17Th HALF YEARLY REPORT FOR MUMBAI TRANS HARBOUR LINK

Jan- Jun 2024



Submitted to

Maharashtra Pollution Control Board (MPCB)

Submitted by

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MMRDA

Information of Project officer and Nodal officer

1.	**Name of Project officer**	Executive Engineer, MTHL- Project Implementation Unit
	Email	2nd & 5th floor, New Administrative building, MMRDA, Engineering Division, Mumbai Metropolitan Region Development Authority (MMRDA), E-Block, Bandra Kurla Complex, Bandra East, Mumbai, Maharashtra 400051
	Phone /Fax Number	Phone No.: 022-26594034
2.	**Name of Nodal officers**	Engineer In Chief, MTHL Project Implementation Unit 2nd floor, New Administrative building, MMRDA, Engineering Division, Mumbai Metropolitan Region Development Authority (MMRDA), E-Block, BKC, Bandra Kurla Complex, Bandra East, Mumbai, Maharashtra 400051
	Email	Email: **engineerinchief@mailmmrda.maharashtra.gov.in**
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Photographs showing present progress of work

Please refer to the Quarterly Progress Report No. 27 (Oct- Dec 23) and 28 (Jan- March 24) for the photographs of the progress

Monitoring the Implementation of Environmental Safeguards

Ministry of environmental & Forest
Western Region, Regional Office, Bhopal
Monitoring Report
PART – I
DATA SHEET

No.	Particular		Information
1.	**Project type:** River Valley / Mining / Industry / Thermal / Nuclear / Others (specify)	:	Infrastructure
2.	**Name of the Project**	:	Mumbai Trans Harbour Link Project
3.	**Clearance letter (s) / OM No. and date**	:	F. No. 11-65/2012-IA.III on 25th January, 2016
4.	**Location**		**Start point:** Sewri in Mumbai City
	a) District (s)	:	**End Point:** Chirle in Raigad District
	b) State (s)	:	Maharashtra
	c) Location latitude / longitude	:	**Start:** Latitude: 18°59'48.57"N Longitude: 72°51'20.67"E **End:** Latitude: 18°56'18.33"N Longitude: 73° 1'52.92"E
5.	**Address for Correspondence** a) Address of the Concerned Project Chief Engineer (with Pin code & Telephone / Telex / Fax Numbers)	:	Engineer In Chief, MTHL Project Implementation Unit 2nd floor, New Administrative building, MMRDA, Engineering Division, Mumbai Metropolitan Region Development Authority (MMRDA), E-Block, BKC, Bandra Kurla Complex, Bandra East, Mumbai, Maharashtra 400051 Phone No.: 022-26594034
	b) Address of the Concerned Project Chief Engineer (with Pin code & Telephone / Telex / Fax Numbers)		
6.	**Salient features** a) of the Project	:	The proposed Mumbai Trans Harbour Link ('MTHL') is proposed to facilitate decongestion of the island city by improving connectivity between Island city and main land (Navi Mumbai) and development of Navi Mumbai Region.

No.	Particular		Information
			Mumbai Trans Harbour Link Project is 22 km long 6-lane bridge across the Mumbai Bay connecting Sewri on Mumbai side to Chirle on Navi Mumbai side. **Benefits:** • Saving in travel time, Vehicle Operating Cost and Fuel Savings • Accelerated growth of Navi Mumbai • Decongestion of island city of Mumbai • Connectivity to MbPT and JNPT Ports • Faster access to Navi Mumbai International Airport • Connectivity to Pune Expressway and to South India
	b) of the Environmental Management Plans		Various measures stipulated in the Environmental Management Plan mentioned in the CRZ clearance are being complied.
7.	**Breakup of the Project Area** a) Submergence area: forest & non forest	:	Total Area of Right of Way: 120.228 Ha Forest area: 47.417 Ha Non-Forest area: 72.811 Ha
	b) Others		--
8.	**Breakup of the project affected population** with the enumeration of those losing Houses / Dwelling units only, Agricultural Land & Landless Laborers / Artisans: a) SC, ST / Adivasi b) Others (Please indicate whether these figures are based on any scientific and systematic survey carried out or only provisional figures, if a survey is carried out give details & year of survey)	:	**Project affected population**: Please refer to the **Quarterly Progress Report No. 27 and 28** for the project affected population attached as **Annexure-VI** MMRDA has approved eligibility of 7251 fisher folks as project affected so far. Accordingly, fisheries department, Gov. of Maharashtra has paid compensation to eligible fisher-folk as per approved Fisherman Compensation Policy
9 a)	**Financial Details:** Project cost as originally planned and subsequent revised estimates and the year of price reference	:	The total cost of the project is Rs. 17,843 Crore Year of reference: 2016
b)	Allocation made for	:	Allocation of Rs. 335 Crore has been made for the

No.	Particular		Information
	environmental management plans with item wise and year wise breakup		implementation of Environment Management Plan for the MTHL project. The item-wise cost breakup of the EMP is attached as **Annexure-II.**
c)	Benefit cost ratio/Internal rate of Return and the year of assessment	:	-
d)	Whether (c)includes the cost of environmental management as shown in the above	:	-
e)	Actual expenditure incurred on the project so far	:	Rs. 17285.75Crore
f)	Actual expenditure incurred on the environmental management plans so far	:	Please refer **Annexure-VII** for actual expenditure incurred on the environmental management plans so far.
10	**Forest Land Requirement**		
a)	The status of approval for diversion of forest land for non-forestry use	:	Stage – I clearance approval for diversion of forest land for non-forestry use has been received from MoEF & CC on 22nd January 2016 vide letter F.No.8-89/2013-FC.
b)	The status of clearing felling	:	NOC from Hon. High Court for cutting of mangroves is received on 28th November 2016. Working Permission from Forest Department received on 22 May 2017.
c)	The status of compensatory afforestation, if any Comments on the viability & sustainability of compensatory afforestation program in the light of actual field experience so far	:	Rs. 91.42 crores have been transferred to Mangrove cell of Mangroves & Marine Biodiversity Foundation, setup under Maharashtra State Forest Department for Compensatory Afforestation (CA). Mangrove cell, Mumbai submitted updated status report of plantation (Attached as **Annexure-VIII**)
11	The status of clear felling in non-forest areas (such as submergence area or reservoir, approach roads.), if any with quantitative information required.	:	Commencement Letters have been issued to the Contractors of Package-1, Package-2 and Package-3 on 23 March 2018. Permission for cutting/transplantation in non-forest area of Navi Mumbai side has been granted by CIDCO. Copy of permission letter is attached herewith as

No.	Particular		Information
			Annexure-IX. However, felling in non-forest area has not started yet
12	**Status of construction** (Actual&/or planned)		Commencement Letters have been issued to the Contractors of Package-1, Package-2 and Package-3 on 23 March 2018. Please refer to the Quarterly Progress Report No. 27 and 28 attached with this report as **Annexure-VI.**
a)	Date of commencement (Actual & / or planned)	:	Commencement Letters have been issued to the Contractors of Package-1, Package-2 and Package-3 on 23 March 2018.
b)	Date of completion (Actual &/or planned)	:	Date of completion planned of Package 1 & 2 is 21-09-2022 and for Package 3 is 21-09-2021. Taking Over Certificate (TOC) has been granted to the contractors is below: Package 1: 05-01-2024 Package 2: 05-01-2024 Package 3: 05-01-2024
13	**Reasons for the delay** if the project is yet to start	:	Due to Covid 19 pandemic situation and Land Acquisition issues a project was delayed and Extension of Time (EoT) has been granted up to September 2023. **Annexure – XI.**
14	**Dates of Site Visits**		
a)	The dates on which the project was monitored by the Regional Office on previous occasions, if any		
b)	Date of site visits for this monitoring report	:	1. Site Visit for CCR by MOEF Nagpur on 08.03.2023 2. Site Visit by EAC Team for CRZ extension on 22.05.23

Name: - **Shri. Yatin Sakhalkar**

Chief Engineer In Charge, MTHL Project Implementation Unit

New Administrative building, MMRDA, 2nd floor, Engineering Department, Mumbai Metropolitan Region Development Authority (MMRDA), E-Block, BKC, Bandra Kurla Complex, Bandra East, Mumbai, Maharashtra 400051
Phone No.: 022-26594034

Signature:

Stamp:

HALF YEARLY COMPLIANCE REPORT

1.	**Project Type**	:	Infrastructure
2.	**Name of the Project**	:	Mumbai Trans Harbour Link (MTHL) Project
3.	**Clearance letter and date**	:	F. No. 11-65/2012-IA.III on 25th January, 2016
4.	**Location**	:	
	a. District	:	**Start point:** Sewri in Mumbai City **End Point:** Chirle in Raigad District
	b. State	:	Maharashtra
	c. Latitude/Longitude	:	**Start:** Latitude: 18°59'48.57"N Longitude: 72°51'20.67"E **End:** Latitude: 18°56'18.33"N Longitude: 73° 1'52.92"E
5.	**Address of correspondence**		
6.	**a. Address of concerned project Head**	:	Chief Engineer / Engineer in Chief, MTHL Project Implementation Unit 2nd floor, New Administrative building, MMRDA, Engineering Division, Mumbai Metropolitan Region Development Authority (MMRDA), E-Block, Bandra Kurla Complex, Bandra East, Mumbai, Maharashtra 400051 Phone No.: 022-26594034



Compliance to the Conditions Recommended in CRZ Clearance-2013

S. No.	Condition of 2013 clearance	Compliance
7. Specific Conditions		
(i)	As per the CRZ Notification 2011, at least five times the number of mangroves destroyed/cut during the construction process shall be replanted. Mangrove plantation in an area of 30 ha shall be carried out as committed against loss of 0.1776 ha mudflats/mangroves. Permission from the High Court of Bombay shall be obtained with respect to mangrove cutting.	Noted, about 25 Crores have been contributed by MMRDA to Mangroves Fund, as an initiative by Govt. of Maharashtra for Conservation and Protection of Mangroves in Coastal areas. The amount is used for Survey & Demarcation of Notified areas. Purchase of vehicles and equipment for anti-Encroachment drives, etc. Permission copy of High court for mangrove cutting attached as **Annexure-I**
(ii)	Proponent shall provide lighting in consulting with the Bombay Natural History Society (BNHS) so as to minimize the likely impacts to the migratory birds.	Noted and being complied (embedded lighting, to be finalized in consultation by BNHS)
(iii)	All the construction equipment's shall be provided with exhaust silencers as committed.	Noted, all the construction equipment used by contractors are provided with exhaust silencers to reduce noise. Photographic evidence of same attached as **Annexure-III**
(iv)	Noise containment barriers shall be provided on both sides of the bridge in mudflat areas (CRZ-IA) so as to minimize the likely impacts to the migratory birds as committed	Noise containment barriers have to be provided by the Package-I and Package-II on both sides of the bridges to minimize the likely impact to the migratory birds. Till date 1.14 crore have been spent by packages on the temporary barriers.
(v)	There shall be no dredging and reclamation for the project	The proposed project is for the construction of 6 lane road bridge across the Mumbai Harbour between Sewari in MbPT area and Chirle in Navi Mumbai to improve connectivity and facilitate traffic decongestion and hence does not involve dredging and reclamation works
(vi)	Pre-stressed super structure shall be used in the mud flat area for construction as committed	Noted and complied

S. No.	Condition of 2013 clearance	Compliance
(vii)	The muck materials shall be analyses prior to dumping/disposal in the identified locations with the approval of the competent authority to ensure that it do not cause any impact to the environment.	Noted and is being complied on. Muck materials are collected and analyzed prior to dumping/disposal at identified locations. Environmental reports have been attached as **Annexure-IV** Excavation work has been completed
(viii)	Proponent informed that there is no fishing activity in the area since it is a navigation channel for the nearby ports. However, navigational channel is provided with 25 m from ships and 9.1 m from fishing boats.	Noted and complied
(ix)	All the recommendations of the MCZMA shall be strictly complied with.	Noted and being scrupulously complied
(x)	There shall be no building construction beyond 20,000 sqm.	The proposed project is for the construction of 6 lane road bridge across the Mumbai Harbour between Sewari in MbPT area and Chirle in Navi Mumbai to improve connectivity and does not involve construction of buildings. However, during construction phase of the project temporary site offices and work camps will be constructed which will be well within 20,000 sqm area
(xi)	There shall be no water drawal in CRZ area.	The proposed project does not involve abstraction of the ground water in CRZ area. The water demand for the proposed project is being met through tanker water
(xii)	There shall be no disposal of solid or liquid waste on coastal area. Solid waste management shall be as per Municipal Solid (Management and Handling) Rules, 2000.	The project strictly complies with the new SWM rules 2016 and subsequent amendments and the solid and liquid waste and segregated at source, collected and disposed as per the abovesaid rules. Biodegradable waste is being used for composting at site and non-biodegradable waste will be handed over to authorized agencies for disposal.
(xiii)	Sewage shall be treated and Treatment Facility shall be provided in accordance with	Noted and will be complied

S. No.	Condition of 2013 clearance	Compliance
	the Coastal Regulation Zone Notifications 2011, The disposal of treated water shall conform to the regulation of the State Pollution Control Board.	
(xiv)	The project proponent shall set up a separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of senior executive	Noted and complied, An Environmental Management Cell has been set up and the structure of the committee comprise experts from National Institute of Oceanography; Representative of BNHS; renowned expert in Ornithology; Director, Fisheries Institute, Versova, Andheri; Head of Coastal Engineering, IIT, Mumbai and Representative of Environment Department and Maharashtra Pollution Control Board. The officer of MMRDA is acting as a Member Secretary to coordinate the quarterly meetings of the committee. 18 meetings have been conducted so far
(xv)	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purpose.	Noted, Total fund allocated for the environmental management is 335 crores and till date 377.5 Cr has been spent EMP expenditure details attached as **Annexure-V.**
8. General Conditions		
(i)	Full support shall be extended to the officers of the Ministry/Regional Office of Bhopal by the project proponent during inspection of the project for monitoring purpose by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities	Noted and being complied

S. No.	Condition of 2013 clearance	Compliance
(ii)	A six-monthly monitoring report shall need to be submitted by the project proponent to the regional office of this ministry at Bhopal regarding the implementation of the stipulated conditions	Noted and is being complied
(iii)	Ministry of Environment and Forest or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary, in the interest of environment and same shall be complied with	Noted and will be adhered
(iv)	The Ministry reserve the right to revoke this clearance if any of the conditions stipulated are not complied with to the satisfaction of the Ministry	Noted and will be adhered
(v)	In the event of a change in project profile or change in the implementation agency, afresh reference shall be made to the Ministry of Environment and Forests	Noted and will be adhered
(vi)	The project proponents shall inform to the Regional office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work	Noted and will be adhered
(vii)	A copy of the clearance letter shall be marked to concerned Panchayat/local NGO if any, from whom any suggestions/representations has been made a received while processing the proposal	Noted and complied. **Annexure-X**
(viii)	State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's office/Tehsildar's office for 30 days.	------
9.	The above stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment	Noted and complied

S. No.	Condition of 2013 clearance	Compliance
	(Protection) Act, 1986, the Public Liability (Insurance Act), 1991 and EIA notification 1994 including the amendments and rules made thereafter	
10.	All other statuary clearances such as approvals for storage of diesel from Chief Controller of Explosive, Fire Department, Civil Aviation Department and clearances under the Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities	Noted and complied. Clearances under Forest Conservation Act, 1980 has been taken by MMRDA from MoEF & CC on 22nd January 2016 vide letter F.No.8-89/2013-FC. The project proponent had allotted the construction work to L&T and JV of Daewoo and Tata through contract and the statuary clearances such as approvals for storage of diesel from Chief Controller of Explosive, Fire Department, Civil Aviation Department has been taken by them. After completion of the project MMRDA will ensure compliance.
11.	The project proponent shall advertise in at least two local newspapers widely circulate in the region, one of which shall be in a vernacular language informing that the project has been accorded CRZ Clearance and copies of the clearance letter are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forest at http://www.envfor.nic.in. The advertisement should be made within 10 days from the date of the receipt of the clearance letter and a copy of the same should be forwarded to the Regional office of this ministry at Bhopal	Noted and complied. The advertisement for accord of the CRZ clearance was published in the (Lok Satta and Indian Express on 30.01. 2016) **Annexure-X**
12	The clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004 as may be applicable to this project.	Noted

S. No.	Condition of 2013 clearance	Compliance
13	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under section 16 of the National Green Tribunal Act, 2010	Noted
14	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent on its website.	Noted and Complied The status of the compliance of stipulated EC conditions are uploaded on the website of MMRDA
15	A copy of the clearance letter shall be sent by the proponent to be concerned Panchayat, Zilla parishad/Municipal Corporation, Urban Local Body 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.	Noted and Complied
16	The proponent shall upload the status of the compliance of 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 the MoEF, the respective Zonal Office of CPCB and the SPCB	Noted and complied The status of the compliance of stipulated EC conditions, including results of monitored data are uploaded on the website of MMRDA and also submitted to Regional Office of the MoEF&CC, the respective Zonal Office of CPCB and the SPCB
17	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated EC conditions including results of monitoring data (both in hard copies as well as by e-mail) to the respective Zonal Office of CPCB and the SPCB	Noted and complied
18	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	Noted and Complied

S. No.	Condition of 2013 clearance	Compliance
	the Environment (Protection) Rule 1986 as amended subsequently, shall also be put on the website of the company along with the status of the compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	

Compliance to the Conditions Recommended in CRZ Clearance-2016

Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
i.	All the terms and conditions stipulated by the MCZMA in their letter No. CRZ 2015/CR236/TC 4 dated 26th November 2015 shall be strictly complied with.	Noted. MMRDA is following the conditions stipulated in the CRZ Clearance.
ii.	All the terms and conditions as mentioned in the earlier CRZ Clearance dated 19th July 2013, shall also be complied with in letter and spirit,	Noted. MMRDA is following the conditions stipulated in the CRZ Clearance dated 19th July 2013.
iii.	The Environment Management Plan as presented during the meeting shall be implemented in consultation with all the stakeholders.	MMRDA is implementing the Environment Management plan as stipulated in CRZ clearance. The implementation plan with detailed EMP is attached as an **Annexure V**
iv.	The project/activity shall be carried out strictly be in accordance with the provisions of CRZ Notification, 2011, and shall not affect the coastal ecology of the area including flora and fauna.	Noted and complied
v.	The project proponent shall obtain all permissions from concerned authorities prior to commencement of the project and shall observe all safety requirements onshore and offshore.	Noted and will be complied
vi.	The project proponent shall not undertake any blasting/construction activities during night hours.	This condition has been revised by MoEF& CC vide letter dated 28th August, 2017 having file no F. No. 11-65/2012-IA. III. Refer **Annexure-VI (QPR)**

Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
vii.	The proposal indicates the diversion of 47.417 ha forest land for which the proponent shall obtain the requisite Forest Clearance. The project may be executed in the entire stretch in non-forest land, and while making application to get the Forest Clearance, the execution of work on non-forest land shall not be cited as a reason for grant of FC and in case FC is declined, the forest land shall be maintained at its existing condition. The PP shall submit an undertaking to this effect at the earliest to the concerned Regional Office to this Ministry.	Stage – I clearance approval for diversion of forest land for non-forestry use has been received from MoEF & CC on 22nd January 2016 vide letter F.No.8-89/2013-FC. Stage – II application is submitted to Deputy Conservator of Forest vide MMRDA letter 6-3-2017 and latest compliance submitted on 10-09-2018. Stage II Forest Clearance is under process, the earlier land allocated for CA was short by 11 Ha. Of land in Roha Forest Division in Tala Taluka has been identified and is in the process of handover. After the handover the Stage II Clearance will be finally processed by the Forest Department.
viii.	All the wildlife mitigation measures as proposed by BNHS in their report dated 23.09.2015 for original alignment shall be implemented with the following modification	Noted and shall be complied
	a) Construction of jetty on both the ends passing through mud flats and mangroves must not exceed 30 months and construction of actual spans must not exceed more that further 12 months.	Noted
	b) The distance between the supporting pillars shall remain 50 m as currently proposed by the MMRDA.	The distance between the piers is maintained more than 50 m.
	c) MMRDA will partly bear the cost of setting of effluent treatment plant in the region as suggested by BNHS.	Noted and being complied
ix.	The project proponent shall not undertake any blasting/construction activities during night hours.	This condition has been revised by MoEF&CC vide letter dated 28th August 2017 having file no F. No. 11-65/2012-IA. III.

Sr.No.	GENERAL CONDITIONS	COMPLIANCE STATUS
1	Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.	Noted and is being complied.
2	Full support shall be extended to the officers of this Ministry/Regional Office at Nagpur by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Noted and shall be complied.
3	A Six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Nagpur regarding the implementation of the stipulated conditions.	Noted and is being complied. List of Six-monthly compliance report uploaded are: 1. January to June 2016. 2. July to December 2016. 3. January to June 2017. 4. July to December 2017. 5. January to June 2018. 6. July to December 2018. 7. January to June 2019. 8. July to December 2019 9. January to June 2020 10. July to December 2020 11. January to June 2021 12. July to December 2021 13. January to June 2022 14. June to Dec 2022 15. Jan 23 to June 23 16. July 23 to Dec 23
4	MoEF&CC or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary, in the interest of environment and the same shall be complied with.	Noted and shall be complied.
5	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with to the satisfaction of the Ministry.	Noted.
6	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the MoEF & CC.	Noted.

Sr.No.	GENERAL CONDITIONS	COMPLIANCE STATUS
7	The project proponents shall inform to the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Noted.
8	A copy of the clearance letter shall be marked to concerned Panchayat/ local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal	Noted and complied
9	A copy of the CRZ Clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The Clearance letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/Tehsildar's Office for 30 days.	Noted and complied.
10	The above stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 1994, including the amendments and rules made thereafter.	Noted and will be complied.
11	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, and clearances under the Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Noted and are being complied.
12	The project proponent shall advertise in at least two local newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest & Climate Change at. The advertisement should be made within Seven days from the date of	Complied.

Sr.No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	receipt of the Clearance letter and a copy of the same should be forwarded to the regional office of this Ministry at Nagpur.	
13	This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	Noted.
14	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.
15	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent on its website.	Stipulated environmental conditions as mentioned in CRZ are complied in six monthly compliance reports. Environmental Safeguards are incorporated in Environmental Management Plan which is being implemented as per the budgetary provisions mentioned in CRZ. Reports & Publications: Half Yearly Report (https://mmrda.maharashtra.gov.in)
16	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban Local Body 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.
17	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 MoEF, the respective Zonal Office of CPCB and the SPCB.	Noted. Six monthly reports on compliance & monitoring results of conditions stipulated in CRZ clearance is being submitted to MPCB Regional, sub regional office, Nagpur MPCB office, MCZMA & SEIAA.
18	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of	Noted. Six monthly reports on compliance & monitoring results of conditions stipulated in CRZ

Sr.No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF & CC, the respective Zonal Office of CPCB and the SPCB.	clearance is being submitted to MPCB Regional, sub regional office, Nagpur MPCB office, MCZMA & SEIAA.
19	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 MoEF & CC by e-mail.	Noted. Individual construction packages have obtained CTE for batching plant and casting yards and the stipulations are being adhered to and are uploaded on the website of MMRDA

Annexures

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Annexure I

Permission copy of High court for Mangrove Cutting

NM/307/2016

BDPPS

IN THE HIGH COURT OF JUDICATURE AT BOMBAY
ORDINARY ORIGINAL CIVIL JURISDICITON
NOTICE OF MOTION NO.307 OF 2016
IN
PUBLIC INTEREST LITIGATION NO.87 OF 2006

Mumbai Metropolitan Region
Development Authority ..... Applicant.

In the matter between

Bombay Environment Action Group
and Another .....Petitioners.

V/s

State of Maharashtra and Others. .... Respondents.

Mr. Saket Mone a/w Mr. Subit Chakrabarti i/b Vidhi Partners for applicant in Notice of Motion No. 307 of 2016 in PIL No.87 of 2016.

Mr. Navroz Seervai, Senior Counsel a/w Ms. Shreya Parikh for the Petitioner in PIL No.87 of 2006.

Mrs. P.H. Kantharia, AGP for Respondent/State in PIL No.87 of 2006.

Ms. Trupti Puranik for Respondent/BMC.

Ms. Sharmila Deshmukh for CRZ.

CORAM: V. M. KANADE &
MS. NUTAN D. SARDESSAI, JJ.

DATE: 28th November, 2016

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P.C.:-

1. This Notice of Motion is taken out by the Applicant for carrying out construction of the proposed Mumbai Trans Harbour Link (a proposed 22 km freeway grade road bridge connecting the island city of Mumbai with Navi Mumbai).

2. The learned Counsel appearing on behalf of the Applicant submits that Applicant has obtained clearance from all the concerned authorities. He submitted that Ministry of Environment and Forest, Government of India has granted approval on 22/01/2016 and CRZ clearance has been granted on 25/01/2016. Applicant has given an undertaking in paras 12 and 27 of the affidavit in support of the Notice of Motion. The said undertaking is accepted. Applicant shall comply with all the conditions which are imposed in the said letters of sanction granted by both the authorities.

3. We are satisfied that the said project is public utility project and we grant leave in terms of prayer clause (a) of the Notice of Motion subject to conditions imposed by both the authorities.

4. Notice of Motion is accordingly allowed in terms of prayer clause (a) and disposed of.

(MS. NUTAN D. SARDESSAI, J.) **(V.M. KANADE, J.)**

::: Uploaded on - 30/11/2016 ::: Downloaded on - 09/12/2016 13:13:49 :::

Annexure II

Item wise cost breakup of the Environmental Management Plan

Annexure-II Environment Management Plan stipulated in CRZ clearance

Sr. No	Environmental attribute	Cost in Crores
1.	Environmental Monitoring- Air Act, Water Act, Noise levels	8
2.	Compensatory Restoration Plan (Mangroves)	25
3.	Implementation of the suggestions given by BNHS	25
4.	Noise barriers	45
5.	Mitigation of marine water pollution caused due to the surrounding industries and Sewage from Urban Bodies, by providing Funding and Capacity Building for Enabling Effluent Treatment	40
6.	• Contribution to Mangroves Fund, an initiative by Govt. of Maharashtra for Conservation and Protection of Mangroves in Coastal areas by depositing Seed Money. • This can be used for Survey & Demarcation of Notified areas • Purchase of vehicles and equipment for anti-Encroachment drives, etc.	25
7.	Oil Spill Mitigation Plan	10
8.	Habitat quality assessment and monitoring Surveillance management and monitoring team for migratory birds, marine flora, turbidity in sea floor, etc Corpus fund for mudflat restoration program	20
9.	Appointment of Bird Monitor and his assistant till Restoration of Baseline data	4
10.	DMP, Firefighting, Risk Analysis	15
11.	Sustainable development including establishing Nature Interpretation Centre	10
12.	Safety and Security	15
13.	Energy conservation	10
14.	Landscaping-Plantation of trees, flower in plants etc.	8
15.	Compensation and Capacity Building of Fisher folks due to Temporary and Permanent Loss of Fishing round	75
		335 crores

Annexure III

Photographic evidence of construction equipment used by contractors are provided with exhaust silencers to reduce noise

Photographic evidences of construction equipment used by contractors are provided with exhaust silencers to reduce noise

Attachment III













MUMBAI TRANS HARBOUR LINK PROJECT

1

Photographic evidences of construction equipment used by contractors are provided with exhaust silencers to reduce noise

Attachment III







MUMBAI TRANS HARBOUR LINK
GENERAL CONSULTANT

2

Photographic evidences of construction equipment used by contractors are provided with exhaust silencers to reduce noise

Attachment III



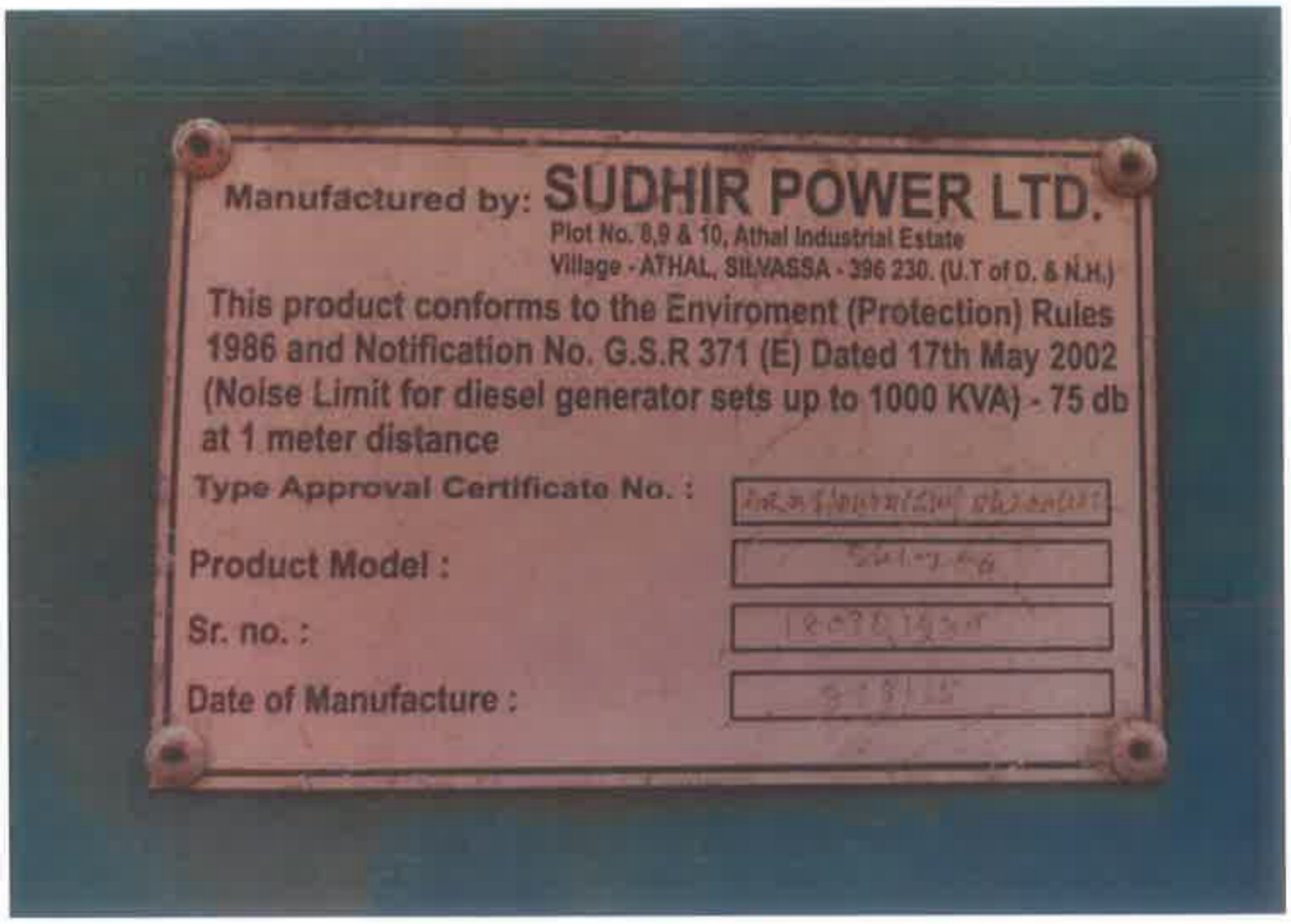
MUMBAI TRANS HARBOUR LINK

Photographic evidences of construction equipment used by contractors are provided with exhaust silencers to reduce noise

Attachment III







4

Annexure IV

Environmental parameter testing report

ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD
(A venture of ULTRA TECH Environmental Consultancy)
Lab. Accredited by NABL-ISO/IEC 17025:2017,TC-14909 (Valid up to 17/11/2028)
ISO 9001:2015 & ISO 45001:2018 Certified

Lab Operates at : Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tel: 022-45119250, 022-45119239 / ©+91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-0044/12-2024
ISSUE DATE : 16/12/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : C 10-12/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 09/12/2024 to 10/12/2024
Sample Registration Date : 10/12/2024
Analysis Starting Date : 10/12/2024
Analysis Completion Date : 17/12/2024
Time of Sampling : 12:00 to 12:00
Ambient Air Temperature : 23.1°C to 29.5°C
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT AIR QUALITY MONITORING

Location Code : 01
Sample Location : Near STP Casting yard
Co-ordinates:
N 18°59'39.70"; E 73°51'22.8"
Sample Lab Code : UT/ELS/C-044/12-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours
Relative Humidity : 65.1 % to 72.8 %

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	8	µg/m³	80
2.	Oxides of Nitrogen (NO_X)	IS 5182 (Part 06) : 2006	26	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	95	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	38	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	0.08	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.4	mg/m³	4
8.	Ammonia (NH_3)£	ISC 16th Ed Method 401	54	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.3	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. ∞: Sampling Period 8 Hrs. £: Sampling Period 2 Hrs.
BDL: Below Detection Limit DL: Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL; Sr. No. 220	Valid up to – 16/02/2025
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 1722	Valid up to –17/09/2025

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather was Sunny & Clear

– END OF REPORT –

Authorized By:
Meghan Patil
(Authorized Signatory)

Regd.: Unit No. 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Kolkata: +033-40089145 / +91- 3335 746 566 - kolkata@ultratech.in, Gujarat: +91-9558117469 - gujarat@ultratech.in
GST: 27AADCU4659H1Z0 | CIN NO: U74900MH2023PTC415102 | UT -010823
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ISO 9001:2015 & ISO 45001:2018 Certified

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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-0045/12-2024
ISSUE DATE : 16/12/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : C 10-12/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 09/12/2024 to 10/12/2024
Sample Registration Date : 10/12/2024
Analysis Starting Date : 10/12/2024
Analysis Completion Date : 17/12/2024
Time of Sampling : 12:30 to 12:30
Ambient Air Temperature : 23.5°C to 28.9°C
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT AIR QUALITY MONITORING

Location Code : 02
Sample Location : Near MP -01
Co-ordinates:
N 18°59'53.4"; E 72°51'35.7"
Sample Lab Code : UT/ELS/C-045/12-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours
Relative Humidity : 63.1 % to 74.8 %

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	9	µg/m³	80
2.	Oxides of Nitrogen (NO_x)	IS 5182 (Part 06) : 2006	28	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	96	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	37	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.06]	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.5	mg/m³	4
8.	Ammonia (NH_3)€	ISC 16th Ed Method 401	48	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.5	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. **∞: Sampling Period 8 Hrs.** **€: Sampling Period 2 Hrs.**
BDL: Below Detection Limit **DL: Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL;Sr. No. 120	Valid up to – 27/11/2025
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 19213	Valid up to –04/10/2025

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather was Sunny & Clear

– END OF REPORT –

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT *

ULTRA TECH ENVIRONMENTAL CONSULTANCY & LABORATORY PVT. LTD. CIN No. U74900MH2023PTC415102 ULTRA TECH THANE (W) INDIA PIN-400 601 GST No. 27AADCU4659H1ZO

Authorized By:
Meghan Patil
(Authorized Signatory)

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Kolkata: +033-40089145 / +91- 3335 746 566- kolkata@ultratech.in, Gujarat: +91-9558117469 - gujarat@ultratech.in
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Tel: 022-45119250, 022-45119230

TEST REPORT

Email: lab@ultratech.in

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-0046/12-2024
ISSUE DATE : 16/12/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : C 10-12/2024
Sampling Procedure : UT/LQMS/SOP/N01
Survey Done By : ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Sample Lab Code : UT/ELS/C-0046/12-2024
Date of Monitoring : 09/12/2024 to 10/12/2024

Sr. No.	Location	Noise Level Reading in dB(A) Leq						
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 01 Nr. STP casting Yard Co-ordinates: N-18°59'42.00"; E-72°51'22.10"	06:00 to 07:00	57.1	50.8	64.9	22:00 to 23:00	61.4	55.1	69.2
		07:00 to 08:00	57.8	51.5	65.6	23:00 to 00:00	60.3	54	68.1
		08:00 to 09:00	61.7	55.4	69.5	00:00 to 01:00	57.1	50.8	64.9
		09:00 to 10:00	68.4	62.1	76.2	01:00 to 02:00	57.8	51.5	65.6
		10:00 to 11:00	63.8	57.5	71.6	02:00 to 03:00	58.6	52.3	66.4
		11:00 to 12:00	67.1	60.8	74.9	03:00 to 04:00	55.8	49.5	63.6
		12:00 to 13:00	67.5	61.2	75.3	04:00 to 05:00	54.7	48.4	62.5
		13:00 to 14:00	71.4	65.1	79.2	05:00 to 06:00	53.6	47.3	61.4
		14:00 to 15:00	66.8	60.5	74.6	--	--	--	--
		15:00 to 16:00	63.6	57.3	71.4	--	--	--	--
		16:00 to 17:00	61.4	55.1	69.2	--	--	--	--
		17:00 to 18:00	60.3	54	68.1	--	--	--	--
		18:00 to 19:00	59.7	53.4	67.5	--	--	--	--
		19:00 to 20:00	58.1	51.8	65.9	--	--	--	--
		20:00 to 21:00	58.1	51.8	65.9	--	--	--	--
		21:00 to 22:00	58.4	52.1	66.2	--	--	--	--
		L_{10}	67.4			*Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise*			
		L_{50}	60.0						
		L_{90}	56.2						
		Day Leq	64.9			75			
		Night Leq	58.1			70			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Lutron; Model – SL4033SD, Sr. No. Q659830	Valid up to – 24/10/2025

Note:
1. This test report refers only to the monitoring conducted.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.

– END OF REPORT –

Authorized By:
Meghan Patil
(Authorized Signatory)

Regd.: Unit No. 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
Thane HO: Tel: +91-22-49743482 Email: sales@ultratech.in
Pune: +91-20-29525517 - pune@ultratech.in , Kochi: +91-0484-4301947/ +91-9895200526 - kochi@ultratech.in,
Kolkata: +033-40089145 / +91- 3335 746 566- kolkata@ultratech.in Gujarat: +91-9558117469 - gujarat@ultratech.in
GST: 27AADCU4659H1Z0 | CIN NO: U74900MH2023PTC415102 | UT -010821
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Lab Operates at : Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tel: 022-45119250, 022-45119239 / +91-9870907680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-0047/12-2024
ISSUE DATE : 16/12/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : C 10-12/2024
Sampling Procedure : UT/LQMS/SOP/N01
Survey Done By : ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Sample Lab Code : UT/ELS/C-0047/12-2024
Date of Monitoring : 09/12/2024 to 10/12/2024

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 02 NEAR MP-01, Co-ordinates: N-18°59'53.5"; E-72°51'36.3"	06:00 to 07:00	60.7	54.6	69.0	22:00 to 23:00	65.1	59.0	73.4
		07:00 to 08:00	66.6	60.5	74.9	23:00 to 00:00	64.0	57.9	72.3
		08:00 to 09:00	68.4	62.3	76.7	00:00 to 01:00	62.9	56.8	71.2
		09:00 to 10:00	70.4	64.3	78.7	01:00 to 02:00	59.7	53.6	68.0
		10:00 to 11:00	76.1	70.0	84.4	02:00 to 03:00	58.4	52.3	66.7
		11:00 to 12:00	74.0	67.9	82.3	03:00 to 04:00	57.3	51.2	65.6
		12:00 to 13:00	77.3	71.2	85.6	04:00 to 05:00	56.2	50.1	64.5
		13:00 to 14:00	75.1	69.0	83.4	05:00 to 06:00	55.7	49.6	64.0
		14:00 to 15:00	74.3	68.2	82.6	--	--	--	--
		15:00 to 16:00	72.9	66.8	81.2	--	--	--	--
		16:00 to 17:00	72.4	66.3	80.7	--	--	--	--
		17:00 to 18:00	71.4	65.3	79.7	--	--	--	--
		18:00 to 19:00	69.7	63.6	78.0	--	--	--	--
		19:00 to 20:00	68.4	62.3	76.7	--	--	--	--
		20:00 to 21:00	67.3	61.2	75.6	--	--	--	--
		21:00 to 22:00	66.2	60.1	74.5	--	--	--	--
		L_{10}	74.9			*Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise*			
		L_{50}	67.9						
		L_{90}	57.6						
		Day Leq	72.4			75			
		Night Leq	61.2			70			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Envirotech; Model – SLM100, Sr. No. 192-DTK-2012	Valid up to – 13/03/2025

Note:
1. This test report refers only to the monitoring conducted.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.

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ULTRA TECH ENVIRONMENTAL CONSULTANCY & LABORATORY PVT. LTD. CIN No. U74900MH2023PTC415102 ULTRA TECH THANE (W) INDIA PIN-400 601 GST No. 27AADCU4659H1Z0

Authorized By:
Meghan Patil
(Authorized Signatory)

Regd.: Unit No. 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Kolkata: +033-40089145 / +91- 3335 746 566- kolkata@ultratech.in Gujarat: +91-9558117469 - gujarat@ultratech.in
GST: 27AADCU4659H1Z0 | CIN NO: U74900MH2023PTC415102 | UT -010820
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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: **L & T CONSTRUCTION**
LE171107-MTHL Package 1 Project – MTHL Package -1, Project Office, Mumbai, Maharashtra, India , 400015
For Project: **"MTHL Package 1 Project"**

ULR NO. : --
REPORT NO. : UT/ELS/REPORT/ 7351 /08 - 2024
ISSUE DATE : 29/08/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 01-08/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 16/08/2024 11:00 Hrs. to 17/08/2024 11:00 Hrs.
Sample Registration Date : 20/08/2024
Analysis Starting Date : 20/08/2024
Analysis Completion Date : 28/08/2024
Ambient Air Temperature : 29.3 °C to 31.2 °C
Relative Humidity : 75.4 % to 88.3 %
Sample Collected By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : NEAR STP CASTING YARD
GPS Co-ordinates : N 18º59'39.70", E 73º51'22.8"
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/0373/08-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs.^ or 1 Hr^
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2023	9	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	31	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	95	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	28	$\mu g/m^3$	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	$\mu g/m^3$	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.06]	$\mu g/m^3$	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.5	mg/m^3	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	29	$\mu g/m^3$	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.2	$\mu g/m^3$	5^
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m^3	1^
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m^3	6^
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m^3	20^

†: Sampling Period 1 Hr.
BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/110	Polltech	PEM-ADS 2.5/10μ	18313	30/05/2025
	Respirable Dust Sampler	UT/LAB/107	Polltech	PEM-RDS 8NL	3213	30/12/2024

Note: 1. This test report refers only to the sample tested and observed values are relevant to sample collected only.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.
4. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
5. Weather during sampling was SUNNY & CLOUDY
6. ^Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
7. Air Quality Index (AQI) at above sampling location 95 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters. [National Air Quality Index (IND-AQI) is calculated using AQI Calculator available at 'https://cpcb.nic.in/National-Air-Quality-Index/'].

Analyzed By:
Divya Mhatre,Deepa Gautam,Jayashree Acharya

Reviewed By:
Jayashree Acharya
(Quality Manager)

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

– END OF TEST REPORT –

Regd.: Unit No. 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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GST: 27AADCU4659H1Z0 CIN NO: U74900MH2023PTC415102 UT - 007001
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TEST REPORT

ISSUED TO: L & T CONSTRUCTION - IHI CONSORTIUM
LE171107-MTHL Package 1 Project – MTHL Package -1
Project Office, Mumbai, Maharashtra, India , 400015
For Project: "MTHL Package 1 Project"

ULR NO. : --
REPORT NO. : UT/ELS/REPORT/ 7352 /08 - 2024
ISSUE DATE : 29/08/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : 01-08/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 16/08/2024 11:25 Hrs. to 17/08/2024 11:25 Hrs.
Sample Registration Date : 20/08/2024
Analysis Starting Date : 20/08/2024
Analysis Completion Date : 28/08/2024
Ambient Air Temperature : 29.4 °C to 31.4 °C
Relative Humidity : 75.5 % to 88.4 %
Sample Collected By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Location Code : 2
Sample Location : NEAR MP - 01

GPS Co-ordinates : N 18º59'53.4", E 72º51'35.7"
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/0375/08-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs.^ or 1 Hr^
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2023	8	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	27	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	89	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	26	$\mu g/m^3$	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	$\mu g/m^3$	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.06]	$\mu g/m^3$	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.4	mg/m^3	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	27	$\mu g/m^3$	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.1	$\mu g/m^3$	5^
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m^3	1^
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m^3	6^
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m^3	20^

†: Sampling Period 1 Hr.
BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	EL No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/269	Universal	AQS 235 MFC	193-DTI-2023	18/12/2024
	Respirable Dust Sampler	UT/LAB/271	Universal	AQS 136 DxNL	216-DTI-2023	18/12/2024

Note:
1. This test report refers only to the sample tested and observed values are relevant to sample collected only.
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3. Any correction invalidates this test report.
4. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
5. Weather during sampling was SUNNY & CLOUDY
6. ^Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
7. Air Quality Index (AQI) at above sampling location 89 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters. [National Air Quality Index (IND-AQI) is calculated using AQI Calculator available at 'https://cpcb.nic.in/National-Air-Quality-Index/'].

Analyzed By:
Divya Mhatre,Deepa Gautam,Tejaswini Ghugare

Reviewed By:
Jayashree Acharya
(Quality Manager)

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

– END OF TEST REPORT –

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TEST REPORT

ISSUED TO: **L & T CONSTRUCTION**
LE I71107-MTHL Package 1 Project - MTHL Package -1, Project Office, Mumbai, Maharashtra, India, 400015
For Project: **"MTHL Package 1 Project"**

ULR NO. : -
REPORT NO. : UT/ELS/REPORT/ 7122 / 08 - 2024
ISSUE DATE : 21/08/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No. : 01-08/2024
Sampling Method : UT/LQMS/SOP/N01
Sample Lab Code : UT/ELS/0376/08-2024
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT NOISE LEVEL MONITORING
Date of Monitoring : 16/08/2024 11:30 to 17/08/2024 11:30
Sampling Location : NEAR MP -01
GPS Co-ordinates : N 18º59'53.5", E 72º51'36.3"

Noise Level Reading in dB(A) Leq

Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
	L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
06:00 to 07:00	64.3	45.0	74.5	22:00 to 23:00	64.4	47.7	74.8
07:00 to 08:00	65.6	50.4	74.9	23:00 to 00:00	64.7	43.5	74.0
08:00 to 09:00	70.1	49.1	83.8	00:00 to 01:00	61.5	44.4	71.0
09:00 to 10:00	66.3	47.9	78.1	01:00 to 02:00	57.0	44.2	68.0
10:00 to 11:00	61.3	48.9	72.2	02:00 to 03:00	59.8	49.4	69.6
11:00 to 12:00	63.3	52.2	74.8	03:00 to 04:00	66.7	45.9	77.5
12:00 to 13:00	64.6	57.8	74.0	04:00 to 05:00	65.5	47.3	76.6
13:00 to 14:00	61.0	53.3	70.9	05:00 to 06:00	65.2	49.1	75.9
14:00 to 15:00	63.9	47.4	75.1	--	--	--	--
15:00 to 16:00	69.0	49.1	80.5	--	--	--	--
16:00 to 17:00	70.1	51.7	81.8	--	--	--	--
17:00 to 18:00	69.9	48.2	81.9	--	--	--	--
18:00 to 19:00	74.1	50.6	84.3	--	--	--	--
19:00 to 20:00	70.8	49.4	85.0	--	--	--	--
20:00 to 21:00	65.6	43.9	77.9	--	--	--	--
21:00 to 22:00	67.4	53.0	78.1	--	--	--	--

		Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise
L_{10}	71.0	
L_{50}	58.2	
L_{90}	52.0	
Day Leq	68.2	75
Night Leq	64.0	70

Opinions / Interpretations: Monitoring area coming under Industrial Area
The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Sound Level Meter	UT/LAB/228	Lutron	SL4035SD	Q685818	18/08/2024

Note:
1. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.
2. This test report refers only to the monitoring conducted.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.

Monitored By:
Mahesh More, Sabaji Manjarekar,
Suresh Sole ,Sandesh Parte

Reviewed By:
Damini Chalke
Deputy Technical Manager

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

– END OF TEST REPORT –

Regd.: Unit No. 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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GST: 27AADCU4659H1Z0
CIN NO: U74900MH2023PTC415102
UT - 006421

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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: **L & T CONSTRUCTION**
LEI 71107-MTHL Package 1 Project - MTHL Package -1, Project Office, Mumbai, Maharashtra, India, 400015
For Project: **"MTHL Package 1 Project"**

ULR NO. : -
REPORT NO. : UT/ELS/REPORT/ 7121 / 08 - 2024
ISSUE DATE : 21/08/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : 01-08/2024
Sampling Method : UT/LQMS/SOP/N01
Sample Lab Code : UT/ELS/0374/08-2024
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Date of Monitoring : 16/08/2024 11:05 to 17/08/2024 11:05
Sampling Location : NR. STP CASTING YARD
GPS Co-ordinates : N 18º59'42.00", E 72º51'22.10"

Noise Level Reading in dB(A) Leq

Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
	L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
06:00 to 07:00	59.3	55.1	66.8	22:00 to 23:00	65.6	59.4	76.2
07:00 to 08:00	67.5	66.8	69.4	23:00 to 00:00	65.5	59.8	77.2
08:00 to 09:00	62.7	54.8	75.7	00:00 to 01:00	61.7	58.0	70.2
09:00 to 10:00	64.5	57.7	74.2	01:00 to 02:00	60.0	55.1	67.6
10:00 to 11:00	89.9	53.2	103.1	02:00 to 03:00	61.0	54.7	73.1
11:00 to 12:00	71.3	53.5	82.6	03:00 to 04:00	60.4	53.8	72.6
12:00 to 13:00	67.1	49.8	80.3	04:00 to 05:00	57.4	53.7	66.0
13:00 to 14:00	78.4	46.6	92.9	05:00 to 06:00	57.3	54.3	63.3
14:00 to 15:00	69.8	46.5	83.5	--	--	--	--
15:00 to 16:00	69.5	47.2	81.4	--	--	--	--
16:00 to 17:00	68.0	51.7	79.4	--	--	--	--
17:00 to 18:00	63.8	55.2	75.5	--	--	--	--
18:00 to 19:00	63.3	55.0	74.9	--	--	--	--
19:00 to 20:00	66.9	53.9	80.7	--	--	--	--
20:00 to 21:00	61.7	53.6	71.6	--	--	--	--
21:00 to 22:00	60.1	51.8	69.9	--	--	--	--

		Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise
L_{10}	69.0	
L_{50}	60.7	
L_{90}	57.9	
Day Leq	**78.4**	**75**
Night Leq	**62.1**	**70**

Opinions / Interpretations: Monitoring area coming under Industrial Area
The observed values for LeqdB(A) for Day Time is exceeding the standard limit & Night Time is within the standard limit as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Sound Level Meter	UT/LAB/223	Lutron	SL4035SD	Q679023	16/02/2025

Note:
1. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.
2. This test report refers only to the monitoring conducted.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.

Monitored By:
Mahesh More, S.R. Manjarekar, Suresh Sole ,Sandesh Parte

Reviewed By:
Damini Chalke
Deputy Technical Manager

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

– END OF TEST REPORT –

Regd.: Unit No. 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Lab. Recognized by CPCB, MoEF&CC (GOI) under EP(A)-1986
ISO 9001:2015 & ISO 45001:2018 Certified

TC-5600

Lab: Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
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224, 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.

TEST REPORT

ISSUED TO: **L & T CONSTRUCTION**
LE171107-MTHL Package 1 Project – MTHL Package -1, Project Office, Mumbai, Maharashtra, India , 400015
For Project: **"MTHL Package 1 Project"**

ULR NO. : **ULR-TC5600 24 000004342F**
REPORT NO. : UT/ELS/REPORT/ 6154 /07 - 2024
ISSUE DATE : 15/07/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : 01-07/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 03/07/2024 14:30 Hrs. to 04/07/2024 14:30 Hrs.
Sample Registration Date : 05/07/2024
Analysis Starting Date : 05/07/2024
Analysis Completion Date : 11/07/2024
Ambient Air Temperature : 26.5 °C to 31.1 °C
Relative Humidity : 74.4 % to 94.6 %
Sample Collected By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Location Code : 2
Sample Location : Tap MP07 (15 Meter) OFF Towards North East
GPS Co-ordinates : N 18º59'58.10", E 72º51'47.80"
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/89/07-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs.^ or 1 Hr^
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2023	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	26	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	52	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	19	$\mu g/m^3$	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	$\mu g/m^3$	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.06]	$\mu g/m^3$	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.0	mg/m^3	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	33	$\mu g/m^3$	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.2	$\mu g/m^3$	5^
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m^3	1^
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m^3	6^
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m^3	20^

†: Sampling Period 1 Hr.
BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The **parameters** tested above are found to be within 24 hourly TWA of National Ambient Air Quality **Monitoring** Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/111	Polltech	PEM-ADS 2.5/10μ	18513	28/02/2025
	Respirable Dust Sampler	UT/LAB/191	Polltech	PEM-RDS 9	1018	21/01/2025

Note: 1. This test report refers only to the sample tested and observed values are relevant to sample collected only.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.
4. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
5. Weather during sampling was Rainy & Cloudy.
6. ^Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
7. Air Quality Index (AQI) at above sampling location 52 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters. [National Air Quality Index (IND-AQI) is calculated using AQI Calculator available at 'https://cpcb.nic.in/National-Air-Quality-Index/'].

Analyzed By:
Divya Mhatre,Deepa Gautam

Reviewed By:
Jayashree Acharya
(Quality Manager)

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

– END OF TEST REPORT –

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GST: 27AADCU4659H1Z0
CIN NO: U74900MH2023PTC415102

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ULTRA TECH

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ISO 9001:2015 & ISO 45001:2018 Certified

TC-5600

Lab: Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tel: +91- 022 45119250 / +91- 02245119239 / +91-7039076680 Email: lab@ultratech.in
224, 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.

TEST REPORT

ISSUED TO: **L & T CONSTRUCTION**
LE171107-MTHL Package 1 Project – MTHL Package -1, Project Office, Mumbai, Maharashtra, India , 400015
For Project: **"MTHL Package 1 Project"**

ULR NO. : **ULR-TC5600 24 000004341F**
REPORT NO. : UT/ELS/REPORT/ 6153 /07 - 2024
ISSUE DATE : 15/07/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 01-07/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 03/07/2024 14:00 Hrs. to 04/07/2024 14:00 Hrs.
Sample Registration Date : 05/07/2024
Analysis Starting Date : 05/07/2024
Analysis Completion Date : 11/07/2024
Ambient Air Temperature : 27.2 °C to 31.5 °C
Relative Humidity : 74.3 % to 94.4 %
Sample Collected By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT AIR QUALITY MONITORING
Location Code : 1
Sample Location : Near STP Casting Yard 10 meter Distance Towards south East
GPS Co-ordinates : N 18º59'39.70", E 72º51'22.80"
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/87/07-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs.^ or 1 Hr^
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2023	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	25	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	60	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	22	$\mu g/m^3$	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	$\mu g/m^3$	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.06	$\mu g/m^3$	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.4	mg/m^3	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	27	$\mu g/m^3$	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.1	$\mu g/m^3$	5^
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m^3	1^
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m^3	6^
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m^3	20^

†: Sampling Period 1 Hr.
BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/129	Polltech	PEM-ADS 2.5/10μ	18913	18/09/2024
	Respirable Dust Sampler	UT/LAB/192	Polltech	PEM-RDS 9	1118	21/01/2025

Note: 1. This test report refers only to the sample tested and observed values are relevant to sample collected only.
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3. Any correction invalidates this test report.
4. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
5. Weather during sampling was Rainy & Cloudy
6. ^Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
7. Air Quality Index (AQI) at above sampling location 72 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters. [National Air Quality Index (IND-AQI) is calculated using AQI Calculator available at 'https://cpcb.nic.in/National-Air-Quality-Index/'].

Analyzed By:
Divya Mhatre,Deepa Gautam,Jayashree Acharya

Reviewed By:
Tejaswini Ghugare
(Deputy Quality Manager)

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

- END OF TEST REPORT -

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GST: 27AADCU4659H1Z0
CIN NO: U74900MH2023PTC415102

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ULTRA TECH

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Lab. Recognized by CPCB, MoEF&CC [GOI] under EP(A)-1986
ISO 9001:2015 & ISO 45001:2018 Certified

TC-5600

Lab: Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tel: +91- 022 45119250 / +91- 02245119239 / +91-7039076680 Email: lab@ultratech.in
224, 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.

TEST REPORT

ISSUED TO: **L & T CONSTRUCTION**
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Project: **"MTHL Package 1 Project"**

ULR NO. : **ULR-TC5600 24 000004122F**
REPORT NO. : UT/ELS/REPORT/ 5789 / 07 - 2024
ISSUE DATE : 10/07/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

AMBIENT NOISE LEVEL MONITORING

Sampling Plan Ref. No. : 01-07/2024
Sampling Method : UT/LQMS/SOP/N01
Sample Lab Code : UT/ELS/90/07-2024
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Date of Monitoring : 03/07/2024 14:30 to 04/07/2024 14:30
Sampling Location : Tab MP07
GPS Co-ordinates : N 18º59'58.30", E 72º51'48.40"

Noise Level Reading in dB(A) Leq

Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
	L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
06:00 to 07:00	65.5	46.2	75.7	22:00 to 23:00	65.6	48.9	76.0
07:00 to 08:00	66.8	51.6	76.1	23:00 to 00:00	65.9	44.7	75.2
08:00 to 09:00	71.3	50.3	85.0	00:00 to 01:00	62.7	45.6	72.2
09:00 to 10:00	67.5	49.1	79.3	01:00 to 02:00	58.2	45.4	69.2
10:00 to 11:00	62.5	50.1	73.4	02:00 to 03:00	61.0	50.6	70.8
11:00 to 12:00	64.5	53.4	76.0	03:00 to 04:00	67.9	47.1	78.7
12:00 to 13:00	65.8	59.0	75.2	04:00 to 05:00	66.7	48.5	77.8
13:00 to 14:00	62.2	54.5	72.1	05:00 to 06:00	66.4	50.3	77.1
14:00 to 15:00	65.1	48.6	76.3	--	--	--	--
15:00 to 16:00	70.2	50.3	81.7	--	--	--	--
16:00 to 17:00	71.3	52.9	83.0	--	--	--	--
17:00 to 18:00	71.1	49.4	83.1	--	--	--	--
18:00 to 19:00	75.3	51.8	85.5	--	--	--	--
19:00 to 20:00	72.0	50.6	86.2	--	--	--	--
20:00 to 21:00	66.8	45.1	79.1	--	--	--	--
21:00 to 22:00	68.6	54.2	79.3	--	--	--	--

		Limits in dB(A) Leq as per
L_{10}	72.2	THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000
L_{50}	59.4	(See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise
L_{90}	53.2	
Day Leq	69.4	75
Night Leq	65.2	70

Opinions / Interpretations: Monitoring area coming under Industrial Area
The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Sound Level Meter	UT/LAB/212	Lutron	SL4033SD	Q665560	06/10/2024

Note:
1. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.
2. This test report refers only to the monitoring conducted.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.

Monitored By:
Sandesh Parte, Mahesh More, Vishal Chorge & Suresh Sole

Reviewed By:
Damini Chalke
Deputy Technical Manager

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

– END OF TEST REPORT –

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Kolkata: +033-40089145 / +91-9674488198 - kolkata@ultratech.in, Gujarat: +91-9558117469 - gujarat@ultratech.in
GST: 27AADCU4659H1Z0
CIN NO: U74900MH2023PTC415102

ULTRA TECH

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Lab. Recognized by CPCB, MoEF&CC [GOI] under EP(A)-1986
ISO 9001:2015 & ISO 45001:2018 Certified

TC-5600

Lab: Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
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224, 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.

TEST REPORT

ISSUED TO: **L & T CONSTRUCTION**
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Project: **"MTHL Package 1 Project"**

ULR NO. : **ULR-TC5600 24 000004121F**
REPORT NO. : UT/ELS/REPORT/ 5788 / 07 - 2024
ISSUE DATE : 10/07/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No. : 01-07/2024
Sampling Method : UT/LQMS/SOP/N01
Sample Lab Code : UT/ELS/88/07-2024
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT NOISE LEVEL MONITORING
Date of Monitoring : 03/07/2024 14:00 to 04/07/2024 14:00
Sampling Location : Near STP Casting Yard
GPS Co-ordinates : N 18º59'42.00", E 72º51'22.10"

Noise Level Reading in dB(A) Leq

Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
	L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
06:00 to 07:00	67.1	59.5	80.9	22:00 to 23:00	71.1	61.5	82.0
07:00 to 08:00	67.7	60.7	77.6	23:00 to 00:00	63.6	58.0	75.1
08:00 to 09:00	68.5	60.3	75.2	00:00 to 01:00	62.9	58.7	71.7
09:00 to 10:00	70.5	62.8	80.4	01:00 to 02:00	65.4	59.9	71.2
10:00 to 11:00	68.7	61.0	79.4	02:00 to 03:00	61.4	58.9	68.1
11:00 to 12:00	66.2	58.7	76.6	03:00 to 04:00	62.3	59.2	73.9
12:00 to 13:00	66.9	59.8	77.6	04:00 to 05:00	64.2	58.9	75.5
13:00 to 14:00	66.7	60.4	77.4	05:00 to 06:00	62.6	58.7	74.5
14:00 to 15:00	68.4	59.1	80.2	--	--	--	--
15:00 to 16:00	73.8	61.7	87.0	--	--	--	--
16:00 to 17:00	71.6	61.3	83.3	--	--	--	--
17:00 to 18:00	69.7	61.1	78.9	--	--	--	--
18:00 to 19:00	69.9	60.8	79.9	--	--	--	--
19:00 to 20:00	68.8	59.8	81.9	--	--	--	--
20:00 to 21:00	66.2	58.8	76.0	--	--	--	--
21:00 to 22:00	69.5	59.4	78.6	--	--	--	--

		Limits in dB(A) Leq as per
L_{10}	71.2	THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000
L_{50}	64.1	(See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise
L_{90}	61.4	
Day Leq	69.3	75
Night Leq	65.5	70

Opinions / Interpretations: Monitoring area coming under Industrial Area
The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Sound Level Meter	UT/LAB/223	Lutron	SL4035SD	Q679023	16/02/2025

Note:
1. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.
2. This test report refers only to the monitoring conducted.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.

Monitored By:
Sandesh Parte, Mahesh More, Vishal Chorge & Suresh Sole

Reviewed By:
Damini Chalke
Deputy Technical Manager

Authorized By:
Meghan Patil
(Head of Laboratory)
Authorized Signatory

– END OF TEST REPORT –

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GST: 27AADCU4659H1Z0
CIN NO: U74900MH2023PTC415102

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ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD
(A venture of ULTRA TECH Environmental Consultancy)
ISO 9001:2015 & ISO 45001:2018 Certified

Lab Operates at : Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-001/11-2024
ISSUE DATE : 11/11/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : C 01-11/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 04/11/2024 to 05/11/2024
Sample Registration Date : 05/11/2024
Analysis Starting Date : 05/11/2024
Analysis Completion Date : 11/11/2024
Time of Sampling : 10:30 to 10:30
Ambient Air Temperature : 26.1°C to 31.5°C

Location Code : 01
Sample Location : Near STP Casting yard
Co-ordinates:
N 18°59'39.70"; E 73°51'22.8"
Sample Lab Code : UT/ELS/C-001/11-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours :Minutes
Relative Humidity : 69.1 % to 79.8 %

Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	6	µg/m³	80
2.	Oxides of Nitrogen (NO_X)	IS 5182 (Part 06) : 2006	22	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	90	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	35	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	0.07	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.2	mg/m³	4
8.	Ammonia (NH_3)£	ISC 16th Ed Method 401	48	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.0	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. ∞: Sampling Period 8 Hrs. £: Sampling Period 2 Hrs.
BDL: Below Detection Limit DL: Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL; Sr. No. 220	Valid up to – 16/02/2025
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 1722	Valid up to –17/09/2025

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather was Sunny & Clear

– END OF REPORT –

Authorized By:
Meghan Patil
(Authorized Signatory)

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GST: 27AADCU4659H1Z0 CIN NO: U74900MH2023PTC415102 UT - 008273
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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-002/11-2024
ISSUE DATE : 11/11/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : C 01-11/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 04/11/2024 to 05/11/2024
Sample Registration Date : 05/11/2024
Analysis Starting Date : 05/11/2024
Analysis Completion Date : 11/11/2024
Time of Sampling : 11:30 to 11:30
Ambient Air Temperature : 24.6°C to 30.8°C

AMBIENT AIR QUALITY MONITORING

Location Code : 02
Sample Location : Near MP -01
Co-ordinates:
N 18°59'53.4"; E 72°51'35.7"
Sample Lab Code : UT/ELS/C-002/11-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours :Minutes
Relative Humidity : 65.1 % to 85.8 %

Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	8	µg/m³	80
2.	Oxides of Nitrogen (NO_x)	IS 5182 (Part 06) : 2006	24	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	93	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	34	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.06]	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.4	mg/m³	4
8.	Ammonia (NH_3)£	ISC 16th Ed Method 401	45	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.3	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. ∞: Sampling Period 8 Hrs. £: Sampling Period 2 Hrs.
BDL: Below Detection Limit **DL: Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL;Sr. No. 120	Valid up to – 29/11/2024
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 19213	Valid up to –04/10/2025

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather was Sunny & Clear

– END OF REPORT –

Authorized By:
Meghan Patil
(Authorized Signatory)

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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-003/11-2024
ISSUE DATE : 11/11/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : C 01-11/2024
Sampling Procedure : UT/LQMS/SOP/N01
Survey Done By : ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Sample Lab Code : UT/ELS/C-003/11-2024
Date of Monitoring : 04/11/2024 to 05/11/2024

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 01 Nr. STP casting Yard Co-ordinates: N-18°59'42.00"; E-72°51'22.10"	06:00 to 07:00	60.4	54.8	67.7	22:00 to 23:00	64.8	59.2	72.1
		07:00 to 08:00	66.3	60.7	73.6	23:00 to 00:00	63.7	58.1	71.0
		08:00 to 09:00	68.1	62.5	75.4	00:00 to 01:00	62.6	57.0	69.9
		09:00 to 10:00	70.1	64.5	77.4	01:00 to 02:00	59.4	53.8	66.7
		10:00 to 11:00	75.8	70.2	83.1	02:00 to 03:00	58.1	52.5	65.4
		11:00 to 12:00	73.7	68.1	81.0	03:00 to 04:00	57.0	51.4	64.3
		12:00 to 13:00	77.0	71.4	84.3	04:00 to 05:00	55.9	50.3	63.2
		13:00 to 14:00	74.8	69.2	82.1	05:00 to 06:00	55.4	49.8	62.7
		14:00 to 15:00	74.0	68.4	81.3	--	--	--	--
		15:00 to 16:00	72.6	67.0	79.9	--	--	--	--
		16:00 to 17:00	72.1	66.5	79.4	--	--	--	--
		17:00 to 18:00	71.1	65.5	78.4	--	--	--	--
		18:00 to 19:00	69.4	63.8	76.7	--	--	--	--
		19:00 to 20:00	68.1	62.5	75.4	--	--	--	--
		20:00 to 21:00	67.0	61.4	74.3	--	--	--	--
		21:00 to 22:00	65.9	60.3	73.2	--	--	--	--
		L_{10}	**74.6**			***Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise***			
		L_{50}	**67.6**						
		L_{90}	**57.3**						
		Day Leq	**72.1**			**75**			
		Night Leq	**60.9**			**70**			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Lutron; Model – SL4033SD, Sr. No. Q690404	Valid up to – 09/11/2024

Note:
1. This test report refers only to the monitoring conducted.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.

– END OF REPORT –

ULTRA TECH ENVIRONMENTAL CONSULTANCY & LABORATORY PVT. LTD. CIN No. U74900MH2023PTC415102 ULTRA TECH THANE (W) INDIA PIN-400 601 GST No. 27AADCU4659H1Z0

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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-004/11-2024
ISSUE DATE : 11/11/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : C 01-11/2024
Sampling Procedure : UT/LQMS/SOP/N01
Survey Done By : ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Sample Lab Code : UT/ELS/C-004/11-2024
Date of Monitoring : 04/11/2024 to 05/11/2024

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 02 NEAR MP-01, Co-ordinates: N-18°59'53.5"; E-72°51'36.3"	06:00 to 07:00	57.5	51.4	65.4	22:00 to 23:00	61.8	55.7	69.7
		07:00 to 08:00	58.2	52.1	66.1	23:00 to 00:00	60.7	54.6	68.6
		08:00 to 09:00	62.1	56.0	70.0	00:00 to 01:00	57.5	51.4	65.4
		09:00 to 10:00	68.8	62.7	76.7	01:00 to 02:00	58.2	52.1	66.1
		10:00 to 11:00	64.2	58.1	72.1	02:00 to 03:00	59.0	52.9	66.9
		11:00 to 12:00	67.5	61.4	75.4	03:00 to 04:00	56.2	50.1	64.1
		12:00 to 13:00	67.9	61.8	75.8	04:00 to 05:00	55.1	49.0	63.0
		13:00 to 14:00	71.8	65.7	79.7	05:00 to 06:00	54.0	47.9	61.9
		14:00 to 15:00	67.2	61.1	75.1	--	--	--	--
		15:00 to 16:00	64.0	57.9	71.9	--	--	--	--
		16:00 to 17:00	61.8	55.7	69.7	--	--	--	--
		17:00 to 18:00	60.7	54.6	68.6	--	--	--	--
		18:00 to 19:00	60.1	54.0	68.0	--	--	--	--
		19:00 to 20:00	58.5	52.4	66.4	--	--	--	--
		20:00 to 21:00	58.5	52.4	66.4	--	--	--	--
		21:00 to 22:00	58.8	52.7	66.7	--	--	--	--
		L_{10}	**67.8**			***Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise***			
		L_{50}	**60.4**						
		L_{90}	**56.6**						
		Day Leq	**65.3**			**75**			
		Night Leq	**58.5**			**70**			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Envirotech; Model – SLM100, Sr. No. 192-DTK-2012	Valid up to – 13/03/2025

Note:
1. This test report refers only to the monitoring conducted.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.

– END OF REPORT –

Authorized By:

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(Authorized Signatory)

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TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-001/10-2024
ISSUE DATE : 10/10/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : C 01-10/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 02/10/2024 to 03/10/2024
Sample Registration Date : 03/10/2024
Analysis Starting Date : 03/10/2024
Analysis Completion Date : 10/10/2024
Time of Sampling : 10:30 to 10:30
Ambient Air Temperature : 26.1°C to 31.5°C
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT AIR QUALITY MONITORING

Location Code : 01
Sample Location : Near STP Casting yard
Co-ordinates:
N 18°59'39.70"; E 73°51'22.8"
Sample Lab Code : UT/ELS/C-001/10-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours :Minutes
Relative Humidity : 65.1 % to 85.8 %

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	8	µg/m³	80
2.	Oxides of Nitrogen (NO_x)	IS 5182 (Part 06) : 2006	25	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	94	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	37	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.06]	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.5	mg/m³	4
8.	Ammonia (NH_3)£	ISC 16th Ed Method 401	39	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.2	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. ∞: Sampling Period 8 Hrs. £: Sampling Period 2 Hrs.
BDL: Below Detection Limit DL: Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL; Sr. No. 220	Valid up to – 16/02/2025
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 1722	Valid up to –17/09/2025

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather was Rainy & Cloudy.

– END OF REPORT –

ULTRA TECH ENVIRONMENTAL CONSULTANCY & LABORATORY PVT. LTD. CIN No. U74900MH2023PTC415102 ULTRA TECH THANE (W) INDIA PIN-400 601 GST No. 27AADCU4659H1Z0

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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-002/10-2024
ISSUE DATE : 10/10/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : C 01-10/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 02/10/2024 to 03/10/2024
Sample Registration Date : 03/10/2024
Analysis Starting Date : 03/10/2024
Analysis Completion Date : 10/10/2024
Time of Sampling : 11:00 to 11:00
Ambient Air Temperature : 26.5°C to 32.5°C
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT AIR QUALITY MONITORING

Location Code : 02
Sample Location : Near MP -01
Co-ordinates:
N 18°59'53.4"; E 72°51'35.7"
Sample Lab Code : UT/ELS/C-002/10-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours :Minutes
Relative Humidity : 62.9 % to 85.7 %

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	5	µg/m³	80
2.	Oxides of Nitrogen (NO_X)	IS 5182 (Part 06) : 2006	18	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	78	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	26	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.06]	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.3	mg/m³	4
8.	Ammonia (NH_3)£	ISC 16th Ed Method 401	28	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.2	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. ∞: Sampling Period 8 Hrs. £: Sampling Period 2 Hrs.
BDL: Below Detection Limit DL: Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL;Sr. No. 120	Valid up to – 29/11/2024
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 19213	Valid up to –05/10/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather was Rainy & Cloudy.

– END OF REPORT –

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT *

ULTRA TECH ENVIRONMENTAL CONSULTANCY & LABORATORY PVT. LTD. CIN No. U74900MH2023PTC415102 ULTRA TECH THANE (W) INDIA PIN-400 601 GST No. 27AADCU4659H1ZO

Authorized By:
Meghan Patil
(Authorized Signatory)

Regd.: Unit No. 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-003/10-2024
ISSUE DATE : 10/10/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**
Sampling Plan Ref. No. : C 01-10/2024
Sampling Procedure : UT/LQMS/SOP/N01
Survey Done By : ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.
Sample Lab Code : UT/ELS/C-003/10-2024
Date of Monitoring : 02/10/2024 to 03/10/2024

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 01 Nr. STP casting Yard Co-ordinates: N-18°59'42.00"; E-72°51'22.10"	06:00 to 07:00	58.5	51.7	65.3	22:00 to 23:00	62.3	56.1	69.6
		07:00 to 08:00	58.7	52.4	66.8	23:00 to 00:00	61.2	54.9	68.5
		08:00 to 09:00	62.6	56.3	69.9	00:00 to 01:00	58.0	51.7	65.3
		09:00 to 10:00	69.3	63.9	76.6	01:00 to 02:00	58.7	52.4	66.5
		10:00 to 11:00	64.7	58.4	72.8	02:00 to 03:00	59.5	53.2	66.8
		11:00 to 12:00	68.0	61.7	75.3	03:00 to 04:00	56.7	50.4	64.7
		12:00 to 13:00	68.4	62.1	75.7	04:00 to 05:00	55.6	49.3	62.9
		13:00 to 14:00	72.3	66.8	79.6	05:00 to 06:00	54.5	48.2	61.8
		14:00 to 15:00	67.7	61.4	75.9	--	--	--	--
		15:00 to 16:00	64.5	58.2	71.8	--	--	--	--
		16:00 to 17:00	62.3	56.8	69.6	--	--	--	--
		17:00 to 18:00	61.2	54.9	68.5	--	--	--	--
		18:00 to 19:00	60.6	54.3	67.9	--	--	--	--
		19:00 to 20:00	59.0	52.7	66.3	--	--	--	--
		20:00 to 21:00	59.0	52.7	66.3	--	--	--	--
		21:00 to 22:00	59.3	53.5	66.6	--	--	--	--
		L_{10}	68.3			***Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise***			
		L_{50}	60.9						
		L_{90}	57.1						
		Day Leq	**65.8**			**75**			
		Night Leq	**59.0**			**70**			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note: 1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Lutron; Model – SL4033SD, Sr. No. Q690404	Valid up to – 09/11/2024

Note: 1. This test report refers only to the monitoring conducted.
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3. Any correction invalidates this test report.

– END OF REPORT –

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(Authorized Signatory)

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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO.	:	UT/ELS/REPORT/C-004/10-2024
ISSUE DATE	:	10/10/2024
YOUR REF.	:	EH401WOD8000127 Amd No. 21
REF. DATE	:	27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No.	:	C 01-10/2024	**Sample Lab Code**	:	UT/ELS/C-004/10-2024
Sampling Procedure	:	UT/LQMS/SOP/N01	**Date of Monitoring**	:	02/10/2024 to 03/10/2024
Survey Done By	:	ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.			

Sr. No.	Location	Noise Level Reading in dB(A) Leq						
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 02 NEAR MP-01, Co-ordinates: N-18°59'53.5"; E-72°51'36.3"	06:00 to 07:00	61.2	55.6	68.5	22:00 to 23:00	65.6	60.4	72.9
		07:00 to 08:00	67.1	61.5	74.4	23:00 to 00:00	64.5	58.9	71.8
		08:00 to 09:00	68.9	63.3	76.2	00:00 to 01:00	63.4	57.8	70.7
		09:00 to 10:00	70.9	65.3	78.2	01:00 to 02:00	60.2	54.6	67.5
		10:00 to 11:00	76.6	71.0	83.9	02:00 to 03:00	58.9	53.3	66.2
		11:00 to 12:00	74.5	68.9	81.8	03:00 to 04:00	57.8	52.2	65.1
		12:00 to 13:00	77.8	72.2	85.1	04:00 to 05:00	56.7	51.1	64.4
		13:00 to 14:00	75.6	70.0	82.9	05:00 to 06:00	56.2	50.6	63.5
		14:00 to 15:00	74.8	69.2	82.1	--	--	--	--
		15:00 to 16:00	73.4	67.8	80.7	--	--	--	--
		16:00 to 17:00	72.9	67.3	80.2	--	--	--	--
		17:00 to 18:00	71.9	66.3	79.2	--	--	--	--
		18:00 to 19:00	70.2	64.6	77.5	--	--	--	--
		19:00 to 20:00	68.9	63.3	76.2	--	--	--	--
		20:00 to 21:00	67.8	62.2	75.1	--	--	--	--
		21:00 to 22:00	66.7	61.1	74.5	--	--	--	--
		L_{10}	**75.4**			***Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise***			
		L_{50}	**68.4**						
		L_{90}	**58.1**						
		Day Leq	**72.9**			**75**			
		Night Leq	**61.7**			**70**			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note: 1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Envirotech; Model – SLM100, Sr. No. 192-DTK-2012	Valid up to – 13/03/2025

Note: 1. This test report refers only to the monitoring conducted.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.

– END OF REPORT –

Authorized By:
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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-023/09-2024
ISSUE DATE : 14/09/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : C 05-09/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 04/09/2024 to 05/09/2024
Sample Registration Date : 05/09/2024
Analysis Starting Date : 05/09/2024
Analysis Completion Date : 10/09/2024
Time of Sampling : 11:00 to 11:00
Ambient Air Temperature : 24.1°C to 30.5°C
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

AMBIENT AIR QUALITY MONITORING

Location Code : 01
Sample Location : Near STP Casting yard
Co-ordinates: N 18°59'39.70";E73°51'22.8"
Sample Lab Code : UT/ELS/C-024/09-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours :Minutes
Relative Humidity : 68.1 % to 88.8 %

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	7	µg/m³	80
2.	Oxides of Nitrogen (NO_X)	IS 5182 (Part 06) : 2006	28	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	83	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	34	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.06]	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.4	mg/m³	4
8.	Ammonia (NH_3)£	ISC 16th Ed Method 401	35	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.1	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. ∞: Sampling Period 8 Hrs. £: Sampling Period 2 Hrs.
BDL: Below Detection Limit **DL: Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL; Sr. No. 220	Valid up to – 16/02/2025
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 1722	Valid up to –18/09/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather was Rainy & Cloudy.

– END OF REPORT –

Authorized By:
Meghan **Patil**
(Authorized Signatory)

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TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-024/09-2024
ISSUE DATE : 14/09/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : C 05-09/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date of Sampling : 04/09/2024 to 05/09/2024
Sample Registration Date : 05/09/2024
Analysis Starting Date : 05/09/2024
Analysis Completion Date : 10/09/2024
Time of Sampling : 11:30 to 11:30
Ambient Air Temperature : 24.4°C to 30.6°C
Survey Done By : ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Location Code : 02
Sample Location : Near MP -01
Co-ordinates:
N 18°59'53.4"; E 72°51'35.7"
Sample Lab Code : UT/ELS/C-025/09-2024
Height of Sampler : 1.0 Meter
Sampling Duration : 24 Hours :Minutes
Relative Humidity : 68.9 % to 87.7 %

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS (Industrial, Residential, Rural and Other Area) 24 Hrs or 1 Hr
1.	Sulphur Dioxide (SO_2)	IS 5182 (Part 02) : 2023	7	µg/m³	80
2.	Oxides of Nitrogen (NO_x)	IS 5182 (Part 06) : 2006	22	µg/m³	80
3.	Particulate Matter (PM_{10})	EPA/625/R-96/010a Method IO-2.1	80	µg/m³	100
4.	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	25	µg/m³	60
5.	Ozone (O_3)∞	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6.	Lead (Pb)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.06]	µg/m³	1.0
7.	Carbon Monoxide (CO)†	IS 5182 (Part 10): 1999	1.0	mg/m³	4
8.	Ammonia (NH_3)£	ISC 16th Ed Method 401	25	µg/m³	400
9.	Benzene (C_6H_6)∞	IS 5182 (Part 11) : 2006	1.0	µg/m³	5^
10.	Benzo(α)Pyrene (BaP) – Particulate Phase	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1^
11.	Arsenic (As)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6^
12.	Nickel (Ni)	CPCB Guidelines, Vol-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20^

†: Sampling Period 1 Hr. **∞: Sampling Period 8 Hrs.** **£: Sampling Period 2 Hrs.**
BDL: Below Detection Limit **DL: Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV. NAAQMS is provided as Annexure-I for your reference. (Turnover to find Annexure)*

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Respirable Dust Sampler	Make –POLLTECH; Model – PEM-RDS 9 NL;Sr. No. 120	Valid up to – 29/11/2024
	Fine Dust Sampler	Make – POLLTECH; Model – PEM-ADS 2.5/10µ, Sr. No. 19213	Valid up to –05/10/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA00) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
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5. Any correction invalidates this test report.
6. Weather was Rainy & Cloudy.

– END OF REPORT –

ULTRA TECH ENVIRONMENTAL CONSULTANCY & LABORATORY PVT. LTD. CIN No. U74900MH2023PTC415102 ULTRA TECH THANE (W) INDIA PIN-400 601 GST No. 27AADCU4659H1Z0

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Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO. : UT/ELS/REPORT/C-025/09-2024
ISSUE DATE : 14/09/2024
YOUR REF. : EH401WOD8000127 Amd No. 21
REF. DATE : 27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : C 05-09/2024
Sampling Procedure : UT/LQMS/SOP/N01
Survey Done By : ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.

Sample Lab Code : UT/ELS/C-026/09-2024
Date of Monitoring : 04/09/2024 to 05/09/2024

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 01 Nr. STP casting Yard Co-ordinates: N-18°59'42.00"; E-72°51'22.10"	06:00 to 07:00	59.9	53.2	69.7	22:00 to 23:00	64.3	57.6	74.1
		07:00 to 08:00	65.8	59.1	75.6	23:00 to 00:00	63.2	56.5	73.8
		08:00 to 09:00	67.6	60.9	77.4	00:00 to 01:00	62.1	55.4	71.9
		09:00 to 10:00	69.6	62.9	79.4	01:00 to 02:00	58.9	52.2	68.7
		10:00 to 11:00	75.3	68.6	85.1	02:00 to 03:00	57.6	50.9	67.4
		11:00 to 12:00	73.2	66.5	83.6	03:00 to 04:00	56.5	49.8	66.3
		12:00 to 13:00	76.5	69.8	86.3	04:00 to 05:00	55.4	48.7	65.2
		13:00 to 14:00	74.3	67.6	84.1	05:00 to 06:00	54.9	48.2	64.7
		14:00 to 15:00	73.5	66.8	83.3	--	--	--	--
		15:00 to 16:00	72.1	65.4	81.9	--	--	--	--
		16:00 to 17:00	71.6	64.9	81.4	--	--	--	--
		17:00 to 18:00	70.6	63.9	80.4	--	--	--	--
		18:00 to 19:00	68.9	62.2	78.7	--	--	--	--
		19:00 to 20:00	67.6	60.9	77.4	--	--	--	--
		20:00 to 21:00	66.5	59.8	76.3	--	--	--	--
		21:00 to 22:00	65.4	58.7	75.2	--	--	--	--
		L_{10}	**74.1**			***Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise***			
		L_{50}	**67.1**						
		L_{90}	**56.8**						
		Day Leq	**71.6**			**75**			
		Night Leq	**60.4**			**70**			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Lutron; Model – SL4033SD, Sr. No. Q690404	Valid up to – 09/11/2024

Note:
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Authorized By:
Meghan Patil
(Authorized Signatory)

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ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD
(A venture of ULTRA TECH Environmental Consultancy)
ISO 9001:2015 & ISO 45001:2018 Certified
Lab Operates at : Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tel: 022-45119250, 022-45119239 / +91-7039076680 Email: lab@ultratech.in

TEST REPORT

ISSUED TO: L & T CONSTRUCTION
LE171107-MTHL Package 1 Project – MTHL Package -1,
Project Office, Mumbai, Maharashtra, India , 400015
For Your Project: "MTHL Package 1 Project"

REPORT NO.	:	UT/ELS/REPORT/C-026/09-2024
ISSUE DATE	:	14/09/2024
YOUR REF.	:	EH401WOD8000127 Amd No. 21
REF. DATE	:	27/12/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No.	:	C 05-09/2024	**Sample Lab Code**	:	UT/ELS/C-027/09-2024
Sampling Procedure	:	UT/LQMS/SOP/N01	**Date of Monitoring**	:	04/09/2024 to 05/09/2024
Survey Done By	:	ULTRATECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD.			

Sr. No.	Location	Noise Level Reading in dB(A) Leq						
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	NQ- 02 NEAR MP-01, Co-ordinates: N-18°59'53.5"; E-72°51'36.3"	06:00 to 07:00	58.9	53.3	67.2	22:00 to 23:00	63.2	57.6	71.5
		07:00 to 08:00	59.6	54.8	67.9	23:00 to 00:00	62.1	56.5	70.4
		08:00 to 09:00	63.5	57.9	71.8	00:00 to 01:00	58.9	53.3	67.2
		09:00 to 10:00	70.2	64.6	78.5	01:00 to 02:00	59.6	54.0	67.9
		10:00 to 11:00	65.6	60.4	73.9	02:00 to 03:00	60.4	54.8	68.7
		11:00 to 12:00	68.9	63.3	77.2	03:00 to 04:00	57.6	52.1	65.9
		12:00 to 13:00	69.3	63.7	77.6	04:00 to 05:00	56.5	50.9	64.8
		13:00 to 14:00	73.2	67.6	81.5	05:00 to 06:00	55.4	49.8	63.7
		14:00 to 15:00	68.6	63.9	76.9	--	--	--	--
		15:00 to 16:00	65.4	59.8	73.7	--	--	--	--
		16:00 to 17:00	63.2	57.6	71.5	--	--	--	--
		17:00 to 18:00	62.1	56.5	70.4	--	--	--	--
		18:00 to 19:00	61.5	55.9	69.8	--	--	--	--
		19:00 to 20:00	59.9	54.3	68.2	--	--	--	--
		20:00 to 21:00	59.9	54.3	68.2	--	--	--	--
		21:00 to 22:00	60.2	54.6	68.5	--	--	--	--
		L_{10}	69.2			*Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise*			
		L_{50}	61.8						
		L_{90}	58.0						
		Day Leq	**66.7**			**75**			
		Night Leq	**59.9**			**70**			

Opinions / Interpretations: *The observed values for Leq dB(A) for Day Time & Night Time are Within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under *Industrial Zone.*
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Envirotech; Model – SLM100, Sr. No. 192-DTK-2012	Valid up to – 13/03/2025

Note:
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Authorized By:
Meghan Patil
(Authorized Signatory)

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DAEWOO-TPL JV

C/O TATA Projects Limited, 11th Floor, Hiranandani Knowledge Park, Technology Street, Powai, Mumbai-400 076, India

Ref: MTHL/DW-TPL/GC/LT/PJC/2024-5373

Date: 18 Jan 2024

To, : **The Engineer**
General Consultant for MTHL Project
6th Floor, A Wing, MMRDA Old Building, Bandra-Kurla Complex
Bandra (E), Mumbai 400 051

Kind Attn. : Mr. K. R. Shivananda

Project : Procurement of Mumbai Trans Harbour Link Project (Package 2) Construction of 7.807km long bridge section (CH 10+380-CH 18+187) across Mumbai Bay including Shivaji Nagar Interchange

Subject : **Submission of Quarterly Environmental Monitoring Reports (October 2023 – December 2023)**

Ref. : Contract Agreement no. MMRDA/ENG1/00753 dated 19-01-2018

Dear Sir,

1. The Contractor is submitting herewith the Quarterly Environmental Monitoring Reports for the period from October 2023 to December 2023.

2. This is for your information and records.

Yours truly,
For Daewoo-TPL JV

Tae-il **KIM / Project Director**

Encl: Quarterly Environmental Monitoring Reports for the period from October 2023 to December 2023

CC: 1) Mr. S. A. Wandhekar, Engineer-In-Chief, MMRDA
2) Mr. Yatin Sakhalkar, Superintending Engineer, MMRDA
3) Mr. Abhijit Bhisikar, Superintending Engineer, MMRDA
4) Mr. Hohsing Lee, PE, SE, Resident Engineer, General Consultant (MTHL)

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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

ULR -TC560023000007237F
TC-5600
ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens, MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/9806/12-2023
ISSUE DATE : 22/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :

AMBIENT NOISE LEVEL MONITORING

Sampling Plan Ref. No. : 08-12/2023
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 19/12/2023 to 20/12/2023

Sample Lab Code : UT/ELS/543/12-2023
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq						
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			Leq	L_{min}	L_{max}		Leq	L_{min}	L_{max}
01.	At Nhava Temporary Bridge MP-238 Co-ordinates: 18°58'31.4"N, 72°59'53.02"E	06:00 to 07:00	64.0	56.7	71.6	22:00 to 23:00	64.8	57.6	74.8
		07:00 to 08:00	68.2	56.7	80.7	23:00 to 00:00	63.4	55.7	72.2
		08:00 to 09:00	65.8	57.2	76.1	00:00 to 01:00	62.0	53.0	70.6
		09:00 to 10:00	65.2	57.1	75.3	01:00 to 02:00	59.4	50.1	70.0
		10:00 to 11:00	66.5	57.1	75.1	02:00 to 03:00	57.2	47.5	66.9
		11:00 to 12:00	67.7	58.8	77.2	03:00 to 04:00	60.8	44.6	74.1
		12:00 to 13:00	68.0	60.7	77.4	04:00 to 05:00	60.6	48.1	72.1
		13:00 to 14:00	71.0	65.0	80.2	05:00 to 06:00	62.5	52.5	72.0
		14:00 to 15:00	70.3	62.6	80.1	--	--	--	--
		15:00 to 16:00	70.0	59.2	80.7	--	--	--	--
		16:00 to 17:00	70.5	59.2	81.2	--	--	--	--
		17:00 to 18:00	69.8	56.7	79.4	--	--	--	--
		18:00 to 19:00	67.8	56.1	76.3	--	--	--	--
		19:00 to 20:00	74.2	57.6	86.1	--	--	--	--
		20:00 to 21:00	65.9	57.5	74.7	--	--	--	--
		21:00 to 22:00	63.6	57.3	71.8	--	--	--	--
		L_{10}	70.7			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	63.1						
		L_{90}	59.6						
		Day Leq	68.9			75			
		Night Leq	61.9			70			

Remark/ Statement of Conformity: *The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note: 1. Monitoring area coming under Industrial Zone.
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Lutron; Model – SL4035SD Sr. No. Q682239	Valid up to – 18/08/2024

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MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT *

ULTRA-TECH * Gazetted by MoEF Govt. of India * THANE (W) INDIA PIN-400 601 * ENVIRONMENTAL CONSULTANCY & LABORATORY *

For ULTRA TECH,

Meghan Patil
(Authorized Signatory)

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ULR -TC560023000007236F

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

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TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens, MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/9805/12-2023
ISSUE DATE : 22/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : 08-12/2023
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 19/12/2023 to 20/12/2023

Sample Lab Code : UT/ELS/542/12-2023
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
02.	At Casting Yard, Near Batching Plant No. 01 Co-ordinates: 18°57'57.82"N, 73°00'39.72"E	06:00 to 07:00	65.1	57.8	72.7	22:00 to 23:00	65.9	58.7	75.9
		07:00 to 08:00	69.3	57.8	81.8	23:00 to 00:00	64.5	56.8	73.3
		08:00 to 09:00	66.9	58.3	77.2	**00:00 to 01:00**	63.1	**54.1**	71.7
		09:00 to 10:00	66.3	**58.2**	76.4	**01:00 to 02:00**	60.5	51.2	71.1
		10:00 to 11:00	67.6	58.2	76.2	02:00 to 03:00	**58.3**	48.6	68.0
		11:00 to 12:00	68.8	59.9	78.3	**03:00 to 04:00**	61.9	45.7	75.2
		12:00 to 13:00	69.1	61.8	78.5	04:00 to 05:00	61.1	48.8	72.5
		13:00 to 14:00	72.1	66.1	81.3	05:00 to 06:00	62.5	52.5	72.0
		14:00 to 15:00	71.4	63.7	81.2	--	--	--	--
		15:00 to 16:00	71.1	60.3	81.8	--	--	--	--
		16:00 to 17:00	71.6	60.3	82.3	--	--	--	--
		17:00 to 18:00	70.9	57.8	80.5	--	--	--	--
		18:00 to 19:00	68.9	57.2	77.4	--	--	--	--
		19:00 to 20:00	75.3	58.7	87.2	--	--	--	--
		20:00 to 21:00	67.0	58.6	75.8	--	--	--	--
		21:00 to 22:00	64.7	58.4	72.9	--	--	--	--
		L_{10}	71.8			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	64.1						
		L_{90}	**60.7**						
		Day Leq	**70.0**			**75**			
		Night Leq	**62.8**			**70**			

Remark/ Statement of Conformity: *The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note: 1. Monitoring area coming under Industrial Zone
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Lutron; Model – SL4035SD Sr. No. Q682237	Valid up to - 18/08/2024

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For **ULTRA** TECH,

Meghan Patil
(Authorized Signatory)

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Tele : +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens, MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/ 10040/12-2023
ISSUE DATE : 29/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS : MARINE WATER QUALITY MONITORING SAMPLE

Sampling Plan Ref. No. : 08-12/2023
Sampling Procedure : UT/LQMS/SOP/W01A
Sample Registration Date : 20/12/2023
Date & Time of Sampling : 19/12/2023 at 15:30Hrs
Analysis Starting Date : 20/12/2023
Analysis Completion Date : 25/12/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/512/12-2023

Sample Type : Marine Water
Sample Location : At Marine Zone Near MP 171
Sample Quantity & Packing Details : 1L in Wide Mouth Glass Bottle for Oil and Grease, 300ml BOD Bottle with stopper for DO and 2L In Plastic Container for other parameters.

Sr. No.	Test Parameter	Test Method	Test Result	Unit	Standards Limits [Primary Water Quality Criteria for Class SW-IV Waters (For Harbour Waters), EP Rules - 1986]
1.	Temperature	IS 3025 (Part 09):1984	25.9	°C	--
2.	Turbidity	IS 3025 (Part 10):1984	7.9	NTU	--
3.	pH	IS 3025 (Part 11):2022	7.5	--	6.0 to 9.0
4.	Dissolved Oxygen	IS 3025 (Part 38):1989	5.8	mg/L	Min. 3.0
5.	Biochemical Oxygen demand (At 27°C for 3 Days)	IS 3025 (Part 44):1993	BDL[DL=2]	mg/L	5.0
6.	Chemical Oxygen demand	IS 3025 (Part 46):1994	16	mg/L	--
7.	Total Alkalinity as $CaCO_3$	IS 3025 (Part 23):1986	105	mg/L	--
8.	Total Hardness as $CaCO_3$	IS 3025 (Part 21):2009	4949	mg/L	--
9.	Salinity	COMAPS	34.5	ppt*	--
10.	Oil & Grease	IS 3025 (Part 39) : 2021	BDL[DL=2]	mg/L	10
11.	Arsenic as As	APHA 23rd Ed. 3114 C	BDL[DL=0.003]	mg/L	--
12.	Chromium as Cr	IS 3025 (Part 52):2003	BDL[DL=0.02]	mg/L	--
13.	Cadmium as Cd	IS 3025 (Part 41):1992	BDL[DL=0.015]	mg/L	--
14.	Lead as Pb	IS 3025 (Part 47):1994	BDL[DL=0.6]	mg/L	--
15.	Nickel as Ni	IS 3025 (Part 54):2003	BDL[DL=0.6]	mg/L	--
16.	Mercury as Hg	APHA 23rd Ed. 3112 B	BDL[DL=0.006]	mg/L	--

BDL-Below Detection Limit **DL-Detection Limit**

Remark/ Statement of Conformity: *The given sample confirms with specifications as per standard tabulated above for set of analyzed parameters.*

Note:
1. Samples was collected using laboratory's SOP (UT/LQMS/SOP/W01A) based on CPCB's Guide Manual: Water & Wastewater Analysis, APHA 23rd Edition and IS3025 (Part 1).
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.

– END OF REPORT –

ULTRA-TECH ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★ ENVIRONMENTAL CONSULTANCY & LABORATORY

For ULTRA TECH,

Meghan Patil
Authorized Signatory

MUMBAI TRANS HARBOUR LINK GRADE CONSULTANT

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India
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ISO 9001 : 2015
ISO 45001 : 2018
Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/10041/12-2023
ISSUE DATE : 29/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS : MARINE WATER QUALITY MONITORING SAMPLE

Sampling Plan Ref. No. : 08-12/2023
Sampling Procedure : UT/LQMS/SOP/W01A
Sample Registration Date : 20/12/2023
Date & Time of Sampling : 19/12/2023 at 15:15Hrs
Analysis Starting Date : 20/12/2023
Analysis Completion Date : 25/12/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/511/12-2023

Sample Type : Marine Water
Sample Location : At Intertidal Zone MP 199
Sample Quantity & Packing Details : 1L in Wide Mouth Glass Bottle for Oil and Grease, 300ml BOD Bottle with stopper for DO and 2L In Plastic Container for other parameters.

Sr. No.	Test Parameter	Test Method	Test Result	Unit	Standards Limits [Primary Water Quality Criteria for Class SW-IV Waters (For Harbour Waters), EP Rules – 1986]
1.	Temperature	IS 3025 (Part 09):1984	25.6	°C	--
2.	Turbidity	IS 3025 (Part 10):1984	8.9	NTU	--
3.	pH	IS 3025 (Part 11):2022	7.4	--	6.0 to 9.0
4.	Dissolved Oxygen	IS 3025 (Part 38):1989	5.6	mg/L	Min. 3.0
5.	Biochemical Oxygen demand (At 27°C for 3 Days)	IS 3025 (Part 44):1993	BDL[DL=2]	mg/L	5.0
6.	Chemical Oxygen demand	IS 3025 (Part 46):1994	24	mg/L	--
7.	Total Alkalinity as $CaCO_3$	IS 3025 (Part 23):1986	107	mg/L	--
8.	Total Hardness as $CaCO_3$	IS 3025 (Part 21):2009	5151	mg/L	--
9.	Salinity	COMAPS	32.6	ppt*	--
10.	Oil & Grease	IS 3025 (Part 39) : 2021	BDL[DL=2]	mg/L	10
11.	Arsenic as As	APHA 23rd Ed. 3114 C	BDL[DL=0.003]	mg/L	--
12.	Chromium as Cr	IS 3025 (Part 52):2003	BDL[DL=0.02]	mg/L	--
13.	Cadmium as Cd	IS 3025 (Part 41):1992	BDL[DL=0.015]	mg/L	--
14.	Lead as Pb	IS 3025 (Part 47):1994	BDL[DL=0.6]	mg/L	--
15.	Nickel as Ni	IS 3025 (Part 54):2003	BDL[DL=0.6]	mg/L	--
16.	Mercury as Hg	APHA 23rd Ed. 3112 B	BDL[DL=0.006]	mg/L	--

BDL-Below Detection Limit **DL-Detection Limit**

Remark/ Statement of Conformity: *The given sample confirms with specifications as per standard tabulated above for set of analyzed parameters.*

Note:
1. Samples was collected using laboratory's SOP (UT/LQMS/SOP/W01A) based on CPCB's Guide Manual: Water & Wastewater Analysis, APHA 23rd Edition and IS3025 (Part 1).
2. This test report refers only to the sample tested.
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4. Any correction invalidates this test report.

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ULTRA-TECH * Gazetted by MoEF Govt. of India * THANE (W) INDIA PIN-400 601 * ENVIRONMENTAL CONSULTANCY & LABORATORY

For ULTRA TECH,

Meghan Patil
Authorized Signatory

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

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Tele :+91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: "MTHL Package 2 Project"

ULR NO. : ULR-TC560024000000075F
REPORT NO. : UT/ELS/ REPORT/0094/01-2024
ISSUE DATE : 08/01/2024
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 08-12/2023
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 19/12/2023 13:15 Hrs. to 20/12/2023 13:15 Hrs.
Sample Registration Date : 21/12/2023
Analysis Starting Date : 21/12/2023
Analysis Completion Date : 30/12/2023
Ambient Air Temperature : 23.2 °C to 30.3 °C
Relative Humidity : 47.4 % to 62.6 %

AMBIENT AIR QUALITY MONITORING
Location Code : AM1
Sample Location : At Casting Yard Between Batching Plant No. 1 (Fortnightly 33 of 75)
GPS Co-ordinates : N 18°57'57.80", E 73°00'39.70"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/540/12-2023

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Areas 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	23	µg/m³	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	88	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	39	µg/m³	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.07	µg/m³	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.3	mg/m³	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	54	µg/m³	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.1	µg/m³	5*
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1*
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6*
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20*

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/105	Polltech	PEM-XDS 2.5/10µ	18113	01/03/2024
	Respirable Dust Sampler	UT/LAB/214	Polltech	PEM-RDS 9 NL	120	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. This test report shall be referred along with Test Report No. UT/ELS/REPORT/0095/01-2024 Dated 08/01/2024 for final conclusion.

– END OF REPORT –

MUMBAI TRANS HARBOUR LINK

ULTRA TECH ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★ ENVIRONMENTAL CONSULTANCY & LABORATORY

For ULTRA TECH,

Meghan Patil
(Authorized Signatory)

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Tele : +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: "MTHL Package 2 Project"

ULR NO. : -
REPORT NO. : UT/ELS/ REPORT/0095/01-2024
ISSUE DATE : 08/01/2024
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.:	: 00-12/2023			**Location Code**	: AM1
Sampling Procedure	: UT/LQMS/SOP/AA01A			**Sample Location**	: At Casting Yard Between Batching Plant No. 1 (Fortnightly 33 of 75)
Date & Time of Sampling	: 19/12/2023 13:15 Hrs. to 20/12/2023 13:15 Hrs.				
Sample Registration Date	: 21/12/2023			**GPS Co-ordinates**	: N 18°57'57.80", E 73°00'39.70"
Analysis Starting Date	: 21/12/2023			**Sample Collected By**	: ULTRA TECH
Analysis Completion Date	: 30/12/2023			**Height of Sampler**	: 1 Meter
Ambient Air Temperature	: 23.2 ℃	to 30.3	℃	**Sampling Duration**	: 24:00 Hours:Minutes
Relative Humidity	: 47.4 %	to 62.6	%	**Sample Lab Code**	: UT/ELS/540/12-2023

AMBIENT AIR QUALITY MONITORING

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Total VOC (as BTX)	IS 5182 (Part 11) : 2006	1	µg/m³	–

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	SL No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/105	Polltech	PEM-ADS 2.5/10µ	10113	01/03/2024
	Respirable Dust Sampler	UT/LAB/214	Polltech	PEM-RDS 9 NL	120	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. This test report shall be referred along with Test Report No. UT/ELS/REPORT/0094/01-2024 Dated 08/01/2024 for final conclusion.

– END OF REPORT –

ULTRA-TECH ENVIRONMENTAL CONSULTANCY LABORATORY Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601

For ULTRA TECH,
Meghan Patil
(Authorized Signatory)

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab: Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601. Maharashtra, India.
Tele: +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: "MTHL Package 2 Project"

ULR NO. : ULR-TC560024000000076F
REPORT NO. : UT/ELS/ REPORT/0096/01-2024
ISSUE DATE : 08/01/2024
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 08-12/2023
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 19/12/2023 14:35 Hrs. to 20/12/2023 14:35 Hrs.
Sample Registration Date : 21/12/2023
Analysis Starting Date : 21/12/2023
Analysis Completion Date : 30/12/2023
Ambient Air Temperature : 23.6 °C to 30.7 °C
Relative Humidity : 47.5 % to 62.7 %

AMBIENT AIR QUALITY MONITORING
Location Code : AM3
Sample Location : NHAVA Temporary Bridge Nr. MP-238 (Fortnightly 34 of 75)
GPS Co-ordinates : N 18°58'31.20", E 72°59'53.00"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/541/12-2023

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	32	µg/m³	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	89	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	35	µg/m³	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.06	µg/m³	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.4	mg/m³	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	50	µg/m³	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.3	µg/m³	5*
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m³	1*
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m³	6*
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m³	20*

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/215	Polltech	PEM-ADS 2.5/10µ	3119	29/11/2024
	Respirable Dust Sampler	UT/LAB/108	Polltech	PEM-RDS 8NL	3313	18/09/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. This test report shall be referred along with Test Report No. UT/ELS/REPORT/0097/01-2024 Dated 08/01/2024 for [illegible]

– END OF REPORT –

MUMBAI TRANS HARBOUR LINK GOVT. OF MAHARASHTRA

ULTRA TECH ENVIRONMENTAL CONSULTANCY & LABORATORY Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601

For ULTRA TECH,
Meghan Patil
(Authorized Signatory)

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TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: "MTHL Package 2 Project"

ULR NO. : -
REPORT NO. : UT/ELS/ REPORT/0097/01-2024
ISSUE DATE : 08/01/2024
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS : **AMBIENT AIR QUALITY MONITORING**

Sampling Plan Ref. No.:	08-12/2023	**Location Code**	AM3
Sampling Procedure	UT/LQMS/SOP/AA01A	**Sample Location**	NHAVA Temporary Bridge Nr. MP-238 (Fortnightly 34 of 75)
Date & Time of Sampling	19/12/2023 14:35 Hrs. to 20/12/2023 14:35 Hrs.		
Sample Registration Date	21/12/2023	**GPS Co-ordinates**	N 18°58'31.20", E 72°59'53.00"
Analysis Starting Date	21/12/2023	**Sample Collected By**	ULTRA TECH
Analysis Completion Date	30/12/2023	**Height of Sampler**	1 Meter
Ambient Air Temperature	23.6 °C to 30.7 °C	**Sampling Duration**	24:00 Hours:Minutes
Relative Humidity	47.5 % to 62.7 %	**Sample Lab Code**	UT/ELS/541/12-2023

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Total VOC (as BTX)	IS 5182 (Part 11) : 2006	1	µg/m³	–

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/215	Fortech	FDS-KDS 2.5/10µ	3119	29/11/2024
	Respirable Dust Sampler	UT/LAB/108	Fortech	PDM-KDS 6NL	3313	18/09/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on [illegible] consecutive monitorings.
9. This test report shall be referred along with Test Report No. UT/ELS/REPORT/0096/01-2024 Dated 08/01/2024 for fi[illegible] Operation.

– END OF REPORT –

ULTRA TECH Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601 ENVIRONMENTAL CONSULTANCY & LABORATORY

For ULTRA TECH,
Meghan Patil
(Authorized Signatory)

MUMBAI TRANS HARBOUR LINK GC

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601. Maharashtra, India.
Tel : +91-22+2538 01 98 / 2545 03 72 / 2544 62 51 Fax : +91-22-2542 96 50 Email : sales@ultratech.in
Pune : +91-20-29525517 - pune@ultratech.in Kochi : +91-048-44011173 / +91-9895200526 - kochi@ultratech.in
Kolkata: +033-40089145 / +91-9674488198 - kolkata@ultratech.in

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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

ULR -TC560023000007433F
TC-5600
ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road,Hiranandani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/10062/12-2023
ISSUE DATE : 30/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 30-12/2023
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/12/2023
Date & Time of Sampling : 19/12/2023 at 16:30Hrs
Analysis Starting Date : 20/12/2023
Analysis Completion Date : 30/12/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/514/12-2023

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : At Casting Yard

Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Bulk Density	UT/LQMS/SOP/S03	1128	kg/m³
2.	Total Organic Carbon	IS:2720 (Part 22) : 1972	0.50	%
3.	pH	IS:2720 (Part 26) : 1987	7.5	-
4.	Conductivity(1:2soil:Water Extract)	IS:14767- 2000	386	µS/cm
5.	Moisture Content	IS:2720 (Part 02): 1973	13.7	%
6.	Sodium as Na	UT/LQMS/SOP/S19	620	mg/kg
7.	Potassium as K	UT/LQMS/SOP/S20	48	mg/kg
8.	Calcium as Ca	UT/LQMS/SOP/S21	294	mg/kg
9.	Magnesium as Mg	UT/LQMS/SOP/S22	218	mg/kg
10.	Sodium Adsorption Ratio	UT/LQMS/SOP/S26	12.3	$(meq/kg)^{1/2}$
11.	Cation Exchange Capacity	UT/LQMS/SOP/S18	38.1	meq/100g
12.	Porosity	UT/LQMS/SOP/S40	52.6	%
13.	Silt	UT/LQMS/SOP/S39	54.6	%
14.	Clay	UT/LQMS/SOP/S39	43.8	%
15.	Cadmium as Cd	UT/LQMS/SOP/S35 & S37	BDL[DL=2]	mg/kg
16.	Chromium as Cr	UT/LQMS/SOP/S35 & S37	26	mg/kg
17.	Cobalt as Co	UT/LQMS/SOP/S35 & S37	18	mg/kg
18.	Copper as Cu	UT/LQMS/SOP/S35 & S37	115	mg/kg
19.	Iron as Fe	UT/LQMS/SOP/S35 & S37	52369	mg/kg
20.	Lead as Pb	UT/LQMS/SOP/S35 & S37	BDL[DL=50]	mg/kg
21.	Manganese as Mn	UT/LQMS/SOP/S35 & S37	699	mg/kg
22.	Nickel as Ni	UT/LQMS/SOP/S35 & S37	36	mg/kg
23.	Zinc as Zn	UT/LQMS/SOP/S35 & S37	48	mg/kg

BDL-Below DetectionLimit **DL- Detection Limit**

Remark/ Statement of Conformity: *NIL*

Note:
1.Samples were collected by following laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual: Soil Testing in India by DA&FW, MoA, GOI.1. This test report refers only to the sample tested.
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.
5. This test report shall be referred along with Test Report No. UT/ELS/REPORT/10063/12-2023 Dated 30/12/2023 for final conclusion

- END OF REPORT -

MUMBAI TRANS HARBOUR LINK GENERAL CONSULTANT

ULTRA-TECH Gazetted by MoEF Govt of India THANE (W) INDIA PIN-400 601 ENVIRONMENTAL CONSULTANCY & LABORATORY

For ULTRA TECH

Manasi Namjoshi
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India
Tel : +91-22+2538 01 98 / 2545 03 72 / 2544 62 51 Fax : +91-22-2542 96 50 Email : sales@ultratech.in
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Tele : +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor,Transocean House, LakeBoulevardRoad,Hiranandani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/10063/12-2023
ISSUE DATE : 30/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 30-12/2023
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/12/2023
Date & Time of Sampling : 19/12/2023 at 16:30Hrs
Analysis Starting Date : 20/12/2023
Analysis Completion Date : 30/12/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/514/12-2023

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : At Casting Yard
Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Salinity (1:2 soil: Water Extract)	Calculated in terms of Total Dissolved Solids	239	mg/L
2.	Gravel	UT/LQMS/SOP/S39	1.82	%
3.	Coarse Sand	UT/LQMS/SOP/S39	0.64	%
4.	Medium Sand	UT/LQMS/SOP/S39	1.51	%
5.	Fine Sand	UT/LQMS/SOP/S39	0.27	%
6.	Barium as Ba	UT/LQMS/SOP/S35 & S37	51	mg/kg

Remark/ Statement of Conformity: NIL

Note:
1. Samples were collected by followtng laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual, Soil Testing in India by DAC&FW, MoA, GOI. This test report refers only to the sample tested.
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.
5. Parameter/s Tested is/are not covered under NABL scope.
6. This test report shall be referred along with Test Report No. UT/ELS/REPORT/10062/12-2023 Dated 30/12/2023 for final conclusion.

– END OF REPORT –

For **ULTRA TECH**

Manasi Namjoshi
(Manasi Namjoshi
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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STP/ETP/WTP Project Management Consultants

ULR -TC560Q23000007434F

TC-5600 ISO 9001 : 2015 ISO 45001 : 2018

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Tele :+91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House,LakeBoulevardRoad,Hiranandani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/10064/12-2023
ISSUE DATE : 30/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 30-12/2023
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/12/2023
Date & Time of Sampling : 19/12/2023 at 16:05Hrs
Analysis Starting Date : 20/12/2023
Analysis Completion Date : 30/12/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/513/12-2023

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : Nhava Temporary Bridge Near MP-240

Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Bulk Density	UT/LQMS/SOP/S03	1101	kg/m³
2.	Total Organic Carbon	IS:2720 (Part 22) : 1972	0.55	%
3.	pH	IS:2720 (Part 26) : 1987	7.5	-
4.	Conductivity(1:2soil:Water Extract)	IS:14767- 2000	11587	µS/cm
5.	Moisture Content	IS:2720 (Part 02): 1973	12.9	%
6.	Sodium as Na	UT/LQMS/SOP/S19	2762	mg/kg
7.	Potassium as K	UT/LQMS/SOP/S20	83	mg/kg
8.	Calcium as Ca	UT/LQMS/SOP/S21	571	mg/kg
9.	Magnesium as Mg	UT/LQMS/SOP/S22	372	mg/kg
10.	Sodium Adsorption Ratio	UT/LQMS/SOP/S26	14.2	$(meq/kg)^{1/2}$
11.	Cation Exchange Capacity	UT/LQMS/SOP/S18	44.5	meq/100g
12.	Porosity	UT/LQMS/SOP/S40	53.2	%
13.	Silt	UT/LQMS/SOP/S39	59.2	%
14.	Clay	UT/LQMS/SOP/S39	38.2	%
15.	Cadmium as Cd	UT/LQMS/SOP/S35 & S37	BDL[DL=2]	mg/kg
16.	Chromium as Cr	UT/LQMS/SOP/S35 & S37	42	mg/kg
17.	Cobalt as Co	UT/LQMS/SOP/S35 & S37	13	mg/kg
18.	Copper as Cu	UT/LQMS/SOP/S35 & S37	102	mg/kg
19.	Iron as Fe	UT/LQMS/SOP/S35 & S37	46811	mg/kg
20.	Lead as Pb	UT/LQMS/SOP/S35 & S37	BDL[DL=50]	mg/kg
21.	Manganese as Mn	UT/LQMS/SOP/S35 & S37	699	mg/kg
22.	Nickel as Ni	UT/LQMS/SOP/S35 & S37	79	mg/kg
23.	Zinc as Zn	UT/LQMS/SOP/S35 & S37	51	mg/kg

BDL-Below DetectionLimit **DL- Detection Limit**

Remark/ Statement of Conformity: *NIL*

Note:
1.Samples were collected by following laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual: Soil Testing in India by DA&FW, MoA, GOI.1. This test report refers only to the sample tested.
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– END OF REPORT –

For **ULTRA TECH**

Manasi Namjoshi

Manasi **Namjoshi**
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601. Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 Email : lab@ultratech.in Visit us at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House,LakeBoulevardRoad,Hiranandani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/10065/12-2023
ISSUE DATE : 30/12/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 30-12/2023
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/12/2023
Date & Time of Sampling : 19/12/2023 at 16:05Hrs
Analysis Starting Date : 20/12/2023
Analysis Completion Date : 30/12/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/513/12-2023

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : Nhava Temporary Bridge Near MP-240
Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Salinity (1:2 soil: Water Extract)	Calculated in terms of Total Dissolved Solids	7183	mg/L
2.	Gravel	UT/LQMS/SOP/S39	1.98	%
3.	Coarse Sand	UT/LQMS/SOP/S39	0.66	%
4.	Medium Sand	UT/LQMS/SOP/S39	1.27	%
5.	Fine Sand	UT/LQMS/SOP/S39	0.33	%
6.	Barium as Ba	UT/LQMS/SOP/S35 & S37	56	mg/kg

Remark/ Statement of Conformity: *NIL*

Note:
1.Samples were collected by following laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual Soil Testing in India by DA&FW, MoA, GOI. This test report refers only to the sample tested.
2. This test report refers only to the sample tested.
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4. Any correction invalidates this test report.
5. Parameter/s Tested is/are not covered under NABL scope.
6. This test report shall be referred along with Test Report No. UT/ELS/REPORT/10064/12-2023 Dated 30/12/2023 for final conclusion

– END OF REPORT –

For ULTRA TECH
MJNamjoshi
Manasi Namjoshi
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601. Maharashtra, India.
Tel : +91-22+2538 01 98 / 2545 03 72 / 2544 62 51 Fax : +91-22-2542 96 50 Email : sales@ultratech.in
Pune : +91-20-29525517 - pune@ultratech.in Kochi : +91-048-44011173 / +91-9895200526 - kochi@ultratech.in
Kolkata: +033-40089145 / +91-9674488198 - kolkata@ultratech.in

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DAEWOO-TPL JV

C/O TATA Projects Limited, 11th Floor, Hiranandani Knowledge Park, Technology Street, Powai, Mumbai-400 076, India

Ref: MTHL/DW-TPL/GC/LT/ENV/2024-5523 Date: 30 Apr 2024

To, : **The Engineer**
General Consultant for MTHL Project
6th Floor, A Wing, MMRDA Old Building, Bandra-Kurla Complex
Bandra (E), Mumbai 400 051

Kind Attn. : Mr. K. R. Shivananda

Project : Procurement of Mumbai Trans Harbour Link Project (Package 2) Construction of 7.807km long bridge section (CH 10+380-CH 18+187) across Mumbai Bay including Shivaji Nagar Interchange

Subject : **Submission of Quarterly Environmental Monitoring Reports (January 2024 - Mar 2024)**

Ref. : 1. Contract Agreement no. MMRDA/ENG1/00753 dated 19-01-2018

Dear Sir,

1. The Contractor is submitting herewith the Quarterly Environmental Monitoring Reports for the period January 2024-March 2024.

2. This is for your information and records.

Yours truly,
For Daewoo-TPL JV

Tae-il KIM / Project Director

Encl: Quarterly Environmental Monitoring Reports for the period January 2024-March 2024

CC: 1) Mr. S. A. Wandhekar, Engineer-in- Chief, MMRDA
2) Mr. Yatin Sakhalkar, Superintendent Engineer, MMRDA
3) Mr. Abhijit Bhisikar, Executive Engineer, MMRDA
4) Mr. Hohsing Lee, PE, SE, Resident Engineer, General Consultant (MTHL)

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Lab. Accredited by NABL - ISO/IEC 17025:2017 [TC-5600,Valid until 03.08.2024 in the field of Testing]
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STP/ETP/WTP Project Management Consultants

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: "MTHL Package 2 Project"

ULR NO. : **ULR-TC560024000001874F**
REPORT NO. : UT/ELS/ REPORT/2555/03-2024
ISSUE DATE : 29/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : 07-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 19/03/2024 13:30 Hrs. to 20/03/2024 13:30 Hrs.
Sample Registration Date : 20/03/2024
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 28/03/2024
Ambient Air Temperature : 24.5 °C to 32.7 °C
Relative Humidity : 45.7 % to 69.5 %

Location Code : AM2
Sample Location : Near Main Store To Loc. Dist. 07 Meter away towards North-East.
GPS Co-ordinates : N 18º57'54.04", E 73º00'43.4"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/544/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	29	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	86	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	31	$\mu g/m^3$	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	$\mu g/m^3$	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.06	$\mu g/m^3$	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.5	mg/m^3	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	59	$\mu g/m^3$	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.3	$\mu g/m^3$	5*
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m^3	1*
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m^3	6*
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m^3	20*

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above **are** found to be within **24** hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part **III-Section IV.***

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/251	Universal	AQS 235 MFC	161-DTK-2022	28/02/2025
	Respirable Dust Sampler	UT/LAB/250	Universal	AQS 136 DxNL	180-DTK-2022	28/02/2025

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
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5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
09.This test report shall be referred along with Test Report No.. UT/ELS/REPORT/2556/03-2024 Dated 29/03/2024 for final conclusion.

– END OF REPORT –

For ULTRA TECH,
Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email** : lab@ultratech.in **Visit us at** : www.ultratech.in

TEST REPORT

ISSUED TO: **DAEWOO-TATA PROJECTS LIMITED- JV**
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: **"MTHL Package 2 Project"**

ULR NO. : -
REPORT NO. : UT/ELS/ REPORT/2556/03-2024
ISSUE DATE : 29/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 07-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 19/03/2024 13:30 Hrs. to 20/03/2024 13:30 Hrs.
Sample Registration Date : 20/03/2024
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 28/03/2024
Ambient Air Temperature : 24.5 °C to 32.7 °C
Relative Humidity : 45.7 % to 69.5 %

AMBIENT AIR QUALITY MONITORING
Location Code : AM2
Sample Location : Near Main Store To Loc. Dist. 07 Meter away towards North-East.
GPS Co-ordinates : N 18º57'54.04", E 73º00'43.4"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/544/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Total VOC (as BTX)	IS 5182 (Part 11) : 2006	1.3	µg/m³	--

§: Grab Sample

Remark/ Statement of Conformity: *Nil*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Low Flow Air Sampler	UT/LAB/180	Polltech	PEM - LFAS 4	116	31/12/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Parameter/s not covered in NABL scope.
10. This test report shall be referred along with Test Report No. . UT/ELS/REPORT/2555/03-2024 Dated 29/03/2024 for final conclusion.

– END OF REPORT –

For **ULTRA TECH,**
Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jal Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us** at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: "MTHL Package 2 Project"

ULR NO. : **ULR-TC560024000001938F**
REPORT NO. : UT/ELS/ REPORT/2640/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : 07-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 19/03/2024 13:45 Hrs. to 20/03/2024 13:45 Hrs.
Sample Registration Date : 20/03/2024
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 28/03/2024
Ambient Air Temperature : 24.7 °C to 32.5 °C
Relative Humidity : 45.5 % to 69.3 %

Location Code : AM1
Sample Location : Near Nhava Temporary Bridge MP-240
GPS Co-ordinates : N 18º58'12.6", E 73º00'16.6"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/545/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	28	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	79	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	30	$\mu g/m^3$	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	$\mu g/m^3$	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.06]	$\mu g/m^3$	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.4	mg/m^3	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	54	$\mu g/m^3$	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.2	$\mu g/m^3$	5*
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m^3	1*
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m^3	6*
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m^3	20*

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/105	Politech	PEM-ADS 2.5/10μ	18113	28/02/2025
	Respirable Dust Sampler	UT/LAB/190	Politech	PEM-RDS 9	918	01/12/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9.This test report shall be referred along with Test Report No. UT/ELS/REPORT/2641/03-2024 Dated 30/03/2024 for final conclusion.

– END OF REPORT –

ULTRA-TECH Environmental Consultancy & Laboratory Recognized by MoEF Govt. of India THANE (W) INDIA PIN-400 601

For ULTRA TECH,
Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Project: "MTHL Package 2 Project"

ULR NO. : -
REPORT NO. : UT/ELS/ REPORT/2641/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 07-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 19/03/2024 13:45 Hrs. to 20/03/2024 13:45 Hrs.
Sample Registration Date : 20/03/2024
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 28/03/2024
Ambient Air Temperature : 24.7 °C to 32.5 °C
Relative Humidity : 45.5 % to 69.3 %

AMBIENT AIR QUALITY MONITORING
Location Code : AM1
Sample Location : Near Nhava Temporary Bridge MP-240
GPS Co-ordinates : N 18º58'12.6", E 73º00'16.6"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/545/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Total VOC (as BTX)	IS 5182 (Part 11) : 2006	1	µg/m³	--

§: Grab Sample
BDL: Below Detection Limit
DL=Detection Limit

Remark/ Statement of Conformity: *Nil*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Low Flow Air Sampler	UT/LAB/181	Polltech	PEM - LFAS 4	216	31/12/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
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5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Parameter/s not covered in NABL scope.
10. This test report shall be referred along with Test Report No. UT/ELS/REPORT/2640/03-2024 Dated 30/03/2024 for final conclusion.

– END OF REPORT –

ULTRA-TECH * Gazetted by MoEF Govt. of India * ENVIRONMENTAL CONSULTANCY & LABORATORY * THANE (W) INDIA PIN-400 601

For ULTRA TECH,
Meghan Patil
(Authorized Signatory)

MUMBAI TRANS HARBOUR LINK * CONSULTANT *

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ULR -TC560024000001960F

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email** : lab@ultratech.in **Visit us** at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2663/03-2024
ISSUE DATE : 29/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : 19-03/2024
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 19/03/2024 to 20/03/2024

Sample Lab Code : UT/ELS/547/03-2024
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	At Nhava Temporary Bridge MP-240 Co-ordinates: 18°58'12.6"N, 73°00'16.5"E	06:00 to 07:00	73.1	79.2	79.2	22:00 to 23:00	67.5	76.5	76.5
		07:00 to 08:00	71.7	75.4	75.4	23:00 to 00:00	67.0	74.3	74.3
		08:00 to 09:00	73.0	75.1	75.1	00:00 to 01:00	65.8	73.4	73.4
		09:00 to 10:00	73.8	77.2	77.2	01:00 to 02:00	65.3	76.1	76.3
		10:00 to 11:00	73.8	77.6	77.6	02:00 to 03:00	64.0	71.1	73.1
		11:00 to 12:00	74.0	80.1	80.1	03:00 to 04:00	64.4	72.0	74.0
		12:00 to 13:00	74.0	78.1	78.1	04:00 to 05:00	64.0	71.8	73.8
		13:00 to 14:00	74.0	78.9	78.9	05:00 to 06:00	65.1	72.4	74.4
		14:00 to 15:00	73.7	79.2	79.2	--	--	--	--
		15:00 to 16:00	73.8	82.7	82.7	--	--	--	--
		16:00 to 17:00	74.7	78.6	78.6	--	--	--	--
		17:00 to 18:00	71.3	72.8	72.8	--	--	--	--
		18:00 to 19:00	70.3	75.2	75.2	--	--	--	--
		19:00 to 20:00	69.5	76.8	76.8	--	--	--	--
		20:00 to 21:00	71.9	74.3	74.3	--	--	--	--
		21:00 to 22:00	68.8	74.2	74.2	--	--	--	--
		L_{10}	66.5			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	62.9						
		L_{90}	61.1						
		Day Leq	72.9			75			
		Night Leq	65.6			70			

Remark/ Statement of Conformity: *The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note: 1. Monitoring area coming under Industrial Zone.
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –Casella; Model – CEL-633C Sr. No. 2382959	Valid up to – 01/12/2024

Note: 1. This test report refers only to the monitoring conducted.
2. This test report may not be reproduced in part, without the permission of this laboratory.
3. Any correction invalidates this test report.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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ULR -TC560024000001959F

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
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TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens, MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2662/03-2024
ISSUE DATE : 29/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :

AMBIENT NOISE LEVEL MONITORING

Sampling Plan Ref. No. : 19-03/2024
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 19/03/2024 to 20/03/2024

Sample Lab Code : UT/ELS/546/03-2024
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
02.	Near Main Store Co-ordinates: 18°57'54.3"N, 73°00'43.0"E	06:00 to 07:00	56.4	58.0	81.4	22:00 to 23:00	65.4	56.9	74.8
		07:00 to 08:00	63.3	59.2	85.3	23:00 to 00:00	63.1	54.8	73.8
		08:00 to 09:00	67.2	61.5	88.3	00:00 to 01:00	61.3	52.1	69.6
		09:00 to 10:00	66.1	59.3	86.9	01:00 to 02:00	58.3	50.9	66.3
		10:00 to 11:00	66.3	58.3	88.2	02:00 to 03:00	58.1	50.2	65.6
		11:00 to 12:00	67.9	58.3	89.0	03:00 to 04:00	58.9	51.0	67.0
		12:00 to 13:00	67.4	75.5	79.5	04:00 to 05:00	57.9	51.7	64.5
		13:00 to 14:00	68.7	75.8	83.2	05:00 to 06:00	58.7	50.9	65.5
		14:00 to 15:00	68.0	62.6	85.0	--	--	--	--
		15:00 to 16:00	62.3	57.9	81.4	--	--	--	--
		16:00 to 17:00	59.4	57.8	80.0	--	--	--	--
		17:00 to 18:00	61.4	57.8	76.6	--	--	--	--
		18:00 to 19:00	64.1	57.4	82.8	--	--	--	--
		19:00 to 20:00	68.0	55.6	80.2	--	--	--	--
		20:00 to 21:00	68.1	57.8	76.4	--	--	--	--
		21:00 to 22:00	66.9	58.7	74.5	--	--	--	--
		L_{10}	75.7			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	71.4						
		L_{90}	65.9						
		Day Leq	66.1			75			
		Night Leq	61.1			70			

Remark/ Statement of Conformity: *The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note: 1. Monitoring area coming under Industrial Zone.
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make –3M Solutions; Model – SE-402 Class 2 Sr. No. SE40210809	Valid up to – 01/12/2024

Note: 1. This test report refers only to the monitoring conducted.
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3. Any correction invalidates this test report.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us** at : www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2821/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS : **MARINE WATER QUALITY MONITORING SAMPLE**

Sampling Plan Ref. No.	: 19-03/2024	**Sample Type**	:	Marine Water
Sampling Procedure	: UT/LQMS/SOP/W01A	**Sample Location**	:	At Marine Zone
Sample Registration Date	: 22/03/2024			
Date & Time of Sampling	: 21/03/2024 at 11:00Hrs	**Sample Quantity & Packing Details**	:	1L in Wide Mouth Glass Bottle for Oil and Grease, 300ml BOD Bottle with stopper for DO and 2L In Plastic Container for other parameters.
Analysis Starting Date	: 22/03/2024			
Analysis Completion Date	: 28/03/2024			
Sample Collected By	: ULTRA TECH			
Sample Lab Code	: UT/ELS/599/03-2024			

Sr. No.	Test Parameter	Test Method	Test Result	Unit	Standards Limits [Primary Water Quality Criteria for Class SW-IV Waters (For Harbour Waters), EP Rules – 1986]
1.	Temperature	IS 3025 (Part 09):1984	26.8	°C	--
2.	Turbidity	IS 3025 (Part 10):1984	6.1	NTU	--
3.	pH	IS 3025 (Part 11):2022	7.6	--	6.0 to 9.0
4.	Dissolved Oxygen	IS 3025 (Part 38):1989	5.8	mg/L	Min. 3.0
5.	Biochemical Oxygen demand (At 27°C for 3 Days)	IS 3025 (Part 44):1993	BDL[DL=2]	mg/L	5.0
6.	Chemical Oxygen demand	IS 3025 (Part 46):1994	16	mg/L	--
7.	Total Alkalinity as $CaCO_3$	IS 3025 (Part 23):1986	111	mg/L	--
8.	Total Hardness as $CaCO_3$	IS 3025 (Part 21):2009	5252	mg/L	--
9.	Salinity	COMAPS	36.0	ppth	--
10.	Oil & Grease	IS 3025 (Part 39) : 2021	BDL[DL=2]	mg/L	10
11.	Arsenic as As	APHA 23rd Ed. 3114 C	BDL[DL=0.003]	mg/L	--
12.	Chromium as Cr	IS 3025 (Part 52):2003	BDL[DL=0.02]	mg/L	--
13.	Cadmium as Cd	IS 3025 (Part 41):1992	BDL[DL=0.015]	mg/L	--
14.	Lead as Pb	IS 3025 (Part 47):1994	BDL[DL=0.6]	mg/L	--
15.	Nickel as Ni	IS 3025 (Part 54):2003	BDL[DL=0.6]	mg/L	--
16.	Mercury as Hg	APHA 23rd Ed. 3112 B	BDL[DL=0.006]	mg/L	--

BDL-Below Detection Limit **DL-Detection Limit**

Remark/ Statement of Conformity: *The given sample confirms with specifications as per standard tabulated above for set of analyzed parameters.*

Note:
1. Samples was collected using laboratory's SOP (UT/LQMS/SOP/W01A) based on CPCB's Guide Manual: Water & Wastewater Analysis, APHA 23rd Edition and IS3025 (Part 1).
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
Authorized Signatory

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road, Hiranadani Gardens, MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2822/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS : **MARINE WATER QUALITY MONITORING SAMPLE**

Sampling Plan Ref. No. : 19-03/2024
Sampling Procedure : UT/LQMS/SOP/W01A
Sample Registration Date : 22/03/2024
Date & Time of Sampling : 21/03/2024 at 11:30Hrs
Analysis Starting Date : 22/03/2024
Analysis Completion Date : 28/03/2024
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/600/03-2024

Sample Type : Marine Water
Sample Location : At Intertidal Zone
Sample Quantity & Packing Details : 1L in Wide Mouth Glass Bottle for Oil and Grease, 300ml BOD Bottle with stopper for DO and 2L In Plastic Container for other parameters.

Sr. No.	Test Parameter	Test Method	Test Result	Unit	Standards Limits [Primary Water Quality Criteria for Class SW-IV Waters (For Harbour Waters), EP Rules – 1986]
1.	Temperature	IS 3025 (Part 09):1984	27.1	°C	--
2.	Turbidity	IS 3025 (Part 10):1984	7.2	NTU	--
3.	pH	IS 3025 (Part 11):2022	7.2	--	6.0 to 9.0
4.	Dissolved Oxygen	IS 3025 (Part 38):1989	5.8	mg/L	Min. 3.0
5.	Biochemical Oxygen demand (At 27°C for 3 Days)	IS 3025 (Part 44):1993	BDL[DL=2]	mg/L	5.0
6.	Chemical Oxygen demand	IS 3025 (Part 46):1994	16	mg/L	--
7.	Total Alkalinity as $CaCO_3$	IS 3025 (Part 23):1986	105	mg/L	--
8.	Total Hardness as $CaCO_3$	IS 3025 (Part 21):2009	5454	mg/L	--
9.	Salinity	COMAPS	35.0	ppth	--
10.	Oil & Grease	IS 3025 (Part 39) : 2021	BDL[DL=2]	mg/L	10
11.	Arsenic as As	APHA 23rd Ed. 3114 C	BDL[DL=0.003]	mg/L	--
12.	Chromium as Cr	IS 3025 (Part 52):2003	BDL[DL=0.02]	mg/L	--
13.	Cadmium as Cd	IS 3025 (Part 41):1992	BDL[DL=0.015]	mg/L	--
14.	Lead as Pb	IS 3025 (Part 47):1994	BDL[DL=0.6]	mg/L	--
15.	Nickel as Ni	IS 3025 (Part 54):2003	BDL[DL=0.6]	mg/L	--
16.	Mercury as Hg	APHA 23rd Ed. 3112 B	BDL[DL=0.006]	mg/L	--

BDL-Below Detection Limit **DL-Detection Limit**

Remark/ Statement of Conformity: *The given sample confirms with specifications as per standard tabulated above for set of analyzed parameters.*

Note:
1. Samples was collected using laboratory's SOP (UT/LQMS/SOP/W01A) based on CPCB's Guide Manual: Water & Wastewater Analysis, APHA 23rd Edition and IS3025 (Part 1).
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.

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MUMBAI TRANS HARBOUR LINK PROJECT

ULTRA-TECH ENVIRONMENTAL CONSULTANCY & LABORATORY Gazetted by MoEF Govt of India THANE (W) INDIA PIN-400 601

For **ULTRA TECH,**

Meghan Patil
Authorized Signatory

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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ULR -TC560024000002023F

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House, Lake Boulevard Road,Hiranandani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2799/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 19-03/2024
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/03/2024
Date & Time of Sampling : 20/03/2024 at 12:00Hrs
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 30/03/2024
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/548/03-2024

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : At Casting Yard
Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Bulk Density	UT/LQMS/SOP/S03	1133	kg/m³
2.	Total Organic Carbon	IS:2720 (Part 22) : 1972	0.75	%
3.	pH	IS:2720 (Part 26) : 1987	7.7	-
4.	Conductivity(1:2soil:Water Extract)	IS:14767- 2000	451	µS/cm
5.	Moisture Content	IS:2720 (Part 02): 1973	12.2	%
6.	Sodium as Na	UT/LQMS/SOP/S19	634	mg/kg
7.	Potassium as K	UT/LQMS/SOP/S20	89	mg/kg
8.	Calcium as Ca	UT/LQMS/SOP/S21	253	mg/kg
9.	Magnesium as Mg	UT/LQMS/SOP/S22	212	mg/kg
10.	Sodium Adsorption Ratio	UT/LQMS/SOP/S26	12.7	(meq/kg)$^{1/2}$
11.	Cation Exchange Capacity	UT/LQMS/SOP/S18	31.3	meq/100g
12.	Porosity	UT/LQMS/SOP/S40	51.4	%
13.	Silt	UT/LQMS/SOP/S39	48.6	%
14.	Clay	UT/LQMS/SOP/S39	50.1	%
15.	Cadmium as Cd	UT/LQMS/SOP/S35 & S37	BDL[DL=2]	mg/kg
16.	Chromium as Cr	UT/LQMS/SOP/S35 & S37	28	mg/kg
17.	Cobalt as Co	UT/LQMS/SOP/S35 & S37	19	mg/kg
18.	Copper as Cu	UT/LQMS/SOP/S35 & S37	132	mg/kg
19.	Iron as Fe	UT/LQMS/SOP/S35 & S37	53541	mg/kg
20.	Lead as Pb	UT/LQMS/SOP/S35 & S37	BDL[DL=50]	mg/kg
21.	Manganese as Mn	UT/LQMS/SOP/S35 & S37	785	mg/kg
22.	Nickel as Ni	UT/LQMS/SOP/S35 & S37	37	mg/kg
23.	Zinc as Zn	UT/LQMS/SOP/S35 & S37	48	mg/kg

BDL-Below DetectionLimit **DL- Detection Limit**

Remark/ Statement of Conformity: *NIL*

Note:
1.Samples were collected by following laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual: Soil Testing in India by DA&FW, MoA, GOI.1. This test report refers only to the sample tested.
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.
5. This test report shall be referred along with Test Report No. UT/ELS/REPORT/2800/03-2024 Dated 30/03/2024 for final conclusion.

– END OF REPORT –

For **ULTRA TECH**

Manasi Namjoshi

Manasi Namjoshi
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rdFloor,Transocean House, LakeBoulevardRoad,Hiranandani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2800/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 19-03/2024
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/03/2024
Date & Time of Sampling : 20/03/2024 at 12:00Hrs
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 30/03/2024
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/548/03-2024

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : At Casting Yard

Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Salinity (1:2 soil: Water Extract)	Calculated in terms of Total Dissolved Solids	280	mg/L
2.	Gravel	UT/LQMS/SOP/S39	1.93	%
3.	Coarse Sand	UT/LQMS/SOP/S39	0.69	%
4.	Medium Sand	UT/LQMS/SOP/S39	1.25	%
5.	Fine Sand	UT/LQMS/SOP/S39	0.33	%
6.	Barium as Ba	UT/LQMS/SOP/S35 & S37	52	mg/kg

Remark/ Statement of Conformity: *NIL*

Note:
1.Samples were collected by following laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual: Soil Testing in India by DA&FW, MoA, GOI.1. This test report refers only to the sample tested.
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.
5. Parameter/s Tasted is/are not covered under NABL scope.
6. This test report shall be referred along with Test Report No. UT/ELS/REPORT/2799/03-2024 Dated 30/03/2024 for final conclusion.

– END OF REPORT –

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANCY *

ULTRA TECH * ENVIRONMENTAL CONSULTANCY & LABORATORY * Gazetted by MoEF Govt. of India * THANE (W) INDIA PIN-400 601

For **ULTRA TECH**

MyNamjoshi

Manasi Namjoshi
(Authorized Signatory)

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ULR -TC560024000002024F

TC-5600

ISO 9001 : 2015
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Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
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TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV
3rd Floor, Transocean House,LakeBoulevardRoad,Hiranandani Gardens,
MHADA Colony 19, Powai, Mumbai – 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2801/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 19-03/2024
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/03/2024
Date & Time of Sampling : 20/03/2024 at 12:15Hrs
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 30/03/2024
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/549/03-2024

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : Nhava Temporary Bridge Near MP-240

Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Bulk Density	UT/LQMS/SOP/S03	1112	kg/m³
2.	Total Organic Carbon	IS:2720 (Part 22) : 1972	0.61	%
3.	pH	IS:2720 (Part 26) : 1987	7.2	-
4.	Conductivity(1:2soil:Water Extract)	IS:14767- 2000	10584	µS/cm
5.	Moisture Content	IS:2720 (Part 02): 1973	13.8	%
6.	Sodium as Na	UT/LQMS/SOP/S19	2714	mg/kg
7.	Potassium as K	UT/LQMS/SOP/S20	92	mg/kg
8.	Calcium as Ca	UT/LQMS/SOP/S21	475	mg/kg
9.	Magnesium as Mg	UT/LQMS/SOP/S22	313	mg/kg
10.	Sodium Adsorption Ratio	UT/LQMS/SOP/S26	15.1	(meq/kg)$^{1/2}$
11.	Cation Exchange Capacity	UT/LQMS/SOP/S18	41.9	meq/100g
12.	Porosity	UT/LQMS/SOP/S40	53.3	%
13.	Silt	UT/LQMS/SOP/S39	47.4	%
14.	Clay	UT/LQMS/SOP/S39	51.1	%
15.	Cadmium as Cd	UT/LQMS/SOP/S35 & S37	BDL[DL=2]	mg/kg
16.	Chromium as Cr	UT/LQMS/SOP/S35 & S37	39	mg/kg
17.	Cobalt as Co	UT/LQMS/SOP/S35 & S37	11	mg/kg
18.	Copper as Cu	UT/LQMS/SOP/S35 & S37	99	mg/kg
19.	Iron as Fe	UT/LQMS/SOP/S35 & S37	45246	mg/kg
20.	Lead as Pb	UT/LQMS/SOP/S35 & S37	BDL[DL=50]	mg/kg
21.	Manganese as Mn	UT/LQMS/SOP/S35 & S37	674	mg/kg
22.	Nickel as Ni	UT/LQMS/SOP/S35 & S37	76	mg/kg
23.	Zinc as Zn	UT/LQMS/SOP/S35 & S37	49	mg/kg

BDL-Below DetectionLimit **DL- Detection Limit**

Remark/ Statement of Conformity: *NIL*

Note:
1.Samples were collected by following laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual: Soil Testing in India by DA&FW, MoA, GOI.1. This test report refers only to the sample tested.
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– END OF REPORT –

For ULTRA TECH
Manasi Namjoshi
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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For Your Project: "MTHL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2802/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : 83000601-A2
REF. DATE : 19/03/2024

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 19-03/2024
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/03/2024
Date & Time of Sampling : 20/03/2024 at 12:15Hrs
Analysis Starting Date : 20/03/2024
Analysis Completion Date : 30/03/2024
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/549/03-2024

SOIL QUALITY MONITORING

Sample Type : Soil Sample
Sample Location : Nhava Temporary Bridge Near MP-240

Sample Quantity & Packing Details : 1kg In Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Salinity (1:2 soil: Water Extract)	Calculated in terms of Total Dissolved Solids	6562	mg/L
2.	Gravel	UT/LQMS/SOP/S39	1.82	%
3.	Coarse Sand	UT/LQMS/SOP/S39	0.64	%
4.	Medium Sand	UT/LQMS/SOP/S39	1.51	%
5.	Fine Sand	UT/LQMS/SOP/S39	0.27	%
6.	Barium as Ba	UT/LQMS/SOP/S35 & S37	50	mg/kg

Remark/ Statement of Conformity: *NIL*

Note:
1.Samples were collected by following laboratory's SOP (UT/LQMS/SOP/S01A) based on Methods Manual: Soil Testing in India by DA&FW, MoA, GOI.1. This test report refers only to the sample tested.
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4. Any correction invalidates this test report.
5. Parameter/s Tasted is/are not covered under NABL scope.
6. This test report shall be referred along with Test Report No. UT/ELS/REPORT/2801/03-2024 Dated 30/03/2024 for final conclusion

– END OF REPORT –

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT *

For ULTRA TECH

ULTRA-TECH * Gazetted by MoEF Govt. of India * ENVIRONMENTAL CONSULTANCY * THANE (W) INDIA PIN-400 601

Manasi Namjoshi
Manasi Namjoshi
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
Tel : +91-22+2538 01 98 / 2545 03 72 / 2544 62 51 **Email :** sales@ultratech.in
Pune : +91-20-29525517 - pune@ultratech.in **Kochi :** +91-484-4011173 / +91-9895200526 - kochi@ultratech.in
Kolkata: +033-40089145 / +91-9674488198 - kolkata@ultratech.in

008096

LARSEN & TOUBRO

Larsen & Toubro Limited,
L&T Construction
Heavy Civil Infrastructure
Mount Poonamallee Road
Manapakkam, P. B. No. 979
Chennai - 600 089, INDIA

Ref: MTHL/ P3/L&T/GC/LT/HSE-0004135/2024 Date: 20.03.2024

To
The Engineer,
M/s AECOM Asia Company Ltd., -PADECO Co. Ltd – Dar Al-Handasah Consultants –TY Lin International Consortium, General Consultant for MTHL Project,
6th Floor, 'A' Wing, MMRDA Old Building,
Bandra-Kurla Complex, Bandra (E),
Mumbai 400 051.

Project: Procurement of Mumbai Trans Harbour Link Project (Package-3)-Construction of a 3.613 km long viaduct section (CH 18+187 to CH21+800) including interchange at State Highway-54 and at National Highway-4B near Chirle in Navi Mumbai.
IFB No.: MMRDA/ENG1/000754.

Subject: Quarterly Environment Monitoring Test Reports of 1st quarter.

Ref:
1. MoEF CC letter no 11-65/2012-IA.III dated 25.1.2016 granting CRZ clearance to the Mumbai Trans Harbour Link Project.
2. GC letter MTHL/GC/L&T/Env /2019/757 dated 08.11.2019

Dear Sir/Madam,

We hereby submit the following test reports of 1st Quarter 2024 for your kind information and records.

