colony has been duly fenced and provided with adequate security guards to provision and establish gate entry system as well as to avoid unauthorized entry to the well being.

SEWAGE TREATMENT PLANT (STP) AT WORKMAN CAMP



Total Capacity of STPs – 500 KLD

200 KLD – 2 Nos

100 KLD – 1 Nos

The camp has installed three packaged MBBR (Moving Bed Biofilm Reactor) technology-based Sewage Treatment Plants (STPs). These STPs effectively treat the wastewater generated from the labour camp, which is then substantially reused on daily basis for dust mitigation measures at the internal roads, crusher, batching plant, and for the development and maintenance of the green field area.

RO PLANT FOR DRINKING WATER:-



The camp has been provisioned with **02 numbers** of RO plant to serve the maximum care to the workmen even the source has been kept government agencies for the Drinking water sources.

OWC PLANT AT WORKMAN CAMP:-

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2 Nos. OWCs (Organic Waste Converter) plant has been set up in the premise to regenerate the food waste in organic waste so that the plantation can be served with inhouse resources.

Total capacity of the OWC is 200 Kg/Day (100 Kg Each)

WORKMEN CAMP – DINING FACILITY

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A clean and dedicated area were identified and provisioned with adequate seating facility for dining needs.

The facility has been kept cleaned and maintained with highest order at all the time.

WORKMEN CAMP -TOILET AND WASHING FACILITIES



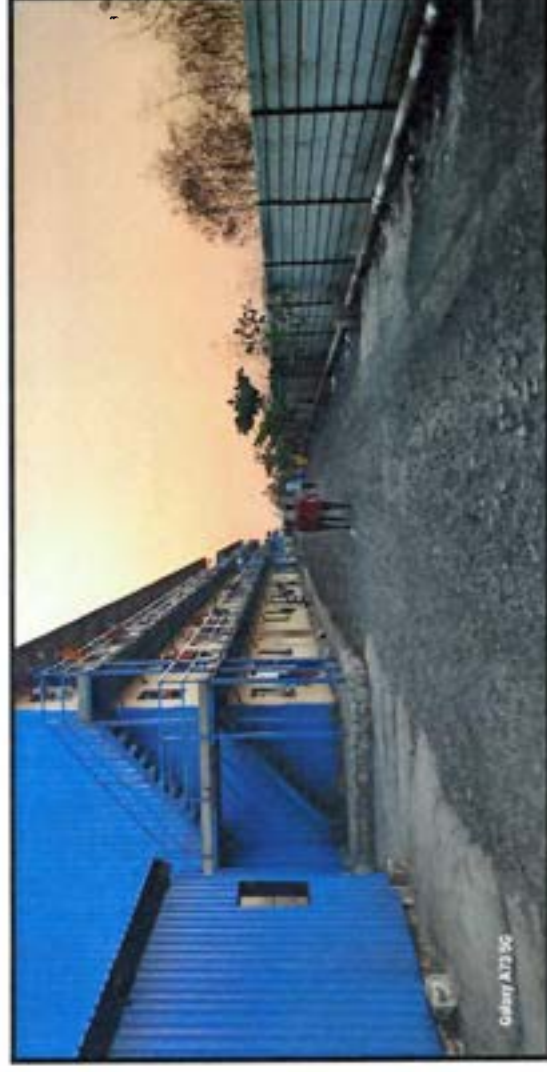
Toilets, Washrooms and other basic amenities are being provisioned and maintained to provide a hygienic environment to the habitant, also to avoid any surge of health-related issues..

DUST BINS HAS BEEN PROVIDED TO ALL LOCATION FOR COLLECTION OF WET AND DRY WASTE



WORKMEN CAMP –INTERNAL ROADS

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Asphalted internal road provisioned for safe and convenient movement as well as to tackle any untoward incidents which including fire at habitat.

WORKMEN CAMP - RECREATION AND SPORTS FACILITIES