1. Ambient Air quality (48 hrs)
2. Ambient Noise quality
3. Drinking water quality (labour camp)
4. DG Sets stack monitoring
5. Wastewater quality of Bio-tank (Labour Camp)

Thanking you and always assuring you of our best services.
Yours faithfully,

For LARSEN & TOUBRO LIMITED

LARSEN & TOUBRO LTD. MTHL PKG-3 MCIC DIVISION

(Satya Prakash)
Project Manager
Mumbai Trans Harbour Link Project – Pkg. 3
CC: **The Chief Engineer,** MTHL-PIU, MMRDA, Mumbai, INDIA 400 051
Encl: Environment Monitoring Test Reports - March -2024 – [13 Pages]

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▪ ENVIRONMENT ▪ FOOD ▪ TEXTILE

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S .L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/58/ 03/ AAM (23-24-422A)
REPORT DATE :16/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE:

AMBIENT AIR QUALITY MONITORING

SAMPLE REGISTRATION NO . : AAM (23-24-422A)
SAMPLING PLAN& METHOD NO. :As per Reference Method
SAMPLING DATE :07/03/2024 to 08/03/2024
SAMPLING TIME :13:05 PM TO 13:05 PM
ANALYSIS START DATE :09/03/2024
ANALYSIS COMPLETE DATE :13/03/2024

LOCATION : Chirale

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit#	Reference Method
1.	Particulate Matter as PM10	24 HRS	µg/m³	66.5	100	IS:5182, (Part 23)
2.	Particulate Matter as PM2. 5	24 HRS	µg/m³	32.1	60	IS:5182, (Part 24)
3.	Sulphur Dioxide (SO2)	24 HRS	µg/m³	21.9	80	IS:5182, (Part 2)
4.	Nitrogen Oxide (NOx)	24 HRS	µg/m³	20.3	80	IS: 5182, (Part 6)
5.	Carbon Monoxide (CO)	8 HRS	mg/ m³	0.63	2	IS 5182 (Part 10)
6.	Ozone (O3)	8 HRS	µg/m³	<20	100	Method 411, Methods of Air Sampling and Analysis, 3rd Edition
7.	Ammonia (NH3)	24 HRS	µg/m³	12.4	400	Method 401, Methods of Air Sampling and Analysis, 3rd Edition
8.	Benzene (C6H6)	24 HRS	µg/m³	<0.10	5	IS 5182 (Part 11)
9.	Benzo(a)pyrene	24 HRS	ng /m³	< 1	1	IS 5182 (Part 12)
10.	Metal-Lead	24 HRS	µg/m³	<0.1	1	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
11.	Metal-Arsenic	24 HRS	ng /m³	<1	6	Method 302, Methods of Air Sampling and Analysis, 3rd Edition
12.	Metal-Nickel	24 HRS	ng /m³	0.51	20	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
13.	Methane (CH4)	24 HRS	ppm	0.75	-	IS 5182 (Part 17)
14.	VOC (BTX)	24 HRS	µg/m³	0.5	-	IS 5182 (Part 11)

#: As per NAAQMS Guidelines 2009

Opinion/Observation: *Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

1. This report reflects findings only for the above sample tested/monitored and only for time and place of monitoring/testing.
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SALNAC24230501101

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S .L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/58/ 03/ AAM (23-24-422B)
REPORT DATE :16/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: **AMBIENT AIR QUALITY MONITORING**

SAMPLE REGISTRATION NO . : AAM (23-24-422B)
SAMPLING PLAN& METHOD NO. :As per Reference Method
SAMPLING DATE :08/03/2024 to 09/03/2024
SAMPLING TIME :13:10 PM TO 13:10 PM
ANALYSIS START DATE :09/03/2024
ANALYSIS COMPLETE DATE :13/03/2024

LOCATION : Chirale

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit#	Reference Method
1.	Particulate Matter as PM10	24 HRS	µg/m³	67.1	100	IS:5182, (Part 23)
2.	Particulate Matter as PM2. 5	24 HRS	µg/m³	33.1	60	IS:5182, (Part 24)
3.	Sulphur Dioxide (SO2)	24 HRS	µg/m³	22.1	80	IS:5182, (Part 2)
4.	Nitrogen Oxide (NOx)	24 HRS	µg/m³	19.8	80	IS: 5182, (Part 6)
5.	Carbon Monoxide (CO)	8 HRS	mg/ m³	0.62	2	IS 5182 (Part 10)
6.	Ozone (O3)	8 HRS	µg/m³	<20	100	Method 411, Methods of Air Sampling and Analysis, 3rd Edition
7.	Ammonia (NH3)	24 HRS	µg/m³	13.3	400	Method 401, Methods of Air Sampling and Analysis, 3rd Edition
8.	Benzene (C6H6)	24 HRS	µg/m³	<0.10	5	IS 5182 (Part 11)
9.	Benzo(a)pyrene	24 HRS	ng /m³	< 1	1	IS 5182 (Part 12)
10.	Metal-Lead	24 HRS	µg/m³	<0.1	1	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
11.	Metal-Arsenic	24 HRS	ng /m³	<1	6	Method 302, Methods of Air Sampling and Analysis, 3rd Edition
12.	Metal-Nickel	24 HRS	ng /m³	0.53	20	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
13.	Methane (CH4)	24 HRS	ppm	0.75	-	IS 5182 (Part 17)
14.	VOC (BTX)	24 HRS	µg/m³	0.5	-	IS 5182 (Part 11)

#: As per NAAQMS Guidelines 2009

Opinion/Observation: *Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

KON
Technical Manager
Authorized Signatory

END OF REPORT

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S.L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/110/03/NM(23-24-0417)
REPORT DATE :11/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: **AMBIENT NOISE MONITORING**

SAMPLE REGISTRATION NO. :NM(23-24-0417A)
SAMPLING PLAN& METHOD NO. : IS 9989: 1981
SAMPLING DATE : 07/03/2024 to 08/03/2024

SAMPLE LOCATION :Chirle (Near Site office container)
SAMPLING DURATION : 24 HRS

Day Time (Hrs.)	Noise Level dB(A) Hourly L_{eq}
06.00 to 07.00	55.2
07.00 to 08.00	56.1
08.00 to 09.00	62.1
09.00 to 10.00	63.1
10.00 to 11.00	63.1
11.00 to 12.00	52.5
12.00 to 13.00	58.2
13.00 to 14.00	52.8
14.00 to 15.00	54.5
15.00 to 16.00	52.2
16.00 to 17.00	63.1
17.00 to 18.00	65.3
18.00 to 19.00	63.1
19.00 to 20.00	64.1
20.00 to 21.00	61.3
21.00 to 22.00	58.8

Night Time (Hrs.)	Noise Level dB(A) Hourly Leq
22.00 to 23.00	45.1
23.00 to 00.00	43.2
00.00 to 01.00	55.1
01.00 to 02.00	54.1
02.00 to 03.00	48.1
03.00 to 04.00	49.1
04.00 to 05.00	52.1
05.00 to 06.00	53.1

Noise Level Monitoring Report Summary

Lmin.	Lmax.	Leq Day	Leq Night	LDN
49.1	56.1	59.1	52.8	60.7

Note: All Values in dB(A)

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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Mob. : 9867577309-312 / 8422929165. **Email :** mails@skylabenviro.com, **Website :** www.skylabenviro.com

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S.L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/110/03/NM(23-24-0417B)
REPORT DATE :11/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: AMBIENT NOISE MONITORING

SAMPLE REGISTRATION NO. :NM(23-24-0417B)
SAMPLING PLAN& METHOD NO. : IS 9989: 1981
SAMPLING DATE : 07/03/2024 to 08/03/2024
SAMPLE LOCATION : Jasai (Near Site office container)
SAMPLING DURATION : 24 HRS

Day Time (Hrs.)	Noise Level dB(A) Hourly L_{eq}
06.00 to 07.00	62.6
07.00 to 08.00	67.2
08.00 to 09.00	72.1
09.00 to 10.00	65.5
10.00 to 11.00	65.1
11.00 to 12.00	64.5
12.00 to 13.00	62.5
13.00 to 14.00	66.1
14.00 to 15.00	69.1
15.00 to 16.00	70.2
16.00 to 17.00	69.8
17.00 to 18.00	67.8
18.00 to 19.00	68.5
19.00 to 20.00	68.2
20.00 to 21.00	62.1
21.00 to 22.00	60.1

Night Time (Hrs.)	Noise Level dB(A) Hourly Leq
22.00 to 23.00	55.1
23.00 to 00.00	52.6
00.00 to 01.00	51.1
01.00 to 02.00	44.6
02.00 to 03.00	55.1
03.00 to 04.00	54.1
04.00 to 05.00	52.6
05.00 to 06.00	55.1

Noise Level Monitoring Report Summary

Lmin.	Lmax.	Leq Day	Leq Night	LDN
44.6	55.1	66.3	52.2	65.4

Note: All Values in dB(A)

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S.L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/58/ 03/ DGSM (23-24-0419A)
REPORT DATE :12/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: **DG STACK EMISSION MONITORING**

SAMPLE REGISTRATION NO. : DGSM (23-24-0419A)
SAMPLING PLAN & METHOD NO. : As per Reference Method
SAMPLING DATE :07/03/2024
SAMPLING TIME :01:40 PM
ANALYSIS START DATE :08/03/2024
ANALYSIS COMPLETE DATE 11/03/2024

LOCATION :DG Stack-3,(62.5 KVA), (Jasai)
SAMPLE COLLECTED BY : SKYLAB
STACK HEIGHT : 2 Meters
SHAPE OF STACK : Round
MATERIAL OF STACK :MS
FUEL USED (CONSUMPTION) : Diesel

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
1.	Dimensions of Stack	m	0.1	NA	-
2.	Cross section area of Stack	m^2	0.008	NA	-
3.	Temperature	^oC	106	NA	IS 11255 (Part 1)
4.	Velocity	m/s	8.2	NA	IS 11255 (Part 1)
5.	Flue Gas Discharge	Nm^3/hr	181.8	NA	IS 11255 (Part 1)
6.	Total Particulate Matter (TPM)	mg/Nm^3	35.8	NS	IS 11255 (Part 1)
	Total Particulate Matter (TPM)	g/kwh	0.116	≤ 0.3	IS 11255 (Part 1)
7.	Carbon Monoxide (CO)	mg/Nm^3	62.1	NS	EPA Method 10
	Carbon Monoxide (CO)	g/kwh	0.226	≤ 3.5	EPA Method 10
8.	Nitrogen Oxide (NOx)	mg/Nm^3	63.7	NS	IS 11255, (Part 7)
	Nitrogen Oxide (NOx)	g/kwh	0.232	≤ 4.7	IS 11255, (Part 7)
9.	Hydrocarbon (HC)	mg/Nm^3	43.1	NS	Instrumental
	Hydrocarbon (HC)	g/kwh	0.078	≤ 4.7	Instrumental

NS: Not Specified. **NA:** Not Applicable. **#**: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within standard limit as per CPCB guideline.*

Verified by

For SKYLAB ANALYTICAL LABORATORY

Sr. Analyst

Technical Manager
Authorized Signatory

END OF REPORT

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Mob. : 9867577309-312 / 8422929165. **Email** : mails@skylabenviro.com, **Website** : www.skylabenviro.com

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s. L& T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai–410206

REPORTNO :SAL/FM/60/03/DW(23-24-0416A)
REPORT DATE :16/03/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE:

DRINKING WATER ANALYSIS

SAMPLE REGISTRATIONNO. : DW(23-24-0416A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 15/03/2024

LOCATION :Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr.No.	Test Parameter	Unit	Result	Limit*	Reference Method
1	Colour	Hazen Unit	<2	5	IS 3025 (Part 4)
2	Odour	-	Agreeable	Agreeable	IS 3025 (Part 5)
3	pH	-	8.15	6.5 - 8.5	IS 3025 (Part 11)
4	Turbidity	NTU	<1	1	IS 3025 (Part 10)
5	Total dissolved solids	mg/L	75	500	IS 3025 (Part 16)
6	Metal-Aluminum	mg/L	<0.01	0.03	IS 3025 (Part 2)
7	Ammonium(as total ammonia-N)	mg/L	<0.1	0.5	IS 3025 (Part 34)
8	Anionic Detergents	mg/L	<0.1	0.2	IS 13428 (Annexure K)
9	Metal-Barium	mg/L	<0.1	0.7	IS 3025 (Part 2)
10	Boron as B	mg/L	<0.1	0.5	IS 3025 (Part 2)
11	Calcium	mg/L	<2	75	IS 3025 (Part 40)
12	Chloramines(asCL2)	mg/L	<1	4	IS 3025 (Part 26)
13	Chloride	mg/L	10	250	IS 3025 (Part 32)
14	Metal-Copper	mg/L	<0.05	0.05	IS 3025 (Part 2)
15	Fluoride	mg/L	<0.1	1	IS 3025 (Part 60)
16	Residual free chlorine(RFC)	mg/L	0.2	>0.2	IS 3025 (Part 26)
17	Metal-Iron	mg/L	0.2	0.3	IS 3025 (Part 2)
18	Metal-Magnesium	mg/L	<1	30	IS 3025 (Part 46)
19	Metal-Manganese	mg/L	<0.05	0.1	IS 3025 (Part 2)
20	Nitrate	mg/L	<0.1	45	IS 3025 (Part 34)
21	Phenolic compounds	mg/L	<0.001	0.001	IS 3025 (Part 43)
22	Metal-Selenium	mg/L	<0.01	0.01	IS 3025 (Part 2)
23	Metal-Silver	mg/L	<0.05	0.1	IS 3025 (Part 24)
24	Sulphate,SO4	mg/L	2	200	IS 3025 (Part 29)
25	Sulphide	mg/L	<0.03	0.05	IS 3025 (Part 23)
26	Alkalinity	mg/L	12	200	IS 3025 (Part 21)
27	Hardness(total)	mg/L	36	200	IS 3025 (Part 2)
28	Zinc	mg/L	<0.05	5	IS 3025 (Part 2)

Analytical Laboratory ★ 421311 ★

SALNAC24230501104

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NAME & ADDRESS OF CUSTOMER:
M/s. L& T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai–410206

REPORTNO :SAL/FM/60/03/DW(23-24-0416A)
REPORT DATE :16/03/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE:

DRINKING WATER ANALYSIS

SAMPLE REGISTRATIONNO. : DW(23-24-0416A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 15/03/2024

LOCATION :Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
29	Metal-Cadmium	mg/L	<0.001	0.003	IS 3025 (Part 2)
30	Cyanides CN	mg/L	<0.02	0.05	IS 3025 (Part 27)
31	Metal-Lead	mg/L	<0.01	0.01	IS 3025 (Part 2)
32	Metal-Mercury	mg/L	<0.001	0.001	IS 3025 (Part 48)
33	Metal-Nickel	mg/L	<0.01	0.02	IS 3025 (Part 2)
34	Metal-Arsenic	mg/L	<0.01	0.01	IS 3025 (Part 2)
35	Chromium	mg/L	<0.01	0.05	IS 3025 (Part 2)

ND: Not Detected ,#:AsperIS10500:2012

Opinion/Observation: Analyzed parameters in above tested sample are within limit as per specified standard.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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MUMBAI TRANS HARBOUR LINK ★ GENERAL MANAGER ★

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Mob. : 9867577309-312 / 8422929165. **Email :** mails@skylabenviro.com, **Website :** www.skylabenviro.com

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TEST REPORT

NAME&ADDRESSOF CUSTOMER:
M/S.L& T Construction
MTHL-3Project,NearKharkoparRailwayStation,
Ulwe, NaviMumbai–410206

REPORTNO :SAL/FM/60/03/DW(23-24-0416A)
REPORT DATE :16/03/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE: **DRINKING WATER ANALYSIS**

SAMPLE REGISTRATIONNO. : DW(23-24-0417A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 15/03/2024

LOCATION : Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
36	Mineral Oil	mg/L	<0.5	0.5	IS 3025 (Part 34)
37	Taste	-	Agreeable	Agreeable	APHA 22nd Ed., 2160 A
38	Metal-Molybdenum	mg/L	<0.07	0.07	IS 3025 (Part 2) 2002
39	Poly chlorinated Biphenyls(PCBs)	mg/L	ND	0.0005	APHA 23rd Ed. 6431 B
40	Poly nuclear Aromatic Hydrocarbons(PAH)	mg/L	ND	0.0001	APHA 23rd Ed. 6440 B
41	Bromoform	mg/L	ND	0.1	APHA 23rd Ed. 6232 B
42	Dibromo chloromethane	mg/L	ND	0.1	APHA 23rd Ed. 6232 B
43	Bromo dichloromethane	mg/L	ND	0.06	APHA 23rd Ed. 6232 B
44	Chloroform	mg/L	ND	0.2	APHA 23rd Ed. 6232 B
45	Alachlor	µg/L	ND	20	APHA 23rd Ed. 6630 B
46	Atrazine	µg/L	ND	2	APHA 23rd Ed. 6630 B
47	Aldrin	µg/L	ND	0.03	APHA 23rd Ed. 6630 B
48	Alpha-HCH	µg/L	ND	0.01	APHA 23rd Ed. 6630 B
49	Beta-HCH	µg/L	ND	0.04	APHA 23rd Ed. 6630 B
50	Butachlor	µg/L	ND	125	APHA 23rd Ed. 6630 B
51	Chlorpyriphos	µg/L	ND	30	APHA 23rd Ed. 6630 B
52	DeltaHCH	µg/L	ND	0.04	APHA 23rd Ed. 6630 B
53	2.4-Dichlorophenoxyaceticacid	µg/L	ND	30	APHA 23rd Ed. 6630 B
54	*o,p*-DDT	µg/L	ND	1	APHA 23rd Ed. 6630 B
55	Endosulfan-(alpha ,beta and sulphate)	µg/L	ND	0.4	APHA 23rd Ed. 6630 B
56	Ethion	µg/L	ND	3	APHA 23rd Ed. 6630 B
57	Gamma-HCH	µg/L	ND	2	APHA 23rd Ed. 6630 B
58	Isoproturon	µg/L	ND	9	APHA 23rd Ed. 6630 B
59	Malathion	µg/L	ND	190	APHA 23rd Ed. 6630 B
60	Methyl parathion	µg/L	ND	0.3	APHA 23rd Ed. 6630 B
61	Monocrotophos	µg/L	ND	1	APHA 23rd Ed. 6630 B
62	Phorate	µg/L	ND	2	APHA 23rd Ed. 6630 B

ND: Not Detected, #:AsperIS10500:2012, For Coliform <2 can be considered as Absent

Opinion/Observation: Analyzed parameters in above tested are within limit as per specified standard.

Verified by

Sr. Analyst

For SKY LAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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Recognized by Ministry of Environment, Forest & Climate Change (MoEFCC), Govt. of India, New Delhi
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TEST REPORT

NAME&ADDRESSOF CUSTOMER:
M/S.L& T Construction
MTHL-3Project,NearKharkoparRailwayStation,
Ulwe, NaviMumbai–410206

REPORTNO :SAL/FM/60/03/DW(23-24-0416A)
REPORT DA :16/03/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE: **DRINKING WATER ANALYSIS**

SAMPLE REGISTRATIONNO. : DW(23-24-0416A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 15/03/2024

LOCATION : Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
63	Total Coliform	MPN/100 ml	Absent	Absent	IS 1622-1981
64	E-Coli	/100 ml	Absent	Absent	IS 1622-1981

ND: Not Detected, #:AsperIS10500:2012, For Coliform <2 can be considered as Absent

Opinion/Observation: Analyzed parameters in above tested are within limit as per specified standard.

Verified by

Sr. Analyst

For SKY LAB ANALYTICAL LABORATORY

SKYLAB Analytical Laboratory ★ 27311 ★

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:

M/S. L & T Construction.
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/03/WW(23-24-0418A)
REPORT DA : 16/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE:

EFFLUENT WATER ANALYSIS

SAMPLE REGISTRATION NO. :WW(23-24-0418A)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 16/03/2024

LOCATION : Bio tank, Labour Colony, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water

SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit*	Reference Method
				Inland surface water	
1.	pH	-	6.65	5.5 - 9.0	IS 3025 (Part 11)
2.	Total suspended solids	mg/L	9	100	IS 3025 (Part 17)
3.	Total dissolved solids	mg/L	82	NS	IS 3025 (Part 16)
4.	Biochemical Oxygen Demand (BOD)	mg/L	8.6	30	IS 3025 (Part 44)

NS: Not Specified. *: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S. L & T Construction.
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/03/WW(23-24-0418A)
REPORT DA : 16/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

EFFLUENT WATER ANALYSIS

SAMPLE TYPE:

SAMPLE REGISTRATION NO. :WW(23-24-0418A)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 16/03/2024

LOCATION : Bio tank, Labour Colony, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water

SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit*	Reference Method
				Inland surface water	
1	Faecal Coliform	MPN/100 ml	Absent	NS	IS 1622-1981

NS: Not Specified. *: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

SKYLAB Analytical Laboratory M.Pollution Control

Technical Manager
Authorized Signatory

END OF REPORT

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S. L & T Construction.
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/03/WW(23-24-0418B)
REPORT DA :16/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE:

EFFLUENT WATER ANALYSIS

SAMPLE REGISTRATION NO. :WW(23-24-1418B)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 16/03/2024

LOCATION : Bio tank, Site Office, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water
SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit*	Reference Method
				Inland surface water	
1.	pH	-	6.68	5.5 - 9.0	IS 3025 (Part 11)
2.	Total suspended solids	mg/L	72	100	IS 3025 (Part 17)
3.	Total dissolved solids	mg/L	85	NS	IS 3025 (Part 16)
4.	Biochemical Oxygen Demand (BOD)	mg/L	7.8	30	IS 3025 (Part 44)

NS: Not Specified. *: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S. L & T Construction.
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/03/WW(23-24-1102)
REPORT DA :16/03/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: EFFLUENT WATER ANALYSIS

SAMPLE REGISTRATION NO. :WW(23-24-1102)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 08/03/2024
SAMPLE RECEIPT DATE : 09/03/2024
ANALYSIS START DATE : 11/03/2024
ANALYSIS COMPLETE DATE : 16/03/2024

LOCATION : Bio tank, Site Office, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water
SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit* Inland surface water	Reference Method
1	Faecal Coliform	MPN/100 ml	Absent	NS	IS 1622-1981

NS: Not Specified. *: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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MUMBAI TRANS HARBOUR LINK ★ GENERAL CONSULTANT ★

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LARSEN & TOUBRO

Larsen & Toubro Limited,
L&T Construction
Heavy Civil Infrastructure
Mount Poonamallee Road
Manapakkam, P. B. No. 979
Chennai - 600 089, INDIA

Ref: MTHL/ P3/L&T/GC/LT/HSE-0004136/2024

Date: 20.06.2024

To
The Engineer,
M/s AECOM Asia Company Ltd., -PADECO Co. Ltd – Dar Al-Handasah Consultants –TY Lin International Consortium, General Consultant for MTHL Project,
6th Floor, 'A' Wing, MMRDA Old Building,
Bandra-Kurla Complex, Bandra (E),
Mumbai 400 051.

Project: Procurement of Mumbai Trans Harbour Link Project (Package-3)-Construction of a 3.613 km long viaduct section (CH 18+187 to CH21+800) including interchange at State Highway-54 and at National Highway-4B near Chirle in Navi Mumbai.
IFB No.: MMRDA/ENG1/000754.

Subject: Quarterly Environment Monitoring Test Reports of 2nd quarter.

Ref:
1. MoEF CC letter no 11-65/2012-IA.III dated 25.1.2016 granting CRZ clearance to the Mumbai Trans Harbour Link Project.
2. GC letter MTHL/GC/L&T/Env /2019/757 dated 08.11.2019

Dear Sir/Madam,

We hereby submit the following test reports of 2nd Quarter 2024 for your kind information and records.
1. Ambient Air quality (48 hrs)
2. Ambient Noise quality
3. Drinking water quality (labour camp)
4. DG Sets stack monitoring
5. Wastewater quality of Bio-tank (Labour Camp)

Thanking you and always assuring you of our best services.
Yours faithfully,

For **LARSEN & TOUBRO LIMITED**

LARSEN & TOUBRO LTD. MTHL PKG-3 HCIC DIVISION

(Satya Prakash)
Project Manager
Mumbai Trans Harbour Link Project – Pkg. 3
CC: **The Chief Engineer,** MTHL-PIU, MMRDA, Mumbai, INDIA 400 051
Encl: Environment Monitoring Test Reports - June -2024 – [13 Pages]

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S.L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/110/06/NM(23-24-0415B)
REPORT DATE :15/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: **AMBIENT NOISE MONITORING**

SAMPLE REGISTRATION NO. :NM(23-24-0415B)
SAMPLING PLAN& METHOD NO. : IS 9989: 1981
SAMPLING DATE : 13/06/2024 to 14/06/2024

SAMPLE LOCATION : Jasai (Near Site office container)
SAMPLING DURATION : 24 HRS

Day Time (Hrs.)	Noise Level dB(A) Hourly L_{eq}
06.00 to 07.00	63.2
07.00 to 08.00	67.1
08.00 to 09.00	70.6
09.00 to 10.00	65.1
10.00 to 11.00	65.3
11.00 to 12.00	64.1
12.00 to 13.00	64.2
13.00 to 14.00	65.2
14.00 to 15.00	69.1
15.00 to 16.00	69.1
16.00 to 17.00	70.2
17.00 to 18.00	68.1
18.00 to 19.00	70.1
19.00 to 20.00	67.3
20.00 to 21.00	62.5
21.00 to 22.00	64.1

Night Time (Hrs.)	Noise Level dB(A) Hourly Leq
22.00 to 23.00	51.2
23.00 to 00.00	51.8
00.00 to 01.00	52.1
01.00 to 02.00	44.2
02.00 to 03.00	54.1
03.00 to 04.00	54.2
04.00 to 05.00	53.1
05.00 to 06.00	54.5

Noise Level Monitoring Report Summary

Lmin.	Lmax.	Leq Day	Leq Night	LDN
44.2	54.5	66.3	51.9	65.5

Note: All Values in dB(A)

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S.L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/110/06/NM(23-24-0414A)
REPORT DATE :15/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: AMBIENT NOISE MONITORING

SAMPLE REGISTRATION NO. :NM(23-24-0414A)
SAMPLING PLAN& METHOD NO. : IS 9989: 1981
SAMPLING DATE : 13/06/2024 to 14/06/2024

SAMPLE LOCATION :Chirle (Near Site office container)
SAMPLING DURATION : 24 HRS

Day Time (Hrs.)	Noise Level dB(A) Hourly L_{eq}
06.00 to 07.00	56.3
07.00 to 08.00	58.2
08.00 to 09.00	62.1
09.00 to 10.00	63.1
10.00 to 11.00	62.8
11.00 to 12.00	52.8
12.00 to 13.00	56.9
13.00 to 14.00	52.9
14.00 to 15.00	55.1
15.00 to 16.00	53.1
16.00 to 17.00	63.1
17.00 to 18.00	65.5
18.00 to 19.00	65.1
19.00 to 20.00	61.2
20.00 to 21.00	61.2
21.00 to 22.00	61.1

Night Time (Hrs.)	Noise Level dB(A) Hourly Leq
22.00 to 23.00	57.1
23.00 to 00.00	57.8
00.00 to 01.00	55.1
01.00 to 02.00	55.1
02.00 to 03.00	49.6
03.00 to 04.00	49.9
04.00 to 05.00	50.1
05.00 to 06.00	51.1

Noise Level Monitoring Report Summary

Lmin.	Lmax.	Leq Day	Leq Night	LDN
49.6	57.8	59.4	53.2	61.1

Note: All Values in dB(A)

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S .L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbaj – 410206

REPORT NO :SAL/FM/58/ 06/ AAM (23-24-813A)
REPORT DATE :22/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE:

AMBIENT AIR QUALITY MONITORING

SAMPLE REGISTRATION NO . : AAM (23-24-813A)
SAMPLING PLAN& METHOD NO. :As per Reference Method
SAMPLING DATE :13/06/2024 to 14/06/2024
SAMPLING TIME :12:30 PM TO 12:30 PM
ANALYSIS START DATE :17/06/2024
ANALYSIS COMPLETE DATE :21/06/2024

LOCATION : Chirale

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit#	Reference Method
1.	Particulate Matter as PM10	24 HRS	µg/m³	68.3	100	IS:5182, (Part 23)
2.	Particulate Matter as PM2. 5	24 HRS	µg/m³	30.1	60	IS:5182, (Part 24)
3.	Sulphur Dioxide (SO2)	24 HRS	µg/m³	20.1	80	IS:5182, (Part 2)
4.	Nitrogen Oxide (NOx)	24 HRS	µg/m³	18.2	80	IS: 5182, (Part 6)
5.	Carbon Monoxide (CO)	8 HRS	mg/ m³	0.58	2	IS 5182 (Part 10)
6.	Ozone (O3)	8 HRS	µg/m³	<20	100	Method 411, Methods of Air Sampling and Analysis, 3rd Edition
7.	Ammonia (NH3)	24 HRS	µg/m³	10.8	400	Method 401, Methods of Air Sampling and Analysis, 3rd Edition
8.	Benzene (C6H6)	24 HRS	µg/m³	<0.10	5	IS 5182 (Part 11)
9.	Benzo(a)pyrene	24 HRS	ng /m³	< 1	1	IS 5182 (Part 12)
10.	Metal-Lead	24 HRS	µg/m³	<0.1	1	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
11.	Metal-Arsenic	24 HRS	ng /m³	<1	6	Method 302, Methods of Air Sampling and Analysis, 3rd Edition
12.	Metal-Nickel	24 HRS	ng /m³	0.49	20	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
13.	Methane (CH4)	24 HRS	ppm	0.65	-	IS 5182 (Part 17)
14.	VOC (BTX)	24 HRS	µg/m³	0.5	-	IS 5182 (Part 11)

#: As per NAAQMS Guidelines 2009

Opinion/Observation: *Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S .L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/58/ 06/ AAM (23-24-813B)
REPORT DATE :22/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE:
AMBIENT AIR QUALITY MONITORING

SAMPLE REGISTRATION NO . : AAM (23-24-813B)
SAMPLING PLAN& METHOD NO. :As per Reference Method
SAMPLING DATE :14/06/2024 to 15/06/2024
SAMPLING TIME :13:15 PM TO 13:15 PM
ANALYSIS START DATE :17/06/2024
ANALYSIS COMPLETE DATE :21/06/2024

LOCATION : Chirale

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit#	Reference Method
1.	Particulate Matter as PM10	24 HRS	µg/m³	69.1	100	IS:5182, (Part 23)
2.	Particulate Matter as PM2. 5	24 HRS	µg/m³	30.2	60	IS:5182, (Part 24)
3.	Sulphur Dioxide (SO2)	24 HRS	µg/m³	20.6	80	IS:5182, (Part 2)
4.	Nitrogen Oxide (NOx)	24 HRS	µg/m³	18.9	80	IS: 5182, (Part 6)
5.	Carbon Monoxide (CO)	8 HRS	mg/ m³	0.54	2	IS 5182 (Part 10)
6.	Ozone (O3)	8 HRS	µg/m³	<20	100	Method 411, Methods of Air Sampling and Analysis, 3rd Edition
7.	Ammonia (NH3)	24 HRS	µg/m³	10.9	400	Method 401, Methods of Air Sampling and Analysis, 3rd Edition
8.	Benzene (C6H6)	24 HRS	µg/m³	<0.10	5	IS 5182 (Part 11)
9.	Benzo(a)pyrene	24 HRS	ng /m³	< 1	1	IS 5182 (Part 12)
10.	Metal-Lead	24 HRS	µg/m³	<0.1	1	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
11.	Metal-Arsenic	24 HRS	ng /m³	<1	6	Method 302, Methods of Air Sampling and Analysis, 3rd Edition
12.	Metal-Nickel	24 HRS	ng /m³	0.48	20	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
13.	Methane (CH4)	24 HRS	ppm	0.66	-	IS 5182 (Part 17)
14.	VOC (BTX)	24 HRS	µg/m³	0.5	-	IS 5182 (Part 11)

#: As per NAAQMS Guidelines 2009

Opinion/Observation: *Analyzed parameters in above tested sample are within standard limit as per NAAQMS Guidelines.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/s. L& T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai–410206

REPORTNO :SAL/FM/60/06/DW(23-24-0411A)
REPORT DATE :22/06/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE:
DRINKING WATER ANALYSIS

SAMPLE REGISTRATIONNO. : DW(23-24-0411A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION :Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr.No.	Test Parameter	Unit	Result	Limit#	Reference Method
1	Colour	Hazen Unit	<2	5	IS 3025 (Part 4)
2	Odour	-	Agreeable	Agreeable	IS 3025 (Part 5)
3	pH	-	8.05	6.5 - 8.5	IS 3025 (Part 11)
4	Turbidity	NTU	<1	1	IS 3025 (Part 10)
5	Total dissolved solids	mg/L	78	500	IS 3025 (Part 16)
6	Metal-Aluminum	mg/L	<0.01	0.03	IS 3025 (Part 2)
7	Ammonium(as total ammonia-N)	mg/L	<0.1	0.5	IS 3025 (Part 34)
8	Anionic Detergents	mg/L	<0.1	0.2	IS 13428 (Annexure K)
9	Metal-Barium	mg/L	<0.1	0.7	IS 3025 (Part 2)
10	Boron as B	mg/L	<0.1	0.5	IS 3025 (Part 2)
11	Calcium	mg/L	<2	75	IS 3025 (Part 40)
12	Chloramines(asCL2)	mg/L	<1	4	IS 3025 (Part 26)
13	Chloride	mg/L	12	250	IS 3025 (Part 32)
14	Metal-Copper	mg/L	<0.05	0.05	IS 3025 (Part 2)
15	Fluoride	mg/L	<0.1	1	IS 3025 (Part 60)
16	Residual free chlorine(RFC)	mg/L	0.2	>0.2	IS 3025 (Part 26)
17	Metal-Iron	mg/L	0.22	0.3	IS 3025 (Part 2)
18	Metal-Magnesium	mg/L	<1	30	IS 3025 (Part 46)
19	Metal-Manganese	mg/L	<0.05	0.1	IS 3025 (Part 2)
20	Nitrate	mg/L	<0.1	45	IS 3025 (Part 34)
21	Phenolic compounds	mg/L	<0.001	0.001	IS 3025 (Part 43)
22	Metal-Selenium	mg/L	<0.01	0.01	IS 3025 (Part 2)
23	Metal-Silver	mg/L	<0.05	0.1	IS 3025 (Part 24)
24	Sulphate,SO4	mg/L	4	200	IS 3025 (Part 29)
25	Sulphide	mg/L	<0.04	0.05	IS 3025 (Part 23)
26	Alkalinity	mg/L	11	200	IS 3025 (Part 21)
27	Hardness(total)	mg/L	38	200	IS 3025 (Part 2)
28	Zinc	mg/L	<0.05	5	IS 3025 (Part 2)

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NAME & ADDRESS OF CUSTOMER:
M/s. L& T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai–410206

REPORTNO :SAL/FM/60/06/DW(23-24-0411A)
REPORT DATE :22/06/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE:

DRINKING WATER ANALYSIS

SAMPLE REGISTRATIONNO. : DW(23-24-0411A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION :Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
29	Metal-Cadmium	mg/L	<0.001	0.003	IS 3025 (Part 2)
30	Cyanides CN	mg/L	<0.02	0.05	IS 3025 (Part 27)
31	Metal-Lead	mg/L	<0.01	0.01	IS 3025 (Part 2)
32	Metal-Mercury	mg/L	<0.001	0.001	IS 3025 (Part 48)
33	Metal-Nickel	mg/L	<0.01	0.02	IS 3025 (Part 2)
34	Metal-Arsenic	mg/L	<0.01	0.01	IS 3025 (Part 2)
35	Chromium	mg/L	<0.01	0.05	IS 3025 (Part 2)

ND: Not Detected ,#:AsperIS10500:2012

Opinion/Observation: Analyzed parameters in above tested sample are within limit as per specified standard.

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME&ADDRESSOF CUSTOMER:
M/S.L& T Construction-
MTHL-3Project,NearKharkoparRailwayStation,
Ulwe, NaviMumbai–410206

REPORTNO :SAL/FM/60/06/DW(23-24-0411A)
REPORT DATE :22/06/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE:

DRINKING WATER ANALYSIS

SAMPLE REGISTRATIONNO. : DW(23-24-0411A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION : Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
36	Mineral Oil	mg/L	<0.5	0.5	IS 3025 (Part 34)
37	Taste	-	Agreeable	Agreeable	APHA 22nd Ed., 2160 A
38	Metal-Molybdenum	mg/L	<0.07	0.07	IS 3025 (Part 2) 2002
39	Poly chlorinated Biphenyls(PCBs)	mg/L	ND	0.0005	APHA 23rd Ed. 6431 B
40	Poly nuclear Aromatic Hydrocarbons(PAH)	mg/L	ND	0.0001	APHA 23rd Ed. 6440 B
41	Bromoform	mg/L	ND	0.1	APHA 23rd Ed. 6232 B
42	Dibromo chloromethane	mg/L	ND	0.1	APHA 23rd Ed. 6232 B
43	Bromo dichloromethane	mg/L	ND	0.06	APHA 23rd Ed. 6232 B
44	Chloroform	mg/L	ND	0.2	APHA 23rd Ed. 6232 B
45	Alachlor	µg/L	ND	20	APHA 23rd Ed. 6630 B
46	Atrazine	µg/L	ND	2	APHA 23rd Ed. 6630 B
47	Aldrin	µg/L	ND	0.03	APHA 23rd Ed. 6630 B
48	Alpha-HCH	µg/L	ND	0.01	APHA 23rd Ed. 6630 B
49	Beta-HCH	µg/L	ND	0.04	APHA 23rd Ed. 6630 B
50	Butachlor	µg/L	ND	125	APHA 23rd Ed. 6630 B
51	Chlorpyriphos	µg/L	ND	30	APHA 23rd Ed. 6630 B
52	DeltaHCH	µg/L	ND	0.04	APHA 23rd Ed. 6630 B
53	2.4-Dichlorophenoxyaceticacid	µg/L	ND	30	APHA 23rd Ed. 6630 B
54	*o,p*-DDT	µg/L	ND	1	APHA 23rd Ed. 6630 B
55	Endosulfan-(alpha ,beta and sulphate)	µg/L	ND	0.4	APHA 23rd Ed. 6630 B
56	Ethion	µg/L	ND	3	APHA 23rd Ed. 6630 B
57	Gamma-HCH	µg/L	ND	2	APHA 23rd Ed. 6630 B
58	Isoproturon	µg/L	ND	9	APHA 23rd Ed. 6630 B
59	Malathion	µg/L	ND	190	APHA 23rd Ed. 6630 B
60	Methyl parathion	µg/L	ND	0.3	APHA 23rd Ed. 6630 B
61	Monocrotophos	µg/L	ND	1	APHA 23rd Ed. 6630 B
62	Phorate	µg/L	ND	2	APHA 23rd Ed. 6630 B

ND: Not Detected, #:AsperIS10500:2012,

Opinion/Observation: Analyzed parameters in above tested are within limit as per specified standard.

Verified by

Sr. Analyst

For SKY LAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME&ADDRESSOF CUSTOMER:
M/S.L& T Construction
MTHL-3Project,NearKharkoparRailwayStation,
Ulwe, NaviMumbai–410206

REPORTNO :SAL/FM/60/06/DW(23-24-0411A)
REPORT DA :22/06/2024
CUSTOMERREF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLETYPE: **DRINKING WATER ANALYSIS**

SAMPLE REGISTRATIONNO. : DW(23-24-0411A)
SAMPLINGPLAN & METHOD NO. : IS3025Part1:1987RA2019
SAMPLING DATE :14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION : Labour Camp, Gavan
SAMPLE SPECIFICATION :Bore Well Water
SAMPLECOLLECTEDBY :SKYLAB
SAMPLEQUANTITY :5Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
63	Total Coliform	MPN/100 ml	Absent	Absent	IS 1622-1981
64	E-Coli	/100 ml	Absent	Absent	IS 1622-1981

ND: Not Detected, #:AsperIS10500:2012, For Coliform <2 can be considered as Absent

Opinion/Observation: Analyzed parameters in above tested are within limit as per specified standard.

Verified by

Sr. Analyst

For SKY LAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S. L & T Construction.
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/06/WW(23-24-0421A)
REPORT DATE : 22/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: **EFFLUENT WATER ANALYSIS**

SAMPLE REGISTRATION NO. :WW(23-24-0421A)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION : Bio tank, Labour Colony, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water
SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
				Inland surface water	
1.	pH	-	6.48	5.5 - 9.0	IS 3025 (Part 11)
2.	Total suspended solids	mg/L	12	100	IS 3025 (Part 17)
3.	Total dissolved solids	mg/L	88	NS	IS 3025 (Part 16)
4.	Biochemical Oxygen Demand (BOD)	mg/L	9.1	30	IS 3025 (Part 44)

NS: Not Specified. #: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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▪ ENVIRONMENT ▪ FOOD ▪ TEXTILE

TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S. L & T Construction. –
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/03/WW(23-24-0418A)
REPORT DATE : 22/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: **EFFLUENT WATER ANALYSIS**

SAMPLE REGISTRATION NO. :WW(23-24-0418A)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION : Bio tank, Labour Colony, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water
SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
				Inland surface water	
1	Faecal Coliform	MPN/100 ml	Absent	NS	IS 1622-1981

NS: Not Specified. #: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

1. This report reflects findings only for the above sample tested/monitored and only for time and place of monitoring/testing.
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Mob. : 9867577309-312 / 8422929165. **Email** : mails@skylabenviro.com, **Website** : www.skylabenviro.com

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S. L & T Construction.
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/06/WW(23-24-0421B)
REPORT DA :22/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE:

EFFLUENT WATER ANALYSIS

SAMPLE REGISTRATION NO. :WW(23-24-0421B)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION : Bio tank, Site Office, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water

SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
				Inland surface water	
1.	pH	-	6.28	5.5 - 9.0	IS 3025 (Part 11)
2.	Total suspended solids	mg/L	68	100	IS 3025 (Part 17)
3.	Total dissolved solids	mg/L	101	NS	IS 3025 (Part 16)
4.	Biochemical Oxygen Demand (BOD)	mg/L	9.2	30	IS 3025 (Part 44)

NS: Not Specified. **#**: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S. L & T Construction.
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/61/06/WW(23-24-0421B)
REPORT DA :22/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE:

EFFLUENT WATER ANALYSIS

SAMPLE REGISTRATION NO. :WW(23-24-0421B)
SAMPLING PLAN& METHOD NO. : IS 3025 Part 1
SAMPLING DATE : 14/06/2024
SAMPLE RECEIPT DATE : 15/06/2024
ANALYSIS START DATE : 17/06/2024
ANALYSIS COMPLETE DATE : 21/06/2024

LOCATION : Bio tank, Site Office, Gavan
SAMPLE SPECIFICATION :Treated Effluent Water

SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY :1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
				Inland surface water	
1	Faecal Coliform	MPN/100 ml	Absent	NS	IS 1622-1981

NS: Not Specified. #: As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within limit as per specified standard.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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TEST REPORT

NAME & ADDRESS OF CUSTOMER:
M/S.L & T Construction
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai – 410206

REPORT NO :SAL/FM/58/ 06/ DGSM (23-24-0417A)
REPORT DATE :18/06/2024
CUSTOMER REF :EH383WOD1000025
REF DATE :23/03/2021

SAMPLE TYPE: **DG STACK EMISSION MONITORING**

SAMPLE REGISTRATION NO. : DGSM (24-25-0417A)
SAMPLING PLAN & METHOD NO. : As per Reference Method
SAMPLING DATE :13/06/2024
SAMPLING TIME :12:50 PM
ANALYSIS START DATE :14/06/2024
ANALYSIS COMPLETE DATE 17/06/2024

LOCATION :DG Stack-3,(62.5 KVA), (Jasai)
SAMPLE COLLECTED BY : SKYLAB
STACK HEIGHT : 2 Meters
SHAPE OF STACK : Round
MATERIAL OF STACK :MS
FUEL USED (CONSUMPTION) : Diesel

Sr. No.	Test Parameter	Unit	Result	Limit#	Reference Method
1.	Dimensions of Stack	m	0.1	NA	-
2.	Cross section area of Stack	m^2	0.008	NA	-
3.	Temperature	^oC	108	NA	IS 11255 (Part 1)
4.	Velocity	m/s	8.5	NA	IS 11255 (Part 1)
5.	Flue Gas Discharge	Nm^3/hr	188.5	NA	IS 11255 (Part 1)
6.	Total Particulate Matter (TPM)	mg/Nm^3	36.4	NS	IS 11255 (Part 1)
	Total Particulate Matter (TPM)	g/kwh	0.137	≤ 0.3	IS 11255 (Part 1)
7.	Carbon Monoxide (CO)	mg/Nm^3	60.2	NS	EPA Method 10
	Carbon Monoxide (CO)	g/kwh	0.219	≤ 3.5	EPA Method 10
8.	Nitrogen Oxide (NOx)	mg/Nm^3	63.0	NS	IS 11255, (Part 7)
	Nitrogen Oxide (NOx)	g/kwh	0.229	≤ 4.7	IS 11255, (Part 7)
9.	Hydrocarbon (HC)	mg/Nm^3	41.8	NS	Instrumental
	Hydrocarbon (HC)	g/kwh	0.076	≤ 4.7	Instrumental

NS: Not Specified. **NA:** Not Applicable. **#:** As per CPCB Guidelines.

Opinion/Observation: *Analyzed parameters in above tested sample are within standard limit as per CPCB guideline.*

Verified by

Sr. Analyst

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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TC-5600

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Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000163F**
REPORT NO. : UT/ELS/ REPORT/229/01-2024
ISSUE DATE : 19/01/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 02/01/2024 13:30 Hrs. to 03/01/2024 13:30 Hrs.
Sample Registration Date : 03/01/2024
Analysis Starting Date : 03/01/2024
Analysis Completion Date : 06/01/2024
Ambient Air Temperature : 23.2 °C to 33.2 °C
Relative Humidity : 47.2 % to 68.5 %

AMBIENT AIR QUALITY MONITORING
Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/045/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	24	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	94	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	38	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.3	mg/m^3	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/215	Polltech	PEM-ADS 2.5/10µ	3119	29/11/2024
	Respirable Dust Sampler	UT/LAB/108	Polltech	PEM-RDS 8NL	3313	18/09/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 94 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ENVIRONMENTAL CONSULTANCY & LABORATORY Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000185F**
REPORT NO. : UT/ELS/ REPORT/251/01-2024
ISSUE DATE : 19/01/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 04/01/2024 15:35 Hrs. to 05/01/2024 15:35 Hrs.
Sample Registration Date : 05/01/2024
Analysis Starting Date : 05/01/2024
Analysis Completion Date : 09/01/2024
Ambient Air Temperature : 22.4 °C to 31.2 °C
Relative Humidity : 48.6 % to 67.3 %

AMBIENT AIR QUALITY MONITORING
Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/118/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	26	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	90	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	34	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.4	mg/m^3	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/215	Polltech	PEM-ADS 2.5/10μ	3119	29/11/2024
	Respirable Dust Sampler	UT/LAB/108	Polltech	PEM-RDS 8NL	3313	18/09/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be compiled with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 90 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ENVIRONMENTAL CONSULTANCY & LABORATORY ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000215F**
REPORT NO. : UT/ELS/ REPORT/281/01-2024
ISSUE DATE : 19/01/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 08/01/2024 16:15 Hrs. to 09/01/2024 16:15 Hrs.
Sample Registration Date : 09/01/2024
Analysis Starting Date : 09/01/2024
Analysis Completion Date : 12/01/2024
Ambient Air Temperature : 23.2 °C to 28.7 °C
Relative Humidity : 57.6 % to 73.9 %

AMBIENT AIR QUALITY MONITORING
Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/247/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	24	µg/m³	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	77	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	30	µg/m³	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.2	mg/m³	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS-136BL	208-DTG-2023	29/11/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 77 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ENVIRONMENTAL CONSULTANCY & LABORATORY Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000227F**
REPORT NO. : UT/ELS/ REPORT/293/01-2024
ISSUE DATE : 19/01/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 11/01/2024 13:00 Hrs. to 12/01/2024 13:00 Hrs.
Sample Registration Date : 12/01/2024
Analysis Starting Date : 12/01/2024
Analysis Completion Date : 17/01/2024
Ambient Air Temperature : 23.3 °C to 32.2 °C
Relative Humidity : 50.2 % to 69.3 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/308/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	23	µg/m³	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	92	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	33	µg/m³	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.4	mg/m³	4

†: Sampling Period 1 Hr. **BDL: Below Detection Limit** **DL=Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 92 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
Tel : +91-22+2538 01 98 / 2545 03 72 / 2544 62 51 **Fax :** +91-22-2542 96 50 **Email :** sales@ultratech.in
Pune : +91-20-29525517 - pune@ultratech.in **Kochi :** +91-048-44011173 / +91-9895200526 - kochi@ultratech.in
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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000411F**
REPORT NO. : UT/ELS/ REPORT/0538/02-2024
ISSUE DATE : 05/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 15/01/2024 12:30 Hrs. to 16/01/2024 12:30 Hrs.
Sample Registration Date : 17/01/2024
Analysis Starting Date : 17/01/2024
Analysis Completion Date : 20/01/2024
Ambient Air Temperature : 21.3 °C to 32.4 °C
Relative Humidity : 42.5 % to 74.6 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'10.80", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/407/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	24	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	81	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	30	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.3	mg/m^3	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 81 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★ ENVIRONMENTAL CONSULTANCY & LABORATORY

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

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Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000462F**
REPORT NO. : UT/ELS/ REPORT/0589/02-2024
ISSUE DATE : 05/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 23/01/2024 12:15 Hrs. to 24/01/2024 12:15 Hrs.
Sample Registration Date : 24/01/2024
Analysis Starting Date : 24/01/2024
Analysis Completion Date : 30/01/2024
Ambient Air Temperature : 19.5 °C to 30.3 °C
Relative Humidity : 45.5 % to 75.6 %

AMBIENT AIR QUALITY MONITORING
Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/602/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	26	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	83	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	41	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.3	mg/m^3	4

†: Sampling Period 1 Hr.
BDL: Below Detection Limit
DL=Detection Limit

Remark/ Statement of Conformity: *The paramoters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS-136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 83 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★ ENVIRONMENTAL CONSULTANCY & LABORATORY

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

MUMBAI SYNAIS LABORATORY

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000605F**
REPORT NO. : UT/ELS/ REPORT/760/02-2024
ISSUE DATE : 08/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 25/01/2024 16:00 Hrs. to 26/01/2024 16:00 Hrs.
Sample Registration Date : 29/01/2024
Analysis Starting Date : 29/01/2024
Analysis Completion Date : 01/02/2024
Ambient Air Temperature : 19.4 °C to 30.5 °C
Relative Humidity : 48.3 % to 70.7 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/669/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	33	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	89	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	36	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.5	mg/m^3	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 89 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ★ Environmental Consultancy & Laboratory ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
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TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000622F**
REPORT NO. : UT/ELS/ REPORT/778/02-2024
ISSUE DATE : 08/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 29/01/2024 12:30 Hrs. to 30/01/2024 12:30 Hrs.
Sample Registration Date : 31/01/2024
Analysis Starting Date : 31/01/2024
Analysis Completion Date : 03/02/2024
Ambient Air Temperature : 26.4 °C to 31.2 °C
Relative Humidity : 42.2 % to 64.9 %

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.10", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/732/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	25	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	70	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	28	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.2	mg/m^3	4

†: Sampling Period 1 Hr. **BDL: Below Detection Limit** **DL=Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be compiled with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 70 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000000606F**
REPORT NO. : UT/ELS/ REPORT/761/02-2024
ISSUE DATE : 08/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 25/01/2024 16:10 Hrs. to 26/01/2024 16:10 Hrs.
Sample Registration Date : 29/01/2024
Analysis Starting Date : 29/01/2024
Analysis Completion Date : 05/02/2024
Ambient Air Temperature : 19.5 °C to 30.4 °C
Relative Humidity : 48.2 % to 70.8 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'10.9", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/670/01-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	28	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	72	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	25	$\mu g/m^3$	60
5	Ozone (O_3)†	IS 5182 (Part 9) : 1974	BDL[DL=20]	$\mu g/m^3$	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.06]	$\mu g/m^3$	1.0
7	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.2	mg/m^3	4
8	Ammonia (NH_3)	ISC 16th Ed. Method 401	51	$\mu g/m^3$	400
9	Benzene (C_6H_6)	IS 5182 (Part 11) : 2006	1.4	$\mu g/m^3$	5*
10	Benzo(α)Pyrene (BaP) - Paticulate Phase	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=0.5]	ng/m^3	1*
11	Arsenic (As)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=2]	ng/m^3	6*
12	Nickel (Ni)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	BDL[DL=7]	ng/m^3	20*

†: Sampling Period 1 Hr. **BDL: Below Detection Limit** **DL=Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/215	Polltech	PEM-ADS 2.5/10μ	3119	29/11/2024
	Respirable Dust Sampler	UT/LAB/108	Polltech	PEM-RDS 8NL	3313	18/09/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.

– END OF REPORT –

ULTRA-TECH Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601 ENVIRONMENTAL CONSULTANCY & LABORATORY

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

ULR -TC560024000001007F

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

REPORT NO. : UT/ELS/REPORT/1313/02-2024
ISSUE DATE : 28/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

AMBIENT NOISE LEVEL MONITORING

Sampling Plan Ref. No. : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 08/01/2024 to 09/01/2024

Sample Lab Code : UT/ELS/247A/01-2024
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	At Toll Plaza Co-ordinates: N 18°57'05.4"; E 73°01'11.2"	06:00 to 07:00	72.3	64.2	79.8	22:00 to 23:00	67.9	58.9	75.2
		07:00 to 08:00	71.3	62.8	75.9	23:00 to 00:00	67.4	58.3	73.1
		08:00 to 09:00	70.0	62.3	73.9	00:00 to 01:00	67.2	57.1	72.2
		09:00 to 10:00	70.7	63.1	75.9	01:00 to 02:00	67.9	56.6	75.0
		10:00 to 11:00	70.9	63.1	76.4	02:00 to 03:00	66.7	55.4	71.8
		11:00 to 12:00	71.5	63.3	78.8	03:00 to 04:00	67.2	55.8	72.8
		12:00 to 13:00	71.5	63.3	76.9	04:00 to 05:00	66.5	55.2	72.4
		13:00 to 14:00	71.7	63.4	77.6	05:00 to 06:00	65.4	54.8	71.5
		14:00 to 15:00	71.5	63.0	78.0	--	--	--	--
		15:00 to 16:00	73.0	63.1	81.5	--	--	--	--
		16:00 to 17:00	72.3	64.0	77.3	--	--	--	--
		17:00 to 18:00	68.2	60.6	71.6	--	--	--	--
		18:00 to 19:00	68.2	59.6	74.0	--	--	--	--
		19:00 to 20:00	67.9	58.9	75.5	--	--	--	--
		20:00 to 21:00	69.2	61.2	73.1	--	--	--	--
		21:00 to 22:00	66.7	58.1	72.9	--	--	--	--
		L_{10}	71.0			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	66.6						
		L_{90}	64.4						
		Day Leq	70.8			75			
		Night Leq	67.1			70			

Remark/ Statement of Conformity: *The observed values for Leq dB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under Industrial Zone.
2. Day Time - 06:00 Hrs to 22:00 Hrs and Night Time - 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make - Casella; Model - CEL-633C, Sr. No. 2382959	Valid up to - 01/12/2024

Note:
1.Measurement was done following laboratory's SOP (UT/LQMS/SOP/N01) based on CPCB's protocol for Ambient Noise Monitoring, July 2015.
2.This test report refers only to the monitoring conducted.
3.This test report may not be reproduced in part, without the permission of this laboratory.
4.Any correction invalidates this test report.

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ULTRA-TECH ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★ ENVIRONMENTAL CONSULTANCY & LABORATORY ★

For ULTRA TECH,

Meghan Patil
(Authorized Signatory)

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ISO 9001 : 2015
ISO 45001 : 2018

TC-5600

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TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

REPORT NO. : UT/ELS/REPORT/0697/02-2024
ISSUE DATE : 06/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : 03-01/2024
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 25/01/2024 to 26/01/2024

Sample Lab Code : UT/ELS/671/01-2024
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
02.	Near Admin Building Co-ordinates: N 18°57'09.4"; E 73°01'07.4"	06:00 to 07:00	62.3	54.3	74.8	22:00 to 23:00	69.4	57.9	82.6
		07:00 to 08:00	63.3	55.3	75.5	23:00 to 00:00	63.6	57.9	75.6
		08:00 to 09:00	65.0	55.0	77.2	00:00 to 01:00	62.8	57.7	74.5
		09:00 to 10:00	63.0	54.8	74.2	01:00 to 02:00	56.8	55.0	65.2
		10:00 to 11:00	61.1	54.6	72.1	02:00 to 03:00	59.7	55.2	70.4
		11:00 to 12:00	68.5	54.9	80.9	03:00 to 04:00	63.1	55.5	76.2
		12:00 to 13:00	65.5	57.5	75.9	04:00 to 05:00	58.1	53.4	68.1
		13:00 to 14:00	70.9	53.6	80.0	05:00 to 06:00	61.0	53.4	74.5
		14:00 to 15:00	68.4	46.7	82.4	--	--	--	--
		15:00 to 16:00	73.1	49.4	84.6	--	--	--	--
		16:00 to 17:00	78.5	53.0	90.6	--	--	--	--
		17:00 to 18:00	71.2	54.9	83.0	--	--	--	--
		18:00 to 19:00	61.8	58.0	69.6	--	--	--	--
		19:00 to 20:00	69.3	57.2	83.1	--	--	--	--
		20:00 to 21:00	66.7	55.9	78.4	--	--	--	--
		21:00 to 22:00	66.9	56.3	79.3	--	--	--	--
		L_{10}	71.8			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	59.9						
		L_{90}	56.1						
		Day Leq	70.1			75			
		Night Leq	63.6			70			

Remark/ Statement of Conformity: *The observed values for Leq dB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under Industrial Zone.
2. Day Time - 06:00 Hrs to 22:00 Hrs and Night Time - 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make - Lutron; Model - SL4033SD, Sr. No. Q646217	Valid up to - 06/10/2024

Note:
1.Measurement was done following laboratory's SOP (UT/LQMS/SOP/N01) based on CPCB's protocol for Ambient Noise Monitoring, July 2015.
2.This test report refers only to the monitoring conducted.
3.This test report may not be reproduced in part, without the permission of this laboratory.
4.Any correction invalidates this test report.

- END OF REPORT -

ULTRA-TECH ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★ ENVIRONMENTAL CONSULTANCY & LABORATORY

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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ULR -TC560024000000893F

TC-5600 ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
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TEST REPORT

ISSUED TO: M/S. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village,
New Panvel, Navi Mumbai-400 206

REPORT NO. : UT/ELS/REPORT/1156/02-2024
ISSUE DATE : 20/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

WATER SAMPLE ANALYSIS

Sampling Plan Ref. No. : 03/01/2024
Sampling Procedure : UT/LQMS/SOP/W01A
Sample Registration Date : 29/01/2024
Date & Time of Sampling : 25/01/2024 at 16:30Hrs
Analysis Starting Date : 29/01/2024
Analysis Completion Date : 03/02/2024
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/664/01-2024

Sample Type : Drinking Water
Sample Location : Near Labor camp at Sintex Tank
Sample Quantity & Packing Details : 2 L in Plastic Container

Sr. No.	Test Parameter	Test Method	Test Result	Unit	Standard Limits [IS 10500 : 2012]
1.	Colour	APHA 23rdEd. 2120 C	BDL[DL=1]	Hazen	5 Max
2.	Turbidity	IS 3025 (Part 10) 1984	BDL[DL=0.1]	NTU	1 Max
3.	pH	IS 3025 (Part 11) 2022	8.1	-	6.5 – 8.5
4.	Electrical Conductivity	APHA 23rdEd. 2510 B:2017	189	µS/cm	-
5.	Total Dissolved Solids	IS 3025 (Part 16) 1984	122	mg/L	500 Max
6.	Total Hardness as $CaCO_3$	IS 3025 (Part 21) 2009	59	mg/L	200 Max
7.	Total Alkalinity as $CaCO_3$	IS 3025 (Part 23) 1986	29	mg/L	200 Max
8.	Sulphate as SO_4^{2-}	APHA 23rdEd. 4500- SO_4^{2-} E	16	mg/L	200 Max
9.	Chlorides as Cl^-	IS 3025 (Part 32) 1988	11	mg/L	250 Max
10.	Ammonical Nitrogen as NH_3-N	APHA 23rd Ed. 4500- NH_3-F	BDL [DL=0.01]	mg/L	0.5 Max
11.	Nitrates as NO_3^--N	IS 3025 (Part 34) 1988	0.1	mg/L	45 Max
12.	Calcium as Ca	IS 3025 (Part 40) 1991	10	mg/L	75 Max
13.	Magnesium as Mg	IS 3025 (Part 46) 1994	8	mg/L	30 Max
14.	Iron as Fe	IS 3025 (Part 53) 2003	BDL [DL=0.06]	mg/L	0.3 Max
15.	Fluoride as F^-	APHA 23rdEd. 4500-F^-B, D	BDL[DL=0.2]	mg/L	1.0 Max
16.	Boron as B	IS 3025 (Part 57) 2021	BDL[DL=0.1]	mg/L	0.5 Max
17.	Copper as Cu	IS 3025 (Part 42) 1992	BDL[DL=0.03]	mg/L	0.05 Max
18.	Zinc as Zn	IS 3025 (Part 49) 1994	BDL[DL=0.02]	mg/L	5 Max
19.	Manganese as Mn	APHA 23rdEd. 3111 B	BDL[DL=0.03]	mg/L	0.1 Max

DL – Detection Limit **BDL – Below Detection Limit**

Remark/ Statement of Conformity *The given sample conforms to standard specifications wherever applicable as per IS 10500:2012 for above analyzed parameters.*

Note:
1. Samples was collected using laboratory's SOP (UT/LQMS/SOP/W01A) based on CPCB's Guide Manual: Water & Wastewater Analysis, APHA 23rd Edition and IS3025 (Part1).
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.
5. This test report shall be referred along with Test Report No. UT/ELS/REPORT/1157/02-2024 Dated 20/02/2024 for final conclusion

– END OF REPORT –

ULTRA-TECH * Gazetted by MoEF Govt. of India * ENVIRONMENTAL CONSULTANCY & LABORATORY * THANE (W) INDIA PIN-400 601

For **ULTRA TECH**
Meghan Patil
(Authorized Signatory)

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STP/ETP/WTP Project Management Consultants

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us** at : www.ultratech.in

TEST REPORT

ISSUED TO:M/S. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village,
New Panvel, Navi Mumbai-400 206

REPORT NO. : UT/ELS/REPORT/1157/02-2024
ISSUE DATE : 20/02/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 03/01/2024
Sampling Procedure : UT/LQMS/SOP/W01A
Sample Registration Date : 29/01/2024
Date & Time of Sampling : 25/01/2024 at 16:30Hrs
Analysis Starting Date : 29/01/2024
Analysis Completion Date : 03/02/2024
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/664/01-2024

WATER SAMPLE ANALYSIS

Sample Type : Drinking Water
Sample Location : Near Labor camp at Sintex Tank

Sample Quantity & Packing Details : 2 L in Plastic Container and 100ml in Sterile Corning Bottle.

Sr. No.	Test Parameter	Test Method	Test Result	Unit	Standard Limits [IS 10500 : 2012]
1.	Odour	IS 3025 (Part 05):1983	Agreeable	-	Agreeable
2.	*Total Coliform*	IS 1622 : 1981	BDL[DL=2]	MPN/100 ml	Shall not be detectable in any 100 ml sample
3.	*F. Coli*	IS 1622 : 1981	BDL[DL=2]	MPN/100 ml	Shall not be detectable in any 100 ml sample
4.	*E. Coli*	IS 1622 : 1981	ABSENT	-	Shall not be detectable in any 100 ml sample

DL – Detection Limit BDL – Below Detection Limit

Remark/ Statement of Conformity *NIL*

Note:
1. Samples was collected using laboratory's SOP (UT/LQMS/SOP/W01A) based on CPCB's Guide Manual: Water & Wastewater Analysis, APHA 23rd Edition and IS3025 (Part 1).
2. This test report refers only to the sample tested.
3. This test report may not be reproduced in part, without the permission of this laboratory.
4. Any correction invalidates this test report.
5. Parameter/s tested is/are not covered under NABL scope.
6. This test report shall be referred along with Test Report No. UT/ELS/REPORT/1156/02-2024 Dated 20/02/2024 for final conclusion.

– END OF REPORT –

ULTRA-TECH ENVIRONMENTAL CONSULTANCY & LABORATORY Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601

For ULTRA TECH

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ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
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TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : ULR-TC560024000001446F
REPORT NO. : UT/ELS/ REPORT/1975/03-2024
ISSUE DATE : 14/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 03-02/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 29/02/2024 16:00 Hrs. to 01/03/2024 16:00 Hrs.
Sample Registration Date : 01/03/2024
Analysis Starting Date : 01/03/2024
Analysis Completion Date : 05/03/2024
Ambient Air Temperature : 23.1 °C to 32.4 °C
Relative Humidity : 47.4 % to 65.4 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/004/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	26	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	90	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	29	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.5	mg/m^3	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 90 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH * Recognized by MoEF Govt. of India * ENVIRONMENTAL CONSULTANCY & LABORATORY * THANE (W) INDIA 400 601

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

MUMBAI TRANS HARBOUR LINK

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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

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Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us** at : www.ultratech.in

TEST REPORT

ISSUED TO: **M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.**
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000001574F**
REPORT NO. : UT/ELS/ REPORT/2133/03-2024
ISSUE DATE : 18/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 04/03/2024 12:20 Hrs. to 05/03/2024 12:20 Hrs.
Sample Registration Date : 06/03/2024
Analysis Starting Date : 06/03/2024
Analysis Completion Date : 11/03/2024
Ambient Air Temperature : 24.6 °C to 31.7 °C
Relative Humidity : 42.7 % to 69.2 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'10.80", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/109/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	33	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	79	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	31	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.4	mg/m^3	4

†: Sampling Period 1 Hr. **BDL: Below** Detection Limit DL=Detection **Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS-136BL	208-DTG-2023	29/11/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 79 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★ ENVIRONMENTAL CONSULTANCY & LABORATORY ★

For ULTRA TECH,

Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: **M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.**
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000001607F**
REPORT NO. : UT/ELS/ REPORT/2170/03-2024
ISSUE DATE : 18/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 07/03/2024 12:15 Hrs. to 08/03/2024 12:15 Hrs.
Sample Registration Date : 08/03/2024
Analysis Starting Date : 08/03/2024
Analysis Completion Date : 13/03/2024
Ambient Air Temperature : 22.1 °C to 30.2 °C
Relative Humidity : 43.6 % to 72.4 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'10.80", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/259/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	26	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	82	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	29	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.3	mg/m^3	4

†: Sampling Period 1 Hr. **BDL: Below Detection Limit** **DL=Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS-136BL	208-DTG-2023	29/11/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 82 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH * Gazetted by MoEF Govt. of India * THANE (W) INDIA PIN-400 601 * ENVIRONMENTAL CONSULTANTS & LABORATORY

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

MUMBAI TRANS HARBOUR LINK * CHIEF ENGINEER *

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us** at : www.ultratech.in

TEST REPORT

ISSUED TO: **M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.**
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000001617F**
REPORT NO. : UT/ELS/ REPORT/2184/03-2024
ISSUE DATE : 18/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 11/03/2024 14:00 Hrs. to 12/03/2024 14:00 Hrs.
Sample Registration Date : 12/03/2024
Analysis Starting Date : 12/03/2024
Analysis Completion Date : 15/03/2024
Ambient Air Temperature : 22.3 °C to 36.4 °C
Relative Humidity : 35.4 % to 65.3 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.10", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/334/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	28	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	84	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	27	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.2	mg/m^3	4

†: Sampling **Period 1 Hr.** BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 84 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: **M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.**
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000001634F**
REPORT NO. : UT/ELS/ REPORT/2205/03-2024
ISSUE DATE : 19/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 14/03/2024 10:30 Hrs. to 15/03/2024 10:30 Hrs.
Sample Registration Date : 15/03/2024
Analysis Starting Date : 15/03/2024
Analysis Completion Date : 19/03/2024
Ambient Air Temperature : 24.4 °C to 32.1 °C
Relative Humidity : 41.7 % to 70.3 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.50", E 73º01'07.30"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/437/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	$\mu g/m^3$	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	29	$\mu g/m^3$	80
3	Particulate Matter (PM_{10})	IS 5182 (Part 23) : 2016	78	$\mu g/m^3$	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	33	$\mu g/m^3$	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.2	mg/m^3	4

†: Sampling Period 1 Hr.
BDL: Below Detection Limit
DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 78 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ★ ENVIRONMENTAL CONSULTANCY & LABORATORY ★ Gazetted by MoEF Govt. of India ★ THANE (W) INDIA PIN-400 601 ★

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

MUMBAI TRANS HARBOUR LINK ★ GENERAL MANAGER ★

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TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

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Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: **M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.**
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000001865F**
REPORT NO. : UT/ELS/ REPORT/2542/03-2024
ISSUE DATE : 29/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 18/03/2024 11:00 Hrs. to 19/03/2024 11:00 Hrs.
Sample Registration Date : 19/03/2024
Analysis Starting Date : 19/03/2024
Analysis Completion Date : 22/03/2024
Ambient Air Temperature : 24.3 °C to 33.3 °C
Relative Humidity : 47.2 % to 68.5 %

AMBIENT AIR QUALITY MONITORING

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.10", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/489/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	31	µg/m³	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	91	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	37	µg/m³	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.3	mg/m³	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 91 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Pune : +91-20-29525517 - pune@ultratech.in **Kochi :** +91-484-4011173 / +91-9895200526 - kochi@ultratech.in
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Environmental Consultancy & Laboratory
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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: **M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.**
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000001920F**
REPORT NO. : UT/ELS/ REPORT/2613/03-2024
ISSUE DATE : 29/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 21/03/2024 15:15 Hrs. to 22/03/2024 15:15 Hrs.
Sample Registration Date : 22/03/2024
Analysis Starting Date : 22/03/2024
Analysis Completion Date : 28/03/2024
Ambient Air Temperature : 24.1 °C to 35.3 °C
Relative Humidity : 35.4 % to 65.1 %

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.10", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/627/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	30	µg/m³	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	87	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	28	µg/m³	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.2	mg/m³	4

†: Sampling Period 1 Hr. **BDL: Below Detection Limit** **DL=Detection Limit**

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 87 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

for **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: **M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.**
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000001937F**
REPORT NO. : UT/ELS/ REPORT/2639/03-2024
ISSUE DATE : 29/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :

AMBIENT AIR QUALITY MONITORING

Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 26/03/2024 11:00 Hrs. to 27/03/2024 11:00 Hrs.
Sample Registration Date : 27/03/2024
Analysis Starting Date : 27/03/2024
Analysis Completion Date : 29/03/2024
Ambient Air Temperature : 24.6 °C to 35.7 °C
Relative Humidity : 49.2 % to 67.5 %

Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'09.10", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/699/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	28	µg/m³	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	79	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	23	µg/m³	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.3	mg/m³	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note: 1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 79 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

ULTRA-TECH ENVIRONMENTAL CONSULTANTS LABORATORY Gazetted by MoEF Govt. of India THANE (W) INDIA PIN-400 601

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

MUMBAI TRADE WARRIOR LIMITED

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
Tel : +91-22+2538 01 98 / 2545 03 72 / 2544 62 51 **Email :** sales@ultratech.in
Pune : +91-20-29525517 - pune@ultratech.in **Kochi :** +91-484-4021173 / +91-9895200526 - kochi@ultratech.in
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ULTRA TECH

ULTRA TECH ENVIRONMENTAL CONSULTANCY AND LABORATORY PVT. LTD

(A Venture of ULTRA TECH Environmental Consultancy & Laboratory)

Lab. Accredited by NABL-ISO/IEC 17025:2017, TC-5600 [Valid up to 03/08/2024]
Lab. Recognized by CPCB, MoEF&CC [GOI] under EP(A)-1986
ISO 9001:2015 & ISO 45001:2018 Certified

TC-5600

Lab: Survey No. 93/A, Conformity Hissa No. 2, G V Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tel: +91-22-25474907/ +91-7039076680 Email: lab@ultratech.in
Regd.: Unit No. 224, 225, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

ULR NO. : **ULR-TC560024000002101F**
REPORT NO. : UT/ELS/ REPORT/2950/04-2024
ISSUE DATE : 02/04/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS :
Sampling Plan Ref. No.: : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 29/03/2024 11:45 Hrs. to 30/03/2024 11:45 Hrs.
Sample Registration Date : 30/03/2024
Analysis Starting Date : 30/03/2024
Analysis Completion Date : 01/04/2024
Ambient Air Temperature : 26.1 °C to 30.4 °C
Relative Humidity : 48.2 % to 69.6 %

AMBIENT AIR QUALITY MONITORING
Location Code : 1
Sample Location : Near Administration Building To Loc. Dist. 35 Meter Off Towards West
GPS Co-ordinates : N 18º57'10.80", E 73º01'07.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/805/03-2024

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr**
1	Sulphur Dioxide (SO_2)	IS 5182 (Part 2) : 2001	BDL[DL=5]	µg/m³	80
2	Nitrogen Dioxide (NO_2)	IS 5182 (Part 6) : 2006	26	µg/m³	80
3	Particulate Matter (PM_{10})	EPA/625/R-96/010a Compendium Method IO-2.1	72	µg/m³	100
4	Particulate Matter ($PM_{2.5}$)	IS 5182 (Part 24) : 2019	23	µg/m³	60
5	Carbon Monoxide (CO)†	IS 5182 (Part 10) : 1999	1.2	mg/m³	4

†: Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

Remark/ Statement of Conformity: *The parameters tested above are found to be within 24 hourly TWA of National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV.*

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Fine Dust Sampler	UT/LAB/263	Universal	AQS 235	183-DTG-2023	29/11/2024
	Respirable Dust Sampler	UT/LAB/264	Universal	AQS -136BL	208-DTG-2023	29/11/2024

Note:
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPCB Guidelines - National Ambient Air Quality Monitoring Series: NAAQMS/2003-04 and respective test methods.
2. This test report refers only to the sample tested.
3. Monitoring area coming under Industrial areas and observed values are relevant to sample collected only.
4. This test report may not be reproduced in part, without the permission of this laboratory.
5. Any correction invalidates this test report.
6. Weather during sampling was Sunny and Clear.
7. *Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.
8. **Time weighted average shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.
9. Air Quality Index (AQI) at above sampling location is 72 which is Satisfactory as per National AQI based on concentrations obtained for reported parameters.

– END OF REPORT –

For ULTRA TECH,

Meghan Patil
(Authorized Signatory)

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GST: 27AADCU4659H1Z0
CIN NO: U74900MH2023PTC415102

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QCI-NABET Accredited EIA Consulting Organization
STP/ETP/WTP Project Management Consultants

ULR -TC560024000002064F

TC-5600

ISO 9001 : 2015
ISO 45001 : 2018

Lab :Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

REPORT NO. : UT/ELS/REPORT/2880/03-2024
ISSUE DATE : 30/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 26/03/2024 to 27/03/2024

Sample Lab Code : UT/ELS/700/03-2024
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
01.	Near Toll Plaza Co-ordinates: N 18°57'07.5"; E 73°01'10.5"	06:00 to 07:00	65.4	56.9	73.3	22:00 to 23:00	65.5	55.0	75.3
		07:00 to 08:00	64.3	57.2	74.9	23:00 to 00:00	62.4	54.2	72.6
		08:00 to 09:00	61.8	52.0	72.2	00:00 to 01:00	64.9	57.4	74.8
		09:00 to 10:00	67.4	49.0	79.2	01:00 to 02:00	63.1	56.8	72.4
		10:00 to 11:00	62.4	50.0	73.3	02:00 to 03:00	61.2	55.8	71.3
		11:00 to 12:00	64.4	53.3	75.9	03:00 to 04:00	62.6	58.7	71.8
		12:00 to 13:00	65.7	58.9	75.1	04:00 to 05:00	63.5	56.5	72.2
		13:00 to 14:00	62.1	54.4	72.0	05:00 to 06:00	61.5	56.5	68.1
		14:00 to 15:00	65.0	48.5	76.2	--	--	--	--
		15:00 to 16:00	70.1	50.2	81.6	--	--	--	--
		16:00 to 17:00	71.0	52.6	82.5	--	--	--	--
		17:00 to 18:00	75.2	58.3	87.2	--	--	--	--
		18:00 to 19:00	70.7	59.7	81.0	--	--	--	--
		19:00 to 20:00	69.4	60.2	81.0	--	--	--	--
		20:00 to 21:00	69.5	55.9	79.6	--	--	--	--
		21:00 to 22:00	61.1	55.0	70.6	--	--	--	--
		L_{10}	70.0			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	60.5						
		L_{90}	57.2						
		Day Leq	68.5			75			
		Night Leq	63.3			70			

Remark/ Statement of Conformity: *The observed values for Leq dB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note: 1. Monitoring area coming under Industrial Zone.
2. Day Time - 06:00 Hrs to 22:00 Hrs and Night Time - 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make – Lutron; Model – SL4035SD; Sr. No. Q690404	Valid up to – 08/11/2024

Note: 1.Measurement was done following laboratory's SOP (UT/LQMS/SOP/N01) based on CPCB's protocol for Ambient Noise Monitoring, July 2015.
2.This test report refers only to the monitoring conducted.
3.This test report may not be reproduced in part, without the permission of this laboratory.
4.Any correction invalidates this test report.

– END OF REPORT –

For **ULTRA TECH,**

Meghan Patil
(Authorized Signatory)

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STP/ETP/WTP Project Management Consultants

ULR -TC560024000001640F

ISO 9001 : 2015
TC-5600 ISO 45001 : 2018

Lab : Survey No. 93/A, Conformity Hissa No.2 G.V.Brothers Bldg., Bata Compound, Khopat, Near Flower Valley, Thane (West) - 400 601, Maharashtra, India.
Tele : +91 22 2547 49 07 / +91 22 2547 62 17 **Email :** lab@ultratech.in **Visit us at :** www.ultratech.in

TEST REPORT

ISSUED TO: M/s. STRABAG INFRASTRUCTURE & SAFETY SOLUTION PVT. LTD.
MTHL Road, Gavhan Village, New Panvel, Navi Mumbai-400 206

REPORT NO. : UT/ELS/REPORT/2211/03-2024
ISSUE DATE : 19/03/2024
YOUR REF. : PO/2023240087
REF. DATE : 25/08/2023

SAMPLE PARTICULARS : **AMBIENT NOISE LEVEL MONITORING**

Sampling Plan Ref. No. : 03-03/2024
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 11/03/2024 to 12/03/2024

Sample Lab Code : UT/ELS/335/03-2024
Survey Done By : ULTRA TECH

Sr. No.	Location	Noise Level Reading in dB(A) Leq							
		Time (Hrs)	Day dB(A)			Time (Hrs)	Night dB(A)		
			L_{eq}	L_{min}	L_{max}		L_{eq}	L_{min}	L_{max}
02.	Near Admin Building Co-ordinates: N 18°57'04.60"; E 73°01'08.60"	06:00 to 07:00	67.9	74.1	74.1	22:00 to 23:00	64.3	71.4	71.4
		07:00 to 08:00	66.5	70.3	70.3	23:00 to 00:00	63.8	69.2	69.2
		08:00 to 09:00	67.8	70.0	70.0	00:00 to 01:00	62.6	68.3	68.3
		09:00 to 10:00	68.6	72.1	72.1	01:00 to 02:00	62.1	71.2	71.2
		10:00 to 11:00	68.6	72.5	72.5	02:00 to 03:00	60.8	68.0	68.0
		11:00 to 12:00	68.8	75.0	75.0	03:00 to 04:00	61.2	68.9	68.9
		12:00 to 13:00	68.8	73.0	73.0	04:00 to 05:00	60.8	68.7	68.7
		13:00 to 14:00	68.8	73.8	73.8	05:00 to 06:00	61.9	69.3	69.3
		14:00 to 15:00	68.5	74.1	74.1	--	--	--	--
		15:00 to 16:00	68.6	77.6	77.6	--	--	--	--
		16:00 to 17:00	69.5	73.5	73.5	--	--	--	--
		17:00 to 18:00	66.1	67.7	67.7	--	--	--	--
		18:00 to 19:00	65.1	70.1	70.1	--	--	--	--
		19:00 to 20:00	64.3	71.7	71.7	--	--	--	--
		20:00 to 21:00	66.7	69.2	69.2	--	--	--	--
		21:00 to 22:00	63.6	69.1	69.1	--	--	--	--
		L_{10}	66.5			Limits in dB(A) Leq as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000 (See rule 3(1) and 4(1)) Ambient Air Quality Standards in respect of Noise			
		L_{50}	62.9						
		L_{90}	61.1						
		Day Leq	67.7			75			
		Night Leq	62.4			70			

Remark/ Statement of Conformity: *The observed values for Leq dB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.*

Note:
1. Monitoring area coming under Industrial Zone.
2. Day Time – 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Sampling Equipment Details	Instrument Used	Make & Model	Calibration Status
	Sound Level Meter	Make – Casella; Model – CEL-633C, Sr. No. 2382959	Valid up to – 01/12/2024

Note:
1.Measurement was done following laboratory's SOP (UT/LQMS/SOP/N01) based on CPCB's protocol for Ambient Noise Monitoring, July 2015.
2.This test report refers only to the monitoring conducted.
3.This test report may not be reproduced in part, without the permission of this laboratory.
4.Any correction invalidates this test report.

– END OF REPORT –

For ULTRA TECH,

Meghan Patil
(Authorized Signatory)

H.O.: Unit No. 224,225,206, Jai Commercial Complex, Eastern Express Highway, Opp. Cadbury Factory, Khopat, Thane (W) 400 601, Maharashtra, India.
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Annexure V

EMP Expenditure details

EMP Expenditure Details

Sr. No	Environmental attribute	Provisions (As stipulated in CRZ clearance)	Cumulative Expenditure
		(Rs. in Crore)	(Rs. In Crore)
1	Environmental Monitoring- Air Act, Water Act, Noise levels	8	2.25
2	Compensatory Restoration Plan (Mangroves)	25	50.98
3	Implementation of the suggestions given by BNHS	25	41.98
4	Noise barriers	45	1.1426
5	Mitigation of marine water pollution caused due to the surrounding industries and Sewage from Urban Bodies, by providing Funding and Capacity Building for Enabling Effluent Treatment	40	5.8
6	Contribution to Mangroves Fund, an initiative by Govt. of Maharashtra for Conservation and Protection of Mangroves in Coastal areas by depositing Seed Money. This can be used for Survey & Demarcation of Notified areas. Purchase of vehicles and equipment for anti-Encroachment drives, etc.	25	25
7	Oil Spill Mitigation Plan	10	1.84
8	Habitat quality assessment and monitoring Surveillance management and monitoring team for migratory birds, marine flora, turbidity in sea floor, etc Corpus fund for mudflat restoration program	20	
9	Appointment of Bird Monitor and his assistant till Restoration of Baseline data	4	
10	DMP, Firefighting, Risk Analysis	15	2.76
11	Sustainable development including establishing Nature Interpretation Centre	10	
12	Safety and Security	15	50.42
13	Energy conservation	10	4.6
14	Landscaping-Plantation of trees, flower in plants etc.*	8	0.77
15	Compensation and Capacity Building of Fisher folks due to Temporary and Permanent Loss of Fishing round	75	190
Total		**335**	**377.54**

Annexure VI

Quarterly Progress Reports if available

AECOM | PADECO | dar | TYLIN INTERNATIONAL

General Consultant for Mumbai Trans Harbour Link Project

Ref No: MTHL/GC/MMRDA/LT/QPR-4037 /2024 **2nd February 2024**

To,
Engineer-In-Chief
Engineering Division
Mumbai Metropolitan Regional Development Authority (MMRDA)
2nd Floor, New MMRDA Building,
Plot No R-06 & R-12, 'E' Block
Bandra Kurla Complex, Bandra (E),
Mumbai, Maharashtra, India 400051.

Sub: General Consultancy services for Mumbai Trans Harbour Link (MTHL) project – **Submission of the Draft Quarterly Progress Report (QPR) No. 27 for October-November-December 2023 for review.**

Dear Sir,

With reference to the above subject, please find enclosed a hard copy of the draft for Quarterly Progress Report (QPR) No.27 along with the updated attachments for the period of October to December 2023 for your review.

Thanking you,
Yours faithfully

K.R.Shivananda
The Engineer
General Consultant (MTHL)

Encl: A draft copy of the Quarterly Progress Report No. 27 (October-December 2023)

CC: Superintending Engineer – MMRDA - Mr. Purushottam Nimje
Executive Engineer – MMRDA – Mr. Arjun Korgaonkar
Superintending Engineer – MMRDA - Mr. Yatin Sakhalkar
Executive Engineer – MMRDA – Mr. Abhijit Bhisikar
Executive Engineer – MMRDA – Mr. M. P. Singh
} By Email

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

एम एम आर डी ए
MMRDA

Mumbai Metropolitan Region Development Authority

Mumbai Trans Harbour Link Project

Quarterly Progress Report - No. 27

(From 1st October to 31st December 2023)



Mumbai Trans Harbour Link Project

Quarterly Progress Report No. 27

1st October 2023 to 30th December 2023

Loan Agreement No. ID-P255 (Tranche–I), ID-P283 (Tranche–II) & ID-307 (Tranche-III)

ORGANIZATION INFORMATION

Borrower	**Mumbai Metropolitan Region Development Authority**	
	Person in Charge	**Metropolitan Commissioner, MMRDA**
	Contact Address	M.M.R.D.A. New Office Building, Bandra-Kurla Complex, Plot no. R-5, R-6 & R-12, E Block, Bandra (East), Mumbai - 400051 Phone: +91-22-26594000 Fax No:+91-22-2659 1264
Executing Agency	**Mumbai Trans Harbour Link Project Implementation Unit**	
	Headed by:	Engineer-In-Chief Mumbai Trans Harbour Link Project Implementation Unit
	Contact Address	M.M.R.D.A. New Office Building, Bandra-Kurla Complex, Plot no. R-5, R-6 & R-12, E Block Bandra (East), Mumbai - 400 051 Phone: +91-22-2659 4034 Fax No: +91-22-2659 4179

Details of JICA Loan

Source of Finance	JICA ODA Loan Portion:	238,572 million Japanese YEN (JPY)
	Tranche-I:	144,795 million Japanese YEN (JPY) (Loan Agreement signed on 31st Mar 2017)
	Tranche-II:	66,909 million Japanese YEN (JPY) (Loan Agreement signed on 27th Mar 2020)
	Tranche-III:	30,755 million Japanese YEN (JPY) (Loan Agreement signed on 27th Feb 2023)
Terms and Conditions of JICA ODA Loan (Tranche-1)	Repayment Period:	30 years, including 10 years of the grace period.

DOCUMENT VERIFICATION AND REVISION RECORD

PROJECT NAME	**Mumbai Trans Harbour Link Project**		
DOC NO.	**27**	**DATE OF ISSUE**	**31/01/2023**
DOC TITLE	**Quarterly Progress Report No. 27**		

REV No.	DATE OF ISSUE	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY
R0	05/07/2017	Quarterly Progress Report No. 1 (Apr-Jun 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/10/2017	Quarterly Progress Report No. 2 (Jul-Sep 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/01/2018	Quarterly Progress Report No. 3 (Oct-Dec 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/04/2018	Quarterly Progress Report No. 4 (Jan-Mar 18)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	24/07/2018	Quarterly Progress Report No. 5 (Apr-Jun 18)	Prashant B	Dr T K Sundaram	Dr Robin Sham
R0	10/10/2018	Quarterly Progress Report No. 6 (Jul-Sep 18)	Prashant B	Dr T K Sundaram	Dr Robin Sham
R1	08/02/2019	Quarterly Progress Report No. 7 (Oct-Dec 18)	Prashant B	J Senthil/ Dr T K Sundaram	Dr Robin Sham
R0	05/04/2019	Quarterly Progress Report No. 8 (Jan-Mar 19)	Prashant B	J Senthil	V. D. Sharma/ Dr Robin Sham
R0	18/09/2019	Quarterly Progress Report No. 9 (Apr-Jun 19)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	13/11/2019	Quarterly Progress Report No. 10 (Jul-Sep 19)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	11/02/2020	Quarterly Progress Report No.11 (Oct-Dec 19)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	25/11/2020	Quarterly Progress Report No.12 (Jan-Mar 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	16/12/2020	Quarterly Progress Report No.13 (Apr-Jun 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	06/01/2021	Quarterly Progress Report No.14 (Jul-Sept 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	12/02/2021	Quarterly Progress Report No.15 (Oct-Dec 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	06/05/2021	Quarterly Progress Report No.16 (Jan-Mar 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	30/07/2021	Quarterly Progress Report No.17 (Apr-Jun 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	11/11/2021	Quarterly Progress Report No.18 (Jul - Sep 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	17/01/2022	Quarterly Progress Report No.19 (Oct-Dec 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	22/04/2022	Quarterly Progress Report No.20 (Jan - Mar 22)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	12/07/2022	Quarterly Progress Report No.21 (Apr-Jun 22)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	18/10/2022	Quarterly Progress Report No.22 (Jul-Sep 22)	Prashant B	Mrs. Mayil. K	Dr Robin Sham
R0	10/01/2023	Quarterly Progress Report No.23 (Oct-Dec 22)	Mrs. Mayil.	Mr. Som Ghosh	Dr Robin Sham
R0	16/04/2023	Quarterly Progress Report No.24 (Jan-Mar 23)	Mrs. Mayil.	Mr. Som Ghosh	Dr Robin Sham
R0	01/08/2023	Quarterly Progress Report No.25 (Apr-Jun 23)	Mr. Ayush Kottary	Mr. Som Ghosh	Mr. Shivananda. K
R0	31/01/2024	Quarterly Progress Report No.26 (Jul-Sep 23)	Mr. Ayush Kottary	Mr. Som Ghosh	Mr. Shivananda. K
R0	31/01/2024	Quarterly Progress Report No.27 (Oct-Dec 23)	Mr. Ayush Kottary	Mr. Som Ghosh	Mr. Shivananda. K

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1.0 PROJECT DESCRIPTION

1.1 Project Objective

Original:

To improve connectivity in Mumbai Metropolitan region by constructing the Mumbai Trans Harbour Link connecting Mumbai with Navi Mumbai, thereby contributing to mitigation of traffic congestion and promoting regional economic development.

Actual *(P/R, PCR)*

There is no change in the Project Objective.

1.2 Necessity of the Project

The Project is consistent with the development policy, sector plan, national/regional development plans and demand of target group of the recipient country.

Benefits from MTHL Project

- Saving in travel time for commuters from Mumbai to Navi Mumbai.
- Improved comfort and accessibility between the island and the mainland.
- Reduced operating costs of vehicles due to lesser congestion.
- Smooth traffic flow from Navi Mumbai airport to Mumbai Island.
- Accelerated economic development of Navi Mumbai and nearby regions.
- Greater economic integration of Mumbai Island with Navi Mumbai and extended regions of Pune, Goa, Panvel and Alibaug.
- Improvement in environment and reduced pollution levels.
- Improved safety due to reduction in accidents.
- Improvement in trade competitiveness through faster and improved logistics.
- Accelerated growth of Navi Mumbai.
- Decongestion of Mumbai Island and dispersal of population to Navi Mumbai region & beyond.

Necessity of the Project

1. Although the urbanization in India has been rapidly progressing, infrastructure development in the urban areas has not caught up its progress. Particularly, the traffic congestion in the urban areas due to a lack of road network hinders the economic development. Thus, Government of India (GOI) places transport and connectivity as one of the "Growth Enablers" and plans to enhance road network in the "Three Year Acton Agenda 2017-2018 to 2019-20 (NITI Aayog)".
2. Mumbai Metropolitan Region, which includes Mumbai and Navi Mumbai, has about 18.4 million people in population as of 2011 (Census 2011) and the population density reaches 20,694 people per square km in the center of Mumbai, which is one of the most overpopulated and high-density cities in the world.
3. Mumbai, the narrow stretch of land that has traditionally been the epicentre of India's commerce, has seen a steady increase in population in the last three decades despite obvious spatial constraints. Thus, the development of Navi Mumbai has been identified as an urgent requirement for broad development in Mumbai Metropolitan Region.
4. There is no change in the Necessity of the Project preamble. jurisdiction, has been facilitating

various development plans particularly in Navi Mumbai area, which stands at the opposite site of Mumbai across the Mumbai Bay and still has spacious area for development, such as a new international airport, Special Economic Zone (SEZ) and expansion of Jawaharlal Nehru Port in order to promote the sustainable economic development in Mumbai Metropolitan Region.

5. Furthermore, a lack of connectivity in Mumbai has stunted its growth. The GoM has given importance to construct the faster connection with Mumbai to Navi Mumbai International Airport, Jawaharlal Nehru Port, Mumbai-Pune expressway and main hinterland.

6. Accordingly, the Mumbai Trans Harbour Link (MTHL) has been identified as the important infrastructure to improve the connectivity between Mumbai and Navi Mumbai and continue economic development in Mumbai Metropolitan Region.

   The MTHL is proposed to be developed as an expressway link comprising of a dual three-lane main carriageway bridge connecting Sewri in Mumbai to Chirle in Navi Mumbai. When completed, MTHL will reduce the distance between Mumbai and Navi Mumbai and will help save approximately an hour in travel time. Also, development of Navi Mumbai along with the imminent construction of the Navi Mumbai airport will lead to increased traffic between Mumbai and Navi Mumbai. Consequently, the project is envisaged to; improving accessibility between Mumbai and Navi Mumbai, accelerating growth of Navi Mumbai, smooth traffic flow from Navi Mumbai airport to Mumbai, accelerating economic development of Navi Mumbai and surrounding regions, greater economic integration of Mumbai with Navi Mumbai and extended regions of Pune, Goa, Panvel and Alibaug, and decongestion of Mumbai and dispersal of population to Navi Mumbai region and beyond.

7. The Comprehensive Transportation Study (CTS) for Mumbai Metropolitan Region which was guided by Mumbai Metropolitan Region Development Authority (MMRDA) and supported by World Bank, was completed in July 2008, which was over 25 years after the issuance of the last comprehensive transport study. The report provided a vision for Mumbai's future transportation as seamless and integrated system, in which commuters can make their journeys safely and conveniently by various modes of transport, particularly by public transport, and recommended the development of Multi Modal Corridor to take care of the varied travel demands of the region for the period up to 2031. The CTS proposed to develop the highway network in the region. The MTHL has been regarded as the priority road for Mumbai, considering its function and importance connecting between Mumbai and Navi Mumbai.

8. Necessity of the Project: - To promote economic development in Mumbai Metropolitan Region it is essential to improve the connectivity between Mumbai and Navi Mumbai, by constructing MTHL

Actual *(P/R, PCR)*

There is no change in the Necessity of the Project preamble.

1.3 Rationale of the Project Design

- Timing, Scale, Technology of the Project:

Demand Analysis

1. **At the opening year 2022, the daily traffic on the main bridge is expected to be 39,300 PCU. The traffic is projected to increase up to 103,900 by 2032 and up to 145,500 by the year 2042. The daily breakdown by vehicle class on the main bridge link is presented in the Table 1.3.1 below:**

Table 1.3.1 Demand Projections Over the Period

Vehicle Type	Between Sewri Interchange and Shivaji Nagar Interchange			Between Shivaji Nagar Interchange and Chirle Interchange		
	2022	2032	2042	2022	2032	2042
Car	24,100	66,400	94,100	4,900	21,300	43,300
Taxi	2700	14,100	20,200	100	400	2,300
Bus	2,700	3,700	3,700	2,700	3,700	3,700
LCV	2,200	4,100	5,600	700	1,300	1,800
HCV	3,000	6,500	8,100	1,000	2,000	2,200
MAV	4,600	9,100	13,800	400	900	1,700
Total	**39,300**	**103,900**	**145,500**	**9,800**	**29,600**	**55,000**

LCV: Light Commercial Vehicle; HCV: Heavy Commercial Vehicle; MAV: Multi Axle Vehicle

2. **At the opening year in 2022, the traffic flow on MTHL represents a diversion of 10% on the traffic across Thane creek which will increase up to 16% in 2032. If only Thane Creek Bridge is considered, then the diverted traffic from the bridge will be 21% in 2022 which will rise up to 35% in 2032.**

3. **6-lane of main carriageway was decided by GoM. It was reviewed based on the forecasted result of future traffic volume by Manual of Specification and Standards for Expressways (IRC: SP:99-2013). The result of the review shows that 6-lane will be required in 2032 (10 years later after traffic open). Although, 8-lane will be required in 2042, it is assumed that the level of service of MTHL would be maintained as additionally metro might be constructed in parallel with MTHL.**

Design Parameters / Overall Design

4. **The MTHL which is 21.8 km long road bridge partly on the land and partly over the creek across the Mumbai Bay between Sewri in Mumbai and Chirle in Navi Mumbai, is to be constructed with the approach sections and interchanges. ITS (Intelligence Transport System) and the other necessary facilities will be provided for full access-controlled bridges.**

5. **As per the provisions of IRC (Indian Road Congress) SP:99-2013, the Width of each lane of the Main Carriageway is 3.5 meters.**

6. **When the design speed is 100 km/h according to the traffic demand forecast the large vehicle, ratio will be as low as 9.4% (2022).**

7. **The shoulder width of bridge towards outside of each carriageway is 2.5 meters and towards median side of each carriageway is 0.75 meters.**

8. **The major portion of MTHL structure is on sea and partly towards ends is on land with different type and with different span, viz., PC box girder with 50 m spans which is**

typically applied on marine viaduct since, it is economical, easy to construct and maintain.

9. On the land portion, the PC box girder having span of generally 30m is used.
10. As far as the location in which long span (150-180 m) is required to cross significant obstacles, such as navigation channels, pipelines and creeks, the steel box girder bridge with steel deck is proposed with large block erection method to shorten the construction period.
11. The project is coded with three lanes of traffic in each direction. The reference toll is presented in the Table 1.3.2 below for each vehicle class in Year 2022 (based on 2015 monetary value reflecting price escalation).

Table 1.3.2: Base Toll Rates (Rs) for different class of vehicles between Interchanges

Vehicle Type	Sewri to Shivaji Nagar	Shivaji Nagar to Chirle	Total
Car	180	60	240
Bus	420	130	550
LCV	240	70	310
HCV	420	130	550
MAV	600	180	780

Intelligent Transport Systems (ITS) and Toll Management System (TMS)

12. The Toll Management System will be implemented in MTHL to collect tolls from all road users of MTHL. Two types of toll collection method will be adopted: Electronic Toll Collection (ETC) and Manual (paying by cash).
13. The lanes corresponding to these toll collection methods are dedicated ETC lanes and Manual lanes, and Manual system shall be installed to ETC lanes for backup to be able to cope at the time of the trouble of ETC equipment failure.

Traffic management System

14. Traffic Management System is a support system to Manage the traffic on MTHL safely and efficiently. The System consists of the information collection system including Closed-Circuit Television (CCTV), Emergency Call Box (ECB), Automatic Traffic Counter-Cum-Classifier (ATCC) and Meteorological Data System (MDS), and Information Dissemination System including Variable message Sign (VMS).
15. CCTV Cameras shall be installed at around three places per 1 km, on Both side of main route and the monitoring of the traffic condition of the whole stretch of MTHL will be almost enabled in the Traffic Control Centre and VMS displays the appropriate information for road users on the collated information.
16. The Information collected by these devices shall be transmitted to the Command Control Centre through the medium of an Optical Fiber Cable laid in MTHL.

Actual *(P/R, PCR)*

There is no change in the Rationale of the Project Design.

2.0 PROJECT IMPLEMENTATION

2.1 Project Scope

Refer Table 2.1.1 and 2.1.2 for details on Scope of the Project.

Table 2.1.1 Comparison of Original and Actual location

Location	**Original: (P/M)** **Mumbai Metropolitan Region Development Authority, Mumbai, State of Maharashtra**	Actual: *(P/R and PCR)*

Table 2.1.2 Comparison of Original and Actual Scope

Items	Original	Actual
Construction work: 6-lane Marine Bridge Road (21.8 km)		
Package-1 Ch 0+000-10+380 (10.380 km)	• 1 Interchange (Sewri) • Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC-I Girder) • Viaduct Substructure (RC Concrete Structure) • Viaduct Foundation (Bored piles) • Road Furniture and roadside facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)	*(P/R and PCR)*
Package-2 Ch 10+380-18+187 (7.80 km)	• 1 Interchange (Shivaji Nagar) • Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC-I Girder) • Viaduct Substructure (RC Concrete Structure) • Viaduct Foundation (Bored piles) • Road Furniture and roadside facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)	*(P/R and PCR)* Actual: *No View Barriers*
Package-3 Ch 18+187-21+800 (3.61 km)	• 2 Interchanges (State Highway-54, National Highway-4B) • Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC-I Girder & Steel Truss Girder for Rail-over-Bridges (ROB) • Viaduct Substructure (RC Concrete Structure) • Viaduct Foundation (Bored piles) • Cutting Section (6-lane with Slope Protection)	*(P/R and PCR)* Actual: *No* Noise Barriers & *View Barriers*

Items	Original	Actual
	• Road Furniture and roadside facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)	
Package-4 ITS (Intelligent Transport System)	• Administrative Buildings • Toll Booths (1 for main alignment and each on and off rumps for 3 interchanges) • Traffic Management System (Traffic Control Centre, Closed Circuit Television (CCTV), Meteorological Observation System (MET), Emergency Call Box (ECB), Automatic traffic Counter-cum-Classifier (ATCC), Variable Message Sign (VMS)) • Highway Lighting (Whole sections Low-positioned lighting for some sections) • Electrical Powering System including HV/ LV Ring Network across the Bridge.	*(P/R and PCR)*
Consulting Services	• Tender Assistance • Construction Supervision • Facilitation of Implementation of Environmental Management Plan (EMP), Environmental Monitoring plan (EMoP).	*(P/R and PCR)*

2.2 Implementation Schedule

2.2.1 The Original Implementation Schedule

Table 2-2-1 Comparison of Original and Actual Schedule

Items	Original	Status *(P/R and PCR)* as on 31th December 2023
1) Completion of Land Acquisition and Resettlement	Mar 2019	Dec 2022
2) Consulting Services		
a) Selection of Consultant	May – Dec 2016	May – Dec 2016
b) Consultancy Works	Dec 2016 – Sep 2022	Oct 2022 – Mar 2024 (Extended)
3) Selection of Contractor		
Package-1, Package-2 & Package-3 (Civil)		
a) Pre-Qualification Process	May – Dec 2016	May – Dec 2016
b) Main Bidding	Jan– Dec 2017	Jan – Dec 2017
c) JICA's Concurrence of Contract	Feb-2018	Feb-2018
Package-4 (ITS)		
a) Pre-Qualification Process	Single Stage Bidding as concurred by JICA	
b) Main Bidding	June 2019 – Sep 2020	Jan 2021 – Dec 2021
4) Civil Construction		
Package-1 and Package-2	Mar 2018 – Sep 2022	Mar 2018–Sep 2023 (Extended)
Package-3	Mar 2018 – Sep 2021	Mar 2018 – Aug 2023 (Extended)
Package-4	June 2022 – Sep 2023	June 2022 – Sep 2023
5) Defect Liability Period		
Package-1 and Package-2	Oct 2022 – Sep 2024	Oct 2023 – Sep 2025
Package-3	Oct 2021 – Sep 2023	Sep 2023 – Aug 2025
Package-4	Oct 2023 – Sep 2025	Oct 2023 – Sep 2025
For ITS	Sep 2025- Sep 2028	Sep 2025- Sep 2028

Attachment 6, 7 & 8: Package wise construction schedules (progress) updated at the end of 1st Quarter (Apr – May - Jun 2023).

2.2.2 Reasons for changes of the schedule and their effects to the Project

(P/R and PCR)
No change in the Implementation Schedule except the selection of O&M Organization timeline.

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total (Rs. mil)	JICA Portion (Rs. mil)	Others (Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	37,249	37,249	0	43,708	43,708	0	112,426	112,426	0
Package-2	29,247	29,247	0	33,283	33,283	0	86,494	86,494	0
Package-3	804	804	0	8,360	8,360	0	15,184	15,184	0
Package-4 (ITS)	0	0	0	3,770	3,770	0	6,484	6,484	0
Package-5 (Geotechnical Investigation)	0	0	0	147	0	147	253	0	253
Dispute Boards (Package-1, 2, 3 & 4)	0	0	0	58	58	0	99	99	0
Price Escalation	390	390	0	403	403	0	1,082	1,082	0
Physical Contingency	5,077	5,077	0	6,730	6,719	11	16,652	16,633	19
Consulting Services	1,611	1,611	0	1,423	1,423	0	4,058	4058	0
Land Acquisition*	0	0	0	10,495	0	10,495	18,052	0	18,052
Administration Cost	0	0	0	4,548	0	4,548	7,823	0	7,823
GST	0	0	0	16,935	0	16,935	29,128	0	29,128
Import Tax	0	0	0	12,691	0	12,691	21,830	0	21,830
Interest during construction	3,349	0	3,349	0	0	0	3,349	0	3,349
Front End Fee	485	0	485	0	0	0	485	0	485
Total	**78,211**	**74,377**	**3,833**	**142,550**	**97,723**	**44,828**	**323,396**	**242,459**	**80,938**

2.3 Project Cost

2.3.1. a Comparison of Originally Planned and Actually Incurred Cost by ITEM

Table 2.3.1.a.(I) Originally Planned Cost by ITEM

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total Rs. mil)	JICA Portion Rs. mil)	Others Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	37,249	37,249	0	43,708	43,708	0	112,426	112,426	0
Package-2	29,247	29,247	0	33,283	33,283	0	86,494	86,494	0
Package-3	804	804	0	8,360	8,360	0	15,184	15,184	0
Package-4 (ITS)	0	0	0	3,770	3,770	0	6,484	6,484	0
Package-5 (Geotechnical Investigation)	0	0	0	147`	0	147	253	0	253
Dispute Boards (Package-1, 2, 3 & 4)	0	0	0	58	58	0	99	99	0
Price Escalation	390	390	0	403	403	0	1,082	1,082	0
Physical Contingency	5,077	5,077	0	6,730	6,719	11	16,652	16,633	19
Consulting Services	1,611	1,611	0	1,423	1,423	0	4,058	4,058	0
Land Acquisition*	0	0	0	10,495	0	10,495	18,052	0	18,052
Administration Cost	0	0	0	4,548	0	4,548	7,823	0	7,823
GST	0	0	0	16,935	0	16,935	29,128	0	29,128
Import Tax	0	0	0	12,691	0	12,691	21,830	0	21,830
Interest during construction	3,349	0	3,349	0	0	0	3,349	0	3,349
Front End Fee	485	0	485	0	0	0	485	0	485
Total	**78,211**	**74,377**	**3,833**	**142,550**	**97,723**	**44,828**	**323,396**	**242,459**	**80,938**

Note - 1. Exchange Rate: US$1=Rs. 78.1, US$1=JPY 134.0, Rs.1 = JPY 1.72

2. Price Escalation (a) Foreign Currency Portion: 2.06% p.a.

(b) Local Currency Portion: 4.50% p.a.

3. Physical Contingency: 7.5%

4. Base Year for Cost Estimation: July 2022

Table 2.3.1.a.(ii) Actually Incurred Cost by ITEM

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total (Rs. mil)	JICA Portion (Rs. mil)	Others (Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	**37,110**	**37,110**	**-**	**46,559**	**46,559**		**110,213**	**110,213**	
Package-2	27,666	27,666	-	34,601	34,601		82,457	82,457	
Package-3	805	805	-	8,383	8,383		13,750	13,750	
Package-4 (ITS)	-	-	-	715	715		1,202	1,202	
Package-5 (Geotechnical Investigation)	-	-	-	196		196	337		337
Dispute Boards (Package-1, 2, 3 & 4)	-	-		-			-		-
Price Escalation	-	-		-					-
Physical Contingency	-	-		-			-		-
Consulting Services	253	253		362	362		2,051	2,051	-
Land Acquisition*	-			9,890		9,890	17,011		17,011
Administration Cost	-			4,870		4,870	8,376		8,376
GST	-			19,364		19,364	33,306		33,306
Import Tax	-			-			-		-
Interest during construction	971		971	-			971		971
Front End Fee	423		423	-			423		423
Total	**67,228**	**65,384**	**1,394**	**124,940**	**90,620**	**34,320**	**270,097**	**209,673**	**60,425**

Note - 1. Exchange Rate: Rs.1 = JPY 1.72 for MMRDA Portion only.

2. Price Escalation (a) Foreign Currency Portion: 2.06% p.a.

(b) Local Currency Portion: 4.50% p.a.

3. Physical Contingency: 7.5%

4. Base Year for Cost Estimation: July 2022.

2.3.1. b. Comparison of Originally Planned and Actually Incurred Cost by YEAR

Table 2.3.1.b.(i) Originally Planned Cost by YEAR (All Figures are in JPY mil)

Cost Breakdown	Total	JICA Portion				Others (MMRDA Portion)
		Tranche I	Tranche II	Tranche III	Sub Total	
FY 2015	**82**	**0**	**0**	**0**	0	**82**
FY 2016	**247**	**0**	**0**	**0**	0	**247**
FY 2017	**22,806**	**10,041**	**0**	**0**	10,041	**12,765**
FY 2018	**39,813**	**23,631**	**0**	**0**	**23,631**	**16,182**
FY 2019	**41,797**	**33,549**	**0**	**0**	**33,549**	**8,248**
FY 2020	**35,348**	**26,354**	**0**	**0**	**26,354**	**8,994**
FY 2021	**63,583**	**48,460**	**0**	**0**	**48,460**	**15,123**
FY 2022	**50,198**	**2,759**	**39,911**	**0**	**42,670**	**7,528**
FY 2023	**46,007**	**0**	**26,998**	**11,247**	**38,245**	**7,762**
FY 2024	**15,494**	**0**	**0**	**12,907**	**12,907**	**2,587**
FY 2025	**8,022**	**0**	**0**	**6,601**	**6,601**	**1,421**
Total	**323,396**	**144,794**	**66,909**	**30,755**	**242,458**	**80,938**

Table 2.3.1.b.(ii) Actually Incurred Cost by YEAR (All Figures are in JPY mil)

Cost Breakdown	Total	JICA Portion				Others (MMRDA Portion)
		Tranche I	Tranche II	Tranche III	Sub Total	
FY 2017	**13,738**	**9,232**	-	-	**9,232**	**4,506**
FY 2018	**26,813**	**21,695**	-	-	**21,695**	**5,118**
FY 2019	**40,410**	**31,014**	-	-	**31,014**	**9,396**
FY 2020	**31,822**	**23,885**	-	-	**23,885**	**7,937**
FY 2021	**53,977**	**43,204**	-	-	**43,204**	**10,773**
FY 2022	**80,126**	**13,734**	**52,905**		**66,639**	**13,487**
FY 2023	**23,212**		**14,004**		**14,004**	**9,208**
FY 2024						
Total	**270,098**	**142,764**	**66,909**	-	**209,673**	**60,425**

e) 1. Exchange Rate used: Rs.1 = JPY 1.72 for MMRDA Portion only

2. Fiscal Year starting from 1st April and ending on 31st Mar.

2.3.2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(P/R and PCR)

There is no major gap between the original and actual cost.

2.4 Organization for Implementation

2.4.1 Executing Agency

Original:

Executing Agency

Mumbai Metropolitan Region Development Authority (MMRDA) was established on 26th Jan1975 in accordance with the Mumbai Metropolitan Development Act, 1974 to make Mumbai Metropolitan Region (MMR) a destination for economic activity by promoting infrastructure and regional planning. MMRDA takes all the necessary measures, required from time to time, in an effective manner and be fully responsible for the Project implementation. After completion of the Project, MMRDA continues to be responsible for the efficient operation and maintenance of the Project.

The GoM appointed MMRDA as the implementing/ executing agency of MTHL vide Government Resolution dated 4th Feb 2009 and further the ownership of MTHL would be with MMRDA vide Government Resolution dated 8th June 2011

Organization's Role

To construct, execute, carryout, improve, work, develop, administer, manage, control or maintain in MMR all types of roads, highways, express routes, paths, streets, bridges, sideways, tunnels and other infrastructure, works and conveniences, approach road, etc.
Under the Project, MMRDA is responsible for all the tendering process including employment of consultants, as well as for the construction process.

Project Implementation Unit (PIU)

The PIU is in charge of the Projects. The PIU is headed by Chief Engineer, comprising of 6 Divisions/Cells (Finance Division, Social Development Cell, Engineering Division, Land Cell, Administrative Division and Environmental Cell), Supervision/ ITS Consultant and supporting staff.

Procurement

MMRDA shall have to adopt the JICA's Standard Bidding Documents of the latest version, as stipulated in Section 4.01 (2) of "Guidelines for Procurement under Japanese ODA Loans.

Procurement of goods and services, except for consulting services, converted by the Japanese ODA Loan should be implemented in accordance with "Guidelines for Procurement under Japanese ODA Loans", dated in Apr 2012. Employment of consultants should be implemented in accordance with "Guidelines of Employment of Consultant under Japanese ODA Loans", dated in Apr 2012. "Principles of Procurement under the Project" is attached for a brief explanation of the above Guidelines.

Actual, If changed: (P/R and PCR)

There is no change made in the original Organization Set-up & Implementation methods. Refer Annexure III Organization Chart.

2.4.2 Contractor(s)/ Supplier(s), and Consultant(s) and their Performance:

2.4.2.1 Procurement & Consultant

Table 2.4.2 Procurement of Contractor(s)/ Supplier(s) and Consultant(s)

Contract Package	Selection Method Original: *(P/M)*	Actual: *(P/R and PCR)*
Construction Works		
1	Package-1: From CH 0+000 - To CH 10+380 (10.38 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
2	Package-2: From CH 10+380 - To CH 18+187 (7.80 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
3	Package-3: From CH 18+187 - To CH 21+800 (3.61 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
4	Package-4: To install ITS (Toll Management System and Highway Traffic Management System)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	International Competitive Direct Bidding Process without Pre-Qualification
5	Package-5: To conduct the geotechnical investigation	Local Competitive Bidding Process	No Change
Consulting Services		
1	Consulting Service for Supervision	Short List Method (QCBS)	No Change

2.5 Consultant's Progress:

Oct 2023:

GC scrutinized & certified the following invoices claimed by the Contractors:

- Package-1: IPC-72-100% Certified and IPC-73 -80% Ad-hoc Certified by GC.
- Package-2: IPC-66 100% Certified and IPC-67 -80% Ad-hoc Certified by GC.
- Package-3: IPC-60 100% Certified and IPC-61 -80% Ad-hoc Certified by GC.
- Package-4: IPC-06 100% Certified and IPC-7 -80% Ad-hoc Certified by GC.

Nov 2023:

GC scrutinized & certified the following invoices claimed by the Contractors:

- Package-1: IPC-73 100% certified and IPC-74 80% Ad-hoc certified by GC.
- Package-2: IPC-67 100% certified & IPC-68 -80% Ad-hoc certified by GC.
- Package-3: IPC-61 100% certified & IPC-62 -80% Ad-hoc certified by GC.
- Package-4: IPC-07 100% Certified and IPC-08 -80% Ad-hoc Certified by GC.

Dec 2023:

GC scrutinized & certified the following invoices claimed by the Contractors:

- Package-1: IPC-74-100% Certified and IPC-75 -80% Ad-hoc Certified by GC.
- Package-2: IPC-68 100% certified - & IPC-69 - 80% Ad-hoc Certified by GC.
- Package-3: IPC-62 100% certified & IPC-63 -80% Ad-hoc certified by GC.
- Package-4: IPC-08 100% Certified and IPC-09 -80% Ad-hoc Certified by GC.

GC has prepared and submitted a total reimbursement claim of 7173.96 million JPY to MMRDA / JICA in Jun 2023. (Please refer Annexure-2)

100% of the Technical Design Modules across all the 3 Packages have been given "NONO" by the GC & Package design submission is in progress.

100% of the Construction (GFC – Good for Construction) Design Modules across all the 3 Packages have been given "NONO" by the GC.

Package-1 – 100%, Package-2 – 100%, Package-3 -100%.

2.6 Contractor's Progress:

2.6.1 Package-1 Physical Progress till 31th December 2023

S. No	Activity	Total Scope	Unit	Cumulative Achieved Works	% of Work done Against the Total Scope	Remarks
1	**Permanent Bridge Works - Land/ Interchange Zone**					
1.1	Piles	523	No.	523	100.00%	
1.2	Pile Caps	158	No.	158	100.00%	
1.3	Piers	228	No.	228	100.00%	
1.4	Pier Caps	215	No.	215	100.00%	
2	**Permanent Bridge Works - Intertidal Zone**					
2.1	Piles	312	No.	312	100.00%	
2.2	Pile Caps	75	No.	75	100.00%	
2.3	Piers	146	No.	146	100.00%	
2.4	Pier Caps	146	No.	146	100.00%	
3	**Permanent Bridge Works - Marine Zone**					
3.1	Piles	403	No.	403	100.00%	
3.2	Pile Caps	80	No.	80	100.00%	
3.3	Piers	162	No.	162	100.00%	
3.4	Pier Caps	162	No.	162	100.00%	
4	**Permanent Bridge Works - Total**					
4.1	Piles	1238	No.	1238	100.00%	
4.2	Pile Caps	313	No.	313	100.00%	
4.3	Piers	536	No.	536	100.00%	
4.4	Pier Caps	536	No.	536	100.00%	
5	**Precast Segments**					
5.1	Segment Casting	6714	No.	6714	100.00%	
5.2	Segment (Span) Erection+ Cast-in-Situ Slab	478	No.	477	100.00%	
6	**OSD Structural Steel**					
6.1	Fabrication	53703	MT	53703	100.00%	
6.2	Assembly (Large Blocks)	53703	MT	53703	100.00%	
6.3	OSD Span Erection	38	No.	38	100.00%	
7	**Crash Barrier**					
7.1	Crash Barrier - Median	20320	Rmt	14282	100.00%	
7.2	Crash Barrier - Outer	31099	Rmt	24615	100.00%	

2.6.2 Package-2 Physical Progress till 31th December 2023

S. No	Activity	Total Scope	Unit	Cumulative Achieved Works	% of Work done Against the Total Scope	Remarks
1	**Permanent Bridge Works - Land/ Interchange Zone**					
1.1	Open Foundation	113	No.	113	100.00%	
1.2	Piers	119	No.	119	100.00%	
1.3	Pier Caps	105	No.	105	100.00%	
1.4	Portal Beams- Land	6	No.	6	100.00%	
1.5	Pier Head Segments -Land	42	No.	42	100.00%	
2	**Permanent Bridge Works - Intertidal & CRZ Zone**					
2.1	Piles	280	No.	280	100.00%	
2.2	Pile Caps	72	No.	72	100.00%	
2.3	Piers	72	No.	72	100.00%	
2.4	Pier Caps	18	No.	18	100.00%	
2.5	Pier Head Segments	54	No.	54	100.00%	
3	**Permanent Bridge Works - Marine Zone**					
3.1	Piles	504	No.	504	100.00%	
3.2	Pile Caps	120	No.	120	100.00%	
3.3	Piers	120	No.	120	100.00%	
3.4	Pier Caps	48	No.	48	100.00%	
3.5	Pier Head Segments	74	No.	74	100.00%	
4	**Permanent Bridge Works - Total**					
4.1	Open Foundation	113	No.	113	100.00%	
4.2	Piles	784	No.	784	100.00%	
4.3	Pile Caps	192	No.	192	100.00%	
4.4	Piers	311	No.	311	100.00%	
4.5	Pier Caps/ Portal Beams	177	No.	177	100.00%	
4.6	Pier Head Segments	170	No.	170	100.00%	
5	**Precast Segments**					
5.1	Segment Casting	3132	No.	3132	100.00%	
5.2	Segment (Span) Erection + Cast-in-Situ Slabs	272	No.	272	100.00%	
6	**OSD Structural Steel**					
6.1	Fabrication	34726	MT	34,726	100.00%	
6.2	Assembly (for Large Block)	34726	MT	34726	100.00%	
6.3	OSD Span Erection	32	No.	32	100.00%	
7	**Crash Barrier**					
7.1	Crash Barrier	36559	Rmt	27977	100.00%	

2.6.3 Package-3 Physical Progress till 31st December

S. No	Activity	Total Scope	Unit	Cumulative Achieved Works	% of Work done Against the Total Scope	Remarks
1	**Permanent Bridge Works**					
1.1	Open Foundations	221	No.	221	100.00%	
1.2	Piles	24	No.	24	100.00%	
1.3	Pile Caps	4	No.	4	100.00%	
1.4	Piers	242	No.	242	100.00%	
1.5	Pier Caps	189	No.	189	100.00%	
1.6	Segment Casting	834	No.	834	100.00%	
1.7	Segment (Span) Erection	59	No.	59	100.00%	
1.8	Cast in-situ Slab	108	No.	108	100.00%	
1.9	Rail Overbridge (ROB) Span	20	No.	20	100.00%	
1.10	Crash Barrier	14500	Rmt	11100	100.00%	

2.6.4 Package-4 (ITS) Progress till 31th December 2023

1. Design & Drawings submission is in progress.
2. Geotechnical Investigation for Sub admin building & Service Road is completed.
3. Physical Progress till 30th June 2023

Sr. No	Activity	Unit	Total Scope	Cumulative Work done Achieved	% of Work done Against the Total Scope	Remarks
	1. Food Plaza 1					
	RCC Plinth Beams	Rm	494	494	100.00%	
	RCC Column 1st lift - GF	Nos	38	3	100.00%	
	RCC Column 2nd lift - GF	Nos	38	0	100.00%	
	2. Food Plaza - 2					
	Staging for Roof Slab – GF	Cum	3006	1800	100.00%	
	Decking for Roof Slab - GF	Sqm	1002	700	100.00%	
	3. Gavhan Tunnel					
	PCC for Raft	Rm	131	131	100.00%	

	RCC for Raft	Rm	131	131	100.00%	
	RCC Slab	Rm	131	131	100.00%	
	Staircase Slab	Sqm	17.5	0	100.00%	
4.	Gavhan Main Admin Building					
	Roof Slab – Concreting - GF	Cum	207	207	100.00%	
	Column 1st lift - FF	Nos	49	49	100.00%	
	Column 2nd lift - FF	Nos	49	49	100.00%	
	Shear Wall for lift – 1st lift – FF	Nos	1	0.5	100.00%	
	Shear Wall for lift – 2nd lift – FF	Nos	1	0.5	100.00%	
5.	Shivaji Nagar Sub – Admin Building					
	RCC Column Starter/ 1st Lift GF	Nos	23	13	100.00%	
	UG trenches/Conduits	Ls	1	1	100.00%	
	Grade Slab for flooring (PCC & RCC)	Sqm	350	350	100.00%	
6.	Sewri Sub – Admin Building					
	Backfilling upto Plinth Level	Cum	300	300	100.00%	
	Grade slab for flooring (PCC & RCC)	Sqm	420	200	100.00%	
	Column 1st lift – GF	Nos	22	22	100.00%	
	Column 2nd lift – GF	Nos	22	18	100.00%	
	Decking for Roof slab - GF	Cum	450	100	100.00%	

Please refer **Attachment 9 - Site Progress Photos** showing the development of the project.

2.7 Health & Safety and Environment (HSE)

The HSE Plans have been submitted by the respective construction agencies for the Packages which are being monitored by the GC on a regular basis.

2.7.1 Package-1 Safety Report

S No.	Description	Unit	Oct-Nov-Dec-2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	1998	4255
2	Man-Days Worked	Days	87534	8514062
3	Man-Hours Worked	Hours	700272	71620493
4	Accident-Free Man Hours	Hours	700272	8319115
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	7
6	Fatality Cases.	Fatalities (FAT)	0	8
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0	8
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0	10
9	Restricted Work Medical Case	RWMC (#Incidents)	0	0
10	Medical Treatment Cases	MTC (#Incidents)	0	2
11	First Aid Cases.	FAC (#Cases)	1	348
12	Near Miss Incidents.	NMI (#Incidents)	0	151
13	Dangerous Occurrences.	DO (#Numbers)	0	8
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	2
15	Man-Hours Lost	Hours	240	396192
16	Man-Days Lost	Days	30	49533
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0	0
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	43	741
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0	0
20	Toolbox Talks	Sessions	2002	191391
21	Safety Walk down Inspections (Joint & CFT)	Numbers	5	335
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	32	4664
23	Total Observations Raised (Safety)	Numbers	432	101952
24	Health & Hygiene Inspections	Numbers	4	140
25	Total Observations Raised (Health & Hygiene)	Numbers	6	971
26	Training Sessions done for Offices & Sites	Sessions	21	3941
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	519	55171
28	Contractor Safety Committee Meetings	Numbers	1	51
29	Critical Excavations	Numbers	0	86
30	Pre-employment Medical check-ups	Persons	564	52617
31	Safety Inductions completed	Persons	558	54490
32	Mock drills Conducted	Numbers	1	48
33	Contractor's Internal Audits Conducted	Numbers	1	63

2.7.2 Package – 2 Safety Report

S No.	Description	Unit	Oct-Nov-Dec 2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	1608	3,388
2	Man-Days Worked	Days	38592	35,46,773
3	Man-Hours Worked	Hours	424512	3,89,99,684
4	Accident-Free Man Hours	Hours	424512	98,95,162
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	0
6	Fatality Cases.	Fatalities (FAT)	0	0
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0	14
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0	14
ss9	Restricted Work Medical Case	RWMC (#Incidents)	0	8
10	Medical Treatment Cases	MTC (#Incidents)	0	16
11	First Aid Cases.	FAC (#Cases)	3	212
12	Near Miss Incidents.	NMI (#Incidents)	5	495
13	Dangerous Occurrences.	DO (#Numbers)	0	20
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	0
15	Man-Hours Lost	Hours	0	6,848
16	Man-Days Lost	Days	0	833
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0	0
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	0	22
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0	1
20	Toolbox Talks	Sessions	360	19,798
21	Safety Walk down Inspections (Joint & CFT)	Numbers	4	234
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	96	3,186
23	Total Observations Raised (Safety)	Numbers	349	31,080
24	Health & Hygiene Inspections	Numbers	15	72
25	Total Observations Raised (Health & Hygiene)	Numbers	0	0
26	Training Sessions done for Offices & Sites	Sessions	14	1,934
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	234	36,793
28	Contractor Safety Committee Meetings	Numbers	1	66
29	Critical Excavations	Numbers	0	0
30	Pre-employment Medical check-ups	Persons	272	20,385
31	Safety Inductions completed	Persons	272	20,572
32	Mock drills Conducted	Numbers	1	58
33	Contractor's Internal Audits Conducted	Numbers	0	0

2.7.3 Package – 3 Safety Report

S No.	Description	Unit	Oct-Nov-Dec 2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	159	544
2	Man-Days Worked	Days	6,555	10,03,110
3	Man-Hours Worked	Hours	52,437	80,24,883
4	Accident-Free Man Hours	Hours	52,437	22,11,132
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	0
6	Fatality Cases.	Fatalities (FAT)	0	0
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0	3
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0	3
9	Restricted Work Medical Case	RWMC (#Incidents)	0	0
10	Medical Treatment Cases	MTC (#Incidents)	0	0
11	First Aid Cases.	FAC (#Cases)	0	134
12	Near Miss Incidents.	NMI (#Incidents)	0	53
13	Dangerous Occurrences.	DO (#Numbers)	0	1
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	0
15	Man-Hours Lost	Hours	0	2,336
16	Man-Days Lost	Days	0	292
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0.00	0
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	0	37
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0.00	0
20	Toolbox Talks	Sessions	81	9,811
21	Safety Walk down Inspections (Joint & CFT)	Numbers	4	241
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	8	321
23	Total Observations Raised (Safety)	Numbers	70	13,228
24	Health & Hygiene Inspections	Numbers	1	116
25	Total Observations Raised (Health & Hygiene)	Numbers	2	429
26	Training Sessions done for Offices & Sites	Sessions	17	734
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	178	13,565
28	Contractor Safety Committee Meetings	Numbers	1	62
29	Critical Excavations	Numbers	0	11
30	Pre-employment Medical check-ups	Persons	39	10,422
31	Safety Inductions completed	Persons	39	10,422
32	Mock drills Conducted	Numbers	1	59
33	Contractor's Internal Audits Conducted	Numbers	0	19

2.7.4 Package-4 Safety Report

S No.	Description	Unit	Oct-Nov-Dec 2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	904	3
2	Man-Days Worked	Days	27120	6
3	Man-Hours Worked	Hours	2,16,960	0
4	Accident-Free Man Hours	Hours	2,16,960	0
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	0
6	Fatality Cases.	Fatalities (FAT)	0	0
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0	0
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0	0
9	Restricted Work Medical Case	RWMC (#Incidents)	0	1
10	Medical Treatment Cases	MTC (#Incidents)	0	2,233
11	First Aid Cases.	FAC (#Cases)	0	42
12	Near Miss Incidents.	NMI (#Incidents)	0	76
13	Dangerous Occurrences.	DO (#Numbers)	0	0
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	0
15	Man-Hours Lost	Hours	0	0
16	Man-Days Lost	Days	0	0
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0.00	0
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/ MMHr	0	0
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0.00	1
20	Toolbox Talks	Sessions	407	2,233
21	Safety Walk down Inspections (Joint & CFT)	Numbers	5	42
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	9	76
23	Total Observations Raised (Safety)	Numbers	191	1,192
24	Health & Hygiene Inspections	Numbers	1	8
25	Total Observations Raised (Health & Hygiene)	Numbers	6	48
26	Training Sessions done for Offices & Sites	Sessions	27	245
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	942	5,868
28	Contractor Safety Committee Meetings	Numbers	1	10
29	Critical Excavations	Numbers	0	3
30	Pre-employment Medical check-ups	Persons	253	1,703
31	Safety Inductions completed	Persons	253	1,703
32	Mock drills Conducted	Numbers	0	5
33	Contractor's Internal Audits Conducted	Numbers	0	2

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3.0 BENEFITS DERIVED FROM THE PROJECT (EFFECTIVENESS)

3.1 Operational and Physical Condition

(This section will be developed when the operational plan is available)

Facilities	Description of condition	Problems, its Background and Remedial Action Plan
(P/R and PCR)	*(P/R and PCR)*	*(P/R and PCR)*

3.2 Precautions (Measures to be adopted/ Points which require special attention)

Original Issues and Counter measure(s)	Actual Issues and Counter measure(s)
3.2.1 General Issues **1. Toll Arrangement/ Toll Rate** Fixed toll rate as per the type of vehicle will be levied for the road users after the completion of the Project. An appropriate tolling policy/ rates will be finalized in consultation with the state government prior to the completion of Civil works. **2. Operation and Maintenance** MMRDA proposes to appoint separate agencies for Operation & Maintenance of the bridge and for Toll Management System. Both the agencies for O & M and Toll Management System may be appointed through open tendering process. Overall monitoring of the two agencies would be done by MMRDA in-house through a separate cell which could be constituted for the purpose. MMRDA has confirmed to allocate an adequate budget engaging the Contractors.	(P/R and PCR) Appropriate Tolling Policy/ Rates finalization is in progress. A single Operation and Maintenance Contractor finalization is in progress.
3.2.2 Environmental and Social Consideration **a. CRZ Clearance** i. Supplemental EIA has been approved by MMRDA and disclosed on the website of JICA. A supplemental EIA report has been disclosed also on the website of MMRDA. ii. Furthermore, renewed CRZ Clearance has been obtained in January 2016. iii. In accordance with the conditions for CRZ Clearance, appropriate measures shall be taken, and necessary budget shall be secured by MMRDA.	*(P/R and PCR)* • MMRDA has disclosed Supplemental EIA & SIA on MMRDA website. • The renewed CRZ clearance was granted on 25/1/2016 from MoEF&CC and the approval conditions have been imposed on the Contractors as the Employer's requirements. MMRDA has actively monitored the compliances of the approval conditions and maintained them throughout the construction phase. • MMRDA appointed Mangroves & Marine Biodiversity Foundation for bird monitoring and implementation of Flamingos and bird monitoring program for the MTHL project during the construction as well as the long-term monitoring after the construction.

	• Rs 91.42 Crore has been transferred to Mangroves & Marine Biodiversity Foundation, Mumbai for the development & conservation of mangrove area and its afforestation. Such funds will be managed by the Mangrove Foundation of Maharashtra State. • As per the renewed CRZ clearance condition, IIT Mumbai has been appointed for the DPR study to develop a Mahul creek Effluent Treatment Plant (ETP). Rs 4.98 Crore was secured for IIT services. The Draft DPR has been reviewed and approved. • Proposal of extension for CRZ clearance submitted vide reference no MCZMA 2022/08/CR-246/3719 dated 4th Aug-2022. (Please refer Annexure-3)

b. Required Permits

The Permits to be obtained by MMRDA/ Contractors and the present status is given in the following Table.

Table 3.2.2 Present Status of some Important Permits

Clearance Required	Approving Authority	Responsible Organization	Obtained by when	Remark /Status
Mangrove Cutting	Hon. Bombay High Court	MMRDA/ Contractor	Approval received from Hon. Bombay High Court on 28th Nov 2016	Mangrove cutting operation was completed with full compliance and as of now, no further follow up work is required.
Tree Cutting /Transplantation	Respective Tree Authorities	Contractor for respective Packages	-	**Pkg-1:** Tree Cutting/ Transplantation permission from the Garden Dept., MCGM obtained on 24th Dec 2020. **Pkg-2:** Tree Cutting/ Transplantation permission obtained & completed. **Pkg-3:** Forest Department issued a concurrence on 19/05/2019. CIDCO's permission for Tree Cutting/ Transplantation obtained on 25th Nov 2019.
Consent to Establish	Maharashtra Pollution Control Board	Contractor for respective Packages	Pkg-1-18.07.2018 Pkg-2-16.08.2018 Pkg-3-29.05.2019	

3.3 Environmental and Social Impacts

Major environmental and social impacts have occurred during project implementation (e.g. involuntary resettlement, poverty reduction, impacts on the natural environment).

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
1. Establishment of Effective Environmental and Social Cell in PIU MMRDA confirmed that Social Development Cell (2 Officers), Land Cell (3 Officers), and Environmental Cell (2 Officers) had been set up.	**Cell is established by MMRDA (Annexure III, Organization chart)**
2. Rehabilitation and Land Acquisition Issues **a. Affected Area and Population** Due to the Project, 1282 non-titleholders will be involuntary resettled, and 108.4379 ha of land will be handed over by CIDCO.	**Sewri:** Involuntary resettlement in Sewri section has been further validated by Social Development Cell of MMRDA. Out of 297 Project Affected Households (PAHs) have given consents as follows: • 164 PAHs Kanjurmarg for residential • 25 PAHs Kanjurmarg for commercial • 7 PAHs (Satsangi Plot) Kanjurmarg for Commercial • 1 PAHs (commercial to residential) for Bhakti Park • 100 PAHs HDIL Kurla for residential **Navi Mumbai:** CIDCO has been finalizing the land acquisition closely monitored by Land Cell of MMRDA. CIDCO has possessed 106.3542 ha of land and handed over to MMRDA, except private land of 2.0837 ha. 0.3937 ha land is under acquisition out of balance 2.0837 ha land. CIDCO is planning to acquire the balance ROW land of with the help of Collector, Raigad.

b. Entitlement Policy MMRDA prepared the entitlement matrix for resettlement of non-title holders in Sewri, which meets the Resettlement and Rehabilitation Policy for Mumbai Urban Transportation Project (1997, amended in 2000) and JICA guidelines for Environmental and social considerations (2010) ("Guidelines") **(Attachment 2-5).**	There have been no changes during the enforcement. As per the **Attachment 2-5** of JICA MoD, MMRDA has committed to enforce the agreed/ approved policy.

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
c. Compensation to Project affected Fishermen Detailed baseline survey will be undertaken by MMRDA in order to identify fishermen who are affected by the Project. Based on the result of the baseline survey, MMRDA will compensate them in accordance with compensation policy prior to the construction. Monitoring will be conducted by MMRDA with assistance of the Consultant to gasp the exact impact during construction and operation phase.	Updated **Attachments 2-8 and 2-10** are enclosed in the report.
d. Implementation Schedule The Implementation schedule for land acquisition, resettlement and rehabilitation is attached as per **Attachment 2-10.**	Updated **Attachment 2-10** is enclosed in the report.
e. Grievance Redressal Mechanism Grievance Redressal Committee ("GRC") set under MMRDA will deal with grievances raised by PAPs in Sewri and fishermen to be affected by the Project. Any grievances raised by PAPs whose land is acquired by CIDCO shall be resolved by CIDCO.	**Sewri:** FLGRC (Field Level Grievance Redressal Committee) and SLGRC (Senior Level Grievance Redressal Committee) were set as per the RAP and in operation. Compensation Committee has been constituted to address the issues of Compensation to Lease Holders at Sewri. **Fishermen:** GRC for resolving grievances of the fisherfolk was set up as per the compensation policy and is in operation.

f. Internal Monitoring Internal Monitoring of the Resettlement Action Plan (RAP) implementation will be conducted by MMRDA in accordance with the RAP with necessary assistance of the consultant. RAP Internal Monitoring Form **(Attachment 2-8)** will be submitted to JICA on a quarterly basis as a part of PSR during the RAP implementation.	Internal Monitoring updates are mentioned in **Attachment 2-8.**
g. Qualitative Independent Evaluation An Independent Evaluation Agency will be hired by MMRDA for evaluation of RAP implementation. An external	

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
evaluation report will be submitted to MMRDA at mid-term and end-term. MMRDA would submit the evaluation report to JICA in a timely manner.	Updated **Attachment 2-10** is enclosed in the report.
h. RAP Implementation Budget The amount of estimated resettlement and compensation budget is Rs.906.26 Cr MMRDA informed to the JICA Mission that RAP implementation cost would be borne by MMRDA and ensured sufficient and timely allocation of funds for smooth implementation.	As updated in MOD dated 03/09/2019 for MTHL- II, the base cost Budget towards RAP Implementation is updated as Rs 1129.3 Cr.
i. Environmental Management Plan ("EMP") The mitigation measures against air pollution, waste, noise, and water pollution etc. shall be taken during construction and operation phase. Mitigation measures such as installation of noise barrier, appropriate waste management, etc. have been prepared by MMRDA. The mitigation measures are listed in the EMP matrix. **(Attachment 2-1).** During the detailed design stage, MMRDA, with assistance of the Consultant, will update the EMP, as necessary.	EMP will be updated, if required, in due course of construction activities/progress.
j. Environmental Monitoring Plan ("EMoP") MMRDA takes overall responsibility for implementation of EMoP. During construction, environmental monitoring will be carried out by contractors under supervision by Construction Supervision consultant. The result shall be reported to the JICA India Office on a quarterly basis as a part of Progress Status Report (PSR) by filling in the Reporting Form of Environmental Monitoring Result. **(Attachment 2-4).** After completion of the construction, EMoP shall be implemented by MMRDA, and the results shall be submitted to the JICA India Office semi-	Environmental Monitoring Plan with the package wise budgeted cost is reported in **Attachment 2-3.** Environmental Monitoring Results during the construction phase are reported in **Attachment 2-4.**

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
annually until two years after complementation of construction. The required amount of estimated environmental monitoring budget is borne by MMRDA.	
k. Long Term Bird Monitoring MMRDA committed to conduct the long-term monitoring of birds and its habitat in Sewri mudflats with the assistance of hired bird expert. During the long-term monitoring, MMRDA will share information and receive advice from external experts including the one from NGOs and civil society.	• MMRDA has entrusted the work of bird monitoring and implementation of Flamingos and birds related mitigation measures & bird monitoring program to Mangrove and Marine Biodiversity Foundation. • Rs. 31.92 Crore deposited to Mangrove foundation, Mumbai for periodical disbursement to BNHS.

3.4 Qualitative and Quantitative Data of Monitoring Indicators

Operation and Effect Indicator EIRR and/ or FIRR

Supporting data for Computing EIRR and/ or FIRR

Indicators	Original (Year 2015)	Target (Year 2024) 2 Years After Commercial Operation
Average Annual Daily Traffic (PCU/ day)	-	47,400
Daily Average Travel Time (min) * 1	61 min	15.8 min
Number of Users (Persons/ year) * 2	-	46,077,504
Cargo Volume (tons/ year) * 3	-	13,511,759

*1 Section on Sewri – Chirle
*2 Assumptions: average passengers of car and taxi (2.6 persons), bus (37.2 persons) based on JICA study. Number of passengers of LCV, HCV and MAV is assumed as 1 person each.
*3 Assumptions: the maximum capacity of respective vehicle (LCV: 1 ton, HCV and MAV: 15 tons) is used for estimation.

EIRR	**Original:** 15.4% Cost: Project cost (excluding Price Escalation, Tax and Duties and Administration cost) O&M cost, Land Acquisition Benefit: Travel Time cost and Vehicle Operation cost Project Life: 32 Years	**Actual:** *(PCR)* _____% Cost: Benefit: Project Life: **Attachment(s):** **Supporting data for computing EIRR**

FIRR	**Original:** **1.5%** **Cost: Project Cost, O&M cost, Land Acquisition cost** **Benefit: Toll Revenue** **Project Life: 32 Years**	**Actual:** *(PCR)* **____%**

3.5 Monitoring Plan for the Indicators

Monitoring Methods, Section(s)/ department(s) in charge of monitoring, frequency, the term and so forth are given below:

Original: *(P/M and PCR)*

Monitoring Organization

PIU shall be In-Charge of Monitoring activities for the Project.

Submission of QPR and PCR

The timely submission of the following documents is required by MMRDA.

a. **Quarterly Progress Report (QPR):** The progress report for the Project should be submitted by MMRDA to JICA on quarterly basis, not later than 30 days after the concerned quarter, in the form of Project Status Report (PSR) attached hereto as per **Annex I**; Updated status land Acquisition, milestone achieved with respect to Action Plan with Timetable, the monitoring form for environmental and social consideration should also be appended to the PSR. In addition, MMRDA shall also forward the Monthly & Quarterly Progress Reports (including S- Curve Chart) prepared by the Consultant to JICA India Office on regular basis till project completion.

b. **Project Completion Report (PCR):** A project completion report should be submitted by MMRDA to JICA promptly, but in any event not later than six months after completion of the Project, in the form of Project Status Report (PSR) attached hereto as per **Annex I.**

Actual: *(P/R and PCR)*

Monitoring Organization

PIU for MTHL has been established for monitoring the Project.

Submission of QPR and PCR

This QPR No. 22 is submitted for the period of 1st July to 30th Sep 2022.

3.6 Achievement of the Project Objective

(PCR

4.0 OPERATION AND MAINTENANCE (O&M) (SUSTAINABILITY)

4.1 O&M and Management

- Organization Chart of O&M
- Operational and maintenance system (structure and the number, qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc

Original: *(P/M)*

Operation & Maintenance, Toll Management and ITS

MMRDA proposes to engage two separate agencies for O&M and Toll Management System. Though MMRDA will not directly carry out O&M, the overall monitoring over the O&M agency will be the responsibility of MMRDA. O&M Budget will be allocated by MMRDA. O&M and increase in toll rate will be done in accordance with the NHAI's manuals such as "NHAI Works manuals".

Actual: *(PCR)*

4.2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project, as well as the annual O&M budget.

(PCR) This will be reported when the outcome of the above work-study is available.

5.0 EVALUATION

5.1 JICA and Borrower / Executing Agency performance

JICA:

(PCR)

Borrower/ Executing Agency:

(PCR)

5.2 Overall Evaluation

Please describe your evaluation on the overall outcome of the project.

(PCR)

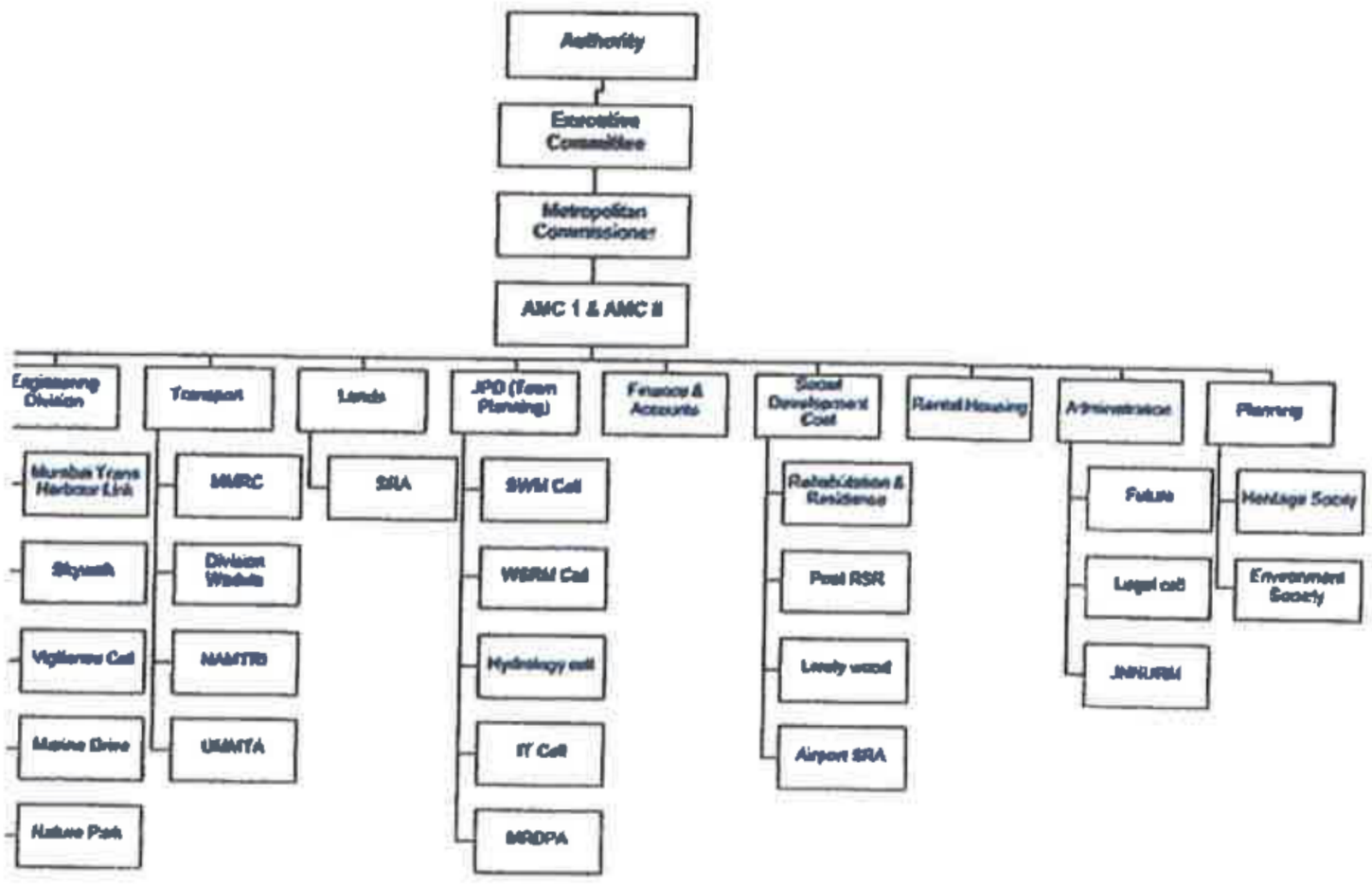
5.3 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future JICA assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

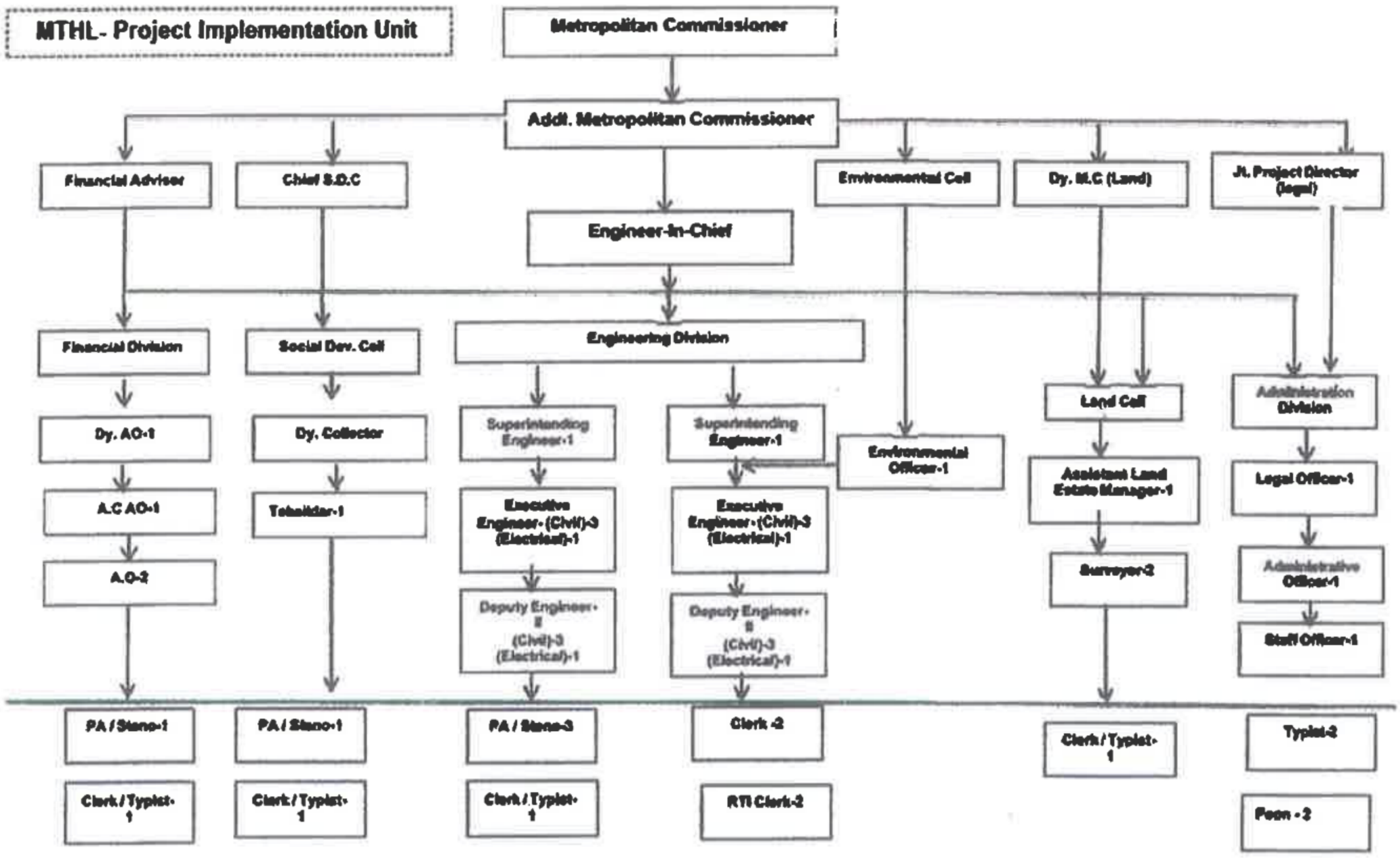
(PCR)

Attachment 1- MMRDA & PIU Organization Chart

MMRDA Organization chart



MUMBAI TRANS HARBOUR LINK
GC
GENERAL CONSULTANT


MTHL- Project Implementation Unit
Metropolitan Commissioner
Addl. Metropolitan Commissioner
Financial Adviser
Chief S.D.C
Engineer-in-Chief
Environmental Cell
Dy. M.C (Land)
Jt. Project Director (legal)
Financial Division
Social Dev. Cell
Engineering Division
Environmental Officer-1
Land Cell
Administration Division
Dy. AO-1
Dy. Collector
Superintending Engineer-1
Superintending Engineer-1
Assistant Land Estate Manager-1
Legal Officer-1
A.C AO-1
Talukdar-1
Executive Engineer-(Civil)-3 (Electrical)-1
Executive Engineer-(Civil)-3 (Electrical)-1
Surveyor-2
Administrative Officer-1
A.O-2
Deputy Engineer-II (Civil)-3 (Electrical)-1
Deputy Engineer-II (Civil)-3 (Electrical)-1
Staff Officer-1
PA / Steno-1
PA / Steno-1
PA / Steno-3
Clerk -2
Clerk / Typist-1
Typist-2
Clerk / Typist-1
Clerk / Typist-1
Clerk / Typist-1
RTI Clerk-2
Peon - 2

Attachment 2- Environmental & Social Impacts

Attachment 2-3 – Envi. Monitoring Plan with Package-wise Estimated Cost

Attachment 2-4 – Environmental Monitoring Result Reporting Form

Attachment 2-6 – MTHL Land Acquisition Status

Attachment 2-8 – RAP Internal Monitoring Form

Attachment 2-10 – Schedule of the RAP Implementation

Attachment 2-3

Environmental Monitoring Plan with Package wise Estimated Cost

Category	No.	Impacted Item as ESA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MoEF)	Remarks
Pollution	1	Air pollution	SO_2, NO_2, PM_{10}, $PM_{2.5}$, O_3, CO, (6 items)	National Ambient Air Quality Standards, 2009	1. Sewri & Sewri bay area for package I	Fortnightly at all locations except 2 locations each near Batching plants	1,800,000	15,000,000	1,800,000	742,500	17,542,500	National Ambient Air Quality Standards (NAAQS) by Central Pollution Control Board (CPCB)	P1 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement.
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						(Standard for 24hrs: Industrial and Residential/ Ecological Sensitive area)	P 2 contractor Monitoring plan has been designed as per EIA of 2015
					3. Gavhan & Chirle for package III	Fortnightly only for 3 months (Jan-2019 to Mar-2019). Then quarterly monitoring as per MOEF and CPCB norms						- SO_2: 80 / 80µg/m³	P3 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement.
												- NO_2: 80 / 80µg/m³	P 1 received Consents CTE & CTO from MPCB and they are following MPCB frequency in addition to frequency set by Environment Expert from GC. The NAAQ standards are showing High rate as that is the usual procedure. The frequency of monitoring is set by us which varies for different parameters as either Statutory requirements or as required by us to ensure we have sufficient data in hands if there are additional claims for Compensation in CS category. Summary : Although the contract conditions for all packages were same at the time of biding. Later modifications suggested by GC were not accepted by P 2. P1 and P3 accepted the modifications and hence the difference. Second point is P 1 carrying out monitoring as per the obatiend CTE and CTO. Both other packages have applied for CTE but haven't obtained it yet. So we expect the monitoring frequecy would change after obtaining CTE.
												- PM_{10}: 100 / 100µg/m³	
												- $PM_{2.5}$: 60 / 60ug/m³	
												- O_3: 180 / 180µg/m³	
												- CO: 0.4 / 0.4mg/m³	
	2	Water pollution	pH, BOD, DO, Turbidity and O&G	IS / AWWA	1. Sewri & Sewri bay area for package I	Quarterly	810,000	2,400,000	810,800	0	3,210,000	Marine water quality Standards – Class SW-IV Harbour Waters (MPCB)	Water Pollution not applicable for Pkg. 3
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						- pH : 6.5-9	
					3. Gavhan & Chirle for package III	Not applicable						- DO: 3 mg/l	
												- Turbidity: 30 NTU	
												- BOD: 5 mg/l	
												- O & G: 10 mg/l	
	3	Waste	Volume of waste soil, cutting tree and domestic garbage	Volumetric	1. Sewri & Sewri bay area for package I	Daily	500,000	299,200,000	500,000	600,000	300,300,000		The cost of waste disposal for P1 includes C&D waste, Pile muck etc. from all areas like, interchange, intertidal and marine. The disposal location is at MCGM approved location Bhayandarpada, Thane.

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Category	No.	Impacted Item as per EIA Guidelines	Parameter	Method	Location	Frequency & year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) – Ministry of Environment & Forest (MoEF)	Remarks
					2. Nhava temporary bridge & casting yard in **Gavhan for** package II	4 Times / Year						**Municipal Solid Waste Management Rules, 2013** Generated waste shall be reused or disposed at designated site. Sites **have been identified and the location for Pkg. 1 is** at Bhayandar Pada in **Thane.** For Pkg. **2 & 3 is in Navi Mumbai at Pushpak Node near** "Teen **Taid Junction" along the Amar Marg.**	P2 contractor has considered only Domestic garbage **with respect to** CIDCO. **Other wastes are** not considered. Construction wastes will be
					3. Gavhan & Chirle for package III	Once site clearing work/execution **part** of work start.							
	4 and 8	Soil **Contamination/ sedimentation**	Heavy Metals & Oil & Grease (5-10 items shall be **selected from Soil pollution standards)**	IS / Methods Manual Soil **Testing in India by Department of Agriculture and Cooperation, January 2011**	**1. Sewri & Sewri bay area** for package I	1. Muck: 1 Time / Year 2. Sediments: 4 **Times / Year**	150,000	1,500,000	150,000	100,000	1,750,000	Soil Pollution Standard in India (MOEF) - Cd: 0.01mg/l - Lead: **0.01mg/l** - Chromium (VI): 0.05mg/l - Arsenic: 0.01mg/l - T-Mercury: 0.0005mg/l - Copper: 125mg/kg [some items shall be selected from totally 25 standards items]	
					2. Nhava temporary bridge & casting yard in Gavhan for package II								
					3. Gavhan & Chirle for package III	*If any spillage/ leakage take place from chemical fuel storage area. *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon at Storage area only							
	5	**Noise and vibration**	Ambient and road side noise ($dB(A)L_{eq}$)	IS Standard	1. Sewri & Sewri bay area for package I	Fortnightly	150,000	54,000	150,000	369,000	573,000	**-Construction Noise: 85dB(A)** **-Ambient Noise Standards in India (dB (A) $_{eq}$)** 1.Industrial Area Day Time: 75 (6-22hr) Night Time: 70 (22-6hr) 2.Commercial Area: Day Time: 65 (6-22hr) Night Time: 55 (22-6hr) 3.Residential Area: Day Time: 55 (6-22hr) Night Time: 45 (22-6hr) 4.Silence Zone Day Time: 50 (6-22hr) Night Time: 40 (22-6hr)	
					2. Nhava temporary bridge & casting yard in **Gavhan for** package II	2 Times / Year							
					3. Gavhan & Chirle for package III	Fortnightly							
			Vibration (dB L10 or mm/sec)		1 Location Gavan area for **package** III	Half yearly	75,000	0	75,000	400,000	475,000	**- Construction vibration 75dB** **-Vibration Standards roadside** 1. Commercial /Industrial Area Day Time: 70 (7-20hr) Night Time: 65 (20-7hr) 2. Residential Area: Day Time: 65 (7-20hr) Night Time: 60 (20-7hr)	Not applicable for Pkg. 1
	9 and 10	Protected Area **/Ecosystem**	1.Monitoring of **mudflat conditions including fauna-flora**	Ocular inspection **and quantitative survey**	Along MTHL alignment and mangrove **replant area for** Package I	Quarterly during the construction Period	6,500,000	7,200,000	6,500,000	0	13,700,000		Not applicable for Pkg. 3
			2. Monitoring of **Cutting Tree and replantation/**		Along **MTHL alignment** and **mangrove replant** area for package II	4 **Times / Year**						Significant impacts are not caused by **the project**	
			transplanting area	1-1. Fauna-Flora	Not applicable for Package III								
			3.Monitoring of **Mangrove Plantation area appointed by MoEF**	Line-Point census **and record number and appeared species**								Note)	

Category	No.	Impacted Item on JICA Guideline	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MoEF)	Remarks
Natural environment			4. Monitoring of sedimentation soil and ecological parameter (18items on Supplemental EIA Table 6.1.15 for soil and 7 items such as 1)Netprimary productivityе, 2)Chlorophyil-a, 3)Phosphate, 4)Nitrate, 5)Nitrite, 6)Particulate Organic Carbon, 7) SiO_2)	1-2: Mangrove density and community survey								**Detailed monitoring plan will be setup during basic design stage**	
				1-3: Benthos Survey									
				2-1: Cutting trees confirmation								Standard for Soil: Supplemental EIA Table 6.1.15	
				3-1: Mangrove survey in the replanted area								Standard for Ecological Parameter:	
												- **Netprimary** Productivity	
												<1,500 mgC/m3/day at surface	
												- Chlorophyll-a	
												<4mg/m3	
												- Phosphate: 0.1-90µg/l	
												- Nitrate: 1.0-500µg/l	
												- Nitrite: **<125µg/l**	
												- Particulate Organic Carbon: 10-100mg/m³	
												- SiO_2: 10-5,000µg/l	
	11	Hydrology	Flooding situation	Flood level **measurement during high precipitation** periods	Not applicable for Package I		350,000	0	**350,000**	0	350,000	Project activities and structures does not cause flooding and impacts on tidal conditions	Not applicable for Pkg. 1 & 3
					2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year							
					Not applicable for Package III								
	12	Topography and **Geology**	Conditions in embankment area	Visual survey about Stability of embankment	Not applicable for Package I		115,000	0	115,000	0	115,000	Embankment shall be stabilized without any landslide and cracks	Not applicable for Pkg. 1 & 3
					Interchange in Shivaji Nagar for Package II	6 Times / Year							
					Not applicable for Package III								
Social environment	13	Local economy such as employment and livelihood			Affected area		As per Actuals						
	14	Local conflict of interests	Construction worker's township	Confirmation of workers list from **contractor**	2 Locations (camp site in Sewri and Shivaji Nagar) for Package II	2 Times / Year	125,000	0	125,000	0	125,000	Employment opportunity shall be provided fairly	
	15	Infectious diseases such as HIV/AIDS	Number of infected patient	Confirmation of health check list from contractor	2 Locations	4 times / year x 4.5 years	525,000	0	525,000	0	525,000	Infection disease rate shall not be **caused by the project**	
	16	Labour Environment	Construction worker's condition	Confirmation of safety devices and conditions via interviews	2 Location (camp site in Sewri and Shivaji Nagar) for Package II	2 times / year	500,000	0	500,000	0	500,000	"Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act,1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"	
Other	17	**Accidents**	Number of accidents	Confirmation of accidents list from local government and State Traffic Police Department	2 Locations (camp site in Sewri and Shivaji Nagar) for Package II	4 Times / Year	400,000	0	400,000	0	400,000	Any accidents are not caused by construction	
				Total			8140500	325,354,000	12,000,000	2,211,500	339,565,500		

The Project for Construction of Mumbai Trans Harbour Link
Reporting Form of Environmental Monitoring during Construction
Attachment 2-4
1. Environmental Monitoring during Construction for 4.5 years

Monitoring Period -April to June 2023

Attachment 2-4
This form is prepared for reporting the monitoring results to JICA India Office. Only minimum required parameters are included in this form, and not all parameters in EMoP are covered.

Area	No	Item	Parameter	Location	Frequency a year	Item and Standard	Monitoring Result				Remark - reasons why the data is exceeding standard - counter measures when the data is exceeding
							Location 1- Pkg 1	Location 2 - Package 2	Location 3- Pkg 3	Location 4- Pkg-04	
Pollution	1	Air pollution	SO_2, NO_2, PM_{10}, $PM_{2.5}$	1. Sewri & Sewri bay area for package I	Quarterly monitoring is conducted at all locations	**National Ambient Air Quality Standards (NAAQS)**	**Sewri**	**Shivaji Nagar**	**Chirle**	**Gavhan**	
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year	**(Standard for 24hrs: Industrial and Residential)**					
				3. Gavhan & Chirle for package III	From march -2019 onwards monitoring is conducted quarterly as per MOEF and CPCB norms	1. SO_2: 80µg/m³	10.5	BDL	32	BDL	BDL- Below Detectable Limit
						2. NO_2: 80µg/m³	40.50	28	50	16	
						3. PM_{10}: 100µg/m³	250.00	81	86	149.2	
						4. $PM_{2.5}$: 60µg/m³	36.25	29	45	47	
						5.CO:02mg/m3	1.35	1.4	0.73	16	
						6.VOCs	0.97	2.7	1.05	BDL	
	2	Water pollution	pH, BOD, DO, Turbidity and O&G	1. Sewri & Sewri bay area for package I	Quarterly	**Marine water quality Standards – Class SW-IV Harbour Waters (MPCB)**	**Zone I**	**Zone II**	**Zone III/ Package-03**	**Package -04**	
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year	1. pH: 6.5-9	7.8	7.8	Not applicable	Not Applicable	
				3. Gavhan & Chirle for package III	Not applicable	2. DO: 3 mg/l	5.9	5.7	Not applicable	Not Applicable	
						3. Turbidity 30 NTU	8.9	20.5	Not applicable	Not Applicable	
						4. BOD: 5 mg/l	BDL[DL=2]	BDL (DL=2)	Not applicable	Not Applicable	
						5. O & G: 10 mg/l	BDL[DL=2]	BDL (DL=2)	Not applicable	Not Applicable	
						6.COD	19	23	Not applicable	Not Applicable	
	3	Waste	Volume of waste soil, cutting tree and domestic garbage	1. Sewri & Sewri bay area for package I	Daily	**Municipal Solid Waste Management Rules, 2013**	71 Tonnes for 3 months	**Shivaji Nagar Camp Site**	**Gavan Camp Site**	**Gavhan Camp site**	
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year	Generated waste soil (t) total			NA	NA	

				3. Gavhan & Chirle for package III	Once site clearing work/execution part of work start	Generated cutting tree (ha) total	-	-	Tree cutting work completed and Half yearly report submitted to Client (April, 2022)	NA	Both of forest and CIDCO area (234+75)= 309
						Generated domestic waste (t/month) total	71 Tonnes for 3 months	3 5 T/quarter	2 1 T for the quarter	50 kg per day	
						Confirmation of adequate disposal (visual survey)	Waste is disposed through Municipal Corporation	It is disposed through CIDCO daily	Waste is disposed through Municipal Corporation	waste is Disposaed through CIDCO	
				1. Sewri & Sewri bay area for package I	1. Muck: 1 Time / Year 2. Sediments: 4 Times / Year	**Soil Pollution Standard in India (MOEF)**	Sediment sample at Sewri	Muck Testing done in September 2021 and Reports submitted to GC			Kindly check the letter No Ref No MTHL/ P3/L&T/GC/LT/HSE-2226/2020 dated on 12.12.2020
				2. Nhava temporary bridge & casting yard in Gavhan for package II		1. Cadmium: 0.01mg/l	BDL[DL=2]	BDL	-	BDL	
				3. Gavhan & Chirle for package III	*If any spillage/ leakage take place from chemical, fuel storage area *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon at Storage area only	2. total cyanide : not detected	NA	<0.005	There is no reportable Oil spillage in project	NA	
						3. organic phosphorus: not detected	NA	8.5	One time Soil test done (Report has been submitted)	8	
4	Soil Contamination/sedimentation	Heavy Metals & Oil & Grease				4. lead: 0.01mg/l	BDL[DL=0.6]	0.17	There is no huge quantity of oil storage area, Oil requirment fulfil by portable oil tanker (Indian Oil) on frequent basis. Only small quentity of Oil <1000 ltr is stored in well esteblished oil storage area (Covered and bundedwall from all side)	BDL	Hazardous Storage is situated in low laying area at Gavan area. Due to this reason complete ground area is covered by boulders to avoid further water logging in rainy season. Therefore soil sample is impossible to taken out from in and around the Oil & chemical storage area. Same has witnessed by GC during Febrary-2020 monitoring.
						5. chromium (VI): 0.05mg/l	Not detected	BDL	-	BDL	
						6. arsenic: 0.01mg/l or 15mg/kg (agri-land soil)	BDL[DL=1]	BDL	-	BDL	
						7. total mercury: 0.005mg/l	BDL[DL=2]	BDL	-		
						8. alkyl mercury: not detected	Not detected		-		
						9. PCBs: not detected	Not detected	BDL	-		
						10. copper: 125mg/kg (only paddy field soil)	147		-	0.45	
						11. dichloromethane: 0.02mg/l	Not detected	BDL	-	NA	
						12. carbon tetrachloride: 0.002mg/l	Not detected	BDL	-	NA	
						13. 1,2-dichloroethane: 0.004mg/l	Not detected	BDL	-	NA	
						14. 1,1-dichloroethylene: 0.02mg/l	Not detected	BDL	-	NA	
						15. cis-1,2-dichloroethylene: 0.04mg/l	Not detected	BDL	-	NA	
						16. 1,1,1-trichloroethane: 1mg/l	Not detected	BDL	-	NA	
						17. 1,1,2-trichloroethane: 0.006 mg/l	Not detected	BDL	-	NA	
						18. trichloroethylene: 0.03mg/l	Not detected	BDL	-	NA	
						19. tetrachloroethylene: 0.01mg/l	Not detected	BDL	-	NA	
						20. 1,3-dichloropropene: 0.002mg/l	Not detected	BDL	-	NA	
						21. thiuram: 0.006mg/l	Not detected	BDL	-	NA	
						22. simazine: 0.003mg/l	Not detected	BDL	-	NA	

						23. thiobencarb: 0.02mg/l	Not detected	BDL	-	NA	
						24. benzene: 0.01mg/l	Not detected	BDL	-	NA	
						25. selenium: 0.01mg/l	Not detected	BDL	-	NA	
				1. Sewri & Sewri bay area for package I	Fortnightly	**Construction area Standard 85 dB(A) daytime (Japan standard)Not construction area : Ambient Noise Standard in India (dB(A) Leq)**	**Sewri (ST 200-500)(Industrial area)**	**Sea Section (ST5000-5500) Migratory Bird Area (no standard on sea section)**	**Chirle (package-III) Commercial area**	Gavhan (Package IV) Commercial Area	
				2. Nhava temporary bridge & casting yard in Gavhan for package II	2 Times / Year	Day time : 6-22 hr (continuous) dB(A)	69.8	69.4	63.35	**68.3**	-
			Ambient and road side noise (dB(A)LAeq)	3. Gavhan & Chirle for package III	Fortnightly	Night time: 22-6 hr (continuous) dB(A)	61.8	62.3	52.69	**61.5**	-
						(only sea section)		-	-		-
						Day time : 6-22 hr (10 min during 9-17 hrs)	70.2	-	-		-
						Night time: 22-6 hr (10 min 22-24 hr)	65.4	-	-		-
						-	-	-	-		-
						Note (standard values in Not construction area)	-	-	-		-
						1.Industrial Area	-	-	-		-
						Day Time: 75 (6-22hr)	-	-	-		-
						Night Time: 70 (22-6hr)	-	-	-		-
						2.Commercial Area:	-	-	-		-
						Day Time: 65 (6-22hr)	-	-	-		-
						Night Time: 55 (22-6hr)	-	-	-		-
				1 Location Gavan area for package III	Half yearly	**Construction area Standard 75 dB daytime (Japan standard) Not construction area : Vibration Standard (Japan Standard along the road)**	**Sewri (ST 200-500) (Industrial area)**	**Shivaji Nagar (Commercial area)**	**Chirle**	**Gavhan**	
						Day time : 6-22 hr (continuous)	Not applicable	Not applicable	Not applicable	Not Applicable	-
						Night time: 22-6 hr (continuous)	-				-
											-
						Note (standard values in Not construction area)	-	-	-		Kindly check the letter No.Ref No. MTHL/ P3/L&T/GC/LT/HSE-2226/2020 dated on 12.12.2020
						1. Commercial /Industrial Area	-	-	-		
						Day Time: 70 (7-20hr)	-	-			
						Night Time: 65 (20-7hr)	-	-			
5	Noise and vibration		Vibration (dB) shall be converted from mm/s to dB								
Natural Environment	6	Protected Area	1.Monitoring of mudflat conditions including fauna-flora 2. Monitoring of Cutting Tree and replantation/transplation area 3.Monitoring of Mangrove Plantation area appointed by MoEF 4. Monitoring of sedimentation soil and ecological parameter (25 items on EIA main text Table 6.1.15 for soil and 7 items such as 1)Net primary productivity, 2)Chlorophyll-a, 3)Phosphate, 4)Nitrate, 5)Nitrite, 6)Particulate Organic Carbon. 7) SiO2)	Along MTHL alignment and mangrove replant area for Package I	Quarterly during the construction Period	**Standard is not existing, but quantity and quality should not be worsen**	**Sewri side (ST500-5500)**	**Sea Section (ST5500-16000)**	**Shivaji Nagar side (app. ST16000-19000)**	**Shivaji Nager side (Ramp Area)**	
				Along MTHL alignment and mangrove replant area for package II	4 Times / Year	1-1. Fauna-Flora (number of species and quantity	Bird monitoring is being done by a separate agency BNHS	Bird monitoring is being done by a separate agency BNHS	N/A	N/A	Birds Monitoring report by BNHS has been submitted separately
						(1) Number of species of bird	28				
						(2) Number of species of fish	25				
						(3) Estimated number of Flamingo	< 20,000				

						1-2 Mangrove density and community survey	Avicennia marina	Being carried out by Mangrove Foundation		correspondence with mangrove cell	Mangrove foundation report has been submitted separately
						(1) Number of species of mangrove	Dominant - Avicennia sp				
						(2) Density of mangrove (xx trees/10m x 10m)	EIA - Not disturbed.				
						1-3 Benthos Survey	Flora, fauna, phytoplankton, zooplankton, Benthos				-
						(1) Number of species and quantity by species					-
						2-1 Cutting tree confirmation	1. Tree Cutting: 407 trees (Till June 2023) 2. Transplanting: 500 Trees (Till June 2023)	20 trees were cut with approval of Forest Department on 29-10-2018. Compensatory plantation of 40 trees were done in casting yard area during the period 15-10-2020 to 18-10-2020. Maintenance of the same is being done	Cutting of tree - 341 Transplantation - 84		-
						(1) Number of cutting tree and species	407	20	341		
						3-1 Mangrove survey in the replant area	Being carried out by Mangrove Foundation	Being carried out by Mangrove Foundation	NA		Mangrove foundation report has been submitted separately
						(1) Number of species of mangrove					
						(2) Density of mangrove (xx trees/10m x 10m)					
						4 Ecological Parameter					-
						(1) Net primary Productivity <1,500 mgC/m3/day at surface	450				-
						(2) Chlorophyll-a <4mg/m3	4.3				-
						(3) Phosphate: 0.1-90µg/l	5				-
						(4) Nitrate: 1.0-500µg/l	5.75				-
						(5) Nitrite: <125µg/l	BDL[DL=2]				-
						(6) Particulate Organic Carbon 10-100mg/m³	1.12%				-
		Ecosystem				(7) SiO2: 10-5,000µg/l	34.46				-
	7	Hydrology	Flooding situation	Not applicable for Package I		**Criteria for evaluation Project activities and structures does not cause flooding and impacts on tidal conditions**	**Sewri**	**Shivaji Nagar**		**Gavhan**	
				2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year	Monitoring of flooding situation	No Flooding	No Flooding		**No Flooding**	
				Not applicable for Package III							
	8	Topography and Geology	Conditions in embankment area	2 Locations (1 Embankment of Inter Change in Shivaji Nagar and 2 Cutting area at toll gate in Chirle)	4 times / year x 4.5 years	**Criteria for evaluation Embankment shall be stabilized without any landslide and cracks**	**Shivaji Nagar**		**Chirle**	**Gavhan**	
						Monitoring of embankment	No changes in the embankment noticed	No changes in the embankment noticed	Rock filling activity is carried out as per agreement	**No changes in the embankment noticed**	
	9	Local conflict of interests	Construction worker's township	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	**Criteria for evaluation Employment opportunity shall be provided fairly**	**Sewri Camp Site**	**Shivaji Nagar Camp Site**	**Chirle**	**Gavhan Labour Camp**	
						Number of hired workers by community	around 1000	125-150	62	Around 16	
	10	Infectious diseases such as HIV/AIDS	Number of infected patient	2 Locations (major camp site in Sewri and	4 times / year x 4.5 years	**Criteria for evaluation Infection disease rate shall not be caused by the project**	**Sewri Camp Site**	**Shivaji Nagar Camp Site**		**Gavhan Labour Camp**	

				Shivaji Nagar)		Confirmation of health check record and inspect project site	Doctor on call checks site specific infections., minor and major incidents. 24x7 ambulance service, ERT team with trained first aiders available	Regular health checks-ups are done. In-house doctors are appointed at site and labour camps along with Male nurses, Trained first aiders and 24x7 ambulance services.	Regular Health checkup is carried out by site Doctor.	Regular health checks-ups are done. Inhouse doctors are appointed at site and labour camps along with Male nurses, Trained first aiders and Ambulance services on daily basis.	
	11	Labour Environment	Construction worker's condition	2 Locations (major camp site in Sewri and Shivaji Nagar)	2 times / year x 4.5 years	**Criteria for evaluation "Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act,1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"**	Distribution of Safety kits to 225 Workers Medical Camp organised; wherein > 500 workers were consulted. 220 No. of Malaria tests carried out. Glucose Distribution at Site during Summer Season for workmen. Organised Street Play for workers . Health Talk by Dr Akshay Shah Haemato Oncology on Hazards of Smoking & Chewing Tobacco and Preventive Measures. Inner health incentive program with co-ordination with Bhramakumaris Sanstha.	**Shivaji Nagar Camp Site**	**Gavan Camp site**	**Gavhan Labour Camp**	
						Site Visual Inspection	Weekly site inspection	Conforming with BOCW Act 1996	Conforming with BOCW Act 1996	Conforming with BOCW Act 1996	
Other	12	Accident	Number of accidents	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	**Criteria for evaluation Any accidents are not caused by construction**	**Sewri Site**	**Shivaji Nagar Camp Site**	**Chirle/Other area**	**Gavhan area**	
						Number of recorded accidents	0	Nil	Nil	Nil	

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2. Environmental Monitoring during Operation for 2 years after completion of construction

This form is prepared for reporting the monitoring results to JICA India Office. Only minimum required parameters are included in this form, and not all parameters in EMoP are covered.

Regarding soil contamination/sedimentation, some items shall be selected from the total 25 standards items during the Detailed Design. Only the **selected** items shall be reported to JICA, and the rest of items shall be deleted from this form.

Area	No	Item	Parameter	Location	Frequency a year	Item and Standard	Monitoring Result				Remark - reasons why the data is exceeding standard - counter measures when the data is exceeding
							Location 1	Location 2	Location 3	Location 4	
Pollution	1	Air pollution	SO_2, NO_2, PM_{10}, $PM_{2.5}$	2 Locations (Sewri and Shivaji Nagar)	2 times / year	**National Ambient Air Quality Standards (NAAQS)** **(Standard for 24hrs: Industrial and Residential)**	**Sewri**	**Shivaji Nagar**			
						1. SO_2: 80μg/m³					
						2. NO_2: 80μg/m³					
						3. PM_{10}: 100μg/m³					
						4. $PM_{2.5}$: 60μg/m³					
	2	Noise and vibration	Ambient and road side noise (dB(A)LAeq)	2 Locations (Sewri and Shivaji Nagar where baseline monitoirng was carried out)	2 times / year	**ion area Standard 85 dB(A) daytime (Japan** **Not constuction area : Ambient Noise Standard in India (dB(A) Laeq)**	**Sewri (ST 200-500) (Industrial area)**	**Sea Section (ST5000-5500) Migratory Bird Area (no standard on sea section)**	**Shivaji Nagar (Commercial area)**		
						Day time : 6-22 hr (continious)	-	-	-		-
						Night time: 22-6 hr (continious)	-	-	-		-
						(only sea section)	-	-	-		-
						Day time : 6-22 hr (10 min during 9-17 hrs)	-	-	-		-
						Night time: 22-6 hr (10 min 22-24 hr)	-	-	-		-
						-	-	-	-		-
						Note (standard values in Not construction area)	-	-	-		-
						1.Industrial Area	-	-	-		-
						Day Time: 75 (6-22hr)	-	-	-		-
						Night Time: 70 (22-6hr)	-	-	-		-
						2.Commercial Area:	-	-	-		-
						Day Time: 65 (6-22hr)	-	-	-		-
						Night Time: 55 (22-6hr)	-	-	-		-
			Vibration (dB) shall be converted from mm/s to dB	2 Locations (1. Sewri, 2. Shivaji Ngagar)	2 times / year	**Construction area Standard 75 dB daytime (Japan standard)** **Not constuction area : Vibration Standard (Japan Standard along the road)**	**Sewri (ST 200-500) (Industrial area)**	**Shivaji Nagar (Commercial area)**			
						Day time : 6-22 hr (continious)	-	-	-		-
						Night time: 22-6 hr (continious)	-	-	-		-
						-	-	-	-		-
						Note (standard values in Not construction area)	-	-	-		-
						1. Commercial /Industrial Area	-	-	-		-
						Day Time: 70 (7-20hr)	-	-	-		-
						Night Time: 65 (20-7hr)	-	-	-		-
Natural Environment	3	Protected Area	1.Monitoring of mudflat conditions including fauna-flora2. Monitoring of Cutting Tree and replantation/transplatio n area3.Monitoring of Mangrove Plantation area appointed by MoEF4. Monitoring of sedimentation soil and ecological parameter (25 items on EIA main text Table 6.1.15 for soil and 7 items such as	Along MTHL alignment and mangrove replant area	4 times / year x 4.5 years	**Standard is not existing, but quantity and quality should not be worsen**	**Sewri side(ST500-5500)**	**Sea Section (ST5500-16000)**	**Shivaji Nagar side(app. ST16000-19000)**	**Mangorove Replantatio n area appointed by State Government**	
						1-1. Fauna-Flora (number of species and quantity					-
						(1) Number of species of bird					-
						(2) Number of species of fish					-
						(3) Estimated number of Flamingo					-
						1-2: Mangrove density and community survey		not required			-
						(1) Number of species of mangorve		not required			-

			1)Net primary productivity, 2)Chlorophyll-a, 3)Phosphate, 4)Nitrate, 5)Nitrite, 6)Particulate Organic Carbon. 7) SiO2)			(2) Density of mangrove (xx **trees/10m** x 10m)		not required			-
						1-3: Benthos Survey		not required			-
						(1) Number of species and quantity by species		not required			-
						2-1: Cutting tree confirmation		not required			-
						(1) Number of cutting tree and					-
						3-1: Mangrove survey in the re					-
						(1) Number of species of mang					-
						(2) Density of mangrove (xx trees/10m x 10m)	not required	not required	not required		-
						4. Ecological Parameter					-
						(1) Net primary Productivity : <1,500 mgC/m3/day at surface					-
						(2) Chlorophyll-a <4mg/m3					-
						(3) Phosphate: 0.1-90µg/l					-
						(4) Nitrate: 1.0-500µg/l					-
						(5) Nitrite: <125µg/l					-
						(6) Particulate Organic Carbon: 10-100mg/m³					-
		Ecosystem				(7) SiO2: 10-5,000µg/l					-
	4	Hydrology	Flooding situation	2 Locations (1. CRZ at Sewri and 2. Shivaji Nagar)	4 times / year	**Criteria for evaluation** **Project activities and structures does not cause flooding and impacts on tidal conditions**	**Sewri**	**Shivaji Nagar**			
						Monitoring of flooding situation	-	-	-		
	5	Topography and Geology	Conditions in embankment area	2 Locations (1. Embankment of Inter Change in Shibaji Nagar and 2 Cutting area at toll gate in Chirle)	2 times / year	Criteria for evaluation **Embankment shall be stabilized without any landslide and cracks**	**Shivaji Nagar**	**Chilre**			
						Monitoring of embankment	-	-	-		

Regarding protected area (CRZ and Important Bird Area) and ecosystem, detailed long-term monitoring plan will be established during baseline survey of birds. This tentative monitoring form shall be updated based on the detailed longterm monitoring plan

QPR No. 27 (October to December 2023) – Attachment 2-6

MTHL - ROW Land Acquisition Status (Attachment 2-6):

The total land required on the Navi Mumbai side is 108.4379 ha

Land acquired by MMRDA – 108.4379 ha

Land in possession of MMRDA – 106.3542 ha

Balance land under acquisition – 0.3937 ha

Note: The acquisition of 0.3937 ha of ROW land is in progress and likely to complete.

ROW Land Required in ha (for Package-3)	ROW land acquired by MMRDA In ha	ROW Land in possession of MMRDA in ha	Balance ROW to be handed over (Possession to be taken + Under acquisition)	Anticipated date for 100% ROW Land Acquisition	Remarks
108.4379	108.0442	108.0442	2.0837 (1.6900+0.3937)	31-1-2023	The payment status to the land owners is awaited from CIDCO. The same would be communicated to JICA on receipt of the same.

Attachment 2-8

RAP Implementation Monitoring Form For Mumbai Trans Harbour Link Project (MTHL)

1. General Information

a. RAP Implementation Monitoring Results: Progress Status Report (PSR) for the 1st quarter of 2023- 2024

b. Date of Preparing This form: 30-06-2023

c. Person Preparing This form:
Name: Shivananda. K
Position: The Engineer
Department/Organizations: General Consultants

2. Scale of Impact

2.1 Project Affected Households (PAHs) and Project Affected Persons (PAPs) for Sewri side

Total Project Affected Households (PAHs)	231Hhs	Titleholders: 0 Hhs Non-titleholders: 231Hhs
Total PAPs	1,282 persons*	Titleholders: 0 persons Non-titleholders:1,282 persons*
PAHs who need relocation (as residents)	231Hhs	Titleholders: 0persons Non-titleholders:231 (1,088persons) *
PAPs who do not need relocation (as residents)	0 persons	Titleholders: 0 persons Non-titleholders: 0 persons
Commercial PAPswho need relocation	66 (194persons) *	Titleholders: 0 persons Non-titleholders:66(194persons) *
Commercial PAPswho do not need relocation	0 persons	Titleholders: 0 persons Non-titleholders: 0 persons

* - Figures for number of persons do not include no. of family members of few additional PAPs.

QPR No. 27 (October to December 2023) Attachment 2-8

Structures

Structures	Residential:231 Commercial:65 Residential + Commercial: 1 (counted in Commercial) Community:9 (Religious Properties 6, Public Toilets3) Government:16 (MbPT Structures 9, Occupants of Leased Plots 6 & Police Chowki 1) Total: 322

2.2 Fishery

Categories of Fisher-folks	Identified Number Mumbai side	Navi Mumbai side	Total	Remarks
C1: Fishing stakes and nets in RoW (250 m.)	178	54	232	Funds for 232 nos C1 category fishermen are transferred to Commissioner of Fisheries in 2017-22.
C2: Fishing Stakes and Nets within 500 m. of RoW (Southern side)	268	493	761	1. Funds for 704 nos C2 category fishermen are transferred to Commissioner of Fisheries in 2017-22. 2. 57 nos C2 category fishermen are verified and disbursement in process.
C3: Hand Pickers	1492	4040	5532	Funds for 5229 nos of C3 category fishermen are already transferred to the Commissioner of Fisheries and the balance of 302 Nos. of C3 category fishermen are in process of fund transfer to the Commissioner of Fisheries.
C4: Commercial and Artisanal Fisher-folks (Loss of Time and Increased	Will be observed during the construction period	Will be observed during the construction period	---	Nil

Operating Costs)				
C5: Fisher-folks with Loss due to Turbidity	Will be observed during the construction period	Will be observed during the construction period	----	Nil
C6: Fisher-folks with Damages due to Accidents	Will be observed during the construction period	Will be observed during the construction period	—	Nil

2.3 Land Acquisition / Transfer

Location	Land Required in Ha.	Land Acquired in Ha.	Balance ROW to be Handed over in Ha	Remarks
Sewri	10.089	10.089	0	
Navi Mumbai	108.4379	108.0442	**2.0837**	1.69 Ha yet to over to the Contractor & 0.3937 Ha is under acquisition
Total	**118.179**	**118.1332**	**2.0837**	

3. Monitoring Results

3.1 Sewri Section

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
Resettlement	No. of Residential PAHs provided with Allotment Letters of Alternate Tenements	231	231	0	**231**	100%	
	No. of Residential PAHs given possession of Alternate Tenements	231	231	0	**231**	100%	

QPR No. 27 (October to December 2023) Attachment 2-8

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
	No. of Commercial/R+C PAPs provided with Allotment Letters of Alternate Shops/Tenements	66	66	0	66	100%	
	No. of Commercial R+C PAPs given possession of Alternate Shops/Tenements	66	66	0	66	100%	
	No. of Occupants of MbPT Leased Plots provided Compensation	6	6	0	6	100%	
	No. of Religious properties Relocated / Removed	6	6	0	6	100%	
	No. of Other Community properties Relocated / Removed	4	4	0	4	100%	
	No. of Structures in possession of MbPT Dismantled / Cleared	9	9	0	9	100%	
	No. of PAHs/PAPs provided Shifting Charges / Arrangement	297	297	0	297	100%	
Rehabilitation	No. of PAHs / PAPs identified for Livelihood Support in Post Resettlement Assessment						

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QPR No. 27 (October to December 2023) Attachment 2-8

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
	No. of PAHs / PAPs provided Livelihood Support under Program-I (to be identified)						
	No. of PAHs / PAPs provided Livelihood Support under Program-II (to be identified)						
	No. of PAHs / PAPs provided Livelihood Support under Program-III (to be identified)						
	No. of new enterprises started						
Grievance Redress	No. of Grievances Received by FLGRC	4					
	No. of Grievances Disposed by FLGRC	3	3	0	3	100%	
	No. of Grievances Received by SLGRC	1	0	0	0		
	No. of Grievances Disposed by SLGRC	0					
Post Resettlement Assistance	No. of CHSs Registration helped						
	No. of CHSs provided Tenements for Social Amenities						
	No. of CHSs' Maintenance Fund Invested						

QPR No. 27 (October to December 2023) Attachment 2-8

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
	No. of CHSs' Office Bearers provided training						

SUMMARY OF FISHER FOLKS OF MTHL PROJECT (Influence Zone of 24 villages)

Up to 30-06-2023

Sr.No.	Village Name	Total number of forms Received	Total approved eligible family units			
			C1	C2	C3	Total
1	Bamandongri	273	1	1	28	**30**
2	Belapur	110	0	5	15	**20**
3	Belpada	1185	0	7	478	**485**
4	Diwale	455	12	201	52	**265**
5	Ganeshpuri	276	0	37	35	**72**
6	Gavhan	2162	0	14	1317	**1331**
7	Jasai	926	0	0	18	**18**
8	Jawale	51	0	1	0	**1**
9	Kombadbhuja	413	1	23	134	**158**
10	Kopar	994	2	5	228	**235**
11	Karave	178	0	44	67	**111**
12	Mahul	1062	129	77	604	**809**
13	Moha	475	22	25	134	**181**
14	Mora	818	0	102	375	**477**
15	Morave	539	14	21	88	**123**
16	Nhava	1646	0	32	307	**339**
17	Sarsole	266	0	30	83	**113**
18	Sewri	305	0	1	72	**73**
19	Shelghar	241	0	0	15	**15**
20	Shivajinagar	202	1	4	61	**66**
21	Trombay	1208	49	219	823	**1091**
22	Ulwe	218	1	3	14	**18**
23	Uran & Hanuman Koliwada	683	0	11	600	**611**
24	Vahal	411	0	2	1	**3**
Total		**15097**	**232**	**865**	**5548**	6645

SUMMARY OF FISHER FOLKS OF MTHL PROJECT (Out of Influence Zone villages)

Up to 30-06-2023

QPR No. 27 (October to December 2023) Attachment 2-8

Sr.No.	Village Name	Total number of forms Received	Total approved eligible family units			
			C1	C2	C3	Total
1	Airoli	76	0	15	0	15
2	Ghansoli	340	0	15	0	15
3	Kopar khairne	245	0	1	0	1
4	Vashi Gaon	256	0	25	0	25
5	Juhugaon	201	0	3	0	3
6	Dhutum	398	0	1	0	1
7	Gharapuri	261	0	14	0	14
8	Kelavane	105	0	2	0	2
9	Koproli	70	0	4	0	4
10	Takigaon	1	0	1	0	1
11	Vindhane	12	0	2	0	2
12	Dighode	708	0	17	0	17
13	Kundegaon	548	0	24	0	24
	Total	**3221**	**0**	**124**	**0**	**124**

Total applications received (Influence Zone)	15097
Total applications received (Out of Influence Zone)	5744
Duplicate/Repeated Application	2428
Rejected application	11643
Eligible applications	6770
Total approved applications	6527

QPR No. 27 (October to December 2023) Attachment 2-8

Grievance Redressal Committee (GRC) for Fisher-folk Compensation

No. of Cases referred to GRC	No. of Cases		No. of Cases Rejected	No. of Cases under Consideration
	Allowed	**Compensation Paid**		
3	**3**	**3**	**0**	**3**

QPR No. 27 (October to December 2023) Attachment 2-10

Implementation Schedule for Fisher-folks Compensation & Land Acquisition in Navi Mumbai

A. Implementation Schedule for Fisher-folks Compensation: -

Sr. No	Task Designation	Approving authority	Start Date	Completion Date
1	Approval of fisherfolk's compensation Policy	Fisher-folks Compensation Committee (FCC)	08-10-2015	23-12-2015
2	Approval by MMRDA	MMRDA	10-12-2015	23-12-2015
3	Submission to JICA	MMRDA	–	04-01-2016
4	A detailed list of PAP and compensation plan	1. Detailed list of Fisher-folk PAP up to list 1 (1165 Nos) & 2 (1399 Nos) are finalized by the Fisheries Department. 2. From 2018, FEVC committee is the approval authority of PAF and approved C1- 232 Nos. C2 - 761 Nos and C3- 5534 Nos are approved.	23-12-2015	**Up to 31-03-2023** 1. Total up to date applications scrutinized = 20841 Nos (Influence zone & out of influence zone). 2. Eligible = 6770 Nos. 3. Rejected = 11643 Nos.
	Validation of compensation plan	Fisher-folks Compensation Committee (FCC)	23-12-2015	1. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk from Sewri, Mahul & Trombay (Mumbai side) – 12th September 2017 and 20th November 2018 for C-2 & C3 Category only.

QPR No. 27 (October to December 2023) Attachment 2-10

Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
			23-12-2015	2. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk of Navi Mumbai of C2 & C3 on 25th April 2018. 3. Validation of compensation is in progress and would be completed in phases.
6	Approval of compensation plan	FCC	23-11-2015	28-12-2017
7	Approval by MMRDA	MMRDA	23-11-2015	09-03-2021

B. Implementation Schedule for Land Acquisition in Navi Mumbai: -

ROW Land Required in Ha.	ROW Land Acquired by MMRDA in Ha.	ROW Land in Possession of MMRDA in Ha	Balance Land to be acquired in Ha	Anticipated date for 100% ROW Land Acquisition	Remarks
108.4379	108.0442	108.0442	0.3937	30-4-2023	

QPR No. 27 (October to December 2023) Attachment 2-10

Implementation Schedule for SIA (Sewri Section)

Task No.	Task Designation	Start Date	Completion / Forecast Date
1	**Preparation of Final SIA**		
1.1	MMRDA Approval	October 2015	January 2016
1.2	JICA Approval	November 2015	January 2016
1.3	Posting of project Information on MMRDA		
1.4	Translation and disclosure of entitlement policy in local language to all PAP's	December 2015	January 2016
2	**LARP Implementation**		
2.1	Grievance redress mechanism established	August 2016	August 2016
2.2	Staff deployment SIA implementation	June 2016	Dec. 2021
2.3	Staff Deployment Public Relation	June 2016	June 2016
2.4	Hiring of Independent Evaluation Agency	November 2018	November 2020
2.5	Preparation and issue of allotment letters to PAPs	June 2018	Dec. 2022
2.6	Notice of PAPs for shifting (Sewri Section)	December 2018	Nov. 2021
2.7	Allotment of dwelling units to PAPs	September 2016	Dec. 2022
2.8	Shifting of PAPs to resettlement Colony	December 2018	Nov. 2021
2.9	Transfer of compensation/allowance/ assistance to PAPs	December 2018	Dec. 2022
2.10	Creation of Community Revolving fund (within 3 months post handing over)	April 2019	October 2023
2.11	Assessment of economic rehabilitation needs by individual household (within 6 months after handing over	September 2019	October 2023
2.12	Registration of Co-operative housing societies transfer of maintenance funds. (6 months period)	December 2019	April 2023
2.13	Signing of Civil Contract		January 2018
2.14	Notice of Civil works to proceed		March 2018
3	**Monitoring & Evaluation**		
3.1	Internal Monitoring- Monthly/ Quarterly	June 2016	July 2020
3.2	Independent Evaluation Mid-term and End term evaluation Mid Term End Term	May 2019 November 2019	June 2020 October 2023

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Attachment 3- JICA's Concurrence Status

Status of JICA'S Concurrence

Sl. No.	Brief description	Procurement procedure	Bid Cost		JICA's Concurrence on					
			Local Currency (Cr Rs.)	Total (Cr Rs)	PQ Documents	PQ Evaluation	Bid Documents	Technical Evaluation	Financial Evaluation	Contract
1.	Package-1 (CH 0+000 km to CH10+380 km)	ICB with PQ (2P)	7637.30	7637.30	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 22nd Dec 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 12th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence – 15th Feb 2018
2.	Package-2 (CH 10+380 km to CH18+187 km)	ICB with PQ (2P)	5612.61	5612.61	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 22nd Dec 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 12th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence – 15th Feb 2018
3.	Package-3 (CH18+187 to CH21+800)	ICB with PQ (2P)	1013.79	1013.79	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 15th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence – 15th Feb 2018
4.	Package-4 Intelligent Transport System	ICB with PQ (2P)	427.00	427.00	JICA's Concurrence - 23rd Aug 2019	NA	JICA's Concurrence - 24th Aug 2021	JICA's Concurrence - 15th Feb 2022	JICA's Concurrence - 21st Apr 2022	JICA's Concurrence – 13th Oct 2022

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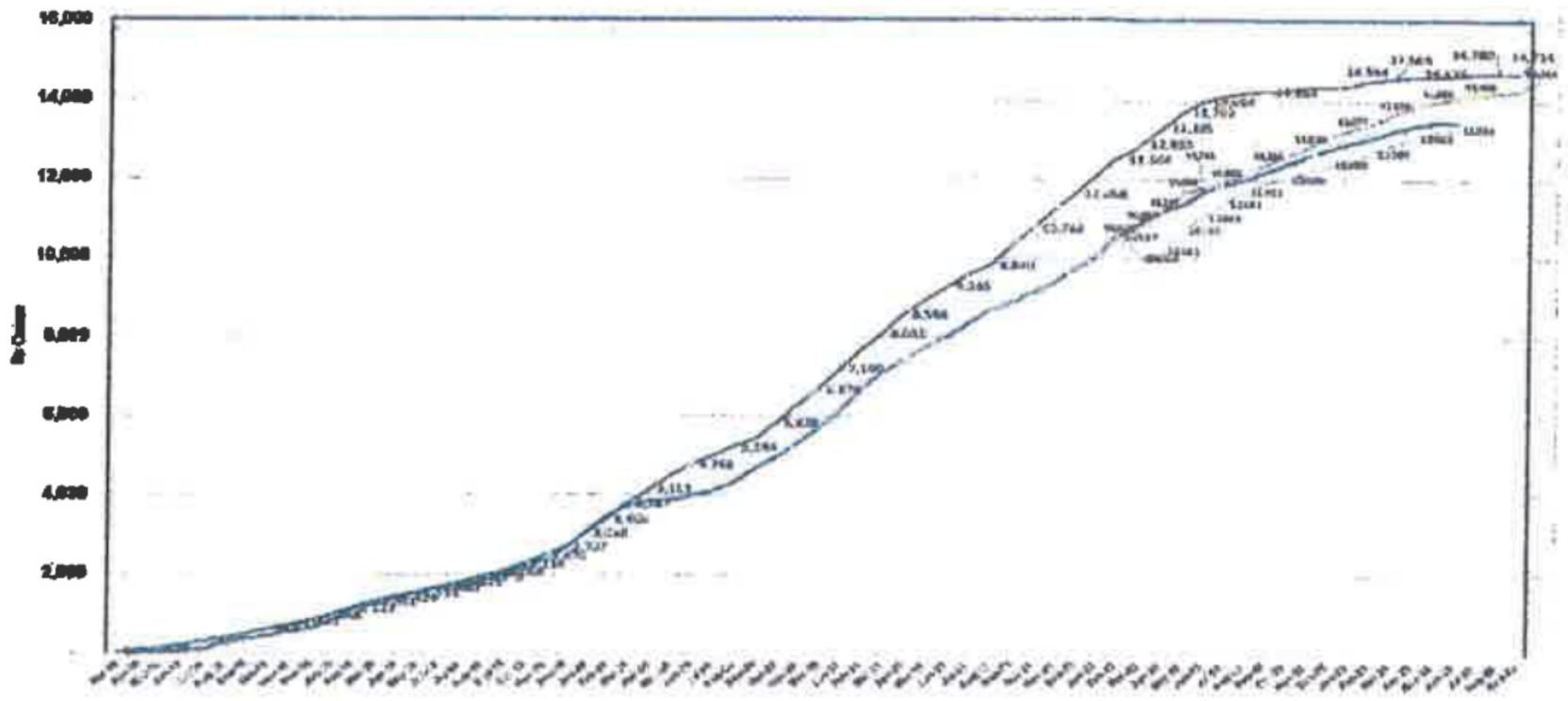
Attachment 4- Project Procurement and Financial Status till 31st December 2023

PROJECT PROCUREMENT AND FINANCIAL STATUS TILL 31st Dec 2023

Type	Contract	Awarded or Estimated Value (in Rs. Crore)	Current Status	Contractors	Project Commencement Date	Stipulated Project Completion Date	Revised Project Completion Date After granting the Extension of Time (EOT)	% of Overall Works Progress (Design, Material Procurement and Construction) as per the Primavera Baseline Schedule Updated as of 31st Dec 2023	% of Financial Progress till 30th June 2023 (GC Certified) (Excluding Mobilization Advance, Price Adjustment and Work Variation)
CIVIL	Package-1 (CH 0+000 km to CH 10+380 km)	7637.30	Awarded	L&T-IHI Consortium	Mar 2018	21-Sep-2022	15-Dec-2023	100%	98.22%
	Package-2 (CH 10+300 km to CH18+187 km)	5612.61	Awarded	DAEWOO-TPL JV	Mar 2018	21-Sep-2022	15-Dec-2023	100%	96.99%
	Package-3 (CH18+187 to CH21+800)	1013.79	Awarded	L&T	Mar 2018	21-Sep-2021	07-Dec-2023	100%	93.50%
ITS	Package-4 Intelligent Transport System (ITS)	449.00	Awarded	Strabag GmbH JV	June 2022	30- Sep-2023	15-Dec-2023	98.53%	95.68%

Attachment 5- Financial S-Curve for Cumulative Planned Vs Actual Amount in Rs Crores

MTHL - Combined Financial S-Curve Updated as of 30th June 2023



-Actual Claimed Invoice in Rs Crores

-Actual Claimed Invoice as per the Catch-Up Plan in Rs Crores

-Planned Invoice as per the Catch-Up Plan

-Planned Invoice in Crores

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Attachment 6- Package-1's Construction Programme

Updated as of 31st December 2023

Attachment 7- Package-2's Construction Programme Updated as of 31st December 2023

Attachment 8- Package-3's Construction Programme
Updated as of 31st December 2023

Attachment 9- Project Progress Photos for December 2023

Package 1 – Site Progress Photos



Photo 1-



Photo 2-







Photo 4-



Photo 5-



Photo 6-



Photo 7-



Photo 8-



Photo 9-



Photo 10-





Photo 1, 2-

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Photo 3-



Photo 4-



Photo 5-



Photo 6-

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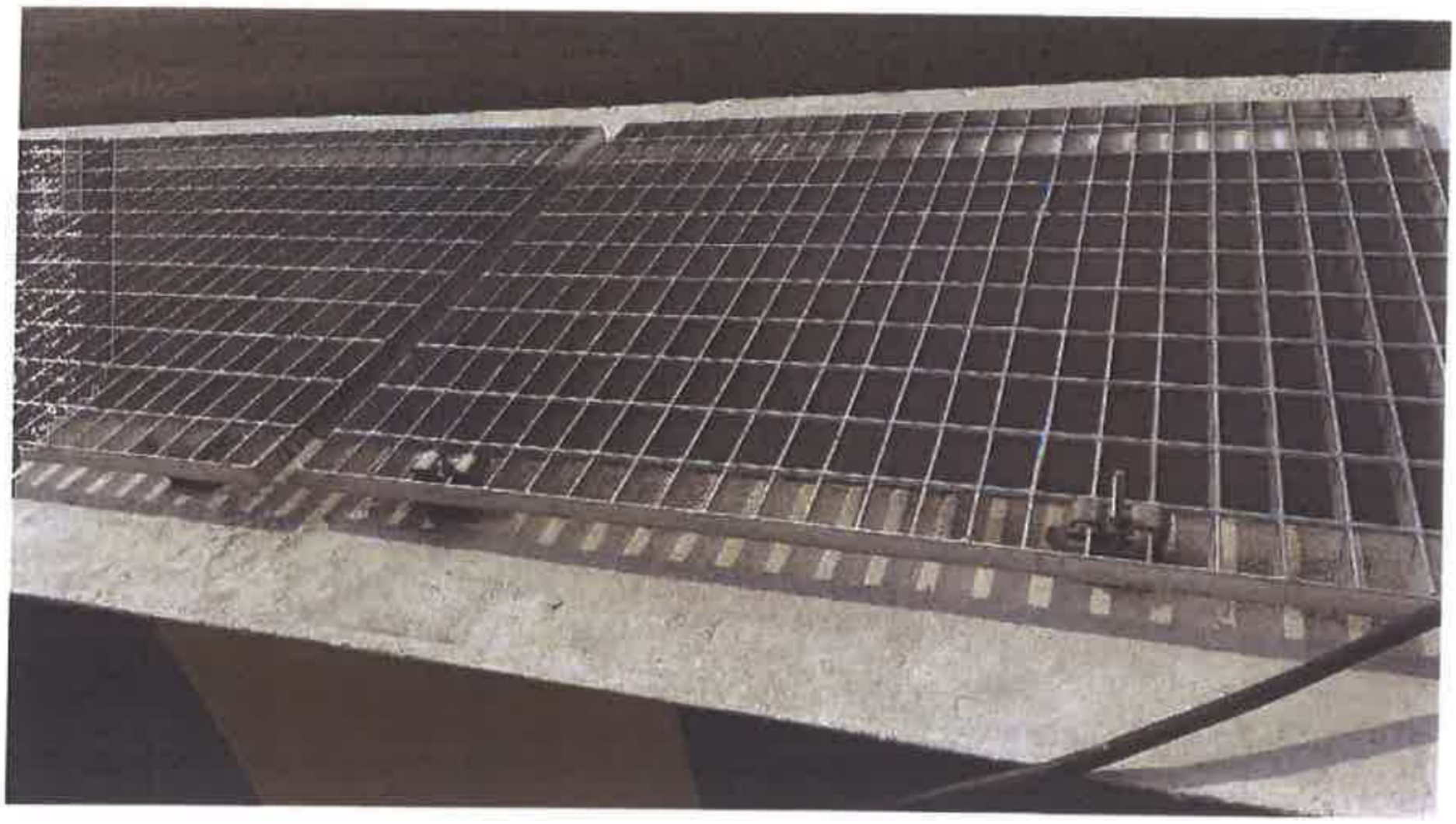



Photo 7,8 -





Photo 9,10 -

Package 3 – Site Progress Photos



Photo 1-

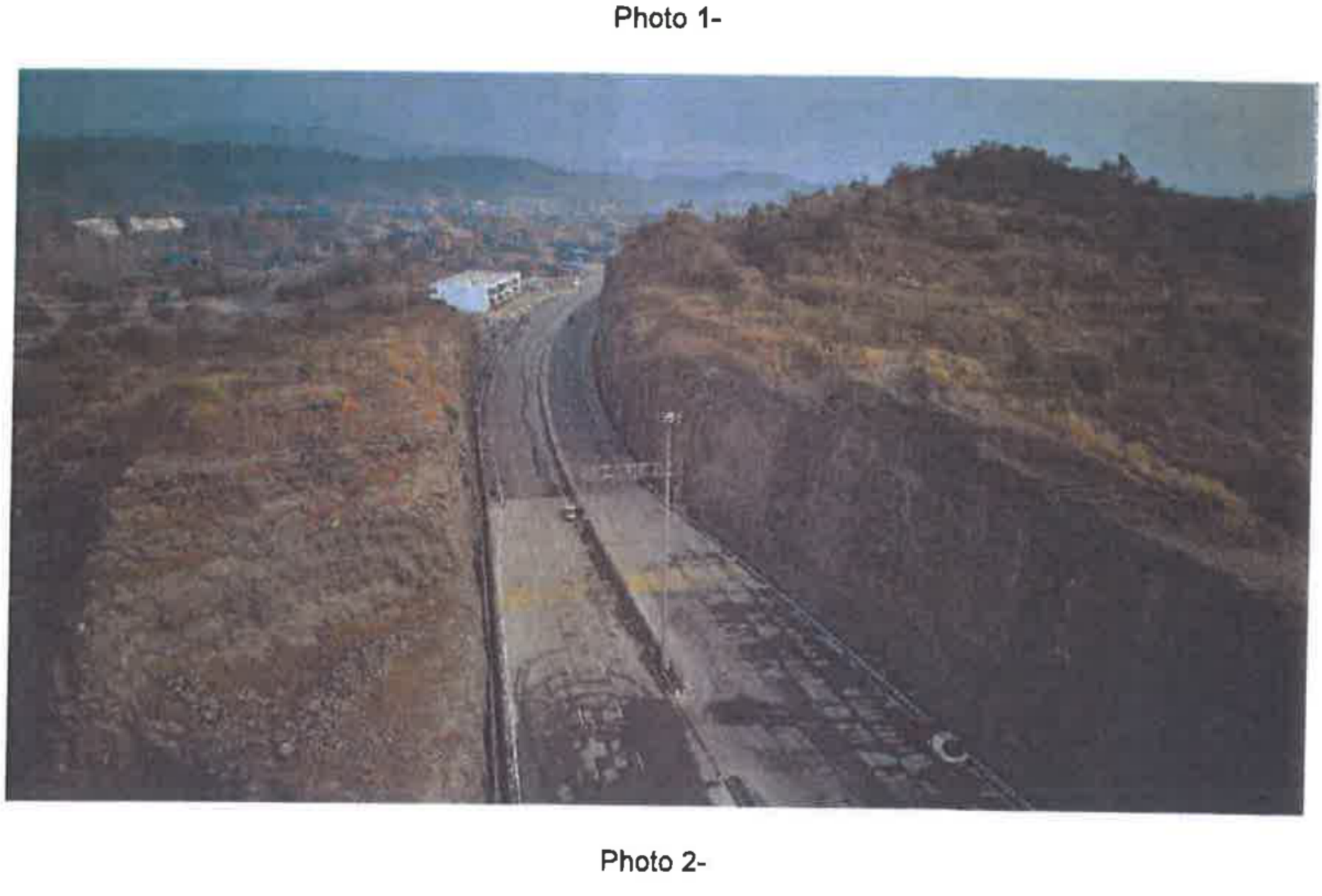

Photo 2-



Photo 3-



Photo 4-



Photo 5-



Photo 6-



Photo 7-

Package – 4 Site Progress Photos



Photo 1-



Photo 2-



Photo 3-



Photo 4-


ADVANCED
SYSTEM
Surveillance System (36)
Display





Photo 5,6,7- Photographs of Command Control Center



Photo 8- Chirle-Service Road







Photo 9,10,11- Temporary Road Connecting to Ramp 3 & 5 – Shivaji Nagar



Photo 12- MAB – GAVHAN



Photo 13- SAB – SEWRI



Photo 14- SAB – SHIVAJI NAGAR



Photo 15-



Photo 16-

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Annexure-1 JICA Reimbursement backup July-2023

Reimbursement details for the month of April 2023

Date of disbursement	Amount of Disbursement in JPY
04-Apr-23	JPY 991,235,908
06-Apr-23	JPY 59,685,930
04-Apr-23	JPY 222,991,575
04-Apr-23	JPY 36,689,963
04-Apr-23	JPY 3,458,019
04-Apr-23	JPY 308,667,466
04-Apr-23	JPY 231,886,804
04-Apr-23	JPY 63,337,875
04-Apr-23	JPY 22,274,238
Total Amount	**JPY 1940.22 million**

Annexure-2 JICA Reimbursement backup May'2023

Reimbursement details for the month of May 2023

Date of disbursement	Amount of Disbursement in JPY
12-May-23	JPY 314,829,487
12-May-23	JPY 135,125,879
12-May-23	JPY 29,724,135
12-May-23	JPY 95,378
12-May-23	JPY 1,002,128,298
12-May-23	JPY 34,642,414
12-May-23	JPY 38,763,148
12-May-23	PY 17,953,076
30-May-23	PY 110,012,453
30-May-23	PY 35,569,230
30-May-23	PY 90,695,240
30-May-23	PY 289,373,568
Total Amount	**PY 2098.91 million**

Annexure-3 JICA Reimbursement backup June'2023

Reimbursement details for the month of June 2023

Date of Disbursement	Amount of Disbursement in JPY
06-Jun-23	JPY 100,997,591
06-Jun-23	JPY 17,294,751
06-Jun-23	JPY 794,872,034
06-Jun-23	JPY 13,434,980
27-Jun-23	JPY 23,965,254
27-Jun-23	JPY 99,295,791
27-Jun-23	JPY 51,561,048
27-Jun-23	JPY 165,604,468
27-Jun-23	JPY 622,731,126
27-Jun-23	JPY 858,737,301
27-Jun-23	JPY 111,319,856
27-Jun-23	JPY 275,007,893
Total Amount	**JPY 3134.82 million**

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General Consultant for Mumbai Trans Harbour Link Project

Ref No: MTHL/GC/MMRDA/LT/ A199 **/2024** **09th May 2024**

To,
Engineer-in-Chief
Engineering Division
Mumbai Metropolitan Regional Development Authority (MMRDA)
2nd Floor, New MMRDA Building,
Plot No R-06 & R-12, 'E' Block
Bandra Kurla Complex, Bandra (E),
Mumbai, Maharashtra, India 400051.

Sub: General Consultancy services for Mumbai Trans Harbour Link (MTHL) project – **Submission of the Quarterly Progress Report (QPR) No.28 for January-February-March 2024.**

Dear Sir,

With reference to the above subject, please find the enclosed Quarterly Progress Report (QPR) No. 28 for the period of January-February-March 2024. This is for your information and records.

Assuring you of our best services always

Thanking you,
Yours faithfully,

K.R. Shivananda
The Engineer
General Consultant (MTHL)

Encl: As above

CC:
Superintending Engineer – MMRDA – Mr. Arjun Korgaonkar
Superintending Engineer – MMRDA - Mr. Yatin Sakhalkar
Superintending Engineer – MMRDA – Mr. Abhijit Bhisikar
Executive Engineer – MMRDA – Mr. M. P. Singh
} By Email

एम एम आर डी ए
MMRDA

Mumbai Metropolitan Region Development Authority

Mumbai Trans Harbour Link Project

Quarterly Progress Report - No. 28

(From 1st January to 31st March 2024)



Mumbai Trans Harbour Link Project (MTHL)

Quarterly Progress Report No. 28

1st January 2024 to 31st March 2024

Loan Agreement No. ID-P255 (Tranche–I), ID-P283 (Tranche–II) & ID-307 (Tranche-III)

ORGANIZATION INFORMATION

Borrower	**Mumbai Metropolitan Region Development Authority**	
	Person in Charge	**Metropolitan Commissioner, MMRDA**
	Contact Address	M.M.R.D.A. New Office Building, Bandra-Kurla Complex, Plot no. R-5, R-6 & R-12, E Block, Bandra (East), Mumbai - 400051 Phone: +91-22-26594000 Fax No: +91-22-2659 1264
Executing Agency	**Mumbai Trans Harbour Link Project Implementation Unit**	
	Headed by:	Engineer-In-Chief (EIC) Mumbai Trans Harbour Link Project Implementation Unit
	Contact Address	M.M.R.D.A. New Office Building, Bandra-Kurla Complex, Plot no. R-5, R-6 & R-12, E Block Bandra (East), Mumbai - 400 051 Phone: +91-22-2659 4034 Fax No: +91-22-2659 4179

Details of JICA Loan

Source of Finance	JICA ODA Loan Portion:	238,572 million Japanese YEN (JPY)
	Tranche-I:	144,795 million Japanese YEN (JPY) (Loan Agreement signed on 31st Mar 2017)
	Tranche-II:	66,909 million Japanese YEN (JPY) (Loan Agreement signed on 27th Mar 2020)
	Tranche-III:	30,755 million Japanese YEN (JPY) (Loan Agreement signed on 27th Feb 2023)
Terms and Conditions of JICA ODA Loan (Tranche-1)	Repayment Period:	30 years, including 10 years of the grace period.

DOCUMENT VERIFICATION AND REVISION RECORD

PROJECT NAME	**Mumbai Trans Harbour Link Project**		
DOC NO.	**28**	**DATE OF ISSUE**	**09-05-2024**
DOC TITLE	**Quarterly Progress Report No. 28**		

REV No.	DATE OF ISSUE	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY
R0	05/07/2017	Quarterly Progress Report No. 1 (Apr-Jun 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/10/2017	Quarterly Progress Report No. 2 (Jul-Sep 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/01/2018	Quarterly Progress Report No. 3 (Oct-Dec 17)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	05/04/2018	Quarterly Progress Report No. 4 (Jan-Mar 18)	J Senthil	Dr T K Sundaram	Dr Robin Sham
R0	24/07/2018	Quarterly Progress Report No. 5 (Apr-Jun 18)	Prashant B	Dr T K Sundaram	Dr Robin Sham
R0	10/10/2018	Quarterly Progress Report No. 6 (Jul-Sep 18)	Prashant B	Dr T K Sundaram	Dr Robin Sham
R1	08/02/2019	Quarterly Progress Report No. 7 (Oct-Dec 18)	Prashant B	J Senthil/ Dr T K Sundaram	Dr Robin Sham
R0	05/04/2019	Quarterly Progress Report No. 8 (Jan-Mar 19)	Prashant B	J Senthil	V. D. Sharma/ Dr Robin Sham
R0	18/09/2019	Quarterly Progress Report No. 9 (Apr-Jun 19)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	13/11/2019	Quarterly Progress Report No. 10 (Jul-Sep 19)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	11/02/2020	Quarterly Progress Report No.11 (Oct-Dec 19)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	25/11/2020	Quarterly Progress Report No.12 (Jan-Mar 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	15/12/2020	Quarterly Progress Report No.13 (Apr-Jun 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	06/01/2021	Quarterly Progress Report No.14 (Jul-Sept 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	12/02/2021	Quarterly Progress Report No.15 (Oct-Dec 20)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	06/05/2021	Quarterly Progress Report No.16 (Jan-Mar 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	30/07/2021	Quarterly Progress Report No.17 (Apr-Jun 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	11/11/2021	Quarterly Progress Report No.18 (Jul - Sep 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	17/01/2022	Quarterly Progress Report No.19 (Oct-Dec 21)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	22/04/2022	Quarterly Progres Report No.20 (Jan - Mar 22)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	12/07/2022	Quarterly Progress Report No.21 (Apr-Jun 22)	Prashant B	Mr. Som Ghosh	Dr Robin Sham
R0	18/10/2022	Quarterly Progress Report No.22 (Jul-Sep 22)	Prashant B	Mrs. Mayil. K	Dr Robin Sham
R0	10/01/2023	Quarterly Progress Report No.23 (Oct-Dec 22)	Mrs. Mayil.	Mr. Som Ghosh	Dr Robin Sham
R0	16/04/2023	Quarterly Progress Report No.24 (Jan-Mar 23)	Mrs. Mayil.	Mr. Som Ghosh	Dr Robin Sham
R0	01/08/2023	Quarterly Progress Report No.25 (Apr-Jun 23)	Mr. Ayush Kottary	Mr. Som Ghosh	Mr. Shivananda. K
R0	31/01/2024	Quarterly Progress Report No.26 (Jul-Sep 23)	Mr. Ayush Kottary	Mr. Som Ghosh	Mr. Shivananda. K
R0	31/01/2024	Quarterly Progress Report No.27 (Oct-Dec 23)	Mr. Ayush Kottary	Mr. Som Ghosh	Mr. Shivananda. K
R0	09/05/2024	Quarterly Progress Report No.28 (Jan-Mar 24)	Mr. Ayush Kottary	Mr. Som Ghosh	Mr. Shivananda. K

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1.0 PROJECT DESCRIPTION

1.1 Project Objective

Original:
To improve connectivity in Mumbai Metropolitan region by constructing the Mumbai Trans Harbour Link connecting Mumbai with Navi Mumbai, thereby contributing to mitigation of traffic congestion and promoting regional economic development.

Actual *(P/R, PCR)*

There is no change in the Project Objective.

1.2 Necessity of the Project

The Project is consistent with the development policy, sector plan, national/regional development plans and demand of target group of the recipient country.

Benefits from MTHL Project

- Saving in travel time for commuters from Mumbai to Navi Mumbai.
- Improved comfort and accessibility between the island and the mainland.
- Reduced operating costs of vehicles due to lesser congestion.
- Smooth traffic flow from Navi Mumbai airport to Mumbai Island.
- Accelerated economic development of Navi Mumbai and nearby regions.
- Greater economic integration of Mumbai Island with Navi Mumbai and extended regions of Pune, Goa, Panvel and Alibaug.
- Improvement in environment and reduced pollution levels.
- Improved safety due to reduction in accidents.
- Improvement in trade competitiveness through faster and improved logistics.
- Accelerated growth of Navi Mumbai.
- Decongestion of Mumbai Island and dispersal of population to Navi Mumbai region & beyond.

Necessity of the Project

1. Although the urbanization in India has been rapidly progressing, infrastructure development in the urban areas has not caught up its progress. Particularly, the traffic congestion in the urban areas due to a lack of road network hinders the economic development. Thus, Government of India (GOI) places transport and connectivity as one of the "Growth Enablers" and plans to enhance road network in the "Three Year Acton Agenda 2017-2018 to 2019-20 (NITI Aayog)".
2. Mumbai Metropolitan Region, which includes Mumbai and Navi Mumbai, has about 18.4 million people in population as of 2011 (Census 2011) and the population density reaches 20,694 people per square km in the center of Mumbai, which is one of the most overpopulated and high-density cities in the world.
3. Mumbai, the narrow stretch of land that has traditionally been the epicentre of India's commerce, has seen a steady increase in population in the last three decades despite obvious spatial constraints. Thus, the development of Navi Mumbai has been identified as an urgent requirement for broad development in Mumbai Metropolitan Region.
4. There is no change in the Necessity of the Project preamble. jurisdiction, has been facilitating

various development plans particularly in Navi Mumbai area, which stands at the opposite site of Mumbai across the Mumbai Bay and still has spacious area for development, such as a new international airport, Special Economic Zone (SEZ) and expansion of Jawaharlal Nehru Port in order to promote the sustainable economic development in Mumbai Metropolitan Region.

5. Furthermore, a lack of connectivity in Mumbai has stunted its growth. The GoM has given importance to construct the faster connection with Mumbai to Navi Mumbai International Airport, Jawaharlal Nehru Port, Mumbai-Pune expressway and main hinterland.

6. Accordingly, the Mumbai Trans Harbour Link (MTHL) has been identified as the important infrastructure to improve the connectivity between Mumbai and Navi Mumbai and continue economic development in Mumbai Metropolitan Region.

   The MTHL is proposed to be developed as an expressway link comprising of a dual three- lane main carriageway bridge connecting Sewri in Mumbai to Chirle in Navi Mumbai. When completed, MTHL will reduce the distance between Mumbai and Navi Mumbai and will help save approximately an hour in travel time. Also, development of Navi Mumbai along with the imminent construction of the Navi Mumbai airport will lead to increased traffic between Mumbai and Navi Mumbai. Consequently, the project is envisaged to; improving accessibility between Mumbai and Navi Mumbai, accelerating growth of Navi Mumbai, smooth traffic flow from Navi Mumbai airport to Mumbai, accelerating economic development of Navi Mumbai and surrounding regions, greater economic integration of Mumbai with Navi Mumbai and extended regions of Pune, Goa, Panvel and Alibaug, and decongestion of Mumbai and dispersal of population to Navi Mumbai region and beyond.

7. The Comprehensive Transportation Study (CTS) for Mumbai Metropolitan Region which was guided by Mumbai Metropolitan Region Development Authority (MMRDA) and supported by World Bank, was completed in July 2008, which was over 25 years after the issuance of the last comprehensive transport study. The report provided a vision for Mumbai's future transportation as seamless and integrated system, in which commuters can make their journeys safely and conveniently by various modes of transport, particularly by public transport, and recommended the development of Multi Modal Corridor to take care of the varied travel demands of the region for the period up to 2031. The CTS proposed to develop the highway network in the region. The MTHL has been regarded as the priority road for Mumbai, considering its function and importance connecting between Mumbai and Navi Mumbai.

8. Necessity of the Project: - To promote economic development in Mumbai Metropolitan Region it is essential to improve the connectivity between Mumbai and Navi Mumbai, by constructing MTHL

Actual *(P/R, PCR)*

There is no change in the Necessity of the Project preamble.

1.3 Rationale of the Project Design

- Timing, Scale, Technology of the Project:

Demand Analysis

1. At the opening year 2022, the daily traffic on the main bridge is expected to be 39,300 PCU. The traffic is projected to increase up to 103,900 by 2032 and up to 145,500 by the year 2042. The daily breakdown by vehicle class on the main bridge link is presented in the Table 1.3.1 below:

Table 1.3.1 Demand Projections Over the Period

Vehicle Type	Between Sewri Interchange and Shivaji Nagar Interchange			Between Shivaji Nagar Interchange and Chirle Interchange		
	2022	2032	2042	2022	2032	2042
Car	24,100	66,400	94,100	4,900	21,300	43,300
Taxi	2700	14,100	20,200	100	400	2,300
Bus	2,700	3,700	3,700	2,700	3,700	3,700
LCV	2,200	4,100	5,600	700	1,300	1,800
HCV	3,000	6,500	8,100	1,000	2,000	2,200
MAV	4,600	9,100	13,800	400	900	1,700
Total	**39,300**	**103,900**	**145,500**	**9,800**	**29,600**	**55,000**

LCV: Light Commercial Vehicle; HCV: Heavy Commercial Vehicle; MAV: Multi Axle Vehicle

2. At the opening year in 2022, the traffic flow on MTHL represents a diversion of 10% on the traffic across Thane creek which will increase up to 16% in 2032. If only Thane Creek Bridge is considered, then the diverted traffic from the bridge will be 21% in 2022 which will rise up to 35% in 2032.

3. 6-lane of main carriageway was decided by GoM. It was reviewed based on the forecasted result of future traffic volume by Manual of Specification and Standards for Expressways (IRC: SP:99-2013). The result of the review shows that 6-lane will be required in 2032 (10 years later after traffic open). Although, 8-lane will be required in 2042, it is assumed that the level of service of MTHL would be maintained as additionally metro might be constructed in parallel with MTHL.

Design Parameters / Overall Design

4. The MTHL which is 21.8 km long road bridge partly on the land and partly over the creek across the Mumbai Bay between Sewri in Mumbai and Chirle in Navi Mumbai, is to be constructed with the approach sections and interchanges. ITS (Intelligence Transport System) and the other necessary facilities will be provided for full access-controlled bridges.

5. As per the provisions of IRC (Indian Road Congress) SP:99-2013, the Width of each lane of the Main Carriageway is 3.5 meters.

6. When the design speed is 100 km/h according to the traffic demand forecast the large vehicle, ratio will be as low as 9.4% (2022).

7. The shoulder width of bridge towards outside of each carriageway is 2.5 meters and towards median side of each carriageway is 0.75 meters.

8. The major portion of MTHL structure is on sea and partly towards ends is on land with different type and with different span, viz., PC box girder with 50 m spans which is

typically applied on marine viaduct since, it is economical, easy to construct and maintain.

9. On the land portion, the PC box girder having span of generally 30m is used.

10. As far as the location in which long span (150-180 m) is required to cross significant obstacles, such as navigation channels, pipelines and creeks, the steel box girder bridge with steel deck is proposed with large block erection method to shorten the construction period.

11. The project is coded with three lanes of traffic in each direction. The reference toll is presented in the Table 1.3.2 below for each vehicle class in Year 2022 (based on 2015 monetary value reflecting price escalation).

Table 1.3.2: Base Toll Rates (Rs) for different class of vehicles between Interchanges

Vehicle Type	Sewri to Shivaji Nagar	Shivaji Nagar to Chirle	Total
Car	180	60	240
Bus	420	130	550
LCV	240	70	310
HCV	420	130	550
MAV	600	180	780

Intelligent Transport Systems (ITS) and **Toll Management System (TMS)**

12. The Toll Management System will be implemented in MTHL to collect tolls from all road users of MTHL. Two types of toll collection method will be adopted: Electronic Toll Collection (ETC) and Manual (paying by cash).

13. The lanes corresponding to these toll collection methods are dedicated ETC lanes and Manual lanes, and Manual system shall be installed to ETC lanes for backup to be able to cope at the time of the trouble of ETC equipment failure.

Traffic Management System

14. Traffic Management System is a support system to Manage the traffic on MTHL safely and efficiently. The System consists of the information collection system including Closed-Circuit Television (CCTV), Emergency Call Box (ECB), Automatic Traffic Counter-Cum-Classifier (ATCC) and Meteorological Data System (MDS), and Information Dissemination System including Variable message Sign (VMS).

15. CCTV Cameras shall be installed at around three places per 1 km, on Both side of main route and the monitoring of the traffic condition of the whole stretch of MTHL will be almost enabled in the Traffic Control Centre and VMS displays the appropriate information for road users on the collated information.

16. The Information collected by these devices shall be transmitted to the Command Control Centre through the medium of an Optical Fiber Cable laid in MTHL.

Actual *(P/R, PCR)*

There is no change in the Rationale of the Project Design.

2.0 PROJECT IMPLEMENTATION

2.1 Project Scope

Refer Table 2.1.1 and 2.1.2 for details on Scope of the Project.

Table 2.1.1 Comparison of Original and Actual location

Location	**Original: (P/M)** Mumbai Metropolitan Region Development Authority, Mumbai, State of Maharashtra	Actual: *(P/R and PCR)*

Table 2.1.2 Comparison of Original and Actual Scope

Items	Original	Actual
Construction work: 6-lane Marine Bridge Road (21.8 km)		
Package-1 Ch 0+000- 10+380 (10.380 km)	• 1 Interchange (Sewri) • Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC- I Girder) • Viaduct Substructure (RC Concrete Structure) • Viaduct Foundation (Bored piles) • Road Furniture and roadside facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)	*(P/R and PCR)*
Package-2 Ch 10+380- 18+187 (7.80 km)	• 1 Interchange (Shivaji Nagar) • Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC- I Girder) • Viaduct Substructure (RC Concrete Structure) • Viaduct Foundation (Bored piles) • Road Furniture and roadside facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)	*(P/R and PCR)* Actual: *No View Barriers*
Package-3 Ch 18+187- 21+800 (3.61 km)	• 2 Interchanges (State Highway-54, National Highway-4B) • Viaduct superstructure (Marine Portion: PC Box Girder & Steel Box Girder with Steel Slab Land Portion: PC Box Girder & PC- I Girder & Steel Truss Girder for Rail-over-Bridges (ROB) • Viaduct Substructure (RC Concrete Structure) • Viaduct Foundation (Bored piles) • Cutting Section (6-lane with Slope Protection)	*(P/R and PCR)* Actual: *No Noise Barriers & View Barriers*

Items	Original	Actual
	• Road Furniture and roadside facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)	
Package-4 ITS (Intelligent Transport System)	• Administrative Buildings • Toll Booths (1 for main alignment and each on and off rumps for 3 interchanges) • Traffic Management System (Traffic Control Centre, Closed Circuit Television (CCTV), Meteorological Observation System (MET), Emergency Call Box (ECB), Automatic traffic Counter-cum-Classifier (ATCC), Variable Message Sign (VMS)) • Highway Lighting (Whole sections Low-positioned lighting for some sections) • Electrical Powering System including HV/ LV Ring Network across the Bridge.	*(P/R and PCR)*
Consulting Services	• Tender Assistance • Construction Supervision • Facilitation of Implementation of Environmental Management Plan (EMP), Environmental Monitoring plan (EMoP).	*(P/R and PCR)*

2.2 Implementation Schedule

2.2.1 The Original Implementation Schedule

Table 2-2-1 Comparison of Original and Actual Schedule

Items	Original	Status *(P/R and PCR)* as on 31th March 2024
1) Completion of Land Acquisition and Resettlement	Mar 2019	Dec 2022
2) Consulting Services		
a) Selection of Consultant	May – Dec 2016	May – Dec 2016
b) Consultancy Works	Dec 2016 – Sep 2022	Oct 2022 – Mar 2024 (Extended)
3) Selection of Contractor		
Package-1, Package-2 & Package-3 (Civil)		
a) Pre-Qualification Process	May – Dec 2016	May – Dec 2016
b) Main Bidding	Jan– Dec 2017	Jan – Dec 2017
c) JICA's Concurrence of Contract	Feb-2018	Feb-2018
Package-4 (ITS)		
a) Pre-Qualification Process	Single Stage Bidding as concurred by JICA	
b) Main Bidding	June 2019 – Sep 2020	Jan 2021 – Dec 2021
4) Civil Construction		
Package-1 and Package-2	Mar 2018 – Sep 2022	Mar 2018–Dec 2023 (Extended)
Package-3	Mar 2018 – Sep 2021	Mar 2018 – Dec 2023 (Extended)
Package-4	June 2022 – Sep 2023	June 2022 – Dec 2023
5) Defect Liability Period		
Package-1 and Package-2	Oct 2022 – Sep 2024	Jan 2024 – Dec 2025
Package-3	Oct 2021 – Sep 2023	Jan 2024 – Dec 2025
Package-4	Oct 2023 – Sep 2025	Jan 2024 – Dec 2025
For ITS	Sep 2025- Sep 2028	Jan 2026 – Dec 2029

Attachment 6, 7 & 8: Package wise construction schedules (progress) updated at the end of 1st Quarter (Jan – Feb - Mar 2024).

2.2.2 Reasons for changes of the schedule and their effects to the Project

(P/R and PCR)
No change in the Implementation Schedule except the selection of O&M Organization timeline.

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total (Rs. mil)	JICA Portion (Rs. mil)	Others (Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	37,249	37,249	0	43,708	43,708	0	1,12,426	1,12,426	0
Package-2	29,247	29,247	0	33,283	33,283	0	86,494	86,494	0
Package-3	804	804	0	8,360	8,360	0	15,184	15,184	0
Package-4 (ITS)	0	0	0	3,770	3,770	0	6,484	6,484	0
Package-5 (Geotechnical Investigation)	0	0	0	147	0	147	253	0	253
Dispute Boards (Package-1, 2, 3 & 4)	0	0	0	58	58	0	99	99	0
Price Escalation	390	390	0	403	403	0	1,082	1,082	0
Physical Contingency	5,077	5,077	0	6,730	6,719	11	16,652	16,633	19
Consulting Services	1,611	1,611	0	1,423	1,423	0	4,058	4,058	0
Land Acquisition*	0	0	0	10,495	0	10,495	18,052	0	18,052
Administration Cost	0	0	0	4,548	0	4,548	7,823	0	7,823
GST	0	0	0	16,935	0	16,935	29,128	0	29,128
Import Tax	0	0	0	12,691	0	12,691	21,830	0	21,830
Interest during construction	3,349	0	3,349	0	0	0	3,349	0	3,349
Front End Fee	485	0	485	0	0	0	485	0	485
Total	**78,211**	**74,377**	**3,833**	**1,42,550**	**97,723**	**44,828**	**3,23,396**	**2,42,459**	**80,938**

2.3 Project Cost

2.3.1. a Comparison of Originally Planned and Actually Incurred Cost by ITEM

Table 2.3.1.a.(i) Originally Planned Cost by ITEM

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total Rs. mil)	JICA Portion Rs. mil)	Others Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	37,249	37,249	0	43,708	43,708	0	1,12,426	1,12,426	0
Package-2	29,247	29,247	0	33,283	33,283	0	86,494	86,494	0
Package-3	804	804	0	8,360	8,360	0	15,184	15,184	0
Package-4 (ITS)	0	0	0	3,770	3,770	0	6,484	6,484	0
Package-5 (Geotechnical Investigation)	0	0	0	147	0	147	253	0	253
Dispute Boards (Package-1, 2, 3 & 4)	0	0	0	58	58	0	99	99	0
Price Escalation	390	390	0	403	403	0	1,082	1,082	0
Physical Contingency	5,077	5,077	0	6,730	6,719	11	16,652	16,633	19
Consulting Services	1,611	1,611	0	1,423	1,423	0	4,058	4,058	0
Land Acquisition*	0	0	0	10,495	0	10,495	18,052	0	18,052
Administration Cost	0	0	0	4,548	0	4,548	7,823	0	7,823
GST	0	0	0	16,935	0	16,935	29,128	0	29,128
Import Tax	0	0	0	12,691	0	12,691	21,830	0	21,830
Interest during construction	3,349	0	3,349	0	0	0	3,349	0	3,349
Front End Fee	485	0	485	0	0	0	485	0	485
Total	**78,211**	**74,377**	**3,833**	**1,42,550**	**97,723**	**44,828**	**3,23,396**	**2,42,459**	**80,938**

Note - 1. Exchange Rate: US$1=Rs. 78.1, US$1=JPY 134.0, Rs.1 = JPY 1.72

2. Price Escalation (a) Foreign Currency Portion: 2.06% p.a.

(b) Local Currency Portion: 4.50% p.a.

3. Physical Contingency: 7.5%

4. Base Year for Cost Estimation: July 2022

Table 2.3.1.a.(ii) Actually Incurred Cost by ITEM

Cost Breakdown	Foreign Currency Portion			Local Currency Portion			Total		
	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)	Total (Rs. mil)	JICA Portion (Rs. mil)	Others (Rs. mil)	Total (JPY mil)	JICA Portion (JPY mil)	Others (JPY mil)
Package-1	37,110	37,110	-	46,559	46,559		1,10,213	1,10,213	
Package-2	27,666	27,666	-	34,601	34,601		82,457	82,457	
Package-3	805	805	-	8,383	8,383		13,750	13,750	
Package-4 (ITS)	-		-	715	715		1,202	1,202	
Package-5 (Geotechnical Investigation)	-			196		196	337		337
Dispute Boards (Package-1, 2, 3 & 4)	-			-			-		-
Price Escalation	-								-
Physical Contingency	-			-			-		-
Consulting Services	253	253		362	362		3,022	3,022	-
Land Acquisition*	-			9,890		9,890	17,011		17,011
Administration Cost	-			4,255		4,255	7,319		7,319
GST	-			20,131		20,131	34,625		34,625
Import Tax	-			-			-		-
Interest during construction	971		**971**	-			971		971
Front End Fee	423		**423**				423		423
Total	**67,228**	**65,834**	**1,394**	**1,25,092**	**90,620**	**34,472**	**2,71,330**	**2,10,644**	**60,686**

Note - 1. Exchange Rate: Rs.1 = JPY 1.72 for MMRDA Portion only.

2. Price Escalation (a) Foreign Currency Portion: 2.06% p.a.

(b) Local Currency Portion: 4.50% p.a.

3. Physical Contingency: 7.5%

2.3.1. b.Comparison of Originally Planned and Actually Incurred Cost by YEAR

Table 2.3.1.b.(i) Originally Planned Cost by YEAR (All Figures are in JPY mil)

Cost Breakdown	Total	JICA Portion				Others (MMRDA Portion)
		Tranche I	Tranche II	Tranche III	Sub Total	
FY 2017	12,679	10,134	0	0	10,134	2,545
FY 2018	30,771	22,707	0	0	22,707	8,064
FY 2019	72,379	56,816	0	0	56,816	15,563
FY 2020	92,944	55,138	16,040	0	71,178	21,765
FY 2021	66,397	0	50,869	0	50,869	15,527
FY 2022	27,683	0	0	20,113	20,113	7,570
FY 2023	3,723	0	0	565	565	3,158
FY 2024	10,925	0	0	6,189	6,189	4,735
Total	**3,17,501**	**1,44,795**	**66,909**	**26,868**	**2,38,571**	**78,929**

Table 2.3.1.b.(ii) Actually Incurred Cost by YEAR (All Figures are in JPY mil)

Cost Breakdown	Total	JICA Portion				Others (MMRDA Portion)
		Tranche I	Tranche II	Tranche III	Sub Total	
FY 2017	13,738	9,232	-	-	9,232	4,506
FY 2018	26,813	21,695	-	-	21,695	5,118
FY 2019	40,410	31,014	-	-	31,014	9,396
FY 2020	31,822	23,885	-	-	23,885	7,937
FY 2021	53,977	43,204	-	-	43,204	10,773
FY 2022	78,066	13,734	50,846		64,579	13,487
FY 2023	26,504	971	16063		17,034	9,469
FY 2024						
Total	**2,71,330**	**1,43,735**	**66,909**	**-**	**2,10,644**	**60,686**

1. Exchange Rate used: INR.1 = JPY 1.72 for MMRDA Portion only

2. Fiscal Year starting from 1st April and ending on 31st Mar.

2.3.2 Reason(s) for the wide gap between the original and actual, if there have been any, the remedies you have taken, and their results.

(P/R and PCR)

There is no major gap between the original and actual cost.

2.4 Organization for Implementation

2.4.1 Executing Agency

Original:

Executing Agency

Mumbai Metropolitan Region Development Authority (MMRDA) was established on 26th Jan1975 in accordance with the Mumbai Metropolitan Development Act, 1974 to make Mumbai Metropolitan Region (MMR) a destination for economic activity by promoting infrastructure and regional planning. MMRDA takes all the necessary measures, required from time to time, in an effective manner and be fully responsible for the Project implementation. After completion of the Project, MMRDA continues to be responsible for the efficient operation and maintenance of the Project.

The GoM appointed MMRDA as the implementing/ executing agency of MTHL vide Government Resolution dated 4th Feb 2009 and further the ownership of MTHL would be with MMRDA vide Government Resolution dated 8th June 2011

Organization's Role

To construct, execute, carryout, improve, work, develop, administer, manage, control or maintain in MMR all types of roads, highways, express routes, paths, streets, bridges, sideways, tunnels and other infrastructure, works and conveniences, approach road, etc.
Under the Project, MMRDA is responsible for all the tendering process including employment of consultants, as well as for the construction process.

Project Implementation Unit (PIU)

The PIU is in charge of the Projects. The PIU is headed by Chief Engineer, comprising of 6 Divisions/Cells (Finance Division, Social Development Cell, Engineering Division, Land Cell, Administrative Division and Environmental Cell), Supervision/ ITS Consultant and supporting staff.

Procurement

MMRDA shall have to adopt the JICA's Standard Bidding Documents of the latest version, as stipulated in Section 4.01 (2) of "Guidelines for Procurement under Japanese ODA Loans.

Procurement of goods and services, except for consulting services, converted by the Japanese ODA Loan should be implemented in accordance with "Guidelines for Procurement under Japanese ODA Loans", dated in Apr 2012. Employment of consultants should be implemented in accordance with "Guidelines of Employment of Consultant under Japanese ODA Loans", dated in Apr 2012. "Principles of Procurement under the Project" is attached for a brief explanation of the above Guidelines.

Actual, if changed: (P/R and PCR)

There is no change made in the original Organization Set-up & Implementation methods. Refer Annexure III Organization Chart.

2.4.2 Contractor(s)/ Supplier(s), and Consultant(s) and their Performance:

2.4.2.1 Procurement & Consultant

Table 2.4.2 Procurement of Contractor(s)/ Supplier(s) and Consultant(s)

Contract Package	Selection Method		
	Original: *(P/M)*		Actual: *(P/R and PCR)*
Construction Works			
1	Package-1: From CH 0+000 - To CH 10+380 (10.38 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
2	Package-2: From CH 10+380 - To CH 18+187 (7.80 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
3	Package-3: From CH 18+187 - To CH 21+800 (3.61 km)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	No Change
4	Package-4: To install ITS (Toll Management System and Highway Traffic Management System)	International Competitive Bidding Process (With PQ, Single stage with two envelopes)	International Competitive Direct Bidding Process without Pre-Qualification
5	Package-5: To conduct the geotechnical investigation	Local Competitive Bidding Process	No Change
Consulting Services			
1	Consulting Service for Supervision	Short List Method (QCBS)	No Change

2.5 Consultant's Progress:

Jan 2024:

GC scrutinized & certified the following invoices claimed by the Contractors:

- Package-1: IPC-73-100% Certified and IPC-75 -80% Ad-hoc Certified by GC.
- Package-2: IPC-67 100% Certified and IPC-69 -80% Ad-hoc Certified by GC.
- Package-3: IPC-61 -80% Ad-hoc Certified by GC.
- Package-4: IPC-006 100% Certified and IPC-008 & 009 -80% Ad-hoc Certified by GC.

Feb 2024:

GC scrutinized & certified the following invoices claimed by the Contractors:

- Package-1: IPC-76, 77 & 78 80% Ad-hoc certified by GC.
- Package-2: IPC-68 100% certified by GC.
- Package-3: IPC-61 100% certified & IPC-62 -80% Ad-hoc certified by GC.
- Package-4: IPC-010 -80% Ad-hoc Certified by GC.

Mar 2024:

GC scrutinized & certified the following invoices claimed by the Contractors:

- Package-1: IPC-76, 77 & 78 80% Ad-hoc certified by GC.
- Package-2: IPC-69 100% certified & IPC-70 - 80% Ad-hoc Certified by GC.
- Package-3: IPC-61 100% certified & IPC-62 -80% Ad-hoc certified by GC.
- Package-4: IPC-011 -80% Ad-hoc Certified by GC.

GC has prepared and submitted a total reimbursement claim of 116.62 million JPY to MMRDA / JICA in Jun 2023. (Please refer Annexure-1)

100% of the Technical Design Modules across all the 3 Packages have been given "NONO" by the GC & Package design submission is in progress.

100% of the Construction (GFC – Good for Construction) Design Modules across all the 3 Packages have been given "NONO" by the GC.

Physical Progress Status: Package-1 – 100%, Package-2 – 100%, Package-3 -100%, Package-4 – 99%

2.6 Contractor's Progress:

2.6.1 Package-1 Physical Progress till 31th March 2024

S. No	Activity	Total Scope	Unit	Cumulative Achieved Works	% of Work done Against the Total Scope	Remarks
1	**Permanent Bridge Works - Land/ Interchange Zone**					
1.1	Piles	523	No.	523	100.00%	
1.2	Pile Caps	158	No.	158	100.00%	
1.3	Piers	228	No.	228	100.00%	
1.4	Pier Caps	215	No.	215	100.00%	
2	**Permanent Bridge Works - Intertidal Zone**					
2.1	Piles	312	No.	312	100.00%	
2.2	Pile Caps	75	No.	75	100.00%	
2.3	Piers	146	No.	146	100.00%	
2.4	Pier Caps	146	No.	146	100.00%	
3	**Permanent Bridge Works - Marine Zone**					
3.1	Piles	403	No.	403	100.00%	
3.2	Pile Caps	80	No.	80	100.00%	
3.3	Piers	162	No.	162	100.00%	
3.4	Pier Caps	162	No.	162	100.00%	
4	**Permanent Bridge Works - Total**					
4.1	Piles	1238	No.	1238	100.00%	
4.2	Pile Caps	313	No.	313	100.00%	
4.3	Piers	536	No.	536	100.00%	
4.4	Pier Caps	536	No.	536	100.00%	
5	**Precast Segments**					
5.1	Segment Casting	6714	No.	6714	100.00%	
5.2	Segment (Span) Erection+ Cast-in-Situ Slab	478	No.	478	100.00%	
6	**OSD Structural Steel**					
6.1	Fabrication	53703	MT	53703	100.00%	
6.2	Assembly (Large Blocks)	53703	MT	53703	100.00%	
6.3	OSD Span Erection	38	No.	38	100.00%	
7	**Crash Barrier**					
7.1	Crash Barrier - Median	20320	Rmt	20320	100.00%	
7.2	Crash Barrier - Outer	31099	Rmt	31099	100.00%	

2.6.2 Package-2 Physical Progress till 31th March 2024

S. No	Activity	Total Scope	Unit	Cumulative Achieved Works	% of Work done Against the Total Scope	Remarks
1	Permanent Bridge Works - Land/ Interchange Zone					
1.1	Open Foundation	113	No.	113	100.00%	
1.2	Piers	119	No.	119	100.00%	
1.3	Pier Caps	105	No.	105	100.00%	
1.4	Portal Beams- Land	6	No.	6	100.00%	
1.5	Pier Head Segments -Land	42	No.	42	100.00%	
2	Permanent Bridge Works - Intertidal & CRZ Zone					
2.1	Piles	280	No.	280	100.00%	
2.2	Pile Caps	72	No.	72	100.00%	
2.3	Piers	72	No.	72	100.00%	
2.4	Pier Caps	18	No.	18	100.00%	
2.5	Pier Head Segments	54	No.	54	100.00%	
3	Permanent Bridge Works - Marine Zone					
3.1	Piles	504	No.	504	100.00%	
3.2	Pile Caps	120	No.	120	100.00%	
3.3	Piers	120	No.	120	100.00%	
3.4	Pier Caps	48	No.	48	100.00%	
3.5	Pier Head Segments	74	No.	74	100.00%	
4	Permanent Bridge Works - Total					
4.1	Open Foundation	113	No.	113	100.00%	
4.2	Piles	784	No.	784	100.00%	
4.3	Pile Caps	192	No.	192	100.00%	
4.4	Piers	311	No.	311	100.00%	
4.5	Pier Caps/ Portal Beams	177	No.	177	100.00%	
4.6	Pier Head Segments	170	No.	170	100.00%	
5	Precast Segments					
5.1	Segment Casting	3132	No.	3132	100.00%	
5.2	Segment (Span) Erection + Cast-in-Situ Slabs	272	No.	272	100.00%	
6	OSD Structural Steel					
6.1	Fabrication	34726	MT	34726	100.00%	
6.2	Assembly (for Large Block)	34726	MT	34726	100.00%	
6.3	OSD Span Erection	32	No.	32	100.00%	
7	Crash Barrier					
7.1	Crash Barrier	36559	Rmt	36559	100.00%	

2.6.3 Package-3 Physical Progress till 31st March 2024

S. No	Activity	Total Scope	Unit	Cumulative Achieved Works	% of Work done Against the Total Scope	Remarks
1	**Permanent Bridge Works**					
1.1	Open Foundations	221	No.	221	100.00%	
1.2	Piles	24	No.	24	100.00%	
1.3	Pile Caps	4	No.	4	100.00%	
1.4	Piers	242	No.	242	100.00%	
1.5	Pier Caps	189	No.	189	100.00%	
1.6	Segment Casting	834	No.	834	100.00%	
1.7	Segment (Span) Erection	59	No.	59	100.00%	
1.8	Cast in-situ Slab	108	No.	108	100.00%	
1.9	Rail Overbridge (ROB) Span	20	No.	20	100.00%	
1.10	Crash Barrier	14500	Rmt	14500	100.00%	

2.6.4 Package-4 (ITS) Progress till 31th March 2024

1. Design & Drawings submission is in progress.
2. Geotechnical Investigation for Sub admin building & Service Road is completed.
3. Physical Progress till 31st March 2024

Sr. No	Activity	Unit	Total Scope	Cumulative Work done Achieved	% of Work done Against the Total Scope	Remarks
1.	**Food Plaza 1**					
	RCC Plinth Beams	Rm	494	494	100.00%	
	RCC Column 1st lift - GF	Nos	38	38	100.00%	
	RCC Column 2nd lift - GF	Nos	38	38	100.00%	
2.	**Food Plaza - 2**					
	Staging for Roof Slab – GF	Cum	3006	3006	100.00%	
	Decking for Roof Slab - GF	Sqm	1002	1002	100.00%	
3.	**Gavhan Tunnel**					
	PCC for Raft	Rm	131	131	100.00%	

	RCC for Raft	Rm	131	131	100.00%	
	RCC Slab	Rm	131	131	100.00%	
	Staircase Slab	Sqm	17.5	17.5	100.00%	
4.	**Gavhan Main Admin Building**					
	Roof Slab – Concreting - GF	Cum	207	207	100.00%	
	Column 1st lift - FF	Nos	49	49	100.00%	
	Column 2nd lift - FF	Nos	49	49	100.00%	
	Shear Wall for lift – 1st lift – FF	Nos	1	1	100.00%	
	Shear Wall for lift – 2nd lift – FF	Nos	1	1	100.00%	
5.	**Shivaji Nagar Sub – Admin Building**					
	RCC Column Starter/ 1st Lift GF	Nos	23	23	100.00%	
	UG trenches/Conduits	Ls	1	1	100.00%	
	Grade Slab for flooring (PCC & RCC)	Sqm	350	350	100.00%	
6.	**Sewri Sub – Admin Building**					
	Backfilling upto Plinth Level	Cum	300	300	100.00%	
	Grade slab for flooring (PCC & RCC)	Sqm	420	420	100.00%	
	Column 1st lift – GF	Nos	22	22	100.00%	
	Column 2nd lift – GF	Nos	22	22	100.00%	
	Decking for Roof slab - GF	Cum	450	450	100.00%	

Please refer **Attachment 9 - Site Progress Photos** showing the development of the project.

2.7 Health & Safety and Environment (HSE)

The HSE Plans have been submitted by the respective construction agencies for the Packages which are being monitored by the GC on a regular basis.

2.7.1 Package-1 Safety Report

S No.	Description	Unit	Jan-Feb-Mar 2024	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	607	925
2	Man-Days Worked	Days	50450	85,37,582
3	Man-Hours Worked	Hours	403600	7,26,79,557
4	Accident-Free Man Hours	Hours	403600	94,51,179
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	7
6	Fatality Cases.	Fatalities (FAT)	0	8
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0	8
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0	10
9	Restricted Work Medical Case	RWMC (#Incidents)	0	0
10	Medical Treatment Cases	MTC (#Incidents)	0	2
11	First Aid Cases.	FAC (#Cases)	0	348
12	Near Miss Incidents.	NMI (#Incidents)	0	151
13	Dangerous Occurrences.	DO (#Numbers)	0	8
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	2
15	Man-Hours Lost	Hours	480	3,96,920
16	Man-Days Lost	Days	60	49,624
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0	0.18
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	297	683
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0	0
20	Toolbox Talks	Sessions	394	1,91,997
21	Safety Walk down Inspections (Joint & CFT)	Numbers	4	341
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	10	4,680
23	Total Observations Raised (Safety)	Numbers	160	1,02,210
24	Health & Hygiene Inspections	Numbers	2	143
25	Total Observations Raised (Health & Hygiene)	Numbers	5	980
26	Training Sessions done for Offices & Sites	Sessions	32	4,000
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	533	56,145
28	Contractor Safety Committee Meetings	Numbers	2	54
29	Critical Excavations	Numbers	0	86
30	Pre-employment Medical check-ups	Persons	95	52,792
31	Safety Inductions completed	Persons	92	54,660
32	Mock drills Conducted	Numbers	1	49
33	Contractor's Internal Audits Conducted	Numbers	2	66

2.7.2 Package – 2 Safety Report

Sr. No	Description	Jan-Feb-Mar 2024	Cumulative
1	Total Man Hours Since Inception	8,40,378	3,98,40,062
2	Number of Man-Hours (Accident-Free Man-Hours)	8,40,378	1,07,35,540
3	Number of Man-Days	76,398	36,23,171
4	Number of Reportable Fatal Accidents	0	0
5	Number of Non-Fatal Accidents (LTI)	0	14
6	Number of Medical Treatment Cases (MTC)	0	16
7	Number of Near Miss Incidents	6	501
8	Number of First Aid Cases	1	213
9	Number of Dangerous Occurrences	0	20
10	Number of Reportable Sick Cases	0	0
11	Number of Man-Hours Lost due to LTI	0	6,848
12	Number of Man-Days Lost due to LTI	0	833
13	Number of Reportable Accidents per 10,00,000 Man- Hours Worked	0	0
14	Number of Inspections done for Offices & Site	300	3,486
15	Number of Training / Induction done for Offices & Sites	325	37,170
16	Daily Average Manpower (Including all Workmen & Staff) for the Month	3,005	1762
17	Details of Safety Committee meetings.	3	69
18	No. of toolbox talks.	672	20470
19	No. of critical excavations.	0	-
20	Pre-employment Medical check-up.	280	20597
21	No. of Safety Walk down.	12	246
22	No. of Safety Inductions completed.	280	206352

2.7.3 Package – 3 Safety Report

S No.	Description	Unit	Jan-Feb-Mar 2024	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	212	597
2	Man-Days Worked	Days	9,092	9,96,556
3	Man-Hours Worked	Hours	72,732	79,72,446
4	Accident-Free Man Hours	Hours	72,732	21,58,695
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	0
6	Fatality Cases.	Fatalities (FAT)	0	0
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0	3
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0	3
9	Restricted Work Medical Case	RWMC (#Incidents)	0	0
10	Medical Treatment Cases	MTC (#Incidents)	0	0
11	First Aid Cases.	FAC (#Cases)	0	134
12	Near Miss Incidents.	NMI (#Incidents)	0	53
13	Dangerous Occurrences.	DO (#Numbers)	0	1
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	0
15	Man-Hours Lost	Hours	0	2,336
16	Man-Days Lost	Days	0	292
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0	0
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	0	37
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0	0
20	Toolbox Talks	Sessions	89	9,730
21	Safety Walk down Inspections (Joint & CFT)	Numbers	4	237
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	10	313
23	Total Observations Raised (Safety)	Numbers	75	13,158
24	Health & Hygiene Inspections	Numbers	1	115
25	Total Observations Raised (Health & Hygiene)	Numbers	2	427
26	Training Sessions done for Offices & Sites	Sessions	17	717
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	198	13,387
28	Contractor Safety Committee Meetings	Numbers	1	61
29	Critical Excavations	Numbers	0	11
30	Pre-employment Medical check-ups	Persons	25	10,383
31	Safety Inductions completed	Persons	25	10,383
32	Mock drills Conducted	Numbers	1	58
33	Contractor's Internal Audits Conducted	Numbers	0	19

2.7.4 Package-4 Safety Report

Sl. No.	Particular	UOM	Jan-Feb-Mar 2024
1	**Average Daily** Manpower (all Workmen & Staff)	Numbers	1302
2	Man Days Worked	Days	36698
3	Man Hours Worked	Hours	293584
4	Accident-Free Man Hours	Hours	293584
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0
6	Fatality Cases.	Fatalities (FAT)	0
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0
9	Restricted Work Medical Case	RWMC (#Incidents)	0
10	Medical Treatment Cases	MTC (#Incidents)	0
11	First Aid Cases.	FAC (#Cases)	1
12	Near Miss Incidents.	NMI (#Incidents)	0
13	Dangerous Occurrences.	DO (#Numbers)	0
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0
15	Man Hours Lost	Hours	0
16	Man Days Lost	Days	0
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT + Injuries)/MMH	0
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost / MMHr	0
19	**Total Injury** Incident Frequency Rate / 1M Man Hours	TIFR	0
20	Tool Box Talks	Sessions	572
21	Safety Walk down Inspections (Joint & CFT)	Numbers	4
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	24
23	Total Observations Raised (Safety)	Numbers	150
24	Health & Hygiene Inspections	Numbers	3
25	Total Observations Raised (Health & Hygiene)	Numbers	12
26	Training Sessions done for Offices & Sites	Sessions	50
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	893
28	Contractor Safety Committee Meetings	Numbers	3
29	Critical Excavations	Numbers	0
30	Pre-employment Medical check-ups	Persons	144
31	Safety Inductions completed	Persons	144
32	Mock drills Conducted	Numbers	1
33	Contractor's Internal Audits Conducted	Numbers	0

3.0 BENEFITS DERIVED FROM THE PROJECT (EFFECTIVENESS)

3.1 Operational and Physical Condition

(This section will be developed when the operational plan is available)

Facilities	Description of condition	Problems, its Background and Remedial Action Plan
(P/R and PCR)	*(P/R and PCR)*	*(P/R and PCR)*

3.2 Precautions (Measures to be adopted/ Points which require special attention)

Original Issues and Counter measure(s)	Actual Issues and Counter measure(s)
3.2.1 General Issues **1. Toll Arrangement/ Toll Rate** Fixed toll rate as per the type of vehicle will be levied for the road users after the completion of the Project. An appropriate tolling policy/ rates will be finalized in consultation with the state government prior to the completion of Civil works. **2. Operation and Maintenance** MMRDA proposes to appoint separate agencies for Operation & Maintenance of the bridge and for Toll Management System. Both the agencies for O & M and Toll Management System may be appointed through open tendering process. Overall monitoring of the two agencies would be done by MMRDA in- house through a separate cell which could be constituted for the purpose. MMRDA has confirmed to allocate an adequate budget engaging the Contractors.	(P/R and PCR) Appropriate Tolling Policy/ Rates finalization is in progress. A single Operation and Maintenance Contractor finalization is in progress.
3.2.2 Environmental and Social Consideration **a. CRZ Clearance** i. Supplemental EIA has been approved by MMRDA and disclosed on the website of JICA. A supplemental EIA report has been disclosed also on the website of MMRDA. ii. Furthermore, renewed CRZ Clearance has been obtained in January 2016. iii. In accordance with the conditions for CRZ Clearance, appropriate measures shall be taken, and necessary budget shall be secured by MMRDA.	*(P/R and PCR)* • MMRDA has disclosed Supplemental EIA & SIA on MMRDA website. • The renewed CRZ clearance was granted on 25/1/2016 from MoEF&CC and the approval conditions have been imposed on the Contractors as the Employer's requirements. MMRDA has actively monitored the compliances of the approval conditions and maintained them throughout the construction phase. • MMRDA appointed Mangroves & Marine Biodiversity Foundation for bird monitoring and implementation of Flamingos and bird monitoring program for the MTHL project during the construction as well as the long-term monitoring after the construction.

	• Rs 91.42 Crore has been transferred to Mangroves & Marine Biodiversity Foundation, Mumbai for the development & conservation of mangrove area and its afforestation. Such funds will be managed by the Mangrove Foundation of Maharashtra State. • As per the renewed CRZ clearance condition, IIT Mumbai has been appointed for the DPR study to develop a Mahul creek Effluent Treatment Plant (ETP). Rs 4.98 Crore was secured for IIT services. The Draft DPR has been reviewed and approved. • Proposal of extension for CRZ clearance submitted vide reference no MCZMA 2022/08/CR-246/3719 dated 4th Aug-2022. (Please refer Annexure-3)

b. Required Permits

The Permits to be obtained by MMRDA/ Contractors and the present status is given in the following Table.

Table 3.2.2 Present Status of some Important Permits

Clearance Required	Approving Authority	Responsible Organization	Obtained by when	Remark /Status
Mangrove Cutting	Hon. Bombay High Court	MMRDA/ Contractor	Approval received from Hon. Bombay High Court on 28th Nov 2016	Mangrove cutting operation was completed with full compliance and as of now, no further follow up work is required.
Tree Cutting /Transplantation	Respective Tree Authorities	Contractor for respective Packages	-	**Pkg-1:** Tree Cutting/ Transplantation permission from the Garden Dept., MCGM obtained on 24th Dec 2020. **Pkg-2:** Tree Cutting/ Transplantation permission obtained & completed. **Pkg-3:** Forest Department issued a concurrence on 19/05/2019. CIDCO's permission for Tree Cutting/ Transplantation obtained on 25th Nov 2019.
Consent to Establish	Maharashtra Pollution Control Board	Contractor for respective Packages	Pkg-1-18.07.2018 Pkg-2-16.08.2018 Pkg-3-29.05.2019	

3.3 Environmental and Social Impacts

Major environmental and social impacts have occurred during project implementation (e.g. involuntary resettlement, poverty reduction, impacts on the natural environment).

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
1. Establishment of Effective Environmental and Social Cell in PIU MMRDA confirmed that Social Development Cell (2 Officers), Land Cell (3 Officers), and Environmental Cell (2 Officers) had been set up.	Cell is established by MMRDA (Annexure III, Organization chart)
2. Rehabilitation and Land Acquisition Issues **a. Affected Area and Population** Due to the Project, 1282 non- titleholders will be involuntary resettled, and 108.4379 ha of land will be handed over by CIDCO.	**Sewri:** Involuntary resettlement in Sewri section has been further validated by Social Development Cell of MMRDA. Out of 297 Project Affected Households (PAHs) have given consents as follows: • 164 PAHs Kanjurmarg for residential • 25 PAHs Kanjurmarg for commercial • 7 PAHs (Satsangi Plot) Kanjurmarg for Commercial • 1 PAHs (commercial to residential) for Bhakti Park • 100 PAHs HDIL Kurla for residential **Navi Mumbai:** CIDCO has been finalizing the land acquisition closely monitored by Land Cell of MMRDA. CIDCO has possessed 106.3542 ha of land and handed over to MMRDA, except private land of 2.0837 ha. 0.3937 ha land is under acquisition out of balance 2.0837 ha land. CIDCO is planning to acquire the balance ROW land of with the help of Collector, Raigad.
b. Entitlement Policy MMRDA prepared the entitlement matrix for resettlement of non-title holders in Sewri, which meets the Resettlement and Rehabilitation Policy for Mumbai Urban Transportation Project (1997, amended in 2000) and JICA guidelines for Environmental and social considerations (2010) ("Guidelines") **(Attachment 2-5)**.	There have been no changes during the enforcement. As per the **Attachment 2-5** of JICA MoD, MMRDA has committed to enforce the agreed/ approved policy.

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
c. Compensation to Project affected Fishermen Detailed baseline survey will be undertaken by MMRDA in order to identify fishermen who are affected by the Project. Based on the result of the baseline survey, MMRDA will compensate them in accordance with compensation policy prior to the construction. Monitoring will be conducted by MMRDA with assistance of the Consultant to gasp the exact impact during construction and operation phase.	Updated **Attachments 2-8 and 2-10** are enclosed in the report.
d. Implementation Schedule The Implementation schedule for land acquisition, resettlement and rehabilitation is attached as per **Attachment 2-10.**	Updated **Attachment 2-10** is enclosed in the report.
e. Grievance Redressal Mechanism Grievance Redressal Committee ("GRC") set under MMRDA will deal with grievances raised by PAPs in Sewri and fishermen to be affected by the Project. Any grievances raised by PAPs whose land is acquired by CIDCO shall be resolved by CIDCO.	**Sewri:** FLGRC (Field Level Grievance Redressal Committee) and SLGRC (Senior Level Grievance Redressal Committee) were set as per the RAP and in operation. Compensation Committee has been constituted to address the issues of Compensation to Lease Holders at Sewri. **Fishermen:** GRC for resolving grievances of the fisherfolk was set up as per the compensation policy and is in operation.
f. Internal Monitoring Internal Monitoring of the Resettlement Action Plan (RAP) implementation will be conducted by MMRDA in accordance with the RAP with necessary assistance of the consultant. RAP Internal Monitoring Form **(Attachment 2-8)** will be submitted to JICA on a quarterly basis as a part of PSR during the RAP implementation.	Internal Monitoring updates are mentioned in **Attachment 2-8.**

g. Qualitative Independent Evaluation An Independent Evaluation Agency will be hired by MMRDA for evaluation of RAP implementation. An external evaluation report will be submitted to MMRDA at mid-term and end-term. MMRDA would submit the evaluation report to JICA in a timely manner.	Updated **Attachment 2-10** is enclosed in the report.
h. RAP Implementation Budget The amount of estimated resettlement and compensation budget is Rs.906.26 Cr MMRDA informed to the JICA Mission that RAP implementation cost would be borne by MMRDA and ensured sufficient and timely allocation of funds for smooth implementation.	As updated in MOD dated 03/09/2019 for MTHL- II, the base cost Budget towards RAP Implementation is updated as Rs 1129.3 Cr.
i. Environmental Management Plan ("EMP") The mitigation measures against air pollution, waste, noise, and water pollution etc. shall be taken during construction and operation phase. Mitigation measures such as installation of noise barrier, appropriate waste management, etc. have been prepared by MMRDA. The mitigation measures are listed in the EMP matrix. **(Attachment 2-1).** During the detailed design stage, MMRDA, with assistance of the Consultant, will update the EMP, as necessary.	EMP will be updated, if required, in due course of construction activities/progress.

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
j. Environmental Monitoring Plan ("EMoP") MMRDA takes overall responsibility for implementation of EMoP. During construction, environmental monitoring will be carried out by contractors under supervision by Construction Supervision consultant. The result shall be reported to the JICA India Office on a quarterly basis as a part of Progress Status Report (PSR) by filling in the Reporting Form of Environmental Monitoring Result. **(Attachment 2-4).** After completion of the construction, EMoP shall be implemented by MMRDA, and the results shall be submitted to the JICA India Office semi-annually until two years after complementation of construction. The required amount of estimated environmental monitoring budget is borne by MMRDA.	Environmental Monitoring Plan with the package wise budgeted cost is reported in **Attachment 2-3.** Environmental Monitoring Results during the construction phase are reported in **Attachment 2- 4**.
k. Long Term Bird Monitoring MMRDA committed to conduct the long-term monitoring of birds and its habitat in Sewri mudflats with the assistance of hired bird expert. During the long-term monitoring, MMRDA will share information and receive advice from external experts including the one from NGOs and civil society.	• MMRDA has entrusted the work of bird monitoring and implementation of Flamingos and birds related mitigation measures & bird monitoring program to Mangrove and Marine Biodiversity Foundation. Rs. 31.92 Crore deposited to Mangrove foundation, Mumbai for periodical disbursement to BNHS.

3.4 Qualitative and Quantitative Data of Monitoring Indicators

Operation and Effect Indicator EIRR and/ or FIRR Supporting

data for Computing EIRR and/ or FIRR

Indicators	Original (Year 2015)	Target (Year 2024) 2 Years After Commercial Operation
Average Annual Daily Traffic (PCU/ day)	-	47,400
Daily Average Travel Time (min) * 1	61 min	15.8 min
Number of Users (Persons/ year) * 2	-	46,077,504
Cargo Volume (tons/ year) * 3	-	13,511,759

*1 Section on Sewri – Chirle
*2 Assumptions: average passengers of car and taxi (2.6 persons), bus (37.2 persons) based on JICA study. Number of passengers of LCV, HCV and MAV is assumed as 1 person each.
*3 Assumptions: the maximum capacity of respective vehicle (LCV: 1 ton, HCV and MAV: 15 tons) is used for estimation.

EIRR	**Original:** 15.4% Cost: Project cost (excluding Price Escalation, Tax and Duties and Administration cost) O&M cost, Land Acquisition Benefit: Travel Time cost and Vehicle Operation cost Project Life: 32 Years	**Actual:** *(PCR)* _____% Cost: Benefit: Project Life: **Attachment(s):** **Supporting data for computing EIRR**

3.5 Monitoring Plan for the indicators

Monitoring Methods, Section(s)/ department(s) in charge of monitoring, frequency, the term and so forth are given below:

Original: *(P/M and PCR)*

Monitoring Organization

PIU shall be In-Charge of Monitoring activities for the Project. Submission of

QPR and PCR

The timely submission of the following documents is required by MMRDA.

a. Quarterly Progress Report (QPR): The progress report for the Project should be submitted by MMRDA to JICA on quarterly basis, not later than 30 days after the concerned quarter, in the form of Project Status Report (PSR) attached hereto as per **Annex I**; Updated status land Acquisition, milestone achieved with respect to Action Plan with Timetable, the monitoring form for environmental and social consideration should also be appended to the PSR. In addition, MMRDA shall also forward the Monthly & Quarterly Progress Reports (including S- Curve Chart) prepared by the Consultant to JICA India Office on regular basis till project completion.

b. Project Completion Report (PCR): A project completion report should be submitted by MMRDA to JICA promptly, but in any event not later than six months after completion of the Project, in the form of Project Status Report (PSR) attached hereto as per **Annex I**.

Actual: *(P/R and PCR)*

Monitoring Organization

PIU for MTHL has been established for monitoring the Project.

Submission of QPR and PCR

This QPR No. 28 is submitted for the period of 1st Jan to 31st Mar 2024.

3.6 Achievement of the Project Objective

(PCR

4.0 OPERATION AND MAINTENANCE (O&M) (SUSTAINABILITY)

3.1 O&M and Management

- Organization Chart of O&M
- Operational and maintenance system (structure and the number, qualification and skill of staff or other conditions necessary to maintain the outputs and benefits of the project soundly, such as manuals, facilities and equipment for maintenance, and spare part stocks etc

Original: *(P/M)*

Operation & Maintenance, Toll Management and ITS

MMRDA proposes to engage two separate agencies for O&M and Toll Management System. Though MMRDA will not directly carry out O&M, the overall monitoring over the O&M agency will be the responsibility of MMRDA. O&M Budget will be allocated by MMRDA. O&M and increase in toll rate will be done in accordance with the NHAI's manuals such as "NHAI Works manuals".

Actual: *(PCR)*

3.2 O&M Cost and Budget

- The actual annual O&M cost for the duration of the project, as well as the annual O&M budget.

(PCR) This will be reported when the outcome of the above work-study is available.

5.0 EVALUATION

5.1 JICA and Borrower / Executing Agency performance

JICA:

(PCR)

Borrower/ Executing Agency:

(PCR)

5.2 Overall Evaluation

Please describe your evaluation on the overall outcome of the project.

(PCR)

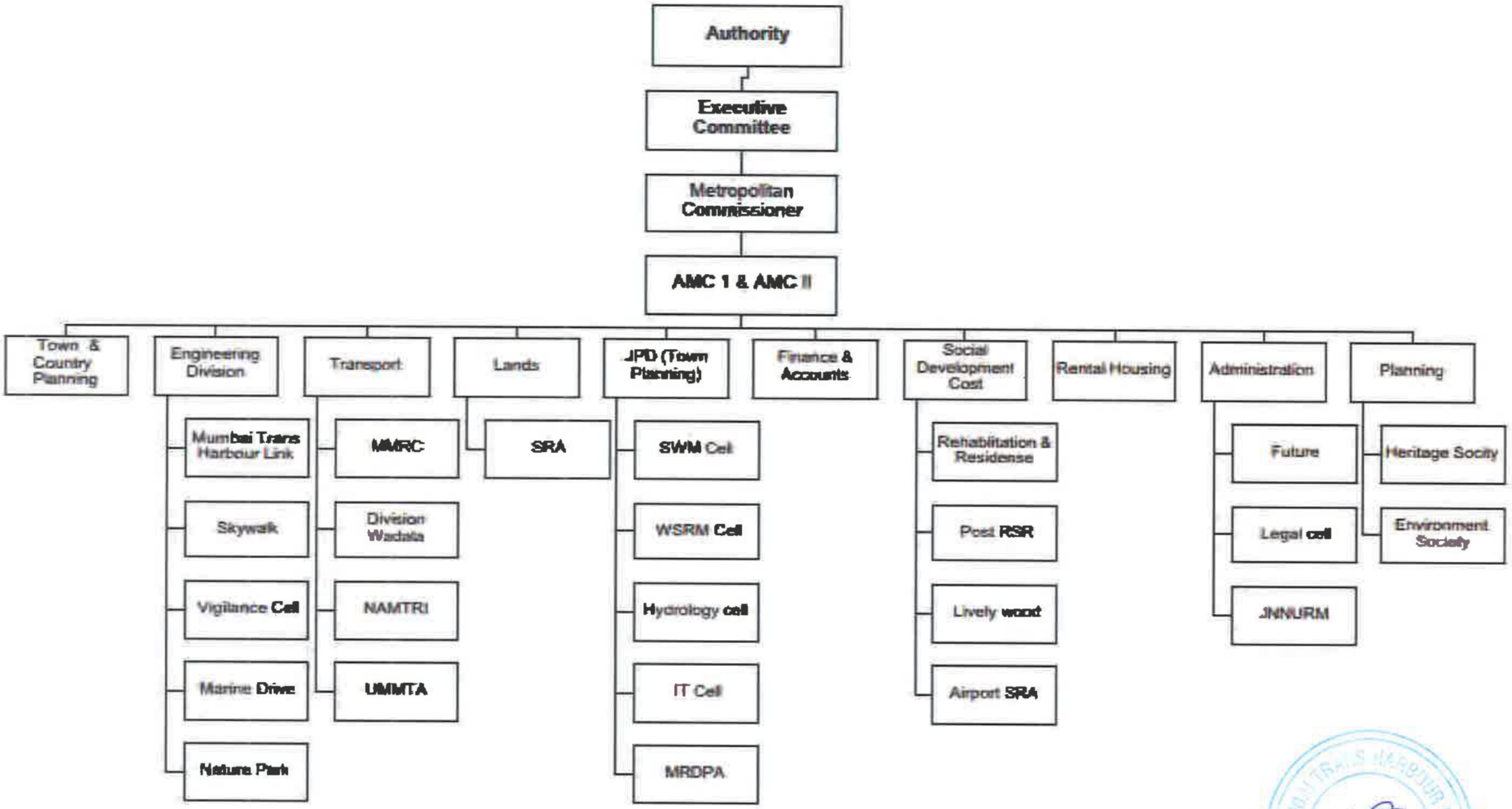
5.3 Lessons Learnt and Recommendations

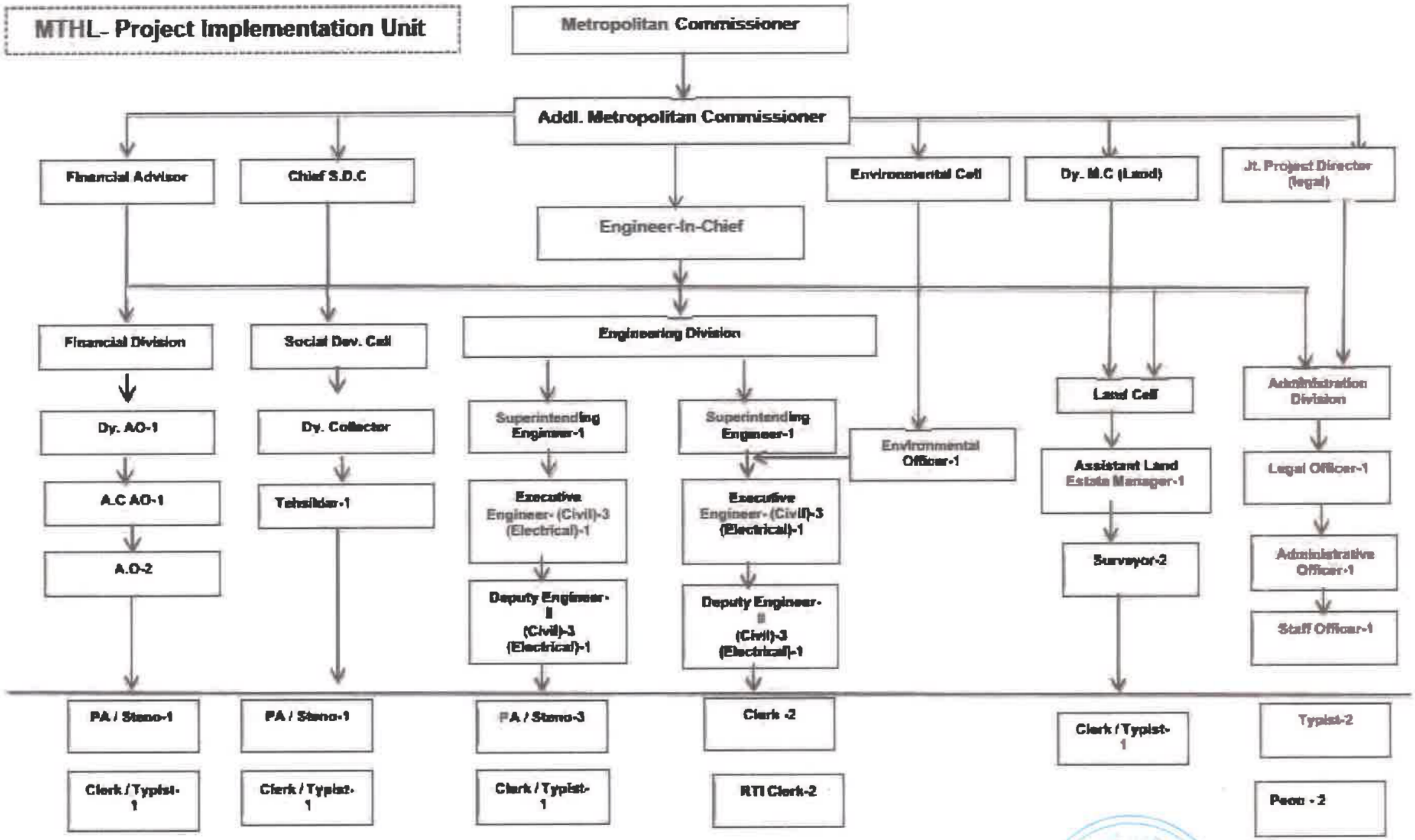
Please raise any lessons learned from the project experience, which might be valuable for the future JICA assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

Attachment 1- MMRDA & PIU Organization Chart

MMRDA Organization chart




MTHL- Project Implementation Unit
Metropolitan Commissioner
Addl. Metropolitan Commissioner
Financial Advisor
Chief S.D.C
Engineer-In-Chief
Environmental Cell
Dy. M.C (Land)
Jt. Project Director (legal)
Financial Division
Social Dev. Cell
Engineering Division
Land Cell
Administration Division
Dy. AO-1
Dy. Collector
Superintending Engineer-1
Superintending Engineer-1
Environmental Officer-1
Assistant Land Estate Manager-1
Legal Officer-1
A.C AO-1
Tehsildar-1
Executive Engineer- (Civil)-3 (Electrical)-1
Executive Engineer- (Civil)-3 (Electrical)-1
Surveyor-2
Administrative Officer-1
A.O-2
Deputy Engineer-II (Civil)-3 (Electrical)-1
Deputy Engineer-II (Civil)-3 (Electrical)-1
Staff Officer-1
PA / Steno-1
PA / Steno-1
PA / Steno-3
Clerk -2
Clerk / Typist-1
Typist-2
Clerk / Typist-1
Clerk / Typist-1
Clerk / Typist-1
RTI Clerk-2
Peon - 2

Attachment 2- Environmental & Social Impacts

Attachment 2-3 – Envi. Monitoring Plan with Package-wise Estimated Cost

Attachment 2-4 – Environmental Monitoring Result Reporting Form

Attachment 2-6 – MTHL Land Acquisition Status

Attachment 2-8 – RAP Internal Monitoring Form Attachment

Attachment 2-10 – Schedule of the RAP Implementation

Environmental Monitoring Plan with Package wise Estimated Cost

Category	No.	Impacted Item on JICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) – Ministry of Environment & Forest (MoEF)	Remarks
Pollution	1	Air pollution	SO_2, NO_2, PM_{10}, $PM_{2.5}$, O_3, CO, (6 Items)	National Ambient Air Quality Standards, 2009	1. Sewri & Sewri bay area for package I	Fortnightly at all locations except 2 locations each near Batching plants	1,800,000	15,000,000	1,800,000	742,500	17,542,500	National Ambient Air Quality Standards (NAAQS) by Central Pollution Control Board (CPCB)	P1 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement.
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						(Standard for 24hrs: Industrial and Residential/ Ecological Sensitive area)	P 2 contractor Monitoring plan has been designed as per EIA of 2015
					3. Gavhan & Chirle for package III	Fortnightly only for 3 months (jan-2019 to Mar-2019). Then quarterly monitoring as per MOEF and CPCB norms						- SO_2: 80 / 80µg/m³	P3 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement.
												- NO_2: 80 / 80µg/m³	P 1 received Consents CTE & CTO from MPCB and they are following MPCB frequency in addition to frequency set by Environment Expert from GC. The NAAQ standards are showing High rate as that is the usual procedure. The frequency of monitoring is set by us which varies for different parameters as either Statutory requirements or as required by us to ensure we have sufficient data in hands if there are additional claims for Compensation in C5 category. Summary : Although the contract conditions for all packages were same at the time of biding. Later modifications suggested by GC were not accepted by P 2. P1 and P3 accepted the modifications and hence the difference. Second point is P 1 carrying out monitoring as per the obatiend CTE and CTO. Both other packages have applied for CTE but haven't obtained it yet. So we expect the monitoring frequecy would change after obtaining CTE.
												- PM_{10}: 100 / 100µg/m³	
												- $PM_{2.5}$: 60 / 60µg/m³	
												- O_3: 180 / 180µg/m³	
												- CO: 0.4 / 0.4mg/m³	
	2	Water pollution	pH, BOD, DO, Turbidity and O&G	IS / AWWA	1. Sewri & Sewri bay area for package I	Quarterly	810,000	2,400,000	810,000	0	3,210,000	Marine water quality Standards – Class SW-IV Harbour Waters (MPCB)	Water Pollution not applicable for Pkg: 3
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						- pH : 6.5-9	
					3. Gavhan & Chirle for package III	Not applicable						- DO: 3 mg/l	
												- Turbidity: 30 NTU	
												- BOD: 5 mg/l	
												- O & G: 10 mg/l	
	3	Waste	Volume of waste soil, cutting tree and domestic garbage	Volumetric	1. Sewri & Sewri bay area for package I	Daily	500,000	299,200,000	500,000	600,000	300,300,000		The cost of waste disposal for P1 includes C&D waste, Pile muck etc. from all areas like, interchange, intertidal and marine. The disposal location is at MCGM approved location Bhayandarpada, Thane.

Category	No.	Impacted Item on JICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MoEF)	Remarks
					2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year						Municipal Soild Waste Management Rules, 2013 Generated waste shall be reused or disposed at designated site. Sites have been identified and the location for Pkg. 1 is at Bhayandar Pada in Thane. For Pkg. 2 & 3 is in Navi Mumbai at Pushpak Node nera "Teen Taki Junction" along the Amar Marg.	P2 contractor has considered only Domestic garbage with respect to CIDCO. Other wastes are not considered. Construction wastes will be
					3. Gavhan & Chirle for package III	Once site clearing work/execution part of work start.							
	4 and 8	Soil Contamination/ sedimentation	Heavy Metals & Oil & Grease (5-10 items shall be selected from Soil pollution standards)	IS / Methods Manual Soil Testing in India by Department of Agriculture and Cooperation, January 2011	Sewri & Sewri bay area for package I	Muck: 1 Time / Year Sediments: 4 Times / Year	150,000	1,500,000	150 000	100,000	1,750,000	Soil Pollution Standard in India (MOEF)	
					2. Nhava temporary bridge & casting yard in Gavhan for package II							· Cd: 0.01mg/l	
					3. Gavhan & Chirle for package III	*If any spillage/ leakage take place from chemical, fuel storage area. *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon at Storage area only						· Lead: 0.01mg/l · Chromium (VI): 0.05mg/l · Arsenic: 0.01mg/l · T-Mercury: 0.0005mg/l · Copper: 125mg/kg (some items shall be selected from totally 25 standards items)	
	5	Noise and vibration	Ambient and road side noise (dB(A)LAeq)	IS Standard	1. Sewri & Sewri bay area for package I	Fortnightly	150,000	54,000	150 000	369,000	573,000	-Construction Noise; 85dB(A)	
					2. Nhava temporary bridge & casting yard in Gavhan for package II	2 Times / Year						-Ambient Noise Standards in India (dB (A) Leq)	
					3. Gavhan & Chirle for package III	Fortnightly						1.Industrial Area Day Time: 75 (6-22hr) Night Time: 70 (22-6hr) 2.Commercial Area: Day Time: 65 (6-22hr) Night Time: 55 (22-6hr) 3.Residential Area: Day Time: 55 (6-22hr) Night Time: 45 (22-6hr) 4.Silence Zone Day Time: 50 (6-22hr) Night Time: 40 (22-6hr)	
			Vibration (dB L10 or mm/sec)		1 Location Gavan area for package III	Half yearly	75,000	0	75,000	400,000	475,000	- Construction vibration 75dB -Vibration Standards roadside 1. Commercial /Industrial Area Day Time: 70 (7-20hr) Night Time: 65 (20-7hr) 2. Residential Area: Day Time: 65 (7-20hr) Night Time: 60 (20-7hr)	Not applicable for Pkg. 1
	9 and 10	Protected Area /Ecosystem	1.Monitoring of mudflat conditions including	Ocular inspection and quantitative	Along MTHL alignment and mangrove replant area for Package I	Quarterly during the construction Period	6,500,000	7,200,000	6,500,000	0	13,700,000		Not applicable for Pkg. 3

			fauna-flora	survey								
			2. Monitoring of Cutting Tree and replantation /		Along MTHL alignment and mangrove replant area for package II	4 Times / Year					Significant impacts are not caused by the project	
			transplanting area	1-1. Fauna-Flora	Not applicable for Package III							
			3.Monitoring of Mangrove Plantation area appointed by MoEF	Line-Point census and record number and appeared species								**Note)**

Category	No.	Impacted Item on JICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	ndard Central Pollution Control Board (CPCB) – Ministry of Environment & Forest (MoEF)	Remarks
Natural environment			4. Monitoring of sedimentation soil and ecological parameter (18items on Supplemental EIA Table 6.1.15 for soil and 7 items such as 1)Netprimary productivitye, 2)Chlorophyll-a, 3)Phosphate, 4)Nitrate, 5)Nitrite, 6)Particulate Organic Carbon, 7) SiO2)	1-2: Mangrove density and community survey								Detailed monitoring plan will be setup during basic design stage	
				1-3: Benthos Survey									
				2-1: Cutting trees confirmation								Standard for Soil; Supplemental EIA Table 6.1.15	
				3-1: Mangrove survey in the replanted area								Standard for Ecological Parameter: • Netprimary Productivity <1,500 mgC/m3/day at surface • Chlorophyll-a <4mg/m3 • Phosphate: 0.1-90µg/l • Nitrate: 1.0-500µg/l • Nitrite: <125µg/l • Particulate Organic Carbon: 10-100mg/m3 • SiO2: 10-5,000µg/l	
	11	Hydrology	Flooding situation	Flood level measurement during high precipitation periods	Not applicable for Package I		350,000	0	350,000	0	350,000	Project activities and structures does not cause flooding and impacts on tidal conditions	Not applicable for Pkg. 1 & 3
					2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year							
					Not applicable for Package III								
	12	Topography and Geology	Conditions in embankment area	Visual survey about Stability of embankment	Not applicable for Package I		115,000	0	115,000	0	115,000	Embankment shall be stabilized without any landslide and cracks	Not applicable for Pkg. 1 & 3
					Interchange in Shivaji Nagar for Package II	4 Times / Year							
					Not applicable for Package								
Social environment	13	Local economy such as employment and livelihood			Affected area		As per Actuals						
	14	Local conflict of interests	Construction worker's township	Confirmation of workers list from	2 Locations (camp site in Sewri and Shivaji Nagar) for	2 Times / Year	125,000	0	125,000	0	125,000	Employment opportunity shall be provided fairly	

				contractor	Package II								
	15	Infectious diseases such as HIV/AIDS	Number of infected patient	Confirmation of health check list from contractor	2 Locations	4 times / year x 4.5 years	525,000	0	525,000	0	525,000	Infection disease rate shall not be caused by the project	
	16	Labour Environment	Construction worker's condition	Confirmation of safety devices and conditions via interviews	2 Location (camp site in Sewri and Shivaji Nagar) for Package II	2 times / year	500,000	0	500,000	0	500,000	"Building And Other Construction Workers (Regulation of Emloyment and Conditions of Service) Act,1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"	
Other	17	Accidents	Number of accidents	Confirmation of accidents list from local government and State Traffic Police Department	2 Locations (camp site in Sewri and Shivaji Nagar) for Package II	4 Times / Year	400,000	0	400,000	0	400,000	Any accidents are not caused by construction	
					Total		8140500	325,354,000	12,000,000	2,211,500	339,565,500		

The Project for Construction of Mumbai Trans Harbour Link
Reporting Form of Environmental Monitoring during Construction
Attachment 2-4
1. Environmental Monitoring during Construction for 4.5 years

Monitoring Period -Jan to March 2024

Attachment 2-4

This form is prepared for reporting the monitoring results to JICA India Office. Only minimum required parameters are included in this form, and not all parameters in EMoP are covered.

Area	No.	Item	Parameter	Location	Frequency a year	Item and Standard	Monitoring Result				Remark - reasons why the data is exceeding standard - counter measures when the data is exceeding
							Location 1- Pkg 1	Location 2 - Package 2	Location 3- Pkg 3	Location 4- Pkg- 04	
Pollution	1	Air pollution	SO2, NO2, PM10, PM2.5	1. Sewri & Sewri bay area for package I	Quarterly monitoring is conducted at all locations.	National Ambient Air Quality Standards (NAAQS)	Sewri	Shivaji Nagar	Chirle		
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year	(Standard for 24hrs: Industrial and Residential)					
				3. Gavhan & Chirle for package III	From march - 2019 onwards monitoring is conducted quarterly as per MOEF and CPCB norms	1. SO2: 80µg/m3	12.1	BDL	28		BDL- Below Detectable Limit
						2. NO2: 80µg/m3	33.58	28	34		
						3. PM10: 100µg/m3	174.17	79	95		
						4. PM 2.5:: 60µg/m3	50.22	30	49		
						5.CO:02mg/m3	1.37	1.4	0.80		
						6.VOCs	0.93	1.0	1.05		
	2	Water pollution	pH, BOD, DO, Turbidity and O&G	1. Sewri & Sewri bay area for package I	Quarterly	Marine water quality Standards – Class SW-IV Harbour Waters (MPCB)	Zone I	Zone II	Zone III/ Package-03		
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year	1. pH: 6.5-9	7.5	7.6	Not applicable		
				3. Gavhan & Chirle for package III	Not applicable	2. DO: 3 mg/l	5.5	5.8	Not applicable		
						3. Turbidity: 30 NTU	12	6.1	Not applicable		
						4. BOD: 5 mg/l	BDL[DL=2]	BDL (DL=2)	Not applicable		
						5. O & G: 10 mg/l	BDL[DL=2]	BDL (DL=2)	Not applicable		
						6.COD	28	16	Not applicable		
	3	Waste	Volume of waste soil, cutting tree and domestic garbage	1. Sewri & Sewri bay area for package I	Daily	Municipal Solid Waste Management Rules, 2013	15 Tonnes for 3 months	Shivaji Nagar Camp Site	Chirle Camp Site		
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year	Generated waste soil (t) total			NA		
				3.Gavhan & Chirle for package III	Once site clearing work/execution part of work start.	Generated cutting tree (ha) total			Tree cutting work completed and Half yearly report submitted to Client (April, 2022)		Both of forest and CIDCO area (234+75)= 309
						Generated domestic waste (t/month) total	15 Tonnes for 3 months	1 T/quarter.	2.1 T for the quarter		
						Confirmation of adequate disposal (visual survey)	Waste is disposed through Municipal Corporation.	It is disposed through CIDCO daily.	Waste is disposed through Municipal Corporation.		

				1. Sewri & Sewri bay area for package I	1. Muck: 1 Time / Year 2. Sediments: 4 Times / Year	Soil Pollution Standard in India (MOEF)	Sediment sample at Sewri	Muck Testing done in September 2021 and Reports submitted to GC	Not applicable		Kindly check the letter No.Ref No. MTHL/ P3/L&T/GC/LT/HSE-2226/2020 dated on 12.12.2020
				2. Nhava temporary bridge & casting yard in Gavhan for package II		1. Cadmium: 0.01mg/l	BDL[DL=2]	BDL			
						2. total cyanide: not detected	NA	<0.005	There is no reportable Oil spillage in project		
						3. organic phosphorus: not detected	NA	8.5	One time Soil test done (Report has been submitted)		
						4. lead: 0.01mg/l	BDL[DL=0.6]	0.17	There is no huge quantity of oil storage area, Oil requirment fulfil by portable oil tanker (Indian Oil) on frequent basis. Only small quentity of Oil <1000 ltr is stored in well esteblished oil storage area (Covered and bundedwall from all side)		Hazardous Storage is situated in low laying area at Gavan area. Due to this reason complete ground area is covered by boulders to avoid further water logging in rainy season. Therefore soil sample is impossible to taken out from in and around the Oil & chemical storage area. Same has witnessed by GC during Febrary-2020 monitoring.
4	Soil Contamination/sedimentation	Heavy Metals & Oil & Grease		3. Gavhan & Chirle for package III	*If any spillage/ leakage take place from chemical, fuel storage area. *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon at Storage area only	5. chromium (VI): 0.05mg/l	Not detected	BDL			
						6. arsenic: 0.01mg/l or 15mg/kg (agri-land soil)	BDL[DL=1]	BDL			
						7. total mercury: 0.005mg/l	BDL[DL=2]	BDL			
						8. alkyl mercury: not detected	Not detected				
						9. PCBs: not detected	Not detected	BDL			
						10. copper: 125mg/kg (only paddy field soil)	139				
						11. dichloromethane: 0.02mg/l	Not detected	BDL			
						12. carbon tetrachloride: 0.002mg/l	Not detected	BDL			
						13. 1,2-dichloroethane: 0.004mg/l	Not detected	BDL			
						14. 1,1-dichloroethylene: 0.02mg/l	Not detected	BDL			
						15. cis-1,2-dichloroethylene: 0.04mg/l	Not detected	BDL			
						16. 1,1,1-trichloroethane: 1mg/l	Not detected	BDL			
						17. 1,1,2-trichloroethane: 0.006 mg/l	Not detected	BDL			
						18. trichloroethylene: 0.03mg/l	Not detected	BDL			
						19. tetrachloroethylene: 0.01mg/l	Not detected	BDL			
						20. 1,3-dichloropropene: 0.002mg/l	Not detected	BDL			
						21. thiuram: 0.006mg/l	Not detected	BDL			
						22. simazine: 0.003mg/l	Not detected	BDL			
						23. thiobencarb: 0.02mg/l	Not detected	BDL			
						24. benzene: 0.01mg/l	Not detected	BDL			
						25. selenium: 0.01mg/l	Not detected	BDL			
5	Noise and vibration	Ambient and road side noise (dB(A)LAeq)	1. Sewri & Sewri bay area for package I	Fortnightly	Construction area Standard 85 dB(A) daytime (Japan standard)Not construction area : Ambient Noise Standard in India (dB(A) Laeq)	Sewri (ST 200-500)(Industrial area)	Sea Section (ST5000-5500) Migratory Bird Area (no standard on sea section)	Shivaji Nagar(Commercial area)	Chirle (package-III) Commercial area		
			2. Nhava temporary bridge & casting yard in	2 Times / Year	Day time : 6-22 hr (continuous) dB(A)	65.2	72.9		63.35		

				Gavhan for package II							
				3. Gavhan & Chirle for package III	Fortnightly	Night time: 22-6 hr (continuous) dB(A)	62	65.6		52.69	
						(only sea section)					
						Day time : 6-22 hr (10 min during 9-17 hrs)	62.8				
						Night time: 22-6 hr (10 min 22-24 hr)	58				
						Note (standard values in Not construction area)					
						1.Industrial Area					
						Day Time: 75 (6-22hr)					
						Night Time: 70 (22-6hr)					
						2.Commercial Area:					
						Day Time: 65 (6-22hr)					
						Night Time: 55 (22-6hr)					
			Vibration (dB) shall be converted from mm/s to dB	1 Location Gavan area for package III	Half yearly	Construction area Standard 75 dB daytime (Japan standard) Not construction area : Vibration Standard (Japan Standard along the road)	Sewri (ST 200-500) (Industrial area)	Shivaji Nagar (Commercial area)	Chirle		
						Day time : 6-22 hr (continuous)	Not applicable	Not applicable	Not applicable		
						Night time: 22-6 hr (continuous)					
						Note (standard values in Not construction area)					Kindly check the letter No.Ref No. MTHL/ P3/L&T/GC/LT/HSE-2226/2020 dated on 12.12.2020
						1. Commercial /Industrial Area					
						Day Time: 70 (7-20hr)					
						Night Time: 65 (20-7hr)					
Natural Environment	6	Protected Area	1.Monitoring of mudflat conditions including fauna-flora2. Monitoring of Cutting Tree and replantation/transplation area3.Monitoring of Mangrove Plantation area appointed by MoEF4. Monitoring of sedimentation soil and ecological parameter (25 items on EIA main text Table 6.1.15 for soil and 7 items such as 1)Net primary productivity, 2)Chlorophyll-a, 3)Phosphate, 4)Nitrate, 5)Nitrite, 6)Particulate Organic Carbon, 7) SiO2)	Along MTHL alignment and mangrove replant area for Package I	Quarterlyduring theconstruction Period	Standard is not existing, but quantity and quality should not be worsen	Sewri side(ST500-5500)	Sea Section (ST5500-16000)	Shivaji Nagar side(app. ST16000-19000)	Mangrove Replantation area appointed by State Government	
				Along MTHL alignment and mangrove replant area for package II	4 Times / Year	1-1. Fauna-Flora (number of species and quantity	Bird monitoring is being done by a separate agency BNHS	Bird monitoring was being done by a separate agency BNHS	N/A	N/A	Birds Monitoring report by BNHS has been submitted separately
						(1) Number of species of bird	28				
						(2) Number of species of fish	25				
						(3) Estimated number of Flamingo	< 20,000				
						1-2: Mangrove density and community survey	Avicennia marina	Being carried out by Mangrove Foundation			Mangrove foundation report has been submitted separately
						(1) Number of species of mangrove	Dominant - Avicennia sp.				
						(2) Density of mangrove (xx trees/10m x 10m)	EIA - Not disturbed.				
						1-3: Benthos Survey	Flora, fauna, phytoplankton , zooplankton, Benthos				
						(1) Number of species and quantity by species					
						2-1: Cutting tree confirmation	1. Tree Cutting: 407 trees (Till Sept 2023) 2. Transplanting: 500 Trees (Till Sept 2023)	20 trees were cut with approval of Forest Department on 29-10-2018. Compensatory plantation of 40 trees were done in casting yard area during the period	Cutting of tree - 341 Transplantation - 84		

							15-10-2020 to 18-10-2020. Maintenance of the same has been done for 37 months & 28 days till the date of Inspection dated 01/12/2023 carried out by GC.			
					(1) Number of cutting tree and species	407	20	341		
					3-1: Mangrove survey in the replant area	Being carried out by Mangrove Foundation	Being carried out by Mangrove Foundation.	NA		Mangrove foundation report has been submitted separately
					(1) Number of species of mangrove					
					(2) Density of mangrove (xx trees/10m x 10m)					
					4. Ecological Parameter					
					(1) Net primary Productivity : <1,500 mgC/m3/day at surface	1300				
					(2) Chlorophyll-a: <4mg/m3	4.3				
					(3) Phosphate: 0.1-90μg/l	6				
					(4) Nitrate: 1.0-500μg/l	5				
					(5) Nitrite: <125μg/l	BDL[DL=2]				
					(6) Particulate Organic Carbon: 10-100mg/m3	0.93%				
	Ecosystem				(7) SiO2: 10-5,000μg/l	33.26				
7	Hydrology	Flooding situation	Not applicable for Package I		Criteria for evaluation Project activities and structures does not cause flooding and impacts on tidal conditions	Sewri	Shivaji Nagar			
			2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year	Monitoring of flooding situation	No Flooding	No Flooding			
			Not applicable for Package III							
8	Topography and Geology	Conditions in embankment area	2 Locations (1. Embankment of Inter Change in Shivaji Nagar and 2 Cutting area at toll gate in Chirle)	4 times / year x 4.5 years	Criteria for evaluation Embankment shall be stabilized without any landslide and cracks	Shivaji Nagar		Chirle		
					Monitoring of embankment	No changes in the embankment noticed	No changes in the embankment noticed	Rock filling activity is carried out as per agreement.		
9	Local conflict of interests	Construction worker's township	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	Criteria for evaluation Employment opportunity shall be provided fairly	Sewri Camp Site	Shivaji Nagar Camp Site	Chirle		
					Number of hired workers by community	around 500	125-150	0		
10	Infectious diseases such as HIV/AIDS	Number of infected patient	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	Criteria for evaluation Infection disease rate shall not be caused by the project	Sewri Camp Site	Shivaji Nagar Camp Site			
					Confirmation of health check record and inspect project site	Doctor on call checks site specific infections., minor and major incidents 24x7 ambulance service , ERT team with trained first aiders	Regular health checks-ups are done. In-house Doctors are appointed at casting yard and labour camp along with Male nurses, Trained first aiders and 24x7 ambulance services.	Regular Health check up is carried out by site Doctor.		

							available				
	11	Labour Environment	Construction worker's condition	2 Locations (major camp site in Sewri and Shivaji Nagar)	2 times / year x 4.5 years	Criteria for evaluation"Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act,1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"	Distribution of Safety kits to 150 Workers Medical Camp organised; wherein > 300 workers were consulted. 100 No. of Malaria tests carried out. Glucose Distribution at Site during Summer Season for workmen. Organised Street Play for workers . Health Talk by Dr Akshay Shah Haemato Oncology on Hazards of Smoking & Chewing Tobacco and Preventive Measures. Inner health incentive program with co-ordination with Bhramakumaris Sanstha.	Shivaji Nagar Camp Site	Gavan Camp site		
						Site Visual Inspection	Weekly site inspection	Conforming with BOCW Act, 1996	Conforming with BOCW Act 1996		
Other	12	Accident	Number of accidents	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	Criteria for evaluation Any accidents are not caused by construction	Sewri Site	Shivaji Nagar Camp Site	Chirle/Other area		
						Number of recorded accidents	0	Nil	Nil		

QPR No. 28 (January to March 2024) – Attachment 2-6

MTHL - ROW Land Acquisition Status (Attachment 2-6):

The total land required on the Navi Mumbai side is 108.4379 ha

Land acquired by MMRDA – 108.4379 ha

Land in possession of MMRDA – 106.3542 ha

Balance land under acquisition – 0.3937 ha

Note: The acquisition of 0.3937 ha of ROW land is in progress and likely to complete.

ROW Land Required in ha (for Package-3)	ROW land acquired by MMRDA In ha	ROW Land in possession of MMRDA in ha	Balance ROW to be handed over (Possession to be taken + Under acquisition)	Anticipated date for 100% ROW Land Acquisition	Remarks
108.4379	108.0442	108.0442	2.0837 (1.6900+0.3937)	31-1-2023	The payment status to the land owners are awaited from CIDCO. The same would be communicated to JICA on receipt of the same.

Attachment 2-8

RAP Implementation Monitoring Form For Mumbai Trans Harbour Link Project (MTHL)

1. General Information

a. RAP Implementation Monitoring Results: Progress Status Report (PSR) for the 1st quarter of 2024

b. Date of Preparing This Form: 31.03. 2024

c. Person Preparing This Form:
Name: Shivananda. K
Position: The Engineer
Department/Organizations: General Consultants

2. Scale of Impact

2.1 Project Affected Households (PAHs) and Project Affected Persons (PAPs) for Sewri side

Total Project Affected Households (PAHs)	231Hhs	Titleholders: 0 Hhs
		Non-titleholders: 231Hhs
Total PAPs	1,282 persons*	Titleholders: 0 persons
		Non-titleholders: 1,282 persons*
PAHs who need relocation (as residents)	231Hhs	Titleholders: 0 persons
		Non-titleholders:231 (1,088persons) *
PAPs who do not need relocation (as residents)	0 persons	Titleholders: 0 persons
		Non-titleholders: 0 persons
Commercial PAPs who need relocation	66 (194persons) *	Titleholders: 0 persons
		Non- titleholders: 66(194persons) *
Commercial PAPs who do not need relocation	0 persons	Titleholders: 0 persons
		Non-titleholders: 0 persons

* - Figures for number of persons do not include no. of family members of few additional PAPs.

Structures

Structures	Residential:231 Commercial:65 Residential + Commercial: 1 (counted in Commercial) Community:9 (Religious Properties 6, Public Toilets3) Government:16 (MbPT Structures 9, Occupants of Leased Plots 6 & Police Chowki 1) Total: 322

2.2 Fishery

Categories of Fisher-folks	Identified Number		Total	Remarks
	Mumbai side	Navi Mumbai side		
C1: Fishing stakes and nets in RoW (250 m.)	178	54	232	Funds for 232 nos C1 category fishermen are transferred to Commissioner of Fisheries in 2017-23.
C2: Fishing Stakes and Nets within 500 m. of RoW (Southern side)	268	493	761	Funds for 761 nos C2 category fishermen are transferred to Commissioner of Fisheries in 2017-23.
C3: Hand Pickers	1492	4040	5534	Funds for 5534 nos of C3 category fishermen are transferred to the Commissioner of Fisheries .
C4: Commercial and Artisanal Fisher-folks (Loss of Time and Increased Operating Costs)	Will be observed during the construction period	Will be observed during the construction period	---	Nil
C5: Fisher-folks with Loss due to Turbidity	Will be observed during the construction period	Will be observed during the construction period	---	Nil
C6: Fisher-folks with Damages due to Accidents	Will be observed during the construction period	Will be observed during the construction period	---	Nil

SUMMARY OF FISHER FOLKS OF MTHL PROJECT (Influence Zone of 24 villages) Up to 31-12-2023						
Sr.No.	Village Name	Total number of forms Received	Total eligible family units			
			C1	C2	C3	Total
1	Bamandongri	273	1	1	28	**30**
2	Belapur	110	0	5	15	**20**
3	Belpada	1185	0	7	478	**485**
4	Diwale	455	12	201	52	**265**
5	Ganeshpuri	276	0	37	35	**72**
6	Gavhan	2162	0	14	1317	**1331**
7	Jasai	926	0	0	18	**18**
8	Jawale	51	0	1	0	**1**
9	Kombadbhuja	413	1	23	135	**159**
10	Kopar	994	2	5	228	**235**
11	Karave	178	0	44	67	**111**
12	Mahul	1062	129	77	604	**809**
13	Moha	475	22	25	134	**181**
14	Mora	818	0	102	375	**477**
15	Morave	539	14	21	88	**123**
16	Nhava	1646	0	32	307	**339**
17	Sarsole	266	0	30	83	**113**
18	Sewri	305	0	1	72	**73**
19	Shelghar	241	0	0	15	**15**
20	Shivajinagar	202	1	4	61	**66**
21	Trombay	1208	49	219	823	**1091**
22	Ulwe	218	1	3	14	**18**
23	Uran & Hanuman Koliwada	683	0	11	600	**611**
24	Vahal	411	0	2	1	**3**
Total		**15097**	**232**	**865**	**5549**	**6646**

SUMMARY OF FISHER FOLKS OF MTHL PROJECT (Out of Influence Zone villages) Up to 31-12-2023

Sr.No.	Village Name	Total number of forms Received	Total eligible family units			
			C1	C2	C3	Total
1	Airoli	76	0	15	0	15
2	Ghansoli	340	0	15	0	15
3	Kopar khairne	245	0	1	0	1
4	Vashi Gaon	256	0	25	0	25
5	Juhugaon	201	0	3	0	3
6	Dhutum	398	0	1	0	1
7	Gharapuri	261	0	14	0	14
8	Kelavane	105	0	2	0	2
9	Koproli	70	0	4	0	4
10	Takigaon	1	0	1	0	1
11	Vindhane	12	0	2	0	2
12	Dighode	708	0	17	0	17
13	Kundegaon	548	0	24	0	24
	Total	**3221**	**0**	**124**	**0**	**124**

Total applications received (Influence Zone)	15097
Total applications received (Out of Influence Zone)	5744
Duplicate/Repeated Application	2428
Rejected application	11643
Eligible applications	6770
Total approved applications	6527

Grievance Redressal Committee (GRC) for Fisher-folk Compensation

No. of Cases referred to GRC	No. of Cases		No. of Cases Rejected	No. of Cases under Consideration
	Allowed	Compensation Paid		
4	4	4	0	0

Implementation Schedule for Fisher-folks Compensation & Land Acquisition in Navi Mumbai

A. Implementation Schedule for Fisher-folks Compensation: -

Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
1	Approval of fisherfolk's compensation policy	Fisher-folks Compensation Committee (FCC)	08-10-2015	23-12-2015
2	Approval by MMRDA	MMRDA	10-12-2015	23-12-2015
3	Submission to JICA	MMRDA	--	04-01-2016
4	A detailed list of PAP and compensation plan	1. Detailed list of Fisher-folk PAP up to list 1 (1165 Nos) & 2 (1399 Nos) are finalized by the Fisheries Department. From 2018, FEVC committee is the approval authority of PAF and approved C1- 232 Nos. C2 - 761 Nos and C3- 5534 Nos are approved.	23-12-2015	Up to 31-12-2023 Total up to date applications scrutinized = 20841 Nos (Influence zone & out of influence zone). Eligible = 6770 Nos. Rejected = 11643 Nos.
5	Validation of compensation plan	Fisher-folks Compensation Committee (FCC)	23-12-2015	Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk from Sewri, Mahul & Trombay (Mumbai side) – 12th September 2017 and 20th November 2018 for C-2 & C3 Category only. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk of Navi Mumbai of C2 & C3 on 25th April 2018. Validation of compensation is in progress and would be completed in phases.
6	Approval of compensation plan	FCC	23-11-2015	28-12-2017
7	Approval by MMRDA	MMRDA	23-11-2015	09-03-2021

Implementation Schedule for SIA (Sewri Section)

Task No.	Task Designation	Start Date	Completion / Forecast Date
1	**Preparation of Final SIA**		
1.1	MMRDA Approval	October 2015	January 2016
1.2	JICA Approval	November 2015	January 2016
1.3	Posting of project Information on MMRDA		
1.4	Translation and disclosure of entitlement policy in local language to all PAP's	December 2015	January 2016
2	**LARP Implementation**		
2.1	Grievance redress mechanism established	August 2016	August 2016
2.2	Staff deployment SIA implementation	June 2016	dec. 2021
2.3	Staff Deployment Public Relation	June 2016	June 2016
2.4	Hiring of Independent Evaluation Agency	November 2018	November 2020
2.5	Preparation and issue of allotment letters to PAPs	June 2018	Dec 2022
2.6	Notice of PAPs for shifting (Sewri Section)	December 2018	Nov. 2021
2.7	Allotment of dwelling units to PAP's	September 2016	Dec2022
2.8	Shifting of PAPs to resettlement Colony	December 2018	Nov 2021
2.9	Transfer of compensation / allowance/ assistance to PAPs	December 2018	Dec 2022
2.10	Creation of Community Revolving fund (within 3 months post handing over)	April 2019	Oct 2023
2.11	Assessment of economic rehabilitation needs by individual household (within 6 months after handing over	September 2019	Oct 2023
2.12	Registration of Co-operative housing societies transfer of maintenance funds. (6 months period)	December 2019	April 2023
2.13	Signing of Civil Contract		January 2018
2.14	Notice of Civil works to proceed		March 2018
3	**Monitoring & Evaluation**		
3.1	Internal Monitoring- Monthly/ Quarterly	June 2016	January 2020
3.2	Independent Evaluation Mid-term and End term evaluation Mid Term End Term	May 2019 November 2019	June 2024 July 2024

Attachment 3- JICA's Concurrence Status

Status of JICA'S Concurrence

Sl. No.	Brief description	Procurement procedure	Bid Cost		JICA's Concurrence on					
			Local Currency (Cr Rs.)	Total (Cr Rs)	PQ Documents	PQ Evaluation	Bid Documents	Technical Evaluation	Financial Evaluation	Contract
1.	Package-1 (CH 0+000 km to CH10+380 km)	ICB with PQ (2P)	7637.30	7637.30	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 22nd Dec 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 12th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence – 15th Feb 2018
2.	Package-2 (CH 10+380 km to CH18+187 km)	ICB with PQ (2P)	5612.61	5612.61	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 22nd Dec 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 12th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence – 15th Feb 2018
3.	Package-3 (CH18+187 to CH21+800)	ICB with PQ (2P)	1013.79	1013.79	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 4th Jan 2017	JICA's Concurrence - 15th Sep 2017	JICA's Concurrence - 12th Oct 2017	JICA's Concurrence – 15th Feb 2018
4.	Package-4 Intelligent Transport System	ICB with PQ (2P)	427.00	427.00	JICA's Concurrence - 23rd Aug 2019	NA	JICA's Concurrence - 24th Aug 2021	JICA's Concurrence - 15th Feb 2022	JICA's Concurrence - 21st Apr 2022	JICA's Concurrence – 13th Oct 2022

Attachment 4- Project Procurement and Financial Status till 31st March 2024

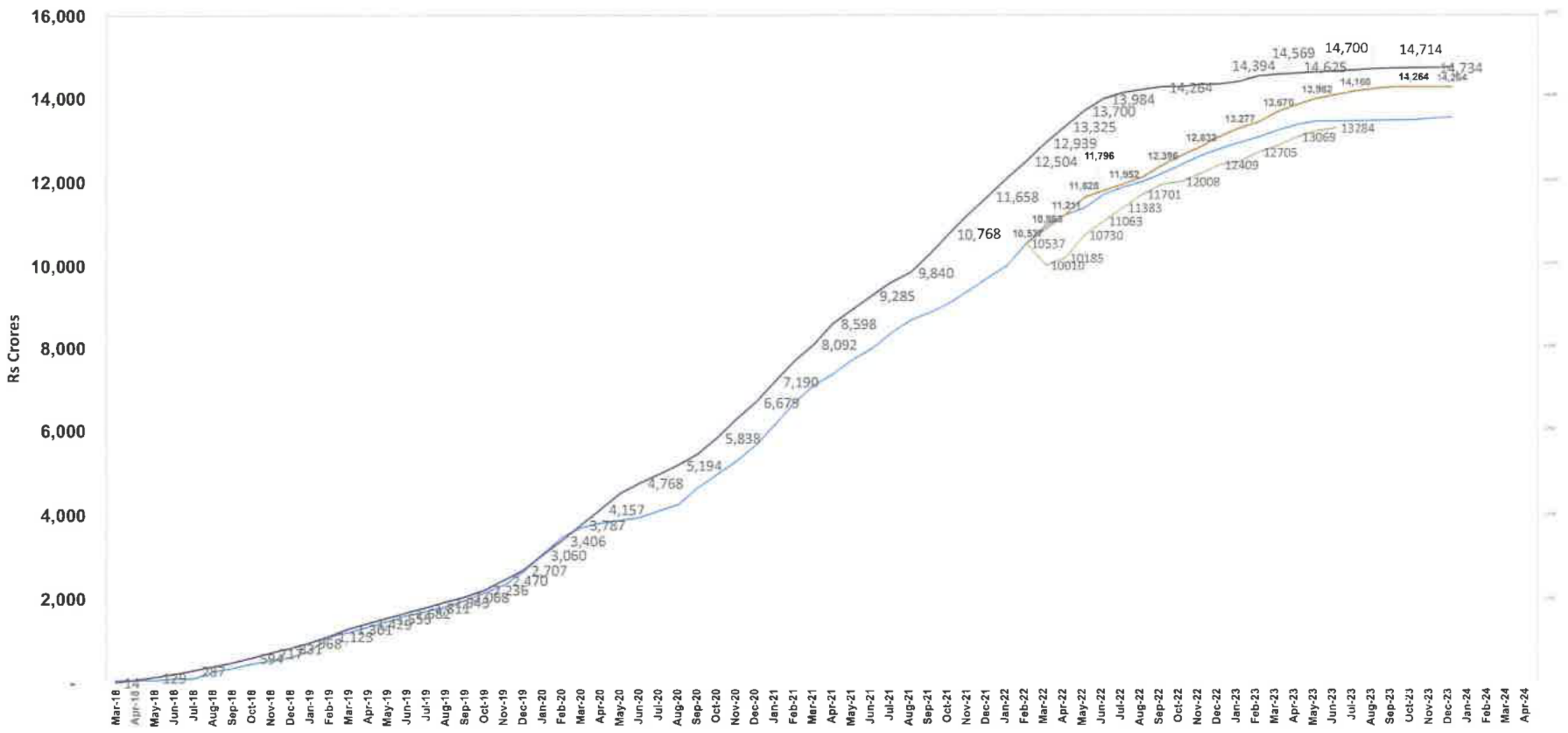
PROJECT PROCUREMENT AND FINANCIAL STATUS TILL 31st Mar 2024

Type	Contract	Awarded or Estimated Value (in Rs. Crore)	Current Status	Contractors	Project Commencement Date	Stipulated Project Completion Date	Revised Project Completion Date After granting the Extension of Time (EOT)	% of Overall Works Progress (Design, Material Procurement and Construction) as per the Primavera Baseline Schedule Updated as of till 31st March 2024	% of Financial Progress till 31st March 2024 (GC Certified) (Excluding Mobilization Advance, Price Adjustment and Work Variation)
CIVIL	Package-1 (CH 0+000 km to CH 10+380 km)	7637.30	Awarded	L&T-IHI Consortium	Mar 2018	21-Sep 2022	30-Sep 2023	100%	99.80%
	Package-2 (CH 10+380 km to CH18+187 km)	5612.61	Awarded	DAEWOO-TPL JV	Mar 2018	21-Sep 2022	27-Sep 2023	100%	99.71%
	Package-3 (CH18+187 to CH21+800)	1013.79	Awarded	L&T	Mar 2018	21-Sep 2021	06-Aug 2023	100%	99.57%
ITS	Package-4 Intelligent Transport System (ITS)	449.00	Awarded	Strabag GmbH JV	June 2022	30- Sep 2023	30- Sep 2023	98.53%	98.80%

Attachment 5- Financial S-Curve for Cumulative Planned Vs Actual Amount in Rs Crores



MTHL - Combined Financial S-Curve Updated as of 31st Dec 2023



—Actual Claimed Invoice in Rs Crores

—Actual Claimed Invoice as per the Catch-Up Plan in Rs Crores

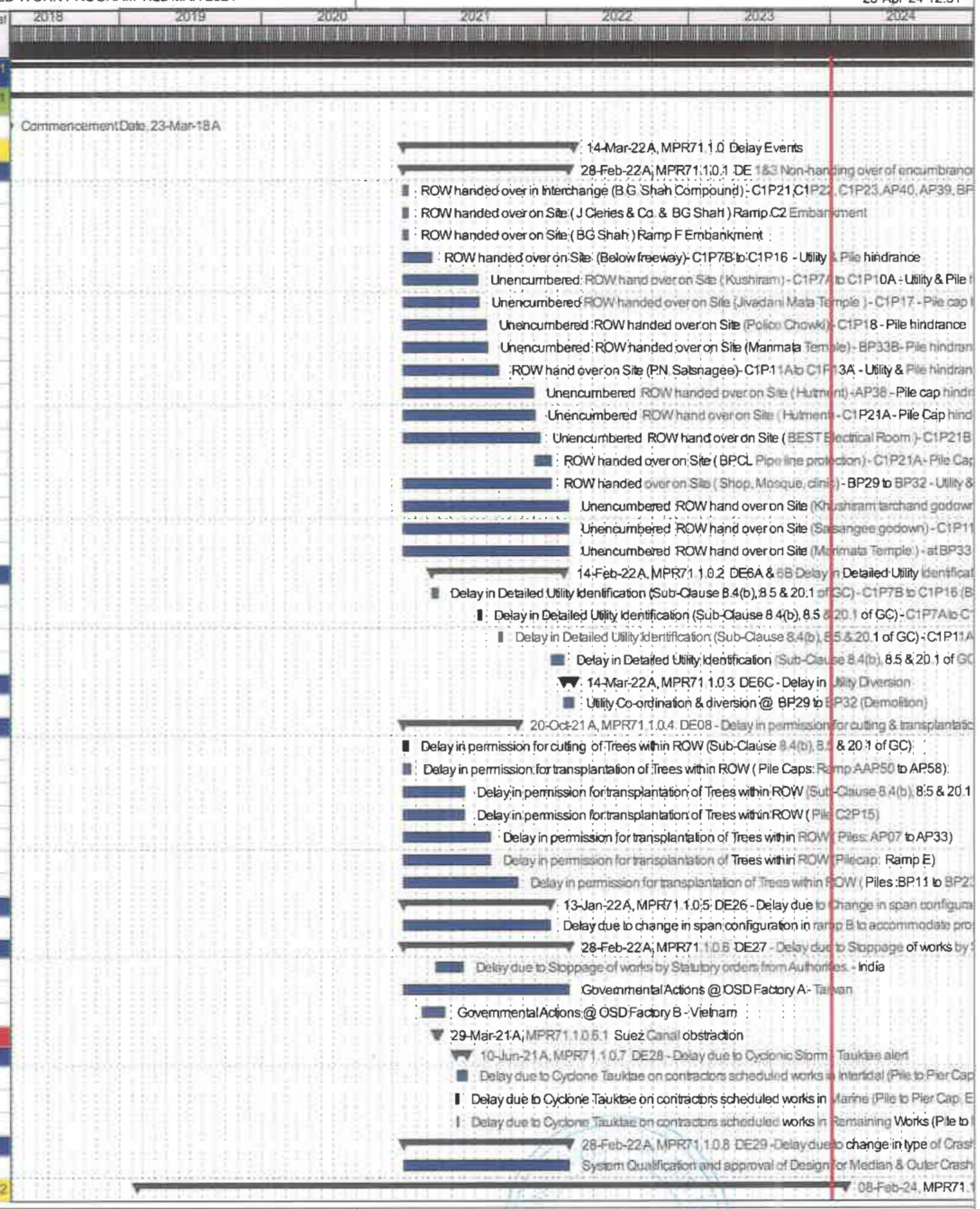
—Planned Invoice as per the Catch-Up Plan

—Planned Invoice in Crores

Attachment 6- Package-1's Construction Programme

Updated as of 31st March 2024

#	Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
1	MPR71	MTHL P1 -MAR-24 Month Progress	1461	23-Mar-18 A	28-May-25	-141
2	MPR71.1	Mumbai Trans Harbour Link - Packag	1461	23-Mar-18 A	28-May-25	-141
3	M10000	Commencement Date	0	23-Mar-18 A		
4	MPR71.1.0	Delay Events	586	31-Dec-20 A	14-Mar-22	
5	MPR71.1.0.1	DE 1&3 Non-handing over of encumbrance free la	849	31-Dec-20 A	28-Feb-22	
6	DE100	ROW handed over in Interchange (B.G. Sh	13	31-Dec-20 A	12-Jan-21	
7	DE101	ROW handed over on Site (J Cleries & Co.	13	31-Dec-20 A	12-Jan-21	
8	DE102	ROW handed over on Site (BG Shah) Ra	13	31-Dec-20 A	12-Jan-21	
9	DE103	ROW handed over on Site (Below freeway	73	31-Dec-20 A	13-Mar-21	
10	DE104	Unencumbered ROW hand over on Site (	190	31-Dec-20 A	08-Jul-21 A	
11	DE105	Unencumbered ROW handed over on Site	198	31-Dec-20 A	14-Jul-21 A	
12	DE106	Unencumbered ROW handed over on Sit	214	31-Dec-20 A	01-Aug-21	
13	DE107	Unencumbered ROW handed over on Sit	217	31-Dec-20 A	04-Aug-21	
14	DE108	ROW hand over on Site (P.N. Satsnagee)-	246	31-Dec-20 A	02-Sep-21	
15	DE109	Unencumbered ROW handed over on Sit	78	31-Dec-20 A	02-Dec-21	
16	DE110	Unencumbered ROW hand over on Site (	337	31-Dec-20 A	02-Dec-21	
17	DE111	Unencumbered ROW hand over on Site (	352	31-Dec-20 A	17-Dec-21	
18	DE112	ROW handed over on Site (BPCL Pipe lin	43	03-Dec-21 A	14-Jan-22	
19	DE113	ROW handed over on Site (Shop, Mosque	381	31-Dec-20 A	15-Jan-22	
20	DE114	Unencumbered ROW hand over on Site (I	425	31-Dec-20 A	28-Feb-22	
21	DE115	Unencumbered ROW hand over on Site (S	425	31-Dec-20 A	28-Feb-22	
22	DE116	Unencumbered ROW hand over on Site (I	425	31-Dec-20 A	28-Feb-22	
23	MPR71.1.0.2	DE6A & 6B Delay in Detailed Utility Identification & C	338	14-Mar-21 A	14-Feb-22	
24	DE600	Delay in Detailed Utility Identification (Sub-C	15	14-Mar-21 A	28-Mar-21	
25	DE601	Delay in Detailed Utility Identification (Sub-C	10	09-Jul-21 A	18-Jul-21 A	
26	DE602	Delay in Detailed Utility Identification (Sub-C	10	03-Sep-21 A	12-Sep-21	
27	DE603	Delay in Detailed Utility Identification (Sub-C	30	16-Jan-22 A	14-Feb-22	
28	MPR71.1.0.3	DE6C - Delay in Utility Diversion	30	15-Feb-22 A	14-Mar-22	
29	DE604	Utility Co-ordination & diversion @ BP29 to	30	15-Feb-22 A	14-Mar-22	
30	MPR71.1.0.4	DE08 - Delay in permission for cutting & transplant	716	31-Dec-20 A	20-Oct-21	
31	DE800	Delay in permission for cutting of Trees wit	12	31-Dec-20 A	11-Jan-21	
32	DE801	Delay in permission for transplantation of T	12	31-Dec-20 A	20-Jan-21	
33	DE802	Delay in permission for transplantation of T	152	31-Dec-20 A	05-Jun-21	
34	DE803	Delay in permission for transplantation of T	152	31-Dec-20 A	05-Jun-21	
35	DE804	Delay in permission for transplantation of T	224	31-Dec-20 A	11-Aug-21	
36	DE805	Delay in permission for transplantation of T	224	31-Dec-20 A	11-Aug-21	
37	DE806	Delay in permission for transplantation of T	294	31-Dec-20 A	20-Oct-21	
38	MPR71.1.0.5	DE26 - Delay due to Change in span configuration i	268	31-Dec-20 A	13-Jan-22	
39	DE2600	Delay due to change in span configuration	268	31-Dec-20 A	13-Jan-22	
40	MPR71.1.0.6	DE27 - Delay due to Stoppage of works by Statutor	425	31-Dec-20 A	28-Feb-22	
41	DE2700	Delay due to Stoppage of works by Statuto	70	23-Mar-21 A	31-May-21	
42	DE2701	Governmental Actions @ OSD Factory A -	425	31-Dec-20 A	28-Feb-22	
43	DE2702	Governmental Actions @ OSD Factory B -	60	15-Feb-21 A	15-Apr-21	
44	MPR71.1.0.6.1	Suez Canal obstraction	7	23-Mar-21 A	29-Mar-21	
45	MPR71.1.0.7	DE28 - Delay due to Cyclonic Storm - Tauktae alert	176	15-May-21 A	10-Jun-21	
46	DE2800	Delay due to Cyclone Tauktae on contracto	25	17-May-21 A	10-Jun-21	
47	DE2801	Delay due to Cyclone Tauktae on contracto	5	15-May-21 A	19-May-21	
48	DE2802	Delay due to Cyclone Tauktae on contracto	3	17-May-21 A	19-May-21	
49	MPR71.1.0.8	DE29 -Delay due to change in type of Crash Barrie	425	31-Dec-20 A	28-Feb-22	
50	DE2900	System Qualification and approval of Desig	425	31-Dec-20 A	28-Feb-22	
51	MPR71.1.2	Key Milestones	1683	15-Feb-19 A	08-Feb-24	-132



Actual Level of Effort | Remaining Work | Milestone
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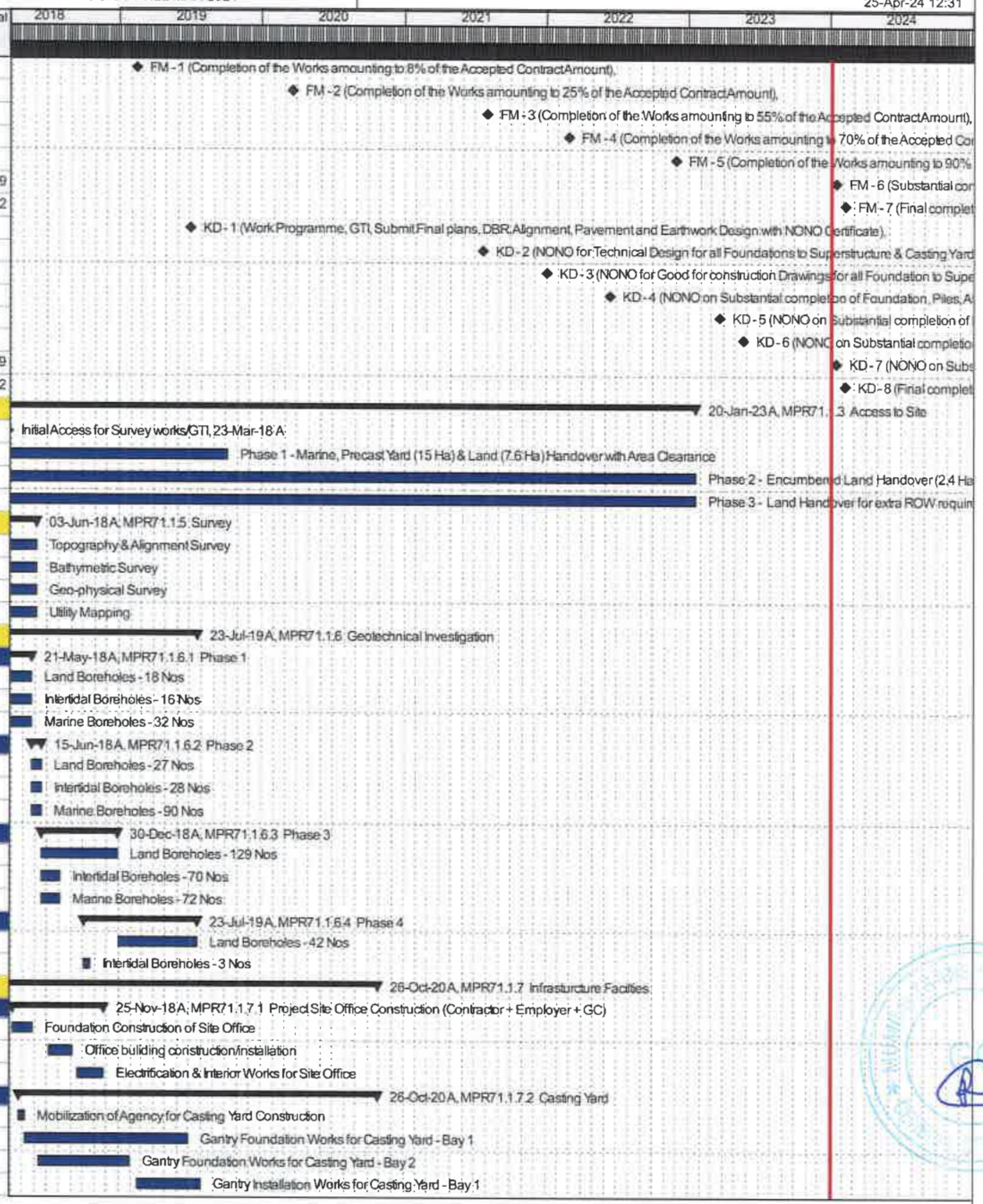
#	Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
52	FM1001	FM - 1 (Completion of the Works amountin	0		15-Feb-19	
53	FM1002	FM - 2 (Completion of the Works amountin	0		20-Mar-20	
54	FM1003	FM - 3 (Completion of the Works amountin	0		31-Jul-21 A	
55	FM1004	FM - 4 (Completion of the Works amountin	0		28-Feb-22	
56	FM1005	FM - 5 (Completion of the Works amountin	0		30-Nov-22	
57	FM1006	FM - 6 (Substantial completion of all Works	0		17-Jan-24	-109
58	FM1007	FM - 7 (Final completion and handing over	0		08-Feb-24	-132
59	KD1001	KD - 1 (Work Programme, GTI, Submit Fina	0		03-Jul-19 A	
60	KD1002	KD - 2 (NONO for Technical Design for all F	0		22-Jul-21 A	
61	KD1003	KD - 3 (NONO for Good for construction Dra	0		31-Dec-21	
62	KD1004	KD - 4 (NONO on Substantial completion o	0		13-Jun-22	
63	KD1005	KD - 5 (NONO on Substantial completion o	0		21-Mar-23	
64	KD1006	KD - 6 (NONO on Substantial completion o	0		23-May-23	
65	KD1007	KD - 7 (NONO on Substantial completion o	0		17-Jan-24	-109
66	KD1008	KD - 8 (Final completion and Handing over	0		08-Feb-24	-132
67	**MPR71.1.3 Access to Site**		1066	23-Mar-18 A	20-Jan-23	
68	AS1001	Initial Access for Survey works/GTI	0	23-Mar-18 A		
69	AS1002	Phase 1 - Marine, Precast Yard (15 Ha) & L	564	23-Mar-18 A	07-Oct-19	
70	AS1003	Phase 2 - Encumbered Land Handover (2	1066	23-Mar-18 A	20-Jan-23	
71	AS1004	Phase 3 - Land Handover for extra ROW r	1066	23-Mar-18 A	20-Jan-23	
72	**MPR71.1.5 Survey**		73	23-Mar-18 A	03-Jun-18	
73	SR1001	Topography & Alignment Survey	73	23-Mar-18 A	03-Jun-18	
74	SR1002	Bathymetric Survey	73	23-Mar-18 A	03-Jun-18	
75	SR1003	Geo-physical Survey	73	23-Mar-18 A	03-Jun-18	
76	SR1004	Utility Mapping	73	23-Mar-18 A	03-Jun-18	
77	**MPR71.1.6 Geotechnical Investigation**		420	23-Mar-18 A	23-Jul-19 A	
78	**MPR71.1.6.1 Phase 1**		54	23-Mar-18 A	21-May-18	
79	GT1001	Land Boreholes - 18 Nos	54	23-Mar-18 A	21-May-18	
80	GT1002	Intertidal Boreholes - 16 Nos	54	23-Mar-18 A	21-May-18	
81	GT1003	Marine Boreholes - 32 Nos	54	23-Mar-18 A	21-May-18	
82	**MPR71.1.6.2 Phase 2**		23	22-May-18 A	15-Jun-18	
83	GT2001	Land Boreholes - 27 Nos	23	22-May-18 A	15-Jun-18	
84	GT2002	Intertidal Boreholes - 28 Nos	23	22-May-18 A	15-Jun-18	
85	GT2003	Marine Boreholes - 90 Nos	23	22-May-18 A	15-Jun-18	
86	**MPR71.1.6.3 Phase 3**		180	16-Jun-18 A	30-Dec-18	
87	GT3001	Land Boreholes - 129 Nos	180	16-Jun-18 A	30-Dec-18	
88	GT3002	Intertidal Boreholes - 70 Nos	46	16-Jun-18 A	04-Aug-18	
89	GT3003	Marine Boreholes - 72 Nos	46	16-Jun-18 A	04-Aug-18	
90	**MPR71.1.6.4 Phase 4**		242	05-Oct-18 A	23-Jul-19 A	
91	GT4001	Land Boreholes - 42 Nos	183	31-Dec-18 A	23-Jul-19 A	
92	GT4002	Intertidal Boreholes - 3 Nos	15	05-Oct-18 A	20-Oct-18	
93	**MPR71.1.7 Infrastructure Facilities**		593	23-Mar-18 A	26-Oct-20 A	
94	**MPR71.1.7.1 Project Site Office Construction (Contractor + Emp**		126	04-Apr-18 A	25-Nov-18	
95	IF1001	Foundation Construction of Site Office	48	04-Apr-18 A	26-May-18	
96	IF1002	Office buliding construction/installation	17	07-Jul-18 A	04-Sep-18	
97	IF1003	Electrification & Interior Works for Site Offic	61	18-Sep-18 A	25-Nov-18	
98	**MPR71.1.7.2 Casting Yard**		567	20-Apr-18 A	26-Oct-20 A	
99	IF2001	Mobilization of Agency for Casting Yard Co	15	20-Apr-18 A	07-May-18	
100	IF2002	Gantry Foundation Works for Casting Yard	275	08-May-18 A	30-Jun-19	
101	IF2003	Gantry Foundation Works for Casting Yard	123	12-Jun-18 A	31-Jan-19	
102	IF2004	Gantry Installation Works for Casting Yard -	104	19-Feb-19 A	01-Aug-19	



Actual Level of Effort | Remaining Work | Milestone
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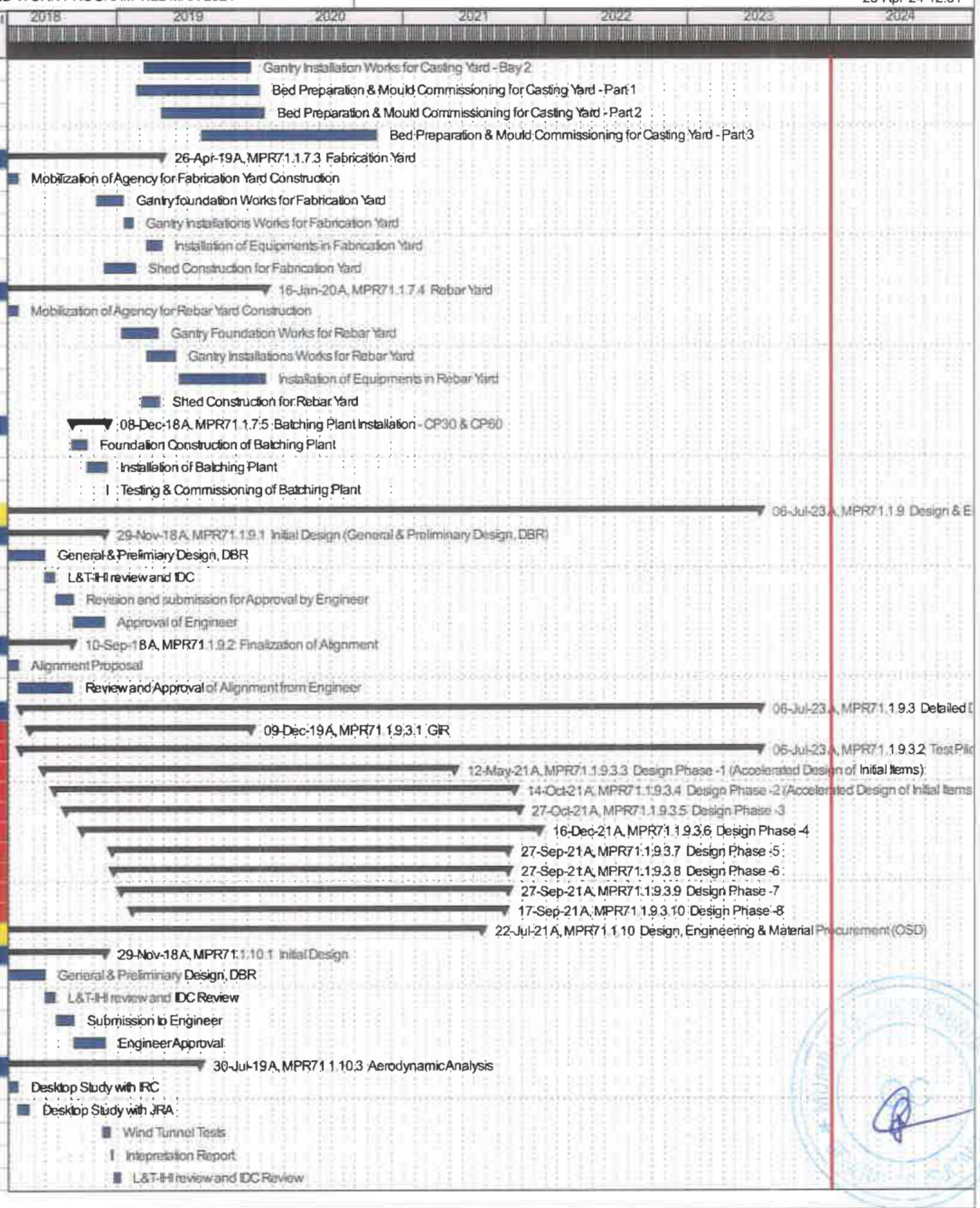
#	Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
103	IF2005	Gantry Installation Works for Casting Yard -	160	12-Mar-19A	09-Dec-19	
104	IF2006	Bed Preparation & Mould Commissioning	197	22-Feb-19A	02-Jan-20	
105	IF2007	Bed Preparation & Mould Commissioning	152	26-Apr-19A	15-Jan-20	
106	IF2008	Bed Preparation & Mould Commissioning	277	07-Aug-19A	26-Oct-20	
107	MPR71.1.7.3 Fabrication Yard		272	23-Mar-18A	26-Apr-19	
108	IF3001	Mobilization of Agency for Fabrication Yard	30	23-Mar-18A	24-Apr-18	
109	IF3002	Gantry foundation Works for Fabrication Ya	62	12-Nov-18A	19-Jan-19	
110	IF3003	Gantry Installations Works for Fabrication Y	18	22-Jan-19A	11-Feb-19	
111	IF3004	Installation of Equipments in Fabrication Ya	35	20-Mar-19A	26-Apr-19	
112	IF3005	Shed Construction for Fabrication Yard	72	01-Dec-18A	20-Feb-19	
113	MPR71.1.7.4 Rebar Yard		424	23-Mar-18A	16-Jan-20	
114	IF4001	Mobilization of Agency for Rebar Yard Con	30	23-Mar-18A	24-Apr-18	
115	IF4002	Gantry Foundation Works for Rebar Yard	82	15-Jan-19A	16-Apr-19	
116	IF4003	Gantry Installations Works for Rebar Yard	66	20-Mar-19A	31-May-19	
117	IF4004	Installation of Equipments in Rebar Yard	114	10-Jun-19A	16-Jan-20	
118	IF4005	Shed Construction for Rebar Yard	42	05-Mar-19A	19-Apr-19	
119	MPR71.1.7.5 Batching Plant Installation - CP30 & CP60		73	08-Sep-18A	08-Dec-18	
120	IF5001	Foundation Construction of Batching Plant	27	08-Sep-18A	16-Oct-18	
121	IF5002	Installation of Batching Plant	44	18-Oct-18A	06-Dec-18	
122	IF5003	Testing & Commissioning of Batching Plan	2	07-Dec-18A	08-Dec-18	
123	MPR71.1.9 Design & Engineering (Civil)		927	23-Mar-18A	06-Jul-23	
124	MPR71.1.9.1 Initial Design (General & Preliminary Design, DBR)		229	23-Mar-18A	29-Nov-18	
125	ID1001	General & Prelimiary Design, DBR	90	23-Mar-18A	29-Jun-18	
126	ID1002	L&T-IHI review and IDC	25	30-Jun-18A	27-Jul-18	
127	ID1003	Revision and submission for Approval by E	43	28-Jul-18A	12-Sep-18	
128	ID1004	Approval of Engineer	71	13-Sep-18A	29-Nov-18	
129	MPR71.1.9.2 Finalization of Alignment		169	23-Mar-18A	10-Sep-18	
130	AL1001	Alignment Proposal	32	23-Mar-18A	23-Apr-18	
131	AL1002	Review and Approval of Alignment from Er	140	24-Apr-18A	10-Sep-18	
132	MPR71.1.9.3 Detailed Design and Construction Design		891	01-May-18A	06-Jul-23	
133	MPR71.1.9.3.1 GIR		458	22-May-18A	09-Dec-19	
134	MPR71.1.9.3.2 Test Pile		631	01-May-18A	06-Jul-23	
135	MPR71.1.9.3.3 Design Phase -1 (Accelerated Design of Initial		853	27-Jun-18A	12-May-21	
136	MPR71.1.9.3.4 Design Phase -2 (Accelerated Design of Initial		891	26-Jul-18A	14-Oct-21	
137	MPR71.1.9.3.5 Design Phase -3		875	25-Aug-18A	27-Oct-21	
138	MPR71.1.9.3.6 Design Phase -4		883	05-Oct-18A	16-Dec-21	
139	MPR71.1.9.3.7 Design Phase -5		744	19-Dec-18A	27-Sep-21	
140	MPR71.1.9.3.8 Design Phase -6		739	24-Dec-18A	27-Sep-21	
141	MPR71.1.9.3.9 Design Phase -7		808	11-Jan-19A	27-Sep-21	
142	MPR71.1.9.3.10 Design Phase -8		689	08-Feb-19A	17-Sep-21	
143	MPR71.1.10 Design, Engineering & Material Procurement ((		946	23-Mar-18A	22-Jul-21	
144	MPR71.1.10.1 Initial Design		229	23-Mar-18A	29-Nov-18	
145	ID2001	General & Preliminary Design, DBR	90	23-Mar-18A	29-Jun-18	
146	ID2002	L&T-IHI review and IDC Review	25	30-Jun-18A	27-Jul-18	
147	ID2003	Submission to Engineer	43	28-Jul-18A	12-Sep-18	
148	ID2004	Engineer Approval	71	13-Sep-18A	29-Nov-18	
149	MPR71.1.10.3 Aerodynamic Analysis		422	23-Mar-18A	30-Jul-19	
150	AA1001	Desktop Study with IRC	26	23-Mar-18A	20-Apr-18	
151	AA1002	Desktop Study with JRA	26	21-Apr-18A	19-May-18	
152	AA1003	Wind Tunnel Tests	18	25-Nov-18A	14-Dec-18	
153	AA1004	Intepretation Report	6	15-Dec-18A	21-Dec-18	
154	AA1005	L&T-IHI review and IDC Review	15	22-Dec-18A	07-Jan-19	



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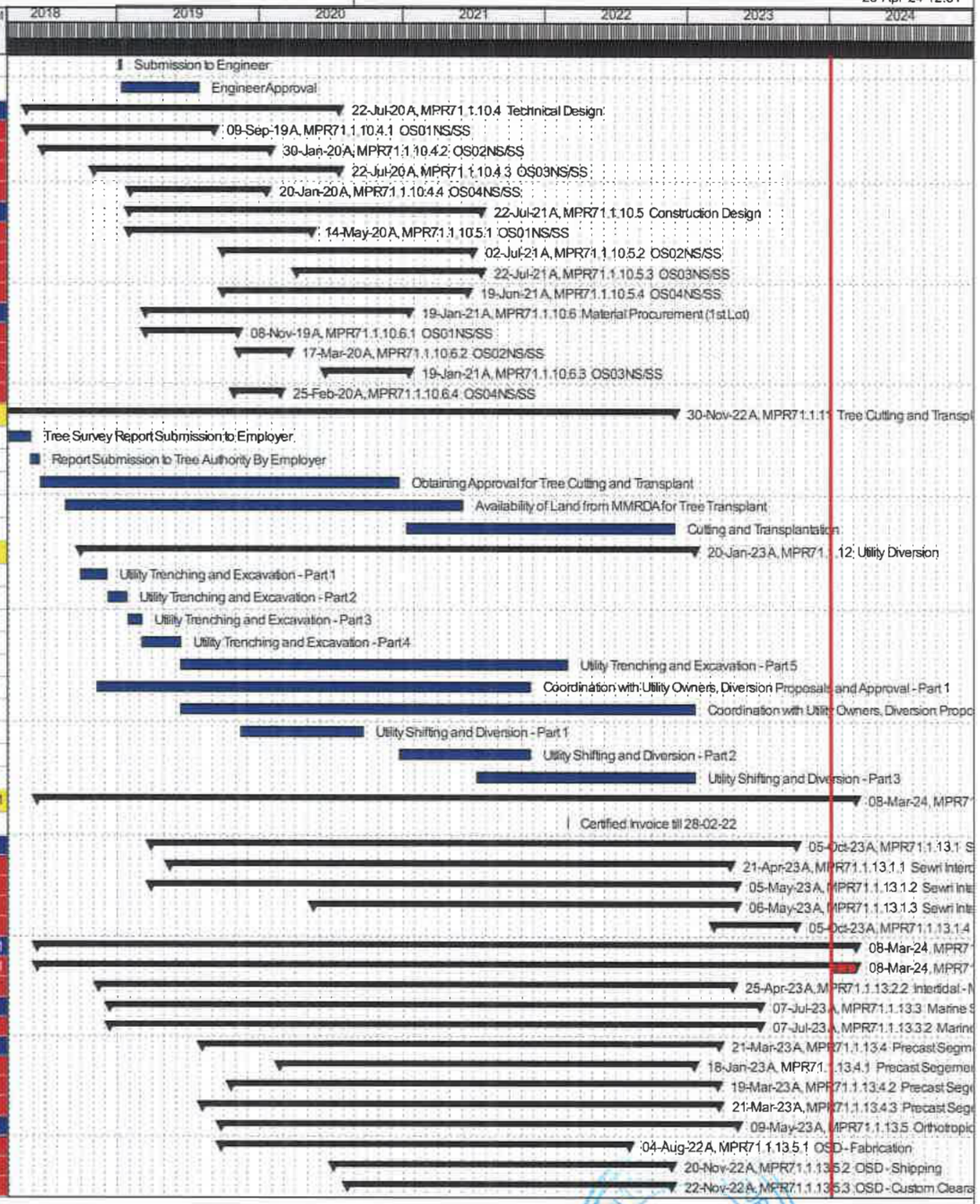
#	Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
155	AA1006	Submission to Engineer	6	08-Jan-19 A	14-Jan-19	
156	AA1007	EngineerApproval	152	15-Jan-19 A	30-Jul-19 A	
157	MPR71.1.10.4 Technical Design		647	15-May-18 A	22-Jul-20 A	
158	MPR71.1.10.4.1 OS01NS/SS		386	15-May-18 A	09-Sep-19 A	
159	MPR71.1.10.4.2 OS02NS/SS		474	26-Jun-18 A	30-Jan-20 A	
160	MPR71.1.10.4.3 OS03NS/SS		489	04-Nov-18 A	22-Jul-20 A	
161	MPR71.1.10.4.4 OS04NS/SS		260	06-Feb-19 A	20-Jan-20 A	
162	MPR71.1.10.5 Construction Design		659	02-Feb-19 A	22-Jul-21 A	
163	MPR71.1.10.5.1 OS01NS/SS		388	02-Feb-19 A	14-May-20 A	
164	MPR71.1.10.5.2 OS02NS/SS		468	01-Oct-19 A	02-Jul-21 A	
165	MPR71.1.10.5.3 OS03NS/SS		303	06-Apr-20 A	22-Jul-21 A	
166	MPR71.1.10.5.4 OS04NS/SS		497	01-Oct-19 A	19-Jun-21 A	
167	MPR71.1.10.6 Material Procurement (1st Lot)		554	15-Mar-19 A	19-Jan-21 A	
168	MPR71.1.10.6.1 OS01NS/SS		160	15-Mar-19 A	08-Nov-19 A	
169	MPR71.1.10.6.2 OS02NS/SS		117	11-Nov-19 A	17-Mar-20 A	
170	MPR71.1.10.6.3 OS03NS/SS		193	19-Jun-20 A	19-Jan-21 A	
171	MPR71.1.10.6.4 OS04NS/SS		110	28-Oct-19 A	25-Feb-20 A	
172	MPR71.1.11 Tree Cutting and Transplantation		1229	23-Mar-18 A	30-Nov-22 A	
173	TT1001	Tree Survey Report Submission to Employ	59	23-Mar-18 A	26-May-18	
174	TT1002	Report Submission to Tree Authority By Em	20	27-May-18 A	18-Jun-18	
175	TT1003	Obtaining Approval for Tree Cutting and Tra	737	19-Jun-18 A	24-Dec-20	
176	TT1004	Availability of Land from MMRDA for Tree T	693	25-Aug-18 A	05-Jun-21	
177	TT1005	Cutting and Transplantation	63	11-Jan-21 A	30-Nov-22	
178	MPR71.1.12 Utility Diversion		758	01-Oct-18 A	20-Jan-23 A	
179	UD1002	Utility Trenching and Excavation - Part 1	63	01-Oct-18 A	08-Dec-18	
180	UD1003	Utility Trenching and Excavation - Part 2	46	10-Dec-18 A	28-Jan-19	
181	UD1004	Utility Trenching and Excavation - Part 3	33	29-Jan-19 A	05-Mar-19	
182	UD1005	Utility Trenching and Excavation - Part 4	92	06-Mar-19 A	14-Jun-19	
183	UD1006	Utility Trenching and Excavation - Part 5	464	15-Jun-19 A	27-Feb-22	
184	UD1010	Coordination with Utility Owners, Diversion F	623	10-Nov-18 A	25-Nov-21	
185	UD1011	Coordination with Utility Owners, Diversion F	451	15-Jun-19 A	20-Jan-23	
186	UD1012	Utility Shifting and Diversion - Part 1	228	15-Nov-19 A	23-Sep-20	
187	UD1013	Utility Shifting and Diversion - Part 2	117	23-Dec-20 A	25-Nov-21	
188	UD1014	Utility Shifting and Diversion - Part 3	60	09-Jul-21 A	20-Jan-23	
189	MPR71.1.13 Construction		1375	11-Jun-18 A	08-Mar-24	-141
190	PS5011	Certified Invoice till 28-02-22	1	28-Feb-22 A	28-Feb-22	
191	MPR71.1.13.1 Sewri Interchange Section		1087	29-Mar-19 A	05-Oct-23	
192	MPR71.1.13.1.1 Sewri Interchange - Work Front - 1		980	16-May-19 A	21-Apr-23	
193	MPR71.1.13.1.2 Sewri Interchange - Work Front - 2		1023	29-Mar-19 A	05-May-23	
194	MPR71.1.13.1.3 Sewri Interchange - Work Front - 3 (Cast in s		752	16-May-20 A	06-May-23	
195	MPR71.1.13.1.4 Sewri Interchange - Merging with Eastern fr		98	10-Mar-23 A	05-Oct-23	
196	MPR71.1.13.2 Intertidal Section		1363	11-Jun-18 A	08-Mar-24	-141
197	MPR71.1.13.2.1 Intertidal - Temporary Access Bridge Work		1363	11-Jun-18 A	08-Mar-24	-141
198	MPR71.1.13.2.2 Intertidal - Main Bridge Work		1130	14-Nov-18 A	25-Apr-23	
199	MPR71.1.13.3 Marine Section		1137	14-Dec-18 A	07-Jul-23 A	
200	MPR71.1.13.3.2 Marine - Main Bridge		1137	14-Dec-18 A	07-Jul-23 A	
201	MPR71.1.13.4 Precast Segments		950	07-Aug-19 A	21-Mar-23	
202	MPR71.1.13.4.1 Precast Segement - Sewri Interchange		878	20-Feb-20 A	18-Jan-23	
203	MPR71.1.13.4.2 Precast Segement - Intertidal		1022	18-Oct-19 A	19-Mar-23	
204	MPR71.1.13.4.3 Precast Segement - Marine		950	07-Aug-19 A	21-Mar-23	
205	MPR71.1.13.5 Orthotropic Steel Deck (OSD) - Fabrication, Shipp		974	23-Sep-19 A	09-May-23	
206	MPR71.1.13.5.1 OSD - Fabrication		904	23-Sep-19 A	04-Aug-22	
207	MPR71.1.13.5.2 OSD - Shipping		950	09-Jul-20 A	20-Nov-22	
208	MPR71.1.13.5.3 OSD - Custom Clearance and Inland Transpo		572	13-Aug-20 A	22-Nov-22	



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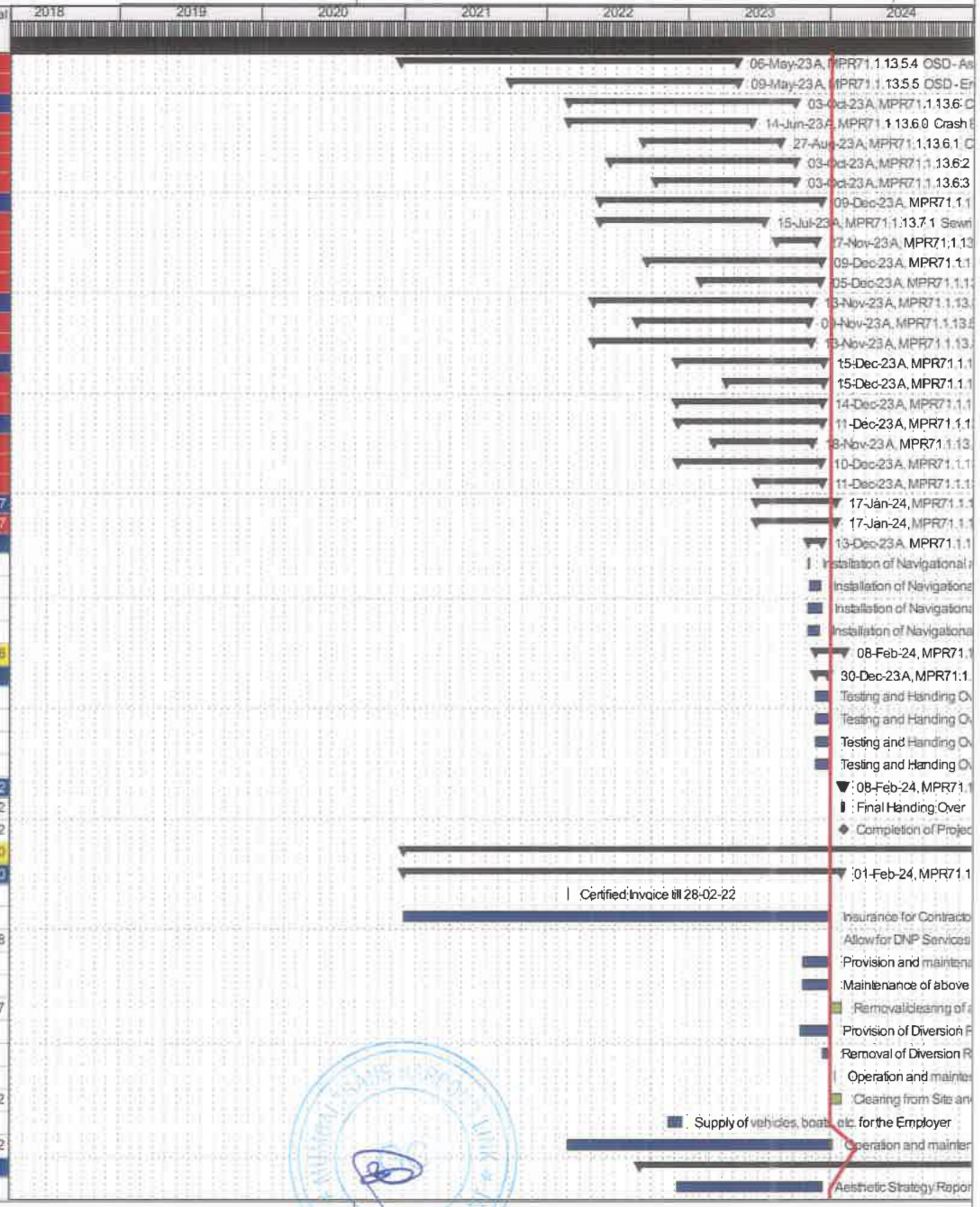
MTHL P1 -MAR-24 Month Progress | UPDATED REVISED WORK PROGRAM TILL MAR 2024 | 25-Apr-24 12:31

#	Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
209	MPR71.1.13.5.4	OSD - Assembly	688	25-Dec-20 A	06-May-23	
210	MPR71.1.13.5.5	OSD - Erection	484	01-Oct-21 A	09-May-23	
211	MPR71.1.13.6	Crash Barrier Works	370	28-Feb-22 A	03-Oct-23	
212	MPR71.1.13.6.0	Crash Barrier - Design	117	28-Feb-22 A	14-Jun-23	
213	MPR71.1.13.6.1	Crash Barrier - Sewri Interchange	310	09-Sep-22 A	27-Aug-23	
214	MPR71.1.13.6.2	Crash Barrier - Intertidal	236	13-Jun-22 A	03-Oct-23	
215	MPR71.1.13.6.3	Crash Barrier - Marine	275	11-Oct-22 A	03-Oct-23	
216	MPR71.1.13.7	Painting	414	20-May-22 A	09-Dec-23	
217	MPR71.1.13.7.1	Sewri Interchange-Old Shade	295	20-May-22 A	15-Jul-23	
218	MPR71.1.13.7.2	Sewri Interchange-New Shade	343	17-Aug-23 A	27-Nov-23	
219	MPR71.1.13.7.3	Intertidal	246	19-Sep-22 A	09-Dec-23	
220	MPR71.1.13.7.4	Main bridge	145	01-Feb-23 A	05-Dec-23	
221	MPR71.1.13.8	Drainage Works	417	02-May-22 A	13-Nov-23	
222	MPR71.1.13.8.1	Sewri Interchange	412	24-Aug-22 A	09-Nov-23	
223	MPR71.1.13.8.2	Main bridge	390	02-May-22 A	13-Nov-23	
224	MPR71.1.13.9	Waterproofing and Stone Mastic Asphalt Pavem	238	04-Dec-22 A	15-Dec-23	
225	MPR71.1.13.9.1	Sewri Interchange	166	09-Apr-23 A	15-Dec-23	
226	MPR71.1.13.9.2	Main Bridge	219	04-Dec-22 A	14-Dec-23	
227	MPR71.1.13.10	Expansion Joint	200	07-Dec-22 A	11-Dec-23	
228	MPR71.1.13.10.1	Sewri Interchange	200	10-Mar-23 A	18-Nov-23	
229	MPR71.1.13.10.2	Intertidal	118	07-Dec-22 A	10-Dec-23	
230	MPR71.1.13.10.3	Marine	89	28-Jun-23 A	11-Dec-23	
231	MPR71.1.13.11	Bridge Ancillaries and Misc. Works	165	27-Jun-23 A	17-Jan-24	-97
232	MPR71.1.13.11.1	Bridge Ancillaries	165	27-Jun-23 A	17-Jan-24	-97
233	MPR71.1.13.12	Navigational aids	40	09-Nov-23 A	13-Dec-23	
234	NA1000	Installation of Navigational aids - Special M	21	09-Nov-23 A	11-Nov-23	
235	NA1001	Installation of Navigational aids - Tata Therr	21	10-Nov-23 A	10-Dec-23	
236	NA1002	Installation of Navigational aids - Tata Therr	10	09-Nov-23 A	13-Dec-23	
237	NA1003	Installation of Navigational aids - Thane Cr	21	09-Nov-23 A	07-Dec-23	
238	MPR71.1.14	Handing Over	70	26-Nov-23 A	08-Feb-24	-116
239	MPR71.1.14.1	Testing and Handing Over	72	26-Nov-23 A	30-Dec-23	
240	TEST1001	Testing and Handing Over - Phase 1 (Intert	7	26-Nov-23 A	30-Dec-23	
241	TEST1002	Testing and Handing Over - Phase 2 (Mari	7	26-Nov-23 A	30-Dec-23	
242	TEST1003	Testing and Handing Over - Phase 3 (Inter	7	26-Nov-23 A	30-Dec-23	
243	TEST1004	Testing and Handing Over - Phase 4 (OSD	7	26-Nov-23 A	30-Dec-23	
244	MPR71.1.14.2	Final Handing Over	7	02-Feb-24	08-Feb-24	-132
245	HO1001	Final Handing Over	7	02-Feb-24	08-Feb-24	-132
246	HO1003	Completion of Project	0		08-Feb-24	-132
247	MPR71.1.15	Price Schedule	792	02-Jan-21 A	29-May-25	-110
248	MPR71.1.15.1	Price Schedule No.1 General Items	792	02-Jan-21 A	01-Feb-24	-110
249	PS0000	Certified Invoice till 28-02-22	1	28-Feb-22 A	28-Feb-22	
250	PS1000	Insurance for Contractor s Equipment (Yea	570	02-Jan-21 A	05-Jan-24	
251	PS1001	Allow for DNP Services (DLP Period - 24 M	1	05-Jan-24	05-Jan-24*	-98
252	PS1002	Provision and maintenance of health and s	570	27-Oct-23 A	05-Jan-24	
253	PS1003	Maintenance of above office facilities for th	570	27-Oct-23 A	05-Jan-24	
254	PS1004	Removal/clearing of above office facilities f	28	05-Jan-24*	01-Feb-24	-157
255	PS1005	Provision of Diversion Roads (Monthly)	570	18-Oct-23 A	05-Jan-24	
256	PS1006	Removal of Diversion Roads	28	15-Dec-23 A	31-Dec-23	
257	PS1007	Operation and maintenance of diversion r	570	17-Jan-24 A	17-Jan-24	
258	PS1008	Clearing from Site and Works after Taking-I	28	05-Jan-24	01-Feb-24	-132
259	PS1009	Supply of vehicles, boats, etc. for the Empl	28	15-Nov-22 A	20-Dec-22	
260	PS1010	Operation and maintenance of above vehi	570	28-Feb-22 A	10-Jan-24	-102
261	MPR71.1.15.2	Price Schedule No.2	508	02-Sep-22 A	28-May-25	
262	PS2000	Aesthetic Strategy Report	28	07-Dec-22 A	15-Dec-23	



Actual Level of Effort | Remaining Work | Milestone
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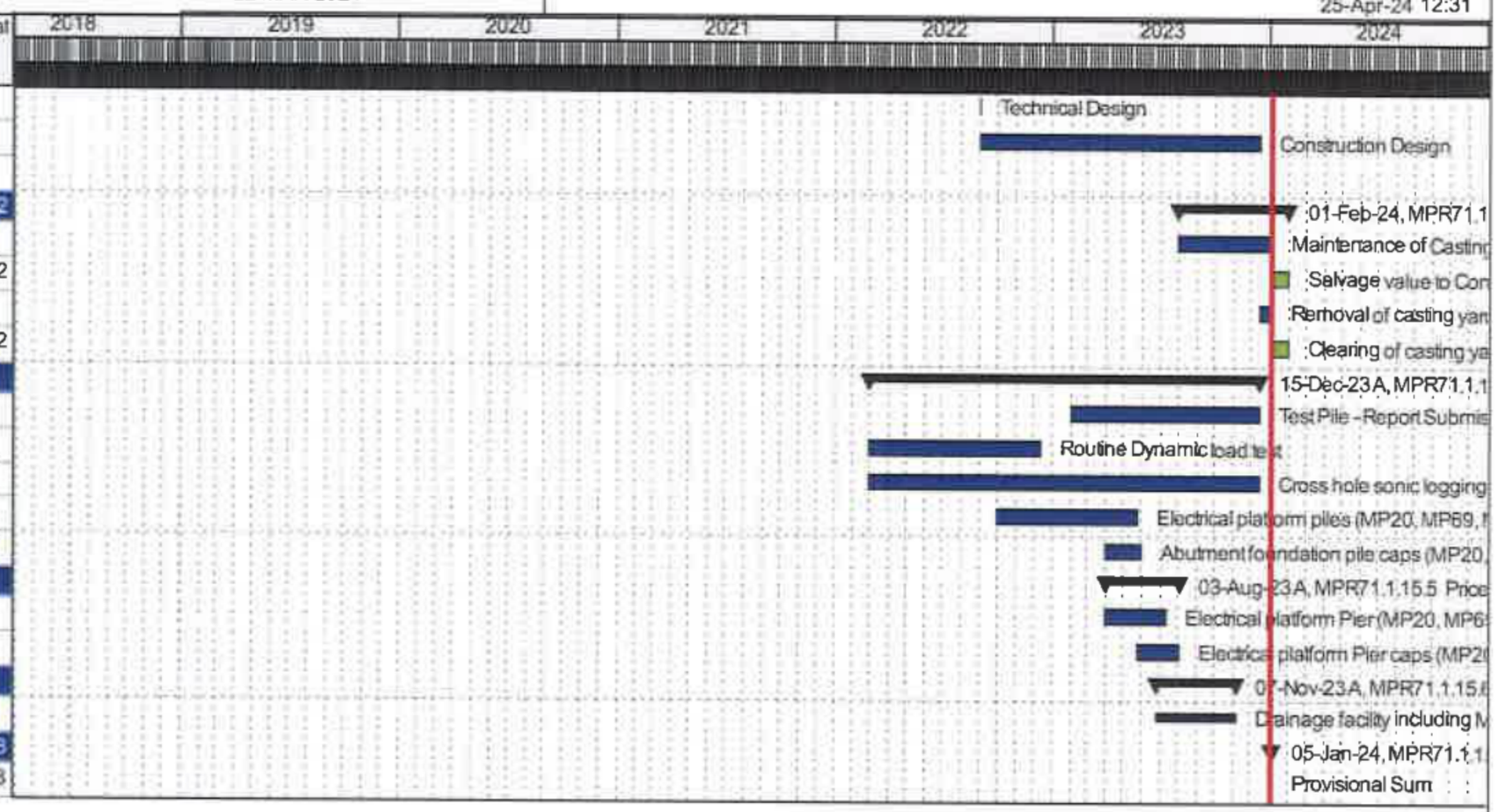
#	Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
263	PS2001	Technical Design	28	02-Sep-22 A	02-Sep-22	
264	PS2002	Construction Design	28	02-Sep-22 A	15-Dec-23	
265	PS2003	Preparation and supply of as-built docume	10	28-May-25 A	28-May-25	
266	MPR71.1.15.3 Price Schedule No. 3		570	30-Jul-23 A	01-Feb-24	-132
267	PS3000	Maintenance of Casting yard	570	30-Jul-23 A	05-Jan-24	
268	PS3002	Salvage value to Contractor (negative cost)	28	05-Jan-24	01-Feb-24	-132
269	PS3003	Removal of casting yards	28	15-Dec-23 A	05-Jan-24	
270	PS3004	Clearing of casting yards	28	05-Jan-24	01-Feb-24	-132
271	MPR71.1.15.4 Price Schedule No. 4		276	01-Mar-22 A	15-Dec-23	
272	PS4000	Test Pile - Report Submission	30	01-Feb-23 A	15-Dec-23	
273	PS4001	Routine Dynamic load test	30	01-Mar-22 A	12-Dec-22	
274	PS4002	Cross hole sonic logging test	30	01-Mar-22 A	15-Dec-23	
275	PS4003	Electrical platform piles (MP20, MP69, MP	60	01-Oct-22 A	25-May-23	
276	PS4004	Abutment foundation pile caps (MP20, MP	30	01-Apr-23 A	30-May-23	
277	MPR71.1.15.5 Price Schedule No. 5		62	01-Apr-23 A	03-Aug-23	
278	PS5000	Electrical platform Pier (MP20, MP69, MP1	30	01-Apr-23 A	12-Jul-23 A	
279	PS5001	Electrical platform Pier caps (MP20, MP69	30	25-May-23 A	03-Aug-23	
280	MPR71.1.15.6 Price Schedule No. 12		386	27-Jun-23 A	07-Nov-23	
281	PS1200	Drainage facility including Materials - Drain	386	27-Jun-23 A	07-Nov-23	
282	MPR71.1.15.7 Price Schedule No. 13		1	05-Jan-24	05-Jan-24	-98
283	PS1300	Provisional Sum	1	05-Jan-24	05-Jan-24	-98



Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

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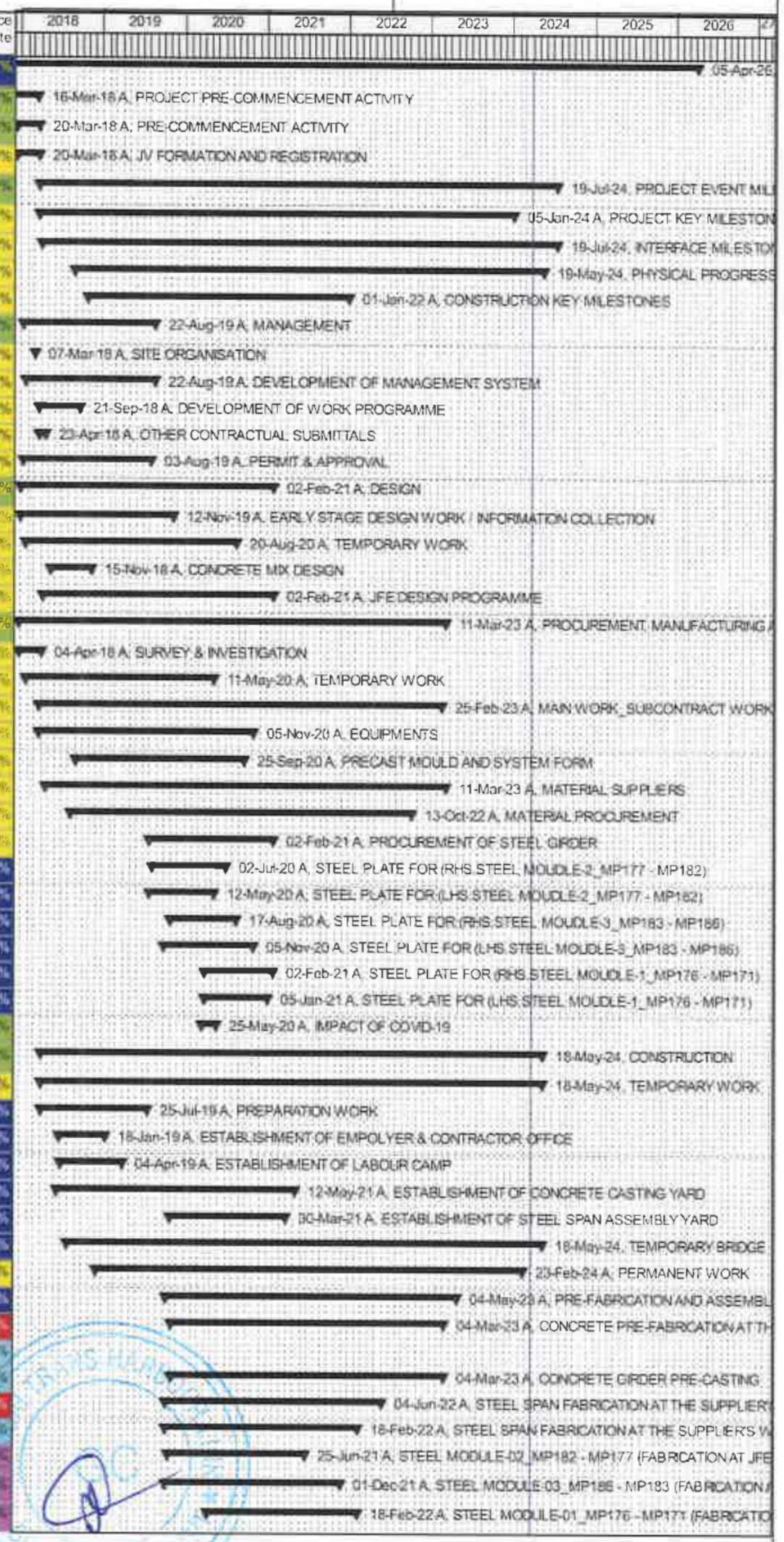
Attachment 7- Package-2's Construction Programme
Updated as of 31st March 2024

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
1		MTHL-PKG2-DETAILED WORK PROGRAMME_25032024_APPROVED_MPR.72	3295	17-Nov-17	21-Sep-24	17-Nov-17		100%	99.87%
2		PROJECT PRE-COMMENCEMENT ACTIVITY	126	17-Nov-17	22-Mar-18	17-Nov-17	16-Mar-18	0%	0%
3		PRE-COMMENCEMENT ACTIVITY	55	15-Dec-17	07-Feb-18	15-Dec-17	20-Mar-18	0%	0%
4		JV FORMATION AND REGISTRATION	55	15-Dec-17	07-Feb-18	15-Dec-17	20-Mar-18	0%	0%
5		PROJECT EVENT MILESTONE	2343	23-Mar-18	21-Mar-23	23-Mar-18		0%	0%
6		PROJECT KEY MILESTONE	2343	23-Mar-18	22-Sep-22	23-Mar-18	05-Jan-24	0%	0%
7		INTERFACE MILESTONE_ERG19	2283	19-Apr-18	21-Mar-23	03-Apr-18		0%	0%
8		PHYSICAL PROGRESS AND INTERFACE DATE_ADD2-ATTACHMENT 25	2069	18-Sep-18	22-Jun-22	31-Aug-18		0%	0%
9		CONSTRUCTION KEY MILESTONES	1308	03-Sep-18	06-Jul-21	25-Oct-18	01-Jan-22	0%	0%
10		MANAGEMENT	613	20-Jan-18	18-Aug-18	12-Jan-18	22-Aug-19	0%	0%
11		SITE ORGANISATION	35	20-Jan-18	23-Feb-18	07-Mar-18	07-Mar-18	0%	0%
12		DEVELOPMENT OF MANAGEMENT SYSTEM	613	20-Jan-18	27-May-18	20-Jan-18	22-Aug-19	0%	0%
13		DEVELOPMENT OF WORK PROGRAMME	63	23-Mar-18	24-May-18	23-Mar-18	21-Sep-18	0%	0%
14		OTHER CONTRACTUAL SUBMITTALS	28	24-Mar-18	20-Apr-18	24-Mar-18	23-Apr-18	0%	0%
15		PERMIT & APPROVAL	388	20-Jan-18	18-Aug-18	12-Jan-18	03-Aug-19	0%	0%
16		DESIGN	1321	20-Jan-18	04-Sep-19	01-Jan-18	02-Feb-21	100%	100%
17		EARLY STAGE DESIGN WORK / INFORMATION COLLECTION	678	20-Jan-18	17-Jul-18	01-Jan-18	12-Nov-19	100%	100%
18		TEMPORARY WORK	1037	22-Jan-18	01-Nov-18	20-Jan-18	20-Aug-20	100%	100%
19		CONCRETE MIX DESIGN	274	23-Mar-18	31-Aug-18	12-May-18	15-Nov-18	0%	0%
20		JFE DESIGN PROGRAMME	1220	01-May-18	04-Sep-19	09-Apr-18	02-Feb-21	100%	100%
21		PROCUREMENT, MANUFACTURING AND LOGISTICS	2199	20-Jan-18	23-Aug-20	22-Dec-17	11-Mar-23	100%	100%
22		SURVEY & INVESTIGATION	72	20-Jan-18	02-Apr-18	22-Dec-17	04-Apr-18	0%	0%
23		TEMPORARY WORK	964	20-Jan-18	20-Oct-18	20-Jan-18	11-May-20	0%	0%
24		MAIN WORK_SUBCONTRACT WORK	1520	23-Mar-18	20-Jul-19	23-Mar-18	25-Feb-23	0%	0%
25		EQUIPMENTS	1096	23-Mar-18	12-Sep-19	23-Mar-18	05-Nov-20	100%	100%
26		PRECAST MOULD AND SYSTEM FORM	715	07-Aug-18	24-Mar-19	04-Sep-18	25-Sep-20	100%	100%
27		MATERIAL SUPPLIERS	2066	02-Jun-18	15-Oct-19	20-Apr-18	11-Mar-23	0%	0%
28		MATERIAL PROCUREMENT	0			08-Aug-18	13-Oct-22	0%	0%
29		PROCUREMENT OF STEEL GIRDER	673	07-May-19	23-Aug-20	01-Aug-19	02-Feb-21	0%	0%
30		STEEL PLATE FOR (RHS.STEEL MOUDLE-2_MP177 - MP182)	513	04-Jun-19	13-Jul-20	08-Aug-19	02-Jul-20	0%	0%
31		STEEL PLATE FOR (LHS.STEEL MOUDLE-2_MP177 - MP182)	436	07-May-19	16-Apr-20	01-Aug-19	12-May-20	0%	0%
32		STEEL PLATE FOR (RHS.STEEL MOUDLE-3_MP183 - MP186)	315	01-Jul-19	10-May-20	01-Nov-19	17-Aug-20	0%	0%
33		STEEL PLATE FOR (LHS.STEEL MOUDLE-3_MP183 - MP186)	315	04-Jun-19	14-Apr-20	01-Oct-19	05-Nov-20	0%	0%
34		STEEL PLATE FOR (RHS.STEEL MOUDLE-1_MP176 - MP171)	286	30-Jul-19	23-Aug-20	01-Apr-20	02-Feb-21	0%	0%
35		STEEL PLATE FOR (LHS.STEEL MOUDLE-1_MP176 - MP171)	327	02-Jul-19	26-Jul-20	29-Mar-20	05-Jan-21	0%	0%
36		IMPACT OF COVID-19	51			22-Mar-20	25-May-20	0%	0%
37		CONSTRUCTION	2428	02-Apr-18	21-Jun-22	02-Apr-18		100%	99.99%
38		TEMPORARY WORK	2428	02-Apr-18	21-Jun-22	02-Apr-18		100%	99.69%
39		PREPARATION WORK	368	02-Apr-18	16-Jan-19	02-Apr-18	25-Jul-19	0%	0%
40		ESTABLISHMENT OF EMPOLYER & CONTRACTOR OFFICE	194	20-Jun-18	27-Nov-18	27-Jun-18	18-Jan-19	100%	100%
41		ESTABLISHMENT OF LABOUR CAMP	464	20-Jun-18	05-Apr-19	03-Jul-18	04-Apr-19	0%	0%
42		ESTABLISHMENT OF CONCRETE CASTING YARD	1095	04-May-18	25-Apr-19	14-Jun-18	12-May-21	100%	100%
43		ESTABLISHMENT OF STEEL SPAN ASSEMBLY YARD	584	02-Nov-18	06-Mar-20	01-Nov-19	30-Mar-21	0%	0%
44		TEMPORARY BRIDGE	2375	20-May-18	21-Jun-22	27-Jul-18		100%	99.47%
45		PERMANENT WORK	1914	03-Sep-18	24-May-22	08-Dec-18	23-Feb-24	100%	100%
46		PRE-FABRICATION AND ASSEMBLY	1197	18-Apr-19	19-Feb-22	16-Oct-19	04-May-23	100%	100%
47		CONCRETE PRE-FABRICATION AT THE CASTING YARD	893	18-Apr-19	15-Sep-21	06-Nov-19	04-Mar-23	100%	100%
48		PC-HOUSE PRE-CASTING	0					0%	0%
49		CONCRETE GIRDER PRE-CASTING	673	18-Apr-19	15-Sep-21	06-Nov-19	04-Mar-23	100%	100%
50		STEEL SPAN FABRICATION AT THE SUPPLIER'S WORK SHOP INCLUDING LOGISTIC	951	02-Jun-19	24-Jan-22	16-Oct-19	04-Jun-22	100%	100%
51		STEEL SPAN FABRICATION AT THE SUPPLIER'S WORK SHOP	952	02-Jun-19	29-Nov-21	16-Oct-19	18-Feb-22	100%	100%
52		STEEL MODULE-02_MP182 - MP177 (FABRICATION AT JFE)	626	02-Jun-19	29-Jun-21	24-Oct-19	25-Jun-21	100%	100%
53		STEEL MODULE-03_MP186 - MP183 (FABRICATION AT JFE)	734	29-Jun-19	25-Sep-21	16-Oct-19	01-Dec-21	100%	100%
54		STEEL MODULE-01_MP176 - MP171 (FABRICATION AT JFE)	728	26-Jul-19	29-Nov-21	16-Apr-20	18-Feb-22	100%	100%



Actual Level of Effort
Actual Work
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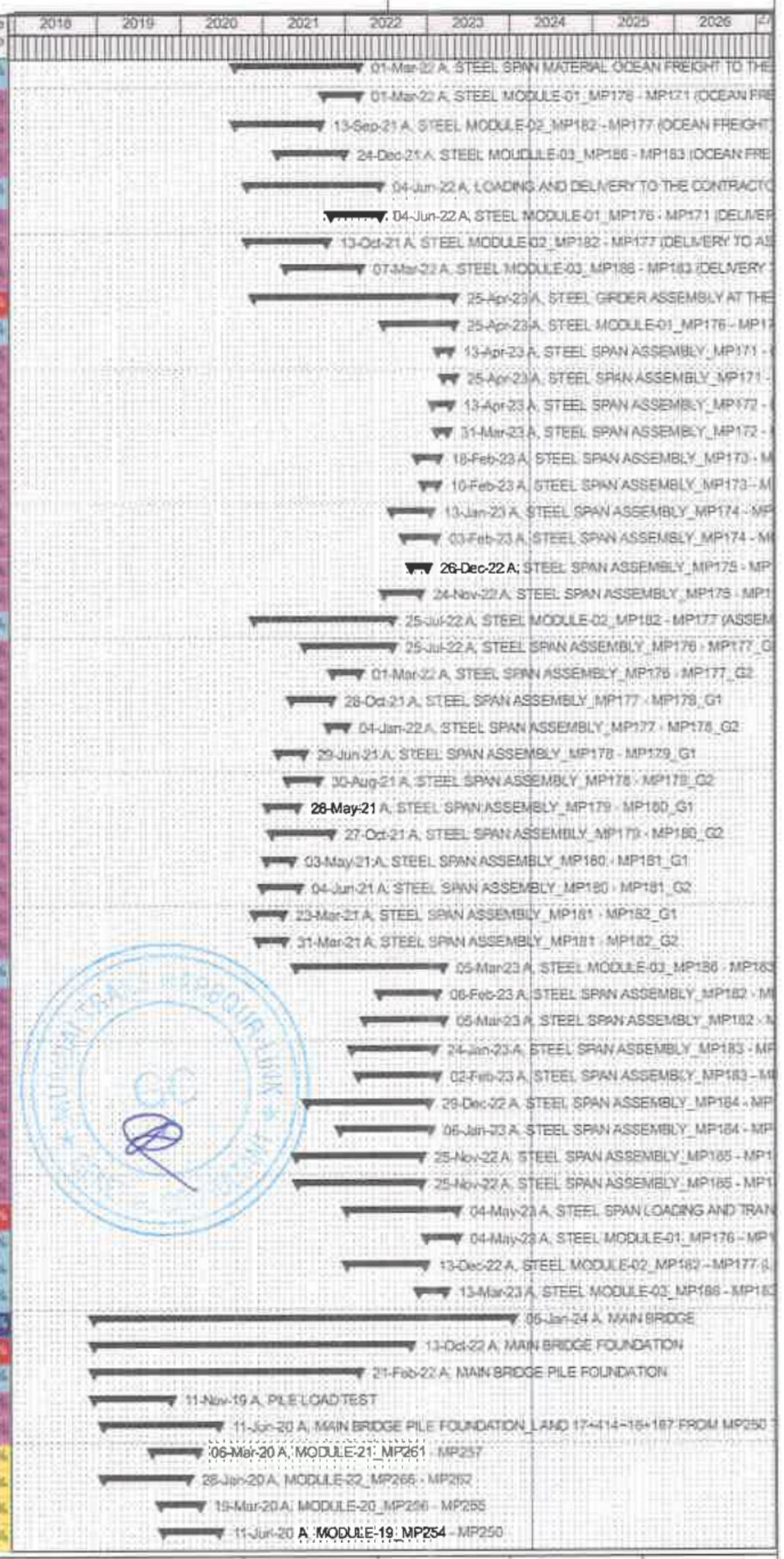
Critical Remaining Work
Milestone
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
55		STEEL SPAN MATERIAL OCEAN FREIGHT TO THE MUMBAI PORT INCLUDING CUSTOM CLEARANCE	641	10-Jul-20	09-Jan-22	01-Sep-20	01-Mar-22	100%	100%
56		STEEL MODULE-01_MP176 - MP171 (OCEAN FREIGHT)	235	23-Nov-20	09-Jan-22	28-Sep-21	01-Mar-22	100%	100%
57		STEEL MODULE-02_MP182 - MP177 (OCEAN FREIGHT)	417	10-Jul-20	05-Aug-21	21-Sep-20	13-Sep-21	100%	100%
58		STEEL MODULE-03_MP186 - MP183 (OCEAN FREIGHT)	347	28-Nov-20	05-Nov-21	06-Mar-21	24-Dec-21	100%	100%
59		LOADING AND DELIVERY TO THE CONTRACTOR'S ASSEMBLY YARD	555	20-Aug-20	24-Jan-22	21-Oct-20	04-Jun-22	100%	100%
60		STEEL MODULE-01_MP176 - MP171 (DELIVERY TO ASSEMBLY YARD)	156	02-Jun-21	24-Jan-22	28-Oct-21	04-Jun-22	100%	100%
61		STEEL MODULE-02_MP182 - MP177 (DELIVERY TO ASSEMBLY YARD)	343	29-Aug-20	19-Aug-21	21-Oct-20	13-Oct-21	100%	100%
62		STEEL MODULE-03_MP186 - MP183 (DELIVERY TO ASSEMBLY YARD)	308	05-Jun-21	20-Nov-21	14-Apr-21	07-Mar-22	100%	100%
63		STEEL GIRDER ASSEMBLY AT THE CONTRACTOR'S ASSEMBLY YARD	621	05-Sep-20	17-Feb-22	23-Nov-20	25-Apr-23	100%	100%
64		STEEL MODULE-01_MP176 - MP171 (ASSEMBLY WORKS)	248	13-Oct-21	17-Feb-22	21-Jun-22	25-Apr-23	100%	100%
65		STEEL SPAN ASSEMBLY_MP171 - MP172_G1	64	23-Nov-21	06-Jun-22	19-Feb-23	13-Apr-23	100%	100%
66		STEEL SPAN ASSEMBLY_MP171 - MP172_G2	70	29-Nov-21	06-Jun-22	09-Mar-23	25-Apr-23	100%	100%
67		STEEL SPAN ASSEMBLY_MP172 - MP173_G1	70	28-Dec-21	13-Jun-22	24-Jan-23	13-Apr-23	100%	100%
68		STEEL SPAN ASSEMBLY_MP172 - MP173_G2	53	25-Jan-22	17-Feb-22	11-Feb-23	31-Mar-23	100%	100%
69		STEEL SPAN ASSEMBLY_MP173 - MP174_G1	72	28-Nov-21	31-Dec-21	17-Nov-22	18-Feb-23	100%	100%
70		STEEL SPAN ASSEMBLY_MP173 - MP174_G2	60	11-Nov-21	30-Dec-21	13-Dec-22	10-Feb-23	100%	100%
71		STEEL SPAN ASSEMBLY_MP174 - MP175_G1	163	23-Oct-21	11-Dec-21	25-Jul-22	13-Jan-23	100%	100%
72		STEEL SPAN ASSEMBLY_MP174 - MP175_G2	126	02-Nov-21	11-Dec-21	09-Sep-22	03-Feb-23	100%	100%
73		STEEL SPAN ASSEMBLY_MP175 - MP176_G1	74	13-Oct-21	09-Dec-21	17-Oct-22	26-Dec-22	100%	100%
74		STEEL SPAN ASSEMBLY_MP175 - MP176_G2	113	23-Oct-21	03-Dec-21	21-Jun-22	24-Nov-22	100%	100%
75		STEEL MODULE-02_MP182 - MP177 (ASSEMBLY WORKS)	381	05-Sep-20	18-Sep-21	23-Nov-20	25-Jul-22	100%	100%
76		STEEL SPAN ASSEMBLY_MP176 - MP177_G1	220	03-May-21	29-May-21	03-Jun-21	25-Jul-22	100%	100%
77		STEEL SPAN ASSEMBLY_MP176 - MP177_G2	120	25-Jun-21	28-Jul-21	02-Nov-21	01-Mar-22	100%	100%
78		STEEL SPAN ASSEMBLY_MP177 - MP178_G1	68	28-Jun-21	06-Aug-21	03-May-21	28-Oct-21	100%	100%
79		STEEL SPAN ASSEMBLY_MP177 - MP178_G2	75	20-Aug-21	18-Sep-21	03-Oct-21	04-Jan-22	100%	100%
80		STEEL SPAN ASSEMBLY_MP178 - MP179_G1	71	05-Mar-21	27-Mar-21	09-Mar-21	29-Jun-21	100%	100%
81		STEEL SPAN ASSEMBLY_MP178 - MP179_G2	74	28-Apr-21	19-May-21	17-Apr-21	30-Aug-21	100%	100%
82		STEEL SPAN ASSEMBLY_MP179 - MP180_G1	77	02-Jun-21	25-Jun-21	19-Jun-21	26-May-21	100%	100%
83		STEEL SPAN ASSEMBLY_MP179 - MP180_G2	164	25-Feb-21	20-Mar-21	08-Feb-21	27-Oct-21	100%	100%
84		STEEL SPAN ASSEMBLY_MP180 - MP181_G1	73	02-Nov-20	23-Nov-20	15-Jan-21	03-May-21	100%	100%
85		STEEL SPAN ASSEMBLY_MP180 - MP181_G2	90	19-Dec-20	11-Jan-21	28-Dec-20	04-Jun-21	100%	100%
86		STEEL SPAN ASSEMBLY_MP181 - MP182_G1	72	05-Sep-20	20-Sep-20	23-Nov-20	23-Mar-21	100%	100%
87		STEEL SPAN ASSEMBLY_MP181 - MP182_G2	78	22-Oct-20	14-Nov-20	08-Dec-20	31-Mar-21	100%	100%
88		STEEL MODULE-03_MP186 - MP183 (ASSEMBLY WORKS)	416	06-Jul-21	23-Nov-21	25-May-21	05-Mar-23	100%	100%
89		STEEL SPAN ASSEMBLY_MP182 - MP183_G1	150	05-Aug-21	16-Oct-21	28-May-22	06-Feb-23	100%	100%
90		STEEL SPAN ASSEMBLY_MP182 - MP183_G2	242	04-Aug-21	24-Oct-21	24-Mar-22	05-Mar-23	100%	100%
91		STEEL SPAN ASSEMBLY_MP183 - MP184_G1	153	04-Oct-21	28-Oct-21	24-Jan-22	24-Jan-23	100%	100%
92		STEEL SPAN ASSEMBLY_MP183 - MP184_G2	170	01-Nov-21	23-Nov-21	02-Feb-22	02-Feb-23	100%	100%
93		STEEL SPAN ASSEMBLY_MP184 - MP185_G1	274	04-Jul-21	06-Oct-21	16-Jul-21	28-Dec-22	100%	100%
94		STEEL SPAN ASSEMBLY_MP184 - MP185_G2	188	05-Aug-21	08-Oct-21	02-Dec-21	06-Jan-23	100%	100%
95		STEEL SPAN ASSEMBLY_MP185 - MP186_G1	325	08-Jul-21	16-Aug-21	25-May-21	25-Nov-22	100%	100%
96		STEEL SPAN ASSEMBLY_MP185 - MP186_G2	303	19-Jul-21	28-Sep-21	29-May-21	25-Nov-22	100%	100%
97		STEEL SPAN LOADING AND TRANSPORTING TO THE ERECTION AREA	284	30-Sep-20	19-Feb-22	30-Dec-21	04-May-23	100%	100%
98		STEEL MODULE-01_MP176 - MP171 (LOAD OUT AND TRANSPORT)	125	03-Dec-21	19-Feb-22	17-Dec-22	04-May-23	100%	100%
99		STEEL MODULE-02_MP182 - MP177 (LOAD OUT AND TRANSPORT)	129	30-Sep-20	21-Sep-21	30-Dec-21	13-Dec-22	100%	100%
100		STEEL MODULE-03_MP186 - MP183 (LOAD OUT AND TRANSPORT)	104	01-Sep-21	25-Nov-21	17-Nov-22	13-Mar-23	100%	100%
101		MAIN BRIDGE	1914	03-Sep-18	24-May-22	08-Dec-18	05-Jan-24	100%	100%
102		MAIN BRIDGE FOUNDATION	1402	03-Sep-18	23-Mar-21	08-Dec-18	13-Oct-22	100%	100%
103		MAIN BRIDGE PILE FOUNDATION	1198	03-Sep-18	23-Jan-21	08-Dec-18	21-Feb-22	100%	100%
104		PILE LOAD TEST	346	03-Sep-18	19-Nov-19	08-Dec-18	11-Nov-19	100%	100%
105		MAIN BRIDGE PILE FOUNDATION_LAND 17+414~18+187 FROM MP250 TO MP256	323	30-Nov-18	19-May-19	11-Jan-19	11-Jun-20	100%	100%
106		MODULE-21_MP261 - MP257	126	30-Nov-18	05-Mar-19	23-Aug-19	06-Mar-20	100%	100%
107		MODULE-22_MP266 - MP262	167	06-Mar-19	15-May-19	17-Jan-19	28-Jan-20	100%	100%
108		MODULE-20_MP256 - MP255	32	05-Dec-18	10-Jan-19	25-Sep-19	19-Mar-20	100%	100%
109		MODULE-19_MP254 - MP250	199	11-Jan-19	16-Apr-19	05-Oct-19	11-Jun-20	100%	100%



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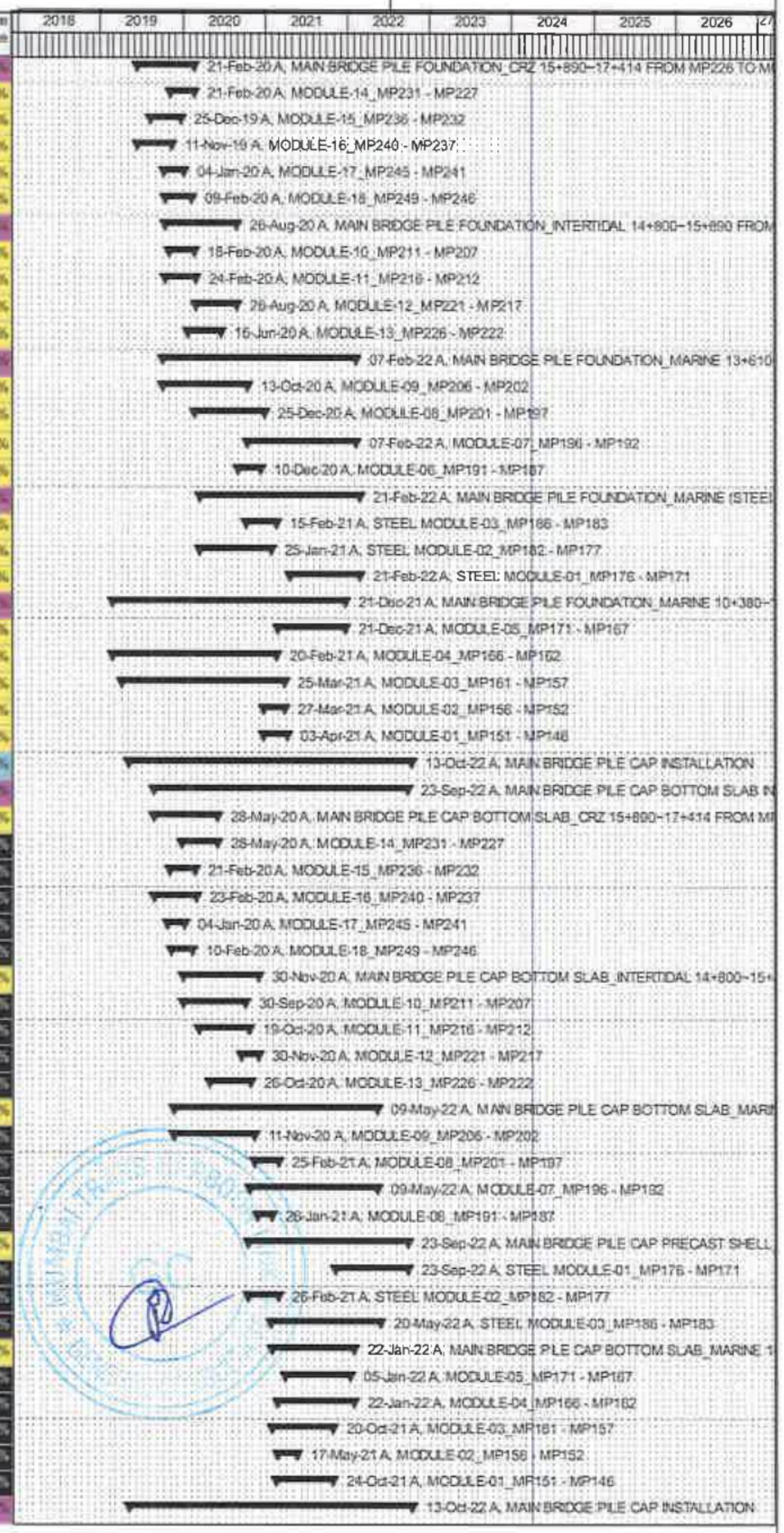
EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
110		MAIN BRIDGE PILE FOUNDATION_CRZ 15+890~17+414 FROM MP226 TO MP250	265	20-Dec-18	27-Nov-19	12-Jun-19	21-Feb-20	100%	100%
111		MODULE-14_MP231 - MP227	48	17-Aug-19	27-Nov-19	08-Nov-19	21-Feb-20	100%	100%
112		MODULE-15_MP236 - MP232	77	08-Mar-19	26-Aug-19	08-Aug-19	25-Dec-19	100%	100%
113		MODULE-16_MP240 - MP237	113	20-Dec-18	08-Mar-19	12-Jun-19	11-Nov-19	100%	100%
114		MODULE-17_MP245 - MP241	94	20-Mar-19	17-Jun-19	09-Oct-19	04-Jan-20	100%	100%
115		MODULE-18_MP249 - MP246	74	21-Jan-19	26-Mar-19	15-Oct-19	09-Feb-20	100%	100%
116		MAIN BRIDGE PILE FOUNDATION_INTERTIDAL 14+800~15+890 FROM MP206 TO MP225	417	27-Feb-19	08-Jun-20	15-Oct-19	26-Aug-20	100%	100%
117		MODULE-10_MP211 - MP207	243	12-Mar-20	06-Jun-20	01-Nov-19	18-Feb-20	100%	100%
118		MODULE-11_MP216 - MP212	277	27-Feb-19	03-Apr-20	15-Oct-19	24-Feb-20	100%	100%
119		MODULE-12_MP221 - MP217	225	06-Apr-19	30-Oct-19	25-Feb-20	26-Aug-20	100%	100%
120		MODULE-13_MP226 - MP222	313	30-Oct-19	06-Feb-20	24-Jan-20	16-Jun-20	100%	100%
121		MAIN BRIDGE PILE FOUNDATION_MARINE 13+610~14+800 FROM MP187 TO MP205	531	12-Dec-19	26-Nov-20	01-Oct-19	07-Feb-22	100%	100%
122		MODULE-09_MP206 - MP202	340	12-Dec-19	06-Mar-20	01-Oct-19	13-Oct-20	100%	100%
123		MODULE-08_MP201 - MP197	262	22-Feb-20	19-May-20	19-Feb-20	25-Dec-20	100%	100%
124		MODULE-07_MP196 - MP192	146	02-May-20	08-Sep-20	12-Oct-20	07-Feb-22	100%	100%
125		MODULE-06_MP191 - MP187	82	21-Aug-20	28-Nov-20	31-Aug-20	10-Dec-20	100%	100%
126		MAIN BRIDGE PILE FOUNDATION_MARINE (STEEL) 11+880~13+610 FROM MP171 TO MP186	678	27-Nov-19	23-Jan-21	17-Mar-20	21-Feb-22	100%	100%
127		STEEL MODULE-03_MP186 - MP183	80	30-May-20	21-Nov-20	08-Oct-20	15-Feb-21	100%	100%
128		STEEL MODULE-02_MP182 - MP177	336	27-Nov-19	10-Sep-20	17-Mar-20	25-Jan-21	100%	100%
129		STEEL MODULE-01_MP176 - MP171	185	30-Jul-20	23-Jan-21	19-Apr-21	21-Feb-22	100%	100%
130		MAIN BRIDGE PILE FOUNDATION_MARINE 10+380~11+880 FROM MP146 TO MP170	723	24-Nov-18	26-Dec-19	19-Feb-19	21-Dec-21	100%	100%
131		MODULE-05_MP171 - MP167	193	19-Jun-19	16-Oct-19	24-Feb-21	21-Dec-21	100%	100%
132		MODULE-04_MP166 - MP162	507	24-Nov-18	18-Feb-19	19-Feb-19	20-Feb-21	100%	100%
133		MODULE-03_MP161 - MP157	393	22-Jan-19	18-Apr-19	03-Apr-19	25-Mar-21	100%	100%
134		MODULE-02_MP156 - MP152	94	16-Apr-19	27-Jul-19	21-Dec-20	27-Mar-21	100%	100%
135		MODULE-01_MP151 - MP146	107	04-Oct-19	28-Dec-19	23-Dec-20	03-Apr-21	100%	100%
136		MAIN BRIDGE PILE CAP INSTALLATION	1135	22-Dec-18	23-Mar-21	01-May-19	13-Oct-22	100%	100%
137		MAIN BRIDGE PILE CAP BOTTOM SLAB INSTALLATION	1008	22-Dec-18	17-Feb-21	19-Aug-19	23-Sep-22	0%	0%
138		MAIN BRIDGE PILE CAP BOTTOM SLAB_CRZ 15+890~17+414 FROM MP226 TO MP250	356	17-Jan-19	12-Dec-19	19-Aug-19	28-May-20	0%	0%
139		MODULE-14_MP231 - MP227	168	28-Sep-19	12-Dec-19	24-Dec-19	28-May-20	0%	0%
140		MODULE-15_MP236 - MP232	71	05-Apr-19	11-Sep-19	02-Nov-19	21-Feb-20	0%	0%
141		MODULE-16_MP240 - MP237	142	17-Jan-19	20-Mar-19	18-Aug-19	23-Feb-20	0%	0%
142		MODULE-17_MP245 - MP241	44	17-Apr-19	03-Jul-19	22-Oct-19	04-Jan-20	0%	0%
143		MODULE-18_MP249 - MP246	63	19-Feb-19	12-Apr-19	08-Nov-19	10-Feb-20	0%	0%
144		MAIN BRIDGE PILE CAP BOTTOM SLAB_INTERTIDAL 14+800~15+890 FROM MP206 TO MP225	186	06-Apr-19	18-Jul-20	30-Dec-19	30-Nov-20	0%	0%
145		MODULE-10_MP211 - MP207	95	15-Apr-20	18-Jul-20	30-Dec-19	30-Sep-20	0%	0%
146		MODULE-11_MP216 - MP212	128	06-Apr-19	15-Apr-20	09-Mar-20	19-Oct-20	0%	0%
147		MODULE-12_MP221 - MP217	74	10-May-19	12-Nov-19	11-Sep-20	30-Nov-20	0%	0%
148		MODULE-13_MP226 - MP222	59	03-Dec-19	18-Feb-20	27-Apr-20	26-Oct-20	0%	0%
149		MAIN BRIDGE PILE CAP BOTTOM SLAB_MARINE 13+610~14+800 FROM MP187 TO MP205	420	21-Jan-20	10-Dec-20	16-Nov-19	09-May-22	0%	0%
150		MODULE-09_MP206 - MP202	289	21-Jan-20	20-Mar-20	16-Nov-19	11-Nov-20	0%	0%
151		MODULE-08_MP201 - MP197	50	23-Mar-20	30-May-20	11-Nov-20	25-Feb-21	0%	0%
152		MODULE-07_MP196 - MP192	153	30-May-20	08-Oct-20	15-Oct-20	09-May-22	0%	0%
153		MODULE-06_MP191 - MP187	77	08-Oct-20	10-Dec-20	20-Nov-20	26-Jan-21	0%	0%
154		MAIN BRIDGE PILE CAP PRECAST SHELL_MARINE (STEEL) 11+880~13+610 FROM MP171 TO MP186	422	08-Jan-20	17-Feb-21	11-Oct-20	23-Sep-22	0%	0%
155		STEEL MODULE-01_MP176 - MP171	167	02-Nov-20	17-Feb-21	05-Nov-21	23-Sep-22	0%	0%
156		STEEL MODULE-02_MP182 - MP177	118	08-Jan-20	26-Sep-20	11-Oct-20	26-Feb-21	0%	0%
157		STEEL MODULE-03_MP186 - MP183	194	07-Aug-20	03-Dec-20	19-Jan-21	20-May-22	0%	0%
158		MAIN BRIDGE PILE CAP BOTTOM SLAB_MARINE 10+380~11+880 FROM MP146 TO MP170	300	22-Dec-18	21-Jan-20	28-Jan-21	22-Jan-22	0%	0%
159		MODULE-05_MP171 - MP167	108	24-Aug-19	28-Oct-19	26-Mar-21	05-Jan-22	0%	0%
160		MODULE-04_MP166 - MP162	199	22-Dec-18	01-Mar-19	15-Feb-21	22-Jan-22	0%	0%
161		MODULE-03_MP161 - MP157	111	01-Mar-19	10-May-19	28-Jan-21	20-Oct-21	0%	0%
162		MODULE-02_MP156 - MP152	53	15-May-19	16-Aug-19	15-Feb-21	17-May-21	0%	0%
163		MODULE-01_MP151 - MP146	168	01-Nov-19	21-Jan-20	11-Feb-21	24-Oct-21	0%	0%
164		MAIN BRIDGE PILE CAP INSTALLATION	1135	22-Dec-18	23-Mar-21	01-May-19	13-Oct-22	100%	100%



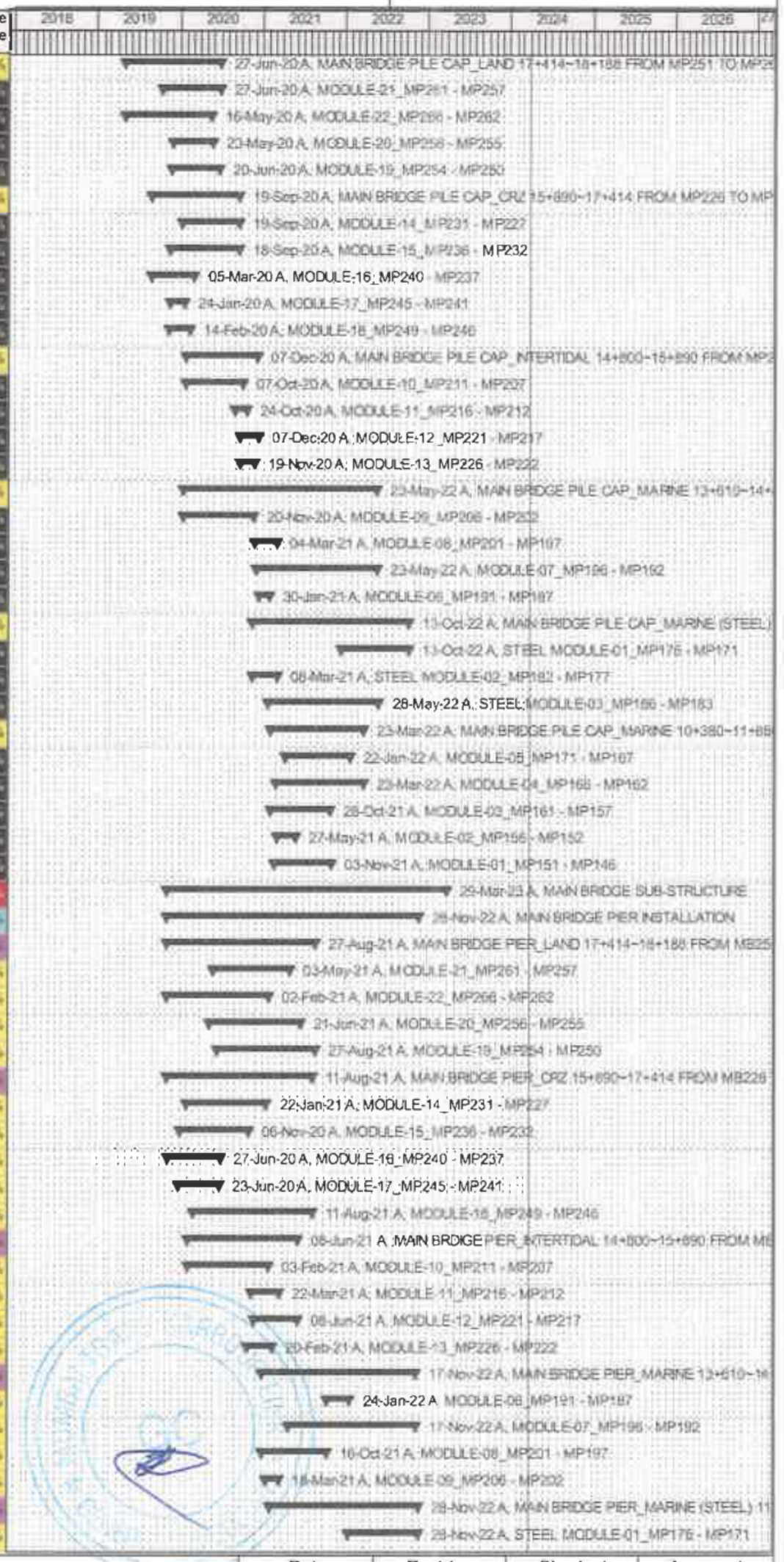
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
165		MAIN BRIDGE PILE CAP_LAND 17+414~18+188 FROM MP251 TO MP266	377	27-Dec-18	13-Jun-19	01-May-19	27-Jun-20	100%	100%
166		MODULE-21_MP261 - MP257	248	27-Dec-18	30-Mar-19	15-Oct-19	27-Jun-20	100%	100%
167		MODULE-22_MP266 - MP262	207	02-Apr-19	13-Jun-19	01-May-19	16-May-20	100%	100%
168		MODULE-20_MP256 - MP255	54	01-Jan-19	06-Feb-19	29-Nov-19	23-May-20	100%	100%
169		MODULE-19_MP254 - MP250	218	08-Feb-19	13-May-19	23-Nov-19	20-Jun-20	100%	100%
170		MAIN BRIDGE PILE CAP_CRZ 15+890~17+414 FROM MP226 TO MP250	326	04-Mar-19	08-Jan-20	28-Aug-19	19-Sep-20	100%	100%
171		MODULE-14_MP231 - MP227	220	24-Oct-19	08-Jan-20	11-Jan-20	18-Sep-20	100%	100%
172		MODULE-15_MP236 - MP232	201	02-Sep-19	22-Nov-19	16-Nov-19	18-Sep-20	100%	100%
173		MODULE-16_MP240 - MP237	146	02-Jul-19	26-Sep-19	28-Aug-19	05-Mar-20	100%	100%
174		MODULE-17_MP245 - MP241	98	29-Apr-19	16-Aug-19	17-Nov-19	24-Jan-20	100%	100%
175		MODULE-18_MP249 - MP246	84	04-Mar-19	10-May-19	13-Nov-19	14-Feb-20	100%	100%
176		MAIN BRIDGE PILE CAP_INTERTIDAL 14+800~15+890 FROM MP206 TO MP225	199	18-Apr-19	05-Sep-20	29-Jan-20	07-Dec-20	100%	100%
177		MODULE-10_MP211 - MP207	96	27-Apr-20	05-Sep-20	29-Jan-20	07-Oct-20	100%	100%
178		MODULE-11_MP216 - MP212	157	18-Apr-19	13-May-20	31-Aug-20	24-Oct-20	100%	100%
179		MODULE-12_MP221 - MP217	111	22-May-19	09-Dec-19	17-Sep-20	07-Dec-20	100%	100%
180		MODULE-13_MP226 - MP222	94	14-Dec-19	17-Mar-20	16-Sep-20	19-Nov-20	100%	100%
181		MAIN BRIDGE PILE CAP_MARINE 13+610~14+800 FROM MP187 TO MP205	413	01-Feb-20	06-Jan-21	13-Jan-20	23-May-22	100%	100%
182		MODULE-09_MP206 - MP202	288	01-Feb-20	18-Apr-20	13-Jan-20	20-Nov-20	100%	100%
183		MODULE-08_MP201 - MP197	63	03-Apr-20	06-Jul-20	23-Nov-20	04-Mar-21	100%	100%
184		MODULE-07_MP196 - MP192	97	15-Jun-20	11-Nov-20	01-Dec-20	23-May-22	100%	100%
185		MODULE-06_MP191 - MP187	90	21-Oct-20	06-Jan-21	14-Dec-20	30-Jan-21	100%	100%
186		MAIN BRIDGE PILE CAP_MARINE (STEEL) 11+880~13+610 FROM MP171 TO MP186	465	20-Jan-20	23-Mar-21	18-Nov-20	13-Oct-22	100%	100%
187		STEEL MODULE-01_MP176 - MP171	154	21-Nov-20	23-Mar-21	13-Dec-21	13-Oct-22	100%	100%
188		STEEL MODULE-02_MP182 - MP177	158	20-Jan-20	02-Nov-20	18-Nov-20	08-Mar-21	100%	100%
189		STEEL MODULE-03_MP186 - MP183	330	27-Aug-20	07-Jan-21	28-Jan-21	28-May-22	100%	100%
190		MAIN BRIDGE PILE CAP_MARINE 10+380~11+880 FROM MP146 TO MP170	323	03-Jan-19	17-Feb-20	08-Feb-21	23-Mar-22	100%	100%
191		MODULE-05_MP171 - MP167	119	10-Sep-19	25-Nov-19	13-Apr-21	22-Jan-22	100%	100%
192		MODULE-04_MP166 - MP162	283	03-Jan-19	29-Mar-19	01-Mar-21	23-Mar-22	100%	100%
193		MODULE-03_MP161 - MP157	141	14-Mar-19	03-Jun-19	08-Feb-21	28-Oct-21	100%	100%
194		MODULE-02_MP156 - MP152	54	27-May-19	26-Sep-19	06-Mar-21	27-May-21	100%	100%
195		MODULE-01_MP151 - MP146	192	14-Nov-19	17-Feb-20	22-Feb-21	03-Nov-21	100%	100%
196		MAIN BRIDGE SUB-STRUCTURE	1274	09-Jan-19	24-Sep-21	04-Nov-19	29-Mar-23	100%	100%
197		MAIN BRIDGE PIER INSTALLATION	1242	09-Jan-19	28-Jul-21	04-Nov-19	28-Nov-22	100%	100%
198		MAIN BRIDGE PIER_LAND 17+414~18+188 FROM MB251 TO MB266	661	29-Jun-19	05-Nov-19	06-Nov-19	27-Aug-21	100%	100%
199		MODULE-21_MP261 - MP257	301	14-Jan-19	12-Jul-19	27-May-20	03-May-21	100%	100%
200		MODULE-22_MP266 - MP262	315	04-May-19	08-Nov-19	06-Nov-19	02-Feb-21	100%	100%
201		MODULE-20_MP256 - MP255	225	09-Jan-19	17-May-19	11-May-20	21-Jun-21	100%	100%
202		MODULE-19_MP254 - MP250	336	28-Feb-19	20-Sep-19	15-Jun-20	27-Aug-21	100%	100%
203		MAIN BRIDGE PIER_CRZ 15+890~17+414 FROM MB226 TO MB252	563	25-May-19	06-Feb-20	04-Nov-19	11-Aug-21	100%	100%
204		MODULE-14_MP231 - MP227	228	05-Dec-19	06-Feb-20	02-Feb-20	22-Jan-21	100%	100%
205		MODULE-15_MP236 - MP232	134	16-Oct-19	19-Dec-19	06-Jan-20	06-Nov-20	100%	100%
206		MODULE-16_MP240 - MP237	85	13-Aug-19	30-Oct-19	04-Nov-19	27-Jun-20	100%	100%
207		MODULE-17_MP245 - MP241	171	22-May-19	25-Sep-19	24-Dec-19	23-Jun-20	100%	100%
208		MODULE-18_MP249 - MP246	238	26-Mar-19	06-Jun-19	02-Mar-20	11-Aug-21	100%	100%
209		MAIN BRIDGE PIER_INTERTIDAL 14+800~15+890 FROM MB206 TO MB225	617	11-May-19	16-Oct-20	10-Feb-20	08-Jun-21	100%	100%
210		MODULE-10_MP211 - MP207	338	24-Feb-20	16-Oct-20	10-Feb-20	03-Feb-21	100%	100%
211		MODULE-11_MP216 - MP212	386	11-May-19	17-Jul-20	13-Nov-20	22-Mar-21	100%	100%
212		MODULE-12_MP221 - MP217	97	17-Jun-19	03-Jan-20	30-Nov-20	08-Jun-21	100%	100%
213		MODULE-13_MP226 - MP222	235	06-Jan-20	15-May-20	29-Oct-20	20-Feb-21	100%	100%
214		MAIN BRIDGE PIER_MARINE 13+610~14+800 FROM MB187 TO MB205	310	12-Mar-20	16-Feb-21	04-Jan-21	17-Nov-22	100%	100%
215		MODULE-06_MP191 - MP187	173	13-Nov-20	18-Feb-21	19-Oct-21	24-Jan-22	100%	100%
216		MODULE-07_MP196 - MP192	176	17-Jul-20	19-Dec-20	28-Apr-21	17-Nov-22	100%	100%
217		MODULE-08_MP201 - MP197	162	25-Apr-20	03-Sep-20	04-Jan-21	16-Oct-21	100%	100%
218		MODULE-09_MP206 - MP202	66	19-Mar-20	23-May-20	18-Jan-21	18-Mar-21	100%	100%
219		MAIN BRIDGE PIER_MARINE (STEEL) 11+880~13+610 FROM MB171 TO MB184	539	17-Feb-20	23-Jul-21	08-Feb-21	28-Nov-22	100%	100%
220		STEEL MODULE-01_MP176 - MP171	230	23-Dec-20	28-Jul-21	21-Jan-22	28-Nov-22	100%	100%



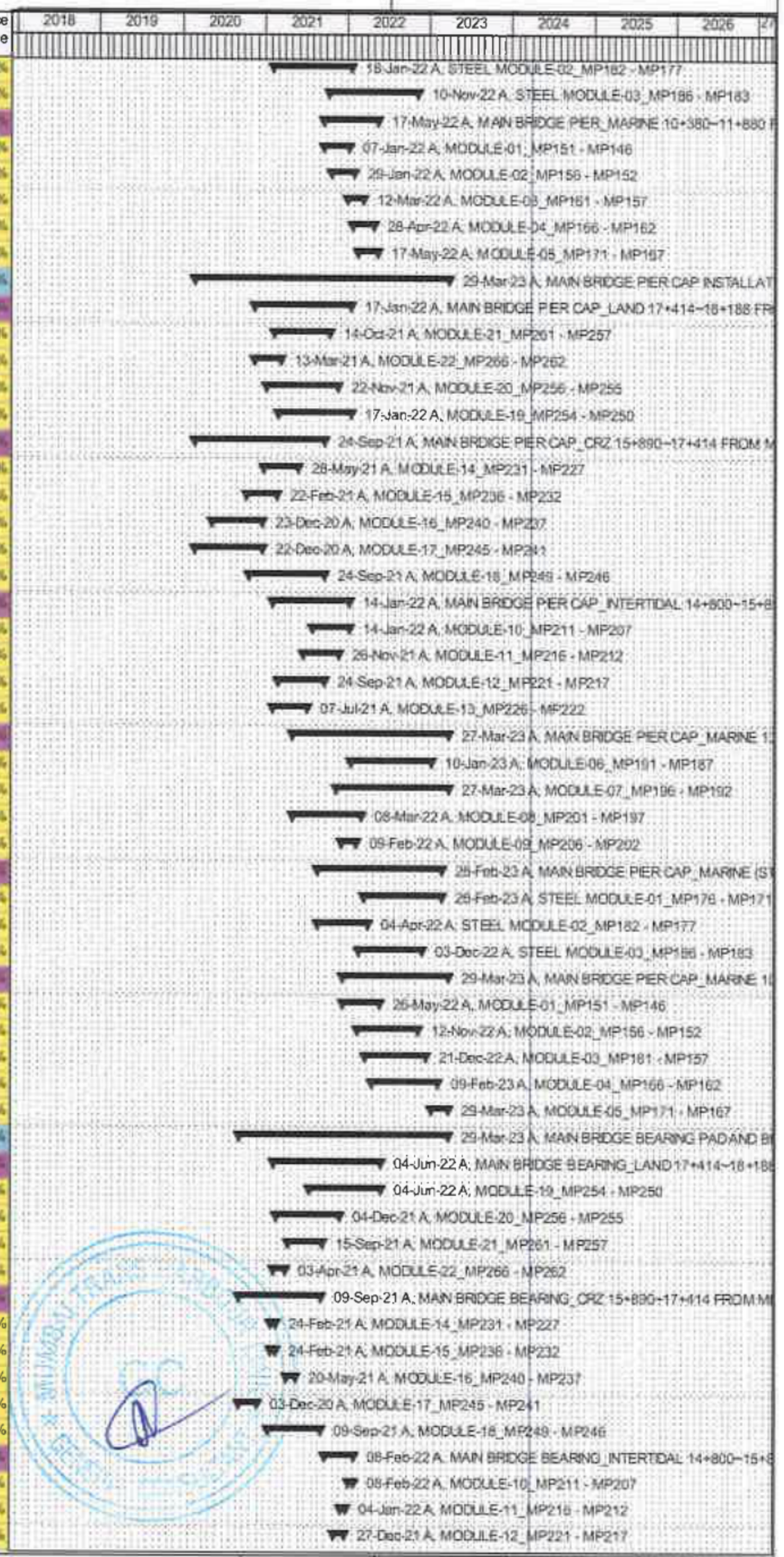
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Orginal Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
221		STEEL MODULE-02_MP182 - MP177	170	17-Feb-20	15-Jan-21	08-Feb-21	18-Jan-22	100%	100%
222		STEEL MODULE-03_MP186 - MP183	290	06-Oct-20	03-Apr-21	12-Oct-21	10-Nov-22	100%	100%
223		MAIN BRIDGE PIER_MARINE 10+380~11+880 FROM MB146 TO MB170	187	07-Feb-19	13-Mar-20	20-Sep-21	17-May-22	100%	100%
224		MODULE-01_MP151 - MP146	129	10-Dec-19	13-Mar-20	20-Sep-21	07-Jan-22	100%	100%
225		MODULE-02_MP156 - MP152	77	11-Jul-19	04-Nov-19	25-Oct-21	29-Jan-22	100%	100%
226		MODULE-03_MP161 - MP157	61	22-Apr-19	01-Aug-19	31-Dec-21	12-Mar-22	100%	100%
227		MODULE-04_MP166 - MP162	84	07-Feb-19	06-May-19	24-Jan-22	28-Apr-22	100%	100%
228		MODULE-05_MP171 - MP167	69	10-Oct-19	31-Dec-19	18-Feb-22	17-May-22	100%	100%
229		MAIN BRIDGE PIER CAP INSTALLATION	936	08-Feb-19	27-Aug-21	25-Feb-20	29-Mar-23	100%	100%
230		MAIN BRIDGE PIER CAP_LAND 17+414~18+188 FROM MB251 TO MB266	318	08-Feb-19	23-Nov-19	13-Nov-20	17-Jan-22	100%	100%
231		MODULE-21_MP261 - MP257	159	13-Feb-19	05-Aug-19	11-Feb-21	14-Oct-21	100%	100%
232		MODULE-22_MP266 - MP262	114	03-Jun-19	23-Nov-19	13-Nov-20	13-Mar-21	100%	100%
233		MODULE-20_MP256 - MP255	182	08-Feb-19	01-Jun-19	07-Jan-21	22-Nov-21	100%	100%
234		MODULE-19_MP254 - MP250	212	30-Mar-19	09-Oct-19	01-Mar-21	17-Jan-22	100%	100%
235		MAIN BRIDGE PIER CAP_CRZ 15+890~17+414 FROM MB236 TO MB250	405	18-Apr-19	25-Feb-20	25-Feb-20	24-Sep-21	100%	100%
236		MODULE-14_MP231 - MP227	83	30-Dec-19	25-Feb-20	27-Dec-20	28-May-21	100%	100%
237		MODULE-15_MP236 - MP232	64	11-Nov-19	07-Jan-20	12-Oct-20	22-Feb-21	100%	100%
238		MODULE-16_MP240 - MP237	132	21-Sep-19	19-Nov-19	14-May-20	23-Dec-20	100%	100%
239		MODULE-17_MP245 - MP241	163	05-Jul-19	16-Oct-19	25-Feb-20	22-Dec-20	100%	100%
240		MODULE-18_MP249 - MP246	201	19-Apr-19	02-Jul-19	22-Oct-20	24-Sep-21	100%	100%
241		MAIN BRIDGE PIER CAP_INTERTIDAL 14+800~15+690 FROM MB206 TO MB225	277	06-Jun-19	05-Nov-20	04-Feb-21	14-Jan-22	100%	100%
242		MODULE-10_MP211 - MP207	174	20-Mar-20	05-Nov-20	02-Aug-21	14-Jan-22	100%	100%
243		MODULE-11_MP216 - MP212	209	06-Jun-19	18-Aug-20	21-Jun-21	26-Nov-21	100%	100%
244		MODULE-12_MP221 - MP217	100	24-Jul-19	22-Jan-20	01-Mar-21	24-Sep-21	100%	100%
245		MODULE-13_MP226 - MP222	187	30-Jan-20	04-Jun-20	04-Feb-21	07-Jul-21	100%	100%
246		MAIN BRIDGE PIER CAP_MARINE 13+610~14+900 FROM MB187 TO MB205	195	23-Apr-20	10-Mar-21	03-May-21	27-Mar-23	100%	100%
247		MODULE-06_MP191 - MP187	160	18-Dec-20	10-Mar-21	20-Jan-22	10-Jan-23	100%	100%
248		MODULE-07_MP196 - MP192	195	10-Sep-20	07-Jan-21	18-Nov-21	27-Mar-23	100%	100%
249		MODULE-08_MP201 - MP197	114	01-Jun-20	29-Sep-20	03-May-21	08-Mar-22	100%	100%
250		MODULE-09_MP206 - MP202	46	23-Apr-20	15-Jun-20	09-Dec-21	09-Feb-22	100%	100%
251		MAIN BRIDGE PIER CAP_MARINE (STEEL) 11+880~13+610 FROM MB171 TO MB186	394	30-Apr-20	27-Aug-21	23-Aug-21	28-Feb-23	100%	100%
252		STEEL MODULE-01_MP176 - MP171	229	08-Mar-21	27-Aug-21	17-Mar-22	28-Feb-23	100%	100%
253		STEEL MODULE-02_MP182 - MP177	148	30-Apr-20	04-Feb-21	23-Aug-21	04-Apr-22	100%	100%
254		STEEL MODULE-03_MP186 - MP183	198	19-Dec-20	22-Apr-21	24-Feb-22	03-Dec-22	100%	100%
255		MAIN BRIDGE PIER CAP_MARINE 10+380~11+880 FROM MB146 TO MB170	248	15-Mar-19	01-Apr-20	17-Dec-21	29-Mar-23	100%	100%
256		MODULE-01_MP151 - MP146	121	14-Jan-20	01-Apr-20	17-Dec-21	26-May-22	100%	100%
257		MODULE-02_MP156 - MP152	165	05-Sep-19	23-Nov-19	17-Feb-22	12-Nov-22	100%	100%
258		MODULE-03_MP161 - MP157	167	28-May-19	31-Aug-19	22-Mar-22	21-Dec-22	100%	100%
259		MODULE-04_MP166 - MP162	187	15-Mar-19	24-May-19	21-Apr-22	09-Feb-23	100%	100%
260		MODULE-05_MP171 - MP167	68	15-Nov-19	18-Jan-20	10-Jan-23	29-Mar-23	100%	100%
261		MAIN BRIDGE BEARING PAD AND BEARING INSALLATION	847	22-Feb-19	24-Sep-21	14-Sep-20	29-Mar-23	100%	100%
262		MAIN BRIDGE BEARING_LAND 17+414~18+188 FROM MB251 TO MB266	393	22-Feb-19	22-Aug-19	11-Feb-21	04-Jun-22	100%	100%
263		MODULE-19_MP254 - MP250	240	13-Apr-19	21-May-19	23-Jul-21	04-Jun-22	100%	100%
264		MODULE-20_MP256 - MP255	242	22-Feb-19	02-Apr-19	24-Feb-21	04-Dec-21	100%	100%
265		MODULE-21_MP261 - MP257	28	29-May-19	08-Jul-19	20-Apr-21	15-Sep-21	100%	100%
266		MODULE-22_MP266 - MP262	28	22-Jun-19	22-Aug-19	11-Feb-21	03-Apr-21	100%	100%
267		MAIN BRIDGE BEARING_CRZ 15+890~17+414 FROM MB226 TO MB250	362	08-May-19	20-Feb-20	14-Sep-20	09-Sep-21	100%	100%
268		MODULE-14_MP231 - MP227	28	16-Jan-20	20-Feb-20	29-Jan-21	24-Feb-21	100%	100%
269		MODULE-15_MP236 - MP232	28	28-Nov-19	02-Jan-20	29-Jan-21	24-Feb-21	100%	100%
270		MODULE-16_MP240 - MP237	28	12-Oct-19	16-Nov-19	12-Apr-21	20-May-21	100%	100%
271		MODULE-17_MP245 - MP241	28	03-Aug-19	13-Sep-19	14-Sep-20	03-Dec-20	100%	100%
272		MODULE-18_MP249 - MP246	324	08-May-19	12-Jun-19	18-Jan-21	09-Sep-21	100%	100%
273		MAIN BRIDGE BEARING_INTERTIDAL 14+800~15+690 FROM MB206 TO MB225	20	29-Jun-19	14-Sep-20	01-Oct-21	08-Feb-22	100%	100%
274		MODULE-10_MP211 - MP207	28	04-Aug-20	14-Sep-20	10-Jan-22	08-Feb-22	100%	100%
275		MODULE-11_MP216 - MP212	28	29-Jun-19	07-Aug-19	09-Dec-21	04-Jan-22	100%	100%
276		MODULE-12_MP221 - MP217	28	15-Jan-20	19-Feb-20	09-Nov-21	27-Dec-21	100%	100%



Actual Level of Effort
Actual Work
Remaining Work
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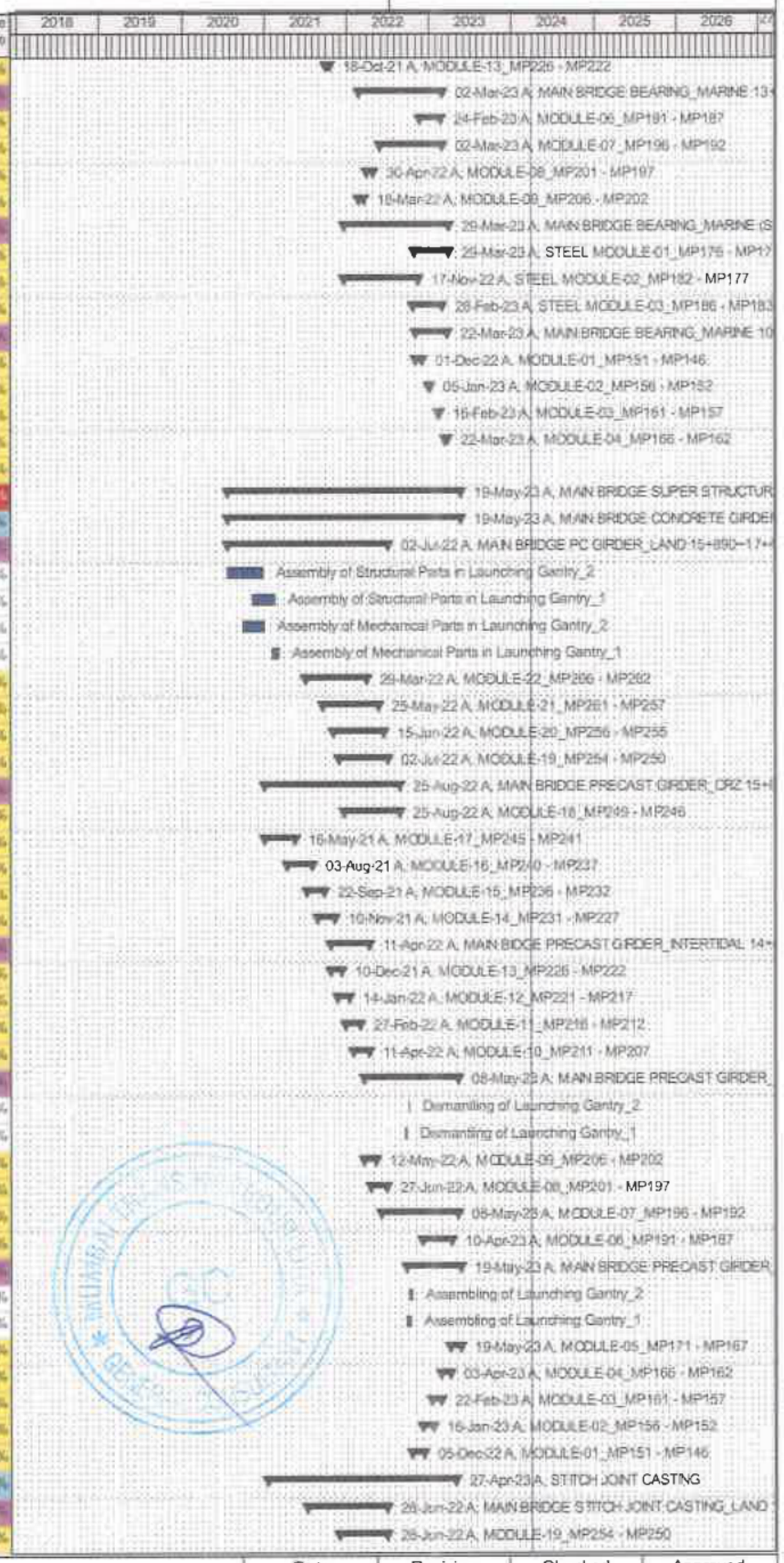
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
277		MODULE-13_MP226 - MP222	28	27-May-20	02-Jul-20	01-Oct-21	18-Oct-21	100%	100%
278		MAIN BRIDGE BEARING_MARINE 13+610~14+400 FROM MB187 TO MB205	115	07-Apr-20	09-Feb-21	22-Feb-23	02-Mar-23	100%	100%
279		MODULE-06_MP191 - MP187	151	05-Jan-21	09-Feb-21	18-Nov-22	24-Feb-23	100%	100%
280		MODULE-07_MP196 - MP192	280	05-Oct-20	04-Feb-21	26-May-22	02-Mar-23	100%	100%
281		MODULE-08_MP201 - MP197	28	24-Jun-20	01-Aug-20	01-Apr-22	30-Apr-22	100%	100%
282		MODULE-09_MP206 - MP202	28	07-Apr-20	12-May-20	22-Feb-22	18-Mar-22	100%	100%
283		MAIN BRIDGE BEARING_MARINE (STEEL) 11+480~13+610 FROM MB171 TO MB185	452	19-May-20	24-Dec-21	22-Dec-21	29-Mar-23	100%	100%
284		STEEL MODULE-01_MP176 - MP171	210	25-Mar-21	24-Sep-21	27-Oct-22	29-Mar-23	100%	100%
285		STEEL MODULE-02_MP182 - MP177	393	19-May-20	04-Mar-21	22-Dec-21	17-Nov-22	100%	100%
286		STEEL MODULE-03_MP186 - MP183	151	06-Jan-21	20-May-21	21-Oct-22	28-Feb-23	100%	100%
287		MAIN BRIDGE BEARING_MARINE 10+380~11+480 FROM MB146 TO MB170	126	25-Apr-19	16-Apr-20	02-Nov-22	22-Mar-23	100%	100%
288		MODULE-01_MP151 - MP146	59	31-Jan-20	18-Apr-20	02-Nov-22	01-Dec-22	100%	100%
289		MODULE-02_MP156 - MP152	28	03-Oct-19	07-Nov-19	02-Jan-23	05-Jan-23	100%	100%
290		MODULE-03_MP161 - MP157	28	03-Jul-19	10-Aug-19	13-Feb-23	16-Feb-23	100%	100%
291		MODULE-04_MP166 - MP162	28	25-Apr-19	31-May-19	14-Mar-23	22-Mar-23	100%	100%
292		MODULE-05_MP171 - MP167	0					0%	0%
293		MAIN BRIDGE SUPER STRUCTURE BOX GIRDER INSTALLATION	1058	12-Sep-19	01-Mar-22	20-Jul-20	19-May-23	100%	100%
294		MAIN BRIDGE CONCRETE GIRDER INSTALLATION	1029	12-Sep-19	02-Feb-22	20-Jul-20	19-May-23	100%	100%
295		MAIN BRIDGE PC GIRDER_LAND 15+890~17+414 FROM MP251 TO MP264	709	12-Sep-19	27-Feb-20	20-Jul-20	02-Jul-22	100%	100%
296	CN LGA 1010	Assembly of Structural Parts in Launching Ganlry_2	35	12-Sep-19	17-Oct-19	20-Jul-20	25-Dec-20	100%	100%
297	CN LGA 1000	Assembly of Structural Parts in Launching Ganlry_1	35	12-Sep-19	17-Oct-19	12-Nov-20	17-Feb-21	100%	100%
298	CN LGA 1015	Assembly of Mechanical Parts in Launching Ganlry_2	15	17-Oct-19	01-Nov-19	28-Sep-20	30-Dec-20	100%	100%
299	CN LGA 1005	Assembly of Mechanical Parts in Launching Ganlry_1	15	17-Oct-19	01-Nov-19	05-Feb-21	06-Mar-21	100%	100%
300		MODULE-22_MP266 - MP262	191	01-Nov-19	25-Dec-19	02-Jul-21	29-Mar-22	100%	100%
301		MODULE-21_MP261 - MP257	192	02-Dec-19	23-Jan-20	18-Sep-21	25-May-22	100%	100%
302		MODULE-20_MP256 - MP255	162	31-Dec-19	04-Feb-20	06-Nov-21	15-Jun-22	100%	100%
303		MODULE-19_MP254 - MP250	161	11-Jan-20	27-Feb-20	26-Nov-21	02-Jul-22	100%	100%
304		MAIN BRIDGE PRECAST GIRDER_CRZ 15+890~17+414 FROM MP226 TO MP238	214	04-Feb-20	25-Sep-20	30-Dec-20	25-Aug-22	100%	100%
305		MODULE-18_MP249 - MP246	104	04-Feb-20	28-Mar-20	20-Dec-21	25-Aug-22	100%	100%
306		MODULE-17_MP245 - MP241	74	05-Mar-20	27-Apr-20	30-Dec-20	16-May-21	100%	100%
307		MODULE-16_MP240 - MP237	37	03-Apr-20	21-May-20	13-Apr-21	03-Aug-21	100%	100%
308		MODULE-15_MP236 - MP232	31	27-Apr-20	19-Jun-20	06-Jul-21	22-Sep-21	100%	100%
309		MODULE-14_MP231 - MP227	42	27-May-20	25-Sep-20	27-Aug-21	10-Nov-21	100%	100%
310		MAIN BRIDGE PRECAST GIRDER_INTERTIDAL 13+890~15+430 FROM MP206 TO MP225	94	13-Sep-20	29-Jan-21	25-Oct-21	11-Apr-22	100%	100%
311		MODULE-13_MP226 - MP222	39	12-Sep-20	21-Oct-20	25-Oct-21	10-Dec-21	100%	100%
312		MODULE-12_MP221 - MP217	65	08-Oct-20	20-Nov-20	20-Nov-21	14-Jan-22	100%	100%
313		MODULE-11_MP216 - MP212	85	09-Nov-20	19-Dec-20	27-Dec-21	27-Feb-22	100%	100%
314		MODULE-10_MP211 - MP207	84	08-Dec-20	23-Jan-21	31-Jan-22	11-Apr-22	100%	100%
315		MAIN BRIDGE PRECAST GIRDER_MARINE 13+610~14+400 FROM MP187 TO MP205	178	12-Jun-21	10-Jun-21	19-May-23	08-May-23	100%	100%
316	CN LGD 1010	Dismantling of Launching Gantry_2	20	12-May-21	03-Jun-21	04-Oct-22	07-Oct-22	100%	100%
317	CN LGD 1000	Dismantling of Launching Gantry_1	20	18-May-21	10-Jun-21	14-Sep-22	20-Sep-22	100%	100%
318		MODULE-09_MP206 - MP202	47	12-Jan-21	17-Feb-21	19-Mar-22	12-May-22	100%	100%
319		MODULE-08_MP201 - MP197	26	05-Feb-21	19-Mar-21	17-Apr-22	27-Jun-22	100%	100%
320		MODULE-07_MP196 - MP192	144	08-Mar-21	17-Apr-21	03-Jun-22	08-May-23	100%	100%
321		MODULE-06_MP191 - MP187	38	12-Apr-21	18-May-21	30-Nov-22	10-Apr-23	100%	100%
322		MAIN BRIDGE PRECAST GIRDER_MARINE 10+380~11+480 FROM MP146 TO MP170	86	04-Jun-21	02-Feb-22	21-Sep-22	19-May-23	100%	100%
323	CN LGA 1030	Assembling of Launching Gantry_2	20	04-Jun-21	26-Jun-21	07-Oct-22	16-Oct-22	100%	100%
324	CN LGA 1020	Assembling of Launching Gantry_1	20	10-Jun-21	03-Sep-21	21-Sep-22	10-Oct-22	100%	100%
325		MODULE-05_MP171 - MP167	20	28-Dec-21	02-Feb-22	02-Apr-23	19-May-23	100%	100%
326		MODULE-04_MP166 - MP162	61	29-Nov-21	03-Jan-22	21-Feb-23	03-Apr-23	100%	100%
327		MODULE-03_MP161 - MP157	36	30-Oct-21	04-Dec-21	12-Jan-23	22-Feb-23	100%	100%
328		MODULE-02_MP156 - MP152	43	29-Sep-21	05-Nov-21	04-Dec-22	16-Jan-23	100%	100%
329		MODULE-01_MP151 - MP146	47	28-Jun-21	06-Oct-21	17-Oct-22	05-Dec-22	100%	100%
330		STITCH JOINT CASTING	518	07-Dec-19	12-Feb-20	12-Jan-21	27-Apr-23	0%	0%
331		MAIN BRIDGE STITCH JOINT CASTING_LAND 15+890~17+414 FROM MP251 TO MP264	203	07-Dec-19	16-Mar-20	09-Jul-21	25-Jun-22	0%	0%
332		MODULE-19_MP254 - MP250	106	10-Feb-20	16-Mar-20	29-Nov-21	28-Jun-22	0%	0%



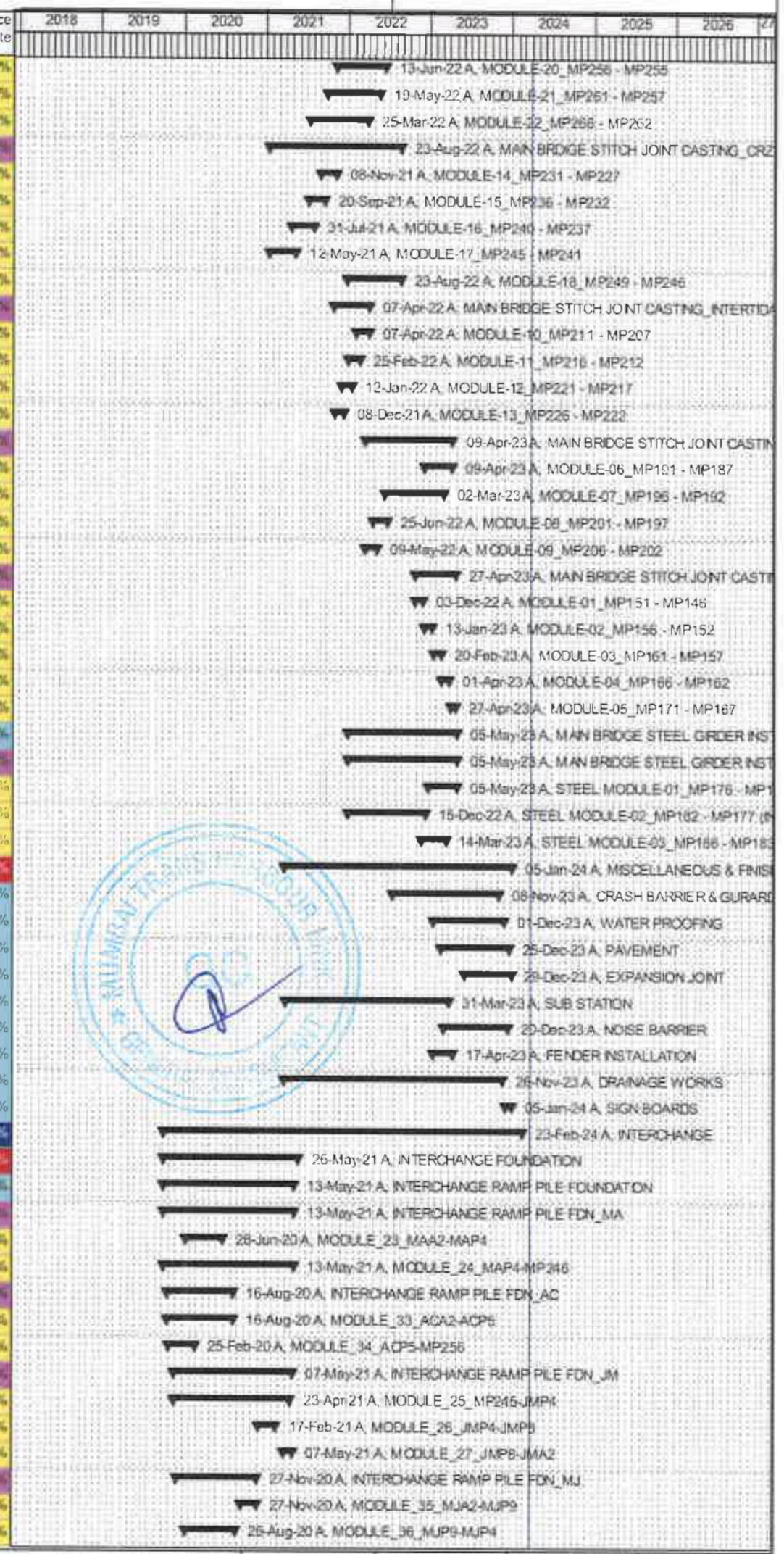
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
333		MODULE-20_MP256 - MP255	156	17-Jan-20	20-Feb-20	10-Nov-21	13-Jun-22	0%	0%
334		MODULE-21_MP261 - MP257	209	06-Jan-20	08-Feb-20	23-Sep-21	19-May-22	0%	0%
335		MODULE-22_MP266 - MP262	175	07-Dec-19	10-Jan-20	08-Jul-21	25-Mar-22	0%	0%
336		MAIN BRIDGE STITCH JOINT CASTING_CRZ 15+890~17+414 FROM MP226 TO MP250	206	11-Mar-20	13-Oct-20	12-Jan-21	23-Aug-22	0%	0%
337		MODULE-14_MP231 - MP227	29	19-Sep-20	13-Oct-20	02-Sep-21	08-Nov-21	0%	0%
338		MODULE-15_MP236 - MP232	19	02-Jun-20	09-Jul-20	10-Jul-21	20-Sep-21	0%	0%
339		MODULE-16_MP240 - MP237	19	04-May-20	06-Jun-20	23-Apr-21	31-Jul-21	0%	0%
340		MODULE-17_MP245 - MP241	41	09-Apr-20	14-May-20	12-Jan-21	12-May-21	0%	0%
341		MODULE-18_MP249 - MP246	142	11-Mar-20	14-Apr-20	29-Dec-21	23-Aug-22	0%	0%
342		MAIN BRIDGE STITCH JOINT CASTING_INTERTIDAL 14+800~15+890 FROM MP206 TO MP225	155	14-Oct-20	10-Feb-21	27-Oct-21	07-Apr-22	0%	0%
343		MODULE-10_MP211 - MP207	43	18-Jan-21	10-Feb-21	03-Feb-22	07-Apr-22	0%	0%
344		MODULE-11_MP216 - MP212	112	14-Dec-20	05-Jan-21	30-Dec-21	25-Feb-22	0%	0%
345		MODULE-12_MP221 - MP217	97	14-Nov-20	07-Dec-20	24-Nov-21	12-Jan-22	0%	0%
346		MODULE-13_MP226 - MP222	28	14-Oct-20	06-Nov-20	27-Oct-21	08-Dec-21	0%	0%
347		MAIN BRIDGE STITCH JOINT CASTING_MARINE 13+610~14+800 FROM MP187 TO MP205	178	11-Feb-21	21-Jun-21	21-Mar-22	09-Apr-23	0%	0%
348		MODULE-06_MP191 - MP187	41	04-Jun-21	21-Jun-21	05-Dec-22	09-Apr-23	0%	0%
349		MODULE-07_MP196 - MP192	123	17-Apr-21	05-May-21	07-Jun-22	02-Mar-23	0%	0%
350		MODULE-08_MP201 - MP197	59	13-Mar-21	05-Apr-21	20-Apr-22	25-Jun-22	0%	0%
351		MODULE-09_MP206 - MP202	34	11-Feb-21	06-Mar-21	21-Mar-22	09-May-22	0%	0%
352		MAIN BRIDGE STITCH JOINT CASTING_MARINE 10+380~11+880 FROM MP146 TO MP170	84	06-Oct-21	12-Feb-22	25-Oct-22	27-Apr-23	0%	0%
353		MODULE-01_MP151 - MP146	50	06-Oct-21	23-Oct-21	25-Oct-22	03-Dec-22	0%	0%
354		MODULE-02_MP156 - MP152	52	05-Nov-21	22-Nov-21	08-Dec-22	13-Jan-23	0%	0%
355		MODULE-03_MP161 - MP157	29	04-Dec-21	21-Dec-21	16-Jan-23	20-Feb-23	0%	0%
356		MODULE-04_MP166 - MP162	65	03-Jan-22	19-Jan-22	23-Feb-23	01-Apr-23	0%	0%
357		MODULE-05_MP171 - MP167	23	27-Jan-22	12-Feb-22	04-Apr-23	27-Apr-23	0%	0%
358		MAIN BRIDGE STEEL GIRDER INSTALLATION	335	03-Oct-20	01-Mar-22	01-Jan-22	05-May-23	100%	100%
359		MAIN BRIDGE STEEL GIRDER INSTALLATION_MARINE 11+880~13+610 FROM MP171 TO MP186	335	03-Oct-20	01-Mar-22	01-Jan-22	05-May-23	100%	100%
360		STEEL MODULE-01_MP176 - MP171 (INSTALLATION)	76	07-Dec-21	01-Mar-22	28-Dec-22	05-May-23	100%	100%
361		STEEL MODULE-02_MP182 - MP177 (INSTALLATION)	157	03-Oct-20	30-Sep-21	01-Jan-22	15-Dec-22	100%	100%
362		STEEL MODULE-03_MP186 - MP183 (INSTALLATION)	96	30-Sep-21	07-Dec-21	22-Nov-22	14-Mar-23	100%	100%
363		MISCELLANEOUS & FINISHING WORKS	674	16-May-19	24-May-22	23-Mar-21	05-Jan-24	100%	100%
364		CRASH BARRIER & GURARD RAILS	292	20-Feb-20	07-Mar-22	20-Jul-22	08-Nov-23	100%	100%
365		WATER PROOFING	197	26-Mar-20	17-Mar-22	16-Jan-23	01-Dec-23	100%	100%
366		PAVEMENT	312	16-Mar-20	24-May-22	24-Feb-23	25-Dec-23	100%	100%
367		EXPANSION JOINT	181	27-May-20	21-Apr-22	01-Jun-23	29-Dec-23	100%	100%
368		SUB STATION	368	16-May-19	15-Apr-21	30-Mar-21	31-Mar-23	100%	100%
369		NOISE BARRIER	224	16-Mar-20	14-Sep-21	06-Mar-23	20-Dec-23	100%	100%
370		FENDER INSTALLATION	80	24-Jul-21	24-Nov-21	17-Jan-23	17-Apr-23	100%	100%
371		DRAINAGE WORKS	247	16-Mar-20	03-Mar-22	23-Mar-21	26-Nov-23	100%	100%
372		SIGN BOARDS	60	12-Feb-22	23-Apr-22	08-Dec-23	05-Jan-24	100%	100%
373		INTERCHANGE	1406	24-Dec-18	28-Apr-22	09-Oct-19	23-Feb-24	100%	100%
374		INTERCHANGE FOUNDATION	580	24-Dec-18	22-Oct-20	09-Oct-19	26-May-21	100%	100%
375		INTERCHANGE RAMP PILE FOUNDATION	475	24-Dec-18	05-Mar-20	09-Oct-19	13-May-21	100%	100%
376		INTERCHANGE RAMP PILE FDN_MA	182	05-Aug-19	03-Jan-20	09-Oct-19	13-May-21	100%	100%
377		MODULE_23_MAA2-MAP4	75	05-Aug-19	02-Nov-19	13-Jan-20	28-Jun-20	100%	100%
378		MODULE_24_MAP4-MP246	137	02-Nov-19	03-Jan-20	09-Oct-19	13-May-21	100%	100%
379		INTERCHANGE RAMP PILE FDN_AC	107	01-Oct-19	05-Mar-20	25-Oct-19	16-Aug-20	100%	100%
380		MODULE_33_ACA2-ACP5	60	01-Oct-19	19-Dec-19	25-Oct-19	16-Aug-20	100%	100%
381		MODULE_34_ACP5-MP256	62	19-Dec-19	05-Mar-20	02-Nov-19	25-Feb-20	100%	100%
382		INTERCHANGE RAMP PILE FDN_JM	178	03-Jan-19	05-Aug-19	26-Nov-19	07-May-21	100%	100%
383		MODULE_25_MP245-JMP4	178	22-Apr-19	05-Aug-19	26-Nov-19	23-Apr-21	100%	100%
384		MODULE_26_JMP4-JMP8	88	19-Feb-19	20-Apr-19	01-Dec-20	17-Feb-21	100%	100%
385		MODULE_27_JMP8-JMA2	64	03-Jan-19	18-Feb-19	23-Mar-21	07-May-21	100%	100%
386		INTERCHANGE RAMP PILE FDN_MJ	79	03-Jan-19	01-Oct-19	04-Dec-19	27-Nov-20	100%	100%
387		MODULE_35_MJA2-MJP9	45	03-Jan-19	21-Mar-19	16-Sep-20	27-Nov-20	100%	100%
388		MODULE_36_MJP9-MJP4	63	22-Mar-19	10-Jun-19	15-Jan-20	26-Aug-20	100%	100%



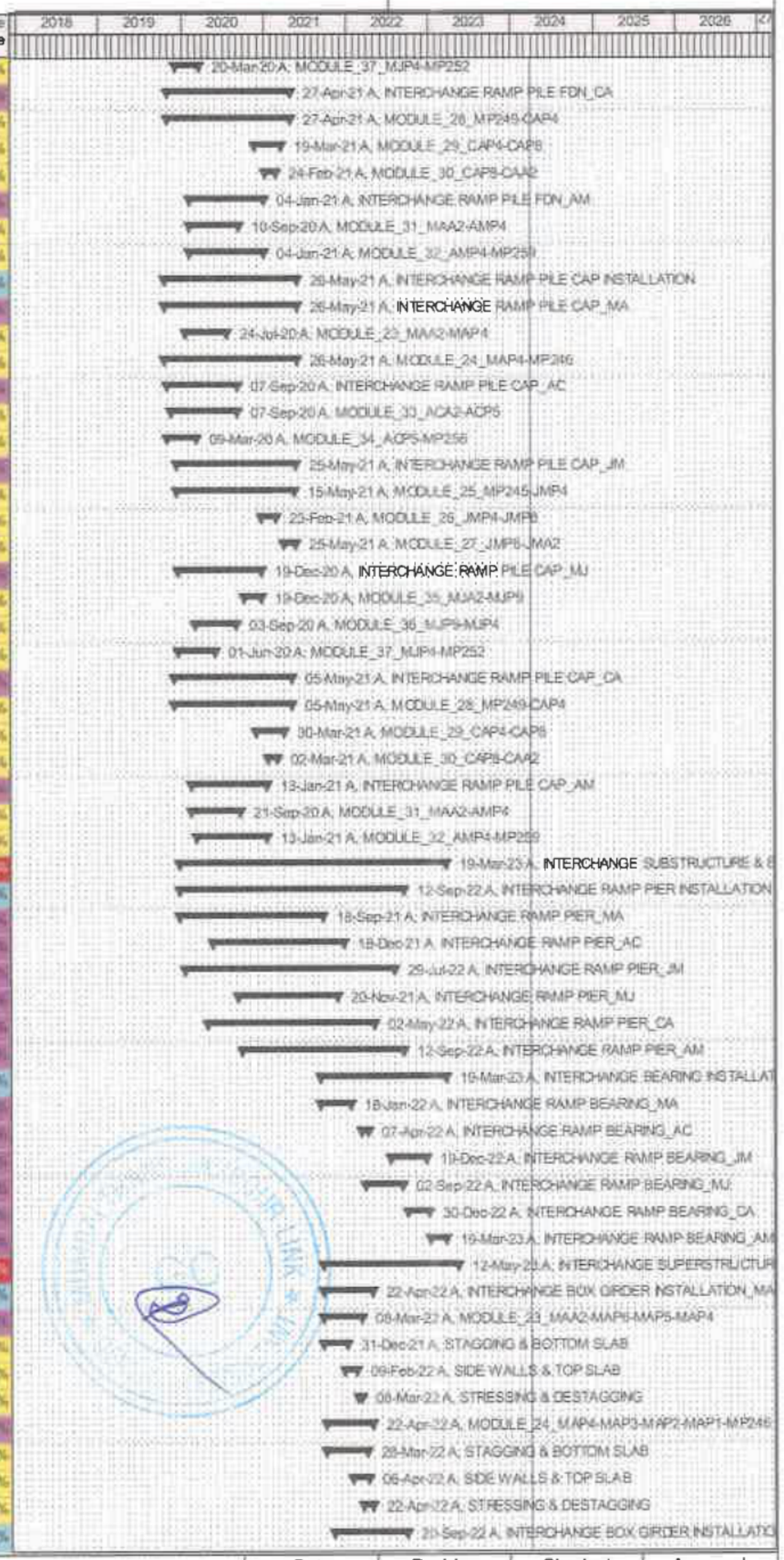
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
389		MODULE_37_MJP4-MP252	52	11-Jun-19	01-Oct-19	04-Dec-19	20-Mar-20	100%	100%
390		INTERCHANGE RAMP PILE FDN_CA	100	28-May-19	23-Jan-20	01-Nov-19	27-Apr-21	100%	100%
391		MODULE_28_MP249-CAP4	64	08-Nov-19	23-Jan-20	01-Nov-19	27-Apr-21	100%	100%
392		MODULE_29_CAP4-CAP8	62	14-Aug-19	08-Nov-19	21-Nov-20	19-Mar-21	100%	100%
393		MODULE_30_CAP8-CAA2	49	28-May-19	14-Aug-19	05-Jan-21	24-Feb-21	100%	100%
394		INTERCHANGE RAMP PILE FDN_AM	299	24-Dec-18	27-May-19	06-Feb-20	04-Jan-21	100%	100%
395		MODULE_31_MAA2-AMP4	187	24-Dec-18	26-Mar-19	07-Feb-20	10-Sep-20	100%	100%
396		MODULE_32_AMP4-MP259	237	27-Mar-19	27-May-19	06-Feb-20	04-Jan-21	100%	100%
397		INTERCHANGE RAMP PILE CAP INSTALLATION	525	08-Jan-19	22-Oct-20	22-Oct-19	26-May-21	100%	100%
398		INTERCHANGE RAMP PILE CAP_MA	182	06-Dec-19	15-May-20	22-Oct-19	26-May-21	100%	100%
399		MODULE_23_MAA2-MAP4	95	06-Dec-19	24-Feb-20	22-Jan-20	24-Jul-20	100%	100%
400		MODULE_24_MAP4-MP246	86	24-Feb-20	15-May-20	22-Oct-19	26-May-21	100%	100%
401		INTERCHANGE RAMP PILE CAP_AC	183	15-Jan-20	27-Oct-20	07-Nov-19	07-Sep-20	100%	100%
402		MODULE_33_ACA2-ACP5	132	15-Jan-20	24-Apr-20	18-Nov-19	07-Sep-20	100%	100%
403		MODULE_34_ACP5-MP256	114	24-Apr-20	22-Oct-20	02-Nov-19	09-Mar-20	100%	100%
404		INTERCHANGE RAMP PILE CAP_JM	136	18-Jun-19	06-Dec-19	11-Dec-19	25-May-21	100%	100%
405		MODULE_25_MP245-JMP4	135	18-Jun-19	06-Dec-19	11-Dec-19	15-May-21	100%	100%
406		MODULE_26_JMP4-JMP8	92	21-Mar-19	17-Jun-19	23-Dec-20	23-Feb-21	100%	100%
407		MODULE_27_JMP8-JMA2	40	18-Jan-19	20-Mar-19	02-Apr-21	25-May-21	100%	100%
408		INTERCHANGE RAMP PILE CAP_MJ	145	18-Jun-19	15-Jan-20	19-Dec-19	19-Dec-20	100%	100%
409		MODULE_35_MJA2-MJP9	123	18-Jun-19	29-Apr-19	08-Oct-20	19-Dec-20	100%	100%
410		MODULE_36_MJP9-MJP4	62	30-Apr-19	26-Oct-19	03-Mar-20	03-Sep-20	100%	100%
411		MODULE_37_MJP4-MP252	58	26-Oct-19	15-Jan-20	16-Dec-19	01-Jun-20	100%	100%
412		INTERCHANGE RAMP PILE CAP_CA	158	15-Oct-19	27-Jun-20	02-Dec-19	05-May-21	100%	100%
413		MODULE_28_MP249-CAP4	87	05-Mar-20	27-Jun-20	02-Dec-19	05-May-21	100%	100%
414		MODULE_29_CAP4-CAP8	70	16-Dec-19	05-Mar-20	30-Nov-20	30-Mar-21	100%	100%
415		MODULE_30_CAP8-CAA2	53	15-Oct-19	16-Dec-19	19-Jan-21	02-Mar-21	100%	100%
416		INTERCHANGE RAMP PILE CAP_AM	245	08-Jan-19	15-Oct-19	15-Feb-20	13-Jan-21	100%	100%
417		MODULE_31_MAA2-AMP4	176	08-Jan-19	09-May-19	15-Feb-20	21-Sep-20	100%	100%
418		MODULE_32_AMP4-MP259	89	10-May-19	15-Oct-19	07-Mar-20	13-Jan-21	100%	100%
419		INTERCHANGE SUBSTRUCTURE & BEARING	700	29-Jan-19	31-May-21	24-Dec-19	19-Mar-23	100%	100%
420		INTERCHANGE RAMP PIER INSTALLATION	590	29-Jan-19	27-Apr-21	24-Dec-19	12-Sep-22	100%	100%
421		INTERCHANGE RAMP PIER_MA	183	18-Mar-20	25-Dec-20	24-Dec-19	16-Sep-21	100%	100%
422		INTERCHANGE RAMP PIER_AC	248	15-May-20	27-Apr-21	19-May-20	18-Dec-21	100%	100%
423		INTERCHANGE RAMP PIER_JM	138	08-Feb-19	18-Mar-20	15-Jan-20	29-Jul-22	100%	100%
424		INTERCHANGE RAMP PIER_MJ	234	08-Feb-19	15-May-20	07-Sep-20	20-Nov-21	100%	100%
425		INTERCHANGE RAMP PIER_CA	220	09-Jan-20	16-Feb-21	27-Apr-20	02-May-22	100%	100%
426		INTERCHANGE RAMP PIER_AM	268	29-Jan-19	08-Jan-20	28-Sep-20	12-Sep-22	100%	100%
427		INTERCHANGE BEARING INSTALLATION	447	27-Feb-19	31-May-21	08-Sep-21	19-Mar-23	0%	0%
428		INTERCHANGE RAMP BEARING_MA	229	18-Apr-20	01-Feb-21	30-Sep-21	18-Jan-22	0%	0%
429		INTERCHANGE RAMP BEARING_AC	28	24-Jun-20	31-May-21	04-Mar-22	07-Apr-22	0%	0%
430		INTERCHANGE RAMP BEARING_JM	150	11-Mar-19	20-Apr-20	14-Jul-22	19-Dec-22	0%	0%
431		INTERCHANGE RAMP BEARING_MJ	83	11-Mar-19	30-Jun-20	20-Mar-22	02-Sep-22	0%	0%
432		INTERCHANGE RAMP BEARING_CA	116	06-Feb-20	22-Mar-21	28-Sep-22	30-Dec-22	0%	0%
433		INTERCHANGE RAMP BEARING_AM	105	27-Feb-19	10-Feb-20	05-Jan-23	19-Mar-23	0%	0%
434		INTERCHANGE SUPERSTRUCTURE INSTALLATION	514	20-Sep-19	15-Feb-22	18-Sep-21	12-May-23	100%	100%
435		INTERCHANGE BOX GIRDER INSTALLATION_MA	180	09-Jan-21	03-Jan-22	18-Sep-21	22-Apr-22	100%	100%
436		MODULE_23_MAA2-MAP3-MAP5-MAP4	134	09-Jan-21	21-Jun-21	18-Sep-21	08-Mar-23	100%	100%
437		STAGGING & BOTTOM SLAB	35	09-Jan-21	04-Mar-21	18-Sep-21	31-Dec-21	100%	100%
438		SIDE WALLS & TOP SLAB	57	05-Mar-21	26-Apr-21	22-Dec-21	09-Feb-22	100%	100%
439		STRESSING & DESTAGGING	40	27-Apr-21	21-Jun-21	15-Feb-22	08-Mar-22	100%	100%
440		MODULE_24_MAP4-MAP3-MAP2-MAP1-MP246	81	21-Jun-21	03-Jan-22	01-Oct-21	22-Apr-22	100%	100%
441		STAGGING & BOTTOM SLAB	28	21-Jun-21	20-Sep-21	01-Oct-21	28-Mar-22	100%	100%
442		SIDE WALLS & TOP SLAB	45	20-Sep-21	18-Nov-21	22-Jan-22	06-Apr-22	100%	100%
443		STRESSING & DESTAGGING	61	18-Nov-21	03-Jan-22	12-Mar-22	22-Apr-22	100%	100%
444		INTERCHANGE BOX GIRDER INSTALLATION_AC	140	27-Feb-21	27-Dec-21	01-Nov-21	20-Sep-22	100%	100%



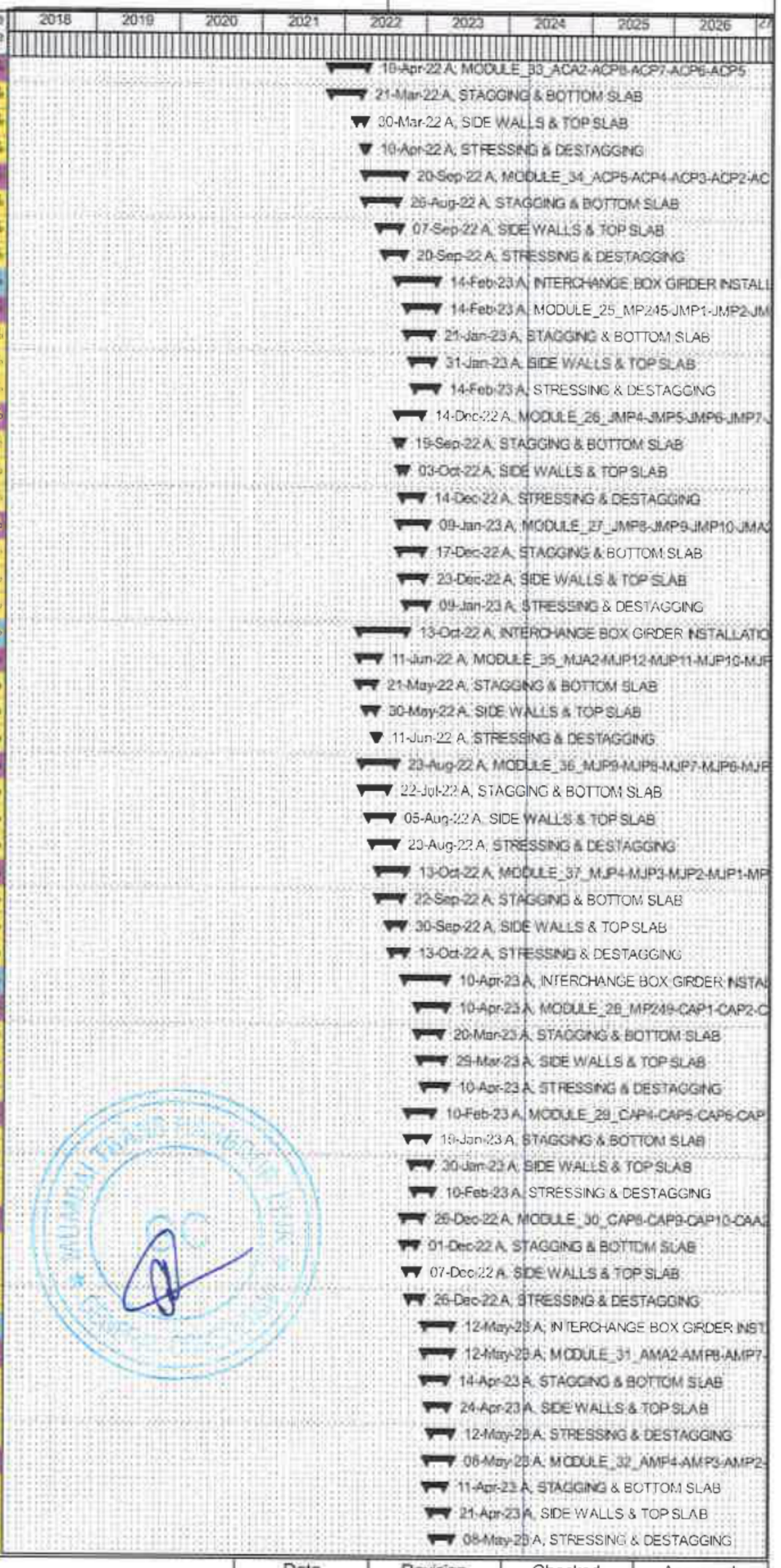
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
445		MODULE_33_ACA2-ACP8-ACP7-ACP6-ACP5	140	27-Feb-21	06-Sep-21	01-Nov-21	10-Apr-22	100%	100%
446		STAGGING & BOTTOM SLAB	73	27-Feb-21	16-Apr-21	01-Nov-21	21-Mar-22	100%	100%
447		SIDE WALLS & TOP SLAB	57	17-Apr-21	15-Jun-21	23-Feb-22	30-Mar-22	100%	100%
448		STRESSING & DESTAGGING	39	15-Jun-21	08-Sep-21	31-Mar-22	10-Apr-22	100%	100%
449		MODULE_34_ACP5-ACP4-ACP3-ACP2-ACP1-MP256	122	31-May-21	27-Dec-21	07-Apr-22	20-Sep-22	100%	100%
450		STAGGING & BOTTOM SLAB	36	31-May-21	03-Sep-21	07-Apr-22	26-Aug-22	100%	100%
451		SIDE WALLS & TOP SLAB	45	03-Sep-21	10-Nov-21	11-Jun-22	07-Sep-22	100%	100%
452		STRESSING & DESTAGGING	40	10-Nov-21	27-Dec-21	30-Jun-22	20-Sep-22	100%	100%
453		INTERCHANGE BOX GIRDER INSTALLATION_JM	234	11-Mar-20	26-Feb-21	30-Aug-22	14-Feb-23	100%	100%
454		MODULE_25_MP245-JMP1-JMP2-JMP3-JMP4	144	19-Aug-20	09-Feb-21	13-Oct-22	14-Feb-23	100%	100%
455		STAGGING & BOTTOM SLAB	71	19-Aug-20	30-Oct-20	13-Oct-22	21-Jan-23	100%	100%
456		SIDE WALLS & TOP SLAB	45	31-Oct-20	23-Dec-20	04-Nov-22	31-Jan-23	100%	100%
457		STRESSING & DESTAGGING	28	24-Dec-20	09-Feb-21	15-Nov-22	14-Feb-23	100%	100%
458		MODULE_26_JMP4-JMP5-JMP6-JMP7-JMP8	109	29-Sep-20	26-Feb-21	30-Aug-22	14-Dec-22	100%	100%
459		STAGGING & BOTTOM SLAB	41	29-Sep-20	19-Nov-20	30-Aug-22	19-Sep-22	100%	100%
460		SIDE WALLS & TOP SLAB	45	20-Nov-20	11-Jan-21	09-Sep-22	03-Oct-22	100%	100%
461		STRESSING & DESTAGGING	65	12-Jan-21	26-Feb-21	23-Sep-22	14-Dec-22	100%	100%
462		MODULE_27_JMP8-JMP9-JMP10-JMA2	195	11-Mar-20	29-Sep-20	08-Sep-22	09-Jan-23	100%	100%
463		STAGGING & BOTTOM SLAB	41	11-Mar-20	28-Apr-20	08-Sep-22	17-Dec-22	100%	100%
464		SIDE WALLS & TOP SLAB	63	28-Apr-20	04-Jul-20	25-Sep-22	23-Dec-22	100%	100%
465		STRESSING & DESTAGGING	65	04-Jul-20	29-Sep-20	10-Oct-22	09-Jan-23	100%	100%
466		INTERCHANGE BOX GIRDER INSTALLATION_MJ	188	20-Sep-19	08-Jan-21	17-Mar-22	13-Oct-22	100%	100%
467		MODULE_35_MJA2-MJP12-MJP11-MJP10-MJP9	100	20-Sep-19	16-Mar-20	17-Mar-22	11-Jun-22	100%	100%
468		STAGGING & BOTTOM SLAB	50	20-Sep-19	25-Nov-19	17-Mar-22	21-May-22	100%	100%
469		SIDE WALLS & TOP SLAB	50	25-Nov-19	22-Jan-20	16-Apr-22	30-May-22	100%	100%
470		STRESSING & DESTAGGING	45	22-Jan-20	16-Mar-20	30-May-22	11-Jun-22	100%	100%
471		MODULE_36_MJP9-MJP8-MJP7-MJP6-MJP5-MJP4	171	16-Mar-20	29-Oct-20	28-Mar-22	23-Aug-22	100%	100%
472		STAGGING & BOTTOM SLAB	50	16-Mar-20	14-May-20	28-Mar-22	22-Jul-22	100%	100%
473		SIDE WALLS & TOP SLAB	50	14-May-20	17-Aug-20	27-Apr-22	05-Aug-22	100%	100%
474		STRESSING & DESTAGGING	45	17-Aug-20	29-Oct-20	14-May-22	23-Aug-22	100%	100%
475		MODULE_37_MJP4-MJP3-MJP2-MJP1-MP252	128	30-Jun-20	06-Jan-21	16-Jun-22	13-Oct-22	100%	100%
476		STAGGING & BOTTOM SLAB	55	30-Jun-20	29-Sep-20	16-Jun-22	22-Sep-22	100%	100%
477		SIDE WALLS & TOP SLAB	45	29-Sep-20	24-Nov-20	29-Jul-22	30-Sep-22	100%	100%
478		STRESSING & DESTAGGING	60	25-Nov-20	06-Jan-21	12-Aug-22	13-Oct-22	100%	100%
479		INTERCHANGE BOX GIRDER INSTALLATION_CA	390	30-Oct-20	15-Feb-22	12-Oct-22	10-Apr-23	100%	100%
480		MODULE_28_MP249-CAP1-CAP2-CAP3-CAP4	154	08-Sep-21	15-Feb-22	10-Dec-22	10-Apr-23	100%	100%
481		STAGGING & BOTTOM SLAB	105	08-Sep-21	08-Nov-21	10-Dec-22	20-Mar-23	100%	100%
482		SIDE WALLS & TOP SLAB	105	08-Nov-21	30-Dec-21	22-Dec-22	29-Mar-23	100%	100%
483		STRESSING & DESTAGGING	36	30-Dec-21	15-Feb-22	05-Jan-23	10-Apr-23	100%	100%
484		MODULE_29_CAP4-CAP5-CAP6-CAP7-CAP8	161	09-Apr-21	23-Nov-21	29-Oct-22	10-Feb-23	100%	100%
485		STAGGING & BOTTOM SLAB	50	09-Apr-21	11-Jun-21	29-Oct-22	19-Jan-23	100%	100%
486		SIDE WALLS & TOP SLAB	50	11-Jun-21	28-Sep-21	13-Nov-22	30-Jan-23	100%	100%
487		STRESSING & DESTAGGING	161	28-Sep-21	23-Nov-21	26-Nov-22	10-Feb-23	100%	100%
488		MODULE_30_CAP8-CAP9-CAP10-CAA2	159	30-Oct-20	08-Apr-21	12-Oct-22	26-Dec-22	100%	100%
489		STAGGING & BOTTOM SLAB	73	30-Oct-20	24-Dec-20	12-Oct-22	01-Dec-22	100%	100%
490		SIDE WALLS & TOP SLAB	48	25-Dec-20	19-Feb-21	23-Oct-22	07-Dec-22	100%	100%
491		STRESSING & DESTAGGING	38	20-Feb-21	08-Apr-21	04-Nov-22	26-Dec-22	100%	100%
492		INTERCHANGE BOX GIRDER INSTALLATION_AM	207	14-Oct-19	19-Aug-20	12-Jan-23	12-May-23	100%	100%
493		MODULE_31_AMA2-AMP8-AMP7-AMP6-AMP5-AMP4	178	14-Oct-19	11-Mar-20	12-Jan-23	12-May-23	100%	100%
494		STAGGING & BOTTOM SLAB	67	14-Oct-19	03-Dec-19	12-Jan-23	14-Apr-23	100%	100%
495		SIDE WALLS & TOP SLAB	45	03-Dec-19	24-Jan-20	30-Jan-23	24-Apr-23	100%	100%
496		STRESSING & DESTAGGING	66	24-Jan-20	11-Mar-20	09-Feb-23	12-May-23	100%	100%
497		MODULE_32_AMP4-AMP3-AMP2-AMP1-MP259	181	10-Feb-20	19-Aug-20	21-Jan-23	08-May-23	100%	100%
498		STAGGING & BOTTOM SLAB	45	10-Feb-20	03-Apr-20	21-Jan-23	11-Apr-23	100%	100%
499		SIDE WALLS & TOP SLAB	45	03-Apr-20	27-May-20	13-Feb-23	21-Apr-23	100%	100%
500		STRESSING & DESTAGGING	91	27-May-20	19-Aug-20	22-Feb-23	08-May-23	100%	100%



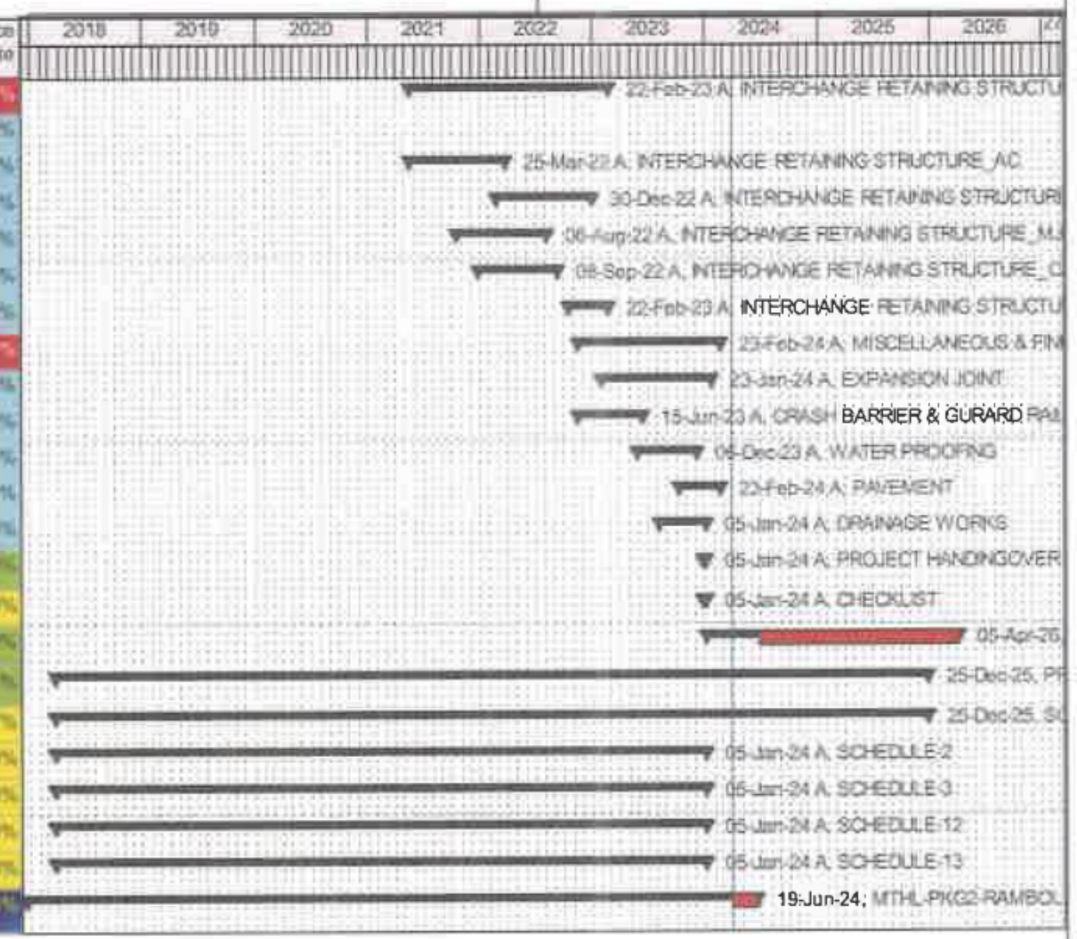
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

#	Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
501		INTERCHANGE RETAINING STRUCTURE	352	11-Mar-19	06-Nov-20	15-May-21	22-Feb-23	100%	100%
S02		INTERCHANGE RETAINING STRUCTURE_MA	0					0%	0%
S03		INTERCHANGE RETAINING STRUCTURE_AC	88	24-Jun-20	06-Nov-20	15-May-21	25-Mar-22	100%	100%
S04		INTERCHANGE RETAINING STRUCTURE_JM	89	11-Mar-19	06-May-19	24-Feb-22	30-Dec-22	100%	100%
S05		INTERCHANGE RETAINING STRUCTURE_MJ	101	09-May-19	11-Jul-19	18-Oct-21	06-Aug-22	100%	100%
S06		INTERCHANGE RETAINING STRUCTURE_CA	39	06-Feb-20	24-Mar-20	28-Dec-21	08-Sep-22	100%	100%
S07		INTERCHANGE RETAINING STRUCTURE_AM	67	12-Jul-19	24-Oct-19	15-Oct-22	22-Feb-23	100%	100%
S08		MISCELLANEOUS & FINISHING WORKS	371	19-Aug-20	28-Apr-22	15-Nov-22	23-Feb-24	100%	100%
509		EXPANSION JOINT	64	01-Oct-20	22-Apr-22	01-Feb-23	23-Jan-24	0%	0%
510		CRASH BARRIER & GURARD RAILS	336	19-Aug-20	21-Feb-22	15-Nov-22	15-Jun-23	100%	100%
511		WATER PROOFING	173	10-Sep-20	06-Mar-22	25-May-23	06-Dec-23	100%	100%
512		PAVEMENT	106	07-Sep-20	28-Apr-22	11-Oct-23	23-Feb-24	100%	100%
513		DRAINAGE WORKS	57	28-Aug-20	26-Feb-22	04-Aug-23	05-Jan-24	100%	100%
514		PROJECT HANDINGOVER	65	24-May-22	22-Sep-22	25-Dec-23	05-Jan-24	100%	100%
515		CHECKLIST	65	24-May-22	22-Sep-22	25-Dec-23	05-Jan-24	100%	100%
516		DEFECT LIABILITY PERIOD (DLP)	1030	22-Sep-23	21-Sep-24	05-Jan-24		0%	0%
517		PRICE SCHEDULE	2466	23-Mar-18	21-Mar-23	23-Mar-18		100%	96.11%
518		SCHEDULE-1	2466	23-Mar-18	21-Mar-23	23-Mar-18		100%	94.77%
519		SCHEDULE-2	1644	23-Mar-18	22-Sep-22	23-Mar-18	05-Jan-24	100%	100%
520		SCHEDULE-3	1644	23-Mar-18	22-Sep-22	23-Mar-18	05-Jan-24	100%	100%
521		SCHEDULE-12	1644	23-Mar-18	22-Sep-22	23-Mar-18	05-Jan-24	100%	100%
522		SCHEDULE-13	1644	23-Mar-18	22-Sep-22	23-Mar-18	05-Jan-24	100%	100%
523		MTHL-PKG2-RAMBOLL DESIGN PROGRAMME_25032024_APPROVED_MPR.72	1828	15-Jan-18	17-Jun-22	16-Dec-17		100%	99.95%



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

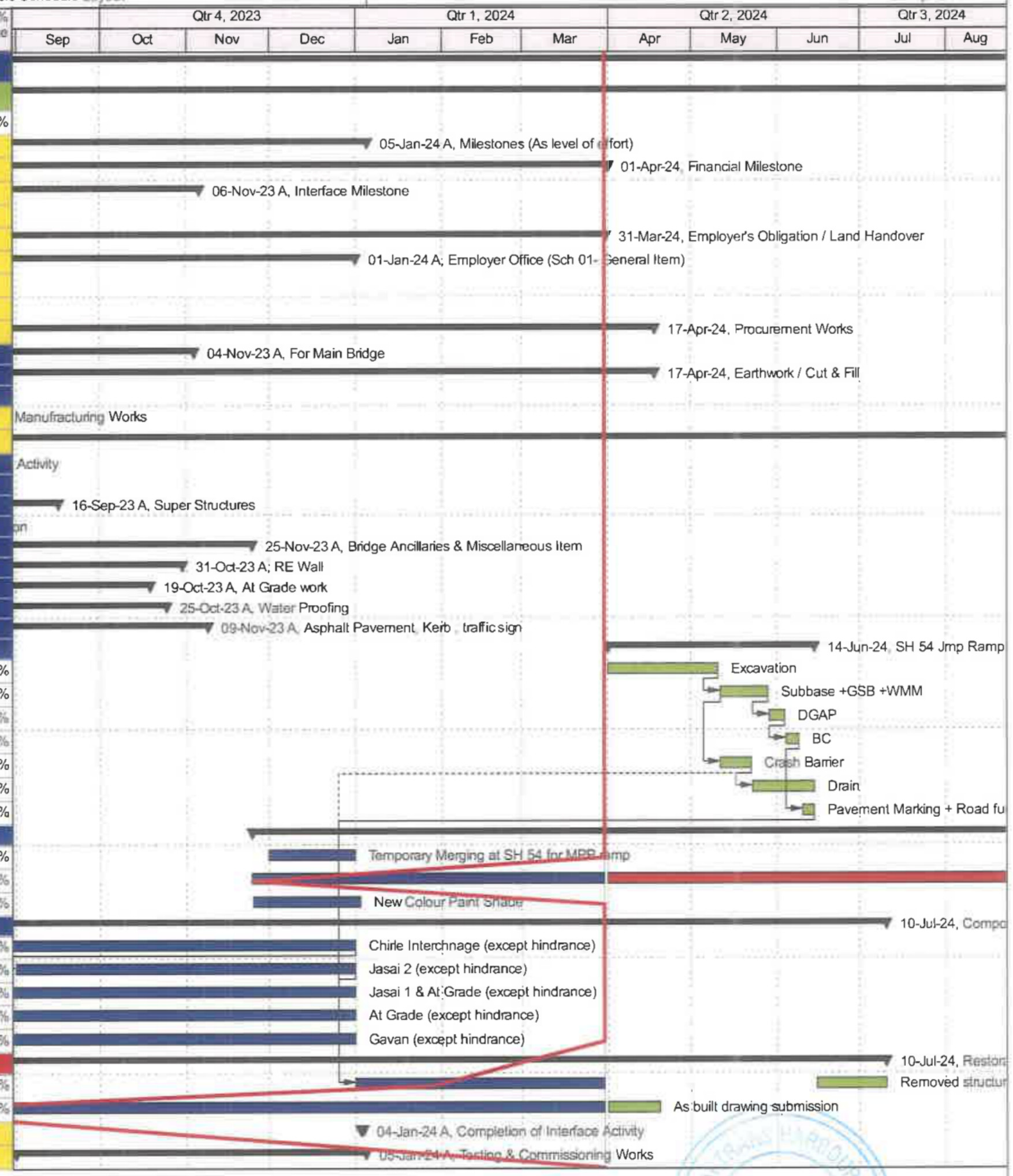
EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

CONTRACTOR:
DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-24	R0		

Attachment 8- Package-3's Construction Programme
Updated as of 31st March 2024

Activity ID	Activity Name	Original Duration	Start	Finish	Activity % Complete
MTHL Pkg 3_RWP Jan 24		1762	23-Mar-18 A	04-Sep-24	
Procurement of Mumbai Trans Harbour Link Projec		1762	23-Mar-18 A	04-Sep-24	
1	Commencement Date (CD)	0	23-Mar-18 A		100%
Milestones (As level of effort)		995	30-Sep-19 A	05-Jan-24 A	
Financial Milestone		1681	23-Mar-18 A	01-Apr-24	
Interface Milestone		1075	25-Mar-18 A	06-Nov-23 A	
Document Submittals		45	06-Apr-18 A	30-Sep-19 A	
Employer's Obligation / Land Handover		1153	23-Mar-18 A	31-Mar-24	
Employer Office (Sch 01- General Item)		797	25-Jan-19 A	01-Jan-24 A	
Survey & Geotechnical Investigation Works		346	19-Apr-18 A	30-Sep-19 A	
Design Works		1043	25-Apr-18 A	24-Dec-22 A	
Procurement Works		1232	15-Feb-19 A	17-Apr-24	
For Main Bridge		1232	15-Feb-19 A	04-Nov-23 A	
Earthwork / Cut & Fill		794	01-Mar-19 A	17-Apr-24	
Prestressed strand		506	04-Dec-19 A	30-Jun-22 A	
Co-ordinated Fabrication & Manufracturing Works		1160	21-Feb-19 A	29-May-23 A	
Construction Works		1556	26-Sep-18 A	04-Sep-24	
Preconstruction Activity		1105	26-Sep-18 A	25-Jun-23 A	
Sub Structures (Open Foundation, Pier ,Pier Cap)		1212	14-Nov-18 A	08-Feb-23 A	
Super Structures		741	11-Sep-19 A	16-Sep-23 A	
Bearings Installation		297	04-Nov-20 A	20-Jun-23 A	
Bridge Ancillaries & Miscellaneous Item		419	01-Mar-22 A	25-Nov-23 A	
RE Wall		367	22-Dec-21 A	31-Oct-23 A	
At Grade work		1102	16-Feb-19 A	19-Oct-23 A	
Water Proofing		120	02-Jan-23 A	25-Oct-23 A	
Asphalt Pavement, Kerb , traffic sign		179	17-Apr-23 A	09-Nov-23 A	
SH 54 Jmp Ramp Merging		65	01-Apr-24	14-Jun-24	
A6200	Excavation	35	01-Apr-24	10-May-24	0%
A6210	Subbase +GSB +WMM	15	11-May-24	28-May-24	0%
A6220	DGAP	5	29-May-24	03-Jun-24	0%
A6230	BC	5	04-Jun-24	08-Jun-24	0%
A6240	Crash Barrier	10	11-May-24	22-May-24	0%
A6250	Drain	20	23-May-24	14-Jun-24	0%
A6260	Pavement Marking + Road furniture	5	10-Jun-24	14-Jun-24	0%
Additional Work		90	25-Nov-23 A	04-Sep-24	
A6270	Temporary Merging at SH 54 for MPP ramp	25	01-Dec-23 A	01-Jan-24 A	100%
A6280	Land Beautification	90	25-Nov-23 A	04-Sep-24	90%
A6290	New Colour Paint Shade	5	25-Nov-23 A	03-Jan-24 A	100%
Compound wall with safety fence		502	04-Jan-22 A	10-Jul-24	
CW 1000	Chirle Interchnage (except hindrance)	30	04-Jan-22 A	01-Jan-24 A	100%
CW 1010	Jasai 2 (except hindrance)	30	01-Sep-23 A	01-Jan-24 A	100%
CW 1020	Jasai 1 & At Grade (except hindrance)	30	02-Jan-23 A	01-Jan-24 A	100%
CW 1030	At Grade (except hindrance)	30	01-Oct-22 A	01-Jan-24 A	100%
CW 1040	Gavan (except hindrance)	30	18-Jul-23 A	01-Jan-24 A	100%
Restoration of removed structure and As-built doc & maintenar		287	02-Jan-23 A	10-Jul-24	
A6180	Removed structure restoration	30	01-Jan-24 A	10-Jul-24	40%
A6190	As built drawing submission	20	02-Jan-23 A	19-Apr-24	90%
Completion of Interface Activity		108	03-Jan-24 A	04-Jan-24 A	
Testing & Commissioning Works		120	01-Sep-23 A	05-Jan-24 A	



Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

TASK filter: All Activities

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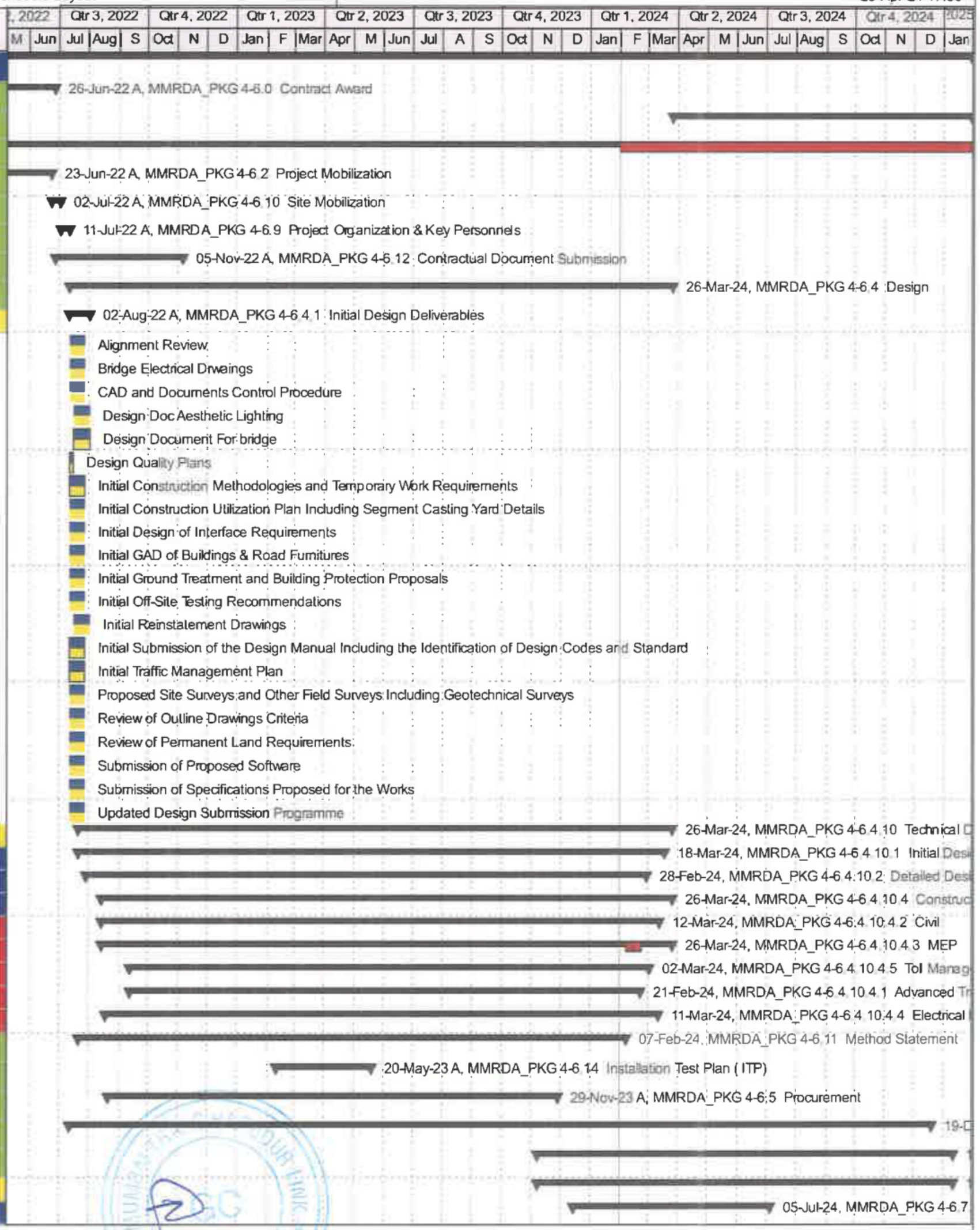
Attachment 9- Package-4's Construction Programme
Updated as of 31st March 2024

Activity ID	Activity Name	Original Duration	Start	Finish
MMRDA_PKG 4-6 MPR Till Mar 2024				
MMRDA_PKG 4-6.0	Contract Award			
MMRDA_PKG 4-6.1	Phase Wise Activity Completion Key Dates			
MMRDA_PKG 4-6.3	Shared Access Dates			
MMRDA_PKG 4-6.2	Project Mobilization			
MMRDA_PKG 4-6.10	Site Mobilization			
MMRDA_PKG 4-6.9	Project Organization & Key Personnels			
MMRDA_PKG 4-6.12	Contractual Document Submission			
MMRDA_PKG 4-6.4	Design			
MMRDA_PKG 4-6.4.1	Initial Design Deliverables			
P4IDD1440	Alignment Review	14	11-Jul-22 A	27-Jul-22 A
P4IDD1530	Bridge Electrical Drwaings	14	11-Jul-22 A	27-Jul-22 A
P4IDD1420	CAD and Documents Control Procedure	14	11-Jul-22 A	27-Jul-22 A
P4IDD1550	Design Doc Aesthetic Lighting	14	16-Jul-22 A	02-Aug-22 A
P4IDD1540	Design Document For bridge	14	16-Jul-22 A	02-Aug-22 A
P4IDD1350	Design Quality Plans	5	11-Jul-22 A	16-Jul-22 A
P4IDD1450	Initial Construction Methodologies and Temporary Work Requiremen	14	11-Jul-22 A	27-Jul-22 A
P4IDD1520	Initial Construction Utilization Plan Including Segment Casting Yard D	14	11-Jul-22 A	27-Jul-22 A
P4IDD1430	Initial Design of Interface Requirements	14	11-Jul-22 A	27-Jul-22 A
P4IDD1390	Initial GAD of Buildings & Road Furnitures	14	11-Jul-22 A	27-Jul-22 A
P4IDD1500	Initial Ground Treatment and Building Protection Proposals	14	11-Jul-22 A	27-Jul-22 A
P4IDD1400	Initial Off-Site Testing Recommendations	14	11-Jul-22 A	27-Jul-22 A
P4IDD1510	Initial Reinstatement Drawings	14	16-Jul-22 A	02-Aug-22 A
P4IDD1370	Initial Submission of the Design Manual Including the Identification o	14	11-Jul-22 A	27-Jul-22 A
P4IDD1470	Initial Traffic Management Plan	14	11-Jul-22 A	27-Jul-22 A
P4IDD1480	Proposed Site Surveys and Other Field Surveys Including Geotechnic	14	11-Jul-22 A	27-Jul-22 A
P4IDD1360	Review of Outline Drawings Criteria	14	11-Jul-22 A	27-Jul-22 A
P4IDD1490	Review of Permanent Land Requirements	14	11-Jul-22 A	27-Jul-22 A
P4IDD1380	Submission of Proposed Software	14	11-Jul-22 A	27-Jul-22 A
P4IDD1410	Submission of Specifications Proposed for the Works	14	11-Jul-22 A	27-Jul-22 A
P4IDD1460	Updated Design Submission Programme	14	11-Jul-22 A	27-Jul-22 A
MMRDA_PKG 4-6.4.10	Technical Design			
MMRDA_PKG 4-6.4.10.1	Initial Design			
MMRDA_PKG 4-6.4.10.2	Detailed Design			
MMRDA_PKG 4-6.4.10.4	Construction Drawings			
MMRDA_PKG 4-6.4.10.4.2	Civil			
MMRDA_PKG 4-6.4.10.4.3	MEP			
MMRDA_PKG 4-6.4.10.4.5	Toll Management System (TMS)			
MMRDA_PKG 4-6.4.10.4.1	Advanced Traffic Management System (ATMS)			
MMRDA_PKG 4-6.4.10.4.4	Electrical Bridge			
MMRDA_PKG 4-6.11	Method Statement			
MMRDA_PKG 4-6.14	Installation Test Plan (ITP)			
MMRDA_PKG 4-6.5	Procurement			
MMRDA_PKG 4-6.6	Installation			
MMRDA_PKG 4-6.7	Testing & Commissioning			
MMRDA_PKG 4-6.7.5	T&C-Standalone & Integerated			
MMRDA_PKG 4-6.7.5.1	Gavhan			



Actual Level of Effort | Actual Work | Critical Remaining Work
Primary Baseline | Remaining Work | Milestone

TASK filter: All Activities

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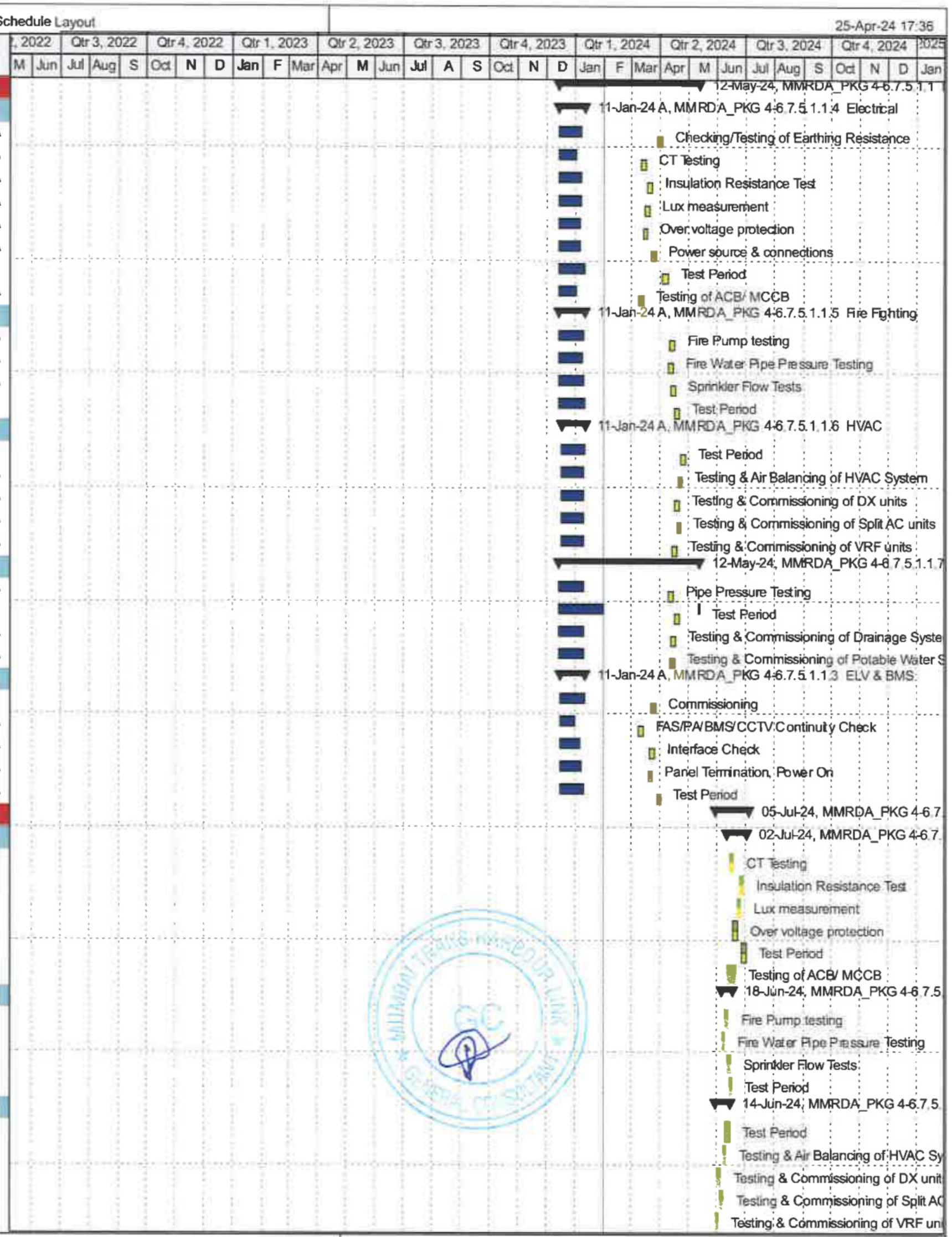
Activity ID	Activity Name	Original Duration	Start	Finish
MMRDA_PKG 4-6.7.5.1.1	Main Administration and Command Control Centre Building with Tolls, Road & MEP works			
MMRDA_PKG 4-6.7.5.1.1.4	Electrical			
A3260	Checking/Testing of Earthing Resistance	5	15-Dec-23,	07-Jan-24 A
A2210	CT Testing	5	15-Dec-23,	02-Jan-24 A
A2240	Insulation Resistance Test	5	15-Dec-23,	07-Jan-24 A
A2230	Lux measurement	5	15-Dec-23,	07-Jan-24 A
A2220	Over voltage protection	5	15-Dec-23,	06-Jan-24 A
A3250	Power source & connections	5	15-Dec-23,	06-Jan-24 A
A3261	Test Period	6	15-Dec-23,	11-Jan-24 A
A2200	Testing of ACB/ MCCB	5	15-Dec-23,	02-Jan-24 A
MMRDA_PKG 4-6.7.5.1.1.5	Fire Fighting			
A2260	Fire Pump testing	5	15-Dec-23,	09-Jan-24 A
A2250	Fire Water Pipe Pressure Testing	5	15-Dec-23,	08-Jan-24 A
A2270	Sprinkler Flow Tests	5	15-Dec-23,	10-Jan-24 A
A3030	Test Period	5	15-Dec-23,	11-Jan-24 A
MMRDA_PKG 4-6.7.5.1.1.6	HVAC			
A3040	Test Period	5	17-Dec-23,	11-Jan-24 A
A2310	Testing & Air Balancing of HVAC System	5	17-Dec-23,	10-Jan-24 A
A2290	Testing & Commissioning of DX units	5	17-Dec-23,	10-Jan-24 A
A2300	Testing & Commissioning of Split AC units	5	17-Dec-23,	10-Jan-24 A
A2280	Testing & Commissioning of VRF units	5	17-Dec-23,	10-Jan-24 A
MMRDA_PKG 4-6.7.5.1.1.7	Plumbing			
A2320	Pipe Pressure Testing	5	15-Dec-23,	10-Jan-24 A
A3050	Test Period	5	15-Dec-23,	12-May-24
A2340	Testing & Commissioning of Drainage System	5	15-Dec-23,	10-Jan-24 A
A2330	Testing & Commissioning of Potable Water System	5	15-Dec-23,	10-Jan-24 A
MMRDA_PKG 4-6.7.5.1.1.3	ELV & BMS			
A3372	Commissioning	5	16-Dec-23,	11-Jan-24 A
A2180	FAS/PA/BMS/CCTV Continuity Check	5	16-Dec-23,	01-Jan-24 A
A3020	Interface Check	5	16-Dec-23,	06-Jan-24 A
A2190	Panel Termination, Power On	5	16-Dec-23,	07-Jan-24 A
A3121	Test Period	5	16-Dec-23,	10-Jan-24 A
MMRDA_PKG 4-6.7.5.1.2	Food Plazas at Gavhan (G+1).			
MMRDA_PKG 4-6.7.5.1.2.4	Electrical			
A2380	CT Testing	5	14-Jun-24	19-Jun-24
A2410	Insulation Resistance Test	5	24-Jun-24	29-Jun-24
A2400	Lux measurement	5	21-Jun-24	26-Jun-24
A2390	Over voltage protection	5	17-Jun-24	22-Jun-24
A3210	Test Period	5	27-Jun-24	02-Jul-24
A2370	Testing of ACB/ MCCB	10	11-Jun-24	21-Jun-24
MMRDA_PKG 4-6.7.5.1.2.5	Fire Fighting			
A2430	Fire Pump testing	5	08-Jun-24	13-Jun-24
A2420	Fire Water Pipe Pressure Testing	5	05-Jun-24	10-Jun-24
A2440	Sprinkler Flow Tests	5	11-Jun-24	16-Jun-24
A3220	Test Period	5	13-Jun-24	18-Jun-24
MMRDA_PKG 4-6.7.5.1.2.6	HVAC			
A3230	Test Period	5	09-Jun-24	14-Jun-24
A2480	Testing & Air Balancing of HVAC System	5	06-Jun-24	11-Jun-24
A2460	Testing & Commissioning of DX units	5	31-May-24	05-Jun-24
A2470	Testing & Commissioning of Split AC units	5	03-Jun-24	08-Jun-24
A2450	Testing & Commissioning of VRF units	5	29-May-24	03-Jun-24



Actual Level of Effort | Actual Work | Critical Remaining Work
Primary Baseline | Remaining Work | Milestone

TASK filter: All Activities

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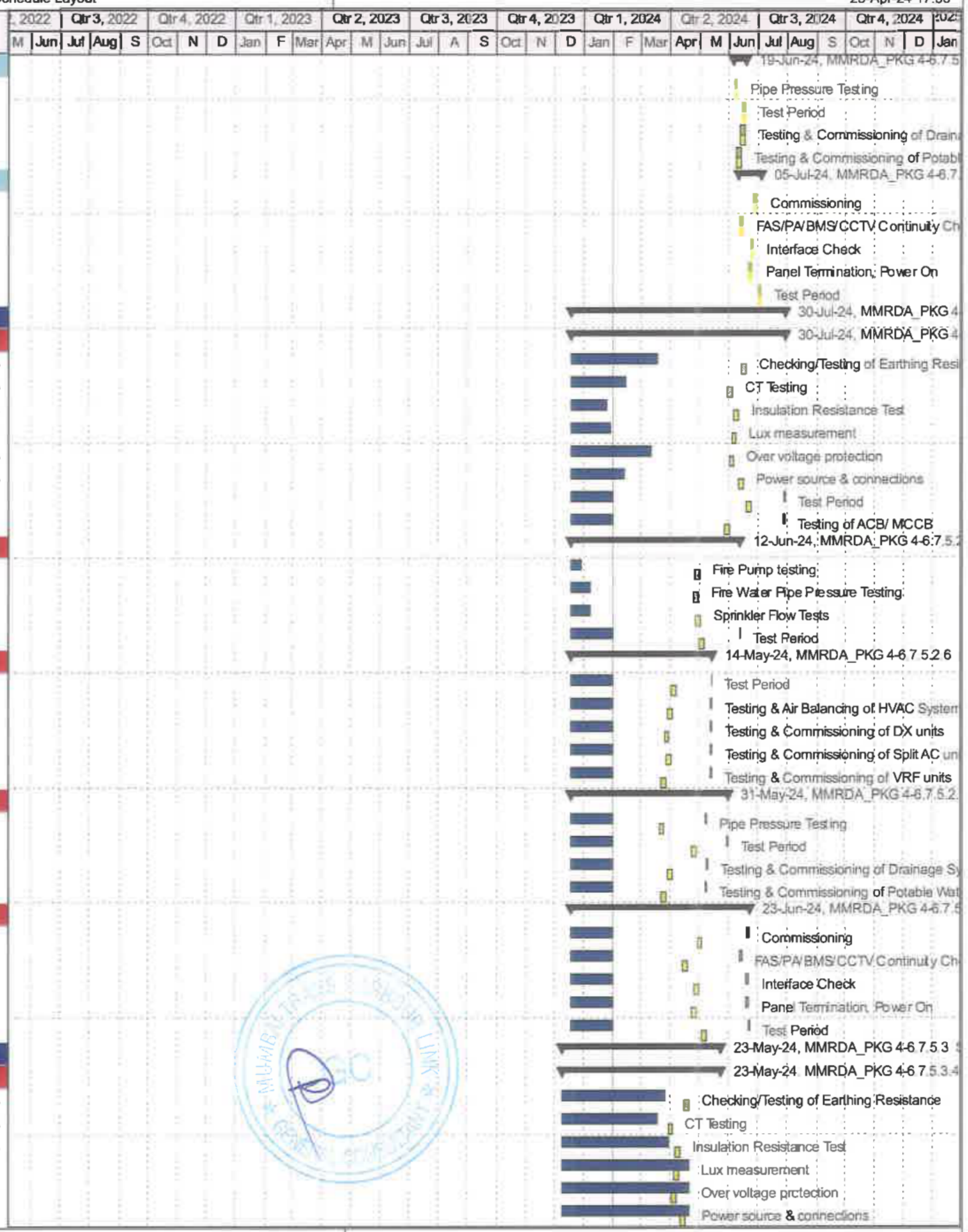
Activity ID	Activity Name	Original Duration	Start	Finish
MMRDA_PKG 4-6.7.5.1.2.7	Plumbing			
A2490	Pipe Pressure Testing	5	05-Jun-24	10-Jun-24
A3240	Test Period	5	14-Jun-24	19-Jun-24
A2510	Testing & Commissioning of Drainage System	5	12-Jun-24	17-Jun-24
A2500	Testing & Commissioning of Potable Water System	5	08-Jun-24	13-Jun-24
MMRDA_PKG 4-6.7.5.1.2.3	ELV & BMS			
A3343	Commissioning	5	25-Jun-24	30-Jun-24
A3313	FAS/PA/BMS/CCTV Continuity Check	5	11-Jun-24	16-Jun-24
A3333	Interface Check	5	22-Jun-24	27-Jun-24
A3323	Panel Termination, Power On	5	20-Jun-24	25-Jun-24
A3353	Test Period	5	30-Jun-24	05-Jul-24
MMRDA_PKG 4-6.7.5.2	Shivaji Nagar			
MMRDA_PKG 4-6.7.5.2.4	Electrical			
A3281	Checking/Testing of Earthing Resistance	5	19-Dec-23,	18-Mar-24 A
A2550	CT Testing	5	19-Dec-23,	13-Feb-24 A
A2580	Insulation Resistance Test	5	19-Dec-23,	24-Jan-24 A
A2570	Lux measurement	5	19-Dec-23,	29-Jan-24 A
A2560	Over voltage protection	5	19-Dec-23,	11-Mar-24 A
A3271	Power source & connections	5	19-Dec-23,	12-Feb-24 A
A3282	Test Period	5	19-Dec-23,	30-Jul-24
A2540	Testing of ACB/ MCCB	5	19-Dec-23,	28-Jul-24
MMRDA_PKG 4-6.7.5.2.5	Fire Fighting			
A2600	Fire Pump testing	5	19-Dec-23,	29-Dec-23,
A2590	Fire Water Pipe Pressure Testing	5	19-Dec-23,	07-Jan-24 A
A2610	Sprinkler Flow Tests	5	19-Dec-23,	07-Jan-24 A
A3292	Test Period	5	19-Dec-23,	12-Jun-24
MMRDA_PKG 4-6.7.5.2.6	HVAC			
A3302	Test Period	5	19-Dec-23,	14-May-24
A2650	Testing & Air Balancing of HVAC System	5	19-Dec-23,	14-May-24
A2630	Testing & Commissioning of DX units	5	19-Dec-23,	14-May-24
A2640	Testing & Commissioning of Split AC units	5	19-Dec-23,	14-May-24
A2620	Testing & Commissioning of VRF units	5	19-Dec-23,	14-May-24
MMRDA_PKG 4-6.7.5.2.7	Plumbing			
A2660	Pipe Pressure Testing	5	19-Dec-23,	08-May-24
A3312	Test Period	5	19-Dec-23,	31-May-24
A2680	Testing & Commissioning of Drainage System	5	19-Dec-23,	10-May-24
A2670	Testing & Commissioning of Potable Water System	5	19-Dec-23,	08-May-24
MMRDA_PKG 4-6.7.5.2.3	ELV & BMS			
A3393	Commissioning	5	19-Dec-23,	21-Jun-24
A3363	FAS/PA/BMS/CCTV Continuity Check	5	19-Dec-23,	14-Jun-24
A3383	Interface Check	5	19-Dec-23,	21-Jun-24
A3373	Panel Termination, Power On	5	19-Dec-23,	21-Jun-24
A3403	Test Period	5	19-Dec-23,	23-Jun-24
MMRDA_PKG 4-6.7.5.3	Sewri			
MMRDA_PKG 4-6.7.5.3.4	Electrical			
A3362	Checking/Testing of Earthing Resistance	5	09-Dec-23,	25-Mar-24 A
A2720	CT Testing	5	09-Dec-23,	17-Mar-24 A
A2750	Insulation Resistance Test	5	09-Dec-23,	29-Mar-24 A
A2740	Lux measurement	5	09-Dec-23,	19-Apr-24 A
A2730	Over voltage protection	5	09-Dec-23,	19-Apr-24 A
A3352	Power source & connections	5	09-Dec-23,	20-Apr-24 A



Actual Level of Effort | Actual Work | Critical Remaining Work
Primary Baseline | Remaining Work | Milestone

TASK filter: All Activities

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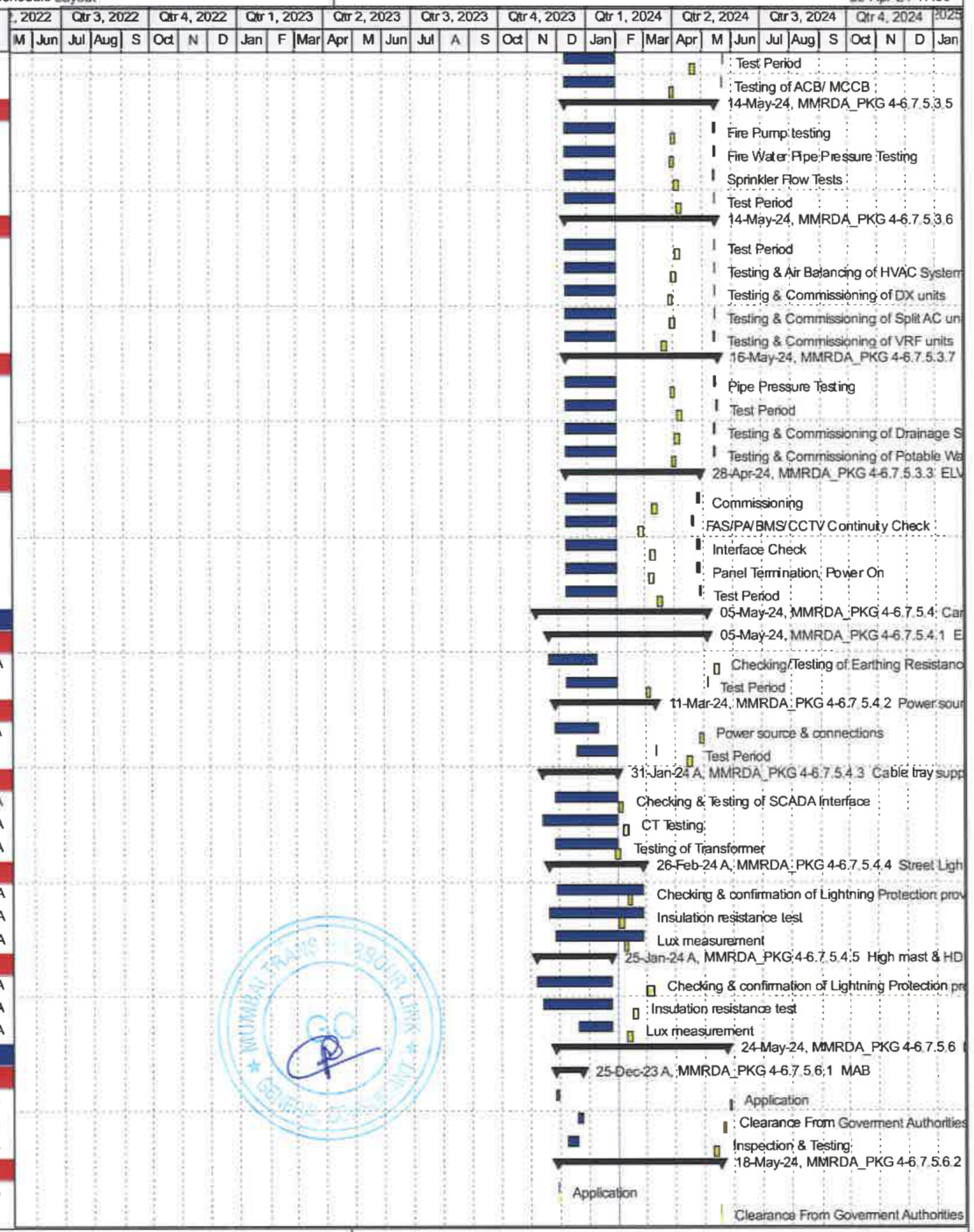
Activity ID	Activity Name	Original Duration	Start	Finish
A3303	Test Period	5	09-Dec-23,	23-May-24
A2710	Testing of ACB/ MCCB	5	09-Dec-23,	22-May-24
MMRDA_PKG 4-6.7.5.3.5	Fire Fighting			
A2770	Fire Pump testing	5	09-Dec-23,	13-May-24
A2760	Fire Water Pipe Pressure Testing	5	09-Dec-23,	13-May-24
A2780	Sprinkler Flow Tests	5	09-Dec-23,	13-May-24
A3322	Test Period	5	09-Dec-23,	14-May-24
MMRDA_PKG 4-6.7.5.3.6	HVAC			
A3332	Test Period	5	09-Dec-23,	14-May-24
A2820	Testing & Air Balancing of HVAC System	5	09-Dec-23,	14-May-24
A2800	Testing & Commissioning of DX units	5	09-Dec-23,	14-May-24
A2810	Testing & Commissioning of Split AC units	5	09-Dec-23,	14-May-24
A2790	Testing & Commissioning of VRF units	5	09-Dec-23,	13-May-24
MMRDA_PKG 4-6.7.5.3.7	Plumbing			
A2830	Pipe Pressure Testing	5	09-Dec-23,	14-May-24
A3342	Test Period	5	09-Dec-23,	16-May-24
A2850	Testing & Commissioning of Drainage System	5	09-Dec-23,	14-May-24
A2840	Testing & Commissioning of Potable Water System	5	09-Dec-23,	14-May-24
MMRDA_PKG 4-6.7.5.3.3	ELV & BMS			
A3443	Commissioning	5	09-Dec-23,	26-Apr-24
A3413	FAS/PA/BMS/CCTV Continuity Check	5	09-Dec-23,	20-Apr-24
A3433	Interface Check	5	09-Dec-23,	26-Apr-24
A3423	Panel Termination, Power On	5	09-Dec-23,	26-Apr-24
A3453	Test Period	5	09-Dec-23,	28-Apr-24
MMRDA_PKG 4-6.7.5.4	Carriage Way			
MMRDA_PKG 4-6.7.5.4.1	Earthing			
A2880	Checking/Testing of Earthing Resistance	5	21-Nov-23,	10-Jan-24 A
A2990	Test Period	5	09-Dec-23,	05-May-24
MMRDA_PKG 4-6.7.5.4.2	Power source & connections			
A2890	Power source & connections	5	28-Nov-23,	11-Jan-24 A
A3000	Test Period	5	20-Dec-23,	11-Mar-24
MMRDA_PKG 4-6.7.5.4.3	Cable tray supports, Power cabling, Pole erection			
A2910	Checking & Testing of SCADA Interface	5	28-Nov-23,	31-Jan-24 A
A2920	CT Testing	5	14-Nov-23,	31-Jan-24 A
A2900	Testing of Transformer	5	27-Nov-23,	31-Jan-24 A
MMRDA_PKG 4-6.7.5.4.4	Street Light fixtures			
A2950	Checking & confirmation of Lightning Protection provision	5	29-Nov-23,	26-Feb-24 A
A2930	Insulation resistance test	5	21-Nov-23,	26-Feb-24 A
A2940	Lux measurement	5	28-Nov-23,	26-Feb-24 A
MMRDA_PKG 4-6.7.5.4.5	High mast & HDPE pipe works			
A2980	Checking & confirmation of Lightning Protection provision	8	07-Nov-23,	25-Jan-24 A
A2960	Insulation resistance test	5	14-Nov-23,	24-Jan-24 A
A2970	Lux measurement	5	21-Dec-23,	25-Jan-24 A
MMRDA_PKG 4-6.7.5.6	Noc & EIG Clearance			
MMRDA_PKG 4-6.7.5.6.1	MAB			
A3580	Application	2	27-Nov-23,	30-Nov-23,
A3600	Clearance From Goverment Authorities	2	20-Dec-23,	25-Dec-23,
A3590	Inspection & Testing	5	10-Dec-23,	20-Dec-23,
MMRDA_PKG 4-6.7.5.6.2	Food Plaza 1			
A3610	Application	2	28-Nov-23,	30-Nov-23,
A3630	Clearance From Goverment Authorities	2	16-May-24	18-May-24



Actual Level of Effort | Actual Work | Critical Remaining Work
Primary Baseline | Remaining Work | Milestone

TASK filter: All Activities

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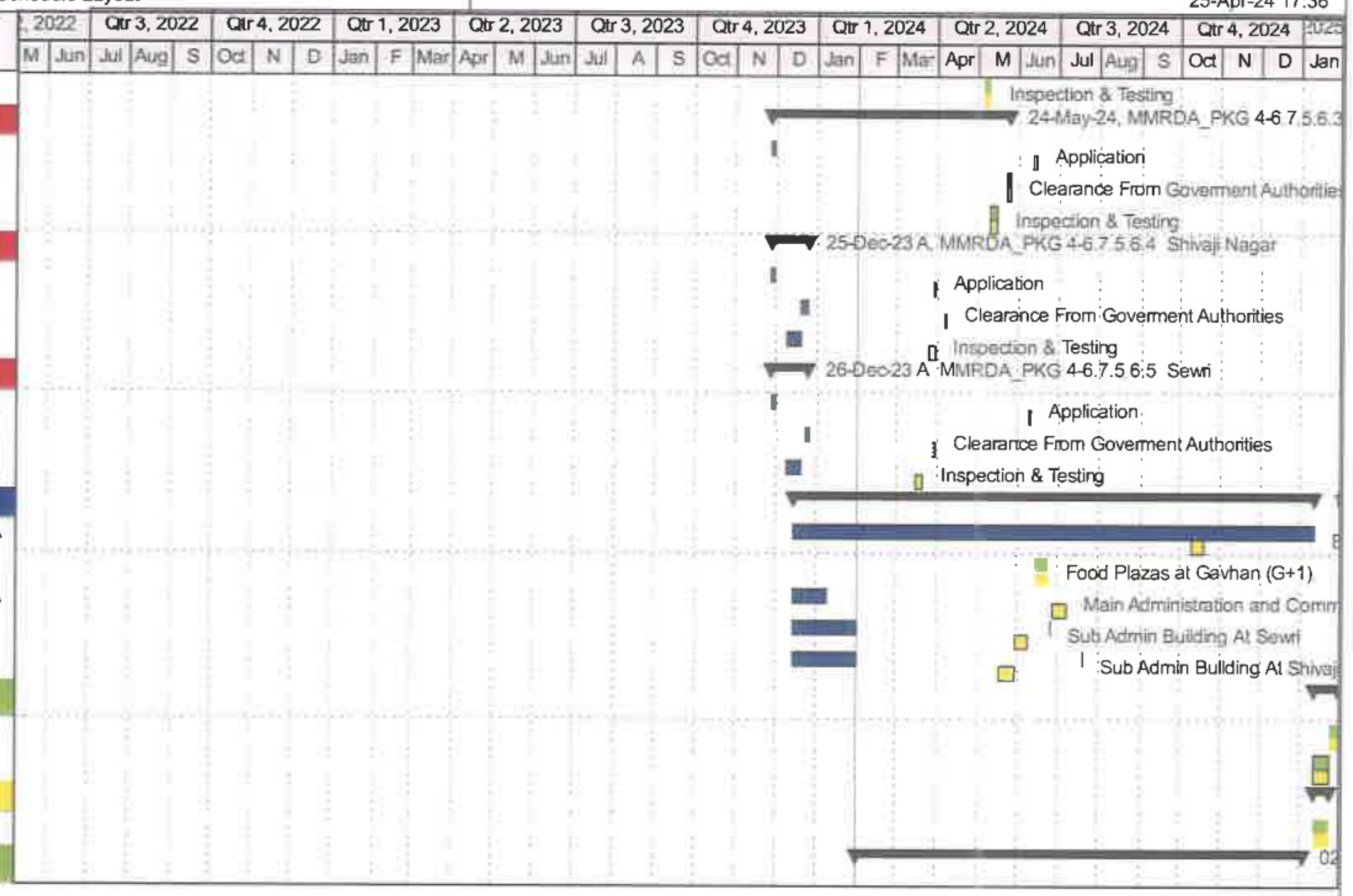
Activity ID	Activity Name	Original Duration	Start	Finish
A3620	Inspection & Testing	5	04-May-24	09-May-24
MMRDA_PKG 4-6.7.5.6.3	Food Plaza 2			
A3640	Application	2	27-Nov-23	30-Nov-23
A3660	Clearance From Goverment Authorities	2	22-May-24	24-May-24
A3650	Inspection & Testing	5	10-May-24	15-May-24
MMRDA_PKG 4-6.7.5.6.4	Shivaji Nagar			
A3670	Application	2	28-Nov-23	30-Nov-23
A3690	Clearance From Goverment Authorities	2	20-Dec-23	25-Dec-23
A3680	Inspection & Testing	5	10-Dec-23	20-Dec-23
MMRDA_PKG 4-6.7.5.6.5	Sewri			
A3700	Application	2	28-Nov-23	30-Nov-23
A3720	Clearance From Goverment Authorities	2	23-Dec-23	26-Dec-23
A3710	Inspection & Testing	5	10-Dec-23	20-Dec-23
MMRDA_PKG 4-6.7.5.7	T&C			
MMRDA_PG4_5980	Bridge illumination & Other Releated Works	8	15-Dec-23	10-Jan-25 A
MMRDA_PG4_5930	Food Plazas at Gavhan (G+1)	9	13-Jun-24	24-Jun-24
MMRDA_PG4_5940	Main Administration and Command Control Centre Building with Tolls	9	15-Dec-23	08-Jan-24 A
MMRDA_PG4_5970	Sub Admin Building At Sewri	9	15-Dec-23	25-Jun-24
MMRDA_PG4_5950	Sub Admin Building At Shivaji Nagar	9	15-Dec-23	19-Jul-24
MMRDA_PKG 4-6.8	Project Completion & Handover			
MMRDA_PG4_7800	Customer Acceptance Handing over of Spare parts & special tools	6	22-Jan-25	29-Jan-25
MMRDA_PG4_5981	Punch Points Closure & Completion Certficate	10	10-Jan-25	22-Jan-25
MMRDA_PKG 4-6.8.1	As-Build Documentation			
MMRDA_PG4_7680	As Built Drawing Submission, O&M manuals & other documentations	10	10-Jan-25	22-Jan-25
MMRDA_PKG 4-6.13	Price Schedule			



Actual Level of Effort | Actual Work | Critical Remaining Work
Primary Baseline | Remaining Work | Milestone

TASK filter: All Activities

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Attachment 10- Project Progress Photos for March 2024

Package 1- Site Progress Photos



Photo 1

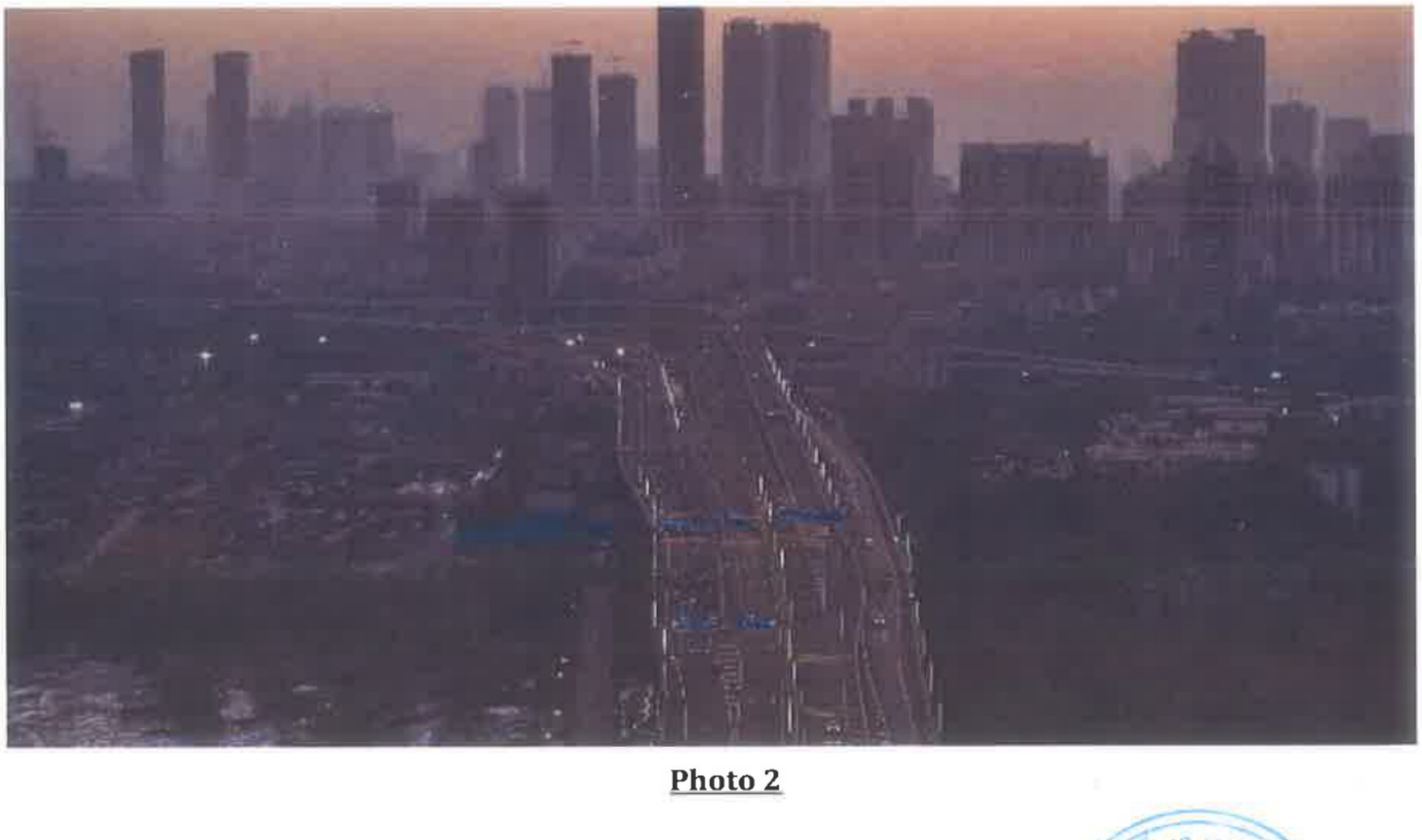

Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9

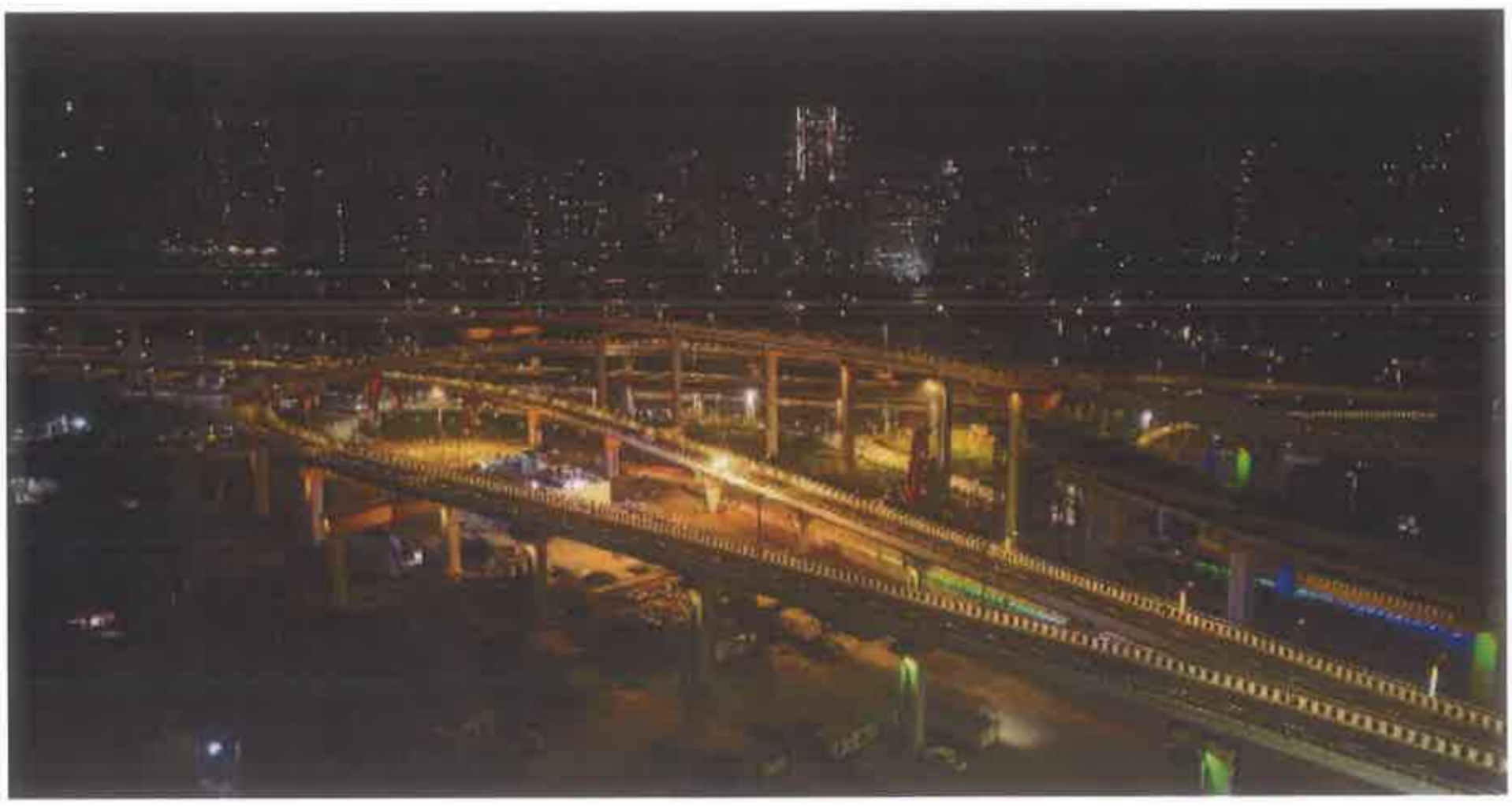

Photo 10



Photo 11



Photo 12



Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20



Photo 21





Photo 23



Photo 24

Package 2- Site Progress Photos



Photo 1-FRP Door Fixing



Photo 2- Median Grating Fixing in Progress



Photo 3- Top Cap Flashing in Progress



Photo 4- Grid Marking at Rescue Station



Photo No 6: Load Test on 180m OSD Span



Photo No 7: Land Scaping Works Preparation in progress



Photo No 8: Noise Barrier Fixng Completed



Photo No 9: MP151-152LHS Crash Barrier Internal Painting in progress



Photo No 10: Gantry Signage Fixing



Photo No 11: Road Marking Works Completed Main Bridge



Photo No 12: SMA Laying on Steel Module-1 LHS



Photo No 13: Temporary Bridge Dismantling in progress



Photo No 14: Signage Gantry Erection



Photo No 15: Steel Module-1 Bond Coat Application



Photo No 16: OSD Section Internal Crash Barrier Painting of Yellow and Whit



Photo No 17: MP171 LHS Expansion Joint Fixing Completed



Photo No 18



Photo No 19



Photo No 20



Photo No 21

Package 3- Site Progress Photos



Photo No 1: Gavan Overview



Photo No 2: At grade Start Point



Location: Pier ID LMP A2 & RMP A2 (Ch. 18+928)

Photo No 3: At grade



Location: Jasal at MPP 1 & MPP 2

Photo No 4



Photo No 5: Jasai Viaduct 2



Photo No 6: Jasai Viaduct 2



Location: Ch. 18+910 to Ch. 19+050

Photo No 7



Location: Ch. 19+352 to 19+400

Photo No 8



Photo No 9: Chirle Interchange



Photo No 10: Chirle Interchange



Photo No 11



Photo No 12



Photo No 13: Riding Quality Test (Bump Integrator) per ER test on completion with MMRDA & GC



Photo No 14: Pavement Composition Test as per ER test on completion with MMRDA & GC.



Photo No 15: Pavement Composition Test as per ER test on completion with MMRDA & GC.



Photo No 16: Landscaping and Beautification works soil barrow visit along with GC





Photo No 17& 18: Glimps of Ambient quality monitoring at Batching plant (Gavan) & Waste Water Collection





Photo No 19 & 20: Glimpse of Ambient quality monitoring at Batching plant (Gavan) & Waste Water Collectio



Photo No 21: EHS meeting conducted



Photo No 2



Photo No 23

Package 4- Site Progress Photos



PH. #01 Gavhan Taper Road



PH. #02.1 Food Plaza-1



PH. #02.2 Food Plaza-2





PH. #03 Gavhan Main Admin Building



PH. #04 Shivaji Nagar Sub-Admin Building



PH. #05 Sewri Sub Admin Building





PH. #06 Shivaji Nagar Service Road – Temporary Road connection to Ramp 3 & 5



PH. #8- Mangroves at Work Site/Area of RAMPS



PH. #9- Mangroves at Work Site/Area of RAMPS



PH. #10- RIL Facilities Hindrances for Nhava Road Construction



PH. #11- RIL Facilities Hindrances for Ramp 1 & Ramp 2 Construction.



PH. #12- 22 KV Line Hindrances for Ramp 1 & Ramp 2 Construction.

Annexure-1 JICA Reimbursement backup Jan-2024

Reimbursement details for the month of Jan 2024

Date of disbursement	Amount of Disbursement in JPY
12-Jan-24	JPY 8,06,82,282
12-Jan-24	JPY 3,59,35,458
Total Amount	**JPY 11,66,17,740**

Annexure VII

Actual expenditure incurred on the environmental management plans for (Half yearly)

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

C - 14 / 15, MMRDA Office Bulding
Bandra Kurla Complex, Bandra (E).
Mumbai - 400051
PAN : AAATM7106R

MTHL - Fixed Asset

Group Summary

1-Apr-23 to 31-Mar-24

Particulars	Opening Balance	Transactions		Closing Balance
		Debit	Credit	
MTHL - Civil Structure FA		*1,64,62,20,10,429.00*	*1,56,39,09,099.00*	1,63,05,81,01,330.00 Dr
MTHL - Land Acquisition		*9,79,94,66,768.00*		9,79,94,66,768.00 Dr
Grand Total		***1,74,42,14,77,197.00***	***1,56,39,09,099.00***	**1,72,85,75,68,098.00 Dr**

Annexure VIII

Status report on Mangrove plantation



Monitoring and mitigating the impacts of Mumbai Trans-Harbour Link on flamingos and other avifauna and formulating a conservation blueprint for the Sewri-Nhava Seascape

Annual Report

2022-2023

Submitted to

"Conservation of nature, primarily biological diversity, through action based on research, education and public awareness."

Bombay Natural History Society

Hornbill House, Shaheed Bhagat Singh Road Opposite Lion Gate, Fort, Mumbai 400 001.

www.bnhs.org, director@bnhs.org

2023

Recommended Citation:

Khot, R. S. Bajaru, M. Prabhu, R. Pitale, S. Sankpal, P. Khadanga, K. Dalvi, A. Manna, D. Dalai, S. Pandey, D. Gaikwad, M. Shaikh, R. Sequeira, K. Akhil, S. Anand, M. Shaikh, A. Medhi (2023): Monitoring and Mitigating the impacts of Mumbai Trans-Harbour Link on flamingos and other avifauna and formulating a conservation blueprint for the Sewri–Nhava seascape. Sixth annual report (2022-2023). Submitted to Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra, pp. 1- 57

ACKNOWLEDGEMENT

We are thankful to PCCF Maharashtra Forest Department for providing bird ringing and flagging permissions, Shri. S V Ramarao (IFS) APCCF and Director Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra and his team, Metropolitan Commissioner and Executive Engineers of MMRDA-MTHL project and his team, Commissioner of Police, Mumbai and Navi Mumbai, for their respective permissions and cooperation to execute the project. We would like to extend our thanks to the following BNHS staff Mr Vishwas Shinde, Mr Rajendra Pawar, Mr Vikas Pisal, Mr Ashok Pisal, Mr Akash Patil, Mr Vithoba Hegde, Mr Shyam Jadhav, Mr Shribrij Prajapati, Administration and Account departments of BNHS for their constant support and assistance during the fieldwork and day-to-day functioning of the project work. Thanks to the Publications Department of BNHS for the editorial and Printing support.

Layout and Design – V Gopi Naidu

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Disclaimer

The observations represented in this report are based on study duration mentioned in the report. The observations may change or vary depending upon on further surveys and thus it should not be used as a stand alone report.

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Abbreviations:

MTHL	Mumbai Trans Harbour Link
IBCN	Indian Bird Conservation Network IBCN
IBA	Important Bird Area
MMRDA	Mumbai Metropolitan Region Development Authority
WCS	Wetland Count Survey
FCS	Flamingo Count Survey
TCS	Transact Count Survey
TSC	Training Ship Chanakya
BPS	Bhandup Pumping Station
DPS	Delhi Public School
NRI	Non-residential Indian Complex
IUCN	International Union for Conservation of Nature
VU	Vulnerable
NT	Near Threatened
LC	Least Concerned

SUMMARY

The migratory bird population in wetlands was increased from the winter till spring afterwards their numbers were relatively constant during summer migration season. On the other hand, the resident bird populations showed variations across seasons ranged from 559 to 1890 individuals. A large congregation of the Lesser flamingo was recorded inhabiting at TSC (8400) and DPS wetlands (7300) whereas Greater flamingo congregation was observed mainly at DPS wetland (670). Previously they were seen inhabiting nearby Non-Residential Indian complex (NRI) wetland for roosting (Apte et. al 2018 and 2019).

A gradual change in the abundance of birds was observed at Thane creek from October (81843) to May (8763). Abundance of migratory shorebirds reached its peak in December (93210) whilst the lowest number of individuals were recorded in May (8042). On the other hand, resident bird population was stable throughout season ranging from 721 to 2676 individuals. We found that the migratory shorebirds showed preference towards certain areas of the creek such as mudflats near Ghansoli and Vashi.

The lesser flamingo population was lowest in September and November 2022 while later population increased remarkably until April. Overall, average 38587 (SD = ±28376) Lesser flamingos were recorded in creek, ranged from 7026 to 68322, excluding September and October counts. On the other hand, Greater flamingo abundance in 2022-23 was lowest compared to last year, ranged from 30 to 28015, average 8106 (SD = ± 9579). At both the construction sites Lesser flamingos were predominantly higher in number than Greater flamingos. Maximum Lesser flamingos were recorded at Sewri (19017) and Nhava (31371) and Greater flamingos at Sewri (1610) and Nhava (2889).

In total, 124 behaviour recording sessions were carried along with data on different disturbance regimes. During these sessions, 8520 behaviour videos of 10 migratory shorebird species were recorded. Out of that 2287 videos were recorded at construction site, 3069 at feeding site and 3164 at roosting site.

Introduction

Mumbai is located in the Konkan Plains of the northern Western Ghats. Due to its key geographic position and abundant natural resources, Mumbai has always been a centre of development since the colonial period. It is the financial capital of the nation, and the ninth most populous city in the world, with a current population of 26.6 million (UN 2012). The Mumbai Metropolitan Region Development Authority (MMRDA), the planning authority for Mumbai Metropolitan Region (MIMR), has predicted in its 40-year concept plan that the city would have 44 million inhabitants spread over 1050 sq. km by 2052, which is almost double the present area 603 sq. km (Kamdar 2014). This means there will be tremendous pressure on the already shrunken natural habitats, especially mangroves, coastal mudflats and remnant patches of the natural forests, which will eventually impact the biodiversity (Nagendra et al. 2012). Given the coastal features of the city, the disappearance of the mangroves and mudflats may leave the city not only vulnerable to local environmental issues such as floods, toxic runoffs, siltation and reduction in the groundwater, but also to global disasters such as cyclones, tsunamis and sea-level rise due to global climate change (Kleppel et al. 2006). Alongside the environmental concerns, Mumbai also faces the inevitable need for development.

The Mumbai Trans Harbour Link (MTHL), the 22-km bridge connecting Southern Mumbai (at Sewri) with Southern Navi Mumbai (at Nhava Sheva), is one such developmental project that is set to bring Mumbai closer to its satellite city. The alignment passes over Sewri Mudflat, which is key wintering ground for migratory shorebirds, and is identified as an Important Bird Area (IBA) by the Indian Bird Conservation Network IBCN, (Rahmani et al. 2016). In addition, part of Thane Creek is declared as the Thane Creek Flamingo Sanctuary. The intertidal mudflats in this creek harbour a large congregation of waterbirds including ducks, waders and large proportion of the South Asian population of Lesser Flamingo Pheonicopterus minor, a Near Threatened species (Vijayan et al. 2008).

Habitats along this Indian coasts such as creeks, mangroves, mudflats, salt marshes and wetlands harbour rich coastal and marine biodiversity. This western coast is also considered as the main wintering grounds for the waders migrating from Central or South Asia (Balachandran 2006). The MTHL project is likely to affect waterbirds of Sewri Mudfat, Thane Creek and wetlands of Navi Mumbai. Hence, MMRDA has approached BNHS to monitor the impacts of the bridge on flamingos, other avifauna and marine fauna, and suggest a mitigation plan for the conservation of waterbirds and their habitats. The study duration is of 10 years (2017-2027) and is focusing on long-term examination of the ecology of shorebirds and marine benthic fauna with respect to human disturbances, particularly the MTHL bridge construction.

Objectives

1. Estimate the occupancy and abundance of avifauna during pre-construction, construction and post-construction period.
2. Understand the migration pattern and population demographic of the migratory avifauna.
3. Understanding the biological and physicochemical parameters of the foraging grounds of flamingos and waders
4. Study the heavy metal concentration and accumulation in the birds and their food chain
5. Conduct bird conservation training programme for staff involved in construction work of MTHL
6. Study the impact of construction on the foraging habitat (post project monitoring) for suggesting and implementing the restoration measures.

Methodology

Study site

This study was carried out in six inland wetlands (high tide roosting sites)— Training Ship Chanakya (TSC), Bhandup Pumping Station (BPS), Non-Residential Indian (NRI) complex, Mankhurd saltpans, Kharghar wetland, and Belpada mangrove and three mudflats (low tide feeding sites) — the east and west banks of Thane Creek, mudflats of Sewri and Nhava-Sheva.

Land use and land cover map of study area with study sites: Land use and land cover map of the study area was developed using Landsat 8 satellite imagery (January 2018; band combinations = 7, 5 and 3). Wetlands are highlighted with red polygons and the transects with yellow circles. Forest and mangroves appear in shades of green, the darker colour indicates healthy and dense vegetation; urban areas are marked with cyan or purple; and soil colours vary from dark to light brown; moist soils are darker.

Bird sampling

We counted shorebirds during high tide at high tide roosting sites following WCS protocol and during low tide at foraging sites following TCS protocol. In addition, flamingos were counted separately during low tide at feeding sites using FCS protocol. We also recorded shorebirds behaviour at roosting, feeding and construction sites. Bird ringing was carried out at high tide roosting sites during high tide (for details of the sampling protocol, please refer to Apte et al. 2018 and 2019 —unpublished reports). All these surveys were conducted between September 2022 to May 2023.

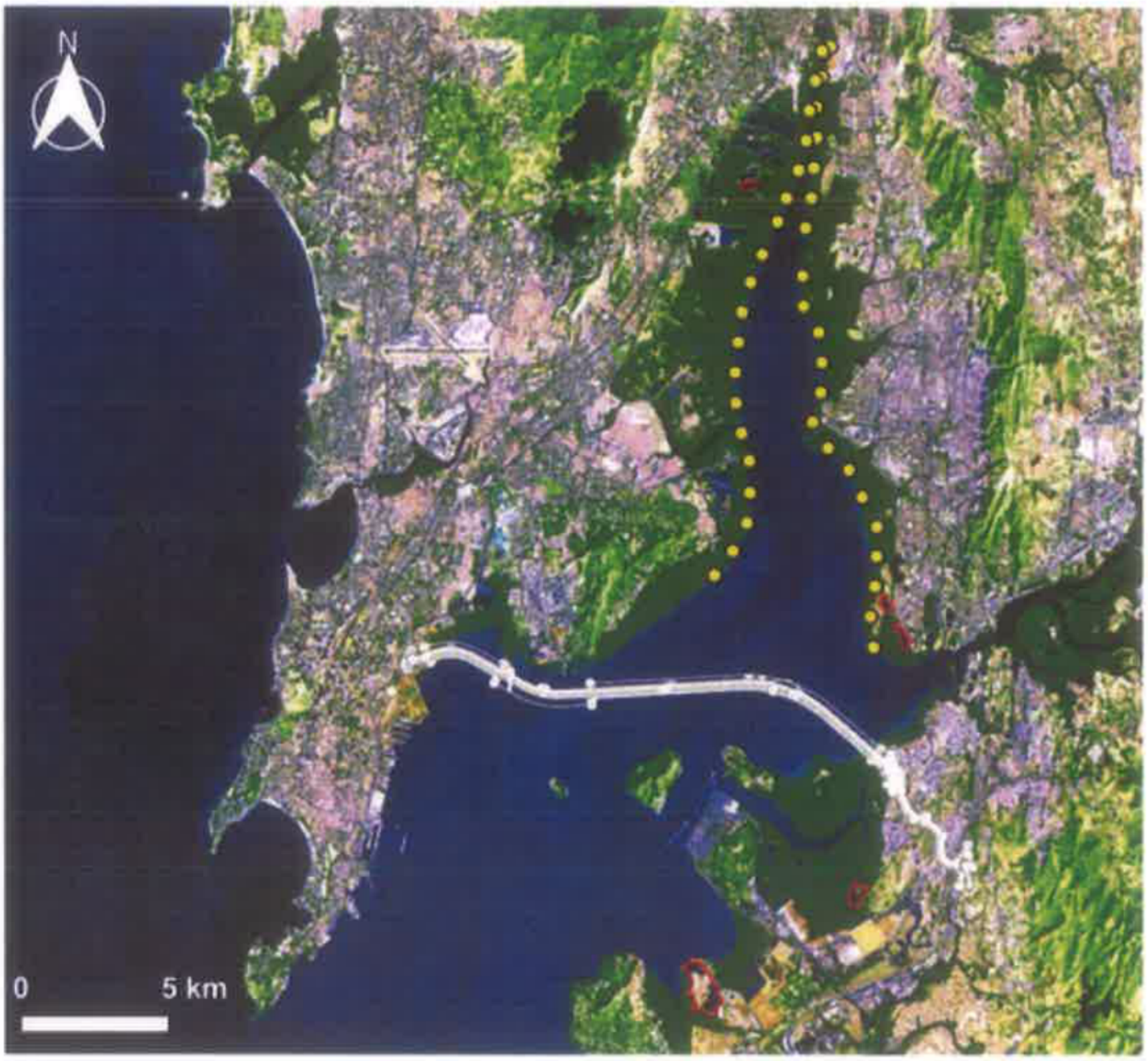


Fig. 1. Land use and land cover map of study area with study sites

PRELIMINARY OBSERVATIONS

Wetland Count Survey (WCS)

Overall, 71 species (45 migrants and 26 residents) of waders and raptors were recorded from the wetlands/high tide roosting sites. Migratory shorebird abundance increased gradually till March followed and being stable in in April and May during return migration (Fig. 2). Overall, maximum number of migratory shorebirds were recorded in March (33892) and minimum 15650 individuals were observed in September (Fig. 2). A considerable amount of variation was observed in the number of resident shorebirds throughout the seasons in which most abundance was recorded in the month of February 2023 (1890) and least in May 2023 (559) (Fig. 3).

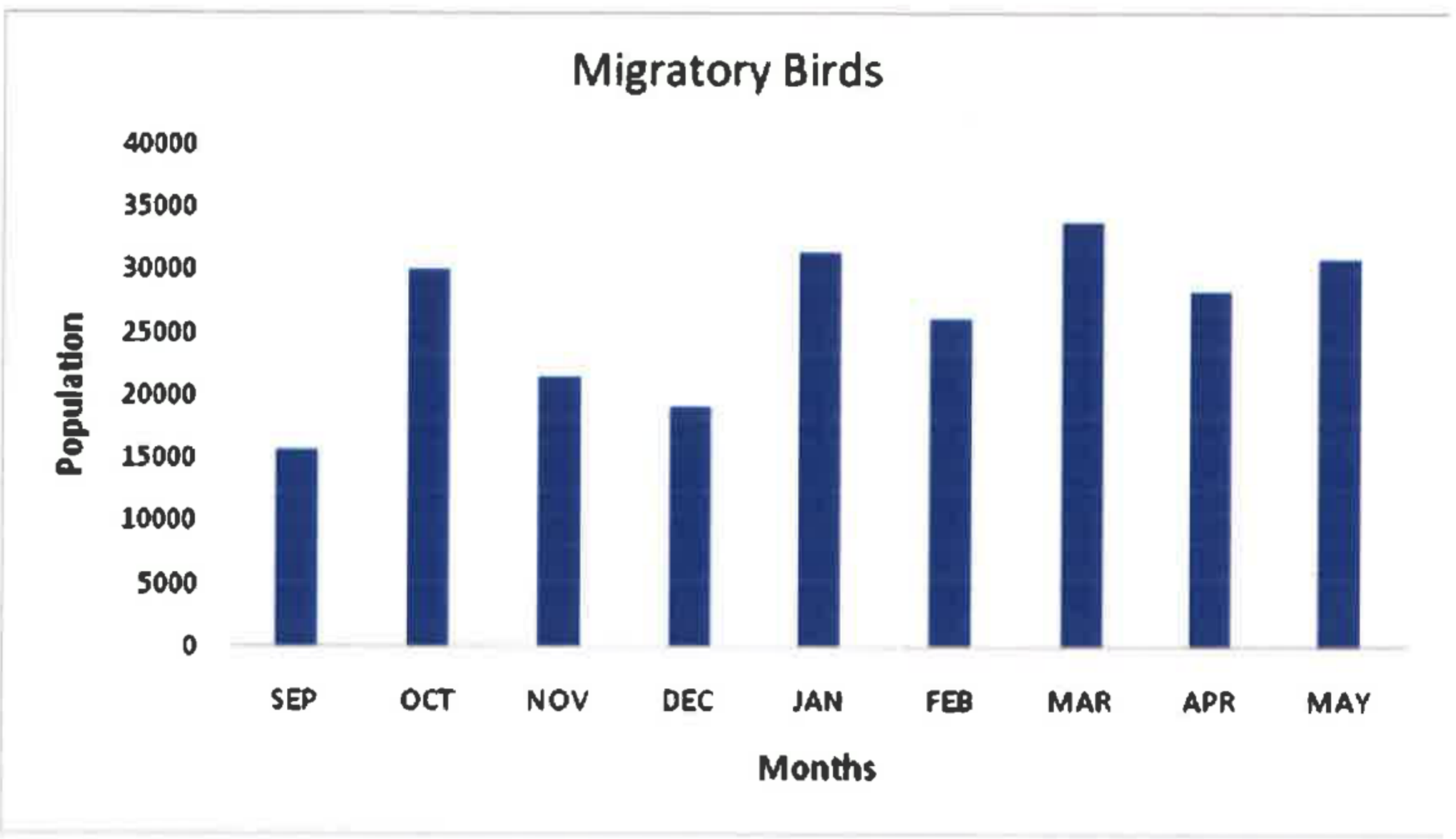


Fig. 2. Migratory shorebirds abundance in the wetlands from Sep 22—May 23

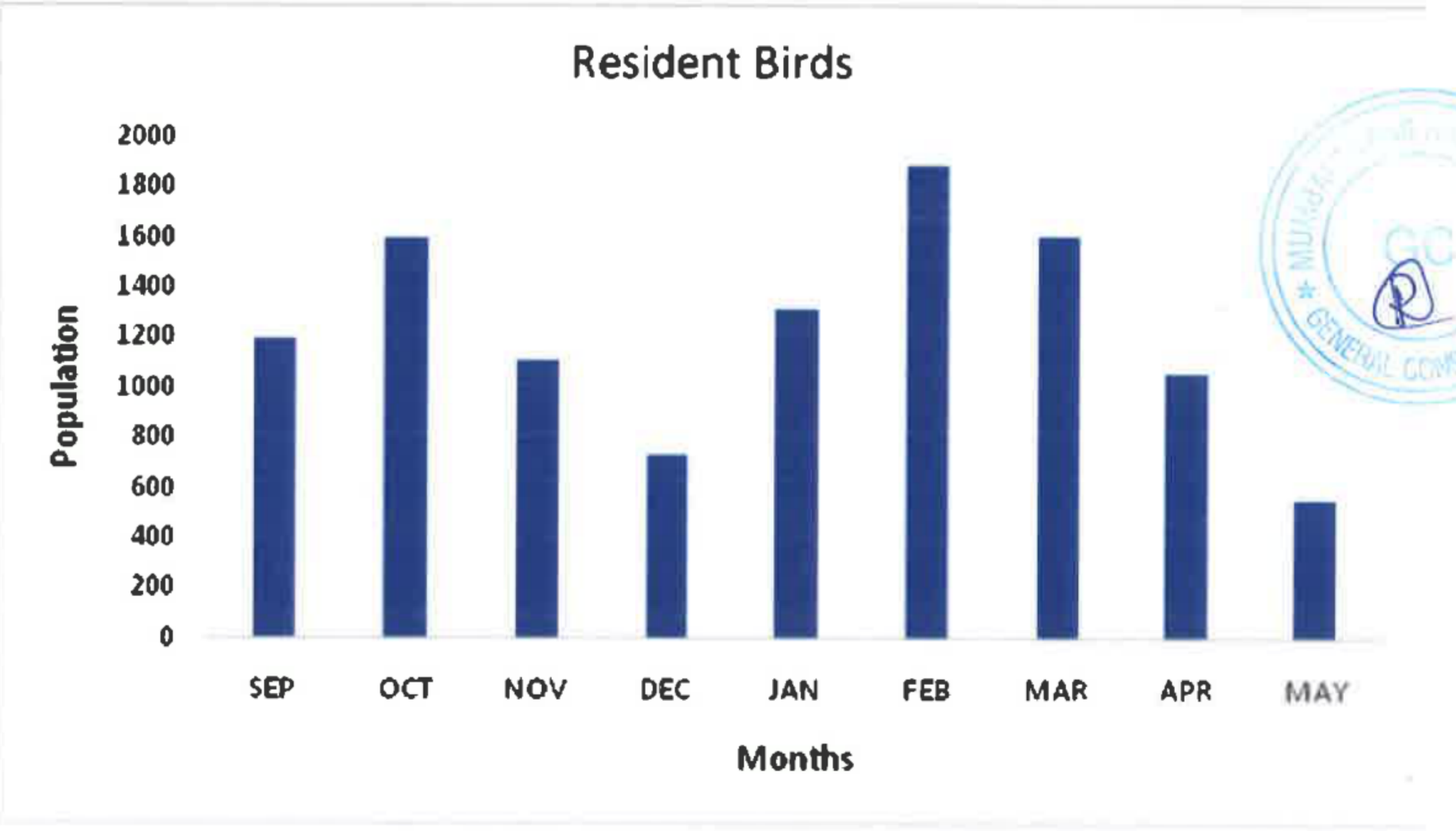


Fig. 3. Resident bird abundance in the wetlands Sep 22—May 23

Among all the wetlands, DPS (8259 in March) and Mankhurd (15182 in January) supported a substantially high number of migratory shorebirds, followed by BPS (24949 in October) and TSC (16618 in May) in 2023 (Fig. 4).

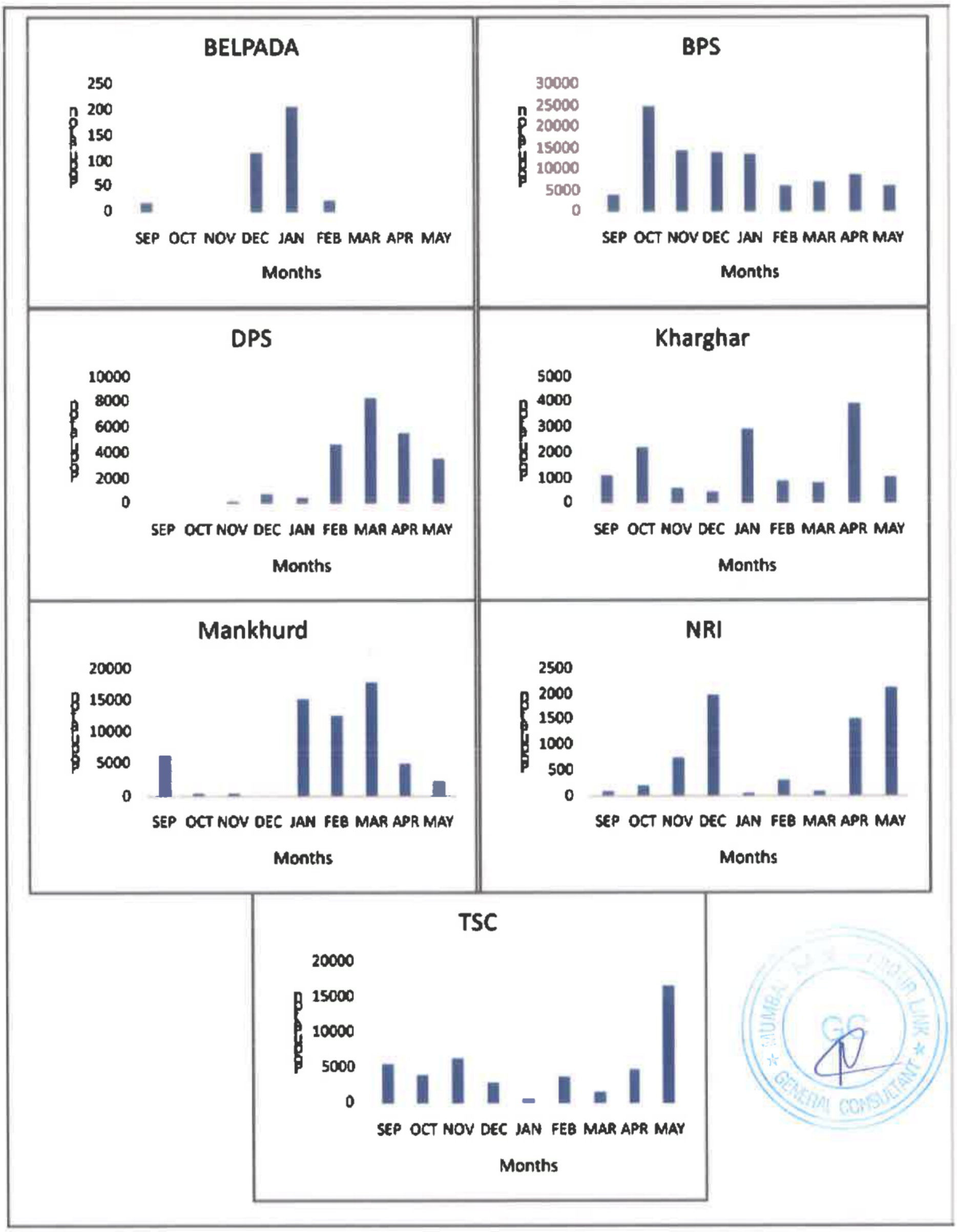


Fig. 4. Site-specific abundance of the shorebirds in the wetlands Sep 22—May 23

As observed in 2021-22, DPS and TSC were the most preferred hightide roosting sites for Flamingos in 2023 as well (Table 1). These observations highlight the importance of the network of wetland/high-tide roosting sites in the long run for the conservation of migratory shorebirds.

Table 1: Maximum count of Flamingos observed at each wetland from Oct 2022-May 2023

Site	Lesser flamingo	Greater flamingo
Belpada	0	0
BPS	460(May)	350 (March)
TSC	8400 (May)	210 (March)
NRI	2000 (May)	27 (May)
DPS	7300 (March)	670 (March)
Khargar	0	0
Mankhurd	0	0

We observed temporal variation in species richness across all wetlands from September 2022 to May 2023. The highest species richness was observed in Mankhurd, NRI and DPS (47 species at all three wetlands) in January 2023 (Fig. 5).

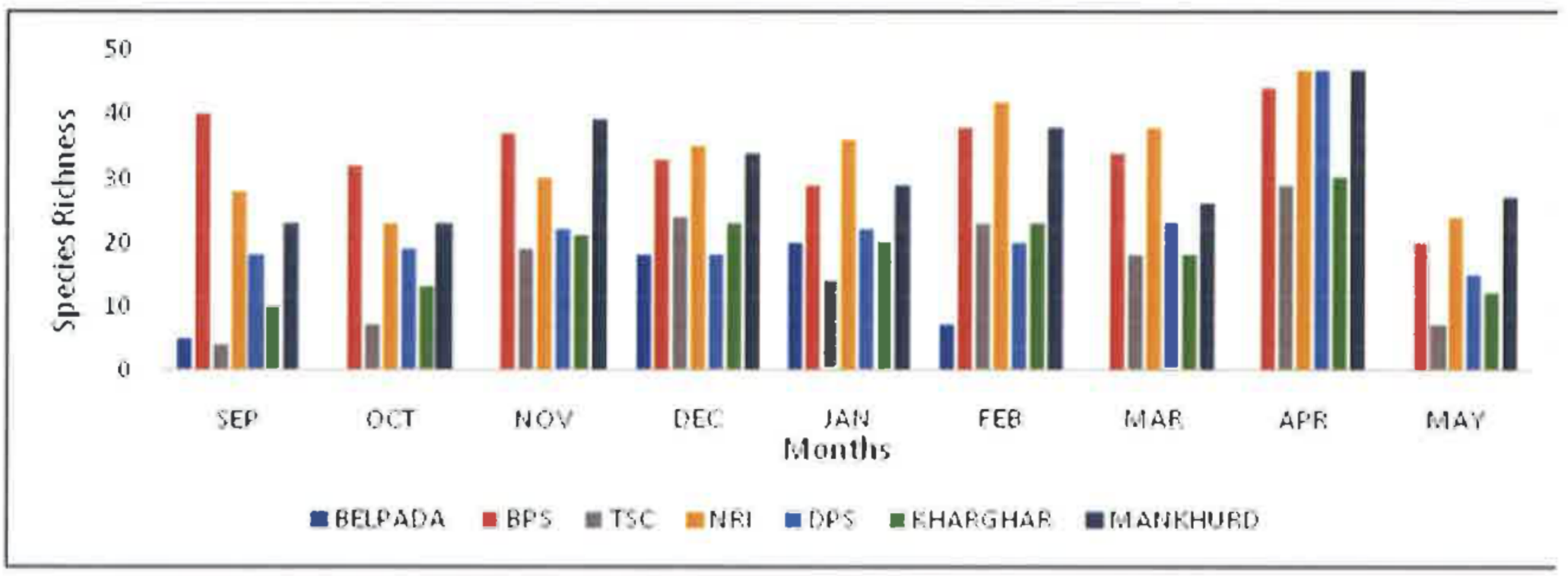


Fig. 5. Species richness of migratory shorebirds in the wetlands Sep 22—May 23

We recorded nine Near-threatened, one Endangered and three vulnerable (IUCN 2023). species during this study (Table 2).

Table 2. Threatened species recorded during wetland survey

Sr. No.	Threatened species	IUCN status
1	Painted Stork (*Mycteria leucocephala)*	NT
2	Lesser Flamingo (*Phoeniconaias minor)*	NT
3	Black-headed Ibis (*Threskiornis melanocephalus)*	NT
4	Black-tailed Godwit (*Limosa limosa*)	NT
5	Eurasian Curlew (*Numenius arquata)*	NT
6	Great Knot (*Calidris tenuirostris)*	EN
7	Curlew Sandpiper (*Calidris ferruginea*)	NT
8	River tern (*Sterna aurantia)*	VU
9	Bar-tailed Godwit (*Limosa lapponica)*	NT
10	Greater-spotted Eagle (*Clanga clanga)*	VU
11	Asian Woolyneck (*Ciconia episcopus*)	NT
12	Black-capped Kingfisher (*Halcyon pileate*)	VU
13	Red Knot (*Calidris canutus*)	NT

Transect Count Survey (TCS)

Thane Creek

We recorded a total of 82 species of shorebirds and raptors in the creek between September 2022 and May 2023. Among these, 55 species were migratory (51 wader species and 4 raptor species), and 27 were resident birds.

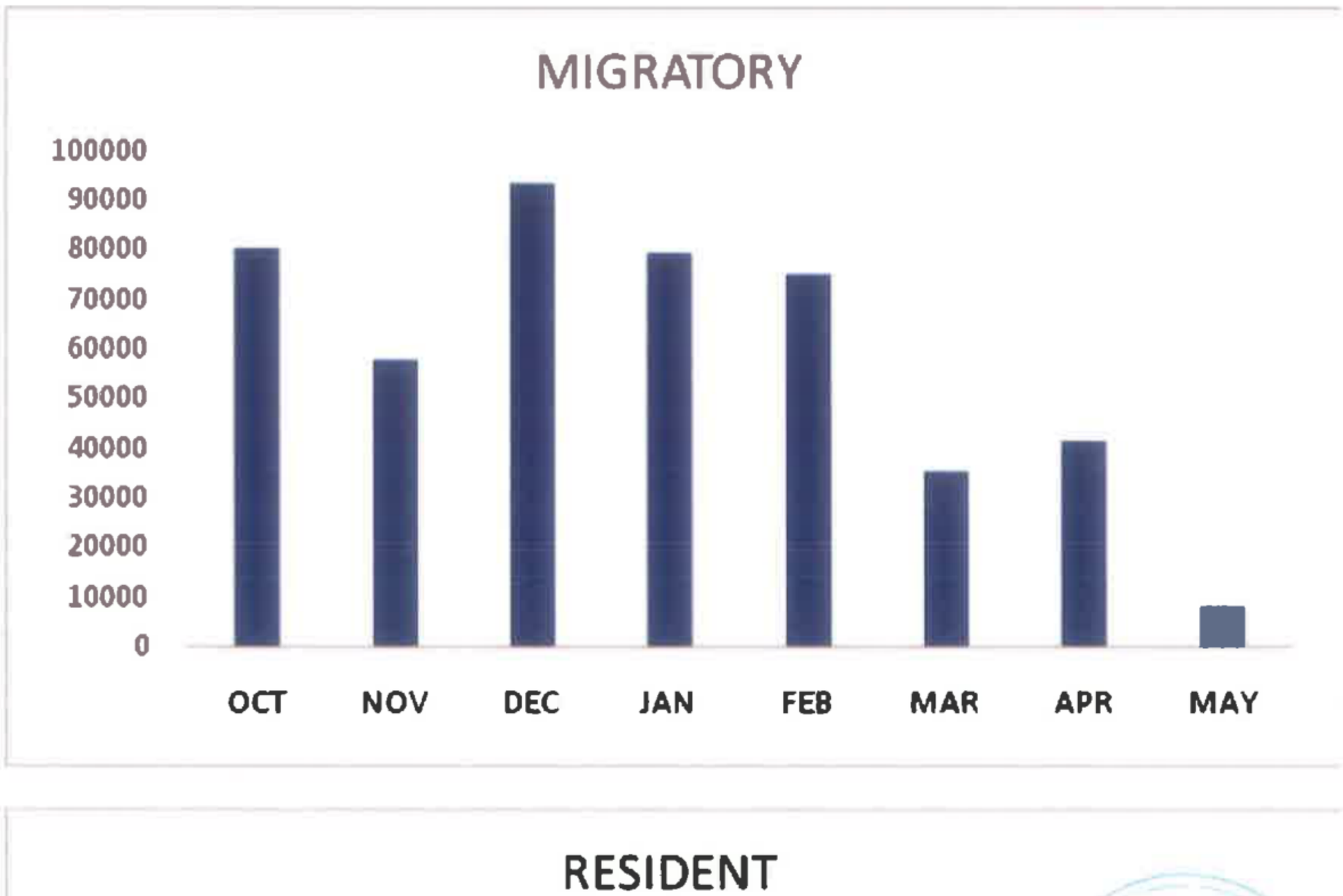


Fig. 6. Abundance of migratory and resident shorebirds in the creek from Sep 22—May 23.

Migratory shorebird population in the creek attained a peak in December (93210 individuals).

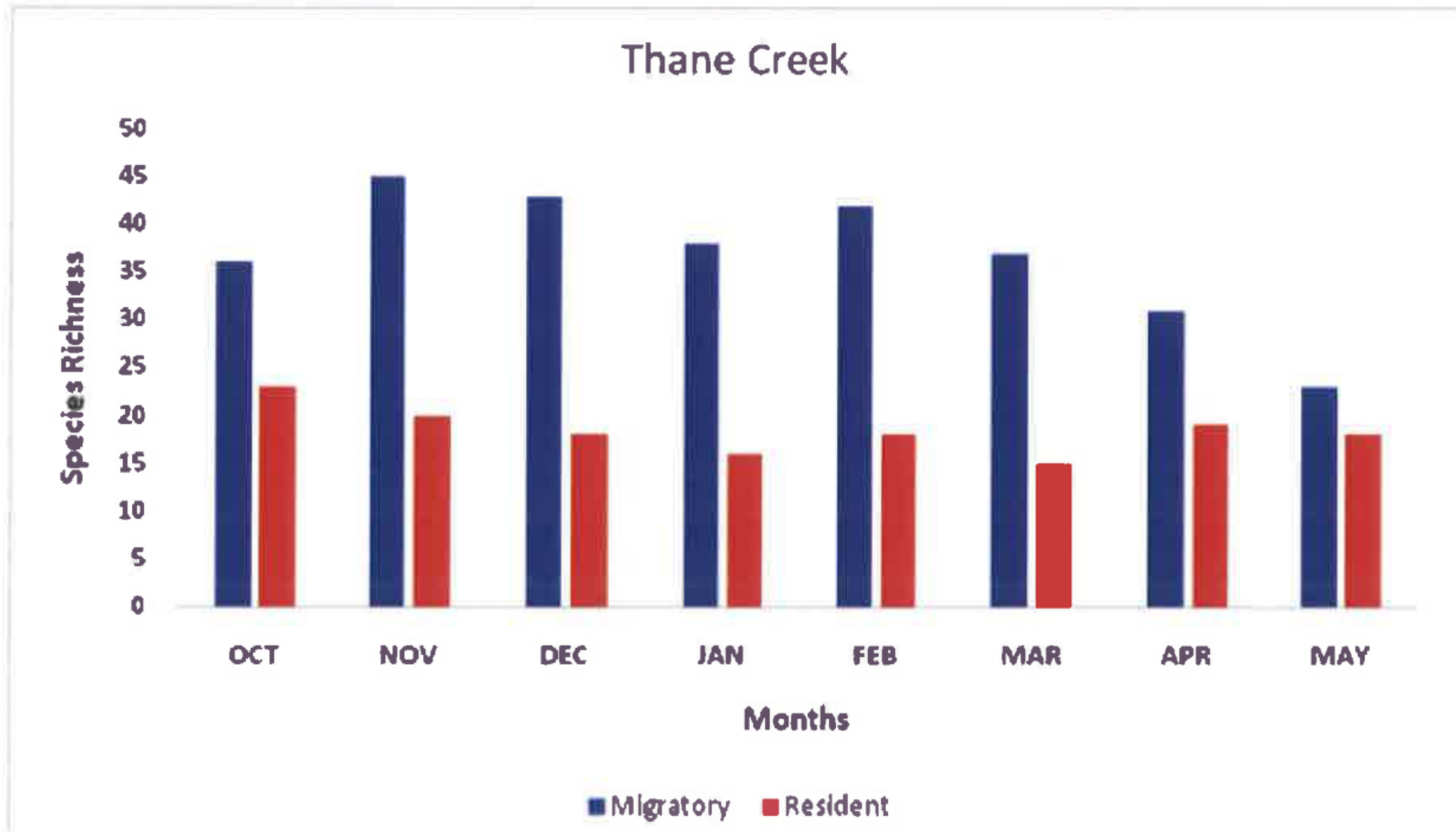


Fig. 7. Species richness of migratory shorebirds and resident birds in the creek Sep 22—May 23

Overall, species richness was maximum in November 2022 (65) in the creek (Fig. 7).

A similar spatial distribution pattern was observed in the creek as seen in 2021-22. The largest congregations were found at Ghansoli (T1 and T40) and Vashi (T29–T34 and T36-T39) (Fig. 8). It indicates that the shorebirds have predominantly preferred the east bank of the creek over the years.

Migratory shorebird counts were highest in January 2023 at Sewri (11152) and September 2023 at Nhava-Sheva (8751) mudflats, and thereafter the numbers declined gradually (Fig. 9).

The maximum 21 migratory species were recorded at Sewri in November 2022 and 17 at Nhava-Sheva in November 2022 and January 2023. The species richness of resident birds remained rather steady throughout the seasons (Fig. 10).

Flamingo Count Survey (FCS)

Abundance of flamingos in the Creek

The highest number of Lesser flamingos were estimated in March 2023 (68322) and the lowest in October (40) and September (363) 2022. The lesser flamingo population increased gradually from November 2022 (7026) to March 2023, but the number reduced in April and May 2023 (Fig.11). Throughout the season, the average number of adult lesser flamingos (89.60%) were substantially higher than that of sub adults (9.03%) and juveniles (1.35%).

In contrast to previous years, Greater flamingos returned in lower numbers in 2023. The lowest number of individuals were recorded in the month of November 2022 (30) which was lowest than the numbers estimated in the previous year. Maximum population of Greater flamingos occupied the creek in March 2023 (28015) (Fig. 12).

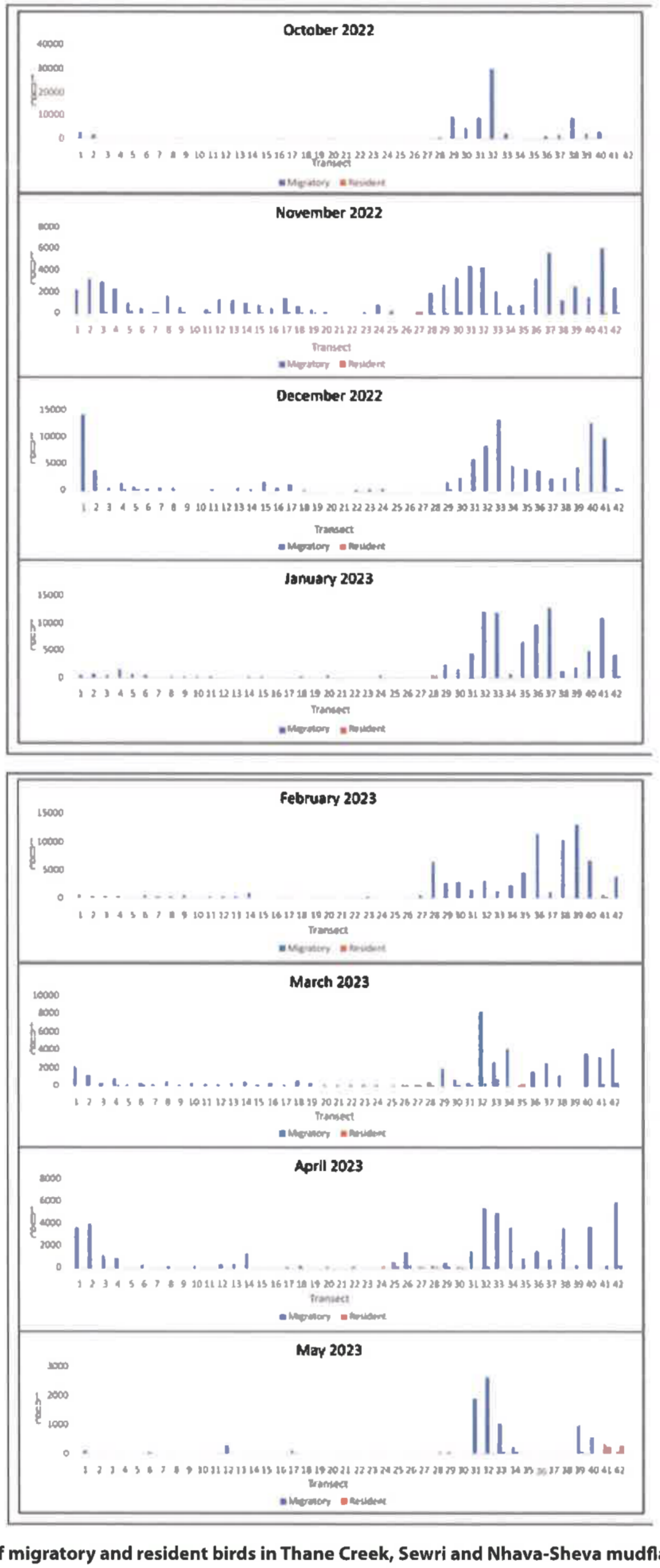
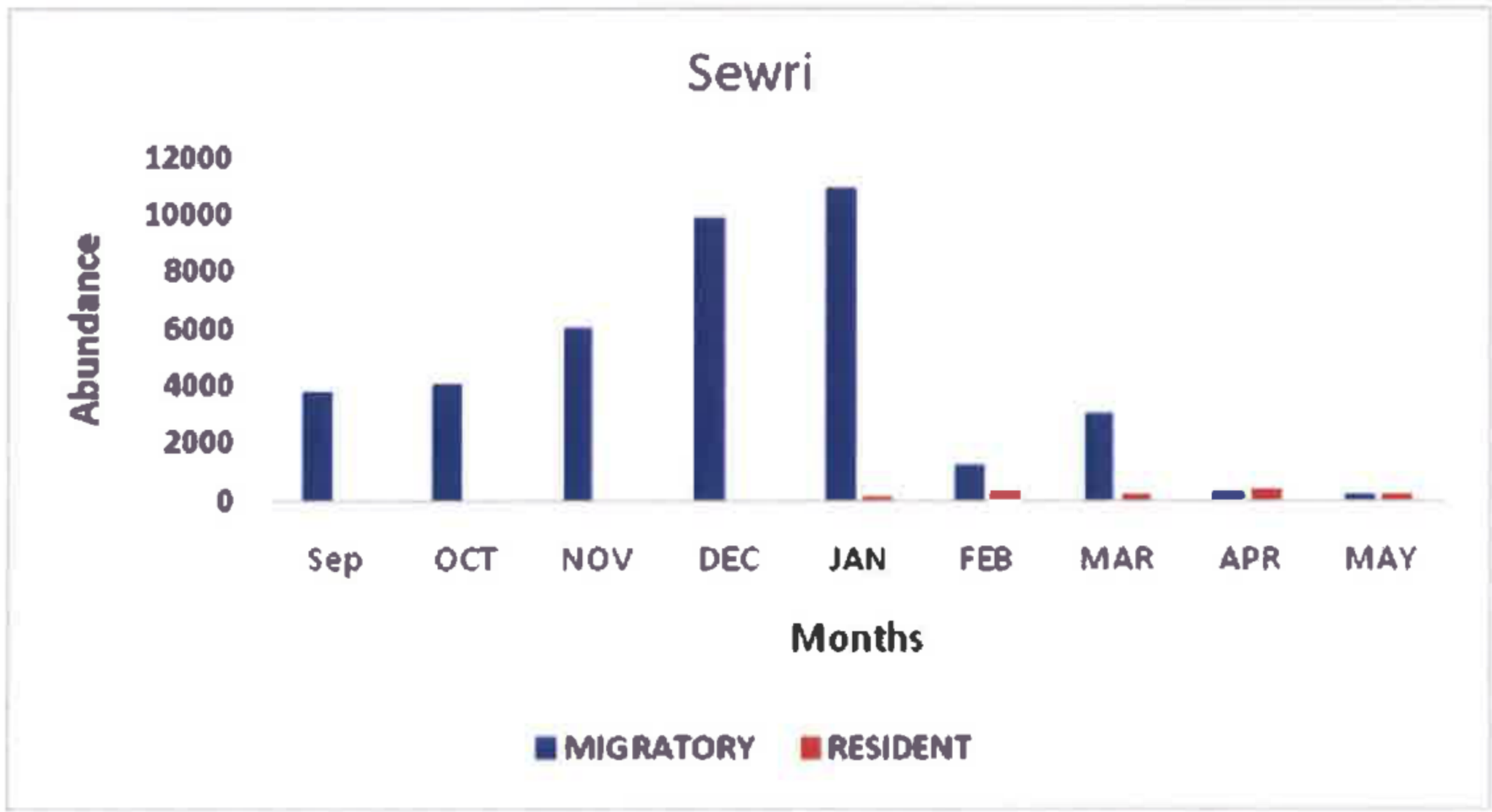


Fig. 8. Abundance of migratory and resident birds in Thane Creek, Sewri and Nhava-Sheva mudflats Oct 22—May 23



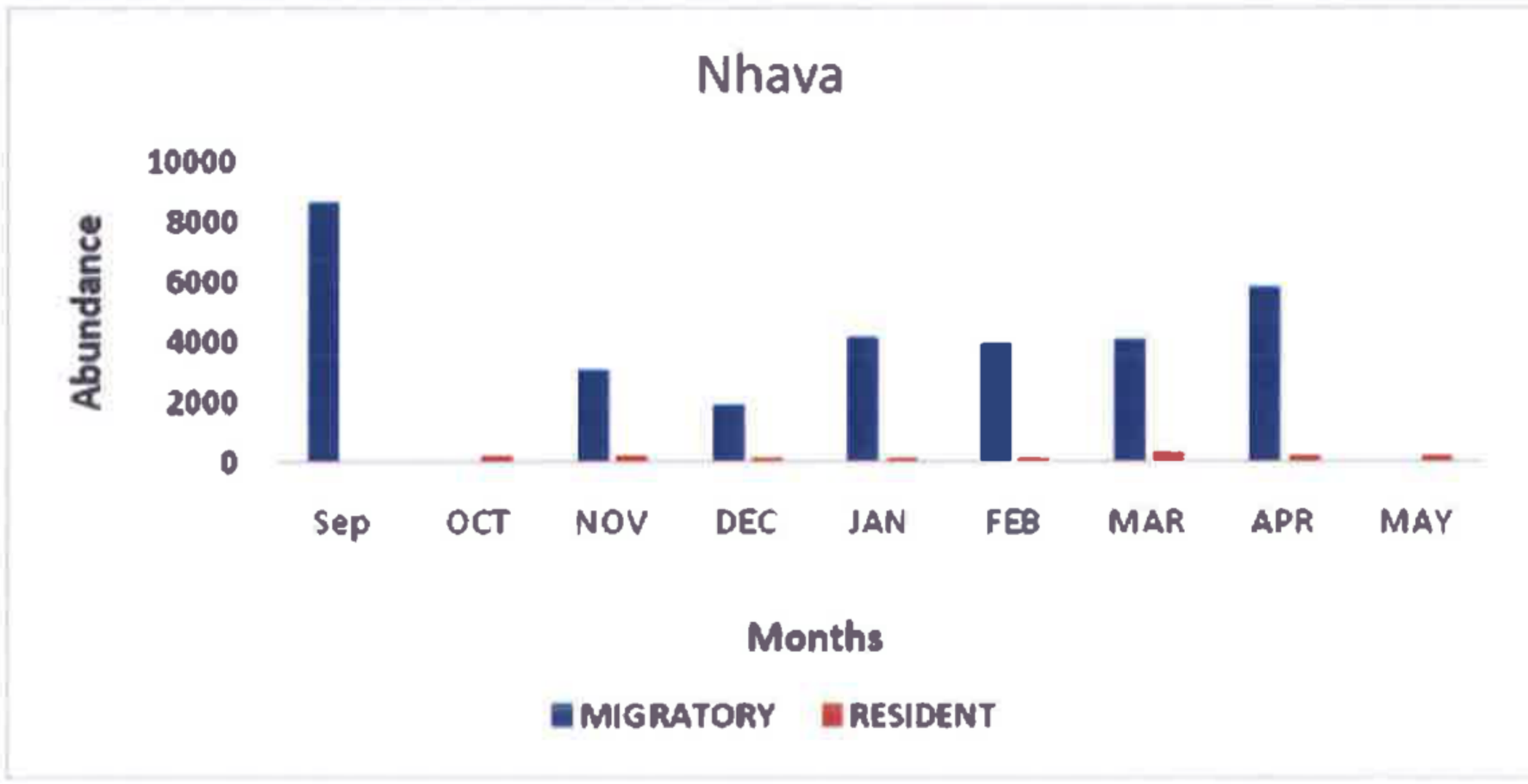
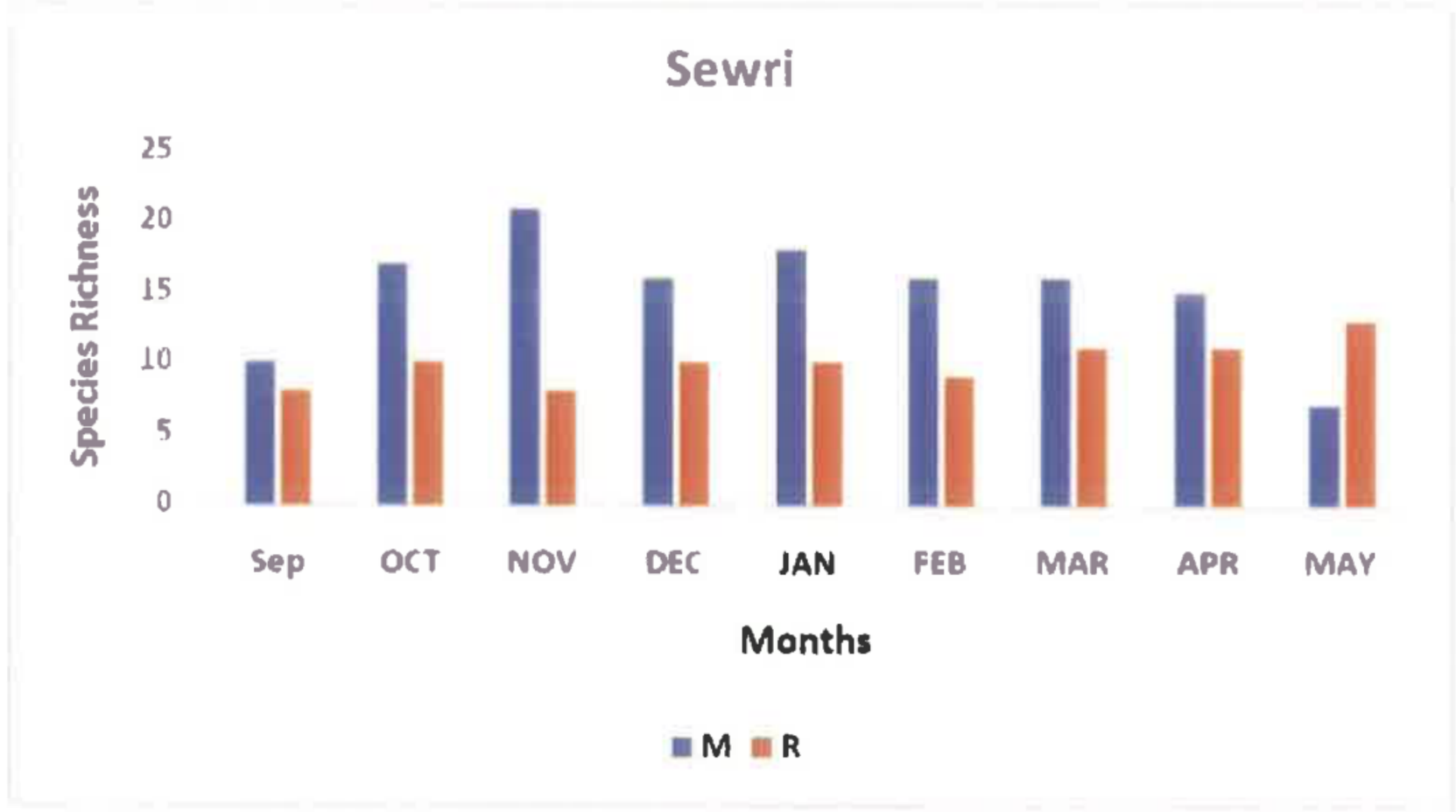


Fig. 9. Abundance of migratory and resident birds at Sewri and Nhava-Sheva mudflats Sep 22—May 23

The abundance of Flamingos at Sewri was irregular throughout the year where the population of Lesser flamingos peaked directly in January (15885) and February (19017) 2023. Greater flamingos were lower in number (1625 in February) compared to Lesser flamingos but the numbers were lower than what was recorded in the previous year. A similar pattern was observed at Nhava-Sheva but very few Greater flamingos preferred Nhava-Sheva throughout the year (less than 10 individuals) except in the month of April (2889) 2023. Proportion of adult flamingo population was highest at both the sites followed by sub-adults and juvenile (Fig. 13 & 14).



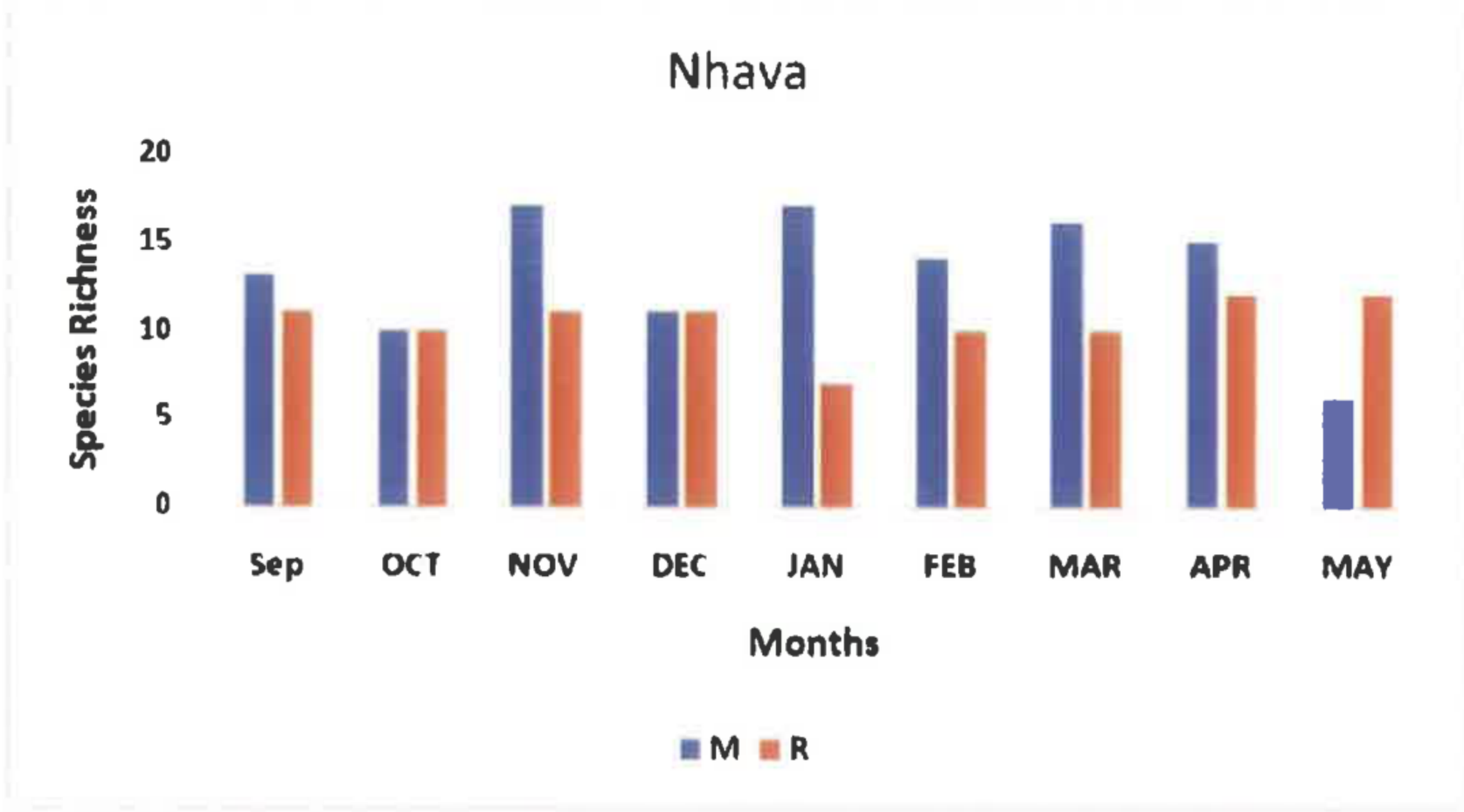


Fig. 10. Species richness at Sewri and Nhava-Sheva mudflats Sep 22 —May 23

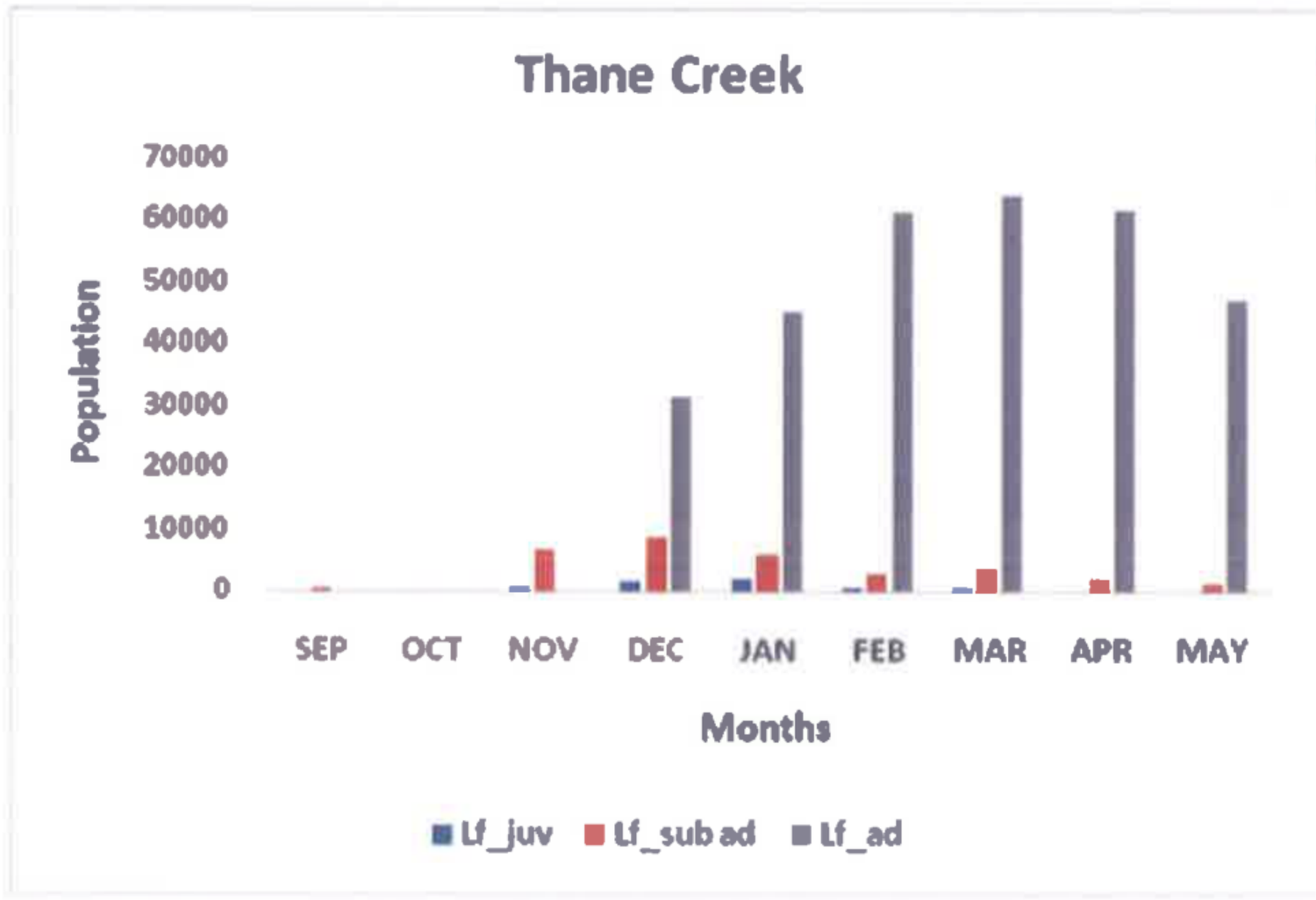


Fig. 11. Population of Lesser Flamingos recorded from Thane Creek Sep 22—May 23

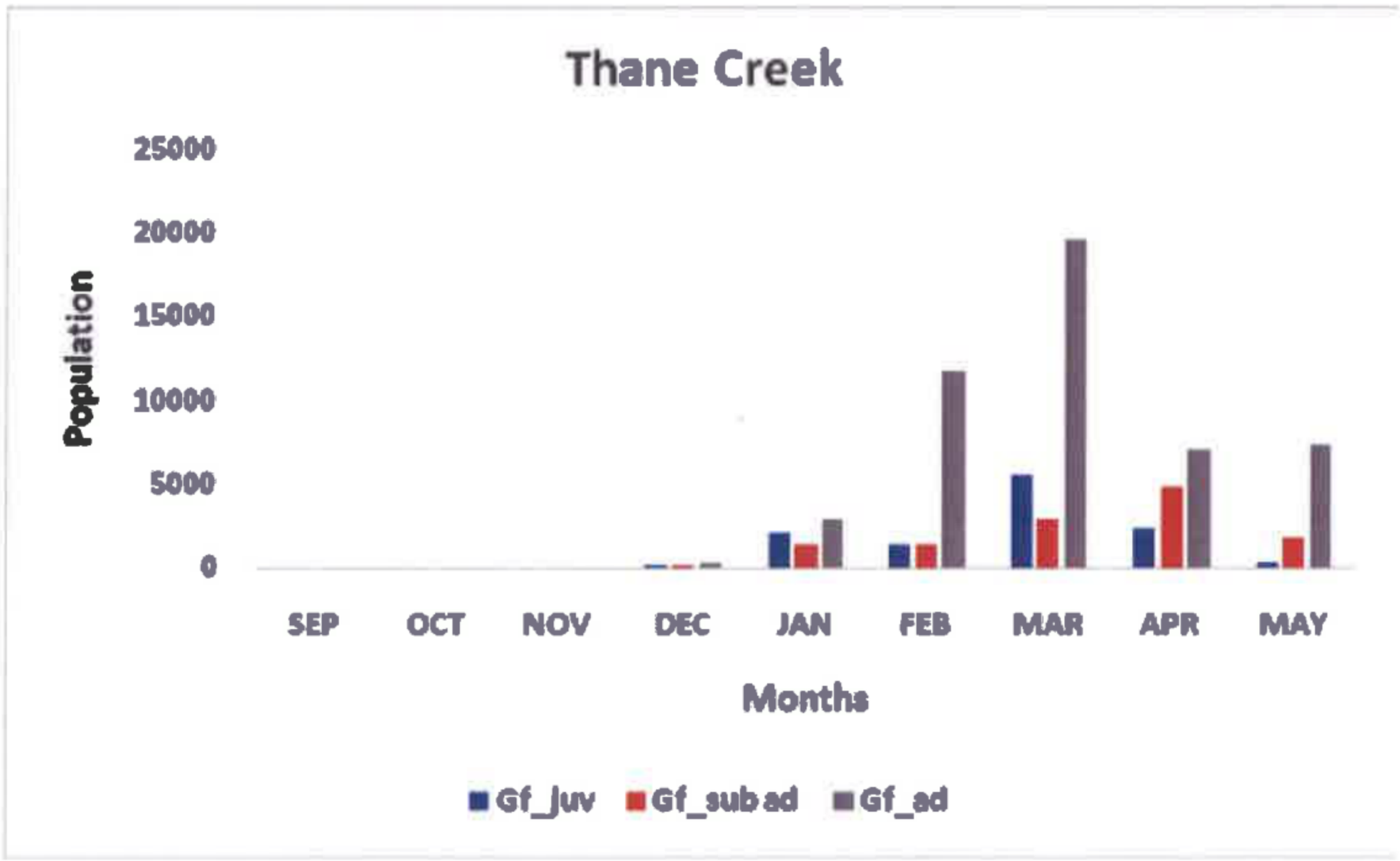
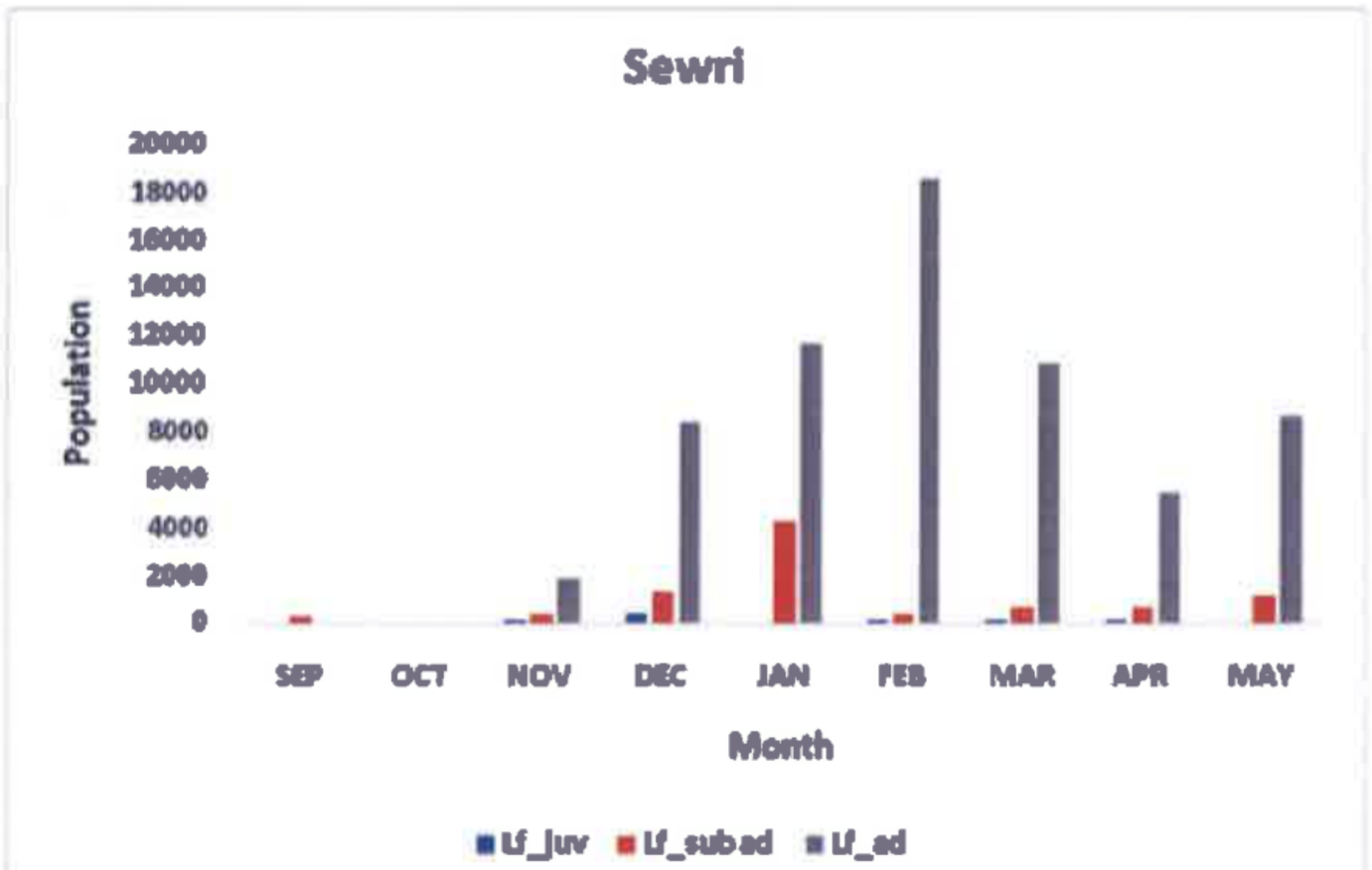


Fig. 12. Population of Greater Flamingos recorded from Thane Creek Sep 22—May 23



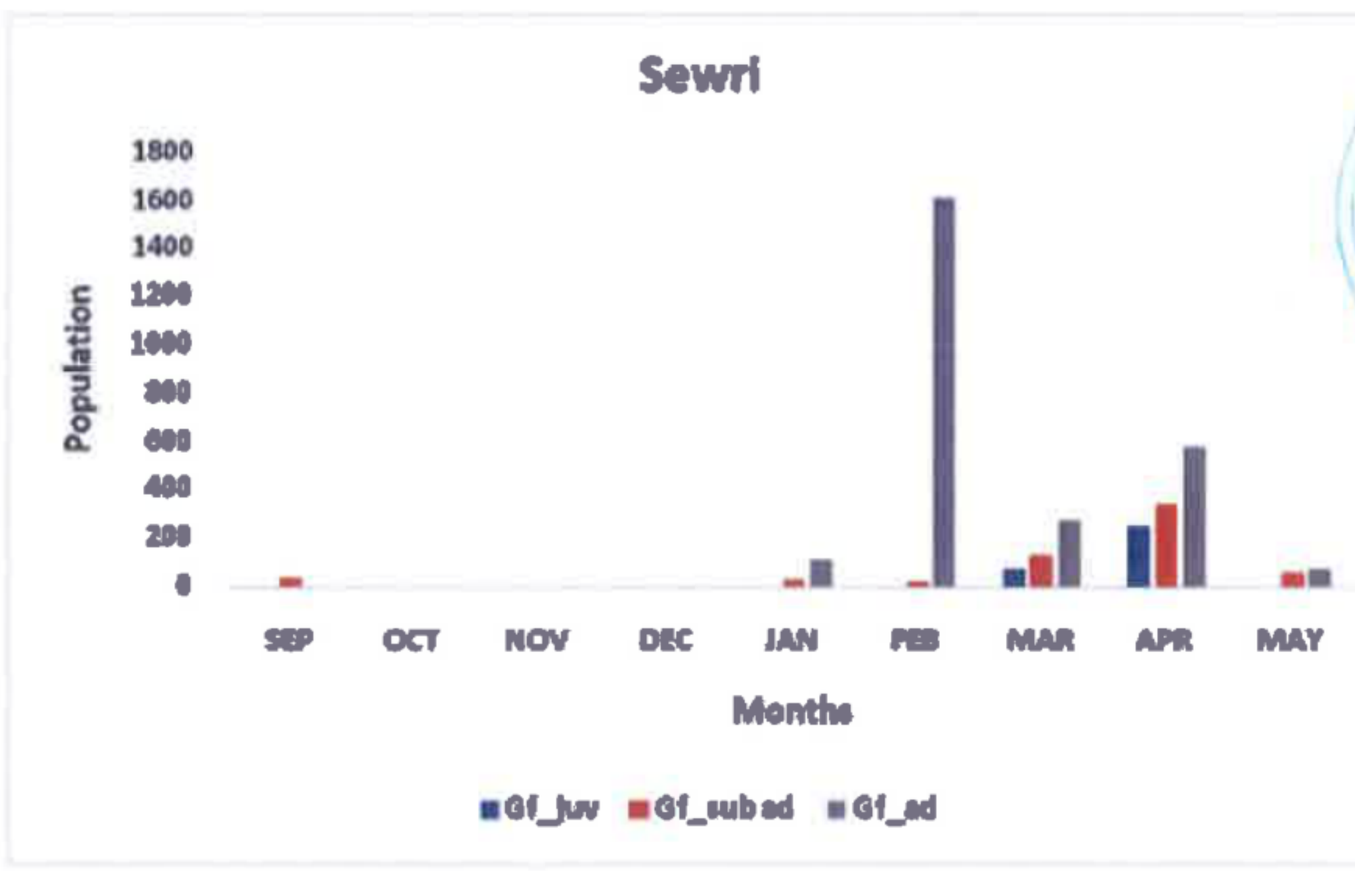
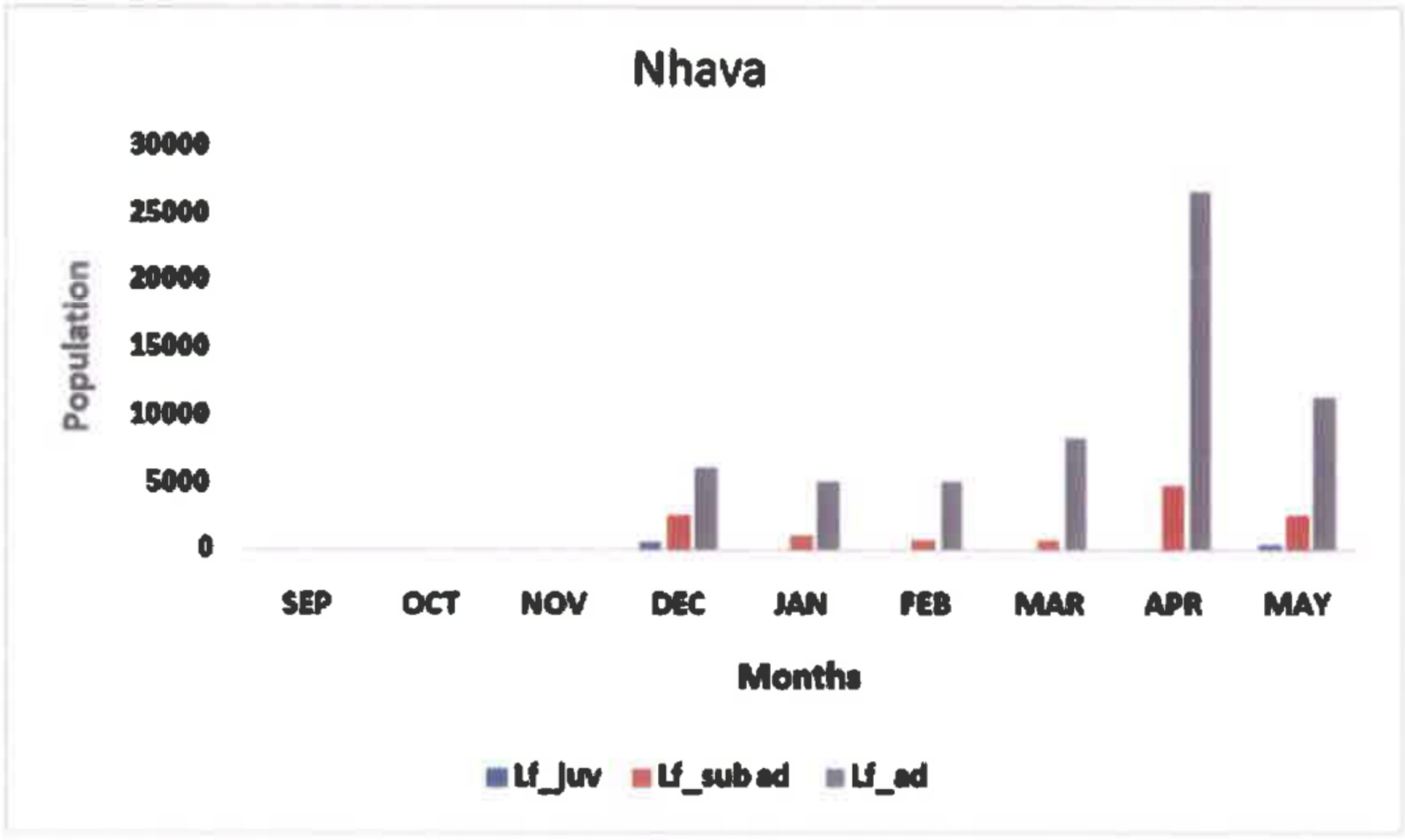


Fig. 13. Population of Lesser and Greater flamingos recorded from Sewri Sep 22—May 23



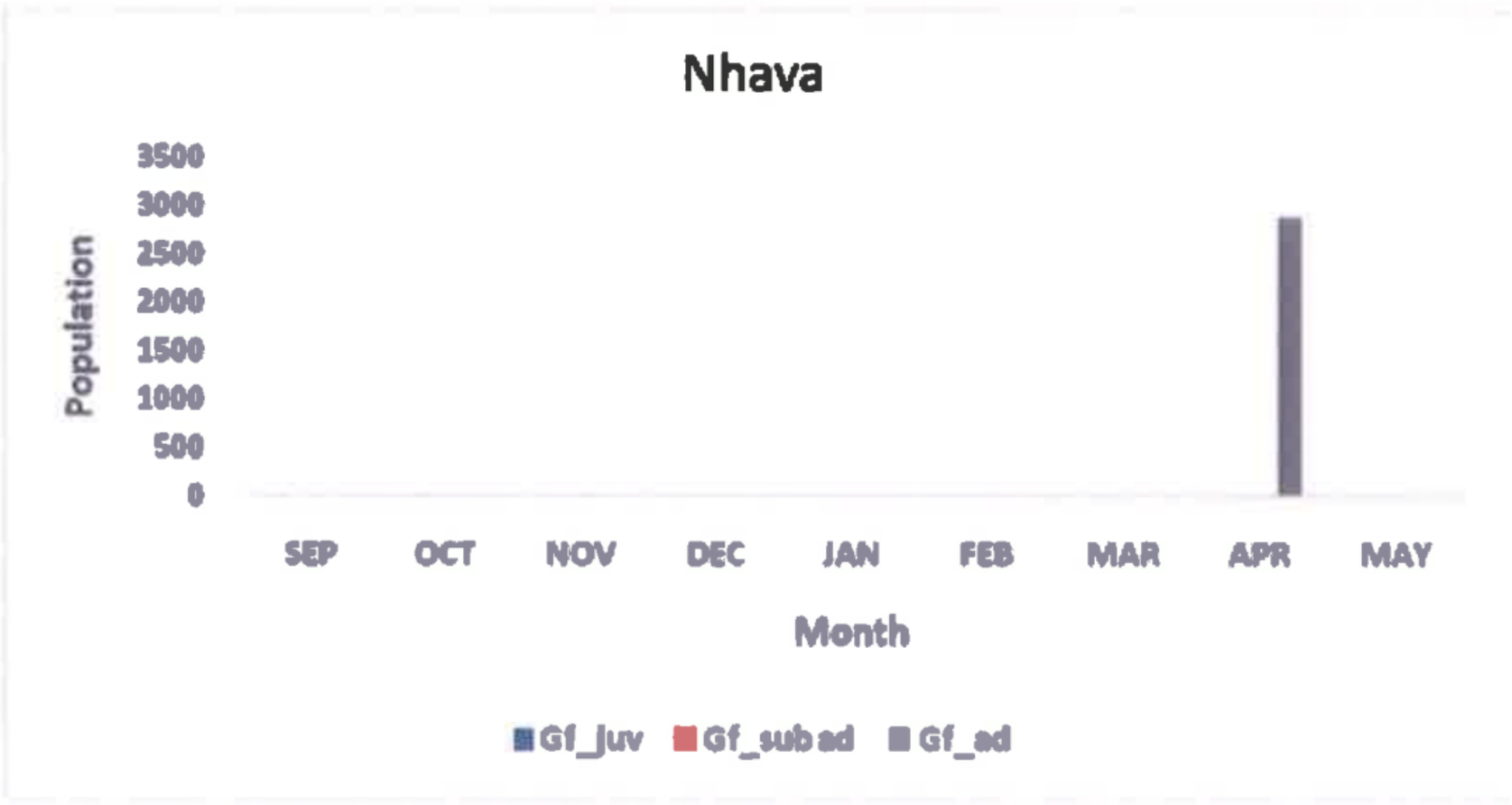


Fig. 14. Population of Lesser and Greater flamingos recorded from Nhava-Sheva mudflats Sep 22—May 23

Shorebird Behaviour Survey

We conducted 124 behaviour recording sessions at feeding, roosting and construction sites. During these sessions, we recorded 8520 behaviour videos of 10 migratory species. Disturbances such as local fishing, vehicles and instrument noise at construction sites as well as occasional predator attacks were observed during these recording sessions. Furthermore, all the 8520 videos were transcribed in the monsoon period for further analysis.

Behaviour observation

The behavioural study of Greater flamingo and lesser flamingo *for* season (September 2022 to May 2022) analysed (Fig. 17) separately for construction site. Although frequency of disturbance was highest at construction sites both flamingo species preferred feeding and showed least vigilance on these sites (Fig 16).

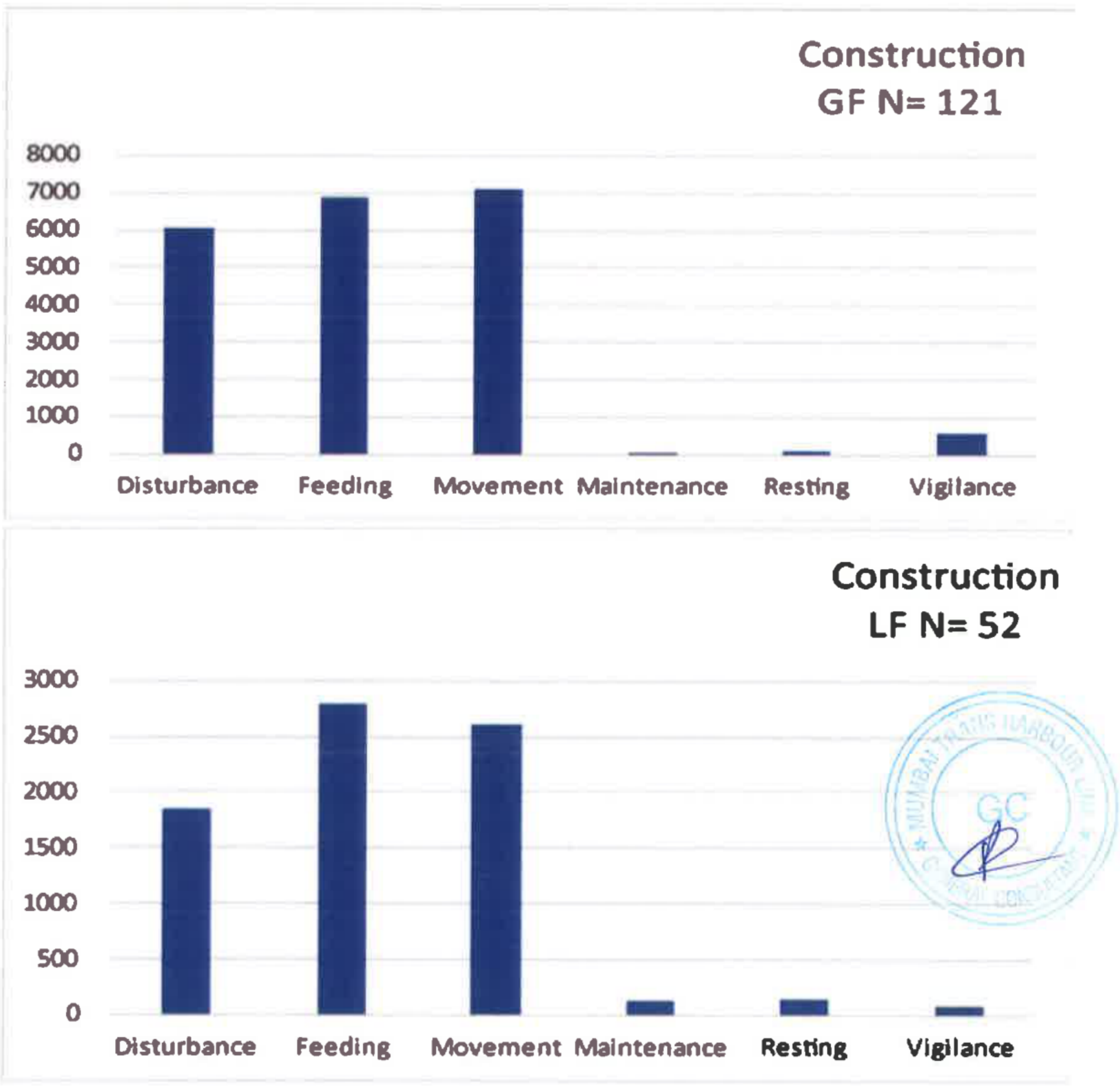


Fig. 16. Activity budget of Lesser flamingo and Greater flamingo at construction site

Activity budget for Curlew sandpiper was analysed for all three sites. The frequency of disturbance was found to be lower at construction and feeding sites at the time of observation. Hence, Curlew sandpipers invested more time in foraging at construction and feeding sites while being less vigilant. However, at roosting sites due to higher disturbances Curlew sandpipers were observed to be more vigilant.

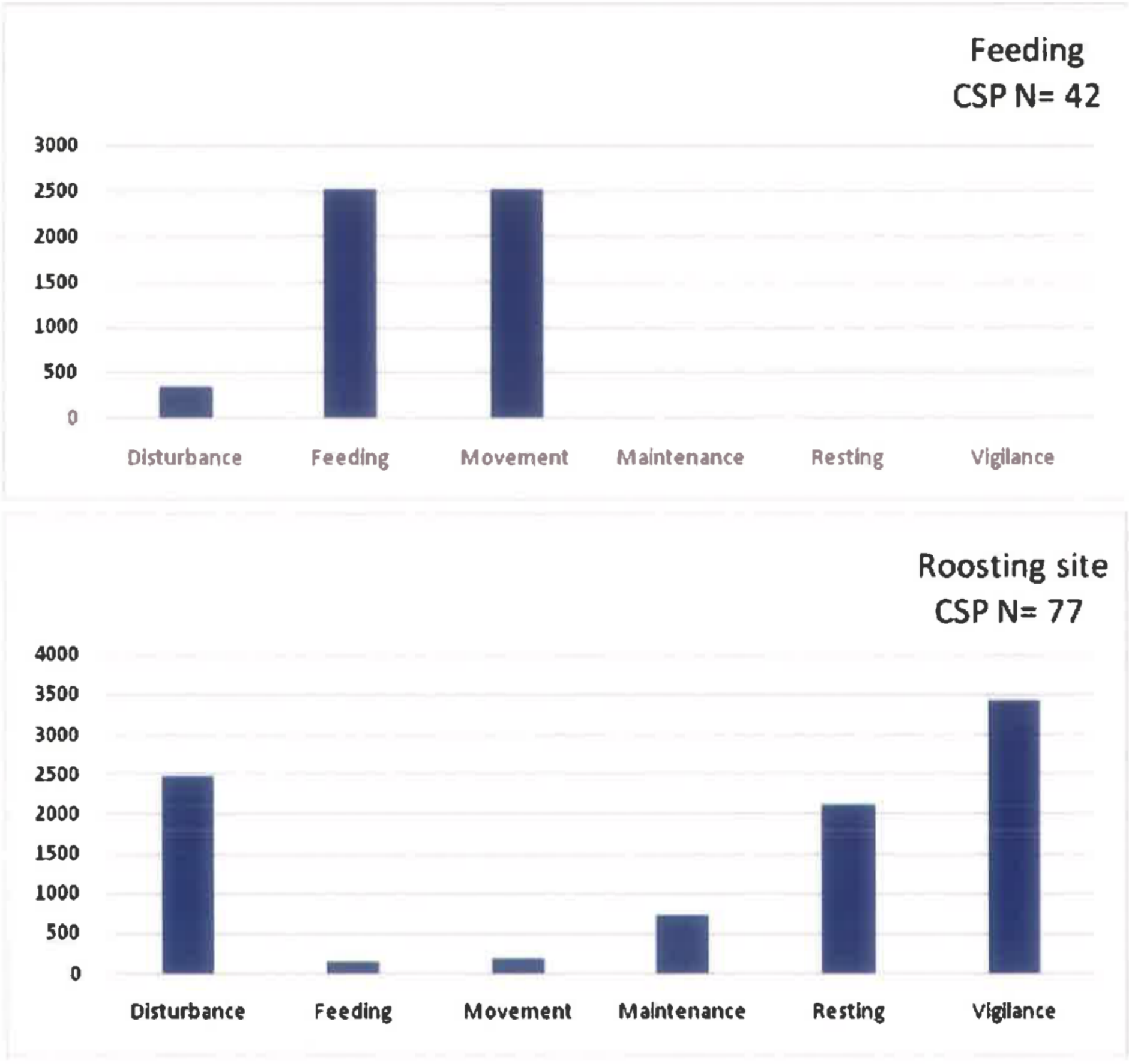


Fig. 17. Activity budget of Curlew sandpiper at construction, feeding and roosting sites

Black-tailed Godwits were found to be more sensitive to disturbances on the roosting sites. Although disturbances were seen on the lower side, higher vigilance was displayed by birds while resting. Furthermore, it was seen that higher disturbances at feeding sites led to more time spent in foraging while being vigilant.

Bird ringing

We ringed and flagged migratory shorebirds in 76 trapping sessions conducted from October 2022 to September 2023 at high tide roosting sites, viz, TSC, BPS saltpan, BPS mangrove and Mankhurd. In total, 7871 shorebirds (waders) were ringed and flagged. (Table 4).

Table 4. Species wise ringing details Sep-22—May -23

SL	SCIENTIFIC NAME	COMMON NAME	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	TOTAL
1	*Calidrisferruginea*	Curlew sandpiper	82	169	192	264	334	201	157	163	81	**1643**
2	*Calidrisfalcinellus*	Broad-billed sandpiper	29	8	20	16	22	24	11	13	1	**144**
3	*Calidris minuta*	Little stint	129	234	147	136	208	224	297	122	42	**1539**
4	*Calidrisruficollis*	Red-necked stint	11	18	7	0	0	0	0	0	0	**36**
5	*Calidris temminckii*	Temminck's stint	7	12	1	8	1	2	5	0	1	**37**
6	*Actitishypoleucos*	Common sandpiper	42	14	16	28	34	6	15	18	3	**176**
7	*Alcedoatthis*	Common kingfisher	1	0	0	0	0	0	0	0	0	**1**
8	*Arenariainterpres*	Ruddy turnstone	5	2	1	1	0	0	0	10	3	**22**
9	*Calidrisalpina*	Dunlin	2	3	53	94	111	36	38	1	0	**338**
10	*Calidristenuirostris*	Great knot	0	0	4	12	0	0	0	0	0	**16**
11	*Charadriusmongolus*	Lesser sand plover	200	103	201	289	332	203	150	139	125	**1742**
12	*Charadriusdubius*	Little ringed plover	1	0	0	1	0	0	1	0	0	**3**
13	*Charadriusleschenaultii*	Greater sand plover	0	1	0	0	5	3	0	0	0	**9**
14	*Tringatotanus*	Common redshank	119	52	256	262	200	161	251	55	23	**1379**
15	*Tringastagnatilis*	Marsh sandpiper	11	0	3	9	2	35	30	0	0	**90**
16	*Xenuscinereus*	Terek sandpiper	17	20	53	45	45	55	14	29	17	**295**
17	*Tringaglareola*	Wood sandpiper	3	11	6	14	6	7	10	10	2	**69**
18	*Tringaochropus*	Green sandpiper	2	0	3	0	0	0	3	0	0	**8**
19	*Tringanebularia*	Common greenshank	2	0	16	10	3	3	3	1	0	**38**
20	*Numenius phaeopus*	Whimbrel	5	0	3	2	2	0	0	1	0	**13**
21	*Limosalimosa*	Black-tailed godwit	1	0	9	0	0	2	0	0	0	**12**
22	*Pluvialissquatarola*	Grey plover	0	0	5	13	9	11	4	2	1	**45**
23	*Anas crecca*	Common teal	0	1	2	3	0	1	0	0	0	**7**
24	*Pluvialis fulva*	Pacific golden plover	0	0	4	5	3	5	0	1	0	**18**
25	*Numenius arquata*	Eurasian curlew	0	0	20	8	2	2	0	0	0	**32**
26	*Butoridesstriata*	Striated heron	0	0	3	0	5	1	0	0	0	**9**
27	*Vanellus indicus*	Red-wattled lapwing	0	0	1	2	0	0	0	0	0	**3**
28	*Himantopushimantopus*	Black winged stilt	0	0	1	2	0	2	0	0	0	**5**
29	*Spatula clypeata*	Northern shoveler	0	0	1	3	0	3	0	0	0	**7**
30	*Sternulasaundersi*	Saunders's tern	0	0	2	25	7	5	10	15	4	**68**

Table 4. Species wise ringing details Sep-22—May -23 (*contd.*)

SL	SCIENTIFIC NAME	COMMON NAME	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	TOTAL
31	*Sternulaalbifrons*	Little tern	0	0	0	3	1	4	28	21	4	**61**
32	*Gallinagogallinago*	Common snipe	0	0	0	1	0	0	0	0	0	**1**
33	*Lymnocryptesminimus*	Jack snipe	0	0	0	1	0	0	0	0	0	**1**
34	*Gelochelidonnilotica*	Gull-billed tern	0	0	0	0	1	0	0	0	0	**1**
35	*Halcyon smyrnensis*	White-throated kingfisher	0	0	0	0	1	0	0	0	0	**1**
36	*Charadriusalexandrinus*	Kentish plover	0	0	0	0		0	1	0	0	**1**
37	*Rostratulabenghalensis*	Greater painted snipe	0	0	0	0	0	0	0	1	0	**1**
	TOTAL		**669**	**648**	**1030**	**1257**	**1334**	**996**	**1028**	**602**	**307**	**7871**

Table 5. Species wise recapture details SEP 22-MAY 23

Sl. No.	Scientific Name	Common Names	SEP	Oct	Nov	Dec	Jan	Feb	Mar	Apr	MAY	Total
1	*Calidris falcinellus*	Broad-billed sandpiper	2	1	6	5	5	0	0	1	1	**21**
2	*Tringa nebularia*	Common greenshank	1	0	2	1	0	2	0	0	0	**6**
3	*Tringa totanus*	Common redshank	18	15	69	79	64	82	144	44	5	**520**
4	*Actitis hypoleucus*	Common sandpiper	4	1	2	4	5	1	1	2	0	**20**
5	*Calidris ferruginea*	Curlew sandpiper	7	4	29	33	70	35	33	30	9	**250**
6	*Calidris alpina*	Dunlin	0	0	4	5	7	4	4	0	0	**24**
7	*Charadrius mongolus*	Lesser sand plover	11	14	24	42	42	21	31	18	15	**218**
8	*Calidris minuta*	Little stint	4	3	8	14	12	10	9	7	1	**68**
9	*Sternula albifrons*	Little tern	0	0	0	0	0	0	0	1	0	**1**
10	*Tringa stagnatilis*	Marsh sandpiper	0	0	0	1	0	2	0	1	0	**4**
11	*Pluvialis fulva*	Pacific golden plover	0	0	0	0	1	1	0	0	0	**2**
12	*Areneria interpress*	Ruddy turnstone	2	0	0	0	0	0	0	0	0	**2**
13	*Sternula saundersi*	Saunders's tern	0	0	0	3	0	1	2	0	0	**6**
14	*Calidris temminckii*	Temmincks Stint	0	0	0	1	0	0	0	0	1	**2**
15	*Xenus cinereus*	Terek sandpiper	0	3	24	10	17	13	6	8	5	**86**
16	*Numenius phaeopus*	Whimbrel	0	0	0	1	0	0	0	0	0	**1**
17	*Tringa glareola*	Wood sandpiper	1	0	1	0	1	0	0	2	0	**5**
	Total		**50**	**41**	**169**	**199**	**224**	**172**	**230**	**114**	**37**	**1236**

Table 6. Species wise resighting details from Sep 2022- May 2023

Sl. No.	Scientific Names	Common Names	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total
1	*Himantopus himantopus*	Black winged stilt	1	0	0	0	1	1	0	0	0	**3**
2	*Limosa limosa*	Black-tailed godwit	0	0	0	0	0	0	2	0	0	**2**
3	*Calidris falcinellus*	Broad-billed sandpiper	0	0	0	0	1	1	10	2	0	**14**
4	*Tringa nebularia*	Common greenshank	0	2	2	1	0	7	4	0	0	**16**
5	*Tringa totanus*	Common redshank	1	0	16	5	9	6	4	0	0	**41**
6	*Calidris ferruginea*	Curlew sandpiper	0	5	45	12	22	14	134	54	0	**286**
7	*Calidris alpina*	Dunlin	0	0	0	1	3	7	18	4	0	**33**
8	*Charadrius leschenaultii*	Greater sand plover	0	0	0	0	1	1	0	0	0	**2**
9	*Pluvialis squatarola*	Grey plover	0	0	2	3	0	15	1	0	0	**21**
10	*Charadrius mongolus*	Lesser sand plover	4	17	58	4	52	19	189	50	0	**393**
11	*Tringa stagnatilis*	Marsh sandpiper	0	0	5	3	0	5	6	0	0	**19**
12	*Pluvialis fulva*	Pacific golden plover	0	0	0	0	0	1	1	0	0	**2**
13	*Areneria interpress*	Ruddy turnstone	1	2	3	0	1	0	0	0	0	**7**
14	*Xenus cinereus*	Terek sandpiper	0	0	1	2	1	2	3	0	0	**9**
15	*Tringa glareola*	Wood sandpiper	1	0	0	0	0	0	0	0	0	**1**
16	*Numenius arquata*	Eurasian curlew	0	0	1	1	0	5	4	0	0	**11**
Total			***8***	***26***	***133***	***32***	***91***	***84***	***376***	***110***	**0**	**860**

A total of 860 birds were resighted throughout the seasons and maximum number of birds were resighted in March 2023 (376). Apart from resightings, we also recorded 1276 recaptures with maximum numbers in March 2023 (230). (Table 5 & 6).

Satellite telemetry

We tagged three Lesser flamingo and three greater flamingos with GSM GPS tags and one Black-tailed Godwit with GSM nano radio tag during the year 2021-22. Black-tailed Godwit named as BALA was the first wader species to be satellite tracked from India for its migratory path. The bird gave us crucial data on its stopover sites along its migratory path. Unfortunately, we did not receive any sighting of this bird from September 2022 to May 2023.

Five of the six tagged flamingos from 2021 went to Gujarat and came back around the end of 2022. We anticipate receiving additional information on the flamingos' migratory cycle once they reach the creek, as they moved back to the same location in Gujarat in July 2023 and have not returned yet (Fig 16 and 17).



Fig.16. A and B. Sub-adult "Lester" and juvenile "McCann" Greater flamingo's migration route to Gujarat

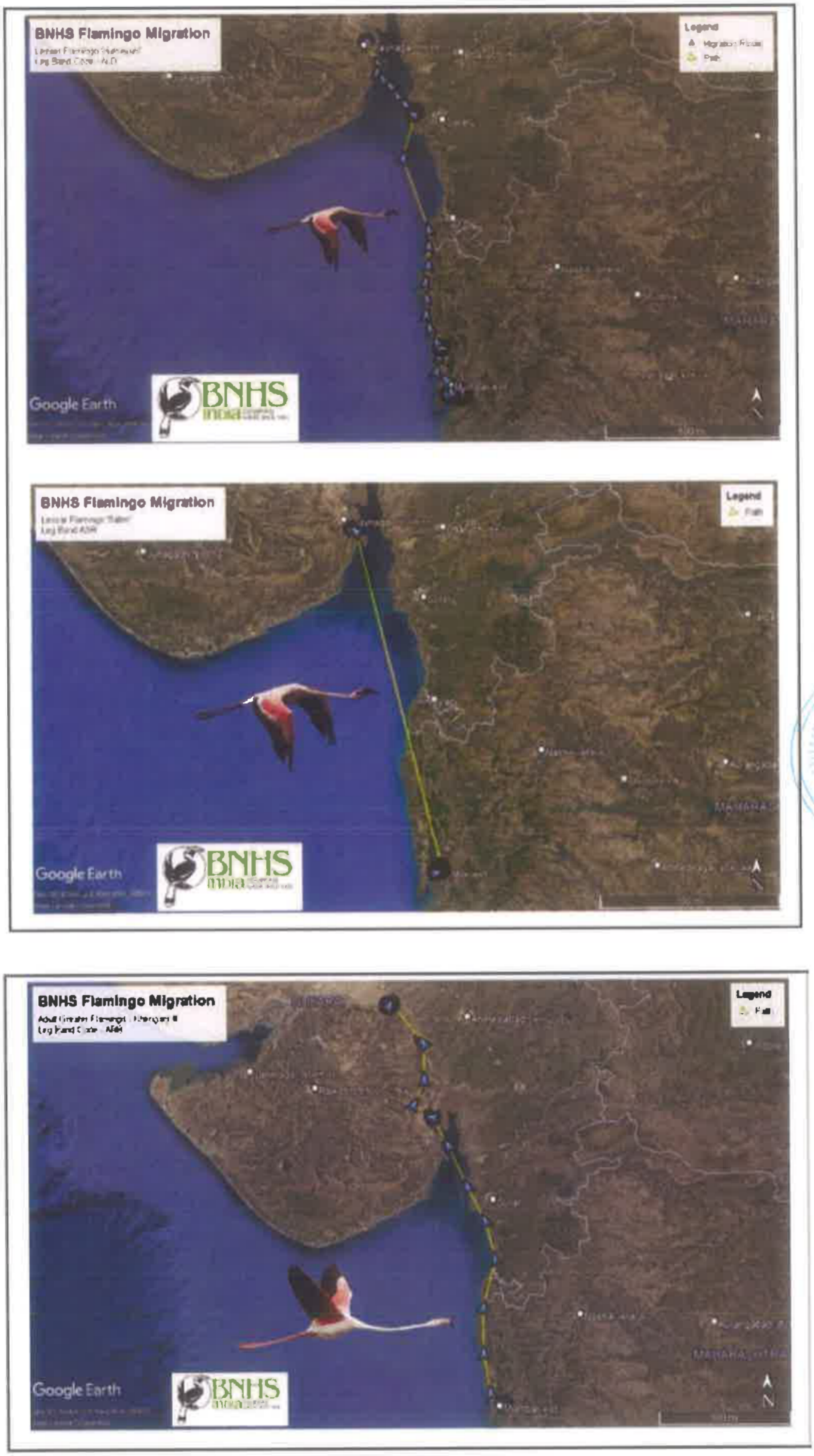


Fig. 17. A, B and C. Lesser flamingo "Humayun", "Salim" and "Khengarji III" migration route to Gujarat

Benthos Study

Summary

Thane Creek was assessed during the period of October 2022-May 2023 with respect to the three marine groups, namely phytoplankton, zooplankton and macrobenthos. The macrobenthic fauna noted in mudflats of Thane Creek and Sewri constitutes key organisms such as Polychaetes, Gastropods, Bivalves, Anthozoa, Oligochaete, Phoronida, Brachyura, Nemertea, Nematoda etc. In this entire study, it was observed that the East bank (72420.99/m^3) of Thane Creek is comparatively depicting higher values of macrobenthic density than that of the West bank (70203.98/ m^3).

Mudflats at Sewri was observed to demonstrate that Zone C was considerably more abundant than Zone B and Zone C. The macrobenthic fauna noted in Wetlands consists of Polychaete, Onchidium, Amphipoda, Shrimp, Gastropods, Bivalves, Oligochaete, Lucifer, Fish larvae, Insect larvae etc. It was observed that BPS (1881.7/ m^3) exhibited maximum macrobenthic abundance, followed by NRI (463.3/ m^3).

The total group diversity in the case of Zooplankton was 20+ groups, and the most dominant groups were Copepoda, Tintinida, Medusae etc. Overall, 20+ Phytoplankton species were noted. The most dominant species were *Skeletonema costatum*, *Leptocylendrous* sp., *Odentella* sp., *Navicula* sp. etc.

Methodology

To study the macrobenthic faunal distribution along Thane Creek, the mudflats have been marked with flags at an interval of 1 km and divided into 40 such transects. A total 37 transects were sampled in Thane Creek from October-2022 to May-2023. Upstream transects (6 and 7) were omitted as previous observations have yielded negligible or no faunal counts. Along with this, transect 26 was also not sampled restrictions due to the Atomic power station. Overall, 2 seasons namely, the Winter months (November 2022, December 2022, January 2023) and Summer (March 2023, April 2023) and two-phase shift months (October and February) were considered separately as Ph-I and Ph-II, respectively, while analysing the datasets. The microscopic analysis for the remaining one month is still in process. Due to the unavailability of human resources and time constraints, we are only presenting Sewri samples from January to May. Analysis for Nhava and other months of Sewri samples is still ongoing.

In the present study, three wetlands, namely NRI, TSC, BPS, were sampled between October 2022 and May 2023, while Belpada was sampled from December 2022 to May 2023. The sediment samples were collected using a shovel due to the hard substratum.

In addition to macrobenthos sampling, a monthly collection of plankton samples (including Phytoplankton and Zooplankton) were conducted from October 2022 to May 2023. Following a standardised procedure, these samples were collected by hauling plankton nets during high tides in Thane Creek.

For Wetlands and Plankton, the sampling period has been divided and represented into four distinct seasons: Phase Shift I (October 2022), Winter (November 2022, December 2022, January 2023), Ph-II(February 2023), and Summer (March 2023, April 2023, May 2023).

For better representation of the data in the report, Creek was divided into two banks- East and West Bank. Sampled transects are combined into eight clusters (E I, E II, E III, E IV, E V, EW I, W I, W II, W III and W IV) to study the macrobenthic distribution pattern.

Table xx: Grouping of transects into clusters for data representation

Bank	Transects
East Bank: E I	1,2,3,4
E II	38, 39, 40
E III	35, 36, 37
E IV	31, 32, 33, 34
E V	27,28,29,30
East West Bank: EW I	5,8,9,10
West Bank: W I	11.12,13
W II	14, 15, 16, 17
W III	18, 19, 20, 21
W IV	22, 23, 24, 25

Observations

Thane Creek

Overall macrobenthic density and biomass recorded from Thane Creek in present studies were (71315.08/m3, 328.81 g/m3). During the entire study period, it was observed that the total macrobenthic density and biomass of the East bank was (72426.19/ m3, 133.73 g/m3). The West bank exhibited (70203.98/ m3, 583.89 g/ m3). 21 benthic groups were observed along the Thane Creek, Sewri, Nhava and wetlands. Polychaete, Oligochaete, Bivalve, Gastropod, and Anthozoa were the major contributors to the macrobenthic composition.

East Bank

In the entire study period, it was observed that Cluster EIII (32788.56/m^3) on the East bank of Thane Creek was the most abundant, followed by Cluster EI (20021.70 /m^3), EII (9698.82/m^2) and EIV (6264.50/m^2). In contrast, Cluster EIV (54.43 g/m2) contributed the most to the overall macrobenthic biomass, followed by Cluster EIII (36.29 g/m2), EII (15.91 g/m2) and EI (12.04 g/m2). EWI exhibited the least macrobenthic biomass.

In the entire study period, the Winter season exhibited maximum macrobenthic density EIII (10897.22/ m^3), and cluster EIV exhibited the highest biomass (20.64 g/m^3) and EI (6880.45/m3) EII (3692.78/m^3). Cluster EIII depicted the highest density counts during Ph-I (10035/m3) and EI during Summer (11307.50/ m^3) compared to other clusters in the area. EWI depicted comparatively lowest density values during the seasons.

The highest biomass was observed in cluster EIV during Winter (20.64 g/m3). The lowest biomass was noted in EWI during all the seasons (0.83g/m3). Polychaete was the most dominating group, followed by Bivalve, Gastropod, Phoronida, and Brachyura.

EI (Fig.18.1-18.4)

There has been a significant increase in macrobenthic density and biomass from the Winter season (6880.45/m^3, 3.84g/m^3) to the Summer season (11307.50/m^3, 6.18g/m^3). Overall, along the cluster, 7 invertebrate phyla were recorded. The overall biomass of macrobenthos was observed to be higher in the Summer season (6.18g/m^3) than that of the Ph-I season (0.76g/m^3).

Intertidal zonation

During the Summer and Winter, Zone C (7661.67 m^3) and Zone B (4005.00/ m^3) exhibited the highest macrobenthic density, respectively, followed by Zone A during the Winter (2744.55/ m^3). During Ph-II, Zone B (378.75 m^3) and Zone C (946.25 m^3) exhibited the highest macrobenthos density compared to Ph-I.

Polychaete contributed the highest in the assemblage, especially during the Summer season at Zone C (7158.33 m^3). Gastropods were counted highest at Zone A during the Winter. Oligochaetes were observed throughout the intertidal zone during the winter season.

The maximum contribution to the overall biomass was from Zone C (4.42g/m^3), followed by Zone B (1.81 g/m^3) and Zone A (1.17 g/m^3) during the summer and Winter seasons respectively.

EII (Fig.19.1-19.4)

Macrobenthic density and biomass have significantly decreased from the Winter to Summer season (3692.78/m^3, 9.47g/m^3) (50/m^3, 0.16g/m^3) respectively. There was a decline in the macrobenthic diversity from the Winter season (9 No) to the Summer season (4 No).

Intertidal zonation

Maximum contribution towards overall macrobenthic density was observed from Zone A (2055 /m^3) during PhS-II seasons and Winter Season (1390.56 m^3). The least density was observed from Zone A (5/$m^{3)}$ during Summer.

During Winter, polychaete density ranged from 1021-1282.78 m^3 in the intertidal zonation (A-C). This density has significantly decreased from Ph-II to the Summer season except at Zone A (2051.67 m^3) during the Ph-II. During the summer season, no polychaetes were noted from Zone A and Zone B. The presence of gastropods was noted only during Ph-I (A-C) and Winter (A). Anthozoans also contributed to macrobenthic assemblage during Winter at all three intertidal zones and during the Summer at Zone A (5 / m^3). Brachyurans were noted only during Winter from Zone B and C (0.56-1.11 m^3).

During the Winter season, the highest macrobenthic biomass was noted (9.47g/m^3) and Zone B (4.09 g /m^3) contributed the highest. Polychetes (2.75g /m^3), Bivalve (1.42g /m^3), Anthozoans (0.04 g/m^3) and other faunal components in the assemblage contributed to this highest counts. Polychaetes from Zone A (2.37g/m3) contributed the most to the macrobenthos community during Ph-II.

E III (Fig.20.1-20.4)

This cluster holds the highest macrobenthic density compared to other clusters on the East bank across the seasons (1978.33-10897.22 m^3). The highest density was noted during Ph-I (10035 / m^3) and winter (10897.22 m^3), decreasing during Ph-II (1978.33 m^3), and then similar range density during Summer (9845 / m^3).

Overall, 18 macrobenthic groups were observed in this cluster, including Polychaete, Gastropod, Bivalve, Brachyura, Anthozoa, Oligochaete, and Phoronida, which were found during all seasons.

Intertidal zonation

Maximum macrobenthic density was observed along Zone A during the Ph-I season (4910/m^3) and Zone C in the Summer season (6955/m^3). The lowest density was recorded along Zone A during the Ph-II season (11.67/m^3) followed by Zone C in (193.33/m^3). The highest contribution to the assemblage was from polychetes, with the highest amount being noted at Zone A during Ph-I (4896.67 m3) followed by Zone C during Summer (6442.50 m3). Bivalves were noted throughout the except during Ph-II. Zone A during the Winter (22.22 m^3) and Summer (32.50 m^3) contributed the highest density counts for the Bivalves. Anthozoans were recorded only during the Winter season at all three intertidal zones. Oligochaetes contribution was during Winter and Summer at Zone A and Zone C (372.50 m^3)

The maximum contribution to the overall biomass was shown by Zone A (6.72 g/m^3) during Ph-I, followed by Zone C (4.33g/m^3) during the Winter season. Summer Season also exhibited highest biomass at Zone and Zone C (5.27-5.73g/m3). Polychaete contributed more to the biomass counts from Zone A (6.75g/m^3 Ph-I) and Zone C (3 g/m^3 Summer).

E IV (Fig.22.1-22.4)

Macrobenthic density increased from the Winter season (1087.50/m^3) to the Summer season (4127/m^3 however, biomass has decreased (20.64/m^3, 16.97/m^3) respectively. During the study period, 17 macrobenthic groups were recorded from the cluster. During both seasons, the faunal diversity was higher in Zone B and Zone C compared to Zone A. Brachyura, Oligochaete, and Anomura were observed in the Winter and Summer seasons. Polychaetes contribute more to overall biomass, followed by Anthozoa and gastropods.

Intertidal Zonation

Polychaete contributed the maximum to the overall macrobenthic density (5605.75/ m^3). Macro benthic density was reported highest from Zone B (651.25/m^3) during Winter. During the Summer season, Zone A (2699/ m^3) exhibited maximum density. During all seasons, all zones had Polychaetes, Gastropoda, Bivalve, Anthozoa, and Oligochaetes. Zone B (19.23g/ m^3) showed maximum contribution to the overall biomass during both Winter, followed by Ph-II Zone B (10.10 g/m^3).

EV (Fig.23.1-23.4)

The highest macrobenthos density was noted during the Winter season (538.18m^3), which significantly increased Ph-II (1502.50 m3) and then decreased again during the summer (130/m3). Macrobenthic density has decreased biomass from the Ph-I season (7.80g/m^3) to Winter and Summer (1.60g/m^3). During the study period, 10 faunal groups were recorded from the cluster. Faunal diversity has decreased from Ph-I and Winter (9 No.) to Sumer (6 No.).

Intertidal Zonation

Macrobenthic density was noted highest at Zone C (241.25 m3) during the Ph-I, and Zone A and B exhibited density (103.75-115 m3) during this season. During winter, the density remains consistent, ranging from Zone A to Zone C (123.64 to 219.09m^3). Ph-II Zone B exhibited the highest density for this cluster (1337.50m^3). During the summer months, the lowest density counts were observed in Zone A-C, with a range of 27.50-67.50 m^3. Polychaete, Gastropod, Bivalve, Brachyura, Anthozoa, Oligochaete and Phoronida were observed. Bivalves and Gastropods were found absent during the Ph-II month. Gastropods were noted more from Zone B and C. Polychaete biomass was noted highest from Zone B (1.40g/m^3) during Ph-II.

East-West Bank (EW I - Fig.24.1-24.4)

Over the course of the study period, the maximum macrobenthic density along EW I (992.50/m^3) was noted during the Summer season.

Intertidal zonation

There was a high density of Polychaete during the Summer season in Zone C (992.50/ m^3). The Winter season showed a higher group diversity (3 no.) than other zones across both seasons. It was observed that no macrobenthic groups were found in Zone A and B during the Ph-I season except Oligochaete. Anthozoa and Brachyura were completely absent in all zones during the entire study duration.

The highest biomass in the assemblage seen was contributed by Polychaetes (0.43g/m^3) followed by Oligochaetes (0.010g/ m^3) respectively.

West Bank

In the entire study period, it was observed that Cluster WII (31315 /m^3) on the West bank of Thane Creek was the most abundant, followed by Cluster WIII (17494.97/m^3), WI (13223.17/m^3) and WIV (7570.83 /m^3). In contrast, Cluster WIV (508.55 g/m^3) contributed the most to the overall macrobenthic biomass, followed by Cluster WI (49.05 g/m3), WII (18.33 g/m^3) and WI (7.96 g/m^3).

WI

Polychaetes showed varied presence across all the seasons and zones and were most dominant in Ph-II(A and C Zones) and Winter (C Zone). Polychaete (12920.59/m^3) contributed the most to the overall abundance, followed by Oligochaete (266.39/m^3). The abundance of Polychaete was comparatively less in Ph-I than in other seasons. Gastropods and Bivalves showed a notable presence in Winter and Summer. Anthozoa (1.11/m^3) contributed the least to the overall macrobenthic abundance, and Brachyura was completely absent across all the seasons.

Polychaete (4.81 g/m^3) contributed the most to the overall macrobenthic biomass, followed by Bivalve (3.00 g/m^3), whereas Gastropoda (0.01 g/m^3) contributed the least.

WII

Polychaete (30105.42/m^3) exhibited the most towards the overall macrobenthic abundance, followed by Oligochaete (1297.08/m^3), Gastropod (262.50/m^3) etc. Summer showed a significant presence of Polychaete. Anthozoa (20.42/m^3) contributed the least to overall macrobenthic abundance, and Brachyura was completely absent across all seasons.

Polychaete (14.24 g/m^3) contributed the maximum to the overall macrobenthic biomass, whereas Brachyura contributed the least (0.01 g/m^3).

WIII

Polychaetes were consistently present across all the seasons and were high in abundance except for Phase shift-II, where they showed comparatively lower abundance. Polychaetes (15530.44/m^3) exhibited relatively high abundance, followed by gastropods (1363.97/m^3), Oligochaetes (432.53/m^3), etc. Brachyura (0.56/m^3) showed a notable presence in Winter at Zone B, was completely absent across all the Zones and Seasons, and contributed the least to overall macrobenthic abundance. Gastropods were present across all the zones and seasons, except Ph-II and Zone B in Summer.

Bivalve (21.90 g/m^3) relatively showed a high contribution to the total macrobenthic biomass, followed by Polychaete (15.39 g/m^3), while Brachyura (0.04 g/m^3) contributed the least.

WIV

Polychaete (7096.67/m^3) was the most abundant group, followed by Gastropod (280.83/m^3) etc. As we move across the seasons from Ph-I to the following seasons, the Polychaetes remain consistent with varied abundance showing a sudden decline in Ph-II and was completely absent in Summer. Ph-I and Winter showed consistent presence and significant abundance of maximum macrobenthic groups compared to Ph-II and Summer. Gastropod, Oligochaetes and Other groups were completely absent in Ph-II and Summer. Brachyura was completely absent across all the Zones and seasons.

It was observed that Polychaete (374.91 g/m^3) showed the highest contribution towards overall macrobenthic biomass, and in summer Zone A exhibited the most, whereas Oligochaete (0.02 g/m^3) exhibited the least.

Sewri (Fig.29.1-29.2)

In the present study, it was observed that Polychaetes showed the highest density (5025/m^3), followed by Bivalves (12.5/ m^3) and Phoronids (25/m^3) across all the zones Pre-monsoon seasons. Polychaeta, Bivalves and Phoronids were the only groups found and present at Zone B. The highest polychete diversity was reported at Zone C, with 8 families contributing to assemblage. Spionidae contributed the highest to the overall polychaete density (4843.75 /m3) followed by Capetellidae (25 / m3). Spionidae, Pillargidae, and Nephytidae were found in all three zones of the Sewri intertidal.

Polychaeta contributes the highest to the overall biomass across all the zones during study period (2.13 g/ m^3). Phoronida (0.025 g/ m3) is the second highest contribution to biomass, followed by Bivalve (0.0187 g/ m^3).



Plankton

Zooplankton

The Zooplankton standing stock, as observed in the present study, and the station-wise variations are summarised in the above given graphical representations. The graphs show the abundance of various zooplankton across different stations and seasons. A total of 19 groups of zooplankton were identified in the entire study period. Copepoda was the dominant group, followed by Medusae, Tintinida, and *Acetus* sp. Bivalves and Mysida were only present in the Summer. Aquatic insects were only present in Ph-IIand Summer across all the stations. *Acetes* sp. was completely absent in stations Z1, Z2, Z3 across all the seasons and in station Z4 it was only present in the Summer.

Station Z1

Copepoda was consistently present across all seasons, although its dominance varied. The highest presence was in Ph-I (47.06%), and it declined in the following seasons. The most dominant groups in Ph-Iat station Z1 are Copepoda (47.06%) and Medusae (23.53 %). There was also a significant presence of Nematoda (17.65%). A notable decline in the presence of Medusae was also seen from Ph-Ito Summer. *Acetes* sp. and Amphipoda were completely absent in station Z1 across all the seasons. In Winter, Copepoda was still dominant (34.26%), followed by Medusae (15.91 %) and Tintinida (14.81 %). Ph-II shows a significant presence of Aquatic insects (34.04%), whereas Copepoda and Medusae have declined significantly in Winter. Summer exhibits the notable presence of Bivalve (3.17 %).

Station Z2

The most dominant group in Ph-I at station Z2 was Decapoda (50.00%). In Winter, Copepoda was still the dominant group (28.72%), followed by Decapoda (21.93%) and Tintinida (13.19%). Groups such as *Acetes* sp., Amphipoda, Fish eggs, Polychaete etc. were completely absent in station Z2 across all the seasons. In Ph-II, Copepoda (32.00%) remained dominant, and there was a significant presence of Tintinida (32.00%) and aquatic insects (20.00 %). Summer shows the noticeable presence of Mysida (6.52 %).

Station Z3

The most prominent group during Ph-I was Medusae (60.82 %). *Acetes* sp., Fish eggs, and Nematoda were completely absent across all the seasons. Medusae showed a substantial decline in the Winter and were absent in Ph-II. In Phase shift-II, Tintinida (32.73 %) showed a sudden increase compared to Ph-I and Winter. Bivalves and Mysida showed a noticeable presence in Summer.

Station Z4

Copepoda (78.07 %) was the most abundant group during Winter. Other notable groups present in Winter were Polychaete (5.95 %), Decapoda larvae (4.09 %) etc. In Winter, Copepoda continues to be most abundant but with a slight decrease compared to Ph-I. There was a noticeable increase in Decapoda Larvae (19.22 %), which was the second most abundant group. There was also a noticeable presence of Sagitta in Winter. Aquatic Insects showed a significant presence during Ph-II and were completely absent in Ph-I and Winter. Tintinida (25.53 %) contributed the most, followed by Copepoda (19.61 %), while Copepoda dominance was reduced. *Acetes* sp. becomes the most abundant group in the Summer, with a 52.20 value, followed by Medusae (27.19 %). Copepoda exhibits a notable change in abundance across all the seasons, being most abundant in Ph-I and Winter but declining in Ph-II and Summer.

Station Z5

Copepoda remains relatively abundant in all seasons, although its dominance varies. The most abundant organisms during Ph-I are Copepoda (48.02%) and *Acetes* sp. (40.09 %), contributing significantly to the total abundance. Aquatic insects, Bivalves, Mysida etc. were completely absent in Phase shift I. Copepoda remains abundant, but there is a slight decrease in Winter compared to the Ph-I. Other groups, such as Tintinida (30.97%) and Pelecypoda sp. (26.55%), are more abundant during Phase shift-II. Aquatic insects (7.08%), Medusae (8.85%) and Fish eggs (12.39 %) showed a noticeable presence, whereas Pelecypoda showed a significant presence in Ph-II. In Summer, Medusa (48.43 %) contributed the most, followed by *Acetes* sp. (17.51 %) and Zoea Larva (10.78 %).

Station Z6

Copepoda remained present in all seasons but was less dominant in Ph-II and Summer. Copepoda showed the highest contribution in Ph-I (70.23 %) and declined across other seasons. In Winter, Copepoda (32.07%) remains abundant but with a slight decrease compared to the Phase shift-I. Pelecypoda sp. becomes the most abundant organism in the Phase shift-II, followed by Tintinida (17.05 %). In Summer, Medusae exhibits maximum abundance (42.34%), followed by *Acetes* sp. (15.73%). Amphipoda, Bivalves etc., were completely absent across all the seasons.

Phytoplankton

The phytoplankton composition of Thane Creek is summarised, and station-wise variations are well elaborated as graphical representations. A total of 20 species of phytoplankton were identified in the entire study period.

Station P1

The dominant phytoplankton groups during the Ph-Iwere *Leptocylendrous* sp. (15.15%), *Nitzschia sigma* (15.15%), *Cyclotella* sp. (12.12%) etc. with significant abundances.In Winter, *Pleurosigma* sp. (27.70%) was the most dominant group followed by *Leptocylendrous* sp. (23.26 %), *Cyclotella* sp.(15.98 %).A notable spike is observed in *Leptocylendrous* sp. (43.90 %) during Phase shift-I. *Odentella* sp. (23.26 %) shows maximum contribution towards abundance in Summer, followed by *Leptocylendrous* sp. (14.33%), *Cyclotella* sp. (9.45 %).

Station P2

In Ph-I, *Skeletonema costatum* (20.22 %), *Leptocylendrous* sp. (17.98%), Spirulina (16.85 %) etc. are the dominant groups, contributing significantly to the overall abundance. In Winter, a notable spike is observed in *Pleurosigma* sp. (26.17%) followed by *Pleurosigma* sp. (23.71%). *Pleurosigma* sp. (40.00%) shows the highest contribution in terms of abundance in Phase shift-II, followed by *Odentella* sp. (24.00%), whereas *Oscillatoria* Sp. (1.75%) shows notable presence in this.

Station P3

In Ph-I, *Skeletonema costatum* (37.84 %) was the dominant group, significantly contributing to the overall abundance. In contrast, there was a sudden decline in their abundance in the following seasons. A notable spike in *Leptocylendrous* sp. (27.01 %) and *Pleurosigma* sp. (23.30%) was observed, indicating a sudden increase in their populations during the Winter. A significant spike in *Leptocylendrous* sp. (48.98 %) and a decline in *Pleurosigma* sp. (1.22 %) was observed in Ph-II compared with Winter. *Leptocylendrous* sp. also exhibits a decline in abundance during the Summer.

Station P4

In Phase Shift I, *Skeletonema costatum* (33.33%) was the dominant group, contributing significantly to the overall abundance. Groups such as *Cyclotella* sp., *Leptocylendrous* sp., *Navicula* sp., *Nitzschia sigma* etc., maintain their presence across all the seasons, though their abundance varies. There was a marked increase in the diversity of Phytoplanktons in Winter compared to Ph-I. *Leptocylendrous* sp. (25.26 %) becomes the dominant group in Ph-II, with significant abundance, followed by *Odentella* sp. (23.16%). In Summer, *Coscinodiscus granii* (0.61 %) shows a notable presence.

Station P5

Skeletonema costatum (37.94%) was observed to be dominant during Ph-I, contributing significantly to the overall abundance. There was an increase in the diversity of phytoplanktons during winter compared to Ph-I. *Ditylum* sp.was completely absent across all the seasons except Winter. *Coscinodiscus granii* (0.70%) and *Rhizosolenia setigera* (0.59 %) were only observed in the Summer. *Coscinodiscus* sp.,*Cyclotella* sp., *Leptocylendrous* sp., *Navicula* sp.,*Nitzschia sigma*, were consistent in terms of presence across all the seasons.

Station P6

Skeletonema costatum (32.59%) dominated during Ph-I, making up a significant portion of the overall composition. Winter features a substantial representation of *Cyclotella* sp., *Leptocylendrous* sp., *Navicula* sp.,*Nitzschia sigma, Odentella* sp. etc., contributing to the overall diversity. Ph-IIwitnesses a significant shift in composition when compared to other seasons, with Coscinodiscus sp. being observed as the dominant group. *Pseudo-nitzschia* (18.24%) exhibits a significant presence in Summer.

Wetlands

Macrobenthos Abundance and Diversity

A total of 11 macrobenthic groups were observed across all the sites, each with varying population densities.

Polychaetes (189.6/m^3) exhibited a widespread presence across all the sites. However, it's notable that Polychaetes were absent during Ph-I and Ph-II at BPS, as well as in the Winter at NRI and during Ph-I and Ph-II at TSC. Amphipoda (1667.5/m^3) exhibited a significant presence in Summer at BPS and contributed the most to the overall abundance and biomass, whereas it was completely absent at TSC. Additionally, it was observed that Gastropoda empty shells and Bivalve empty shells were consistently present at all the sites. However, empty Bivalve shells were specifically only observed during the Winter. Mudskipper (0.8/m^3) showed a notable presence in Winter at TSC and was completely absent across all the seasons and sites.

Insect larvae (174.6/m^3) significantly contribute to the overall macrobenthic abundance but were entirely absent at Belpada across all seasons.

Macrobenthos Biomass

Gastropoda empty shells (226.149 g/m^3) contributed the most to the overall macrobenthic biomass, followed by Polychaetes (4.401 g/ m^3), Amphipoda (1.129 g/ m^3), Fish larvae (0.400 g/ m^3), Insect larvae (0.341 g/ m^3), Bivalve (0.185 g/ m^3) etc. In contrast, Oligochaete contributed the least (0.001 g/ m^3).

Polychaete Diversity

Across all the sites and seasons, Nereididae remains the most consistent polychaete family, with varying abundances, followed by Spionidae. At Belpada, during Winter, Nereididae was the dominant family with an abundance of (20/m^3). However, in the Summer, Pilargidae (4.545/ m^3) and Spionidae (9.091/ m^3) also appear with significant abundances. At BPS during Winter, Nereididae (5/m3) showed significant abundance, and during the Summer, Nereididae (87.5/ m^3) was the most abundant polychaete family, followed by Spionidae (12.5/ m^3) and Cossuridae (1.389/ m^3). During the Ph-I and Phase shift-II, at NRI, Nereididae (45/ m^3) was significantly dominant, whereas in the Summer Capitellidae (8.75/m3) and Spionidae (6.25/ m^3) were present in notable abundances. At TSC, Nereididae (2.5/ m^3) was only observed in Winter, and all other remaining families were completely absent across all seasons.

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SITES



Belpada **wetland**



BPS wetland



Mankhurd saltpan



NRI wetland



Sewri construction site



TSC wetland

MIGRATORY SPECIES



Black-headed gull



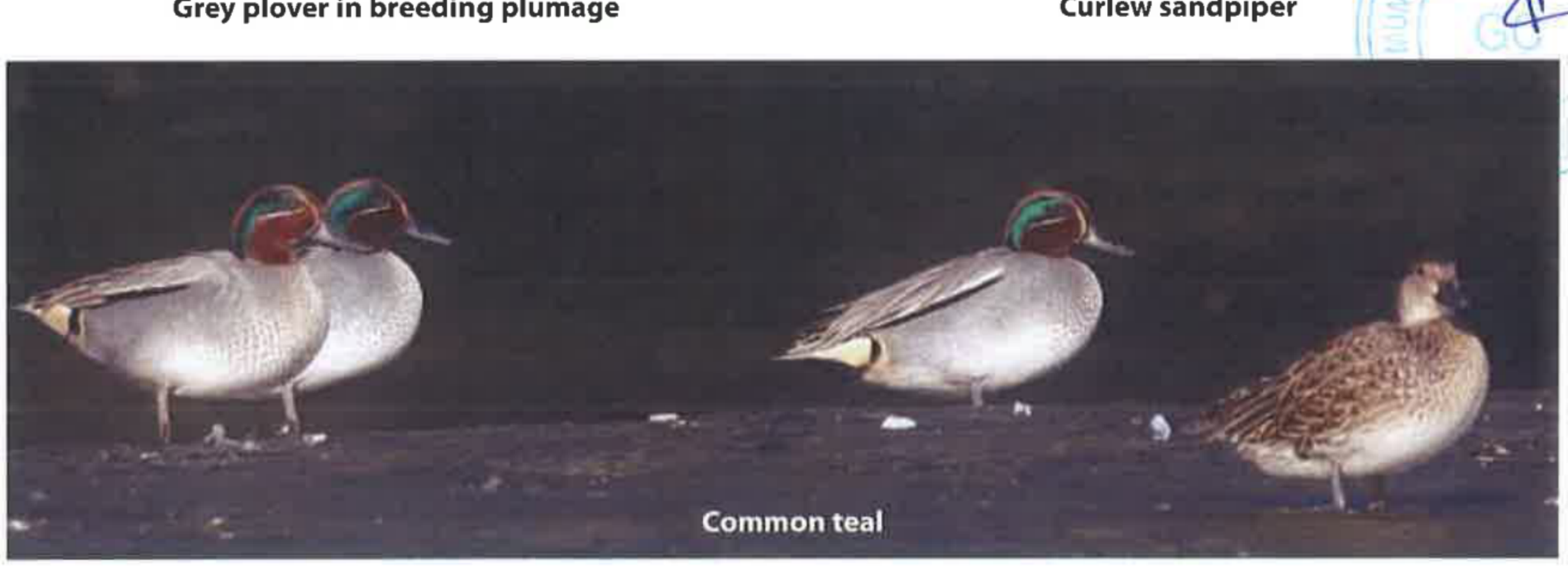
Black-tailed godwit



Grey plover in breeding plumage



Curlew sandpiper



Common teal



Pacific Golden Plover in breeding plumage



Little stint



Pallas' Gull



Northern shoveller



Tagged Lesser Sandplover at Thane creek



Slender-billed gull



Pied avocet



Tagged Broad-billed sandpiper at creek



Whiskered Tern

RESIDENT SPECIES



Black-capped Kingfisher



Western reef egret



Painted Stork



Black-headed Ibis



Little Egret

CONGREGATION



A flock of Whiskered tern at Thane creek



Congregation of Eurasian curlew



Congregation of Black-tailed godwit



Congregation of Lesser Flamingo



Courtship behaviour of Lesser Flamingo



Flock of Grey plover



Flock of Gull-billed tern



Flock of Lesser Flamingo



Flock of Painted stork



Mixed flock of Caspian tern Gull-billed tern



Mixed flock of Curlew Sandpiper



Mixed flock of Curlew Sandpiper

RINGING AND SURVEY



Bird banding session at Mankhurd



Researchers
conducting wader census at wetland



Tagged Lesser Florican



Tagged Broad-billed Sandpiper



Tagged Ruddy turnstone

DISTURBANCES



Shellfish collection by foot at creek



Disturbances_Dog at creek



Shelfish Collection using ply at construction site

AVIAN PREDATORS



Brahminy Kite



Steppe Eagle



Avian predators Black Kite

Appendix 2- Checklist of birds recorded from Sep 2022-May 2023

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Anatidae												
Lesser whistling duck	*Dendrocygnajavanica*	LC	R				+	+		+	+	
Indian Spot-billed Duck	*Anas poecilorhyncha*	LC	R	+		+	+	+		+		
Northern shoveler	*Spatula clypeata*	LC	M	+		+		+		+	+	
Northern pintail	*Anas acuta*	LC	M	+		+		+		+		
Garganey	*Spatula querquedula*	LC	M	+		+		+		+		
Cotton pygmy goose	*Nettapuscoromandelianus*	LC	R			+						
Common teal	*Anas crecca*	LC	M	+		+	+	+		+	+	
Ruddy shelduck	*Tadornaferruginea*	LC	M				+	+		+		
Eurasian wegion	*Mareca penelope*	LC	M							+		
Gadwall	*Marecastripera*	LC	M					+		+		
Podicipedidae												
Little grebe	*Tachybaptus ruficollis*	LC	R	+		+	+	+		+		
Ciconiidae												
Painted stork	*Mycteria leucocephala*	NT	R	+	+	+	+	+	+	+	+	+
Phoenicopteridae												
Greater flamingo	*Phoenicopterus roseus*	LC	M	+		+	+			+	+	+
Lesser flamingo	*Phoeniconaias minor*	NT	M	+		+	+		+	+	+	+
Threskiornithidae												
Black-headed ibis	*Threskiornismelanocephalus*	NT	R	+	+	+	+	+	+	+	+	+
Glossy ibis	*Plegadisfalcinellus*	LC	M	+		+	+	+	+	+		
Eurasian spoonbill	*Platalealeucorodia*	LC	M	+	+	+	+	+		+	+	+

Appendix 2- Checklist of birds recorded from Sep 2022-May 2023 (*contd.*)

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Indian pond heron	*Ardeolagrayii*	LC	R	+	+	+	+	+	+	+	+	+
Grey heron	*Ardea cinerea*	LC	R	+	+	+	+	+	+	+	+	+
Purple heron	*Ardea purpurea*	LC	R		+	+	+	+		+	+	
Green-backed heron	*Butorides striata*	LC	R	+		+	+			+	+	+
Cattle egret	*Bubulcus ibis*	LC	R	+	+	+		+	+	+	+	+
Great white egret	*Ardea alba*	LC	R	+		+	+	+	+	+	+	+
Intermediate egret	*Ardea intermedia*	LC	R	+	+	+	+	+	+	+	+	+
Little egret	*Egrettagarzetta*	LC	R	+	+	+	+	+	+	+	+	+
Western reef egret	*Egrettagularis*	LC	R	+		+	+	+	+	+	+	+
Phalacrocoracidae												
Little cormorant	*Microcardoniger*	LC	R	+	+	+	+	+	+	+	+	+
Indian cormorant	*Phalacrocorax fuscicollis*	LC	R	+	+	+	+	+	+	+	+	+
Great cormorant	*Phalacrocorax carbo*	LC	R							+		
Accipitridae												
Shikra	*Accipiter badius*	LC	R	+				+				
Black kite	*Milvus migrans*	LC	R	+		+	+	+	+	+	+	+
Western marsh harrier	*Circus aeruginosus*	LC	M	+			+			+		
Greater spotted eagle	*Clanga clanga*	VU	M							+		
Brahminy kite	*Heliasturindus*	LC	R	+		+	+	+	+	+	+	+
Pandionidae												
Osprey	*Pandion haliaetus*	LC	M							+	+	+
Rallidae												
Purple swamp hen	Porphyrio porphyrio	LC	R					+				

Appendix 2- Checklist of birds recorded from Sep 2022-May 2023 (*contd.*)

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Common coot	*Fulicaatra*	LC	R	+	+	+	+	+		+		
Recurvirostridae												
Black-winged stilt	*Himantopus himantopus*	LC	R	+	+	+	+	+	+	+		
Pied avocet	*Recurvirostraavosetta*	LC	M	+						+		
Charadriidae												
Red-wattled lapwing	*Vanellus indicus*	LC	R	+	+	+	+	+	+	+		
Pacific golden plover	*Pluvialis fulva*	LC	M	+	+	+	+	+	+	+	+	
Grey plover	*Pluvialissquatarola*	LC	M	+	+	+	+	+	+	+	+	+
Little ringed plover	*Charadrius dubius*	LC	M	+			+		+	+		+
Kentish plover	*Charadrius alexandrinus*	LC	M	+					+	+		+
Common ringed Plover	*Charadrius hiaticula*	LC	M						+			
Greater sand plover	*Charadrius leschenaultii*	LC	M	+		+			+	+		
Lesser sand plover	*Charadrius mongolus*	LC	M	+	+	+	+	+	+	+	+	+
Scolopacidae												
Ruff	*Calidris pugnax*	LC	M	+			+	+		+		
Common snipe	*Gallinagogallinago*	LC	M	+				+				
Black-tailed Godwit	*Limosa limosa*	NT	M	+	+	+	+	+		+	+	
Bar-tailed Godwit	*Limosa lapponica*	NT	M							+		
Whimbrel	*Numenius phaeopus*	LC	M	+			+		+	+	+	+
Eurasian curlew	*Numenius arquata*	NT	M	+			+		+	+	+	+
Common redshank	*Tringatotanus*	LC	M	+	+	+	+	+	+	+	+	+
Marsh sandpiper	*Tringastagnatilis*	LC	M	+	+	+	+	+	+	+	+	
Common greenshank	*Tringanebularia*	LC	M	+	+	+	+	+	+	+	+	+

Appendix 2- Checklist of birds recorded from Sep 2022-May 2023 (*contd.*)

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Wood sandpiper	*Tringaglareola*	LC	M	+	+	+	+	+	+	+		
Terek sandpiper	*Xenus cinereus*	LC	M	+			+	+	+	+	+	+
Common sandpiper	*Actitis hypoleucos*	LC	M	+	+	+	+	+	+	+	+	+
Ruddy turnstone	*Arenaria interpres*	LC	M	+			+	+	+	+	+	
Red knot	*Calidris canutus*	NT	M				+			+		
Great knot	*Calidris tenuirostris*	EN	M	+			+			+		
Little stint	*Calidris minuta*	LC	M	+	+	+	+	+	+	+	+	+
Temminck's stint	*Calidris temminckii*	LC	M	+			+		+			
Curlew sandpiper	*Calidris ferruginea*	NT	M	+	+	+	+	+	+	+	+	+
Dunlin	*Calidris alpina*	LC	M	+			+	+	+	+	+	+
Broad-billed Sandpiper	*Calidris falcinellus*	LC	M	+			+	+	+	+	+	+
Laridae												
Lesser black backed gull	*Larus fuscus*	LC	M					+		+		
Pallas's gull	*Larus ichthyaetus*	LC	M					+		+	+	+
Brown-headed gull	*Larus brunnicephalus*	LC	M	+		+	+	+		+	+	+
Black-headed gull	*Larus ridibundus*	LC	M	+		+	+	+		+	+	+
Slender-billed gull	*Larus genei*	LC	M	+			+	+		+	+	+
Common Gull-billed tern	*Gelochelidonnilotica*	LC	M	+		+	+	+		+	+	+
Caspian tern	*Hydroprognecaspia*	LC	M	+			+	+		+	+	
Common tern	*Sterna hirundo*	LC	M							+		
River tern	*Sterna aurantia*	VU	R	+				+		+		
Little tern	*Sternulaalbifrons*	LC	M	+			+	+	+	+	+	+
Saunders's tern	*Sternulasaundersi*	LC	M				+	+	+	+		

Appendix 2- Checklist of birds recorded from Sep 2022-May 2023 (*contd.*)

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Alcedinidae												
White-breasted kingfisher	*Halcyon smyrnensis*	LC	R	+		+	+	+	+	+	+	+
Common kingfisher	*Alcedo atthis*	LC	R	+		+	+	+	+	+	+	+
Black capped kingfisher	*Halcyon pileata*	VU	M					+		+	+	+
Motacillidae												
Grey wagtail	*Motacilla cinerea*	LC	M						+			

R/M = Resident / Migratory, BPS = Bhandup pumping station, BEL = Belpada, NRI = Non-residential Indian Complex, TSC = Training Ship Chanakya, Kha = Kharghar, Man = Mankhurd TC = Thane Creek, SEW = Sewri, NS = Nhava-Sheva, LC = Least Concerned, VU = Vulnerable, NT = Near Threatened.

Office of the Additional Principal Chief Conservator of Forests,
Mangrove Cell, Mumbai
And Executive Director, Mangrove and Marine Biodiversity
Conservation Foundation of Maharashtra
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MFN/DDR&CB/ 462 /2021-22 **Date: - 03.02.2022**

To,
The Engineer in Chief
MTHL-PIU
MMRDA

Sub: Report regarding the mangrove plantation carried out as a part of the MMRDA-MTHL Project

Ref: Minutes of the third PIC meeting with respect to the Bird Monitoring Programme of the MTHL Project

With reference to the above subject, during the third PIC meeting of the Bird Monitoring Programme of the MTHL Project, it was decided that a report regarding the 200 hectare mangrove plantation carried out by the Maharashtra Forest Dept. through the funds provided by MMRDA (as compensatory afforestation) should be submitted to the MMRDA.

In this regard, kindly find attached the said report with this letter.

(Virendra Tiwari) 3/2/22
Addl. Principal Chief Conservator of Forests,
Mangrove Cell, Mumbai &
Executive Director, Mangrove Foundation

MMRDA – MTHL Mangrove Restoration Report



महाराष्ट्र वन विभाग

Mangrove Cell

Forest Department of Maharashtra

About Project

Mangrove plantation in lieu of the mangrove area likely to be affected during the construction of Mumbai Trans Harbour Link (MTHL) project.

AS per the CRZ clearance for MTHL Project MMRDA was instructed to restore 5 times the mangroves cut/ disturbed by the project. As per the mandate, 200 hectares of plantation was carried out as compensatory Afforestation. All the plantations done under the project are maintained for the period of five years as per approved estimate and amount received.

For this MMRDA had requested mangrove Cell to prepare a mangrove plantation program 200 hectares. Mangrove Cell had identified 200 hectares area for mangrove plantation and total amount of Rs 49,59,822 was paid vide T O dated 9.05.2016 for 30 hectares. Further amount of Rs. 4,56,29,600 was paid vide cheque no 216609 dated 13.10.2016 for 170 hectares. The mangrove planation involves plantations of 4444 sapling per hectare and therefore total of 888800 saplings and additional 20 percent causality was replaced for the period of three years as per the estimate.

Details of Restoration work

Sr No	Division	Year	Range	Place	S. No	Ha	Survival percentage	GPS Locations
1	Dahanu	2016-17	Boisar	Mouje Pamtembi	161	15	71.02	19.571982; 72.821682
2			Saphale	Mouje Karwela	47	15	72.00	19.553711; 72.845790
3		2017-18	Boisar	Chandigaon	729	10	64.05	19.936829; 72.730574
4			Boisar	Pamtembi	161	10	75.20	19.805105; 72.705118
5			Boisar	Salwad	107	10	68.0	19.810528; 72.715928
6			Saphale	Makunsar	283/A	20	63.50	19.604865; 72.763378
7	MMCU		TCFS	Kanjur	275 C.S.N 657A	10	20	19.065557; 72.565564
8			TCFS	Mulund/ Bhandup	157 C.S.N 1318	15	57	19.084174; 72.580663
9	Dahanu	2018-19	Palghar	Shirgaon	1287	10	54.09	19.688655; 72.711506
10			Palghar	Dhansar I	64	20	46	19.708259; 72.732071
11			Palghar	Dhansar 2	64	25	51.1	19.709843; 72.727397
12			Boisar	Navapur	161	10	71.87	19.800481; 72.692326
13			Boisar	Salwad	107	10	69.79```	19.810528; 72.715928
14			Saphale	Karwela	47	20	82	19.552433; 72.841222

Mouje Pamtemhi (2016-17)

Survey No. 161





Mouje Karwela (2017-18)

Survey No.47





MUMBAI TRANS HARBOUR LINK
GENERAL CONSULTANT

Chandigaon (2017-18)

Survey No.729





Pamtembhi (2017-18)

Survey No.161





Salvad (2017-18)

Survey No.107



Makunsar (2017-18)

Survey No.283/A




Latitude: 19.604865
Longitude: 72.763378
Elevation: 7.37±7 m
Accuracy: 7.6 m
Time: 22-12-2021 16:23
Note: makunsar


Latitude: 19.605047
Longitude: 72.763248
Elevation: 6.68±9 m
Accuracy: 5.9 m
Time: 22-12-2021 16:24
Note: makunsar

Kanjurmarg(2018-19)

Survey No.275



Mulund/ Bhandup(2018-19)

Survey No.275





Shirgaon (2018-19)

Survey no-1287





Dhansar 1 (2018-19)

Survey No-64





MUMBAI TRANS HARBOUR LINK
GC

Dhansar 2 (2018-19)

Survey No-64





Navapur (2018-19)

Survey No-161





Salvad (2018-19)

Survey No-107





MUMBAI TRANS HARBOUR LINK
GC
GENERAL CONSULTANT

Karwale (2018-19)

Survey No-47





Annexure XV

MTHL – BNHS Annual Report

Monitoring and Mitigating the Impacts of Mumbai Trans-Harbour Link on Flamingos and other Avifauna and Formulating a Conservation Blueprint for the Sewri–Nhava Seascape

Fifth Annual Report

2021–2022

Submitted to

Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra



Submitted by

BNHS INDIA CONSERVING NATURE SINCE 1883

"Conservation of nature, primarily biological diversity,
through action based on research, education and public awareness."

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2022

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Recommended Citation:

Pandav B., R. Khot, S. Bajaru, M. Prabhu, R. Pitale, S. Sankpal, P. Khadanga, I. Shaikh, K. Dalvi, S. Dhotare, Dip Dalai, Shreya Pandey, M. Bhowmik, S. Junghare, R. Bhaskar, D. Gaikwad, A. Choudhur, R. Sequeira, K. Akhil, S. Anand, M. Shaikh and A. Medhi (2022): Monitoring and mitigating the impacts of Mumbai Trans-Harbour Link on flamingos and other avifauna and formulating a conservation blueprint for the Sewri–Nhava seascape. Fifth annual report (2021-2022). Submitted to Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra, pp. 1-93.

ACKNOWLEDGEMENT

We are thankful to PCCF Maharashtra Forest Department, for providing bird ringing and flagging permissions, Shri. Virendra Tiwari (IFS) APCCF and Director Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra and his team, Metropolitan Commissioner, and Executive Engineers of MMRDA-MTHL project and their teams, Commissioner of Police, Mumbai and Navi Mumbai for their respective permissions and cooperation to execut the project. We would like to extend our thanks to following BNHS staff Mr. Vishwas Shinde, Mr. Rajendra Pawar, Mr. Vikas Pisal, Mr. Ashok Pisal, Mr. Akash Patil, Mr. Vithoba Hegde, Mr. Shyam Jadhav, Administration and Account department BNHS for their constant support and assistance during the field work and day to day functioning of the project work. Thanks to the Publications department of BNHS for editorial and printing support.

Layout and Design – V Gopi Naidu & Sanchita S. Kadge

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Disclaimer

The observations represented in this report are based on study duration mentioned in the report. The observations may change or vary depending upon on further surveys and thus it should not be used as a stand alone report.

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Abbreviations	
BPS	Bhandup Pumping Station
DPS	Delhi Public School
FCS	Flamingo Count Survey
IBA	Important Bird Area
IBCN	Indian Bird Conservation Network
IUCN	International Union for Conservation of Nature
LC	Least Concerned
MMRDA	Mumbai Metropolitan Region Development Authority
MTHL	Mumbai Trans-Harbour Link
NRI	Non-residential Indian Complex
NT	Near Threatened
PoM	Post-Monsoon
PrM	Pre-Monsoon
TCS	Transact Count Survey
TSC	Training Ship Chanakya
VU	Vulnerable
WCS	Wetland Count Survey

Summary

The migratory bird population in wetlands was increased from the winter till spring afterwards their numbers were relatively low during summer migration season. On the other hand, the resident bird populations showed variations across seasons ranged from 316 to 1701 individuals. A large congregation of the Lesser flamingo was recorded inhabiting at DPS (11800) and TSC wetlands (7500) whereas Greater flamingo congregation was observed mainly at BPS wetland (800). Previously they were seen inhabiting nearby Non-Residential Indian complex (NRI) wetland for roosting (Apte et. al 2018 and 2019).

A gradual change in the abundance of migratory birds was observed at Thane creek from November (123468) to April (40930). Abundance of migratory shorebirds reached its peak in January (137237) whilst the lowest number of individuals were recorded in May (3789). On the other hand, resident bird population was more or less stable throughout season ranging from 798 to 1967 individuals. We found that the migratory shorebirds showed preference towards certain areas of the creek such as mudflats near Ghansoli and Vashi.

The lesser flamingo population was lowest in October and November 2021 while later on population increased remarkably until April. Overall, average 55166 (SD = ±21836) Lesser flamingos were recorded in creek, ranged from 16422 to 81917, excluding October and November counts. On the other hand, Greater flamingo abundance in 2021-22 was highest in past four years, ranged from 6015 to 49755, average 10009 (SD = ± 13597). At both the construction sites Lesser flamingos were predominantly higher in number than Greater flamingos. Overall, both the species of the flamingos were observed to prefer Sewri mudflats over Nhava throughout the season. Maximum Lesser flamingos were recorded at Sewri (24200) and Nhava (14385) and Greater flamingos at Sewri (2817) and Nhava (227).

In total, 97 behaviour recording sessions were carried out (35 at creek/feeding site, 41 at wetlands/ roosting sites and 21 at construction site) along with data on different disturbance regimes. During these sessions, 7675 behaviour videos of 10 migratory shorebird species were recorded. Out of that 2181 videos were recorded at construction site, 2812 at feeding site and 2682 at roosting site.

Introduction

Mumbai is located in the Konkan Plains of the northern Western Ghats. Due to its key geographic position and abundant natural resources, Mumbai has always been a centre of development since the colonial period. It is the financial capital of the nation, and the ninth most populous city in the world, with a current population of 26.6 million (UN 2012). The Mumbai Metropolitan Region Development Authority (MMRDA), the planning authority for Mumbai Metropolitan Region (MIMR), has predicted in its 40-year concept plan that the city would have 44 million inhabitants spread over 1050 sq. km by 2052, which is almost double the present area 603 sq. km (Kamdar 2014). This means there will be tremendous pressure on the already shrunken natural habitats, especially mangroves, coastal mudflats and remnant patches of the natural forests, which will eventually impact the biodiversity (Nagendra et al. 2012). Given the coastal features of the city, the disappearance of the mangroves

and mudflats may leave the city not only vulnerable to local environmental issues such as floods, toxic runoffs, siltation and reduction in the groundwater, but also to global disasters such as cyclones, tsunamis and sea-level rise due to global climate change (Kleppel et al. 2006). Alongside the environmental concerns, Mumbai also faces the inevitable need for development.

The Mumbai Trans Harbour Link (MTHL), the 22-km bridge connecting Southern Mumbai (at Sewri) with Southern Navi Mumbai (at Nhava Sheva), is one such developmental project that is set to bring Mumbai closer to its satellite city. The alignment passes over Sewri Mudflat, which is key wintering ground for migratory shorebirds, and is identified as an Important Bird Area (IBA) by the Indian Bird Conservation Network IBCN, (Rahmani et al. 2016). In addition, part of Thane Creek is declared as the Thane Creek Flamingo Sanctuary. The intertidal mudflats in this creek harbour a large congregation of waterbirds including ducks, waders and large proportion of the South Asian population of Lesser Flamingo *Pheonicopterus minor*, a Near Threatened species (Vijayan et al. 2008).

Habitats along this Indian coasts such as creeks, mangroves, mudflats, salt marshes and wetlands harbour rich coastal and marine biodiversity. This western coast is also considered as the main wintering grounds for the waders migrating from Central or South Asia (Balachandran 2006). The MTHL project is likely to affect waterbirds of Sewri Mudfat, Thane Creek and wetlands of Navi Mumbai. Hence, MMRDA has approached BNHS to monitor the impacts of the bridge on flamingos, other avifauna and marine fauna, and suggest a mitigation plan for the conservation of waterbirds and their habitats. The study duration is of 10 years (2017-2027) and is focusing on long-term examination of the ecology of shorebirds and marine benthic fauna with respect to human disturbances, particularly the MTHL bridge construction.

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Objectives

1. Estimate the occupancy and abundance of avifauna during pre-construction, construction and post-construction period.
2. Understand the migration pattern and population demographic of the migratory avifauna.
3. Understanding the biological and physicochemical parameters of the foraging grounds of flamingos and waders
4. Study the heavy metal concentration and accumulation in the birds and their food chain
5. Conduct bird conservation training programme for staff involved in construction work of MTHL
6. Study the impact of construction on the foraging habitat (post project monitoring) for suggesting and implementing the restoration measures.

Methodology

Study site

This study was carried out in six inland wetlands (high tide roosting sites)— Training Ship Chanakya (TSC), Bhandup Pumping Station (BPS), Non-Residential Indian (NRI) complex, Mankhurd saltpans, Kharghar wetland, and Belpada mangrove and three mudflats (low tide feeding sites) — the east and west banks of Thane Creek, mudflats of Sewri and Nhava-Sheva.

Bird sampling

We counted shorebirds during high tide at high tide roosting sites following WCS protocol and during low tide at foraging sites following TCS protocol. In addition, flamingos were counted separately during low tide at feeding sites using FCS protocol. We also recorded shorebirds behaviour at roosting, feeding and construction sites. Bird ringing was carried out at high tide roosting sites during high tide (for details of the sampling protocol, please refer to Apte et al. 2018 and 2019 —unpublished reports).

All these surveys were conducted between October 2021 to May 2022. We did not complete some of the surveys in September 2021 and January 2022 due to heavy rain and COVID-19 pandemic respectively.

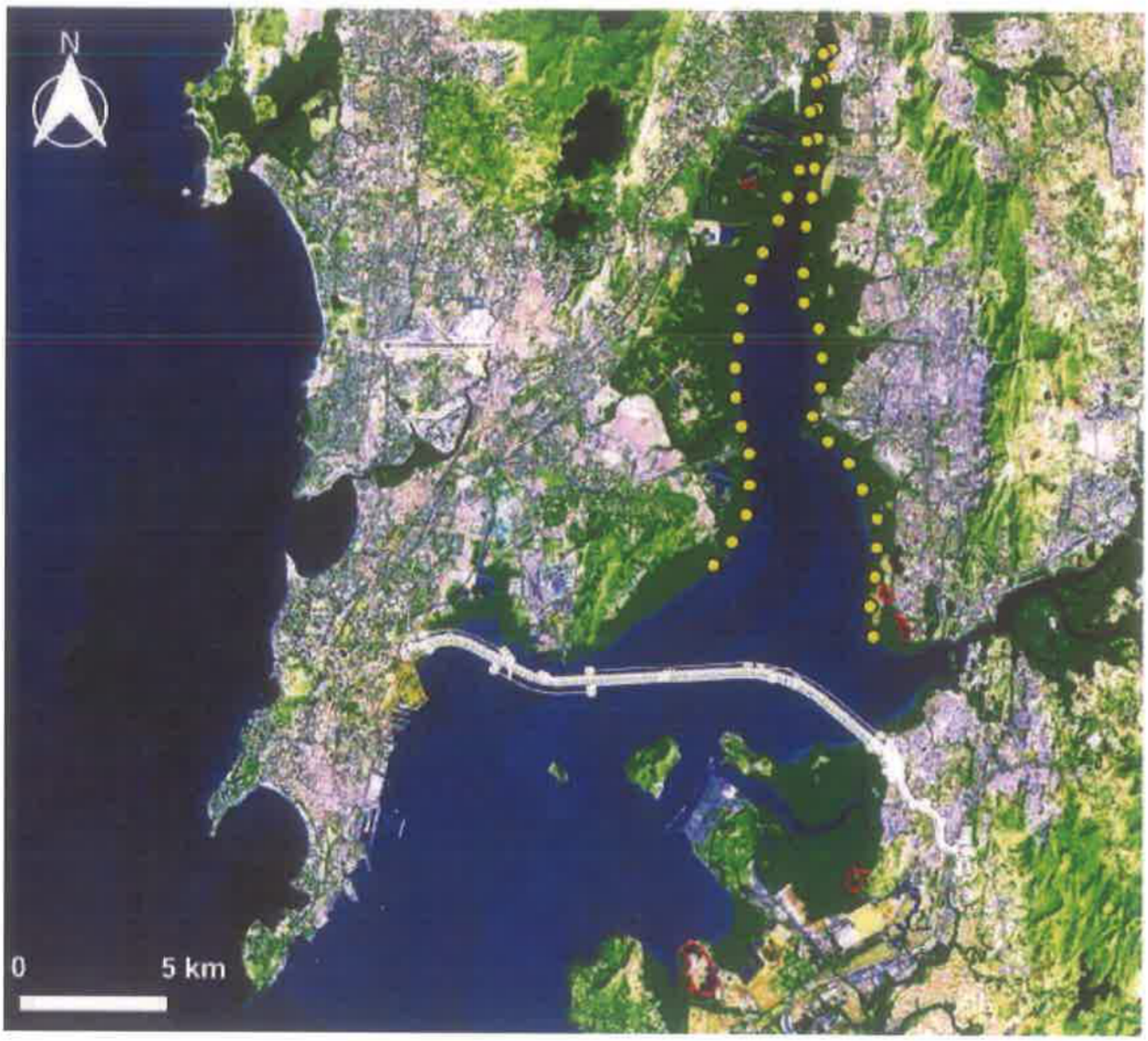

Fig. 1. Land use and land cover map of study area with study sites: Land use and land cover map of the study area was developed using Landsat 8 satellite imagery (January 2018; band combinations = 7, 5 and 3). Wetlands are highlighted with red polygons and the transects with yellow circles. Forest and mangroves appear in shades of green, the darker colour indicates healthy and dense vegetation; urban areas are marked with cyan or purple; and soil colours vary from dark to light brown; moist soils are darker

Results

Wetland Count Survey (WCS)

In all, a total of 79 species (51 migrants and 28 residents) of shorebirds were recorded from the wetlands/ high tide roosting sites. Migratory shorebird abundance increased gradually till March followed by a sharp decrease in April and May during return migration (Fig. 2). Overall, maximum number of migratory shorebirds were recorded in March (34014) and only 528 individuals were observed in October (Fig. 2). A considerable amount of variation was observed in the number of resident shorebirds throughout the seasons in which most abundance was recorded in the month of January 2022 (1701) and least in October 2021 (316) (Fig. 3).

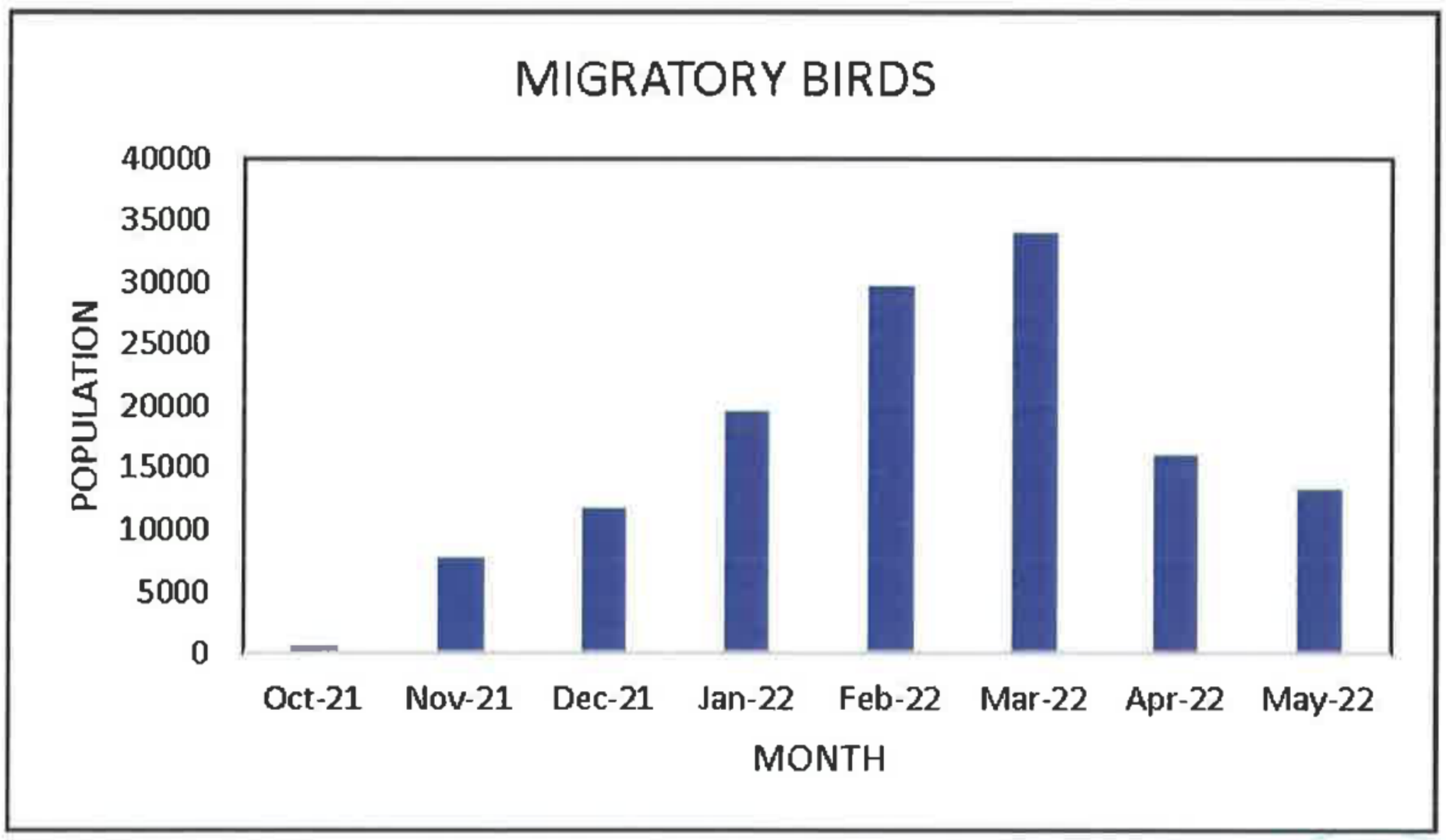

Fig. 2: Migratory shorebird abundance in the wetlands from Oct 21–May 22

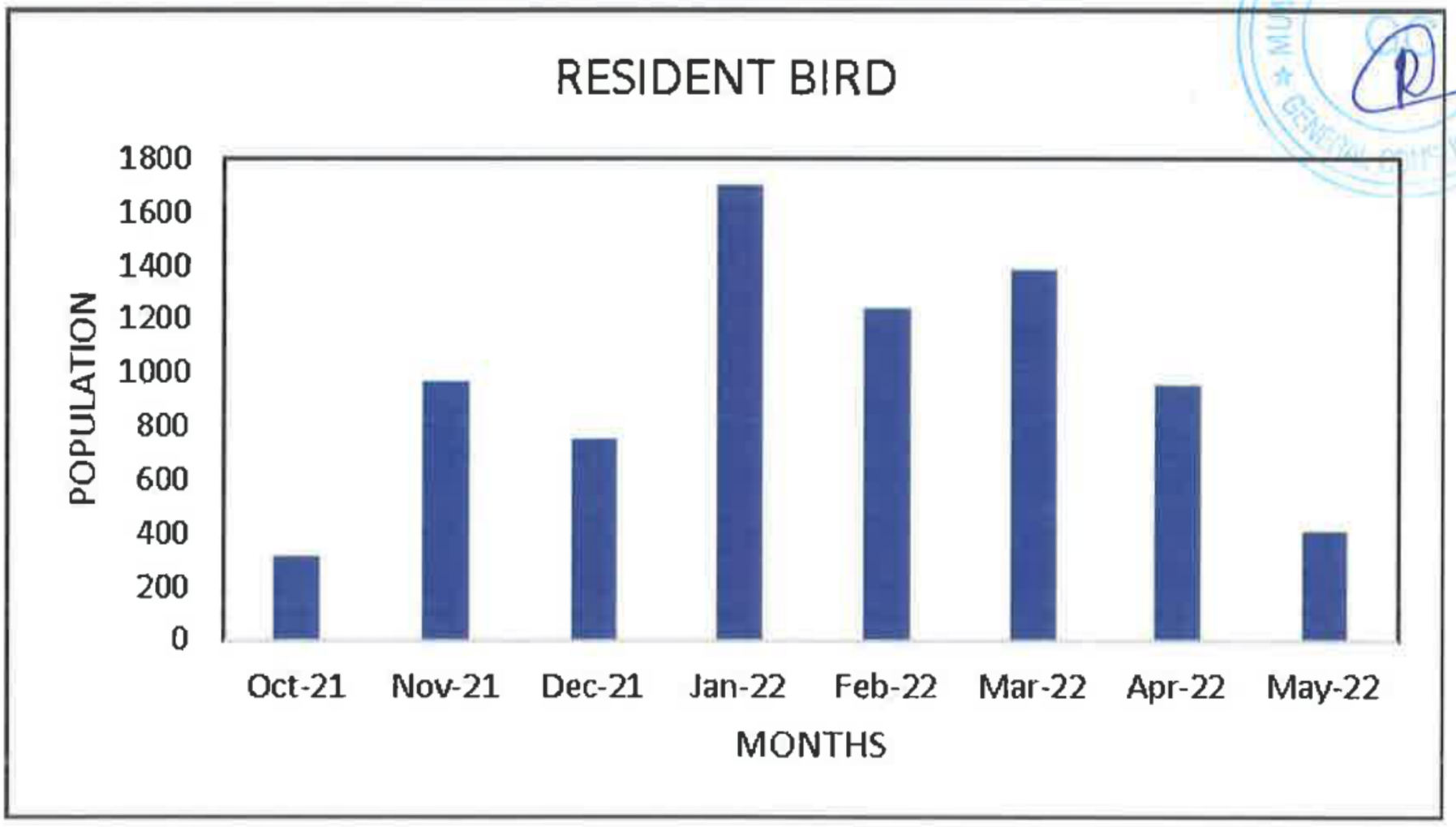

Fig. 3: Resident shorebird abundance in the wetlands Oct 21–May 22

Among all the wetlands, DPS (12075 in March) and Mankhurd (15785 in February) supported a substantially high number of migratory shorebirds, followed by BPS (8234) and TSC (7404) in January 2022. We observed that the overall abundance of shorebirds increased sharply from December till late March and started decreasing steadily (Fig. 4).

As observed in 2020-21, DPS and TSC were the most preferred hightide roosting sites for Flamingos in 2022 as well. In contrast, BPS and NRI favoured higher number of Greater flamingos than Lesser flamingos

(Table 1). These observations highlight the importance of the network of wetland/high-tide roosting sites in the long run for the conservation of migratory shorebirds.

Table 1: Maximum count of Flamingos observed at each wetland from Oct 2021-May 2022.

Site	Lesser flamingo	Greater flamingo
Belpada	0 (November)	1 (November)
BPS	335 (January)	800 (January)
TSC	7500 (May)	135 (February)
NRI	2 (April)	172 (February)
DPS	11800 (March)	120 (March)
Khargar	0 (May)	0 (May)
Mankhurd	0 (May)	0 (May)

We observed temporal variation in species richness across all wetlands from November 2021 to April 2022. The highest species richness was observed in BPS and TSC (29 species at both the wetlands) in January 2022.

We recorded nine Near-threatened and one Endangered (IUCN 2022). species during this study (Table 2).

Table 2: Threatened species recorded during wetland survey.

Sr. No.	Threatened species	IUCN status
1	Painted Stork (*Mycteria leucocephala)*	NT
2	Lesser Flamingo (*Phoeniconaias minor)*	NT
3	Black-headed Ibis (*Threskiornis melanocephalus)*	NT
4	Black-tailed Godwit (*Limosa limosa*)	NT
5	Eurasian Curlew (*Numenius arquata)*	NT
6	Great Knot (*Calidris tenuirostris)*	EN
7	Curlew Sandpiper (*Calidris ferruginea*)	NT
8	River tern (*Sterna aurantia)*	NT
9	Bar-tailed Godwit (*Limosa lapponica)*	NT

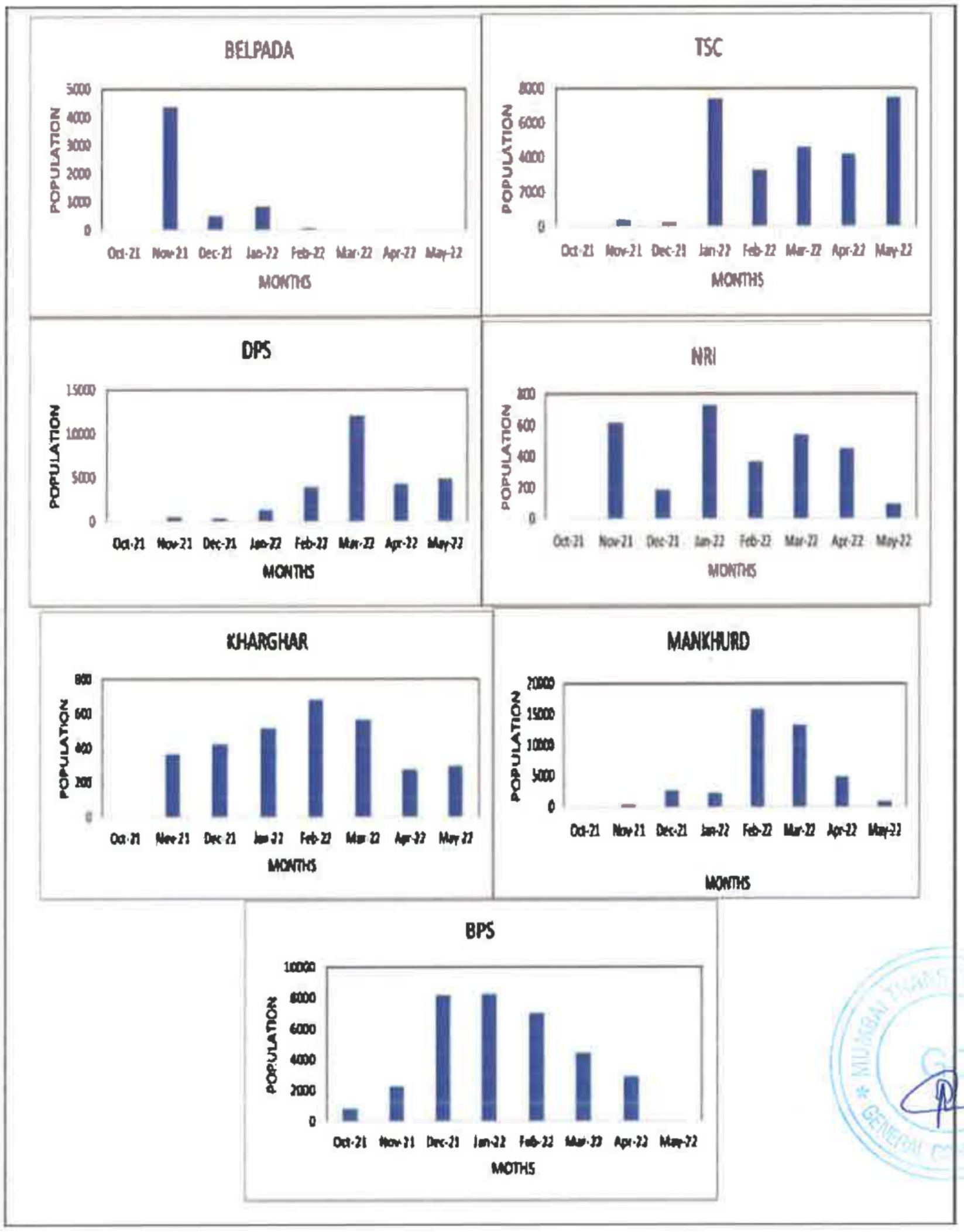

Fig. 4: Site-specific abundance of the shorebirds in the wetlands Oct 21–May 22

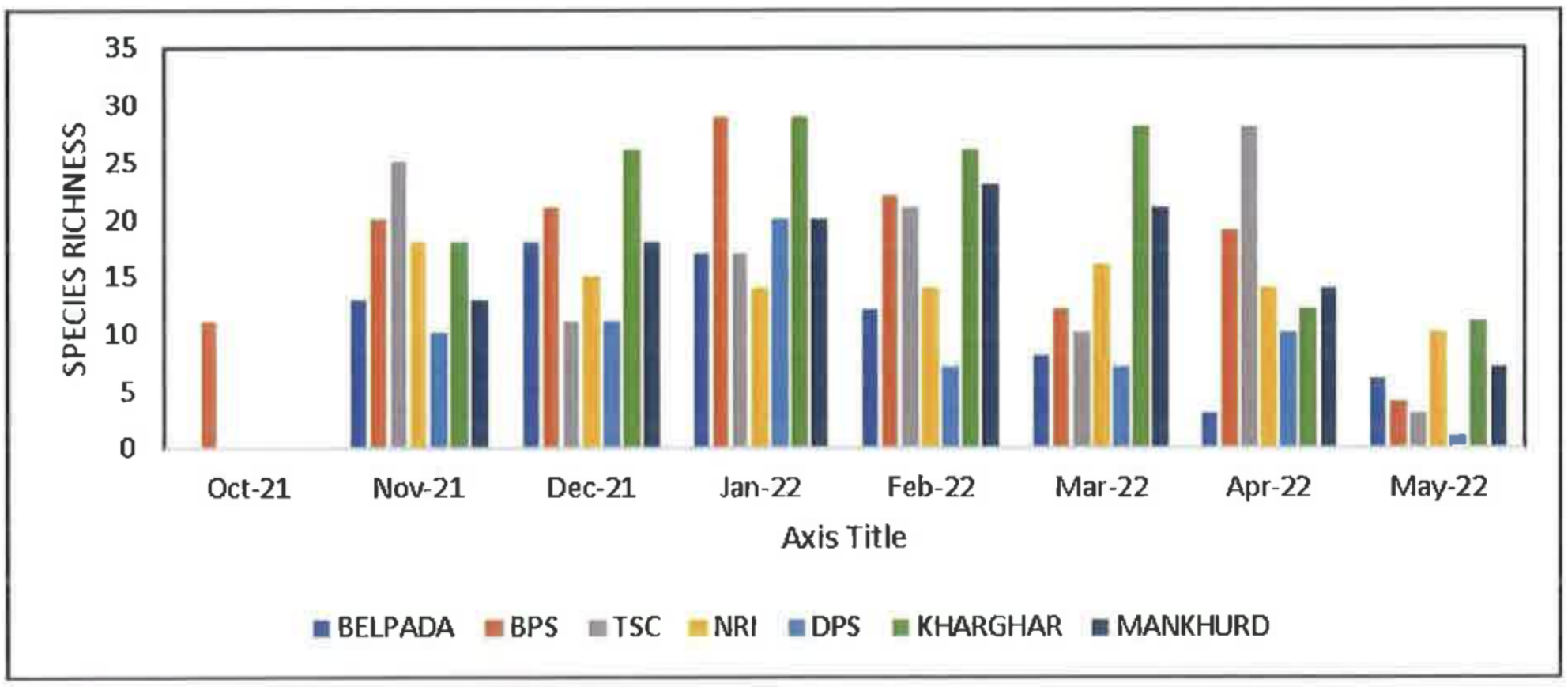

Fig. 5: Species richness of migratory shorebirds in the wetlands Oct 21–May 22

Transect Count Survey (TCS)

Thane Creek

We recorded a total of 65 species of waterbirds and raptors in the creek between October 2021 and May 2022. Among these, 47 species were migratory (43 shorebirds species and 4 raptor species), and 18 were resident birds. Resident bird abundance was relatively lower than that of migratory birds.

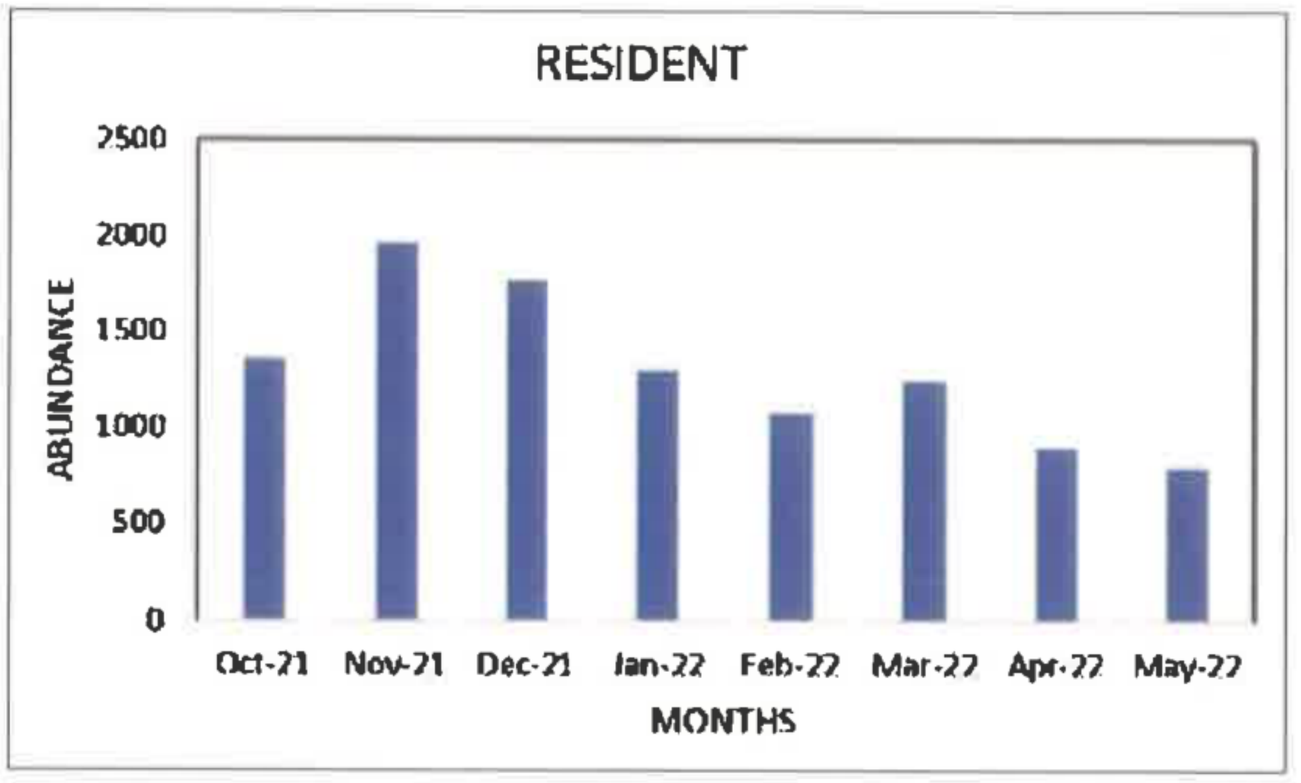

Fig. 6: Abundance of migratory shorebirds and resident birds in the creek Oct 21–May 22

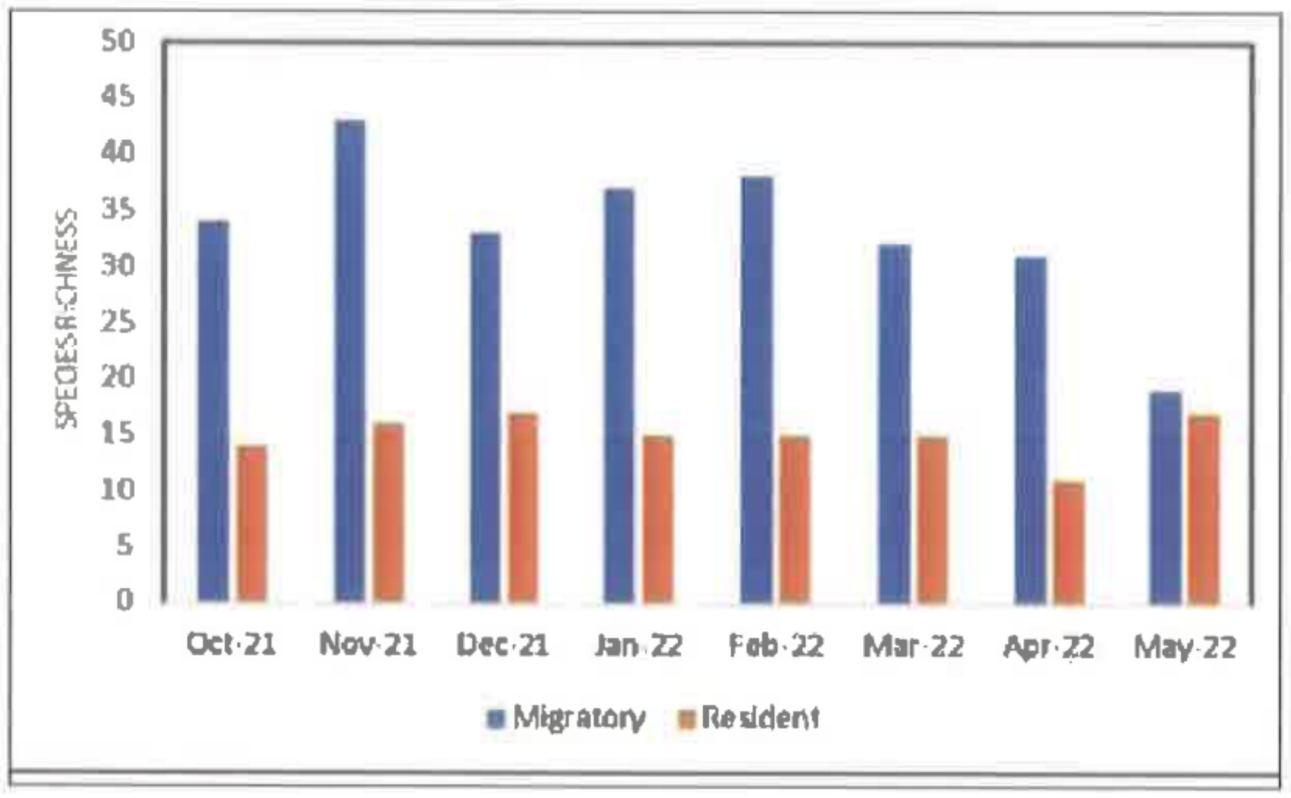

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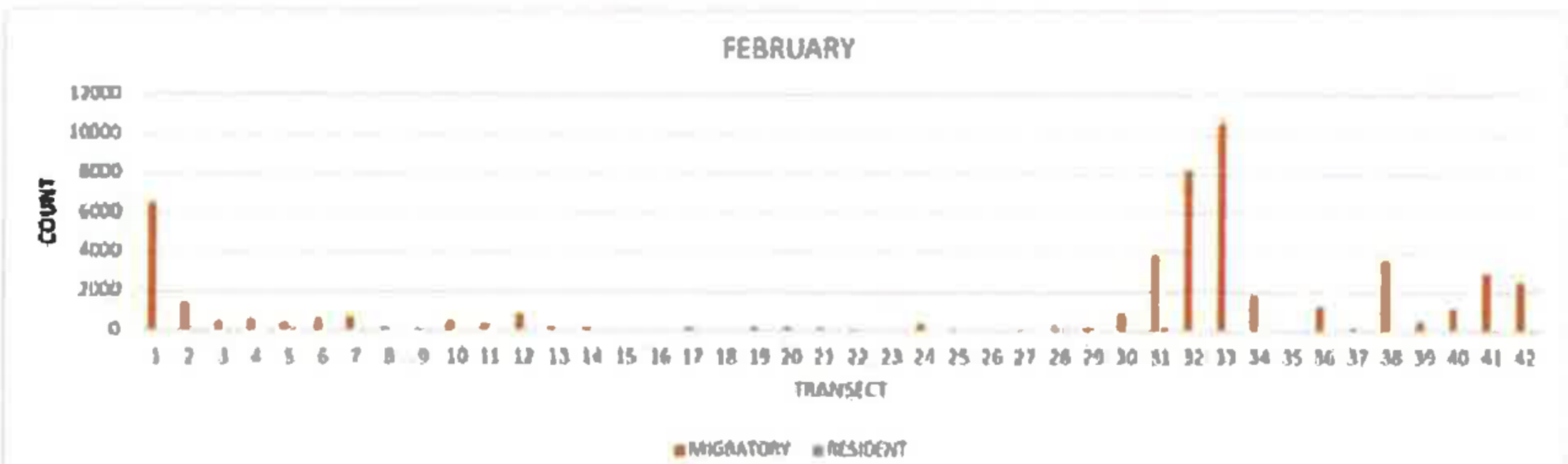
Fig. 7: Species richness of migratory shorebirds and resident birds in the creek Oct 21–May 22

Migratory shorebird population in the creek attained a peak in January (1,37,237 individuals) with a substantial contribution of waders. Most notable was Little Stint (*Calidris minuta*) — a total of 57,201 individuals were observed in November 2021.

Overall, species richness of migratory shorebirds was greater throughout the surveys (mean= 33.38, SD= 6.99) than resident birds (mean= 15, SD= 1.93) (Fig. 7).

A similar spatial distribution pattern was observed in the creek as seen in 2020-21. The largest congregations were found at Ghansoli (T1 and T40) and Vashi (T31–T33 and T36-T39) (Fig. 8). It indicates that the shorebirds have predominantly preferred the east bank of the creek over the years.



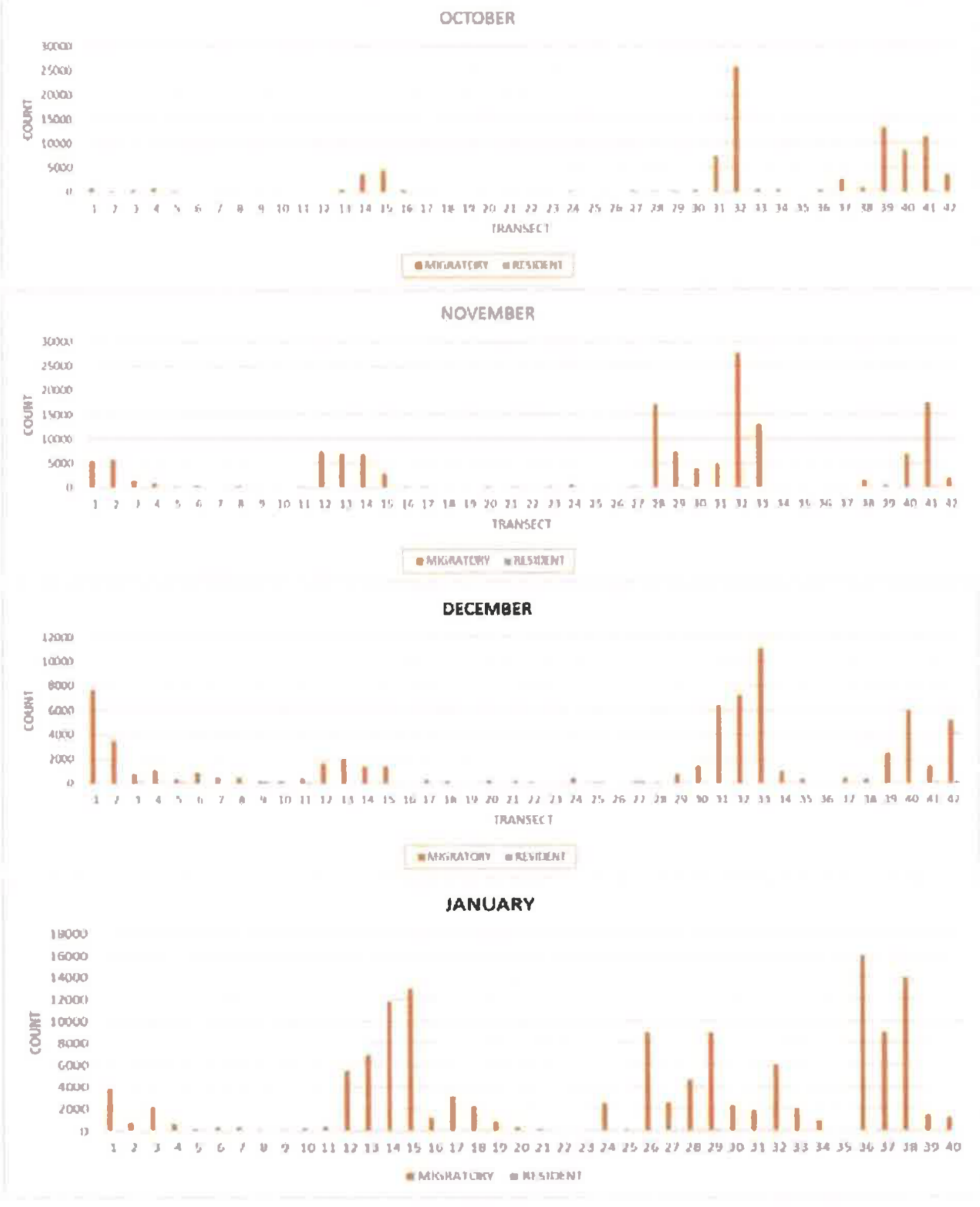


Fig. 8: Abundance of migratory and resident birds in Thane Creek, and Sewri and Nhava-Sheva mudflats Oct 21–May 22

Migratory shorebird counts were highest in November 2021 at Sewri (17456) and December 2021 at Nhava-Sheva (5171) mudflats, and thereafter the numbers declined gradually (Fig. 9).

The number of species at Sewri was highest in December (18), whereas only 14 species were recorded at Nhava-Sheva. The species richness of resident birds remained rather steady throughout the seasons (Fig. 10). We could not conduct bird surveys at construction sites during January month as these sites were prohibited due to Covid - 19 pandemic norms.

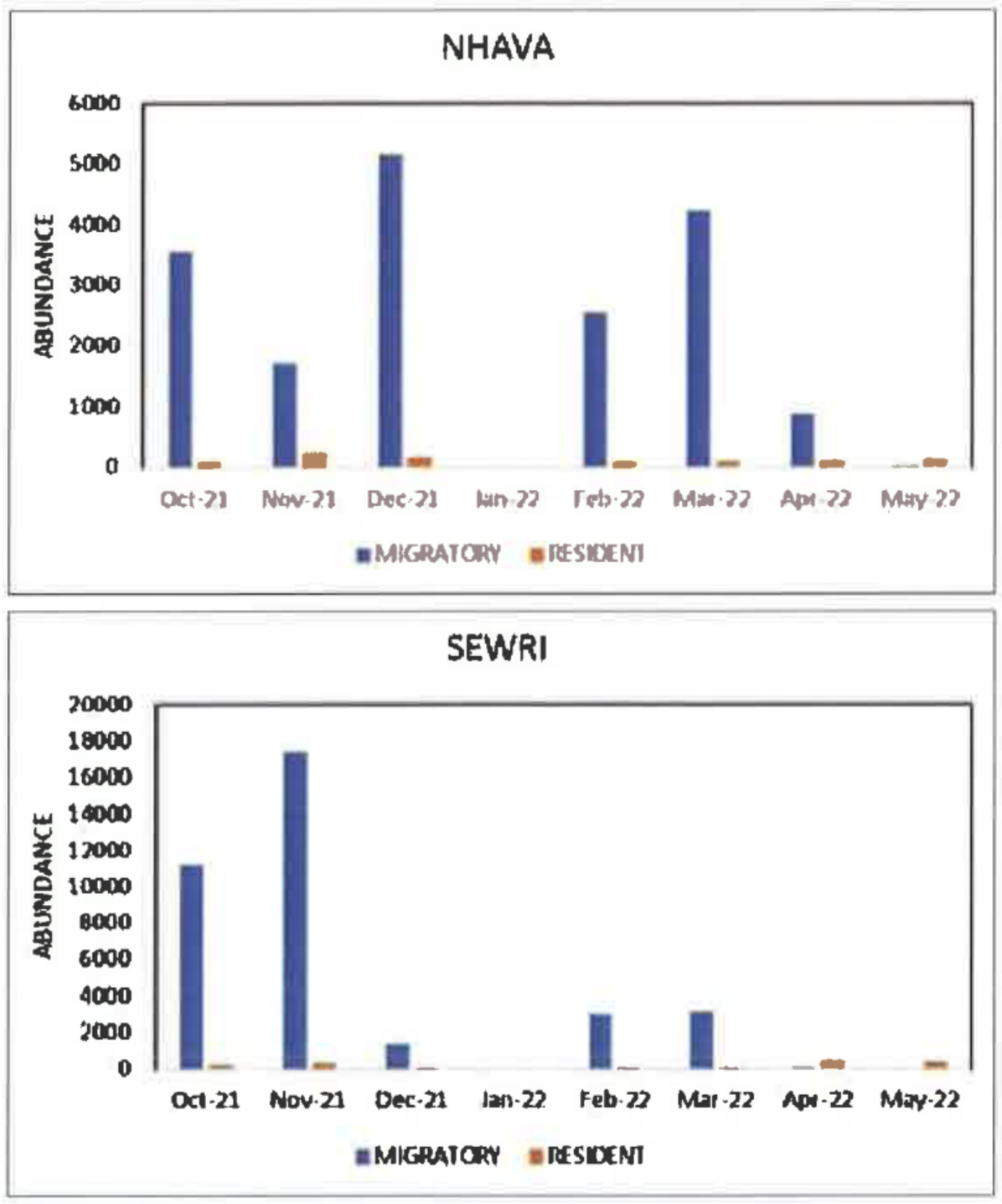


Fig. 9: Abundance of migratory and resident birds at Sewri and Nhava-Sheva mudflats Oct 21–May 22

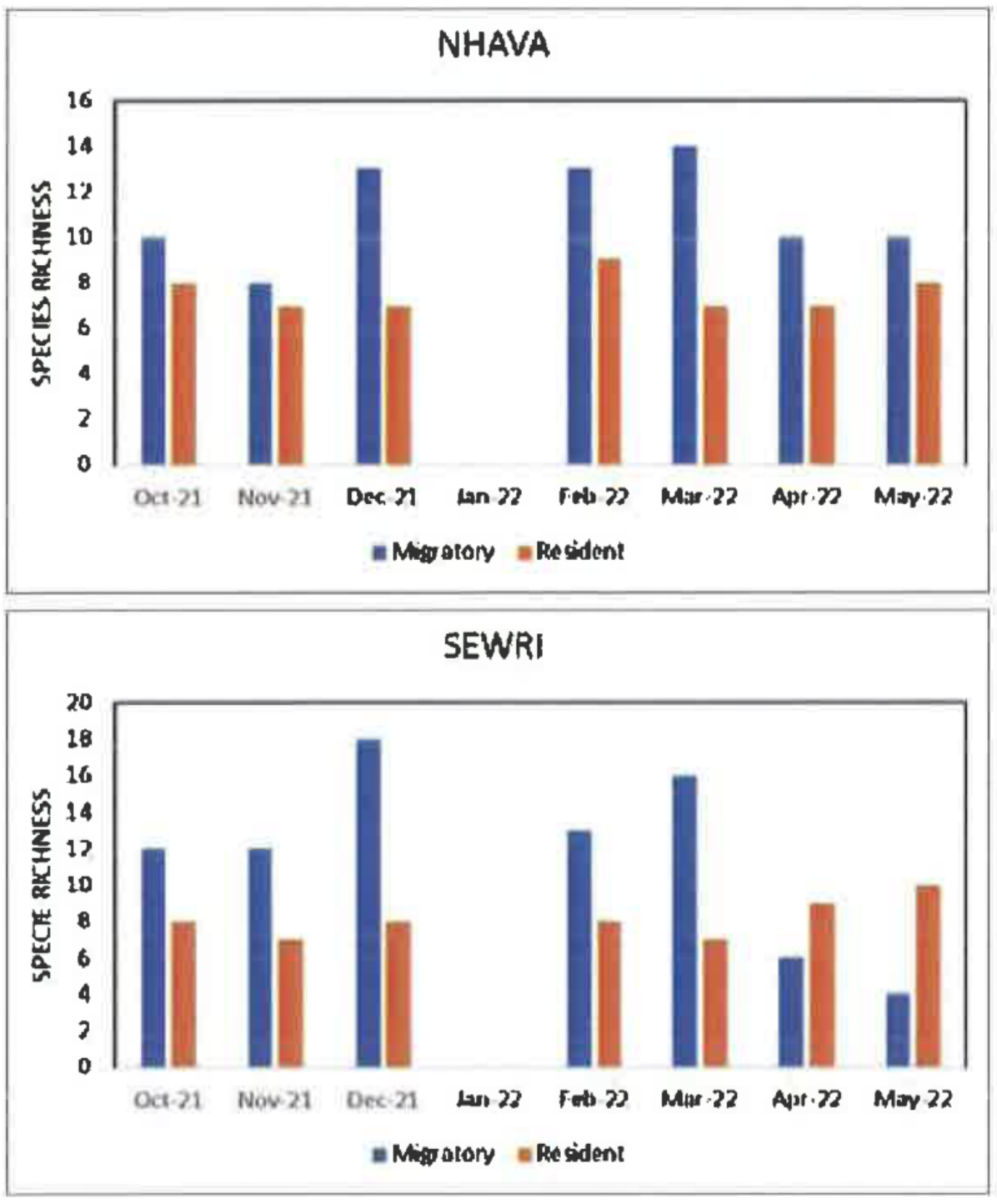


Fig. 10: Species richness at Sewri and Nhava-Sheva mudflats Oct 21–May 22

Flamingo Count Survey (FCS)

Abundance of flamingos in the Creek

The highest number of Lesser flamingos were estimated in April 2022 (81970) and the lowest in October (25) and November (44) 2021. The lesser flamingo population increased gradually from December 2021 (16422) to April 2022, but the number reduced to almost half in May 2022 (48360) (Fig.11). In April 2022, the number of adult lesser flamingos (73.6%) were substantially higher than that of juvenile (11.8%) and subadult (14.6%) population.

In contrast to previous years, Greater flamingos returned in superior numbers in 2022. The lowest number of individuals were recorded in the month of October 2021 (6015) which was still higher than the numbers estimated in the previous year. Maximum population of Greater flamingos occupied the creek in January 2022 (49755) (Fig. 12).

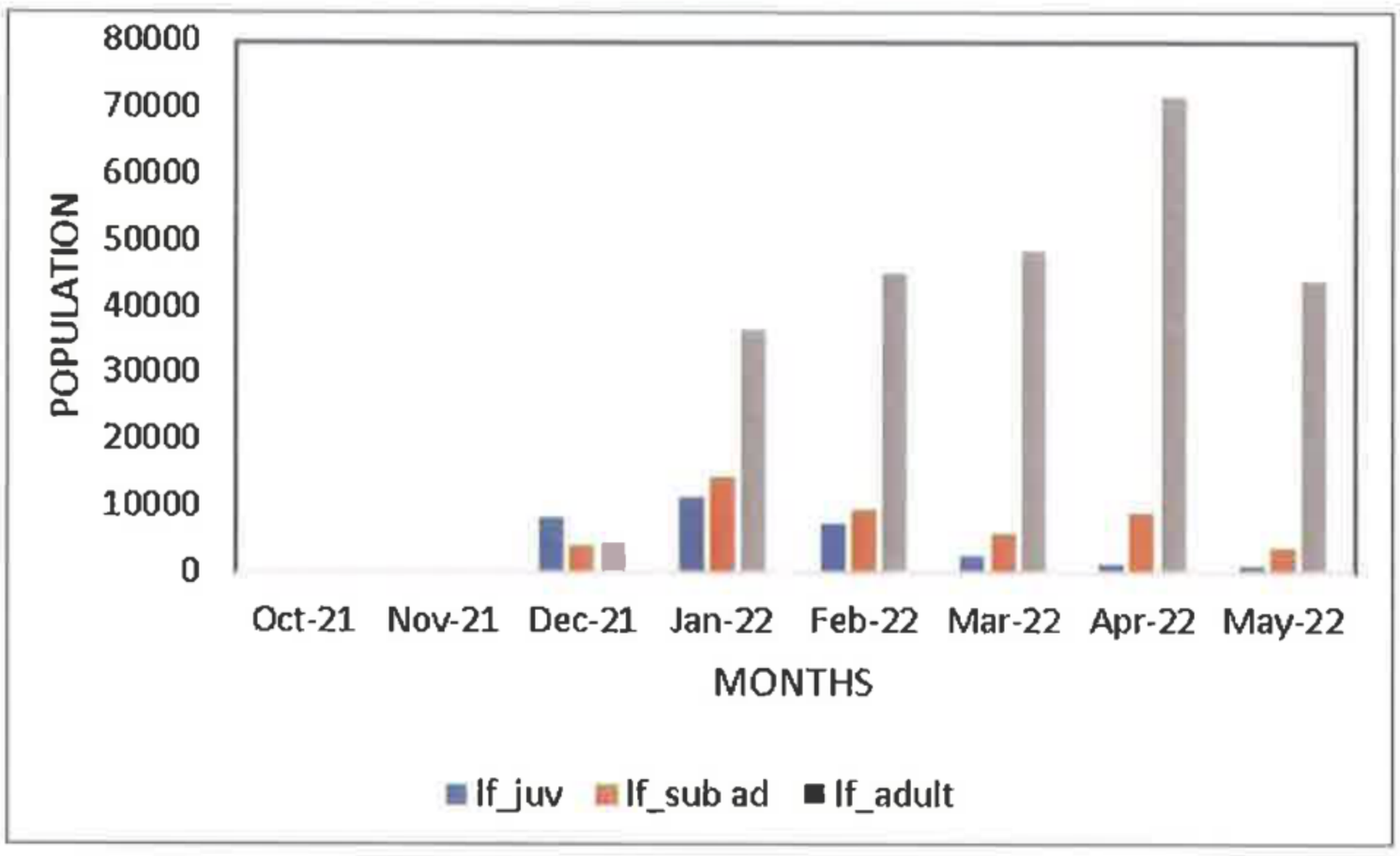


Fig. 11: Population of Lesser Flamingos recorded from Thane Creek Oct. 21–May 22

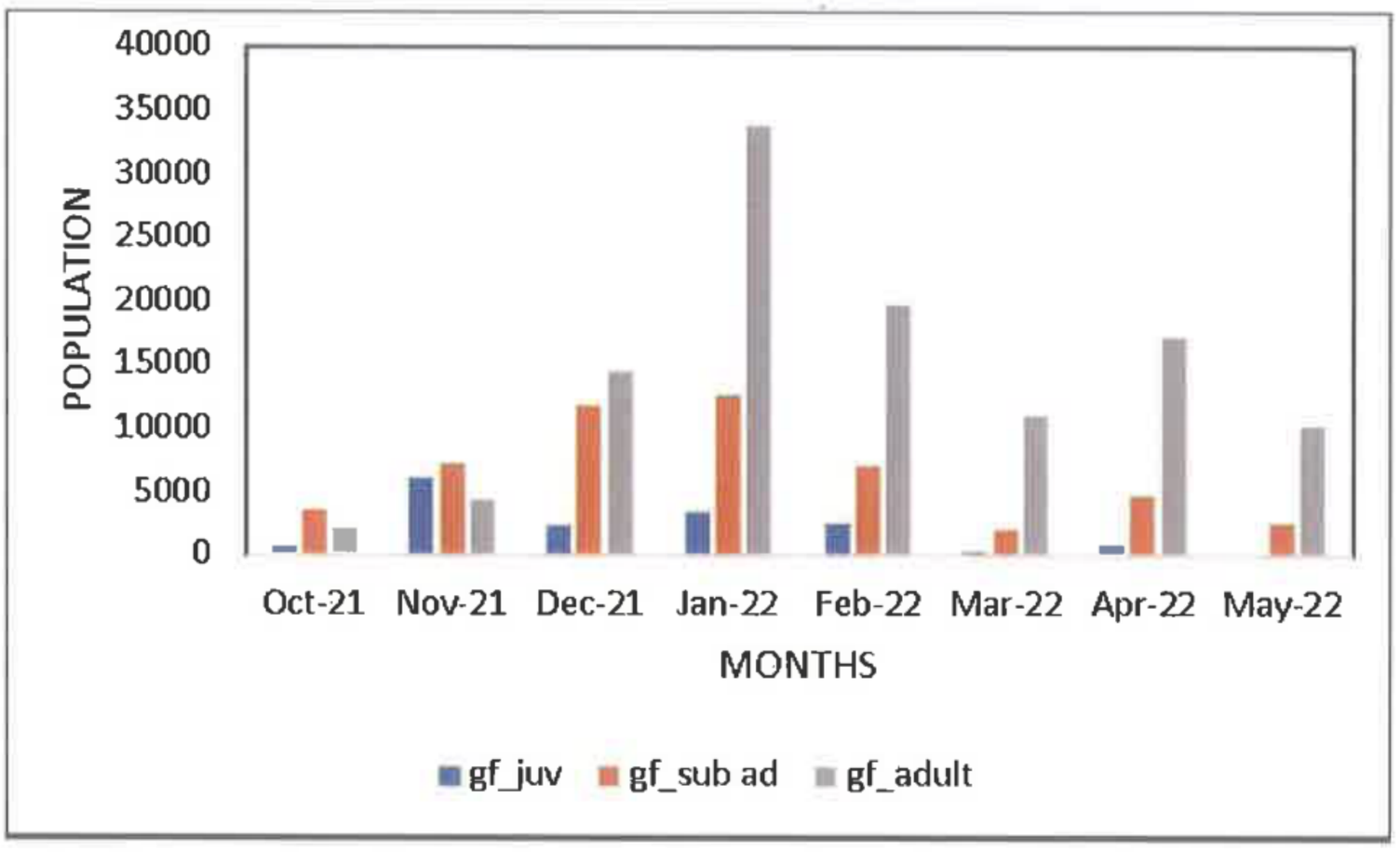


Fig. 12: Population of Greater Flamingos recorded from Thane Creek Oct. 21–May 22

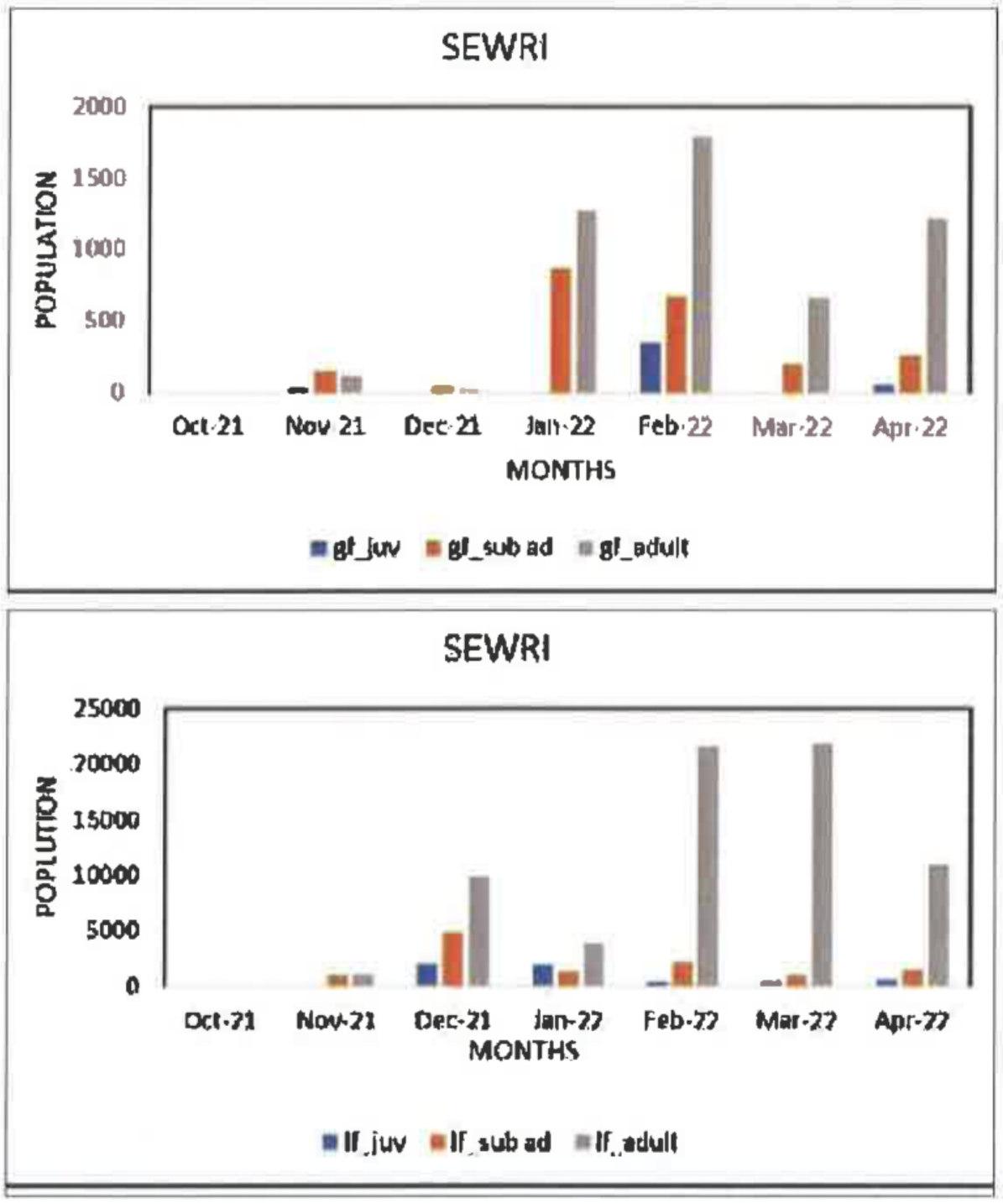


Fig. 13: Population of Lesser and Greater flamingos recorded from Sewri Oct. 21–May 22

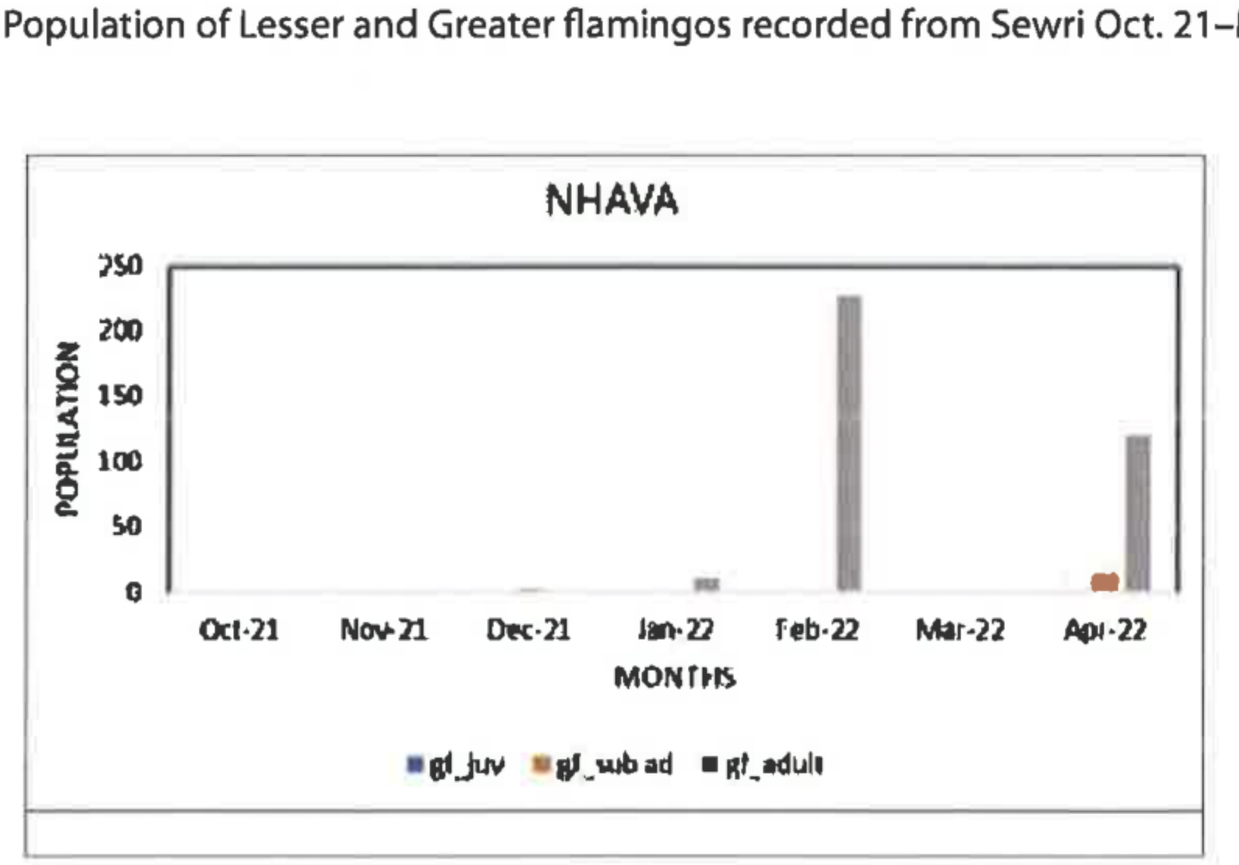


Fig. 14: Population of Lesser and Greater flamingos recorded from Nhava-Sheva mudflats Oct. 21–May 22

The abundance of Flamingos at Sewri was irregular throughout the year where the population of Lesser flamingos peaked directly in March (24200) and April (23310) 2022. Greater flamingos were lower in number (2817 in March) compared to Lesser flamingos but the numbers were higher than what was recorded in the previous year. A similar pattern was observed at Nhava-Sheva but very few Greater flamingos preferred Nhava-Sheva throughout the year (Only 227 individuals). Proportion of adult flamingo population was highest at both the sites followed by sub-adults and juvenile (Fig. 13 & 14).

Shorebird Behaviour Survey

We conducted 97 behaviour recording sessions at feeding, roosting and construction sites (35 at creek/feeding site, 41 at wetlands/roosting sites and 21 at construction site). During these sessions, we recorded 7675 behaviour videos of 10 migratory species. Disturbances such as local fishing, vehicles and instrument noise at construction sites as well as occasional predator attacks were observed during these recording sessions. Furthermore, all the 7675 videos were transcribed in the monsoon period for further analysis. A summary of total videos transcribed in each month is given in the table below (Table 3).

Table 3: A summary of total videos transcribed in each month from May to August 2022

	May-22	**June-22**	**July-22**	**August-22**
Construction site	250	700	700	531
Feeding Site	300	900	832	780
Roosting Site	450	800	735	697
Total	1000	2400	2267	2008

Behaviour observation

The behavioural study of Black-tailed godwit *Limosa limosa* for season, (September 2021 to May 2022) analysed (Fig. 15) for feeding sites and roosting sites including total of n=295 individuals from feeding site (Vashi, Ghansoli and Vitava) and n=248 from roosting site (TSC, BPS, NRI, DPS, Mankhurd, Kharghar and Belpada). In the feeding site the disturbance level was comparatively lower (94.49075%) with higher movement (67.96 %) compared to that in roosting site. Maintenance, vigilance, and resting activity was comparatively lower in the feeding site than in roosting site respectively (7.95, 11.00, 4.07).

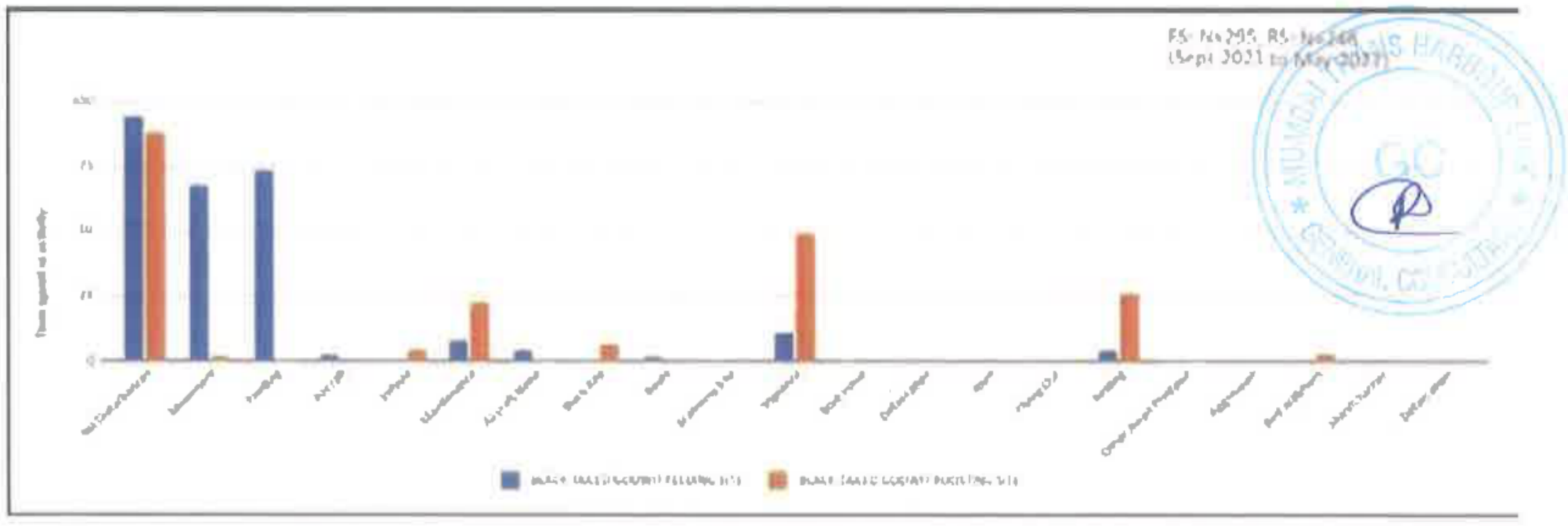


Fig. 15: Activity budget of Black-tailed godwit at feeding and roosting site

The behavioural study of Lesser flamingo *Phoeniconaias minor* for season (September 2022 to May 2022) was analysed (Fig. 16) separately for three sites respectively i.e., construction site, feeding site, and roosting sites. Feeding activity was recorded highest in the construction site (88.91%). Movement activity was highest in construction site (89.76%) followed by that in feeding site (88.98%) whereas resting activity was markedly higher in the roosting site (23.40%). Maintenance and vigilance aspects were highest in the roosting site respectively (22.84%, 7.98%).) followed by that in feeding site (5.072%). Frequency of vehicles were prominently higher in Construction sites (9.07%) followed by that in roosting sites (0.40%). Construction activity was only found in the construction sites (1.64%). Other peoples were recorded more frequently in the construction sites (11.24%). Aggression behaviour was higher at construction site (0.08%) followed by that in feeding site (0.01%). Birdwatchers were major disturbances at all the roosting sites (7.01%).

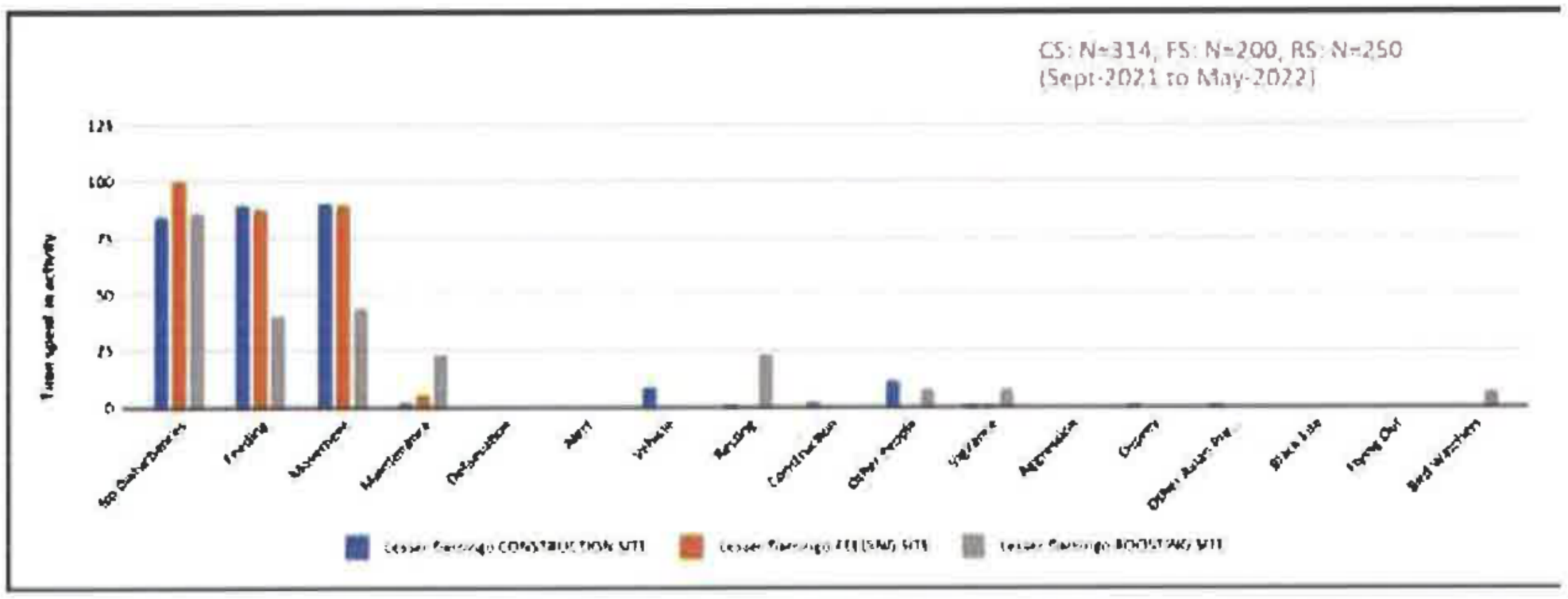


Fig. 16: Activity budget of Lesser flamingo at feeding, roosting and construction site

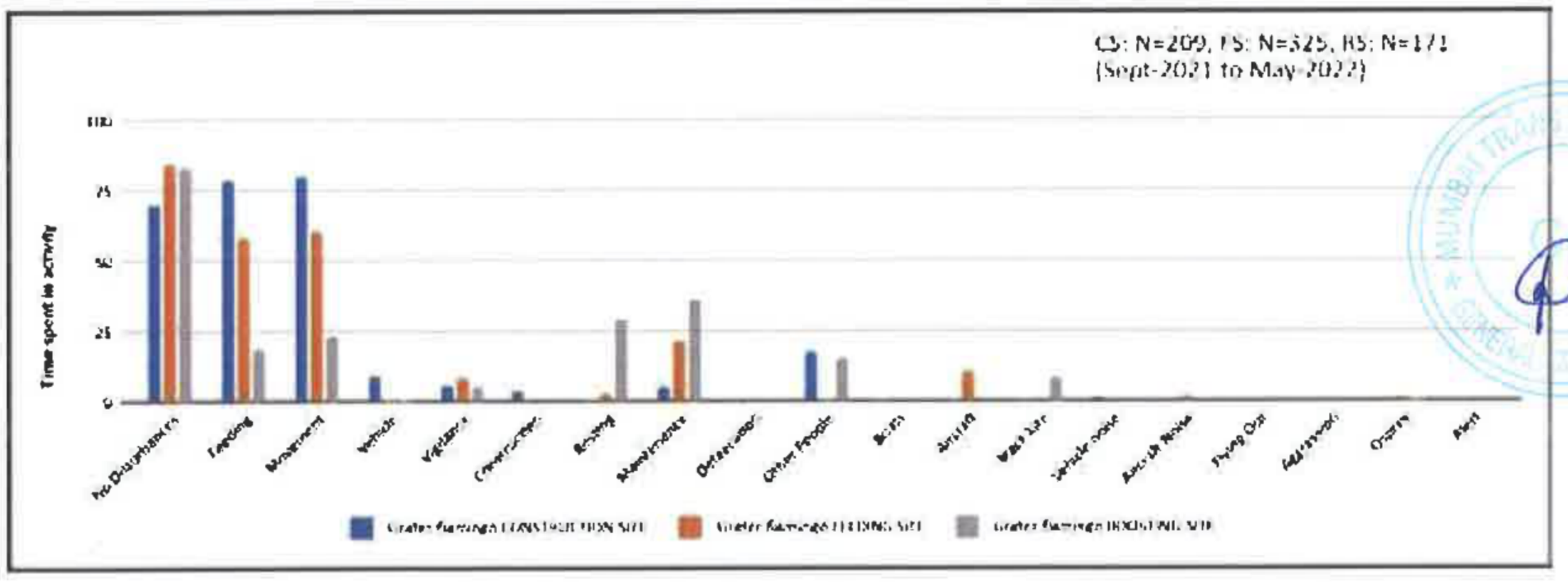


Fig. 17: Activity budget of Greater flamingo at feeding, roosting and construction site

The behavioural study of Greater flamingo *Phoenicopterus roseus* for season (September 2022 to May 2022) analysed (Fig. 17) separately for all the sites. Frequency of no disturbance was higher in feeding site (85.25%) followed by that in roosting site (83.88%). Movement was highest in construction site (80.09%) followed by feeding site (60.61%). Vehicles were highest in construction site (9.52%) followed by that in feeding site (0.46%). Vigilance was highest in feeding site (8.62%) followed construction site (5.88%). Resting activity was prominently higher in roosting site (29.38%) followed by feeding site (2.56%). Maintenance was highest in the roosting site (36.58%) followed by that in feeding site (21.06%).

Bird ringing

We ringed and flagged migratory shorebirds in 82 trapping sessions conducted from October 2021 to September 2022 at high tide roosting sites, viz, TSC, BPS saltpan, BPS mangrove, Ghatkopar Pumping Station and Mankhurd. In total, 8296 shorebirds (waders) were ringed and flagged. (Table 4 and 5).

Table 4: Species wise ringing details Oct 21–May 22

Sl. No.	Scientific Names	Common Names	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	Total
1	*Himantopus himantopus*	Black winged stilt	0	0	0	0	0	3	1	4
2	*Limosa limosa*	Black-tailed godwit	5	0	0	6	5	5	0	21
3	*Calidris falcinellus*	Broad-billed sandpiper	17	75	19	47	14	36	16	224
4	*Gallinago gallinago*	Common snipe	0	0	1	1	0	0	0	2
5	*Anas crecca*	Common teal	2	0	0	2	0	0	0	4
6	*Tringa nebularia*	Common greenshank	9	0	1	7	2	19	4	42
7	*Tringa totanus*	Common redshank	179	43	96	209	147	149	17	840
8	*Actitis hypoleucus*	Common sandpiper	31	26	12	10	6	12	15	112
9	*Calidris ferruginea*	Curlew sandpiper	161	246	205	237	241	298	277	1665
10	*Calidris alpina*	Dunlin	26	107	65	63	70	23	2	356
11	*Numenius arquata*	Eurasian curlew	1	0	0	1	0	3	0	5
12	*Calidris Tenuirostris*	Great knot	0	2	3	3	0	0	0	8
13	*Phoneicopterus roseus*	Greater flamingo	0	0	0	2	1	1	1	5
14	*Rostratula benghalensis*	Greater painted snipe	0	0	0	0	0	0	1	1
15	*Charadrius leschenaultii*	Greater sand plover	1	1	0	2	3	1	0	8
16	*Tringa ochropus*	Green sandpiper	1	0	0	0	0	1	0	2
17	*Pluvialis squatarola*	Grey plover	0	2	4	1	3	1	3	14
18	*Phalacrocorax fuscicollis*	Indian cormorant	1	0	0	0	2	0	0	3
19	*Charadrius alexandrinus*	Kentish plover	0	3	2	1	3	0	0	9
20	*Phoeniconaias minor*	Lesser flamingo	0	0	0	0	12	18	1	31
21	*Charadrius mongolus*	Lesser sand plover	236	509	537	271	413	220	191	2377
22	*Charadrius dubius*	Little ringed plover	1	1	2	0	0	0	0	4
23	*Calidris minuta*	Little stint	375	232	154	153	272	182	311	1679
24	*Sternula albifrons*	Little tern	0	0	60	18	26	25	36	165
25	*Tringa stagnatilis*	Marsh sandpiper	5	1	7	11	14	36	6	80
26	*Spatula clypeata*	Northern shoveler	0	2	1	0	0	0	0	3
27	*Pluvialis fulva*	Pacific golden plover	0	0	0	5	1	1	2	9

Table 4: Species wise ringing details Oct 21–May 22 (contd.)

Sl. No.	Scientific Names	Common Names	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	Total
28	*Calidris canutus*	Red knot	0	0	0	1	0	0	0	1
29	*Vanellus indicus*	Red-wattled lapwing	2	0	0	0	0	0	0	2
30	*Areneria interpress*	Ruddy turnstone	2	1	0	0	1	4	3	11
31	*Calidris pugnax*	Ruff	1	0	0	0	0	0	0	1
32	*Sternula saundersi*	Saunders's tern	0	14	53	54	3	11	10	145
33	*larus genei*	Slender billed gull	0	0	0	0	1	0	0	1
34	*Tringa erythropus*	Spotted redshank	0	0	0	0	0	0	1	1
35	*Calidris temminckii*	Temminck's stint	13	12	0	0	0	3	0	28
36	*Xenus cinereus*	Terek sandpiper	26	37	63	28	17	18	61	250
37	*Numenius phaeopus*	Whimbrel	0	1	0	0	0	2	0	3
38	*Chlidonias hybrida*	Whiskered tern	0	44	0	0	0	0	0	44
39	*Tringa glareola*	Wood sandpiper	10	3	14	11	7	34	57	136
	Total		**1105**	**1362**	**1299**	**1144**	**1264**	**1106**	**1016**	**8296**

Table 5: Species wise recapture detail

Sl. No.	Scientific Names	Common Names	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
1	*Calidris falcinellus*	Broad-billed sandpiper	0	2	0	3	1	1	4	11
2	*Tringa nebularia*	Common greenshank	0	0	0	0	0	1	0	1
3	*Tringa totanus*	Common redshank	47	1	10	57	45	79	14	253
4	*Actitis hypoleucus*	Common sandpiper	0	4	0	2	5	0	3	14
5	*Calidris ferruginea*	Curlew sandpiper	11	10	10	26	23	36	43	159
6	*Calidris alpina*	Dunlin	0	1	4	6	2	3	1	17
7	*Calidris Tenuirostris*	Great knot	0	0	1	0	0	0	0	1
8	*Charadrius leschenaultii*	Greater sand plover	0	0	0	0	0	1	0	1
9	*Pluvialis squatarola*	Grey plover	0	0	0	1	0	0	0	1
10	*Charadrius mongolus*	Lesser sand plover	10	10	21	15	37	19	25	137
11	*Calidris minuta*	Little stint	16	2	3	3	7	3	10	44
12	*Sternula albifrons*	Little tern	0	0	0	0	1	1	1	3
13	*Tringa stagnatilis*	Marsh sandpiper	0	1	1	0	0	1	0	3
14	*Pluvialis fulva*	Pacific golden plover	0	0	0	0	0	0	1	1
15	*Areneria interpress*	Ruddy turnstone	0	0	1	0	0	0	0	1
16	*Sternula saundersi*	Saunders's tern	0	0	3	2		2	2	9

Table 5: Species wise recapture detail (contd.)

Sl. No.	Scientific Names	Common Names	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
17	*Xenus cinereus*	Terek sandpiper	2	7	5	4	8	6	24	56
18	*Tringa glareola*	Wood sandpiper	0	0	1	0	0	1	3	5
	Total		**86**	**38**	**60**	**119**	**129**	**154**	**131**	**717**

Table 6: Species wise resighting details from Oct 2021–Apr 2022

Sl. No.	Scientific Names	Common Names	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
1	*Himantopus himantopus*	Black winged stilt	0	0	0	0	0	1	0	1
2	*Limosa limosa*	Black-tailed godwit	0	1	1	0	7	24	10	43
3	*Calidris falcinellus*	Broad-billed sandpiper	0	1	4	0	0	3	0	8
4	*Tringa nebularia*	Common greenshank	0	9	5	1	1	1	1	18
5	*Tringa totanus*	Common redshank	30	38	40	6	35	58	8	215
6	*Actitis hypoleucus*	Common sandpiper	0	0	0	1	0	1	0	2
7	*Calidris ferruginea*	Curlew sandpiper	22	35	81	2	23	52	36	251
8	*Calidris alpina*	Dunlin	0	0	13	2	2	9	1	27
9	*Phoneicopterus roseus*	Greater flamingo	0	0	0	0	0	1	0	1
10	*Charadrius leschenaultii*	Greater sand plover	0	0	0	0	1	3	0	4
11	*Pluvialis squatarola*	Grey plover	1	1	1	0	3	10	9	25
12	*Phoeniconaias minor*	Lesser flamingo	0	0	0	0	3	0	0	3
13	*Charadrius mongolus*	Lesser sand plover	17	28	39	2	25	212	45	368
14	*Charadrius dubius*	Little ringed plover	0	0	0	2	0	0	0	2
15	*Calidris minuta*	Little stint	15	13	37	2	6	21	12	106
16	*Tringa stagnatilis*	Marsh sandpiper	0	1	5	1	16	26	0	49
17	*Pluvialis fulva*	Pacific golden plover	0	0	0	0	0	0	1	1
18	*Areneria interpress*	Ruddy turnstone	4	0	3	0	0	0	0	7
19	*Xenus cinereus*	Terek sandpiper	0	1	2	1	4	3	1	12
20	*Tringa glareola*	Wood sandpiper	0	0	2	2	1	0	0	5
	Total		**89**	**128**	**233**	**22**	**127**	**425**	**124**	**1148**

A total of 1148 birds were resighted throughout the seasons and maximum number of birds were resighted in March 2022 (425). We also received a few international resighting of birds tagged in our study area again in 2021-22. A Curlew sandpiper (2CF) and a Common redshank (1U9) were resighted in Central Mongolia and Altai regions of Russia, respectively.

Satellite telemetry

We tagged three Lesser flamingo and three greater flamingos with GSM GPS tags and one Black-tailed Godwit with GSM nano radio tag during the year 2021-22. Black-tailed Godwit named as BALA was the first wader species to be satellite tracked from India for its migratory path. The bird gave us crucial data on its stopover sites along its migratory path.

Bala travelled about 5000 km in 47 days (24th March to 11th June) to reach the breeding site(s) in Southwestern Siberia, Russia. It used several staging and stopover sites during northward migration and crossed six countries: Pakistan, Afghanistan, Turkmenistan, Uzbekistan, Kazakhstan and Tajikistan. In contrast, southward migration was quick — Bala took just five days (17th to 21st July) to cover a distance of 4200 km to reach Thane Creek through a few brief stops. (Fig. 18).

Five out of six tagged Flamingos moved to Gujrat in the month of July 2022 and since then they are not in network area and hence have not yet responded, we hope they will give us more data on their breeding sites once they are back in network. (Figs 19 and 20)

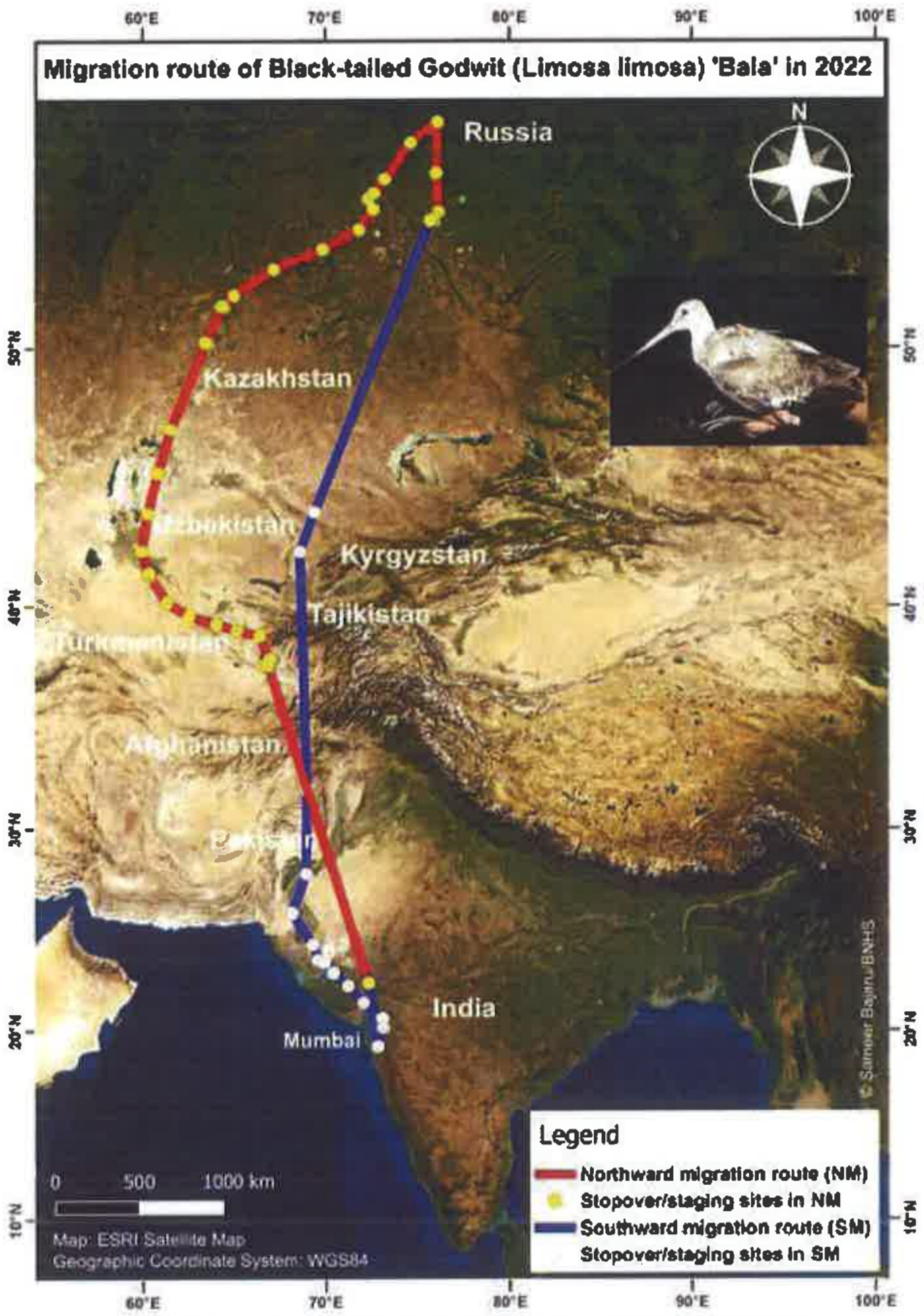
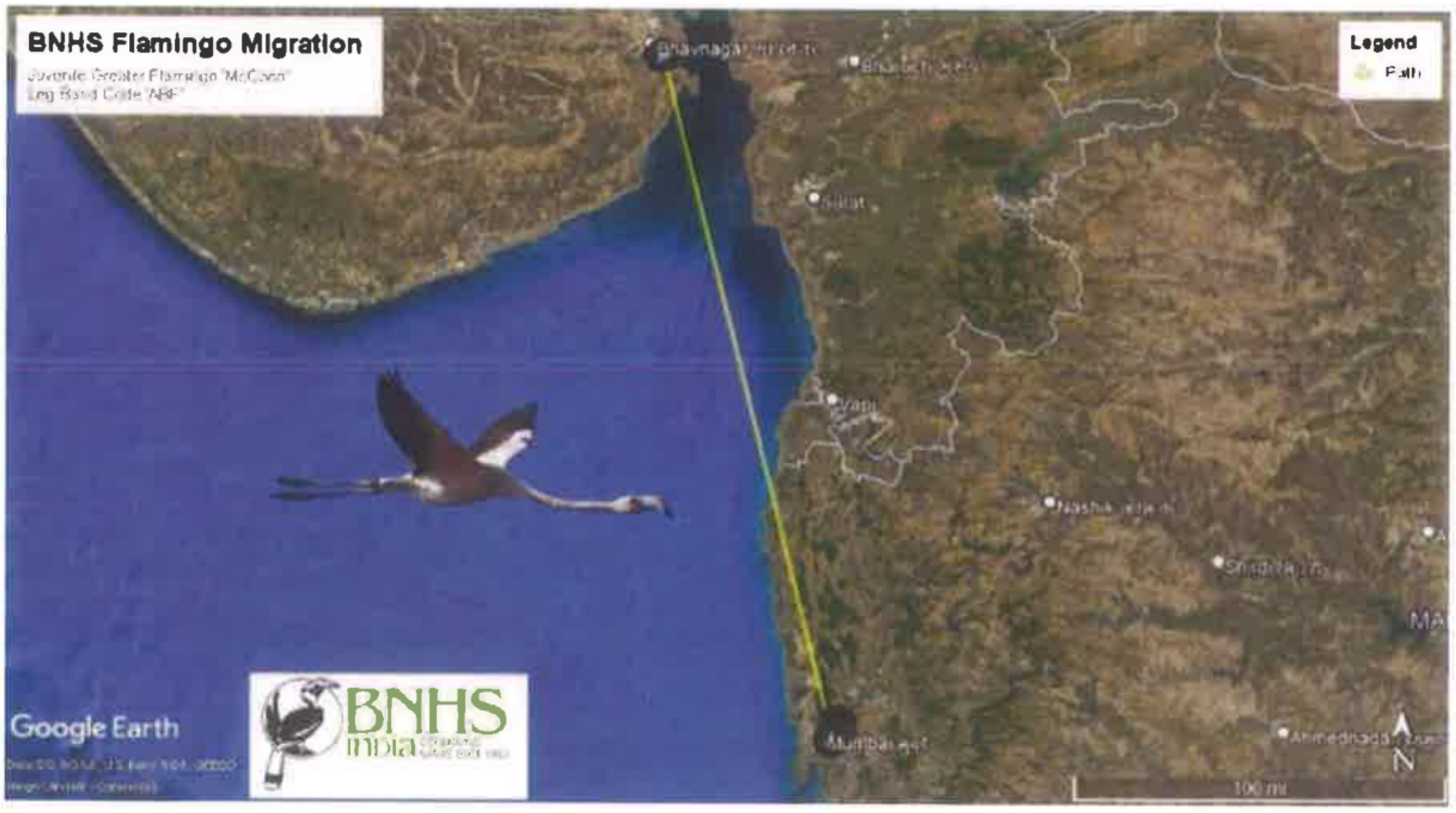
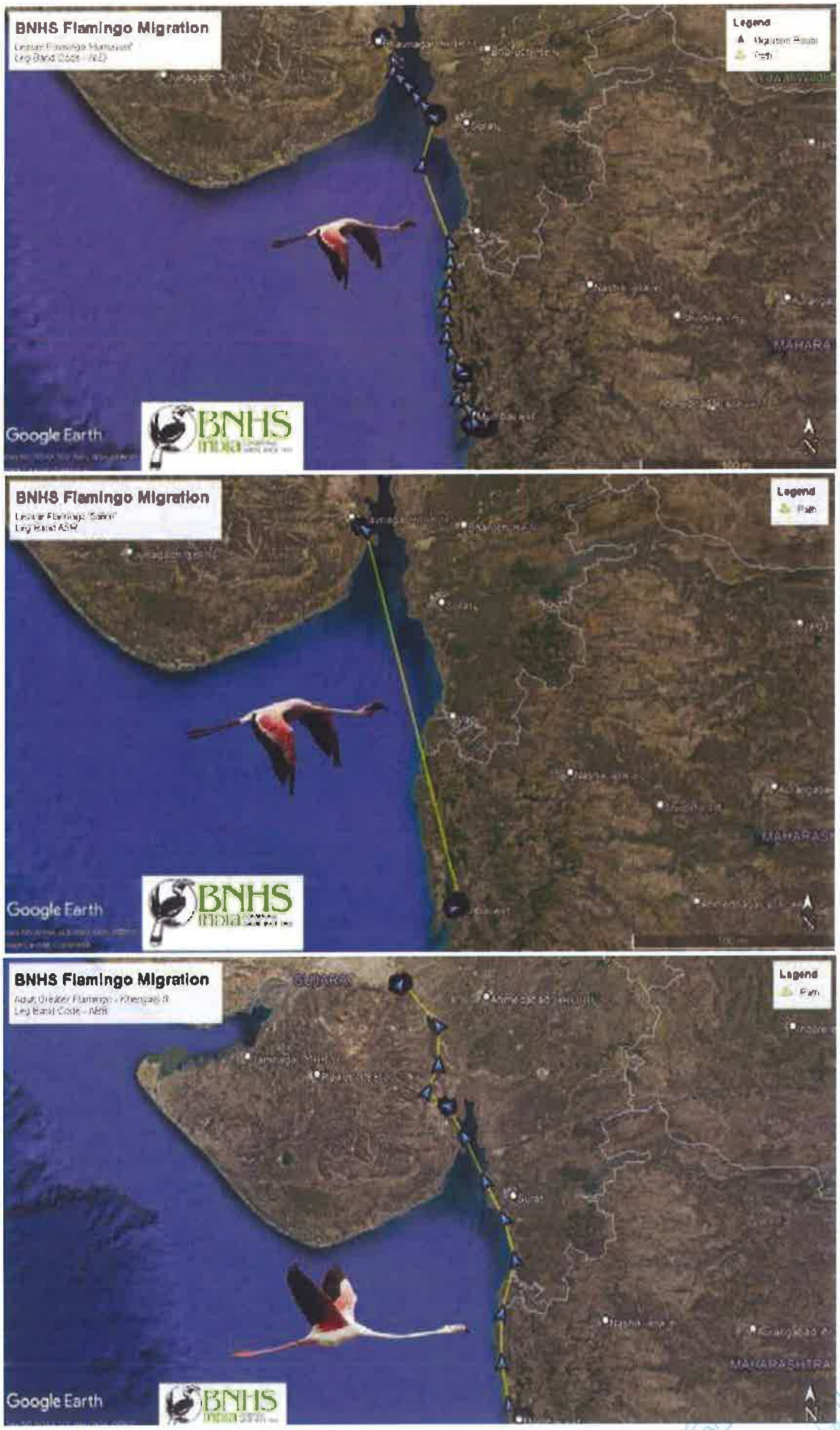


Fig. 18: Complete migration route of Black—tailed godwit "Bala"





Figs 19A and B: Sub-adult "Lester" and juvenile "McCann" Greater flamingo's migration route to Gujarat



Figs 20 A, B and C: Lesser flamingo "Humayun", "Salim" and "Khengarji III" migration route to Gujarat

BENTHOS STUDY

Summary

Thane creek was assessed during the period of October 2021-May 2022 with respect to the three marine groups, namely phytoplankton, zooplankton and macrobenthos. The macrobenthic fauna noted in mudflats of Thane Creek, Sewri and Nhava constitute key organisms such as Polychaetes, Gastropods, Bivalves, Anthozoa, Oligochaete, Phoronida, Brachyura, Nemertea, Nematoda etc. In this entire study, it was observed that the East bank (58,030/m^3) of Thane creek is comparatively depicting higher values of macrobenthic density than that of the West bank (46,015.4/ m^3).

The highest abundance of macrobenthic community was observed during the Post-monsoon season in Cluster E II (13,748.75/ m^3) on the East bank and Cluster W IV (14,306.25/ m^3) on West bank. In the case of Pre-monsoon season, Cluster E III (8168.35/ m^3) of the East bank and Cluster W IV (3890.05/m^3) of the West bank showed a higher macrobenthic abundance, respectively.

Mudflats at Sewri and Nhava were observed to demonstrate that Zone A was considerably more abundant than Zone B and Zone C. The macrobenthic fauna noted in Wetlands consists of Polychaete, Onchidium, Amphipoda, Shrimp, Gastropods, Bivalves, Oligochaete, Lucifer, Fish larvae, Insect larvae etc. It was observed that Belpada (453.33/ m^3) exhibited maximum macrobenthic abundance, followed by BPS (253.9/ m^3), NRI (102.78/ m^3) and TSC (59.10/ m^3).

The total group diversity in the case of Zooplankton was 18 groups, and the most dominant groups were Copepoda, Acetus sp., Medusae etc. Overall, 19 Phytoplankton species were noted. The most dominant species were Skeletonema costatum, Odentella sp., Navicula sp. etc.

Methodology:

To study the macrobenthic faunal distribution along the Thane Creek, the mudflats have been marked with flags at an interval of 1 km and divided into 40 such transects. Total 37 transects were sampled in Thane Creek from October-2021 to May-2022. Upstream transects (6 and 7) were omitted as previous observations have yielded negligible or no faunal counts. Along with this, two more transects, Sewri and Nhava were sampled for macrobenthic studies from October 2021 to May 2022. Due to some ground-level unavoidable circumstances, macrobenthos samples were not collected from Nhava since March 2022. Overall, two seasons namely, the Post-monsoon consists of months (October 2021, November 2021, December 2021, January 2022), whereas Pre-monsoon consists of only February and March 2022 were considered while analysing the datasets. The microscopic analysis for the remaining two months is in process.

During the present study duration, four wetlands – NRI, TSC, Belpada, BPS were sampled from October 2021 to May 2022. The sediment samples were collected using a shovel, due to the hard substratum.

Along with macrobenthos sampling, plankton (Phytoplankton and Zooplankton) samples were collected monthly from October 2021 to May 2022 by hauling plankton nets as per the standardized procedure. The sampling period has been divided and represented into four seasons, Phase shift I (October-2021), Winter (November-2021, December-2021, January-2022), Phase shift II (February-2022) and Summer (March-2022, April-2022, May 2022).

For better representation in the report, Creek was divided into two banks- East and West Bank. Sampled transects are combined into eight clusters (E I, E II, E III, E IV, E V, EW I, W I, W II, W III and W IV) to study the macrobenthic distribution pattern. (Table 7).

Table 7: Grouping of transects into clusters for data representation

Bank	Transects
East Bank: E I	1,2,3,4
E II	38, 39, 40
E III	35, 36, 37
E IV	31, 32, 33, 34
E V	27,28,29,30
East West Bank: EW I	5,8,9,10
West Bank: W I	11.12,13
W II	14, 15, 16, 17
W III	18, 19, 20, 21
W IV	22, 23, 24, 25

Observations:

Thane Creek

Overall macrobenthic density and biomass recorded from Thane creek in present studies was (104171.67/m^3,1508.78g/m^3). During the entire study period, it was observed that the total macrobenthic density and biomass of East bank was (58030.38/m^3,961.78g/m^3), East-West bank was (1602.46/m^3,0.389g/m^3) and West bank exhibited (44541.82/m^3, 546.52g/m^3). 20 benthic groups were observed along the Thane Creek, Sewri, Nhava and wetlands. Polychaete, Oligochaete, Bivalve, Gastropod, Phoronida and Anthozoa were the major contributors to the macrobenthic composition.

East Bank

In the entire study period, the Post-monsoon season exhibited maximum macrobenthic density and biomass along the clusters EI (5715.01/m^3,117.71g/m^3), EII (13748.75/m^3, 203.41g/m^3), EIII (8607.09/m^3, 527.0g/m^3) EIV (6404.06/m^3, 136.56g/m^3) and EV (1928.45/m^3, 4.31g/m^3). The Pre-monsoon season exhibited the least density and biomass at all the clusters: EI (2423.14/m^3, 0.97g/m^3), EII (5197.00/m^3, 12.07g/m^3), EIII (8168.00/m^3, 12.46g/m^3) EIV (4405.00/m^3, 42.98g/m^3) and EV (1433.57/m^3, 5.84g/m^3). The highest values of density were observed during Post-monsoon season for cluster EII (13748.75/m^3), whereas least values were observed during Pre-monsoon season for cluster EV (1433.57/m^3). The highest biomass was observed in cluster E III during Post-monsoon season (527.00g/m^3) Lowest biomass was noted in E I during Pre-monsoon season (0.97g/m^3). Polychaete was the most dominating group both density and biomass wise along all the clusters followed by Bivalve, Gastropod Nematode, Phoronida and Brachyura during Post-monsoon.

E I (Fig.21.1-21.4)

There has been a significant decrease in macrobenthic density and biomass from Post-monsoon season (5715.01/m^3,117.71g/m^3) to Pre-monsoon season (2423.14/m^3,0.97g/m^3). Along the cluster, 5 invertebrate phyla were recorded. It was observed that the overall biomass of macrobenthos was higher in the Post-monsoon season (9.23g/m^3) than that of the Pre-monsoon season (0.32g/m^3).

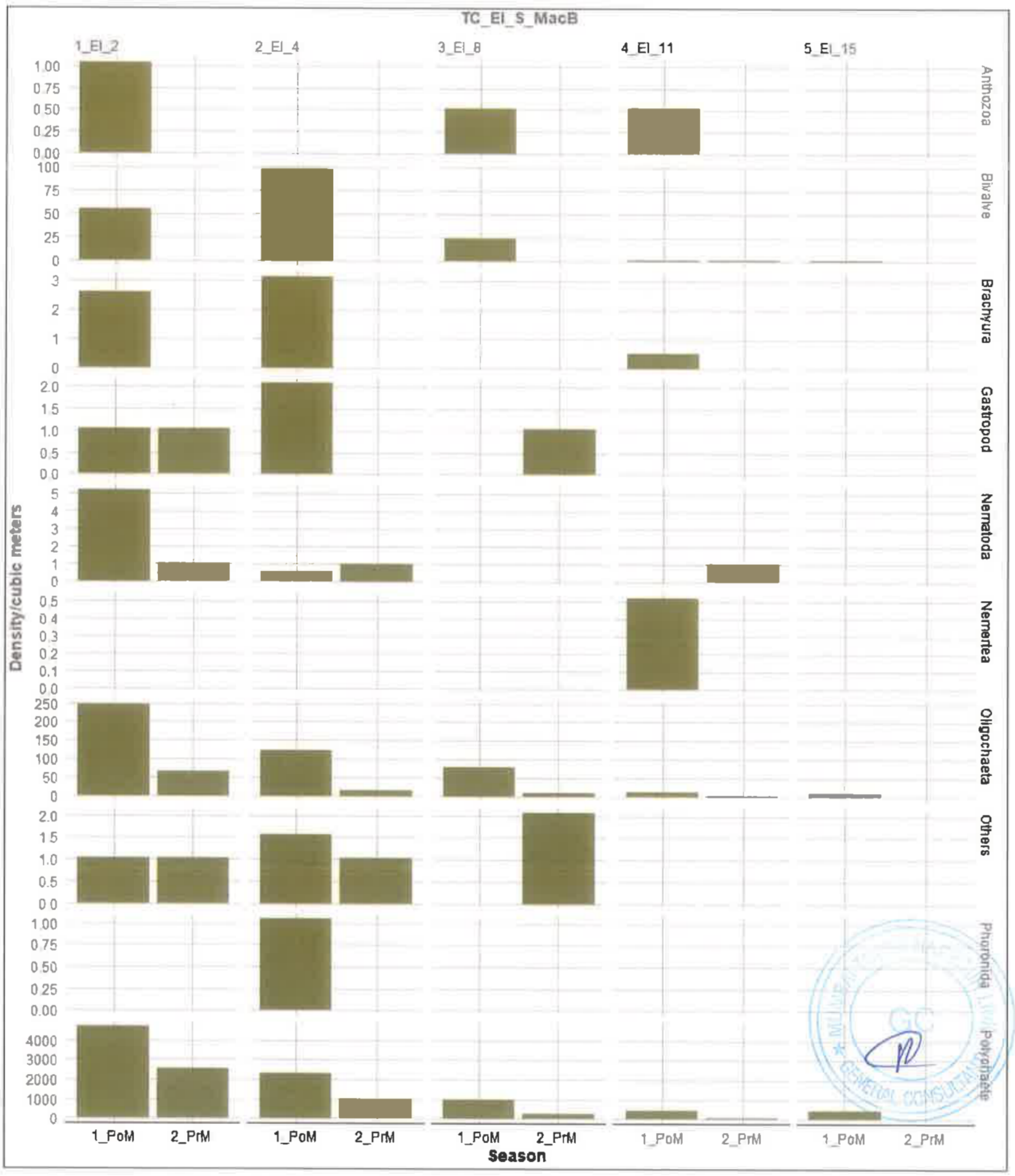


Fig. 21.1: Vertical stratification of macro-benthic density /m³ in the intertidal mudflats of EI cluster of Thane creek during the study period 2021–22

Vertical stratification

The upper stratum 0-2cm depicts the maximum Polychaete density (4592.7/m³) followed by Oligochaetes (880.20/m³) during the Post-monsoon season.

Brachyura was seen only during Post-monsoon season occupying the upper 0-2 cm stratum. During Post-monsoon season, the highest group diversity was noted within the upper stratum 0-2cm (8 No). Anthozoans were observed during Post-monsoon season up to the upper 8cm. Polychaetes were present within the entire vertical column of 15 cm. Phoronida, Brachyura, Anthozoa, Nemertea were completely absent during the Pre-monsoon months.

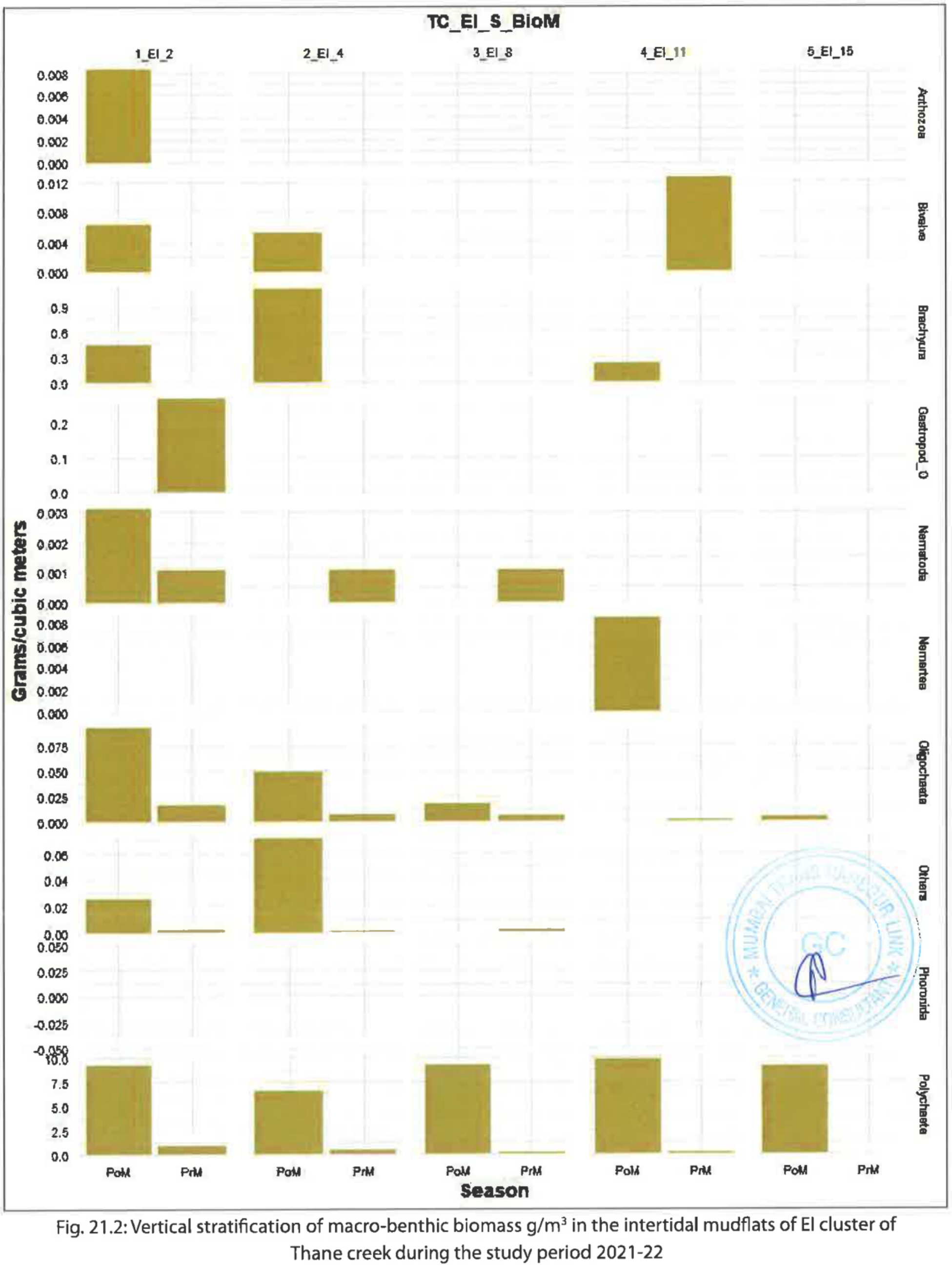


Fig. 21.2: Vertical stratification of macro-benthic biomass g/m³ in the intertidal mudflats of El cluster of Thane creek during the study period 2021-22

In the Pre-monsoon season, Crustacean larvae contribute the least to overall biomass (0.02g/m³), followed by Oligochaetes (0.03g/m³), while in the Post-monsoon season, Polychaete contributes the most (26.27g/m³), followed by Brachyura (1.06g/m³).

Polychaete (0.26g/m³) shows the highest biomass followed by Gastropoda (0.05g/m³) and Oligochaete (0.01g/m³). It has been observed that Post-monsoon shows significantly higher biomass (9.17/m³) than that of the Pre-monsoon season across all the strata (0.32/m³).

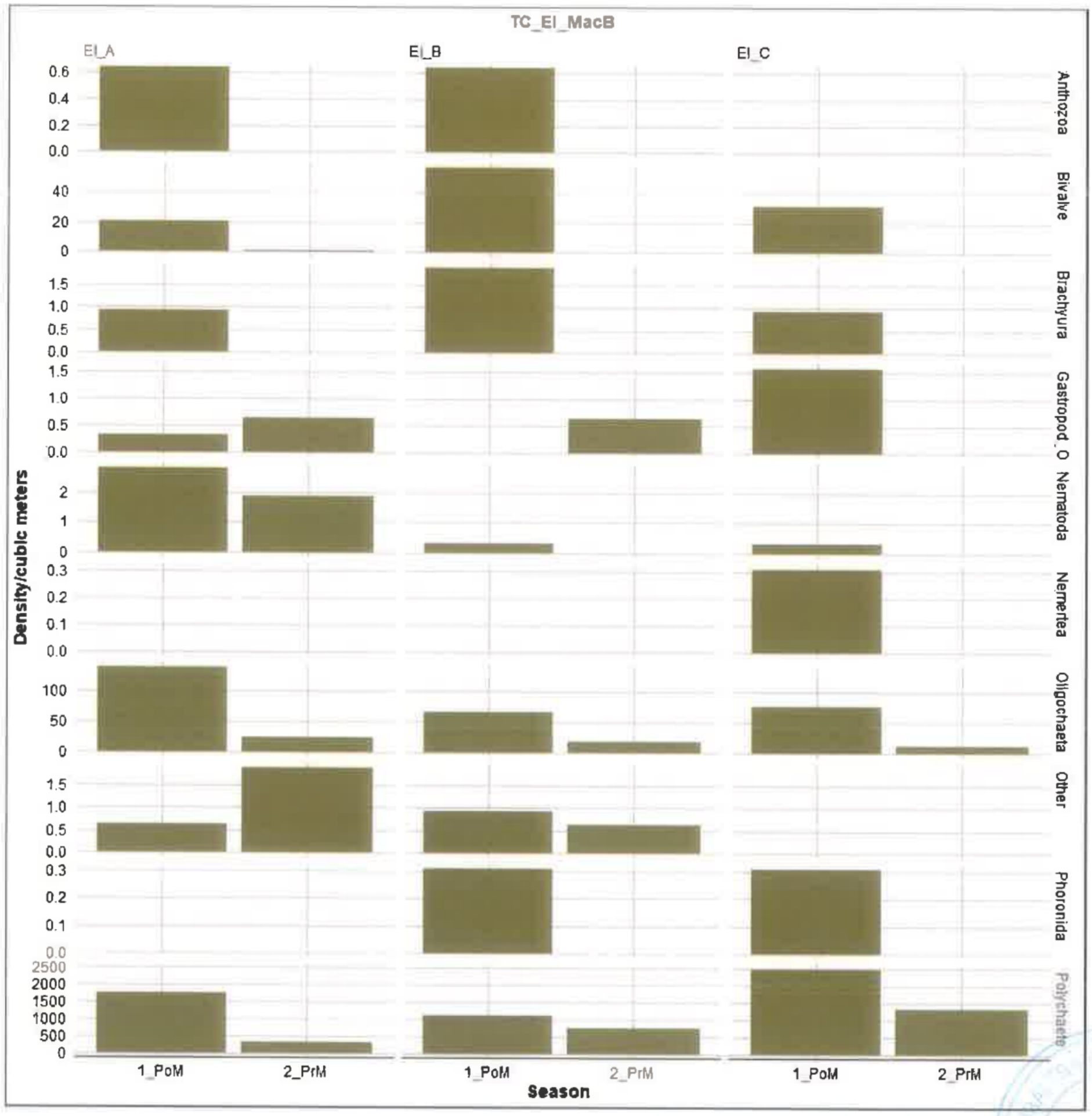


Fig. 21.3: Zonal variation of macrobenthic density/ m^3 in the intertidal mudflats of EI cluster of Thane creek during 2021–22

Intertidal zonation:

During the Post-monsoon season, Zone C had exhibited the highest macrobenthic density (2574.06/m^3) followed by Zone A (1899.07/m^3) and Zone B (1241.88/m^3). During the Pre-monsoon season, Zone C had exhibited the highest macrobenthic density (1306.88/m^3) followed by Zone B (762.51/m^3) and Zone A (353.76/m^3). 10 macrobenthic groups were observed during Post-monsoon season while 6 macrobenthic groups were observed in Pre-monsoon season. Polychaete and Oligochaete were observed across all the Zones during both seasons. The maximum contribution to the overall biomass was from Zone A (16.02g/m^3) followed by Zone C (8.72 g/m^3) and Zone B (2.97 g/m^3) during the Post-Monsoon season. Zone C (0.39g/m^3) showed the highest biomass followed by Zone A(8.72g/m^3) and Zone B (2.97g/m^3). during the Pre-monsoon season.

E II (Fig.22.1-22.4)

Macrobenthic density and biomass have shown a significant decrease from Post-monsoon season (2869.03/m^3, 67.80g/m^3) to Pre-monsoon season (2722.03/m^3,4.02g/m^3) season. There was a decline in the macrobenthic diversity from Post-monsoon season (10 No) to Pre-monsoon season (5 No).

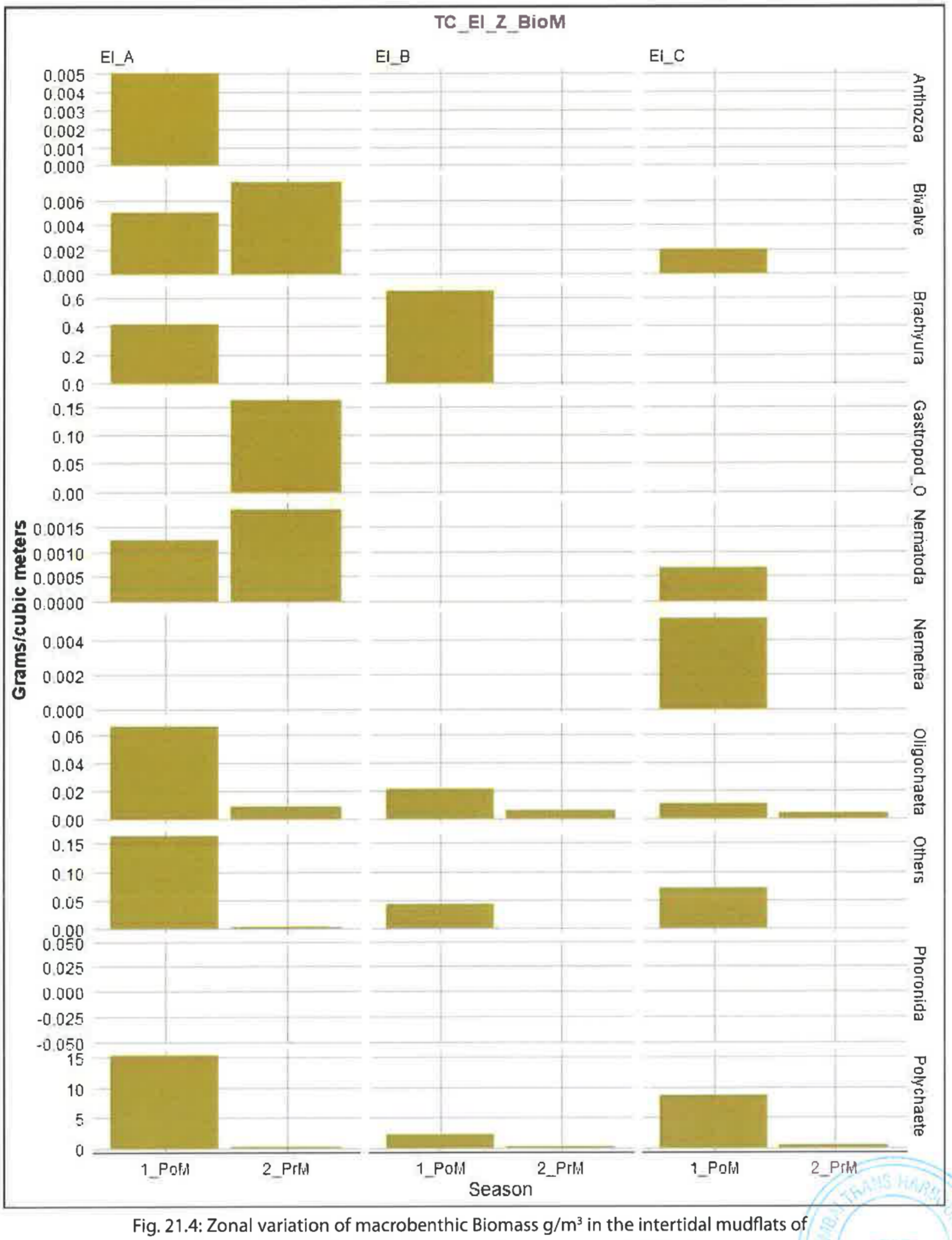


Fig. 21.4: Zonal variation of macrobenthic Biomass g/m³ in the intertidal mudflats of EI cluster of Thane creek during the study period 2021–22

Vertical stratification:

Macrobenthic density has declined vertically from upper stratum 0-2cm to lower stratum 11-15 cm in both the seasons. Polychaete (17039.16/ m³, 164.56g/ m³) has contributed maximum to the overall macrobenthic density and biomass. Polychaeta, Oligochaete, Bivalve and Gastropod were observed in all strata during both seasons.

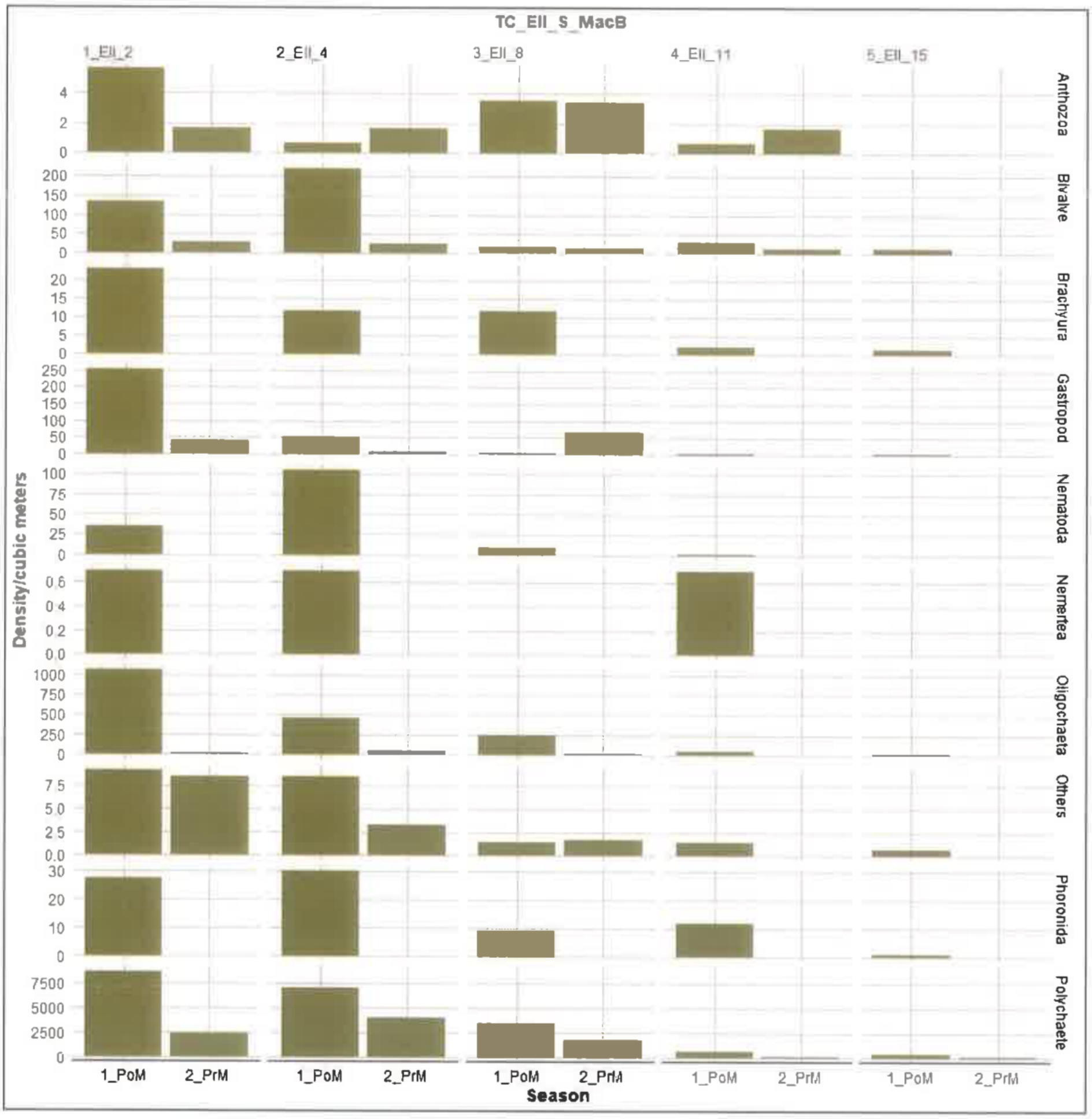


Fig. 22.1: Vertical stratification of macrobenthic density/m^3 in the intertidal mudflats of EII cluster of Thane creek during the study period 2021–22

Polychaete (51.99g/m^3) shows higher biomass followed by Bivalve (9.62g/m^3), Gastropod (3.74g/m^3), Brachyura (1.10g/m^3), Phoronida (0.42g/m^3) during the Post-monsoon season. During Pre-monsoon season, the higher biomass was shown by Polychaete (2.86g/m^3) followed by Bivalve (.46g/m^3), Gastropod (0.44g/m^3), Anthozoa (0.26 g/m^3).

Intertidal zonation:

Maximum contributiontowards overall macrobenthic density was observed from Zone B (6897.41/m^3) and the least density was observed from Zone C (5676.74/$m^{3)}$ during both seasons. Polychaete density have increased from Zone B (4568.33/m^3) to Zone A (3938.33/m^3) in Post-monsoon season. During Pre-monsoon season, Zone C (1788/m^3) exhibited highest density of Polychaete followed by Zone B (1675/m^3) and Zone A (1547/m^3). During Post-monsoon season, Polychaete (155.98 g/m^3) had maximum contribution to overall biomass followed by Bivalves (28.76 g/m^3), Gastropoda(11.13 g/m^3),. During the Pre-monsoon season, Polychaete biomass (8.58 g/m^3) was highest followed by Bivalves (1.37 g/m^3) and Gastropoda, (1.31 g/m^3).

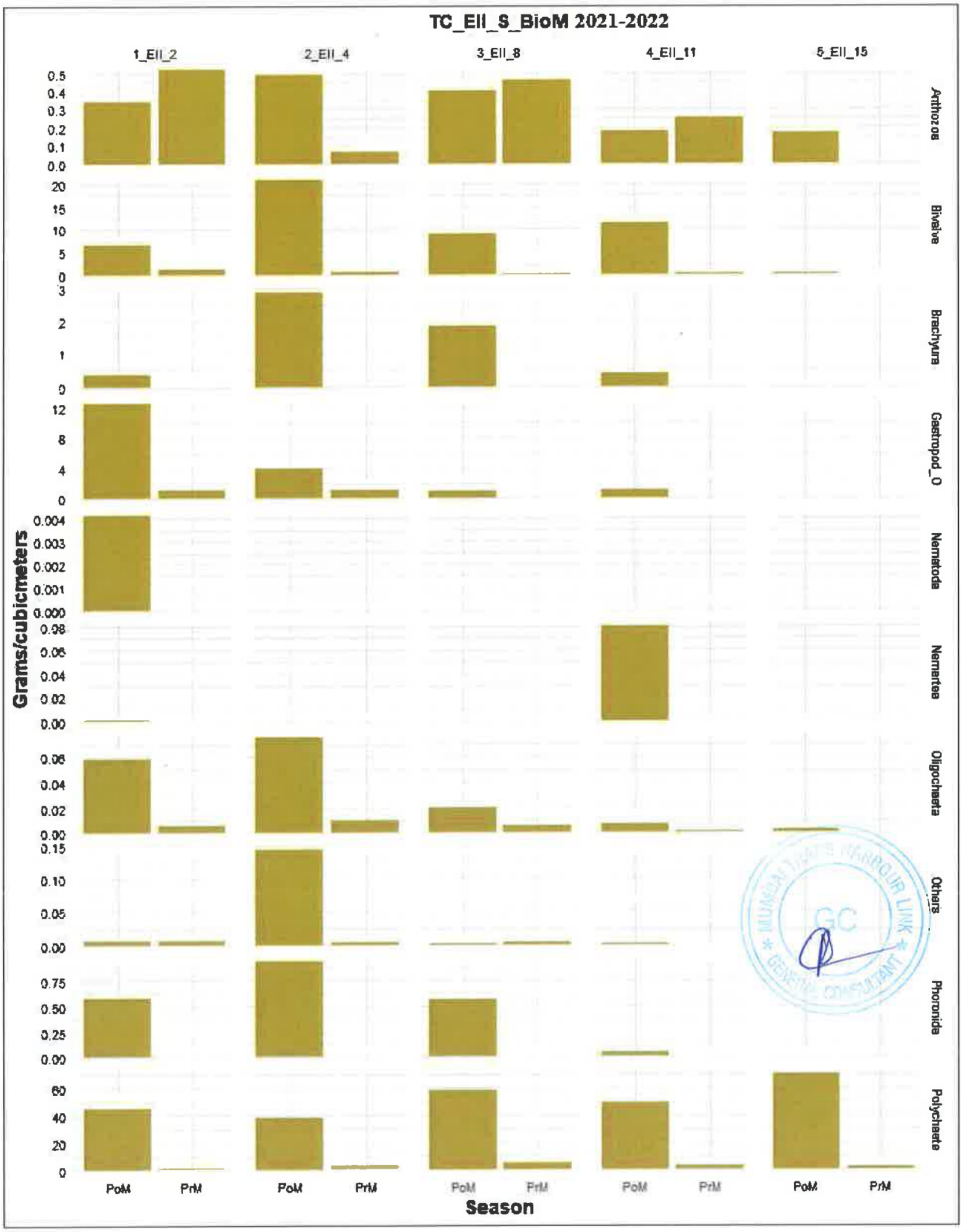


Fig. 22.2: Vertical stratification of macro-benthic biomass g/m³ in the intertidal mudflats of EII cluster of Thane creek during the study period 2021–22

Zone A (109.69g/m³) exhibits the highest biomass followed by Zone B (66.80 g/m³) and Zone C (26.91 g/m³) in Post-monsoon season while in Pre-monsoon season, Zone C (5.86g/m³) shows higher biomass followed by Zone A (3.84g/m³) and Zone B (2.37g/m³). During the Pre-monsoon season, Phoronid, Brachyura, Nemertea and Nematode were totally absent across all zones.

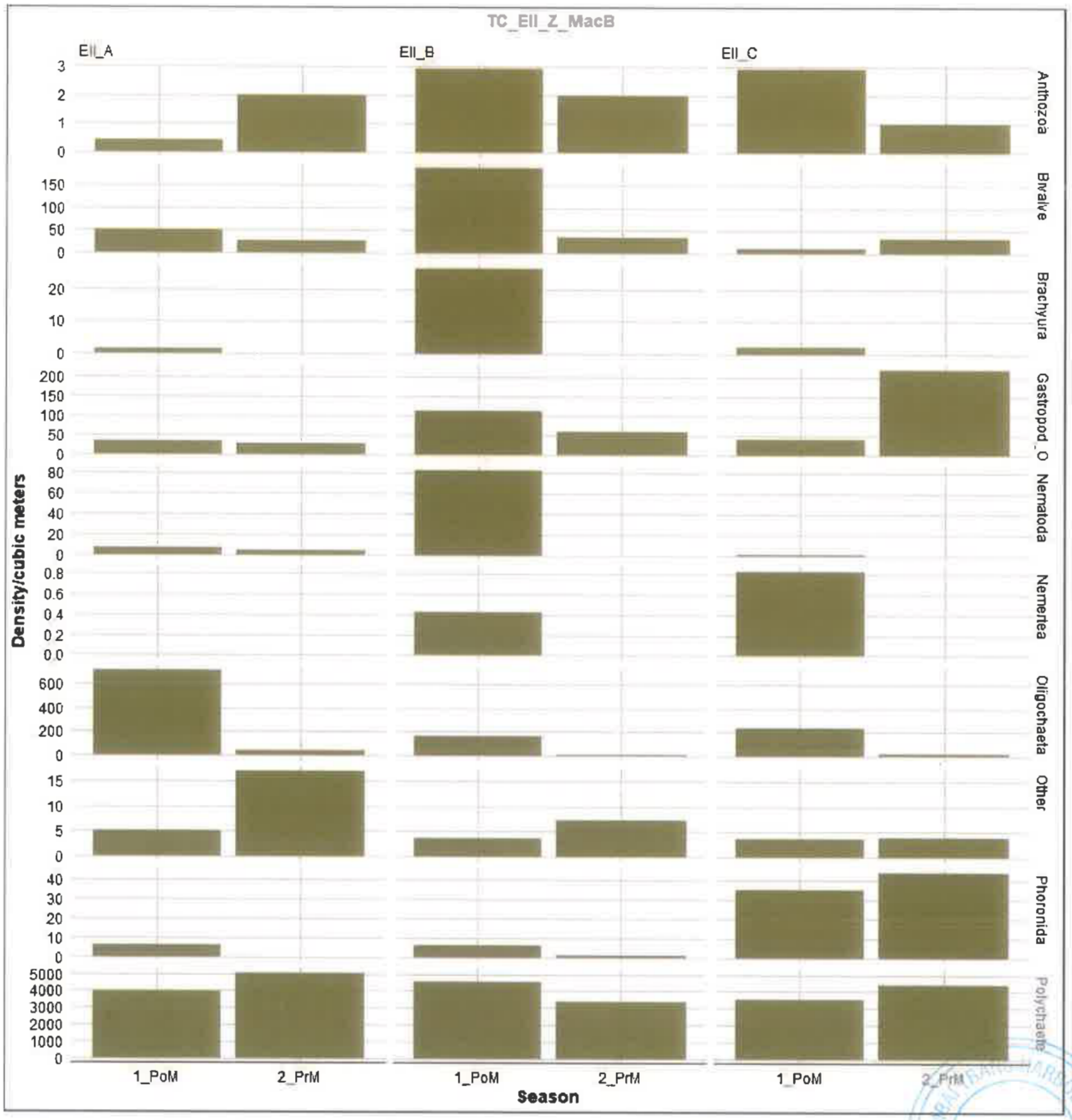


Fig. 22.3: Zonal variation of macrobenthic density/m³ in the intertidal mudflats of E II cluster of Thane creek during 2021–22

E III (Fig.23.1-23.4)

Macrobenthic density had shown a slight decline from Post-monsoon season (8607.08/ m³) to Pre-monsoon season (8168.35/ m³). Overall, 10 macrobenthic groups were observed along this cluster. Polychaete, Gastropod, Bivalve, Oligochaete and Phoronida were found in both seasons.

Vertical Stratification

Uppermost stratum 0-2 cm shows the highest density (10236.11/m³) than that of other strata. Macrobenthic density declined vertically from the upper stratum to lower stratum in both seasons. Polychaete shows a declining trend from upper most stratum 0-2 cm to lower most stratum 11-15 cm in both seasons. Nematodes were observed only in the upper stratum 0-2 cm during Pre-monsoon season. Polychaete, Phoronida, Oligochaete, Gastropod were observed in all strata during both seasons. Brachyura, Anthozoa, Nemertea was completely absent in Pre-monsoon season.

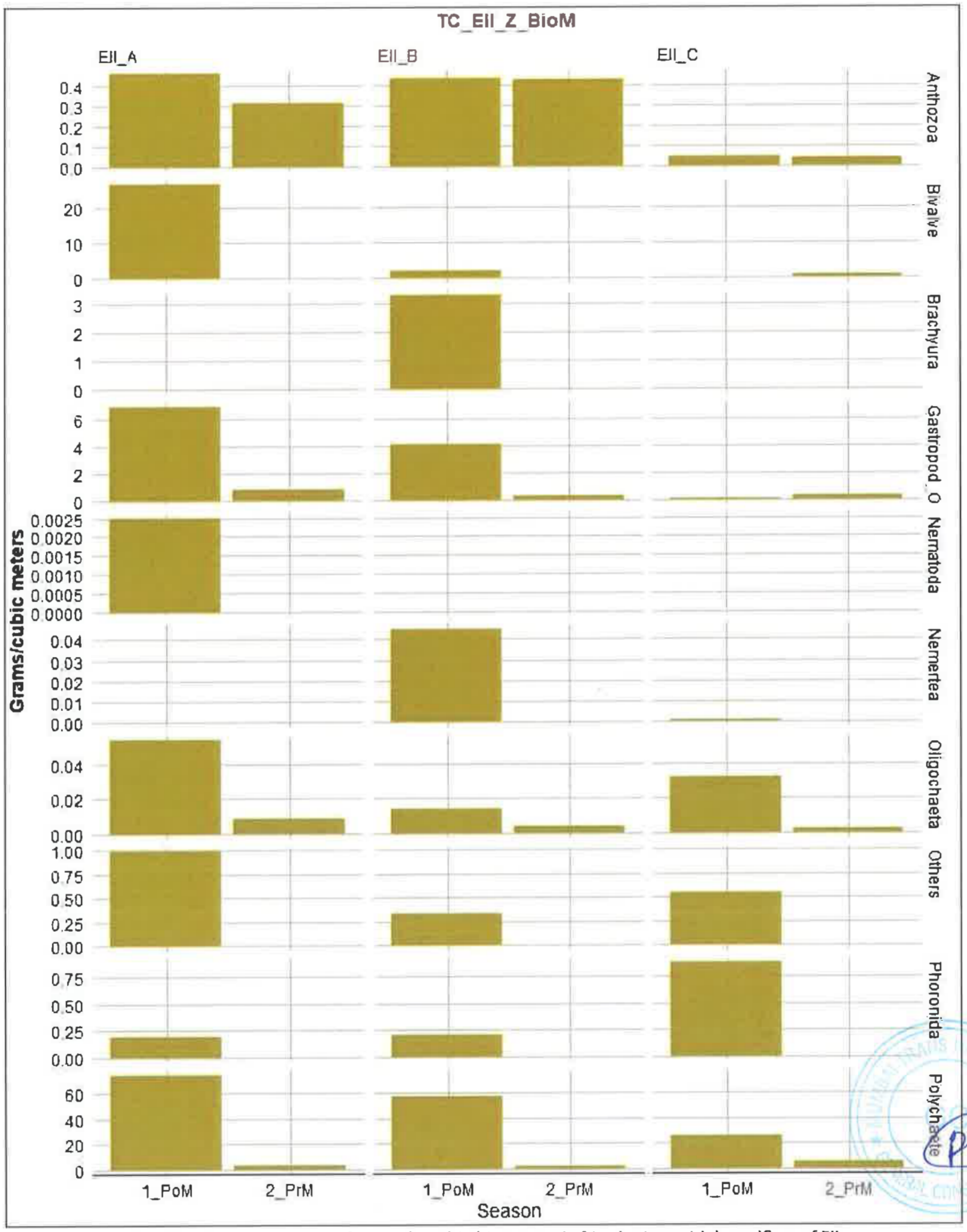


Fig. 22.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of EII cluster of Thane creek during the study period 2021–22

Maximum biomass was noted from the upper stratum 0-2cm during both the seasons (573.89g/m³) and the least biomass was observed in the stratum 8-11 cm (14.66g/ m³).

Intertidal zonation

Maximum macrobenthic density was observed along Zone A during Pre-monsoon season (3551.25/ m³) and Zone B in Post-monsoon season (3133.75/m³). The least density was recorded along Zone B

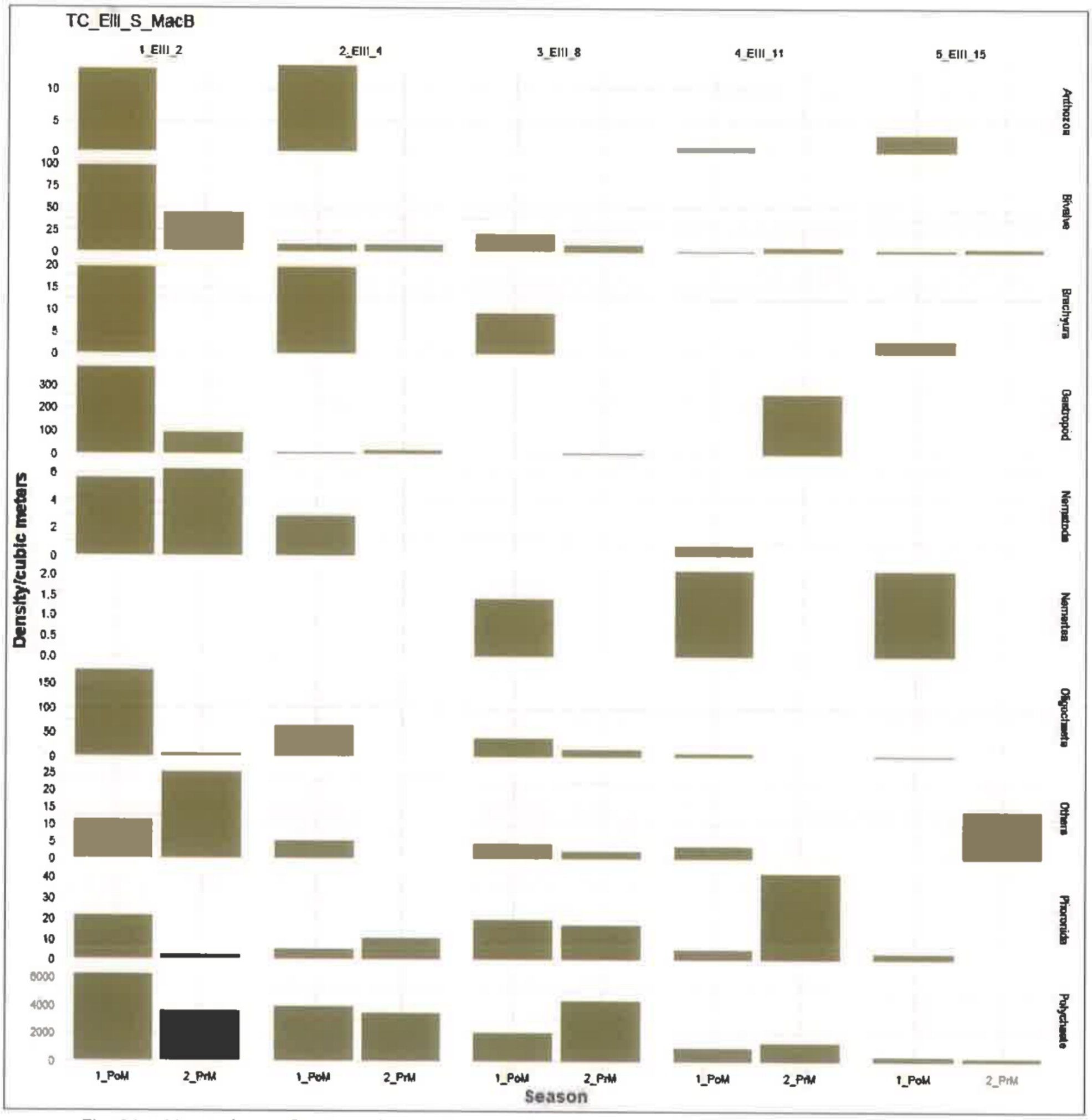


Fig. 23.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of EIII cluster of Thane creek during the study period 2021–22

during Pre-monsoon season (1750/m³) followed by Zone C in Post-monsoon season (2544.59/m³). The maximum contribution to the overall biomass was shown by Zone C (377.42g/m³) followed by Zone A (91.79g/m³) and Zone B (57.79g/m³) during the Post-monsoon season. Polychaete (15832.94/ m³) has contributed maximum to the overall macrobenthic density across all zones during both seasons, followed by Gastropod (464.88/ m³), Oligochaete (186.85/ m³).

E IV (Fig.24.1-24.4)

Macrobenthic density and biomass has decreased from Post-monsoon season (2134.69/m³, 45.52g/m³) to Pre-monsoon season (1468.33/m³, (14.33g/m³). During the study period, 10 macrobenthic groups were recorded from the cluster. During both the seasons, the faunal diversity was more in Zone B as compared to the other zones. Brachyura, Oligochaete, and Sipuncula were observed in Post-monsoon season while they were completely absent in Pre-monsoon season. Gastropods exhibit a higher contribution to overall biomass followed by Bivalve and Polychaete during the Post-monsoon season.

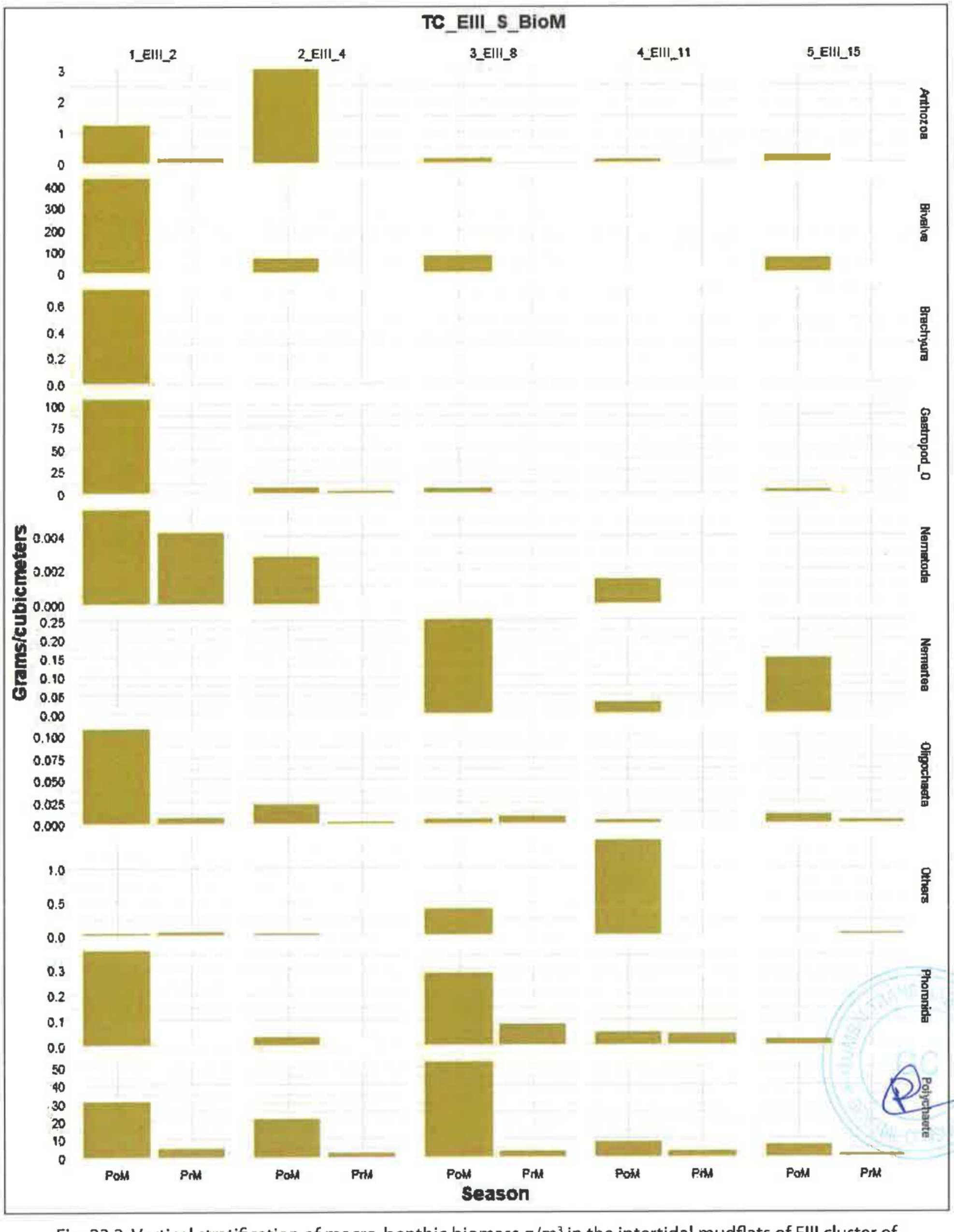


Fig. 23.2: Vertical stratification of macro-benthic biomass g/m³ in the intertidal mudflats of EIII cluster of Thane creek during the study period 2021–22

Vertical stratification

Macrobenthic density showed a decline from upper stratum 0-2cm to lower 11-15cm stratum during both the seasons. Nematode was observed only in upper stratum 0-2 cm during both the seasons. Oligochaete was observed in all strata of Post-monsoon season while in Pre-monsoon season, it was present in all strata except lower strata 8-15 cm. Maximum biomass was noted from stratum 8-11cm (102.53/m³) followed by upper stratum 0-2 cm (53.11g/m³), lower stratum 11-15 cm (46.07g/m³), 2-4

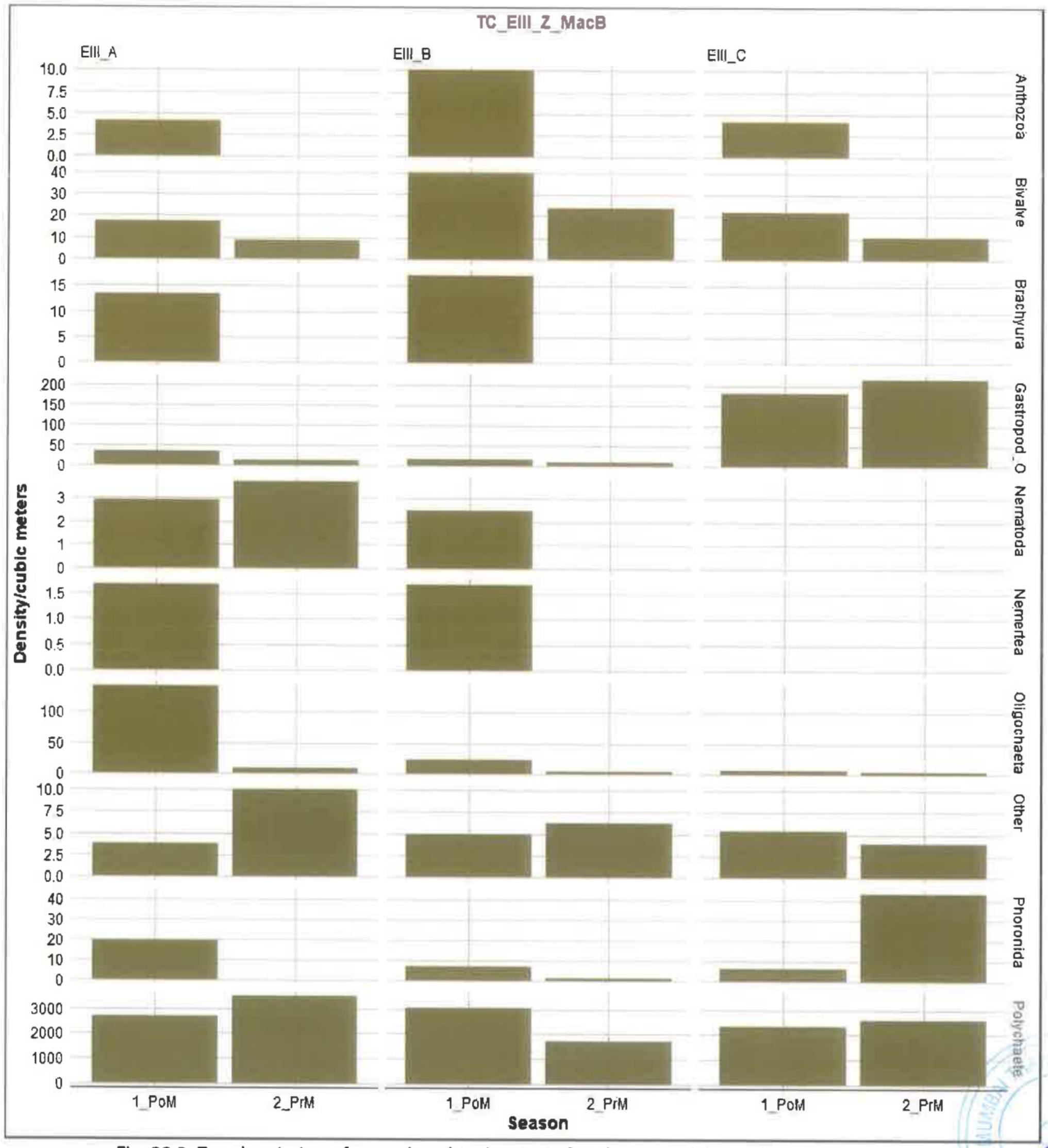


Fig. 23.3: Zonal variation of macrobenthic density/m^3 in the intertidal mudflats of EIII cluster of Thane creek during 2021–22

cm(24.26g/m^3) and 4-8 cm(16.01g/m^3) in Post-monsoon season while in Pre-monsoon season upper stratum 0-2cm exhibited highest biomass.

Polychaete showed maximum contribution to overall density in upper stratum 0-2 cm (7680.56/ m^3) followed by strata 2-4 cm (4276.57/m^3) and stratum 4-8 cm (2727.25/ m^3). Brachyura (10.93/ m^3) showed the least contribution to the overall density followed by Nematoda (11.97/ m^3).

Intertidal Zonation

Polychaete had contributed maximum to the overall macrobenthic density (9926.13/ m^3). Macro benthic density has declined from Zone B (2248.44/m^3) during Post-monsoon season followed by Zone C (2141.25/m^3) and Zone A (2014.37/m^3). During Pre-monsoon season, Zone B (2106.6/ m^3) exhibited

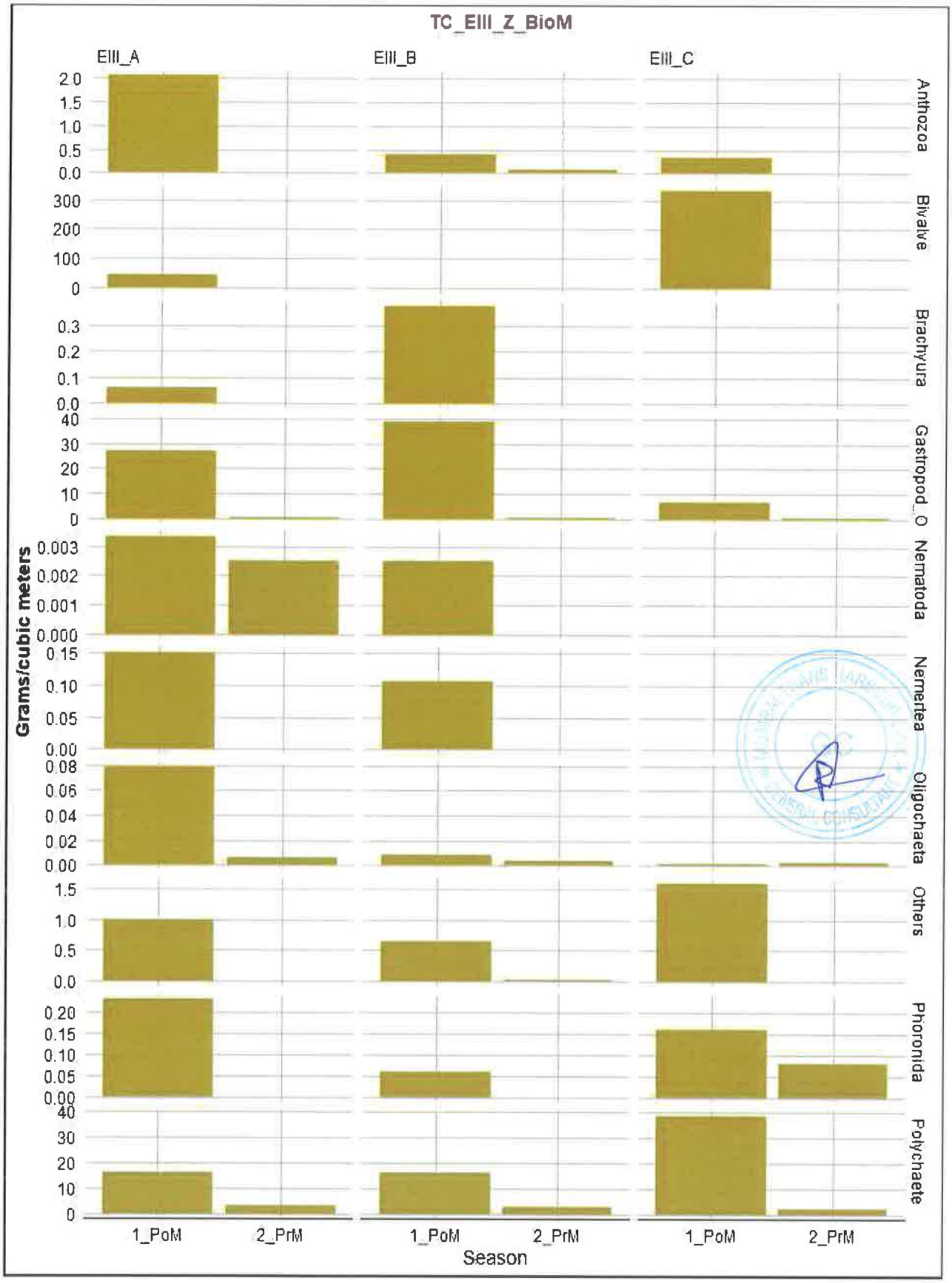


Fig. 23.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of EIII cluster of Thane creek during the study period 2021–22

maximum density followed by Zone A (1329.17/m³) and Zone C (969.17/m³). Polychaete, Gastropoda, Bivalve, Nemertea, Oligochaete and Phoronida were observed in all the zones during both the seasons. Zone A (116.58g/ m³) showed maximum contribution to the overall biomass during both the seasons, followed by Zone B (41.6 g/m³) and Zone C (21.33g/m³).

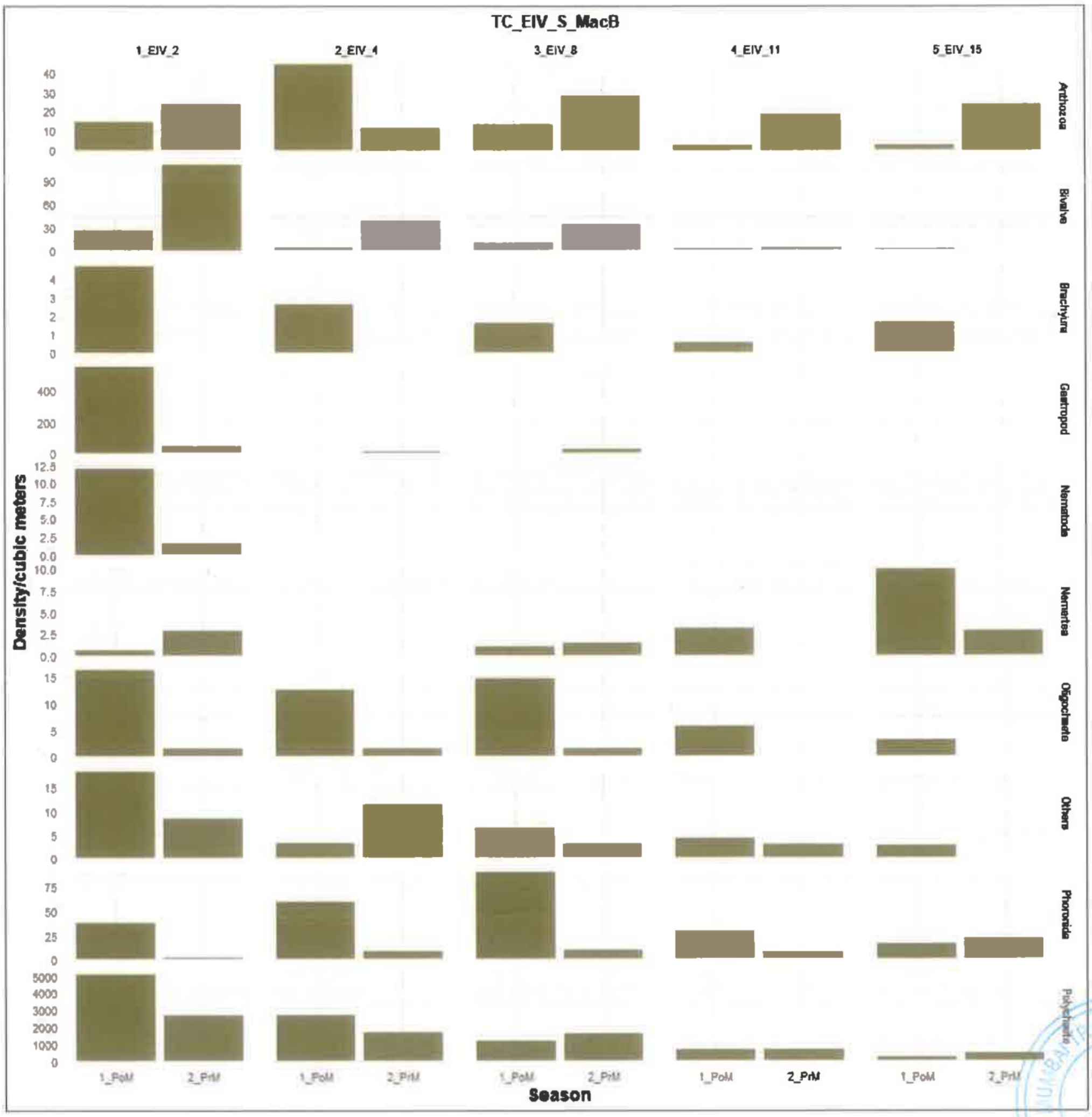


Fig. 24.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of EIV cluster of Thane creek during the study period 2021–22

E V (Fig.25.1-25.4)

Macrobenthic density has shown a decrease in biomass from Post-monsoon season (642.82/m³) to Pre-monsoon (477.86/m³). During the study period, 10 faunal groups were recorded from the cluster. Faunal diversity has decreased from Post-monsoon (10 No.) to Pre-monsoon (9 No.). Nematode was completely absent during Pre-monsoon.

Vertical stratification

Macrobenthic density has declined from upper 0-2cm stratum to lower 11-15cm stratum during Post-monsoon season. Stratum 8-11 cm exhibited maximum macrobenthic density (805.95/m³) followed by stratum 2-4 cm (582.15/m³) and 11-15 cm (405.95/m³) in Pre-monsoon season. It was observed that lower stratum 11-15 cm showed the least contribution to the biomass whereas the upper stratum 0-2 cm showed highest biomass during Post-monsoon. The upper stratum 2-4 cm contributed the

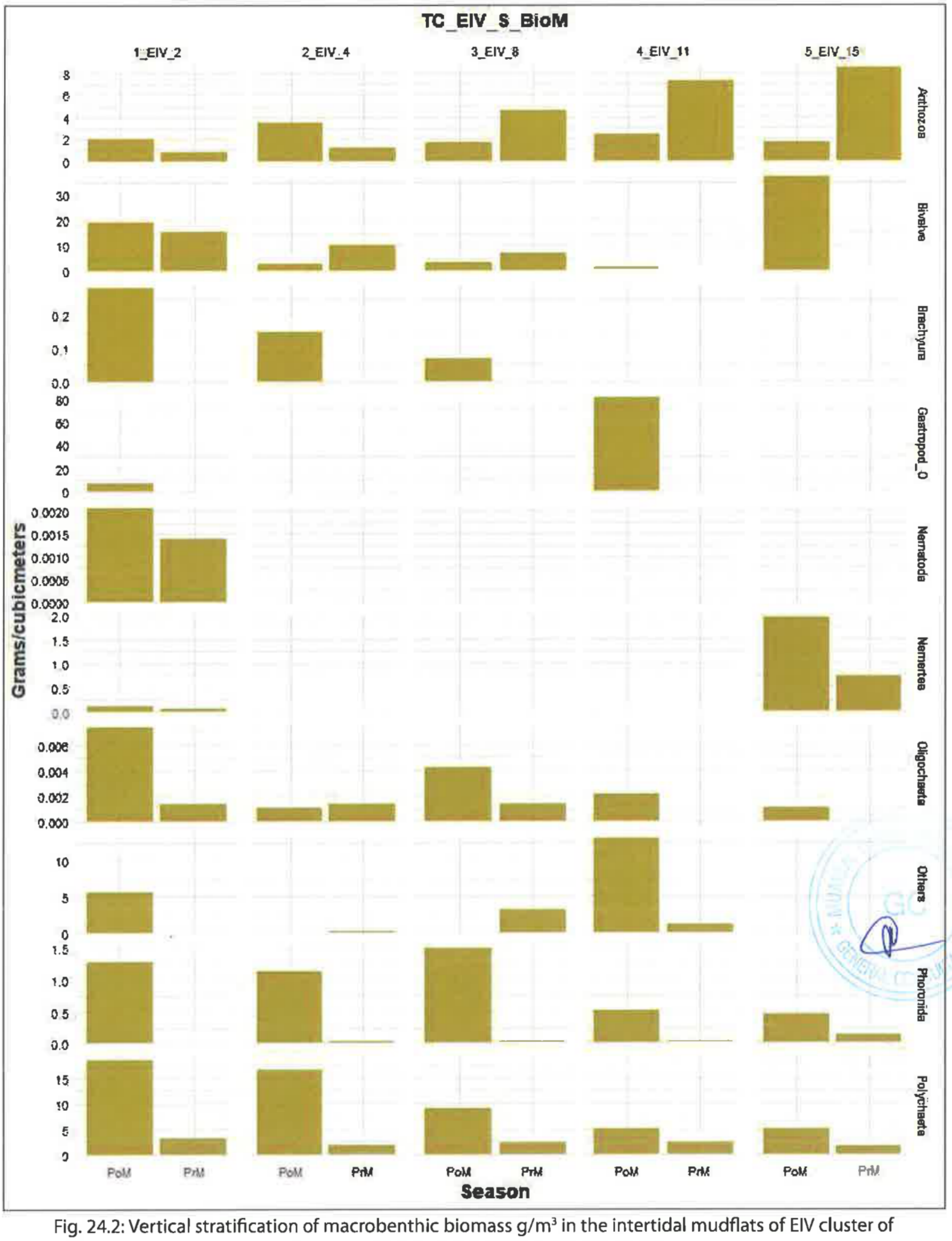


Fig. 24.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of EIV cluster of Thane creek during the study period 2021–22

least to the overall biomass, whereas the lower stratum 11-15 cm contributed the most during Pre-monsoon.

Intertidal Zonation

Macrobenthic density has declined from Zone A (816,26/m³) followed by Zone C (608.75/m³) and Zone B (503.44/m³) in Post-monsoon season. Macrobenthic density has declined from Zone A (595.00/

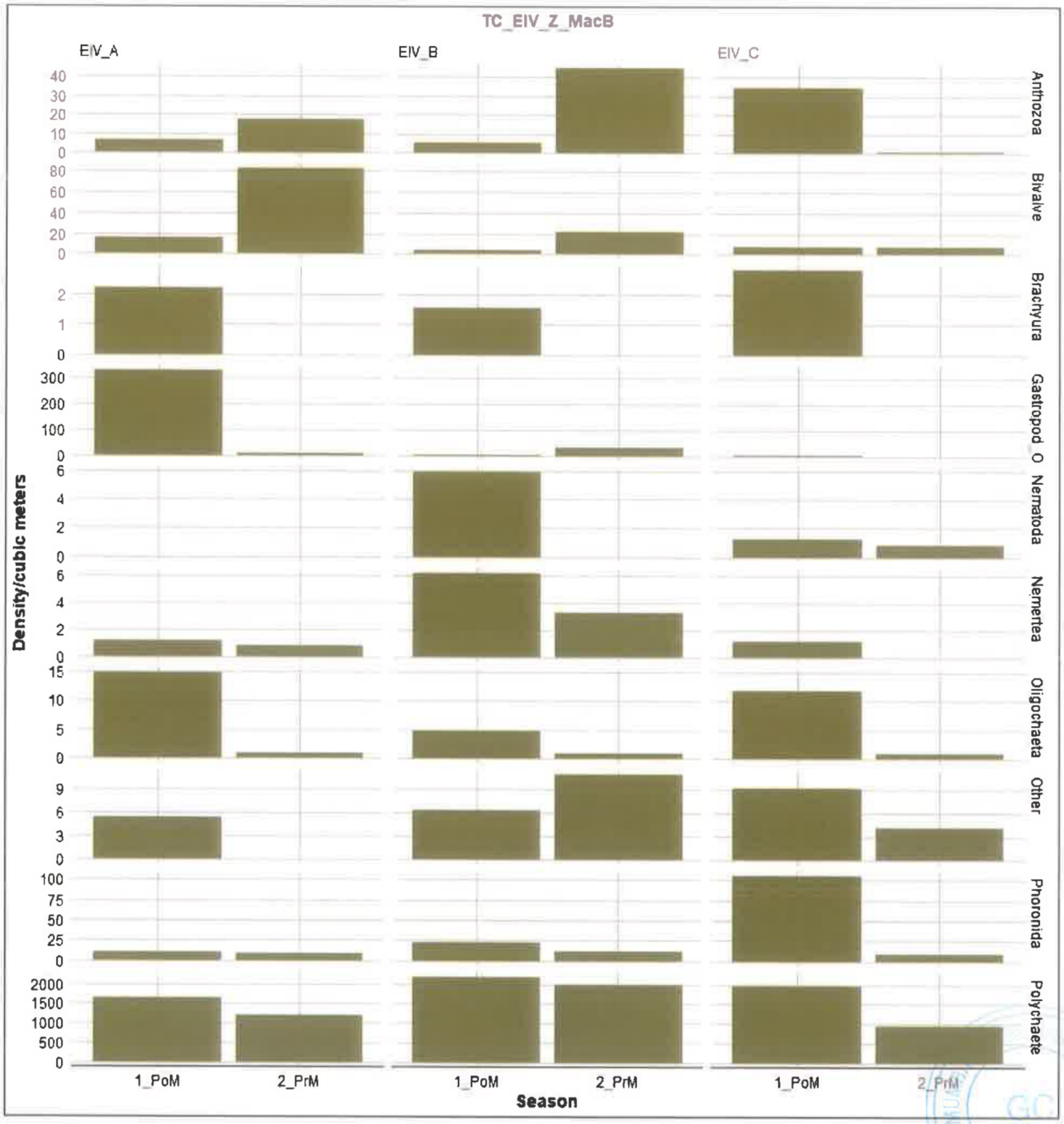


Fig. 24.3: Zonal variation of macrobenthic density/m^3 in the intertidal mudflats of E IV cluster of Thane creek during 2021–22

m^3) followed by Zone B (565.71/m^3) and Zone C (272.86/m^3) in Pre-monsoon season. Zone A (1.59g/m^3) had exhibited highest biomass during Post-monsoon and Zone B (3.40g/m^3) during Pre-monsoon. Zone A had exhibited maximum group diversity throughout the season. Polychaete, Gastropod, Bivalve, Brachyura, Anthozoa, Oligochaete and Phoronida were observed in all the seasons, while Nematode was completely absent during the Pre-monsoon. Bivalve was observed only in Zone A during Pre-monsoon season.

East-West Bank (EW I - Fig.26.1-26.4)

Over the course of the study period, the maximum macrobenthic density and biomass along EW I (1562.27/m^3, avg. 0.129g/m^3), was noted during the Post-monsoon season, whereas Pre-monsoon season showed comparatively less macrobenthic density and biomass (40.23/m^3; 0.003g/m^3).

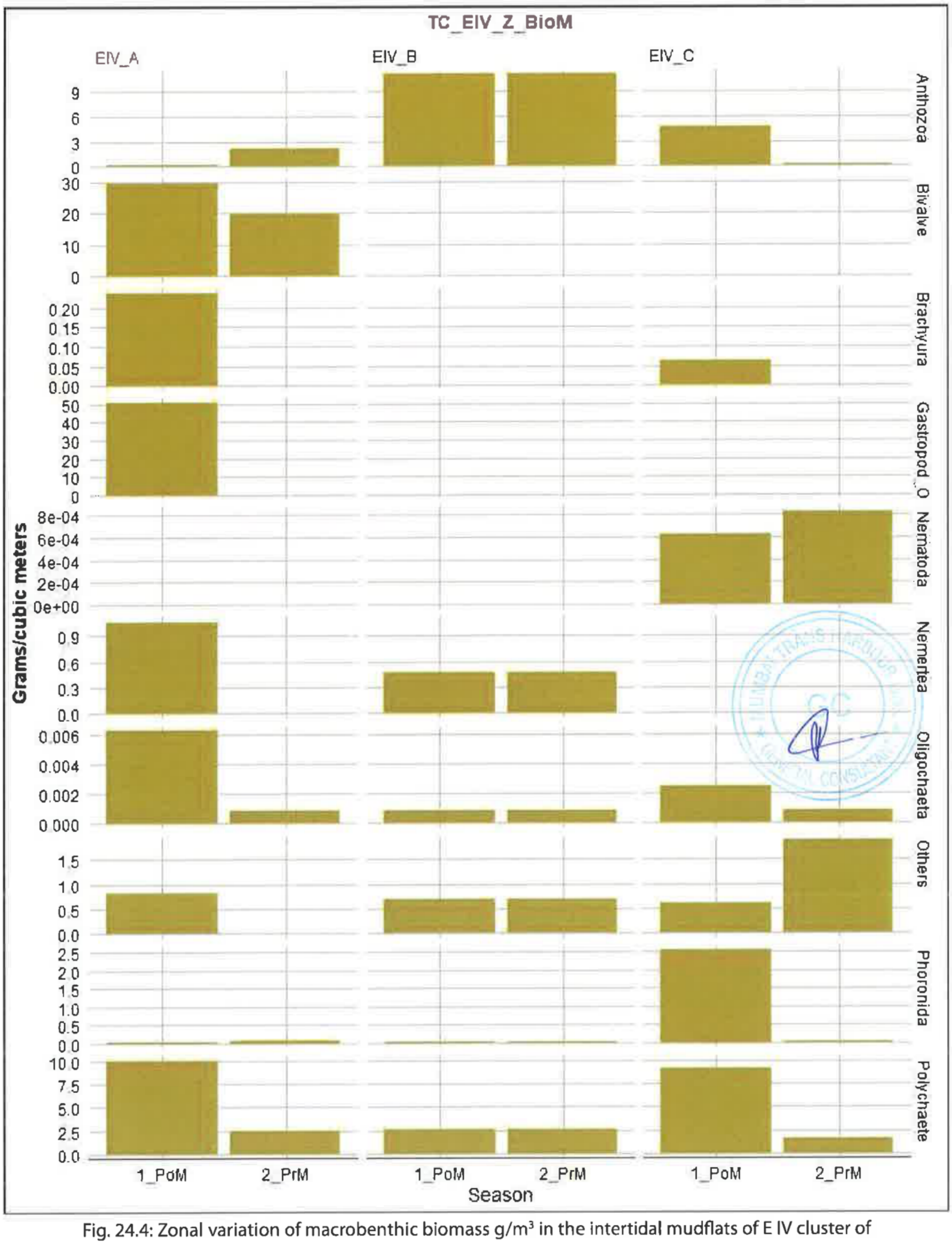


Fig. 24.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of E IV cluster of Thane creek during the study period 2021–22

Vertical stratification

Polychaetes were present within all the stratum, with higher density in the upper 0-2 cm stratum during Post-monsoon season (1654.3/ m³). Bivalve showed a higher density in the lower stratum 8-11 cm during Post-monsoon season (10.62/ m³). Phoronida was present in the upper 0-2 cm stratum. Brachyura was only present in stratum upper 2cm and 4 - 8 cm during Post-monsoon season. Oligochaetes

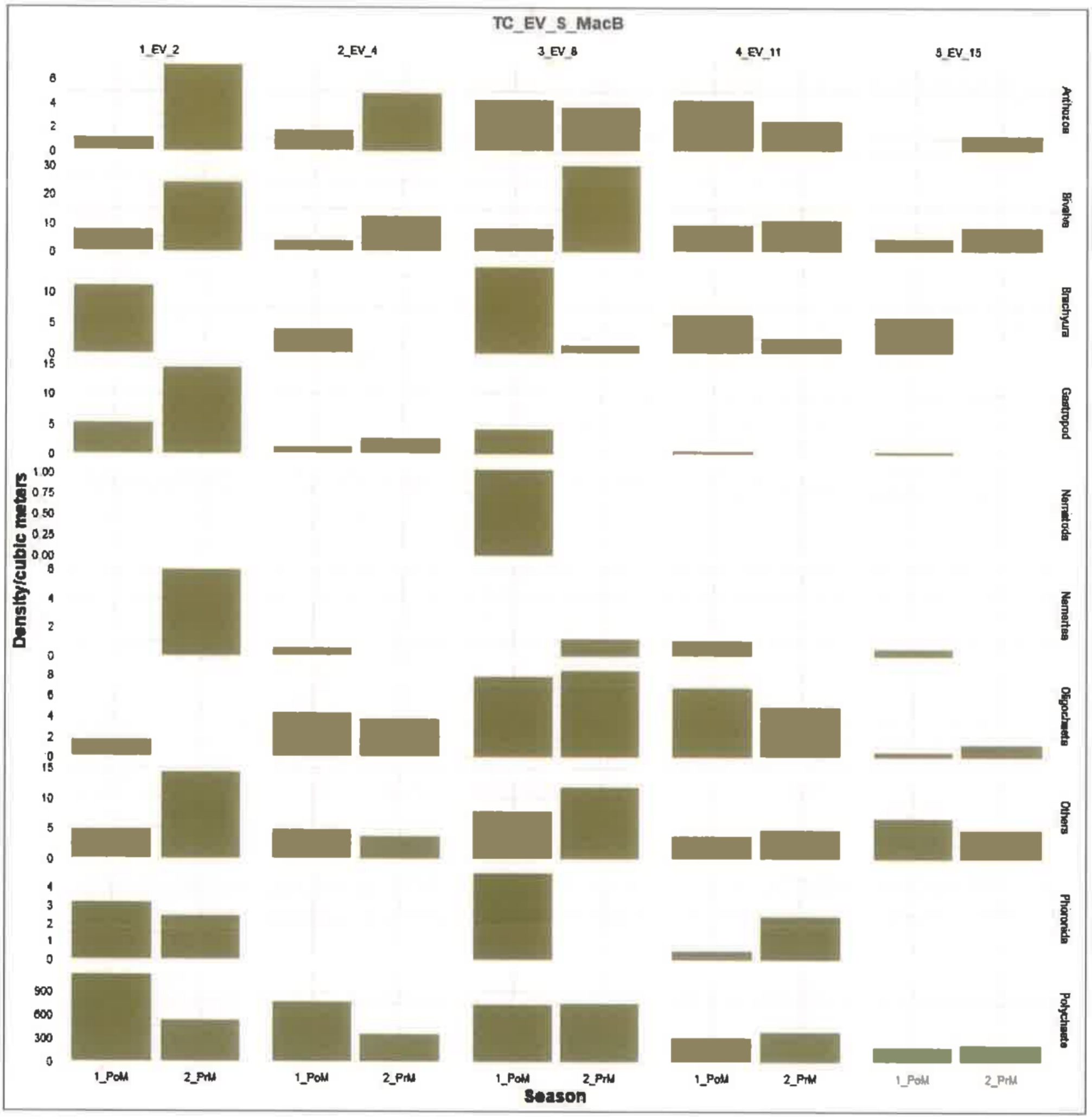


Fig. 25.1: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of E V cluster of Thane creek during 2021–22

showed a gradual decrease from upper stratum up to 11 cm and completely absent in the lowest 11-15 cm in Post-monsoon season. Stratum 0-2 cm (1821.8/ m³) showed higher group diversity (6 no) and abundance followed by stratum 4-8 cm (583.69/ m³) and stratum 2-4 cm (508.09/ m³). Lower Stratum 11-15 cm showed no group diversity and density except for Polychaete which was present in smaller amount. Anthozoa and Nemertea were completely absent within the entire 15cm column during both seasons.

The biomass of Polychaete was observed to be the highest during Post-monsoon season in stratum 15 cm (0.454545g/ m³). Biomass of Oligochaete shows a decreasing trend from the upper stratum (0.02g/ m³) to lower (up to15 cm (0.001g/ m³), across both the seasons.

Intertidal zonation

There was a high density of Polychaete, during Post-monsoon season in Zone C (1148.25/ m³). Zone C during Post-monsoon season showed a higher group diversity (9 no) compared to other zones across

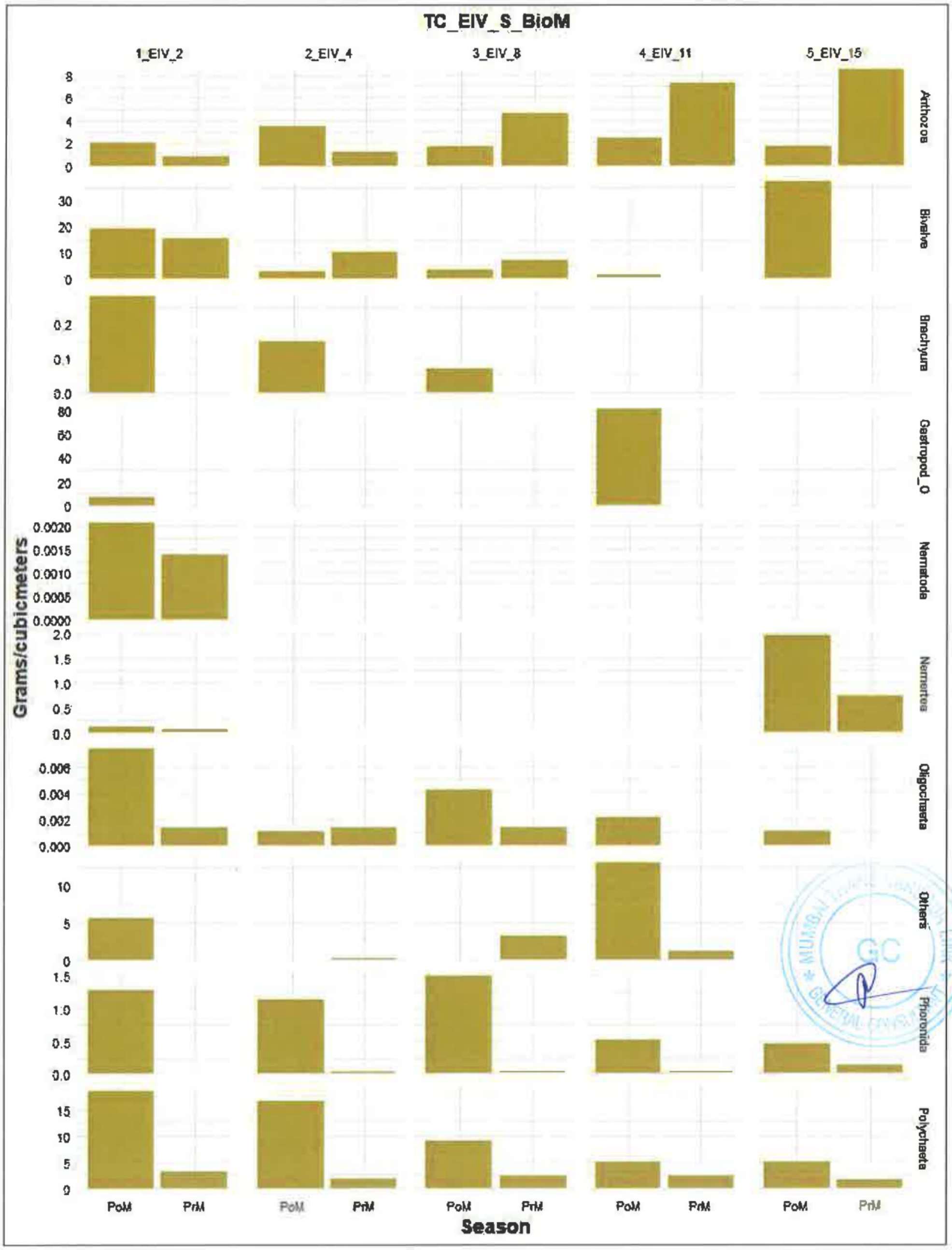


Fig. 24.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of EIV cluster of Thane creek during the study period 2021–22

both the seasons. It was observed that no macrobenthic groups were found in Zone B during both seasons. Anthozoa and Nemertea were completely absent in all zones in both the seasons. Phoronida was only present at Zone A during Post-monsoon season. While comparing both the seasons, Post-monsoon season exhibited higher group density (1562.2/ m³) than Pre-monsoon season (40.2/ m³) in all observed zones.

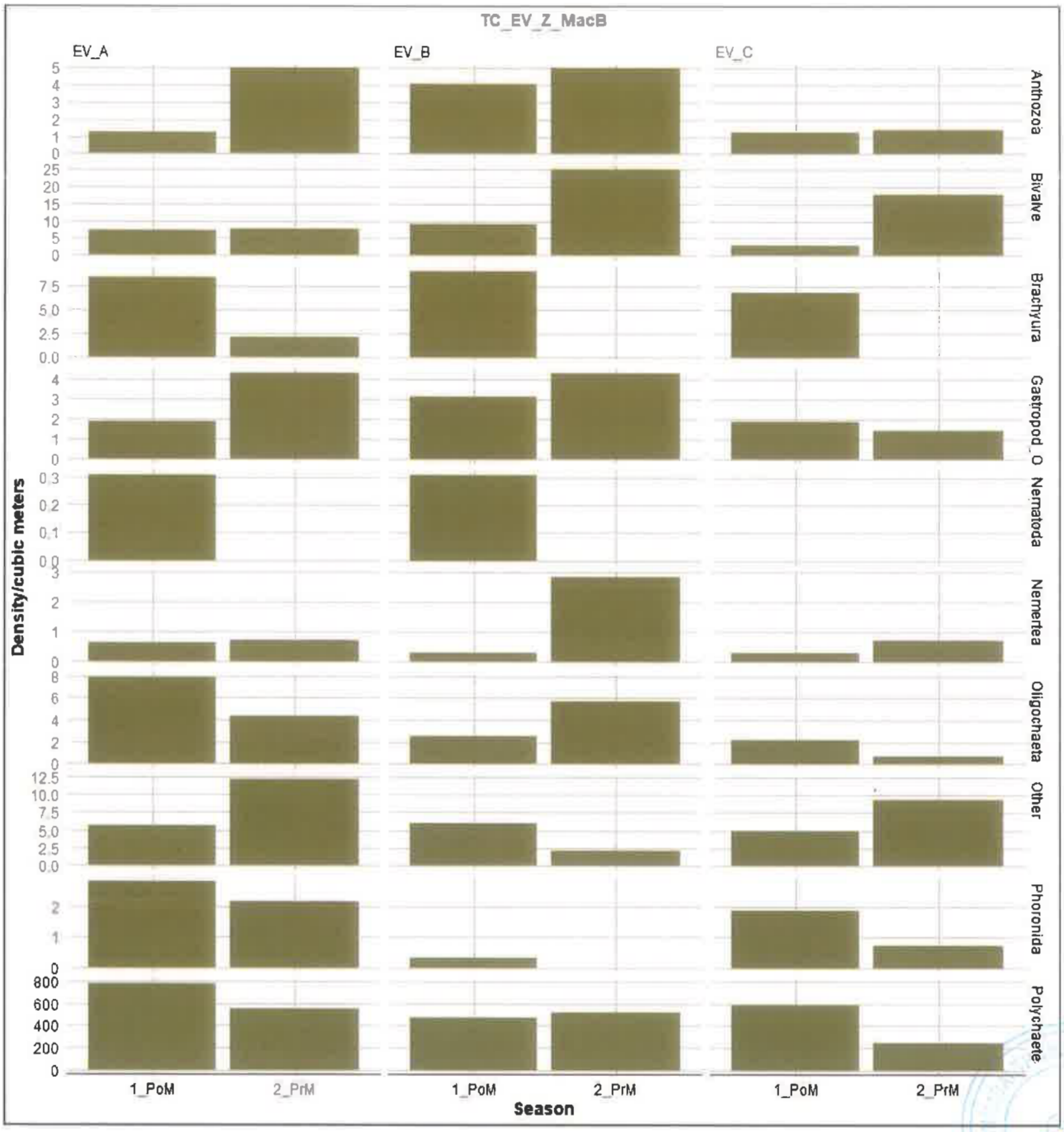


Fig. 25.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of E V cluster of Thane creek during 2021–22

The highest biomass in the assemblage seen, was contributed by Polychaetes (0.356g/ m³) followed by Oligochaetes (0.030g/ m³) and Nematoda (0.032g/ m³) respectively. The least contribution towards biomass was observed from Anthozoa, Bivalves, Brachyura, Gastropoda and Nemertea. Zone A (0.277g/ m³) showed comparatively higher biomass than Zone C (0.104g/ m³) during Post-monsoon season.

West Bank

In the entire study period, it was observed that Post-monsoon season had exhibited maximum macrobenthic density and biomass along the cluster WI (2002.5/m³, 4.244g/m³) WII (5272.5/m³, 4.78g/m³), WIII (11894.69/m³127.98g/m³) and WIV (14306.25/m³, 29.92g/m³). The least macrobenthic density and biomass was observed in Pre-monsoon season among all the clusters WI

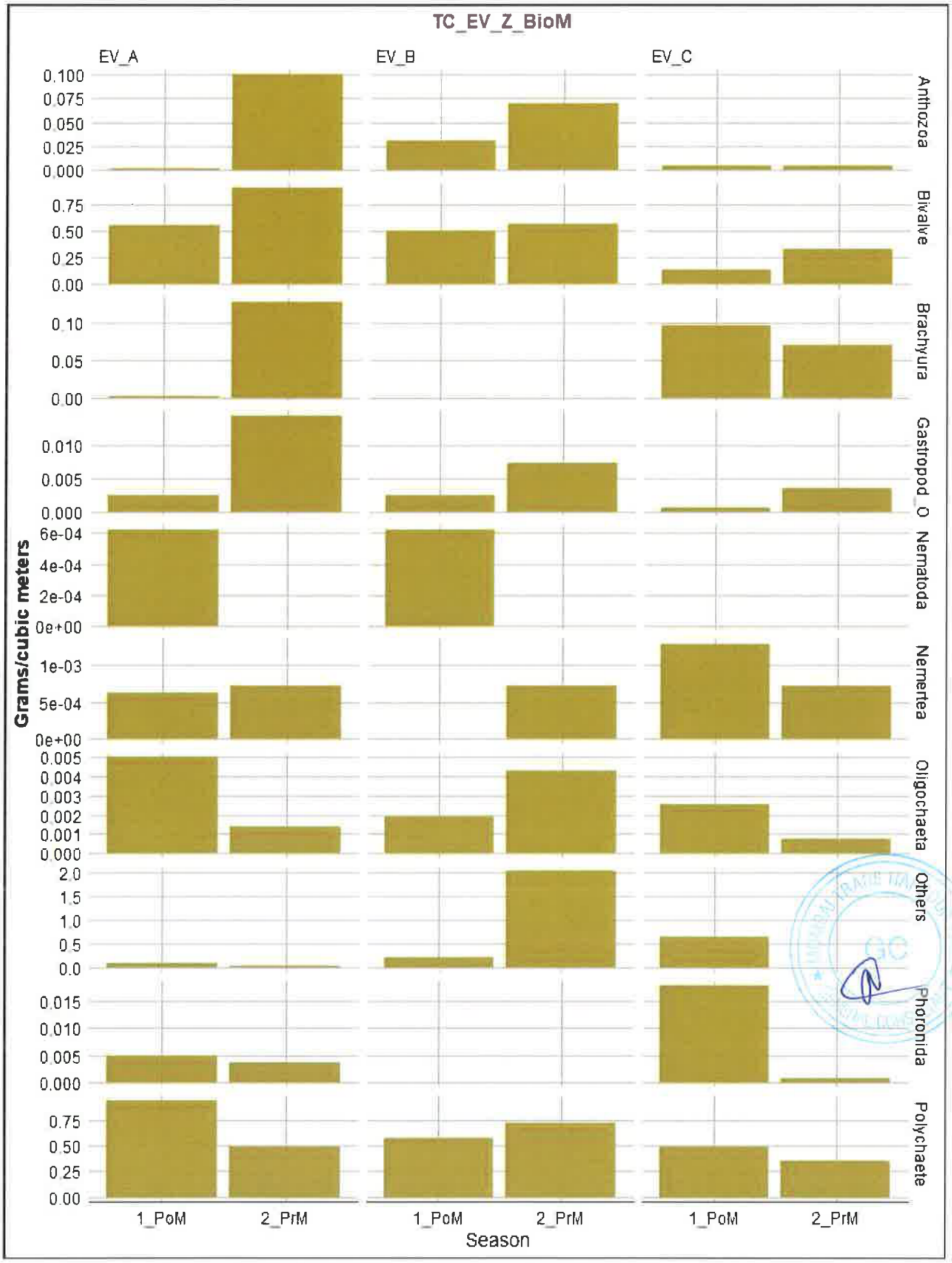


Fig. 25.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of E V cluster of Thane creek during the study period 2021–22

(1536.60/m³, 0.160g/ m³), W II (2496/m³; 0.78 g/m³, W III (3142.8/m³;2.184g/m³, W IV (3890.05/m³; 4.56g/m³). Comparatively, the highest values of density were observed at cluster W IV during Post-monsoon season (14306.25/ m³), whereas least values were observed at cluster W I (1536.6/ m³) during Pre-monsoon season.

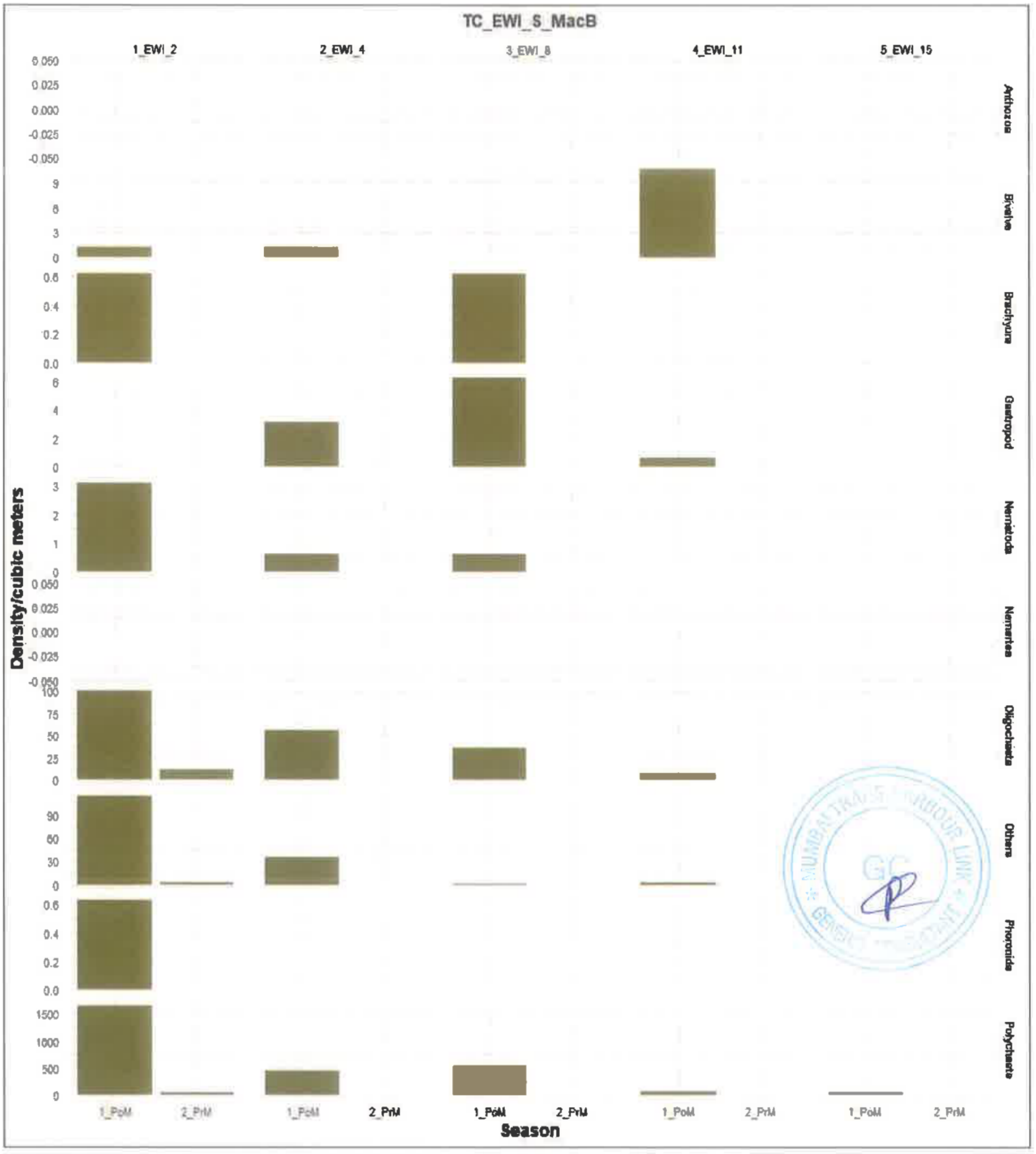


Fig. 26.1: Vertical stratification of macrobenthic density /m^3 in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021–22

The highest values of biomass were observed in the Post-monsoon season for cluster WIII (127.98g/ m^3) and W IV (29.92g/m^3). The least values of biomass were observed during Pre-monsoon season at W I (0.160 g/ m^3).

W I (Fig.27.1-27.4)

Polychaete was the most dominating group along the cluster and the single group which was present throughout sampling seasons. Along the cluster, 5 faunal groups were recorded. Macrobenthic density and biomass exhibited a decline from Post-monsoon season (2002.5/m^3, 4.244g/m^3) to Pre-monsoon season (1536.6/m^3, 0.160 g/m^3)

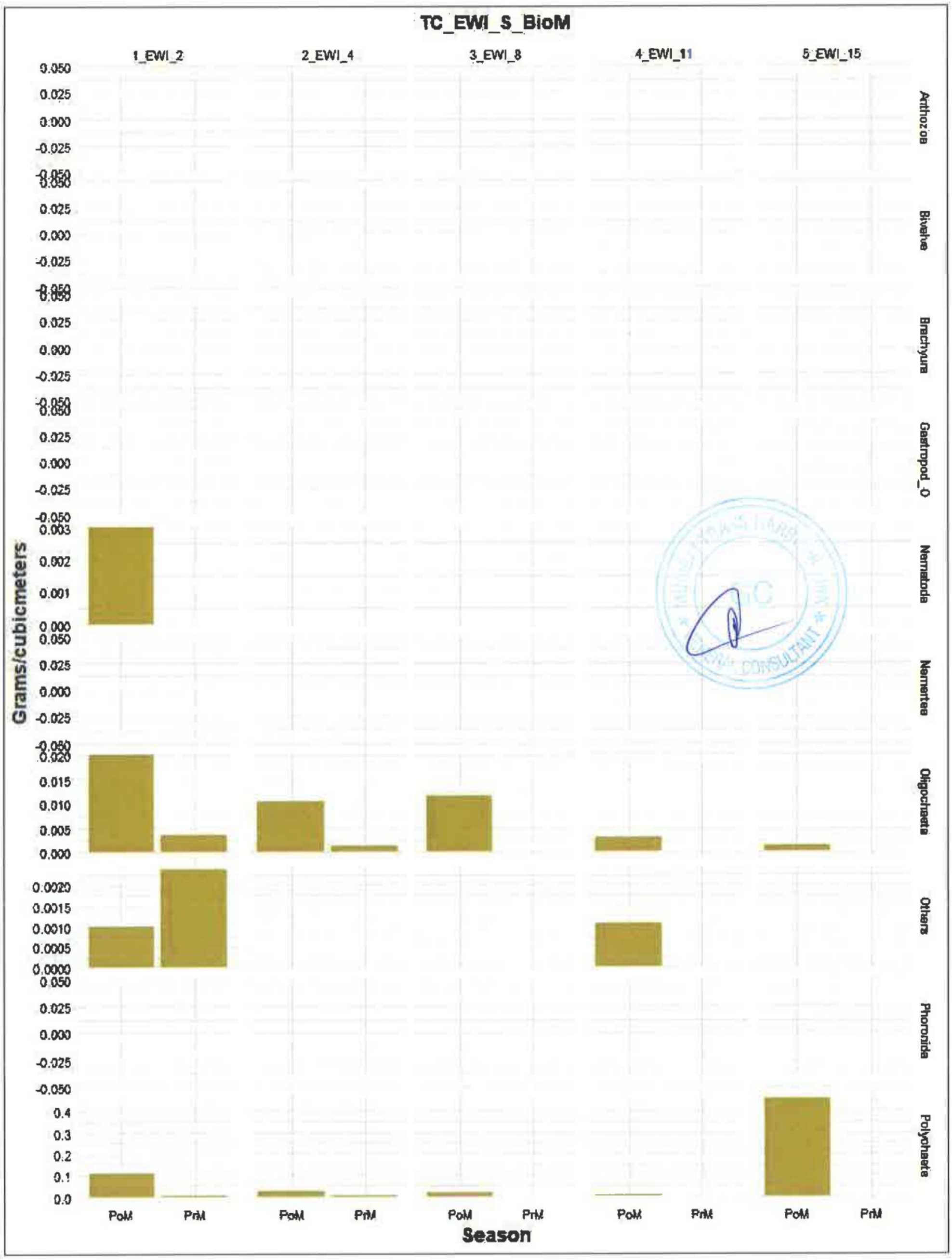


Fig. 26.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021–22

Vertical stratification

Polychaete was observed in all the strata during the entire study period. Bivalves were found only within stratum 2-4 cm, during Post-monsoon season. Gastropoda was only present in the upper stratum 0-2 cm, in both seasons. Phoronida was only observed in uppermost stratum 0-2 cm in the Post-monsoon season. Oligochaete was found to be more abundant in Post-monsoon season (540.9/ m³) than Pre-

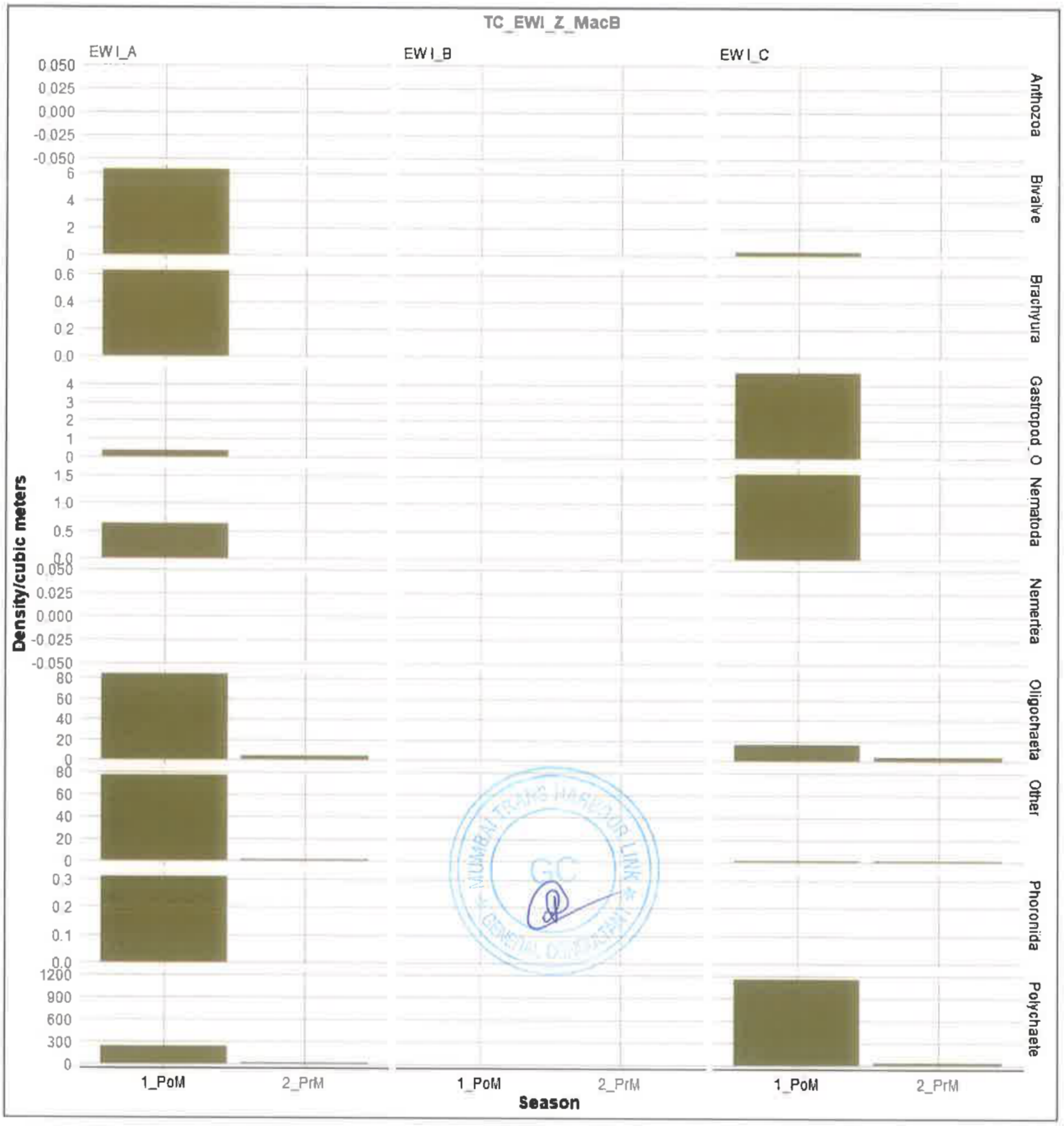


Fig. 26.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021–22

monsoon season (73.6/ m³). Macrobenthic density and biomass has declined from the upper stratum 2cm to lowermost stratum 11-15cm during Pre-monsoon and Post-monsoon.

The observation depicts that, Polychaete has the highest overall biomass (14.38g/ m³) followed by Brachyura (0.65g/ m³) and Oligochaete (0.5/ m³). Uppermost stratum from 0-2 cm shows highest contribution to the overall biomass of Post-monsoon season (7.2g/ m³). Lowest overall biomass was seen in Nematoda (0.01g/ m³) and Bivalves (0.012g/ m³). Nematoda showed almost equal biomass during both seasons in upper stratum 0-2 cm.

Intertidal zonation

During the study period, it was observed that Zone C exhibited maximum density of Polychaetes during Pre-monsoon (1147.5/m³), whereas the least density was observed in Pre-monsoon in Zone A

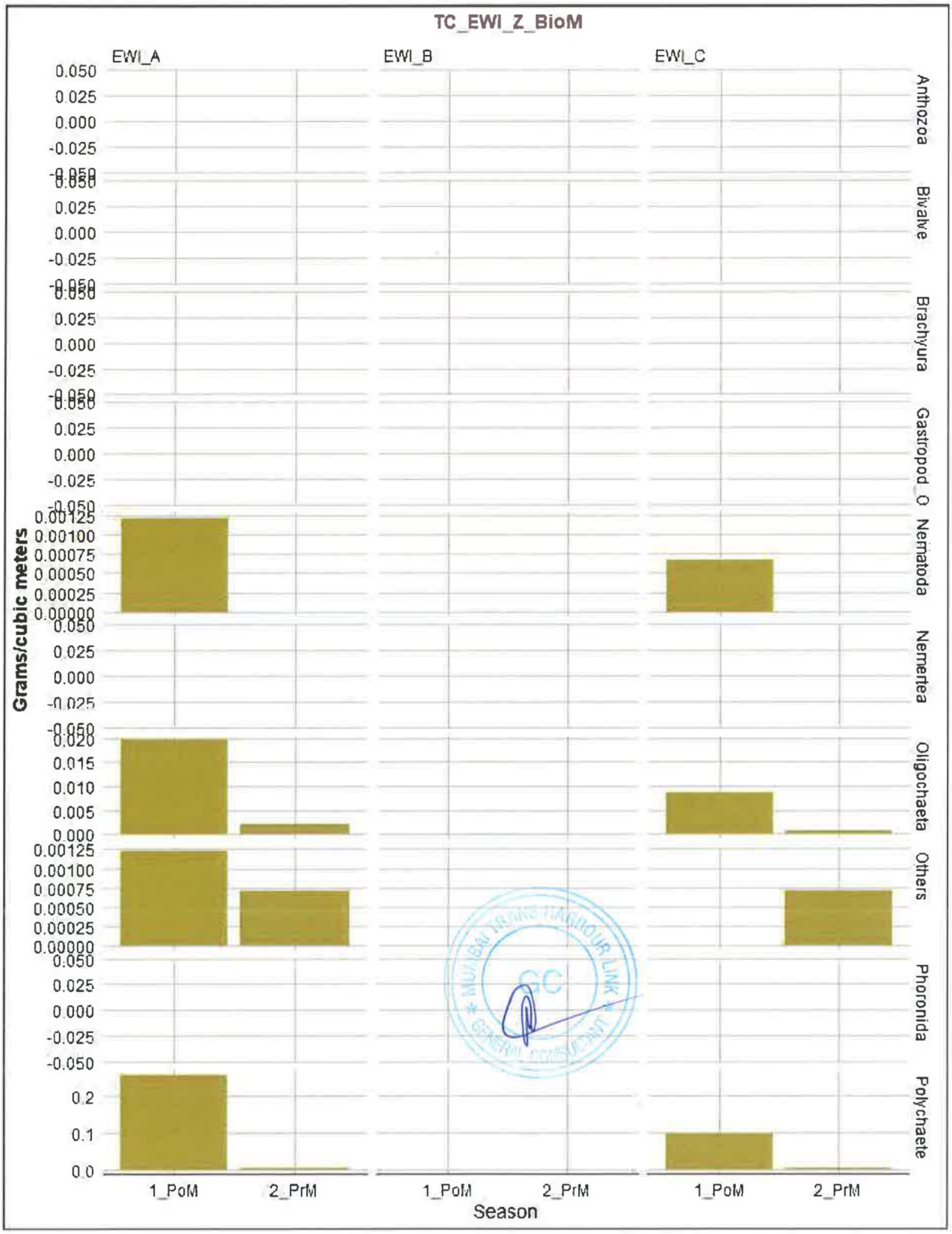


Fig. 26.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021–22

(52.5 /m³). It was also observed that there was a gradual increase in the density of polychaetes from Zone A (447.5/ m³) to Zone C (627.5/ m³) in both the seasons. Phoronida and Bivalves were only found during Post-monsoon season in Zone C. Anthozoa, Brachyura and Nemertea were completely absent across all observed seasons. Nematoda showed a higher density (44.16 /m³) during Pre-monsoon season across all zones, whereas Oligochaete showed higher density (324.5/ m³) during Post-monsoon season across all zones. The highest polychaete biomass was observed in Zone C during Post Monsoon

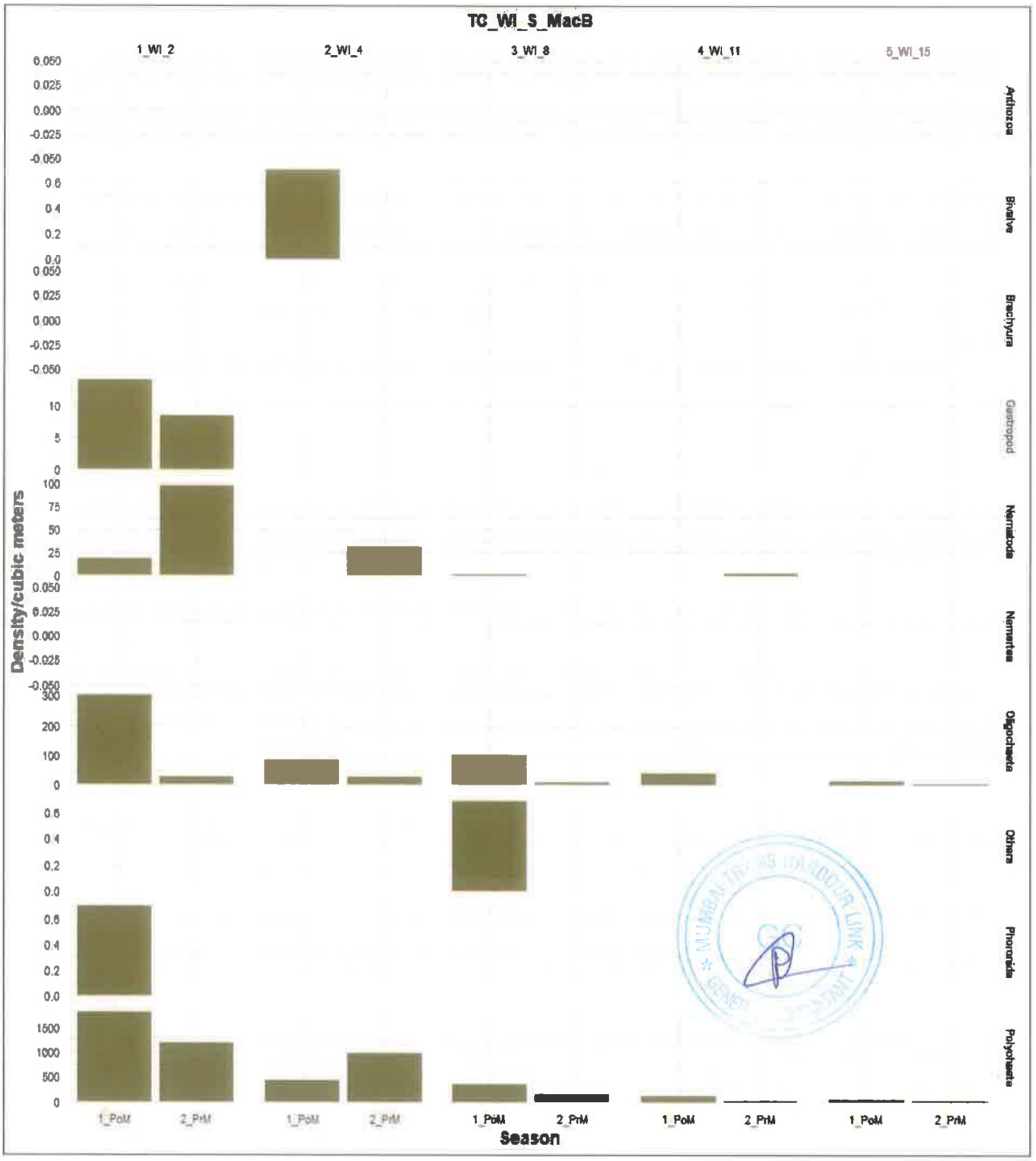


Fig. 27.1: Vertical stratification of macrobenthic density /m³ in the intertidal mudflats of WI cluster of Thane creek during the study period 2021–22

season (4.76g/ m³). The lowest polychaete biomass was observed during Pre-monsoon in the Zone A (0.026g/ m³). The biomass of Nematoda was almost same during both the seasons in Zone B and Zone C.

W II (Fig.28.1-28.4)

Polychaete was the most dominating group along all the clusters and only faunal group recorded in all seasons. Macrobenthic density and biomass have shown a significant decrease from Post-monsoon season (5272.5/m³, avg. 14.78g/m³) to Pre-monsoon season (2496/m³ ,0.782 g/m³). Along the clusters, 5 invertebrate phyla were recorded.

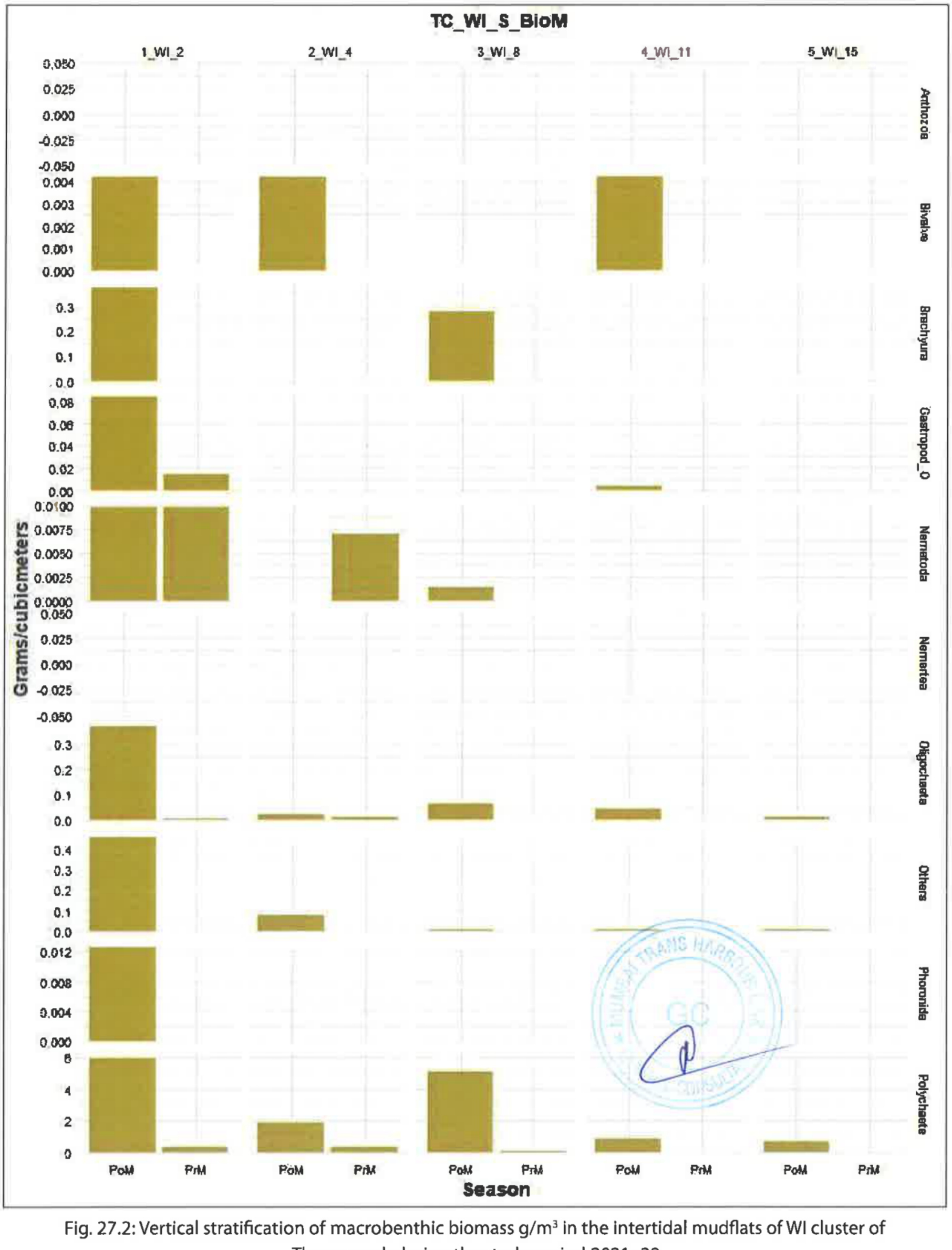


Fig. 27.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of WI cluster of Thane creek during the study period 2021–22

Vertical stratification

The maximum density was observed for polychaetes during Post-monsoon season in upper stratum 2 cm (4592.7/ m³), followed by Oligochaete (880.20/ m³) during Post-monsoon season of upper stratum 2 cm. A decreasing trend was observed stratum wise, from upper 0-2 cm to lowered areas of 11-15 cm Brachyura was only found in Post-monsoon season of stratum 2 cm. Highest group diversity was found in upper stratum 0-2 cm during Post-monsoon season (8 no). Anthozoa was only present during Post-

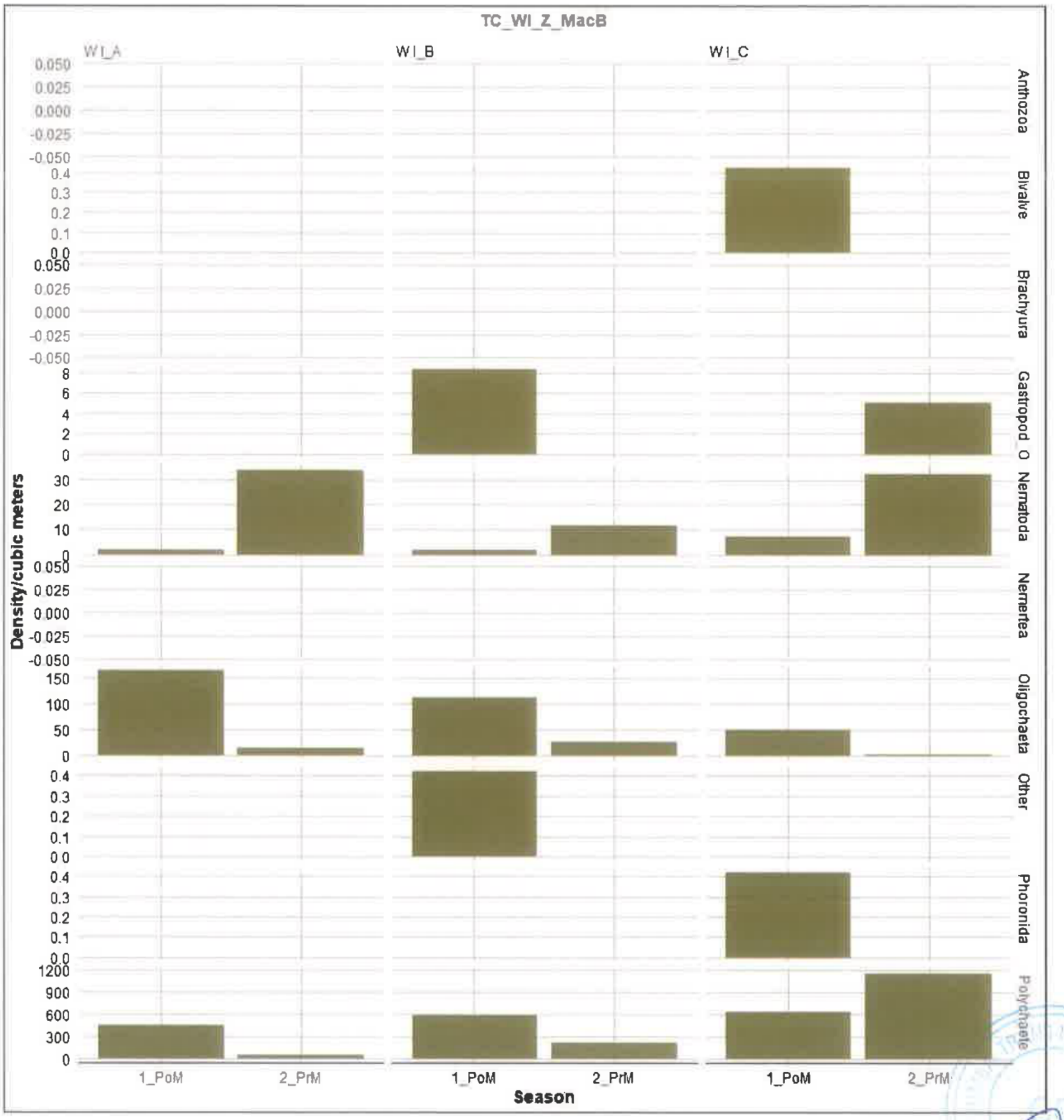


Fig. 27.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of WI cluster of Thane creek during 2021–22

monsoon season from stratum 2 cm to 8 cm and was completely absent in 8cm -15 cm. Polychaete was present in all the stratum followed by Phoronida, Gastrpoda and Bivalves.

Polychaete contributes the highest to overall biomass (41.72g/ m³) followed by gastropods (27.7g/ m³), whereas, Nematoda (0.003g/ m³) contributes least to the overall biomass followed by oligochaetes. Upper stratum 0-2cm shows the highest biomass than that of the other stratums followed by upper stratum 2-4 cm. It has been observed that Post-monsoon shows significantly higher biomass (72.28g/ m³) than Pre-monsoon across all the stratums (3.91g/ m³).

Intertidal zonation

In the present study, it was observed that highest density of polychaetes was found during Post-monsoon season in Zone B (1680.31/ m³). The lowest density was present in Zone C of Pre-monsoon

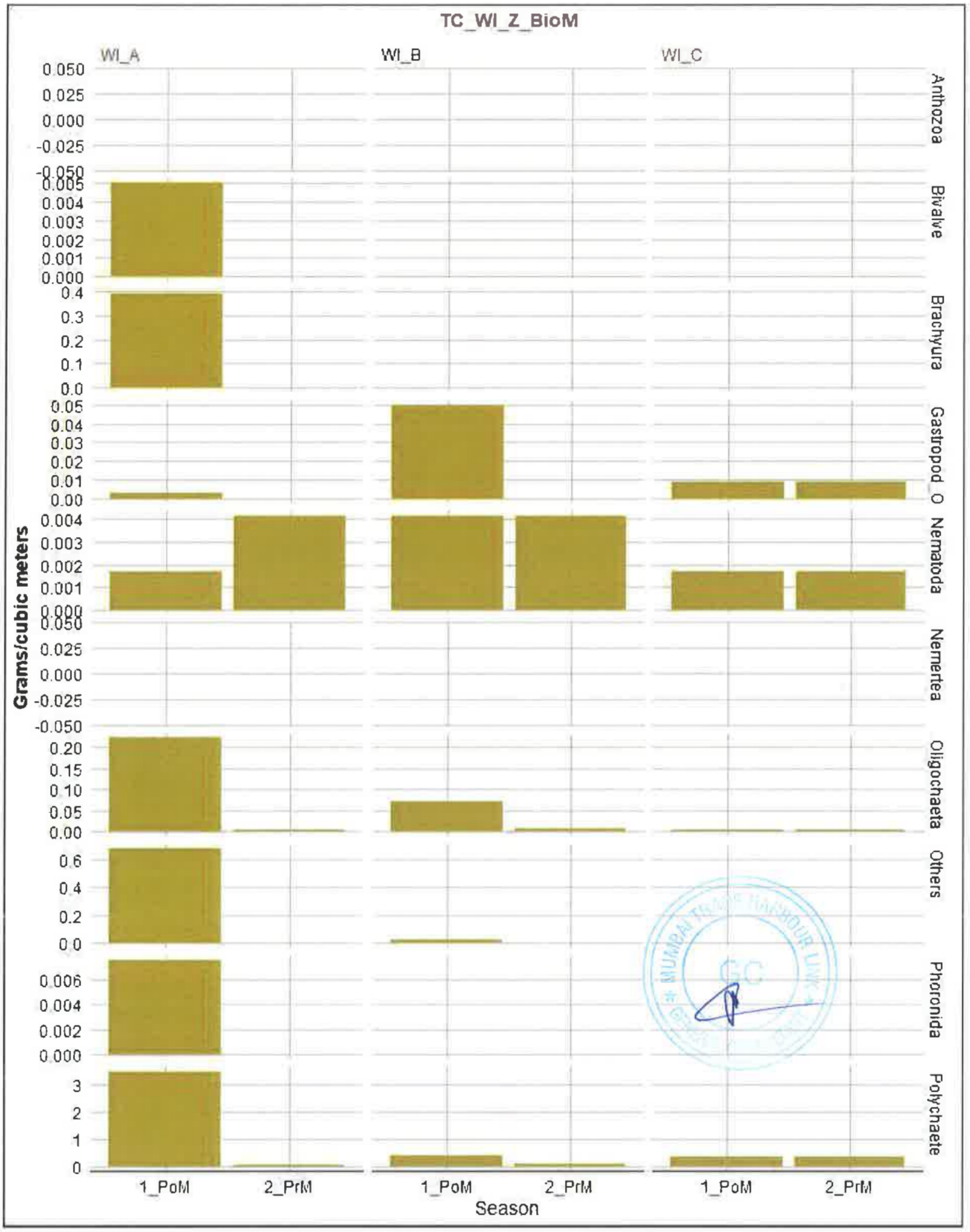


Fig. 27.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of WI cluster of Thane creek during the study period 2021–22

season (679/ m³). Brachyura was only observed during Post-monsoon season in Zone B. Anthozoa was found to be only present during Post-monsoon season across all the zones. Nemertea was only present during Post-monsoon season in Zone C. Density of Anthozoa showed a decreasing trend from Zone A (1.25/ m³) to Zone C (0.31/ m³). Phoronida was absent during Pre-monsoon season of Zone A and Zone B, however it showed a slight increase in density during Pre-monsoon season of Zone C (1/ m³). Gastropod was not found in Pre-monsoon season of Zone B. Overall, Zone B had maximum faunal diversity during

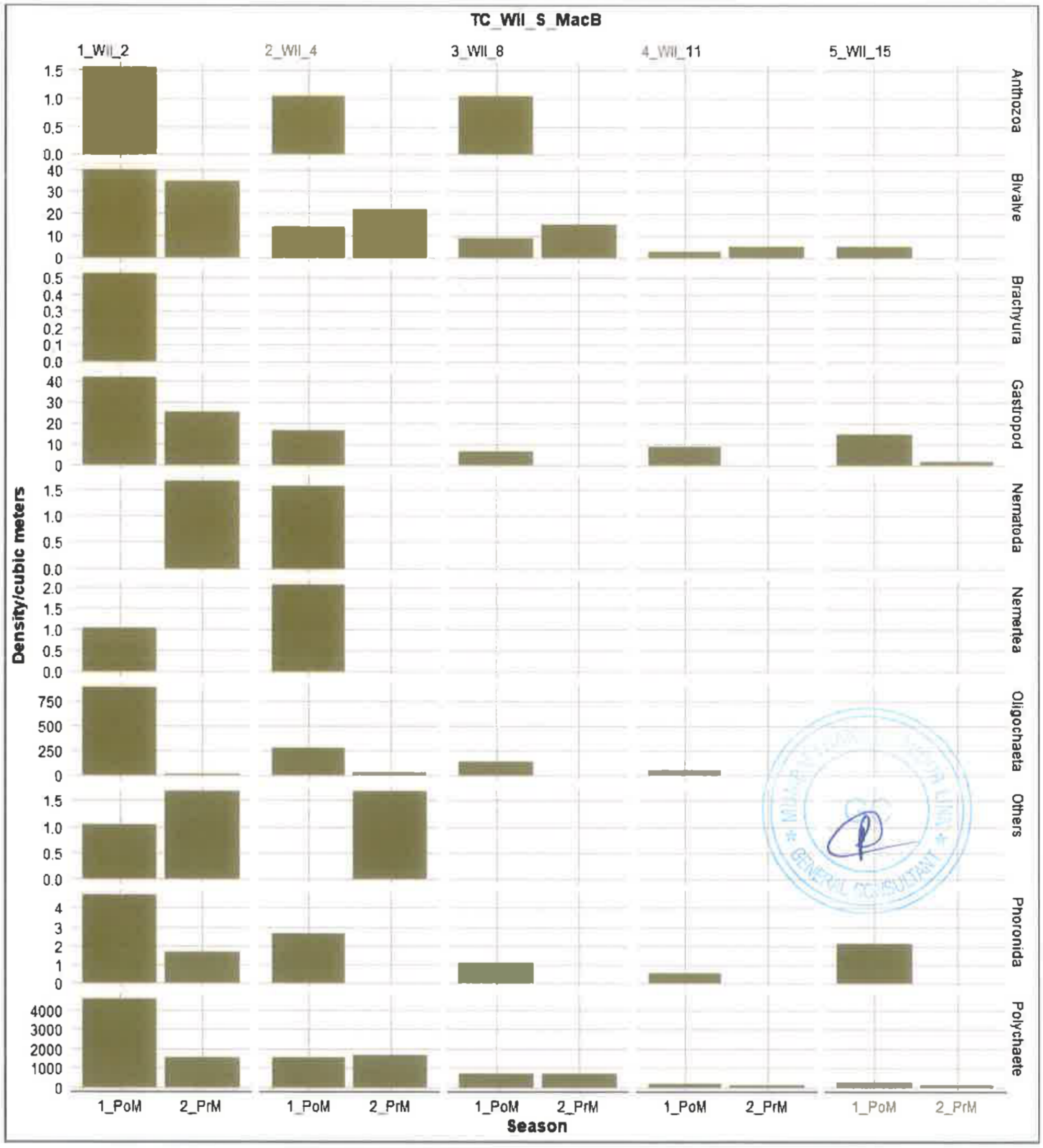


Fig. 28.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of WII cluster of Thane creek during the study period 2021–22

both the seasons. Polychaete has the maximum contribution to overall macrobenthic density during the entire sampling period (6749/ m³).

The highest biomass was observed to be of Gastropoda during Post-monsoon season of Zone A (14.33/ m³), followed by Polychaete during Post-monsoon season of Zone B (9.28g/ m³), while the lowest biomass was of Phoronida during Post-monsoon season of Zone B (0.0025g/ m³) followed by Anthozoa during Post-monsoon season of Zone C (0.0025g/ m³).

W III (Fig.29.1-29.4)

Polychaete was the most dominating group along all the clusters and only faunal group recorded in all seasons.There was a substantial decline in macrobenthic density and biomass from Post-monsoon

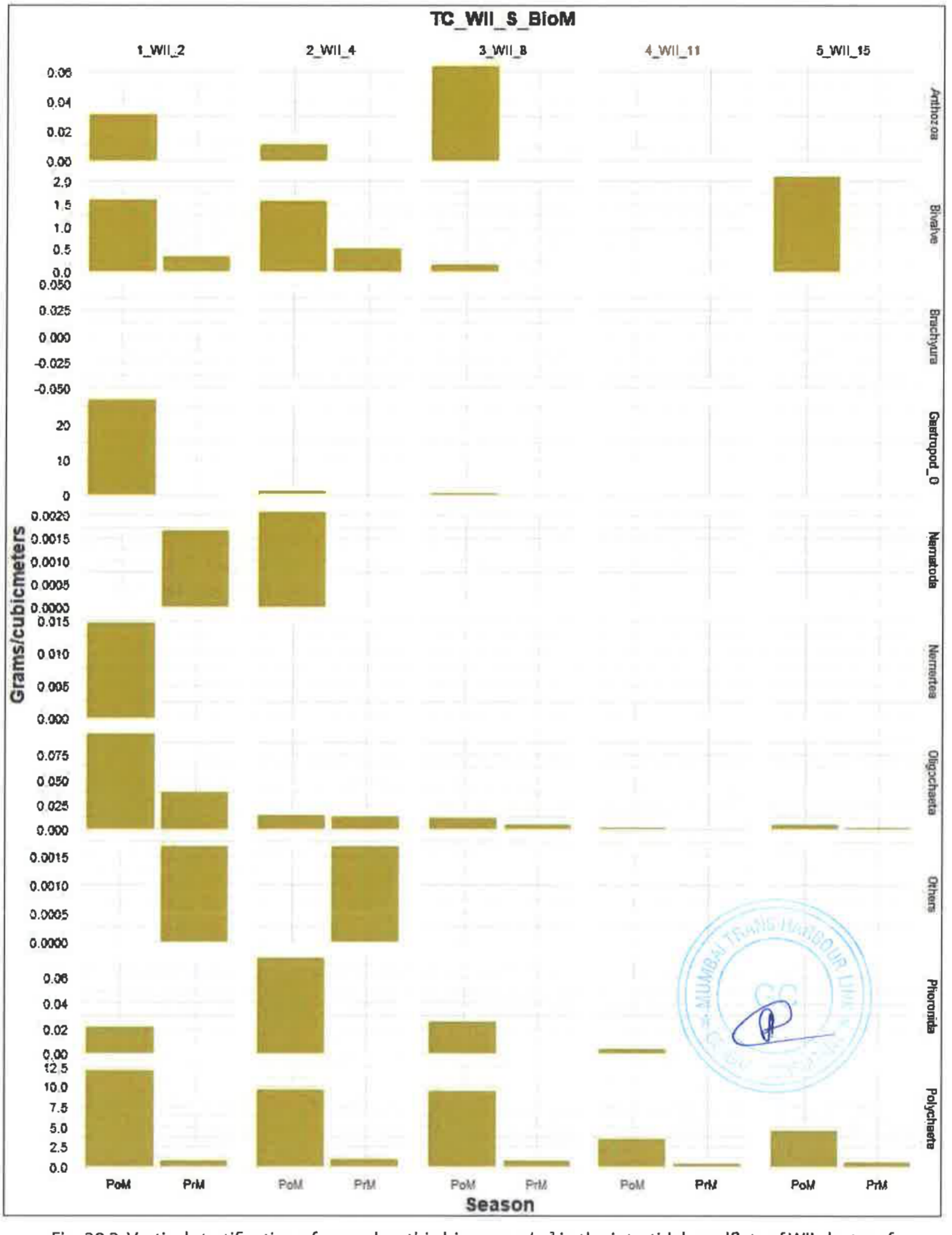


Fig. 28.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of WII cluster of Thane creek during the study period 2021–22

season (11894.69/m³, avg. 127.98g/m³) to Pre-monsoon season (3142.8/m³,2.184g/m³). Along the cluster, 5 invertebrate phyla were recorded.

Vertical stratification

Uppermost Stratum from 0-2 cm shows the highest abundance (9855.7/ m³) as well as the highest group diversity amongst all the strata. Polychaete shows a declining trend from upper most stratum

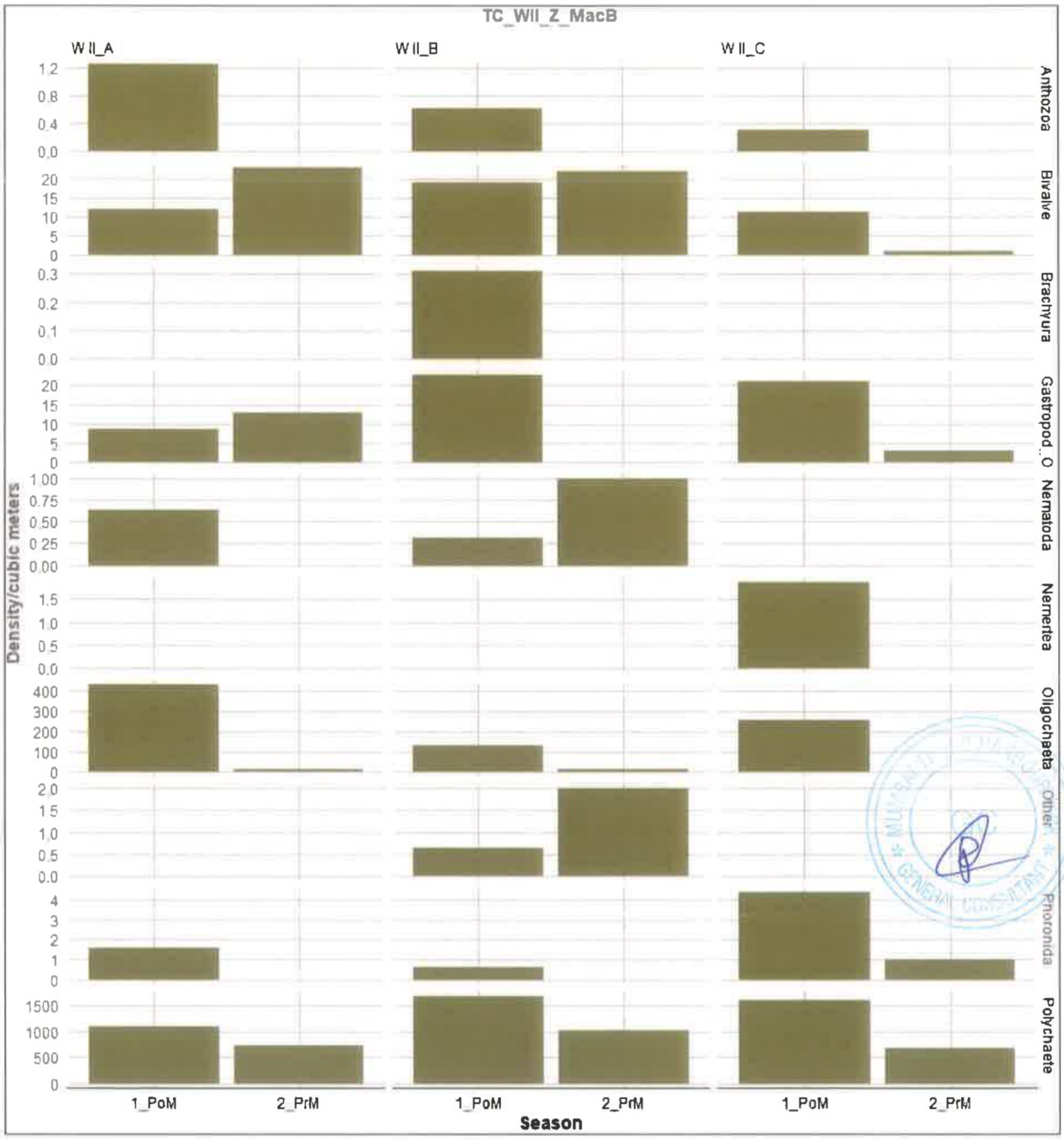


Fig. 28.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of WII cluster of Thane creek during 2021–22

0-2 cm to lowermost stratum 11-15 cm in both the seasons. Nemertea shows a sudden spike in abundance during Pre-monsoon season in lowermost sediment up to 15 cm. Nematoda was completely absent in stratum 4 cm and 8 cm. Anthozoa was present across all the stratums and all the seasons except stratum 11-15 cm of Pre-monsoon season. Apart from Nematoda, other groups such as Anthozoa, Brachyura, Bivalve, Gastropoda, Nemertea, Oligochaete, Polychaete and Phoronida were present across all the stratums. Polychaete shows the maximum biomass in stratum uppermost 0-2 cm (50.33g/ m³) during Post monsoon season. The maximum biomass was contributed by Bivalves (258.8g/ m³) followed by Gastropods (170.1g/ m³) and Polychaetes (136.4g/ m³) respectively. The least biomass was observed in Nematoda (0.003g/ m³) followed by oligochaetes (0.0362g/ m³). Stratum 4-8 cm has maximum biomass in Post-monsoon season (175.10g/ m³). The maximum biomass concentration was seen in Post-monsoon season across all the stratum.

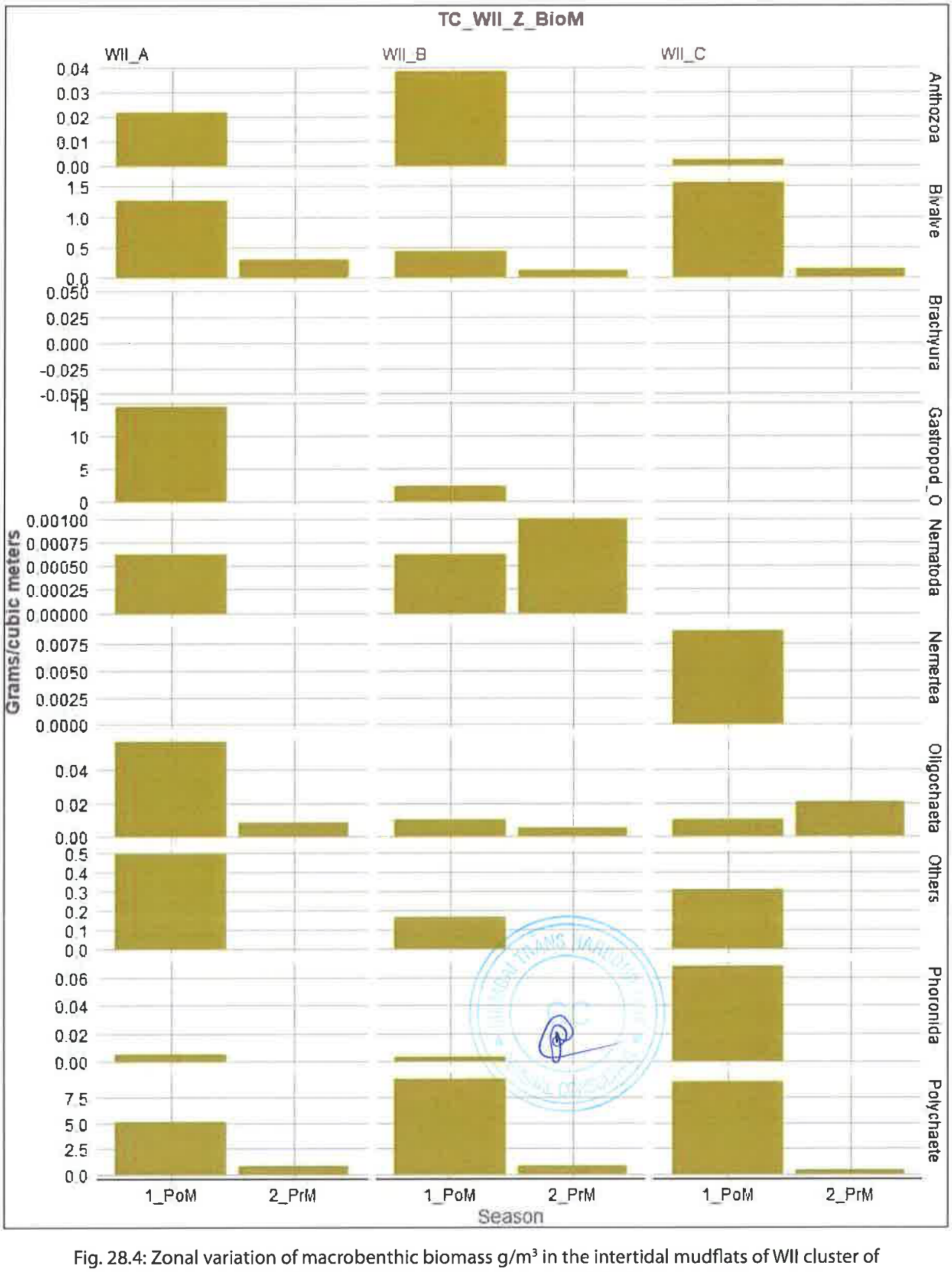


Fig. 28.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of WII cluster of Thane creek during the study period 2021–22

Intertidal zonation

The highest density was observed to be in Polychaetes during Post-monsoon season in Zone A (4241.2/ m³). Bivalve was found to be in high density during Post-monsoon season in Zone-B (280.93/ m³). Oligochaete showed a gradual decrease in density from Zone-A to Zone C across both the seasons. Nematoda was only found in the Post-monsoon season of Zone A and Zone B. Nemertea was completely absent in Zone B during both the seasons. Post-monsoon season has highest density of Polychaetes

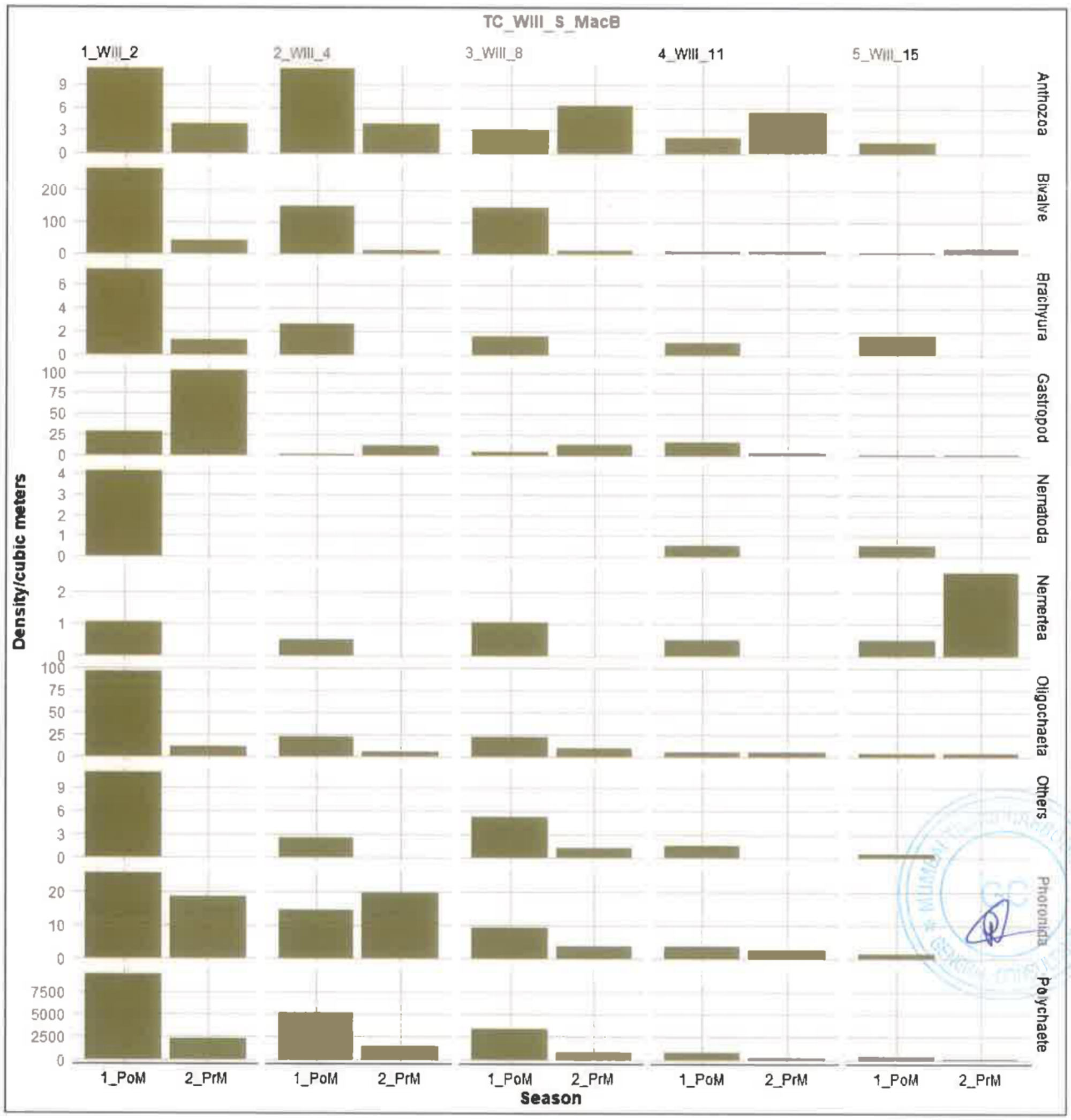


Fig. 29.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of WIII cluster of Thane creek during the study period 2021–22

(113552.18/ m³) than Pre-monsoon season in all Zones (3268.29/ m³). Phoronida showed a sudden increase in density in the Pre-monsoon season of Zone C (21.21/ m³). Maximum contribution to the overall biomass, is by Bivalves (155.3g/ m³) followed by Gastropoda (102.04g/ m³) and Polychaetes (81.82g/ m³) respectively. Decreasing trend in Biomass of Bivalves was observed across all the Zones in Post-Monsoon season. Biomass of Polychaetes during Post-monsoon (78.20g/ m³) season was significantly higher than Biomass during Pre-monsoon season (3.62g/ m³).

W IV (Fig.30.1-30.4)

In terms of Density and Biomass, Polychaete (17950.7/ m³, 58.9g/ m³) was the most dominating group along the cluster and was recorded in all seasons. The density and biomass for the macrobenthic community had significantly decreased from Post-monsoon season (14306.25/m³, 29.92g/m³) to Pre-monsoon season (3890.05/m³, 4.56g/m³). Along the clusters, 5 invertebrate phyla were recorded.

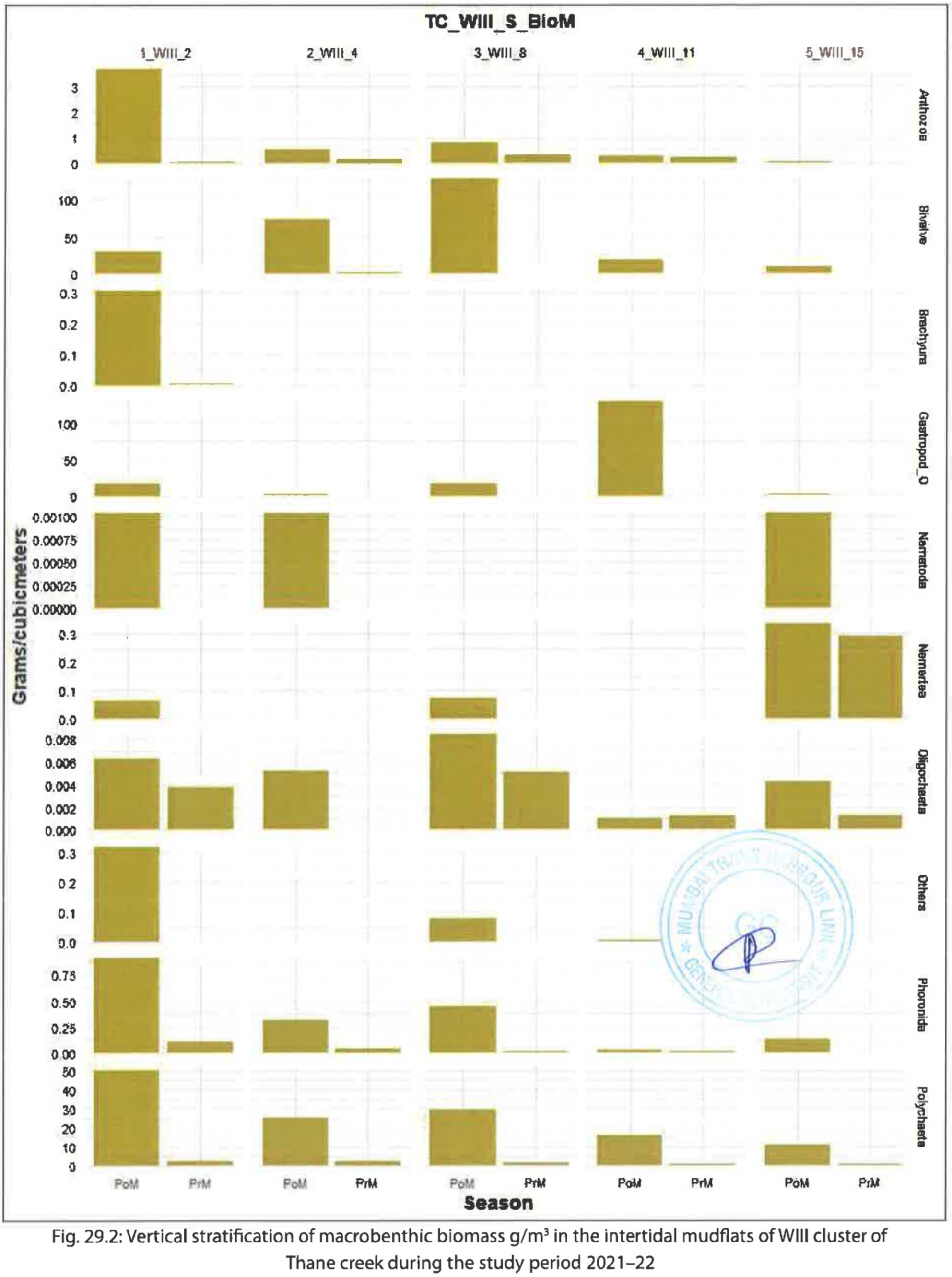


Fig. 29.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of WIII cluster of Thane creek during the study period 2021–22

Vertical stratification

Anthozoa and Polychaete were present in all the stratums in both the seasons. Nematode was only present during Post Monsoon seasons of strata 8 and 11. Nemertea is present in all the stratum except upper 2 cm. Polychaete is showing a gradual decline from upper stratum 2 cm to lower 15 cm and across both the seasons. Strata 4-8 cm and 8-11 cm shows the highest group diversity followed by strata 2-4 cm.

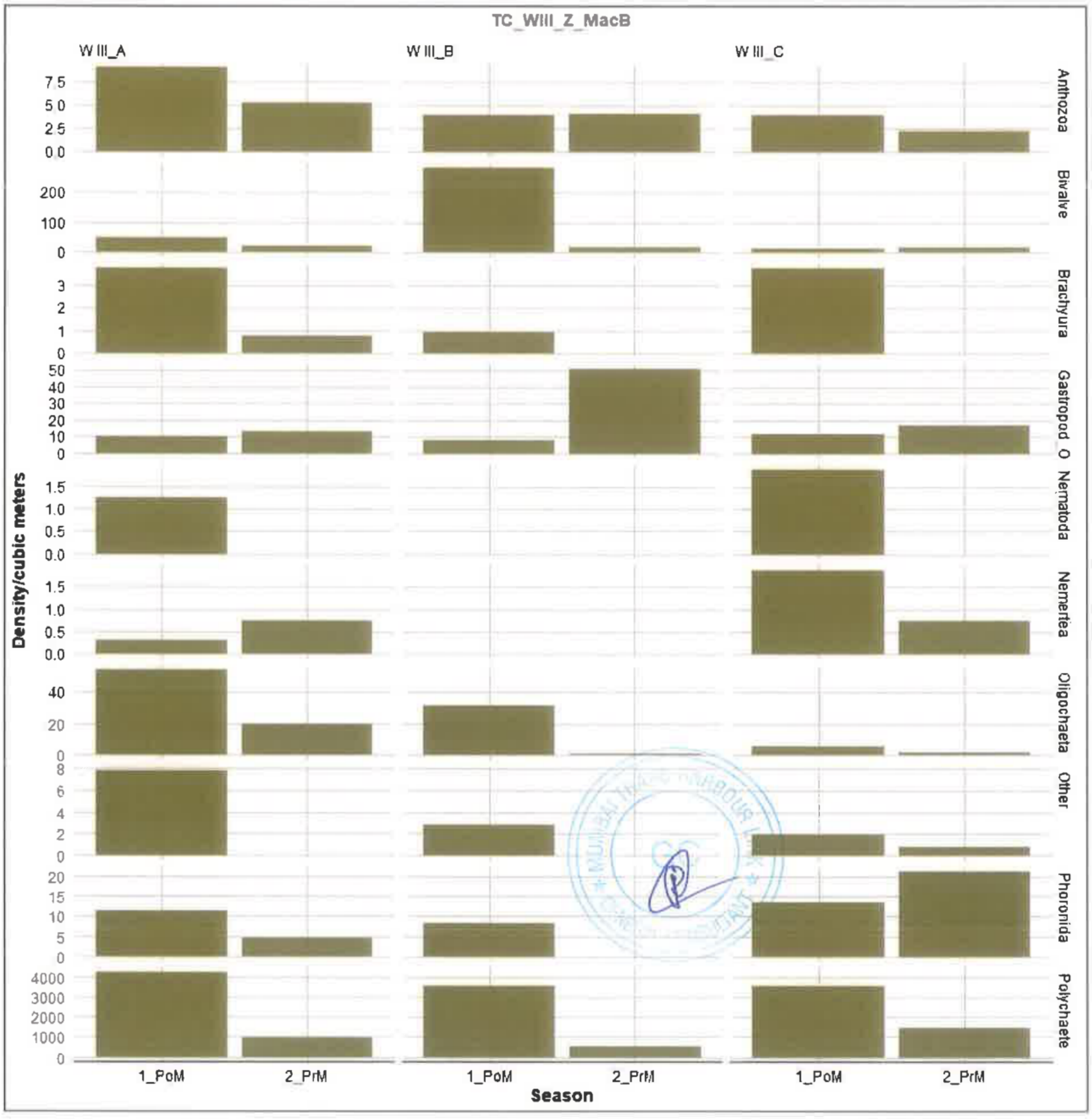


Fig. 29.3: Zonal variation of macrobenthic density g /m³ in the intertidal mudflats of W III cluster of Thane creek during the study period 2021–22

Polychaete showed higher contribution to biomass in upper stratum 2 cm (12764.06/ m³) followed by stratum 4 cm (8135.9/ m³) and 8 cm (6595.6/ m³). Gastropod showed second highest biomass in stratum upper 2 cm and 2-4 cm during Post-monsoon season. Nematode showed the least biomass amongst all the groups (2.083g/ m³).

Intertidal Zonation

In the present study, it was observed that Anthozoa was present across all zones during Post-monsoon. Nematoda was only present in Zone C of Post monsoon season. Nemertea was present in all zones of both seasons except the Pre-monsoon season.

Oligochaete was found to be abundant in Zone A (3.44/ m³) with a sudden decrease in density in Zone B (0.63/ m³) and again an increase in Zone C (3.75/ m³) during Post-monsoon season. Oligochaete was only present in the Post monsoon season and it was completely absent in Pre monsoon season. Phoronida

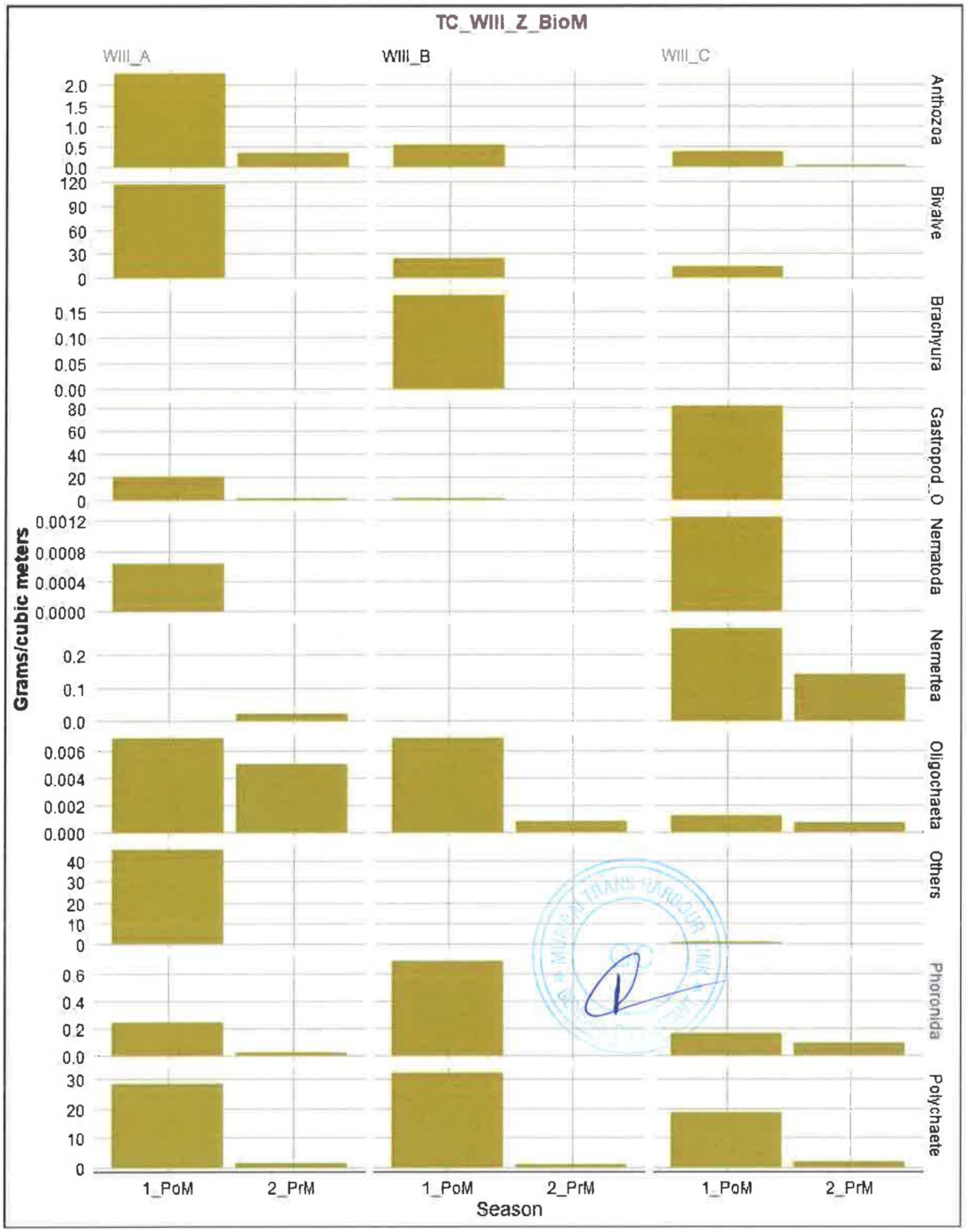


Fig. 29.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of W III cluster of Thane creek during the study period 2021–22

was present in all the zones across all the seasons except in Zone A of Pre monsoon season. Polychaete was present in both the seasons across all the zones. However, the density of polychaete was more in Post monsoon season (14148.12/ m³) as compared to pre monsoon season (3802.61/ m³). The biomass of Polychaete was more in Post monsoon season (17.40g/m³) as compared to the Pre monsoon season (2.241g/m³). Zone A of Post monsoon season comparatively showed higher biomass (44.64g/ m³) than the rest of the zones across all macrobenthic groups. The Polychaetes showed the highest contribution to the biomass followed by Gastropods.

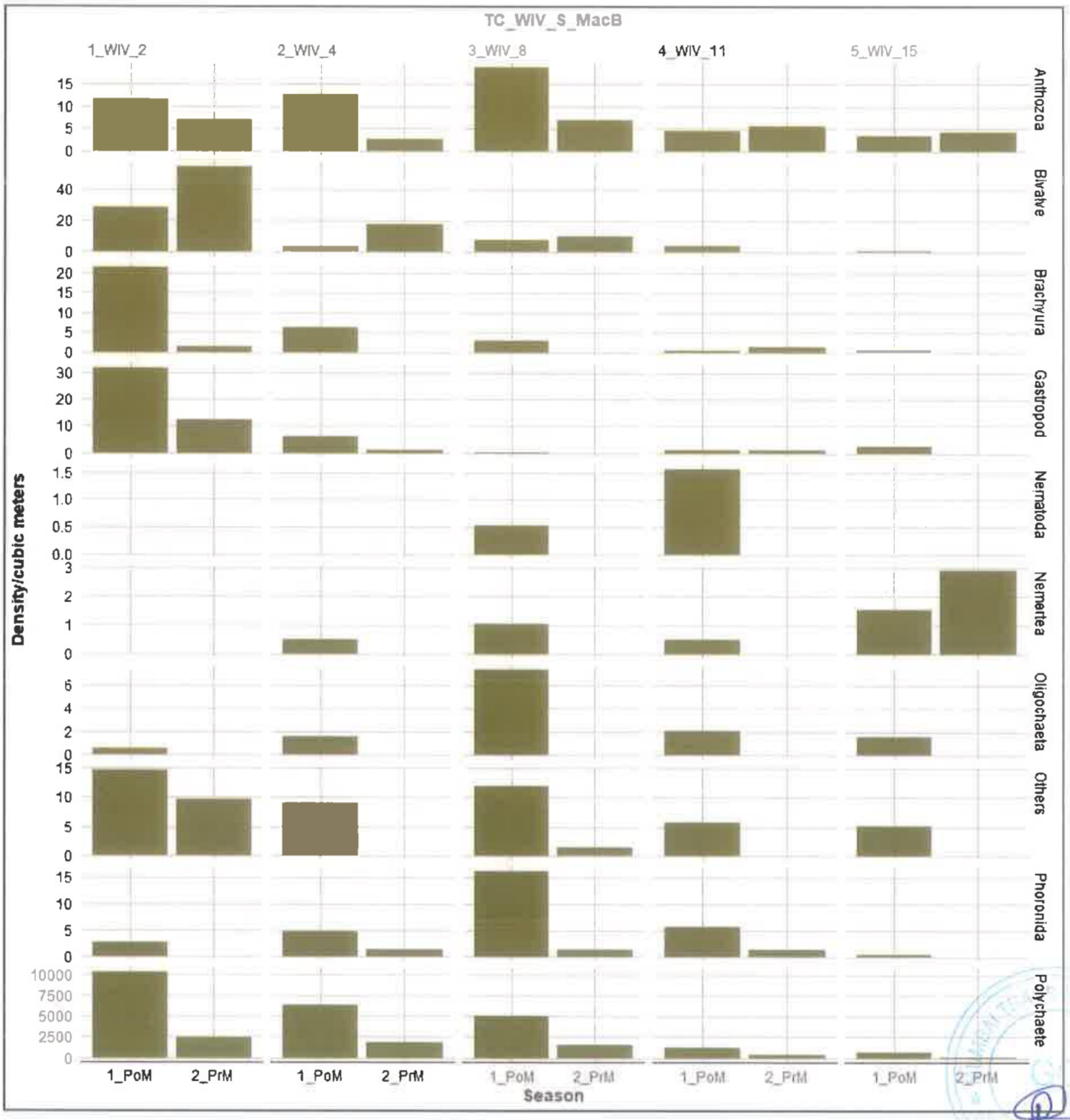


Fig. 30.1: Vertical stratification of macrobenthic density /m³ in the intertidal mudflats of WIV cluster of Thane creek during the study period 2021–22

Sewri (Fig.31.1-31.2)

In the present study, it was observed that Polychaetes showed the highest density (140.86/m³), followed by Gastropods (4.266/ m³) and Bivalves (1.4/ m³) across all the zones during both seasons. Polychaeta and Bivalves were the only groups found in Zone A during Pre-monsoon season. Groups like Phoronida and Nemertea were completely absent across all the zones and during both seasons. Lucifer, Bivalve and Gastropods were only present in Zone A and Zone B of Post-monsoon season. During Post-monsoon season, Zone B exhibits the highest polychaete density (52.13/ m³) when compared to Zone A (35.2/ m³) and Zone C (30.53/ m³). The density of Gastropods shows a steady decline from Zone A to Zone C. Post-monsoon season shows the highest group wise diversity (11 No) than that of Pre-monsoon season (2 No).

Polychaeta contributes the highest to the overall biomass across all the zones, during both seasons (0.117g/ m³). The second highest contribution to biomass is by Gastropods (0.035g/ m³), followed by

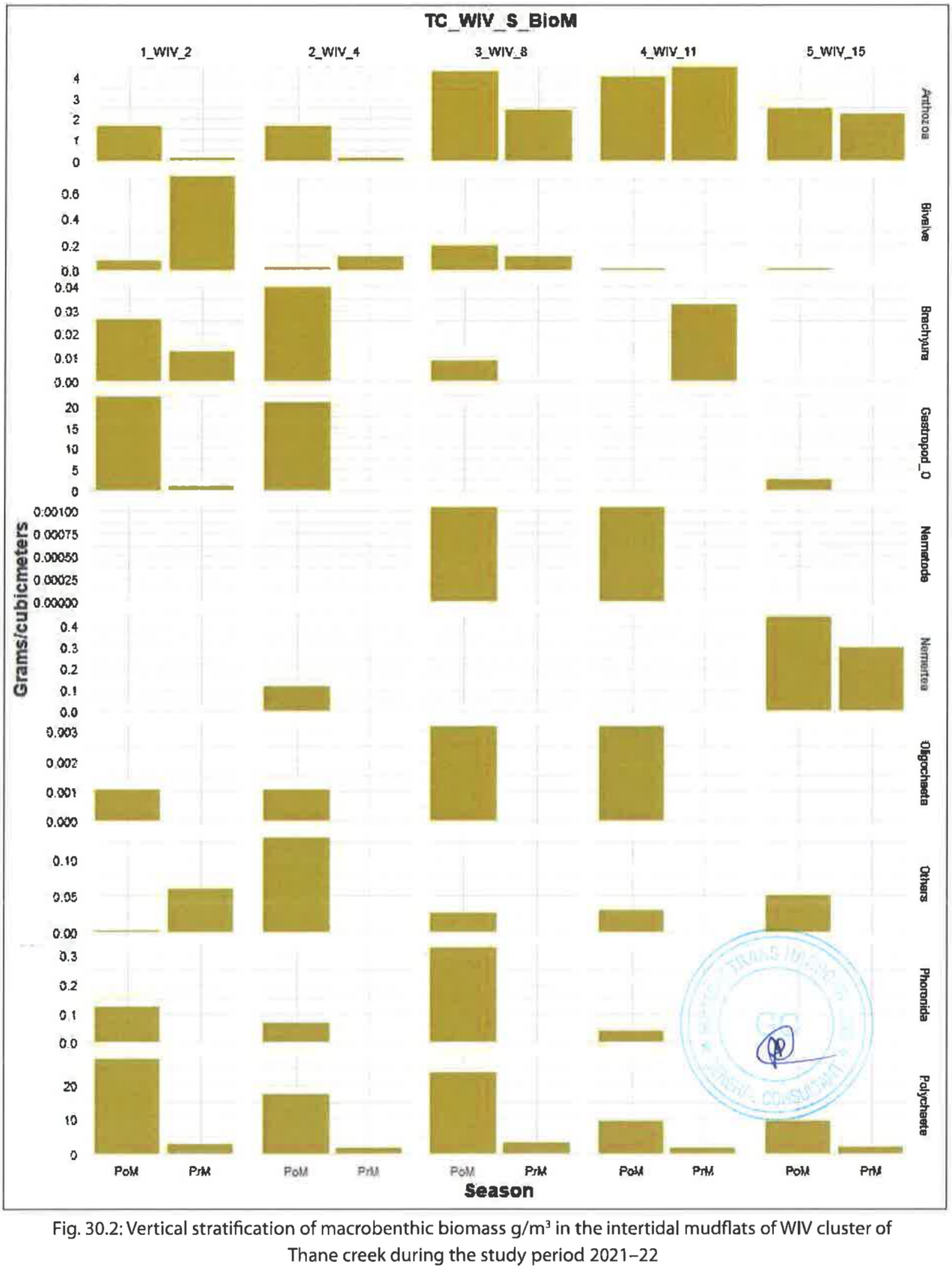


Fig. 30.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of WIV cluster of Thane creek during the study period 2021–22

Brachyura (0.006g/ m³). Shrimp exhibits the lowest contribution towards biomass (0.000067g/ m³), followed by Nematoda (0.00026/ m³).

Nhava (Fig.32.1-32.2)

According to the findings of the current study, it was observed that Polychaete shows the most abundance across all the zones during both the seasons. (251.6/ m³). Unlike, the rest of the results, Pre-

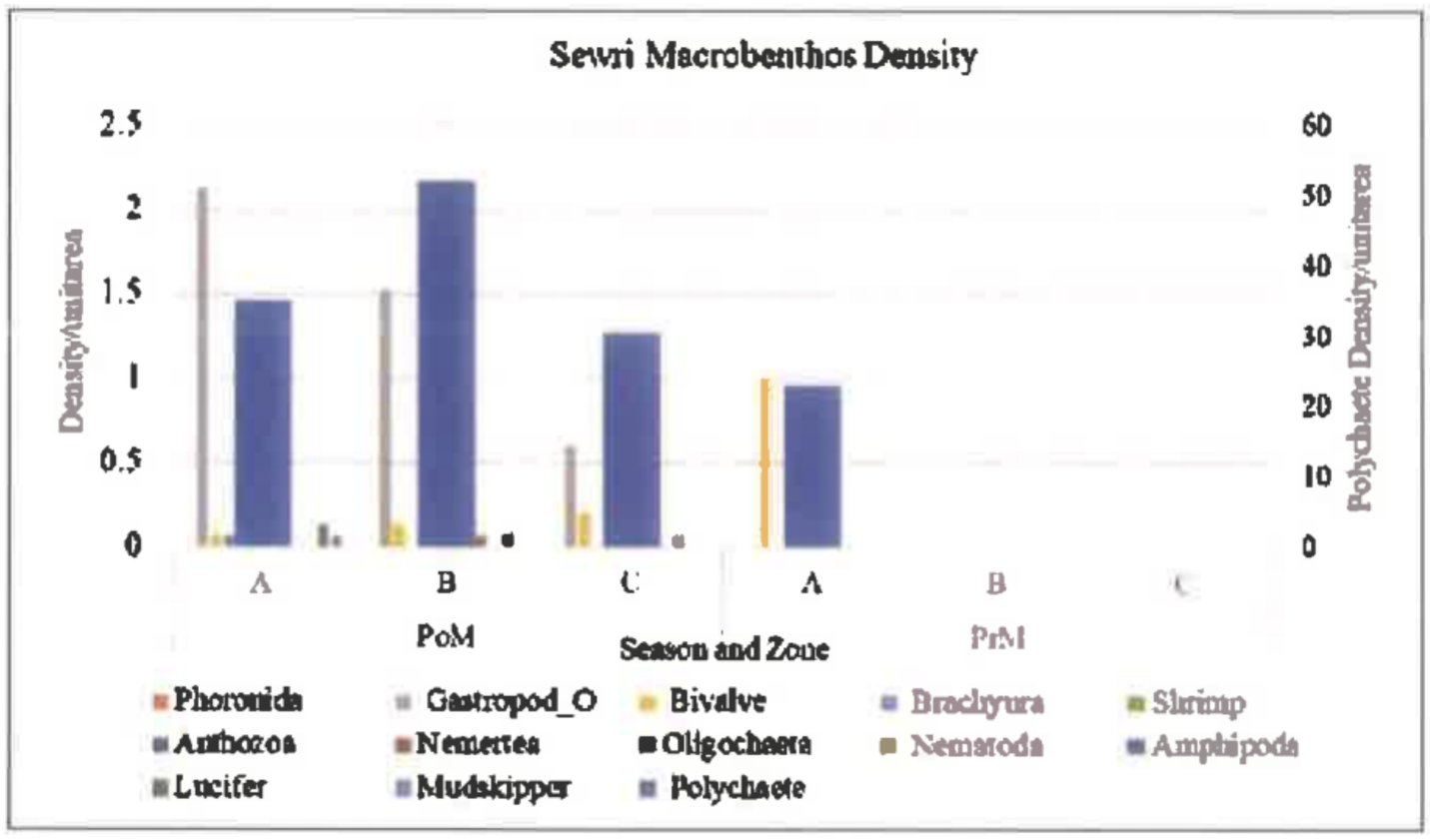


Fig. 31.1: Seasonal variation of macrobenthic density /m³ of Sewri during the study period 2021–22

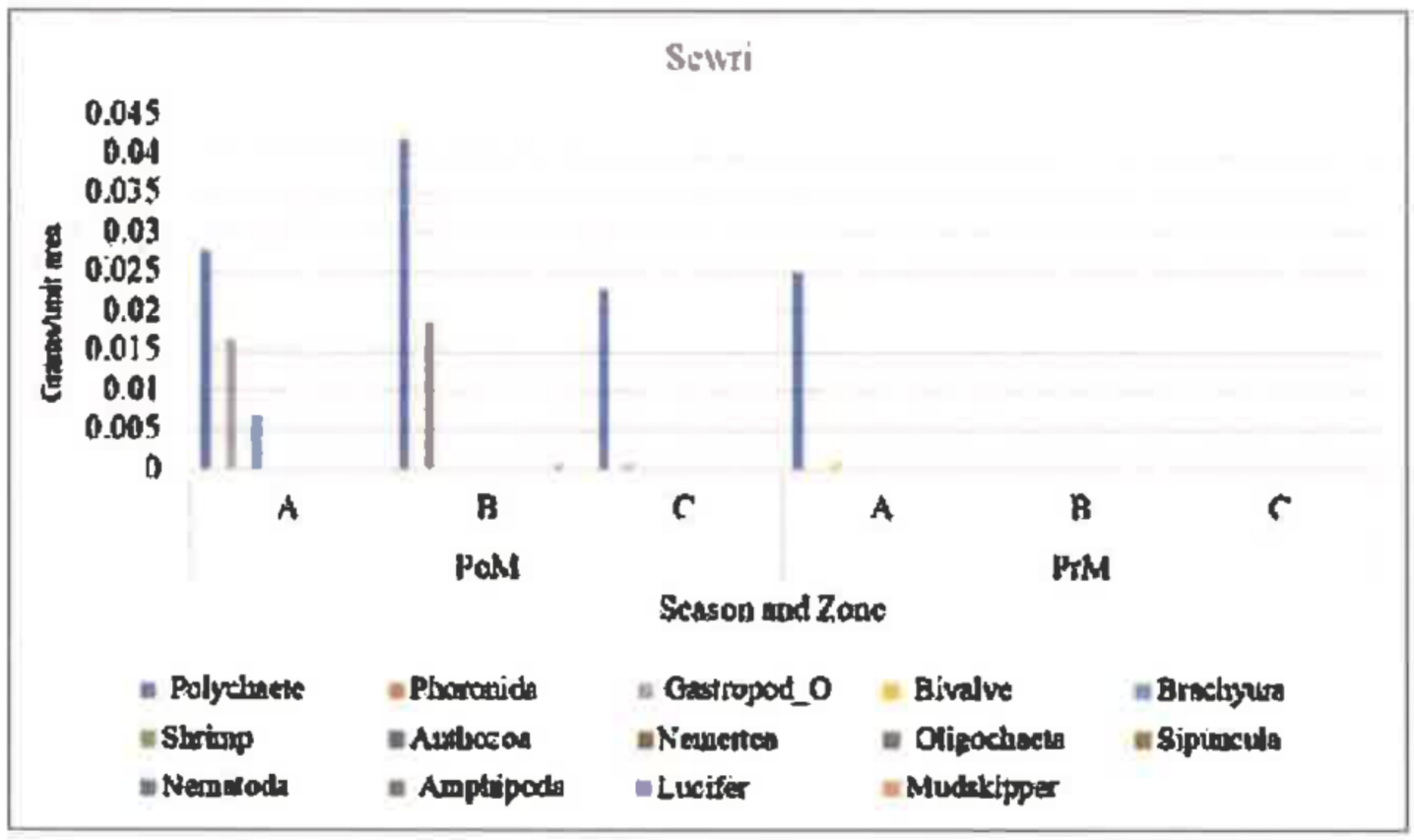


Fig. 31.2: Seasonal variation of macrobenthic biomass g/m³ of Sewri during the study period 2021–22

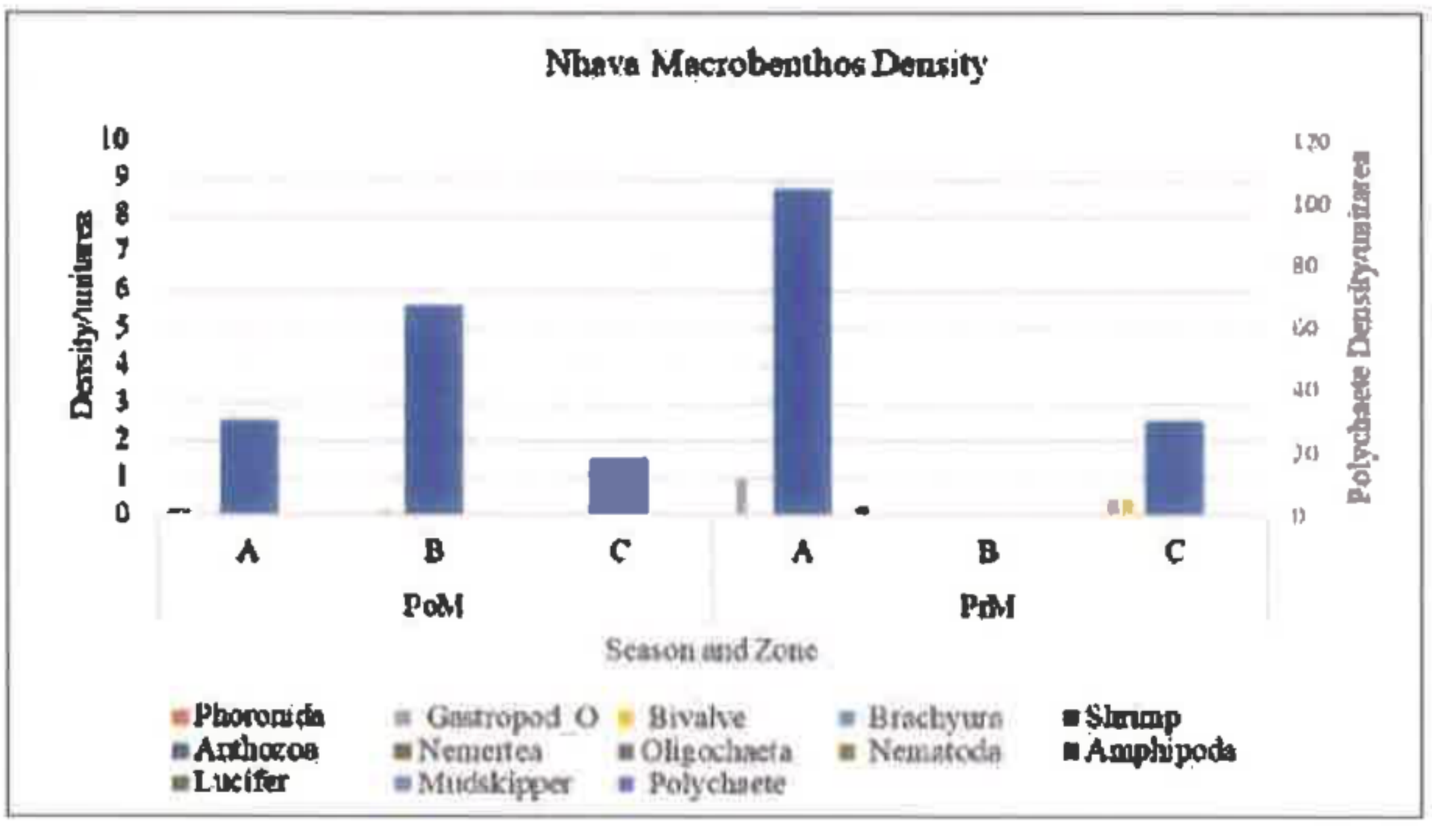


Fig. 32.1: Seasonal variation of macrobenthic density/m³ of Nhava during the study period- 2021–22

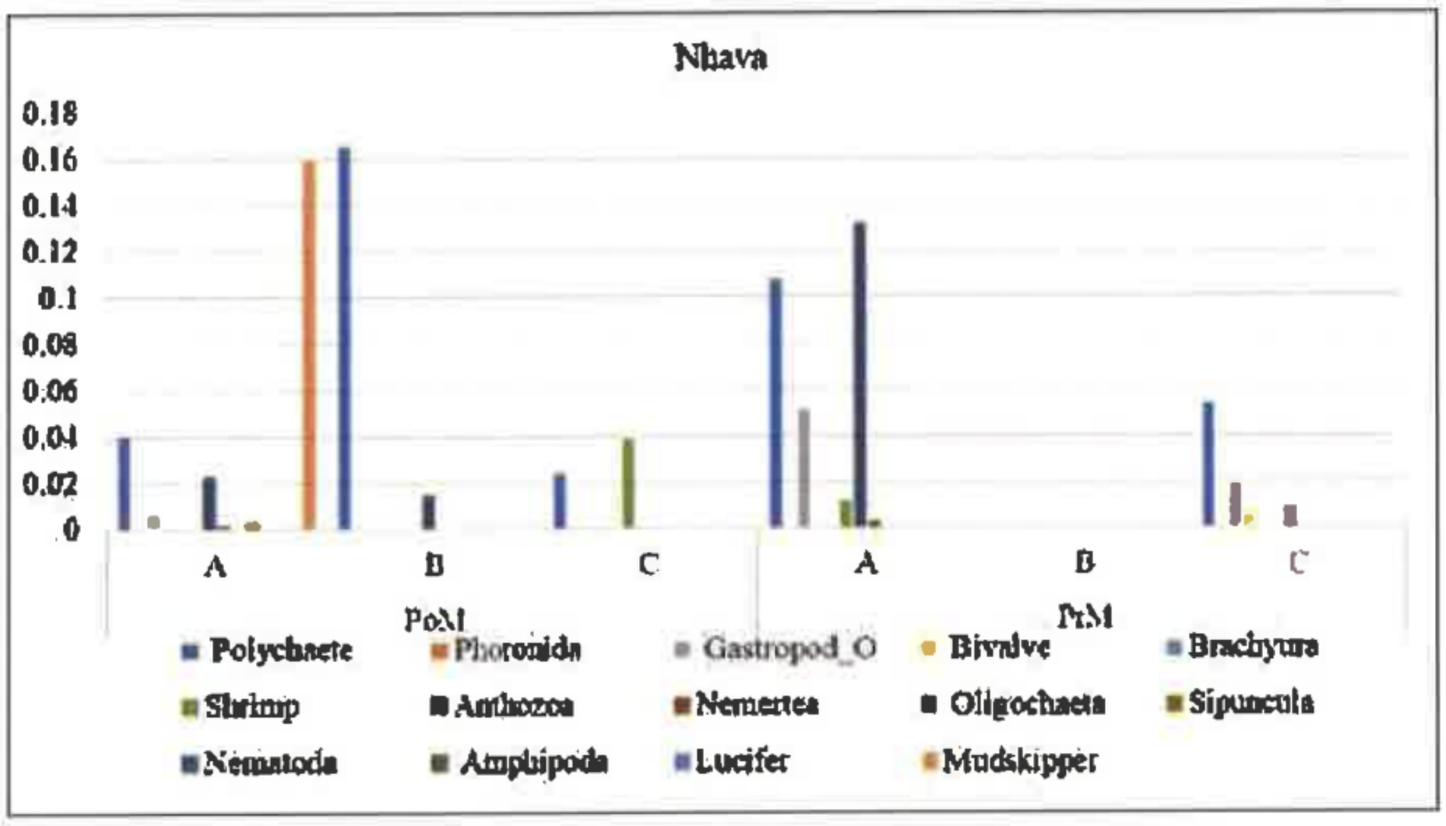


Fig. 32.2: Seasonal variation of macrobenthic biomass g/m³ of Nhava during the study period 2021–22

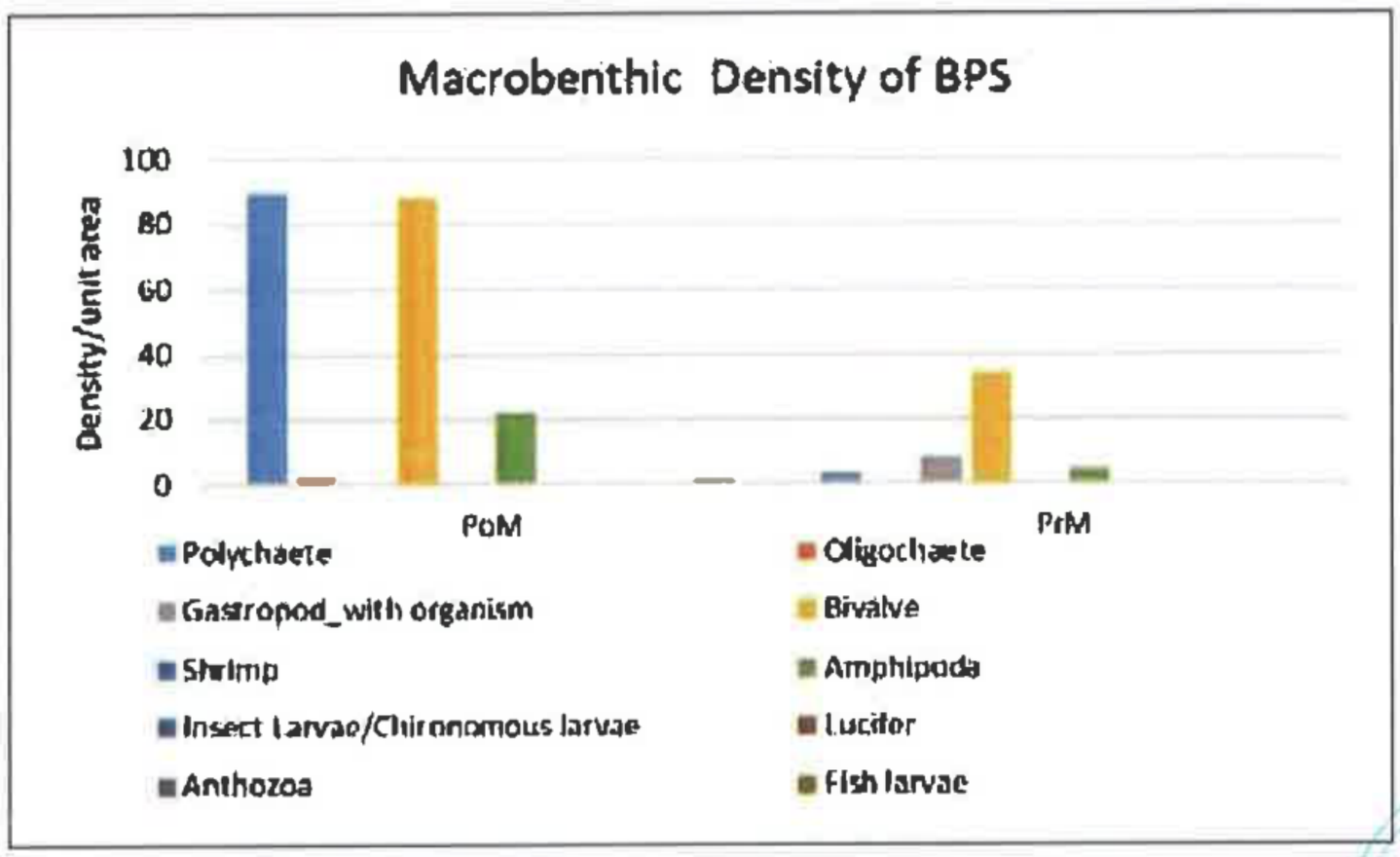


Fig. 33.1: Seasonal variation of macrobenthic density/m³ in BPS wetland during the study period-2021–22

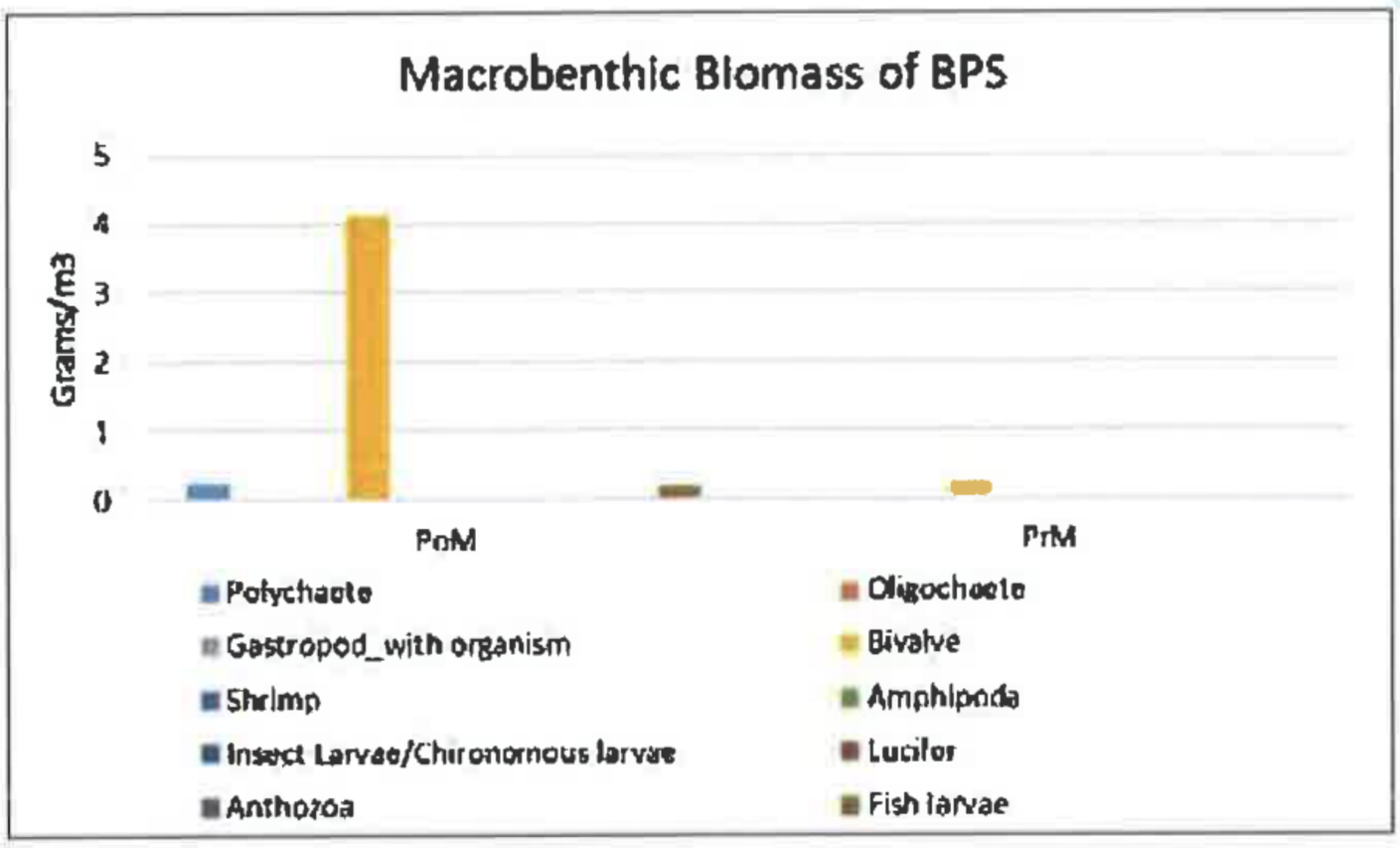


Fig. 33.2: Seasonal variation of macrobenthic biomass g/m³ in BPS wetland during the study period-2021–22

monsoon season shows more Polychaete density in Zone A. (104.8/ m^3), However, no Polychaetes or any other groups were observed in Zone-B. Zone-C showed a slight increase in the density of Polychaetes during Pre-monsoon season (30.8/ m^3), followed by Anthozoa (0.8/ m^3), Gastropoda (0.4/ m^3) and Bivalves (0.4/ m^3). Lucifer was only present in the Zone-A of Pre-monsoon season. Polychaetes dominate the Post-monsoon season across all the zones (116/ m^3), however it shows an increase in density in Zone-B (67.6/ m^3) and then decreases rapidly in Zone-C (17.6/ m^3). Post-monsoon shows higher group diversity (8 No) than that of Pre-monsoon season (7 No).

Polychaetes contribute highest towards the overall biomass (0.390g/ m^3), followed by Anthozoa (0.17g/ m^3), Mudskipper (0.158g/ m^3) Gastropoda (0.07g/ m^3) and Shrimp (0.05g/ m^3). Phoronida exhibits the lowest contribution towards the total biomass (0.0001g/ m^3) followed by Lucifer (0.0003g/ m^3).

Wetlands

Among all studied wetlands, BPS exhibited maximum density (203.17/m^3) during the Post-monsoon season whereas NRI exhibited the highest values for density (63.83/ m^3) during the Pre-monsoon season.

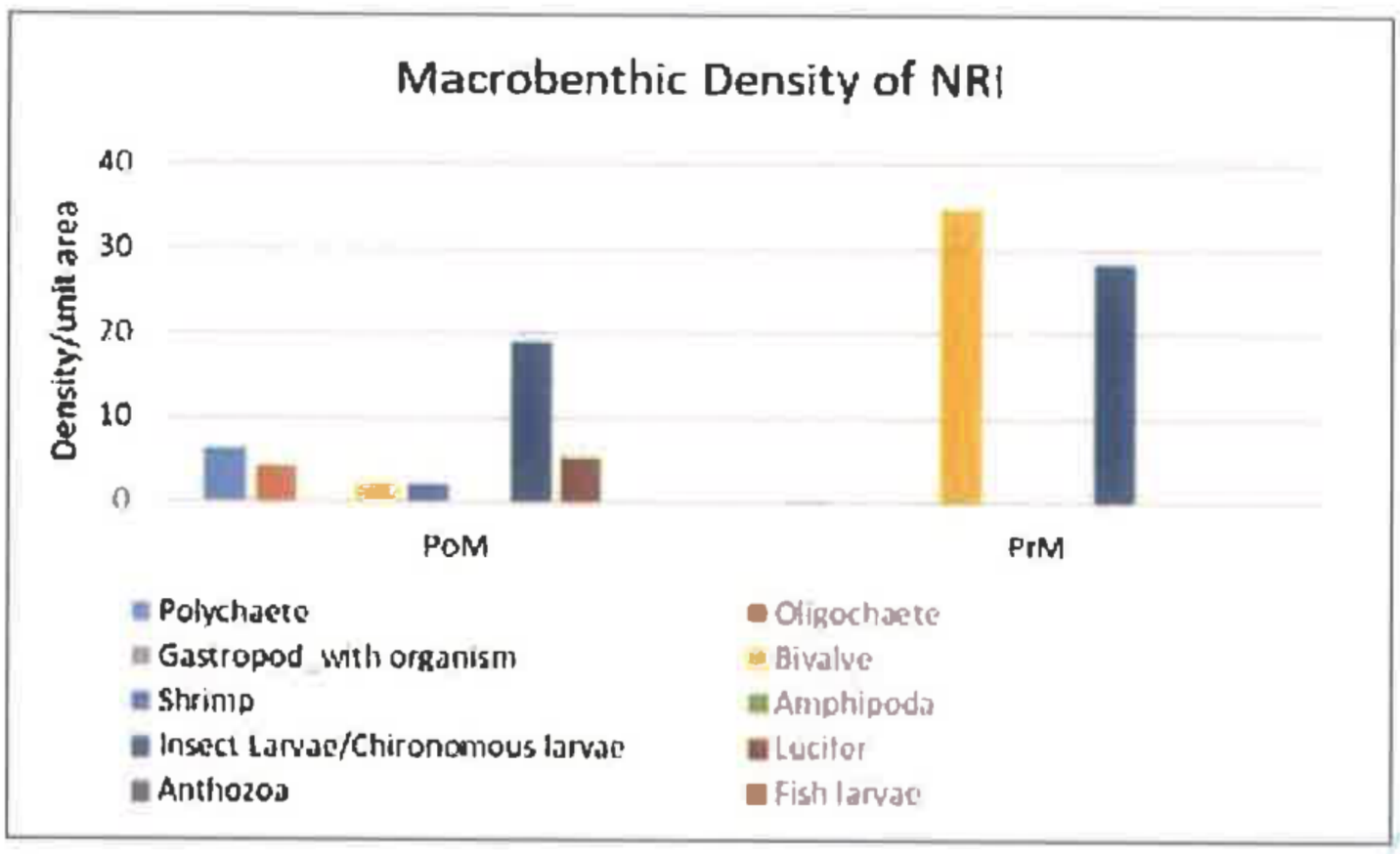


Fig. 34.1: Seasonal variation of macrobenthic density/m^3 in NRI wetland during the study period 2021–22

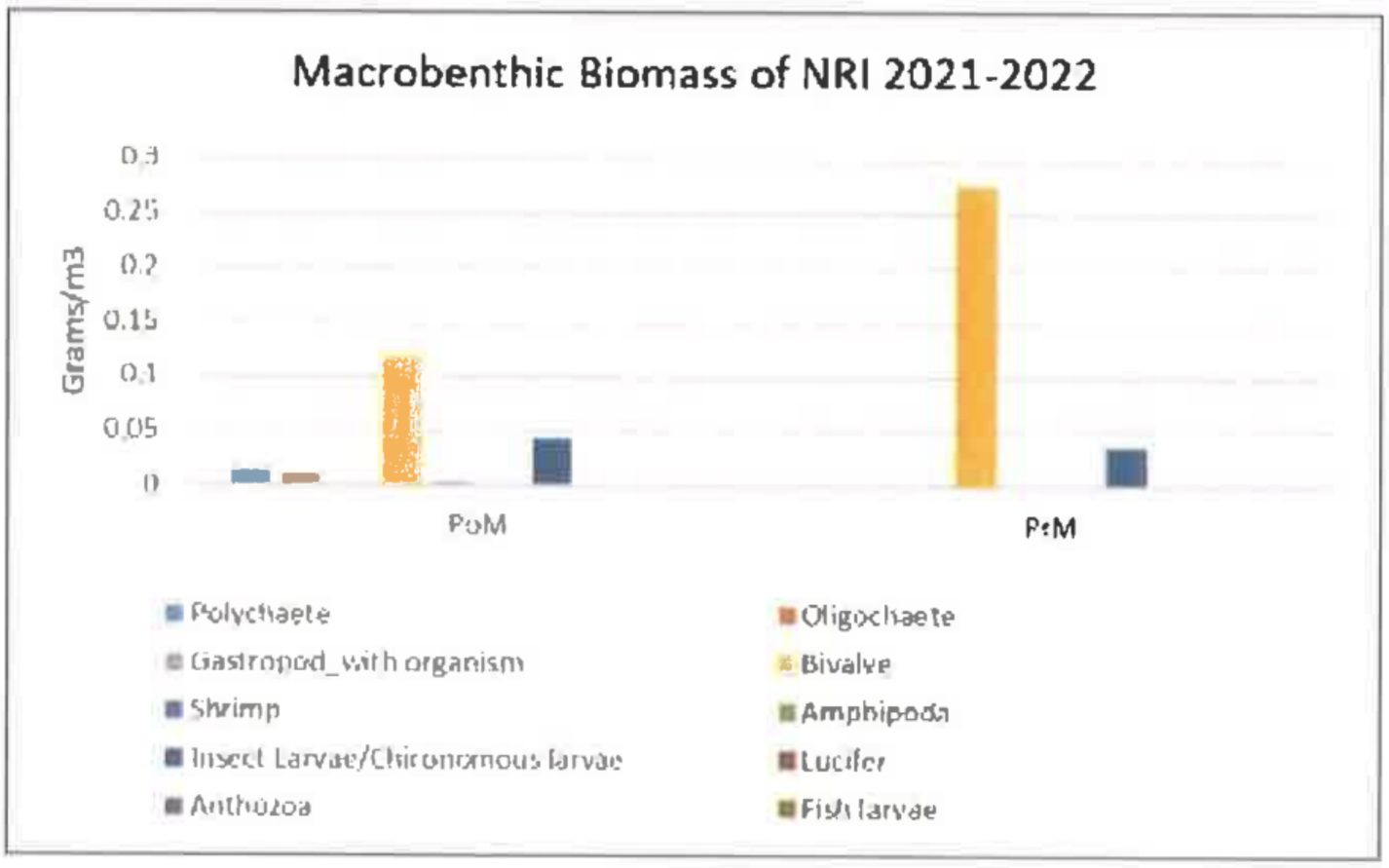


Fig. 34.2: Seasonal variation of macrobenthic biomass g/m^3 in NRI wetland during the study period-2021–22

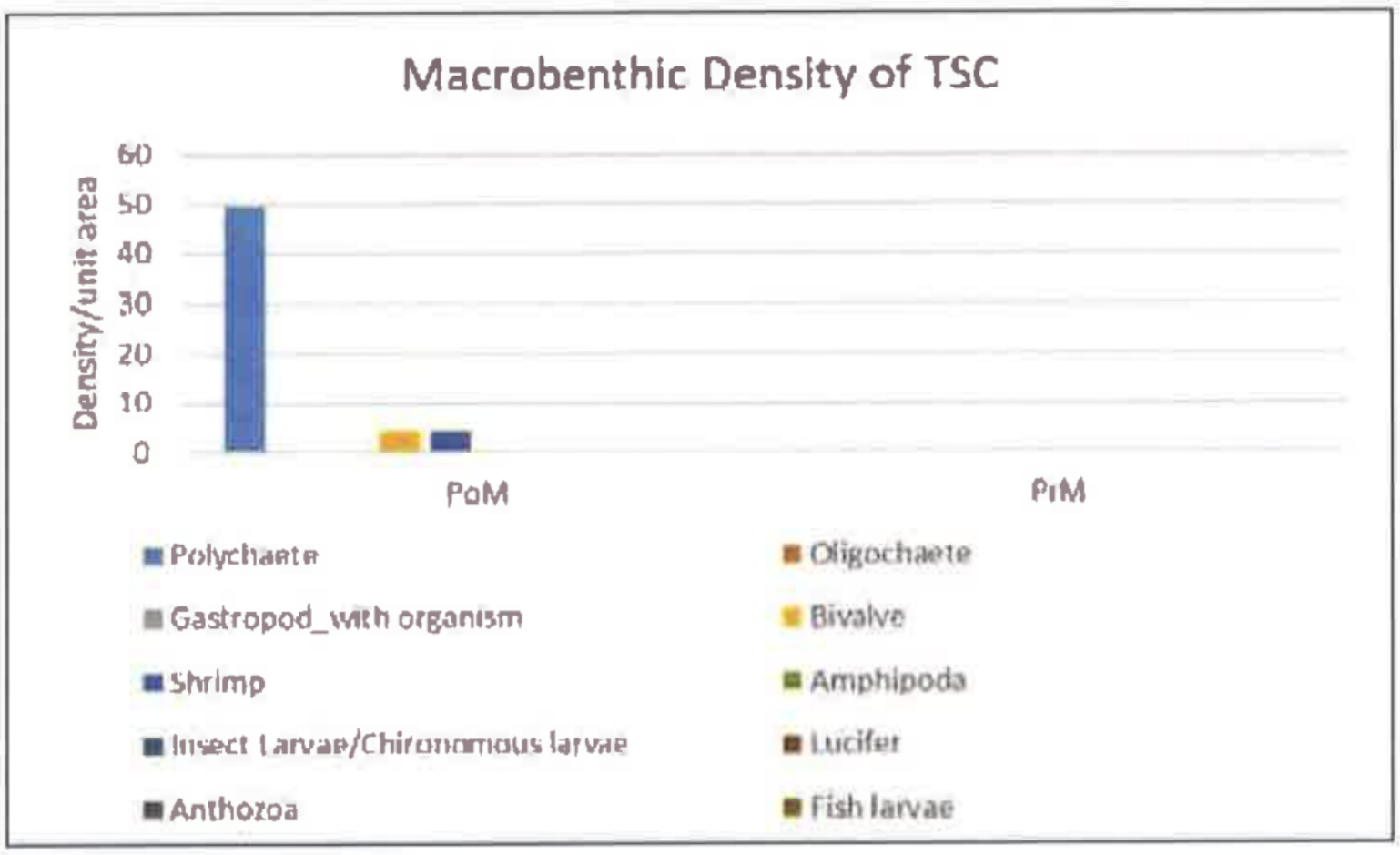


Fig. 35.1: Seasonal variation of macrobenthic density /m³ TSC wetland during the study period- 2021–22

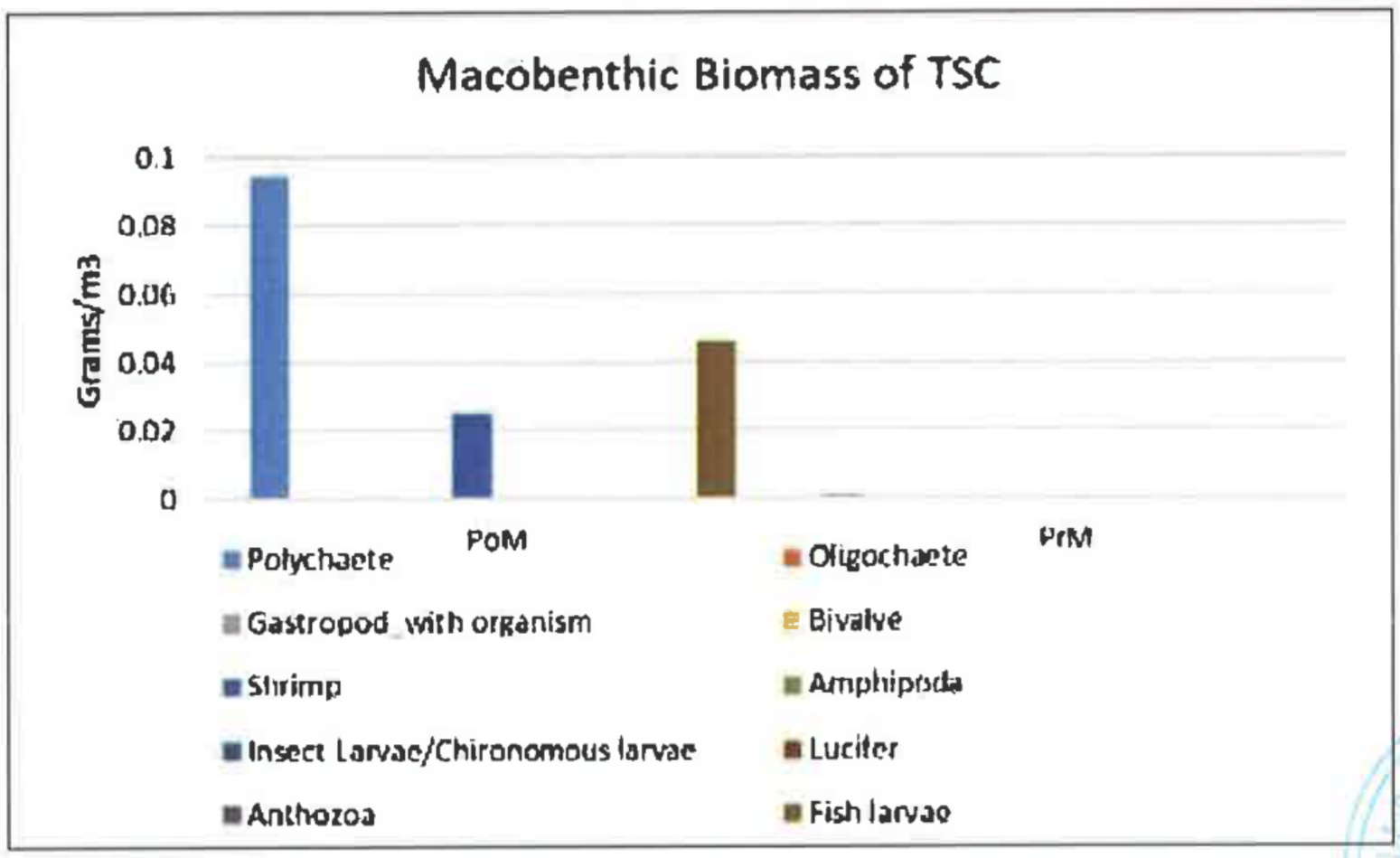


Fig. 35.2: Seasonal variation of macrobenthic biomass g /m³ in TSC wetland the study period- 2021–22

Biomass values were also counted highest at BPS (4.56 g/ m³), during the Post-monsoon season which is found to be contributed majorly by Bivalves. Least values for macrobenthos density were observed at NRI (38.96/ m³) during the Post-monsoon months whereas during the Pre-monsoon months TSC (0.48/ m³) exhibited the least values.

Bhandup Pumping Station (BPS): (Fig.33.1-33.2)

With reference to the season, BPS had exhibited maximum density (203.17/ m³) and minimum biomass (4.56g/ m³) during the post-monsoon season, whereas minimum density (49.75/ m³) and maximum biomass (16.57g/ m³) during the pre-monsoon season. Polychaete (89.43/ m³, 0.25g/ m³) and Bivalve (88.04/m3, 4.10/ m³) contributed majorly to the macrobenthos assemblage. Gastropod (8.13/ m³) was observed only during the pre-monsoon season.

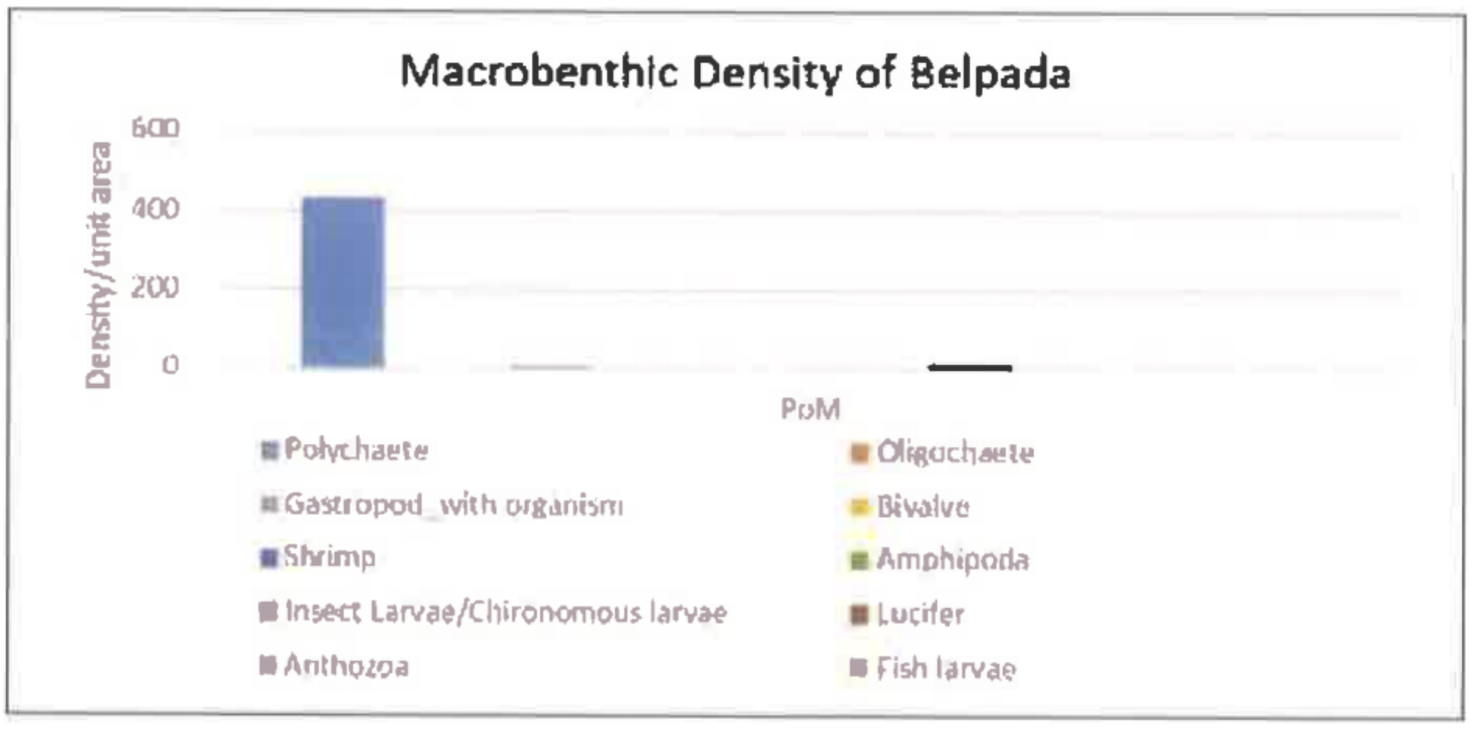


Fig. 36.1: Seasonal variation of macrobenthic density /m³ in Belpada wetlands the study Period - 2021–22

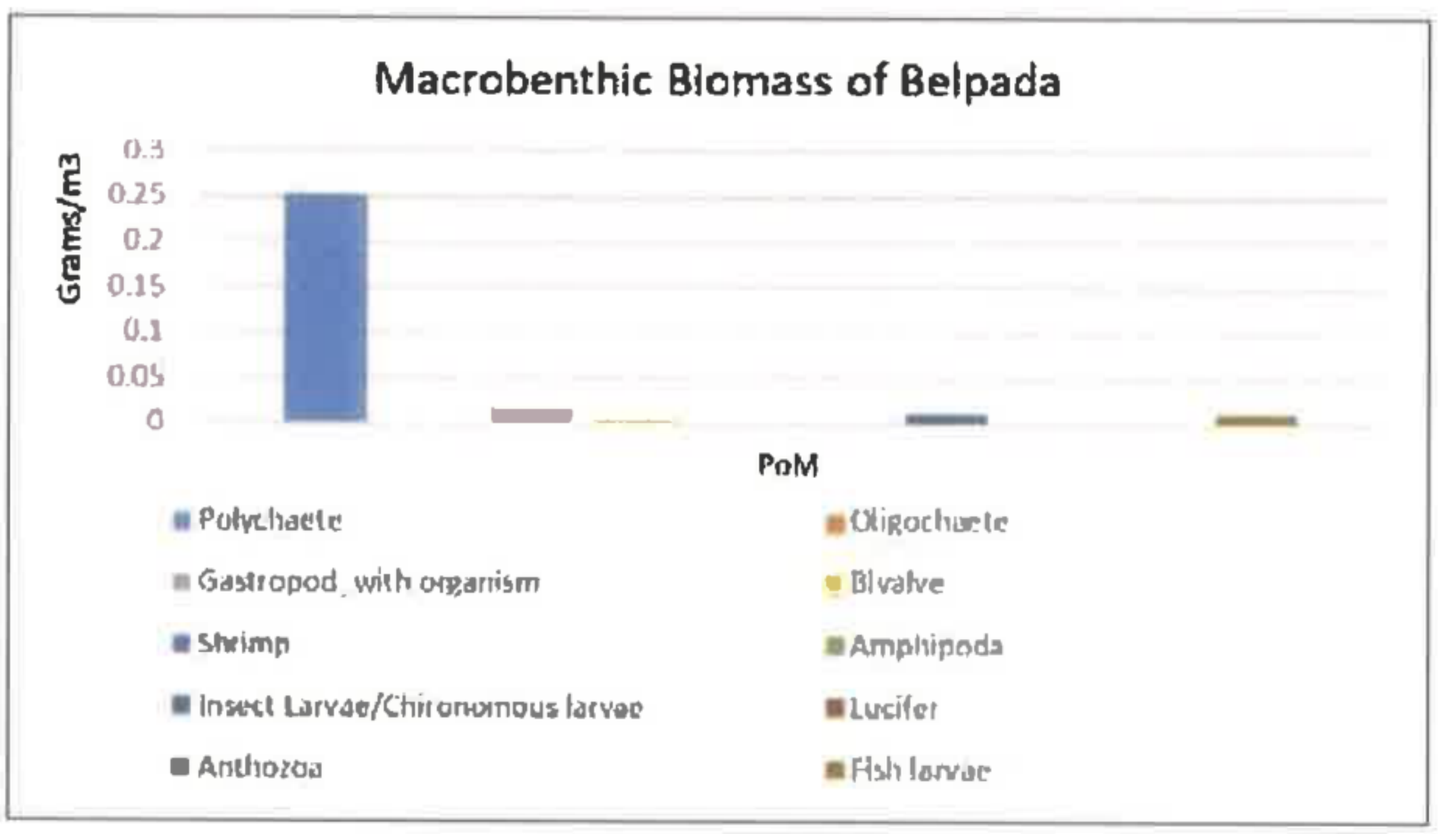


Fig. 36.2: Seasonal variation of microbenthic biomass g/m³ in Belpada wetland during the study period-2021–22

Non-Resident Indian (NRI): (Fig.34.1-34.2)

Pre-monsoon season exhibited increased values of density and biomass (68.83/ m³; 0.32g/ m³) when compared to their Post-monsoon values (38.96/m³; 0.19g/m³). Insect larvae, Oligochaete, Bivalve, Shrimp, Lucifer and Polycheate were recorded from NRI wetland during Post-monsoon season of which only two groups i.e. Insect larvae and Bivalve were observed during the Pre-monsoon season. The most dominating group was Insect larvae (19.00/ m³) during the post-monsoon season and Bivalve (34.92/ m³) during the pre-monsoon season.

Training Ship Chanakya (TSC): (Fig.35.1-35.2)

Macrobenthic density and biomass has shown a gradual decline with season from Post-monsoon (58.63/ m³; 0.17g/ m³). During the Post-monsoon season polycheate (49.79/ m³), shrimp (4.38/ m³) and bivalve (4.17/ m³) were the dominating the group while, during the pre-monsoon season polychaete (0.29/ m³) and amphipod (0.16/ m³) were contributing maximum to the overall density.

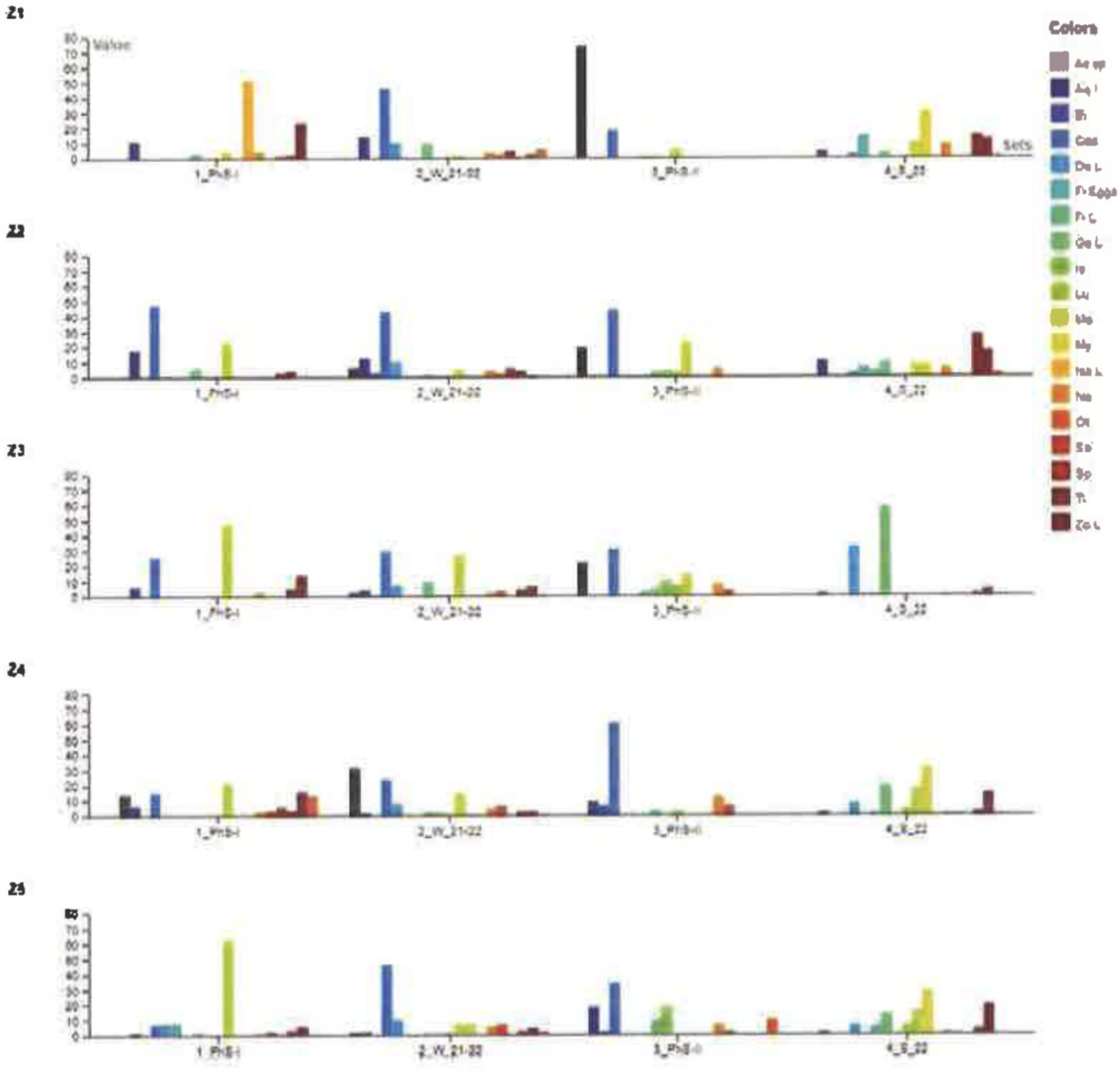


Fig. 37.1: Seasonal Variation in Zooplankton diversity along the five stations of Thane creek during the study period 2021–22

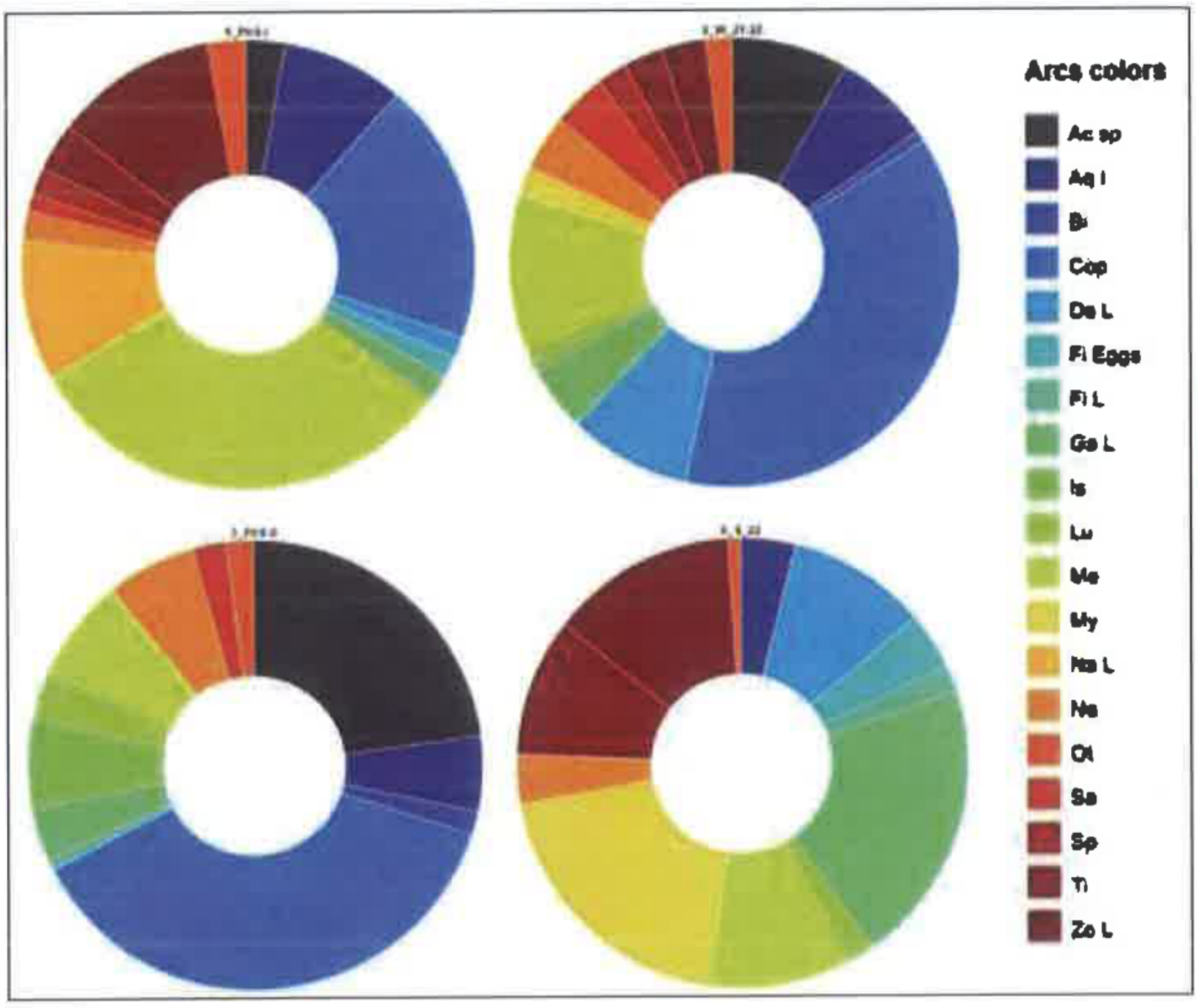


Fig. 37.2: Overall seasonal variation in Zooplankton diversity in Thane Creek during the study period 2021–2022

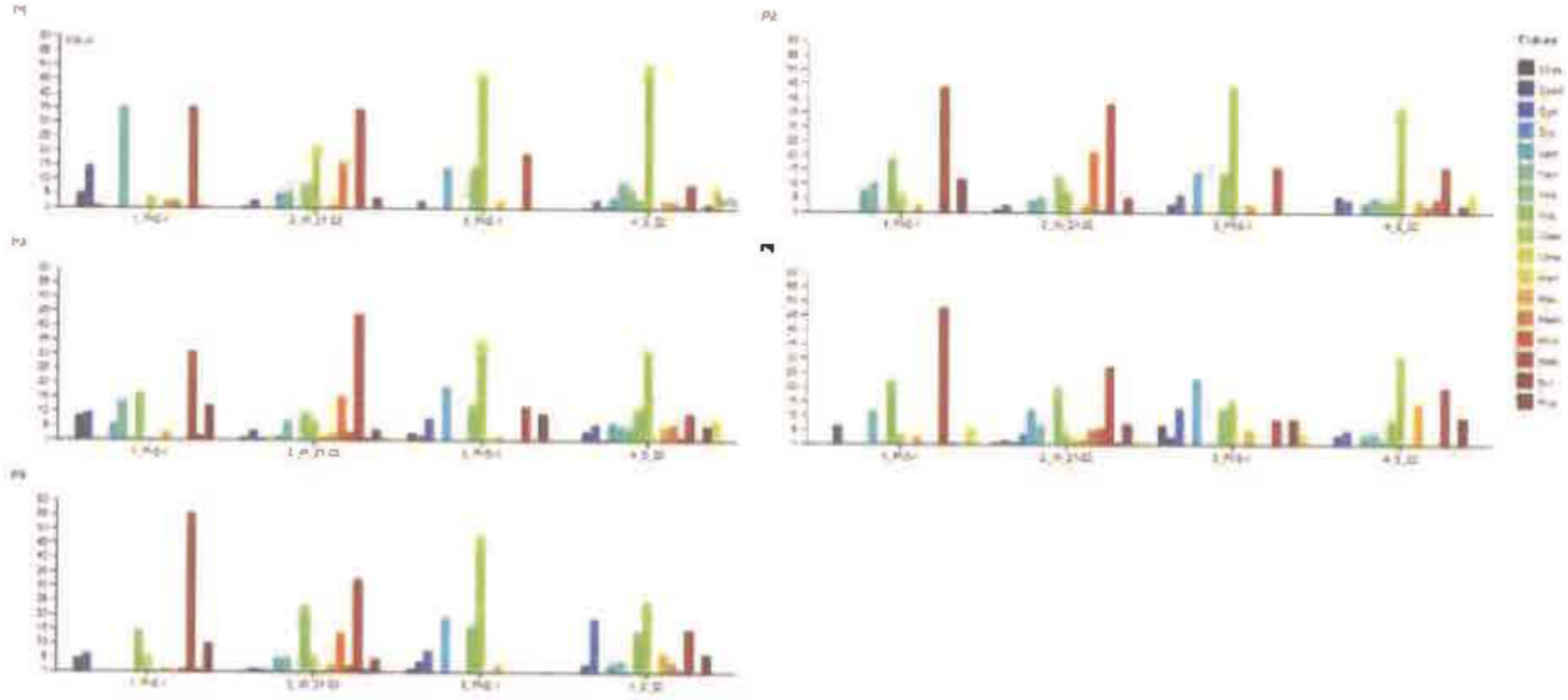


Fig. 38.1: Seasonal Variation in Phytoplankton diversity along the five stations of Thane creek during the study period 2021–22

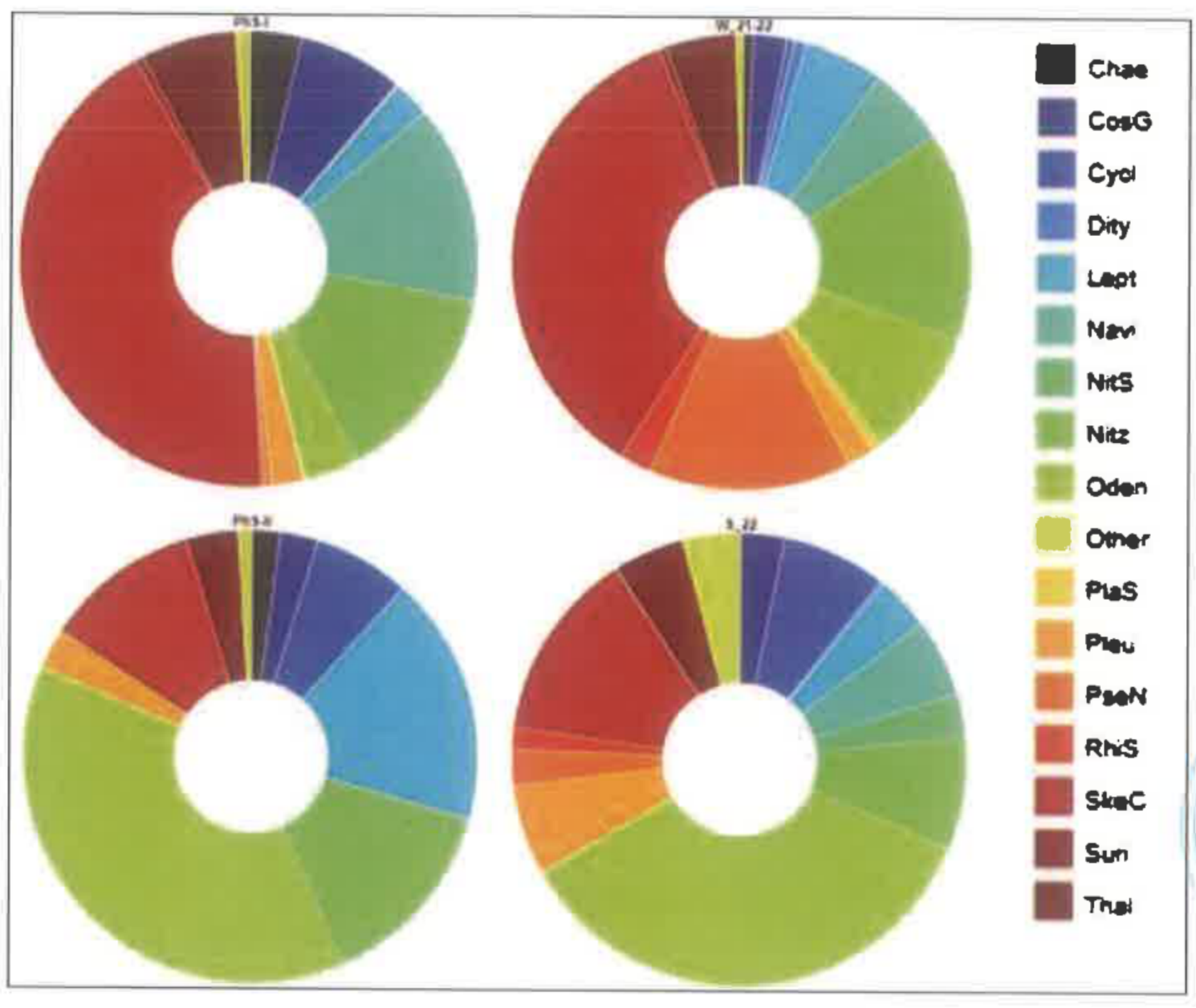


Fig. 38.1: Seasonal Variation in Phytoplankton diversity along the five stations of Thane creek during the study period 2021–22

Belpada: (Fig.36.1-36.2)

Sampling was done only during the post monsoon since the land was dry in the pre-monsoon season. It was observed that Belpada had the maximum faunal diversity as compared to other wetlands (7 No.). There was maximum density (453.34/ m^3) observed as compared to the other wetlands. Polychaete (431.97/ m^3) was the most dominant group contributing maximum to macrobenthic density followed by insect larvae (9.19/ m^3) and Gastropod (8.79/ m^3). Polychaete (0.25g/ m^3) and Gastropod (0.02g/ m^3) were found contributed majorly to the overall biomass values.

Zooplankton (Fig.37.1-37.2)

The Zooplankton standing stock as observed in the present study and the station-wise variations are summarized in the above given graphical representations.

A total of 18 groups of zooplankton were identified in the entire study period. Copepoda was the most dominating group followed by Medusae, *Acetus* sp, Gastropod larvae and Mysida.

Station Z1 shows that the Nauplius larva was the most abundant group in Phase shift I followed by Zoea larva; On the other hand, Nauplius larva was completely absent in Winter, Phase shift II and Summer season. Copepoda was completely absent in Phase shift I, but rather showed a sudden spike in winter season and Phase shift II and was again completely absent in the summer season. *Acetus* sp was abundantly present in Phase shift II and was otherwise absent in all other seasons.

Station Z2 exhibits that Copepoda was most abundant in Phase shift I, winter, Phase shift II and was completely absent in the Summer season. Medusae was second most abundant group in Phase Shift I.

Station Z3 shows that, *Acetus sp*, was completely absent in Phase shift I and showed a sudden increase in abundance in Winter and Phase shift II and was again completely absent in Summer. Aquatic insects were present in all seasons except phase shift two. Nauplius larva was completely absent in all seasons. Tintinida was present in all seasons except Phase shift two.

Station Z4, shows that *Acetus sp* was only present in Phase shift I and winter and was completely absent in Phase shift II and Summer. Nauplius larva was completely absent in all seasons. Copepoda was most abundant in Phase shift two. Copepoda showed a notable increase in abundance from Phase shift I to Phase shift II and was completely absent in Summer. Medusae was present in all seasons, except Phase shift two.

Station Z5 shows that Medusae are most abundant in Phase shift I and showed a sudden decrease in Winter. It was completely absent in Phase shift II and showed a gradual increase in Summer. Nauplius larva was completely absent in all seasons. *Acetus* sp was completely absent in all seasons except Winter. Copepoda was present in all seasons except summer.

In the entire study period, it was observed that Copepoda has the highest species abundance followed by Medusae and *Acetus* sp. Winter showed the most species diversity while Phase shift II showed the least. Nauplius larvae was only present in Phase shift I and completely absent in the following seasons. Medusae was the most dominant group in Phase shift I and it showed a gradual decrease over the following seasons. Lucifer was completely absent in Phase shift I and was present in the next three seasons.

Phytoplankton- (Fig.38.1-38.2)

The phytoplankton composition of Thane creek is summarized, and station wise variations are well elaborated as graphical representations. A total of 19 species of phytoplankton were identified in the entire study period.

During the present study, Station P1 showed that summer season had the most species diversity (14 species) in which *Skeletonema costatum* dominates the first two seasons i.e. Phase Shift-I winter season, followed by *Odentella sp,* which dominates Phase shift II and summer seasons. Phase shift II has the least species diversity. *Coscinodiscus sp.* was present during Phase shift II among all the seasons studied.

For Station P2, maximum diversity was observed during the Summer season with 14 species and the least diversity was observed in Phase Shift-two with only 6 species. *Skeletonema costatum* is the most dominant species during Phase shift I and winter season and *Odentella sp.* is the most abundant species

during Phase shift II and summer seasons. *Chaetoceros sp.* was present only during the winter season. *Coscinodiscus granii* was absent in Phase shift I, appeared during winter and gradually increases until summer. *Pseudo-Nitzschia sp.* was absent in Phase shift I but this species was the second most abundant during the winter season. However, it was not found in Phase shift II and shows a negligible abundance in summer season. *Navicula sp.* was completely absent in Phase Shift II.

Studies of Station P3 show that winter season had the most species diversity whereas the least species diversity was observed in phase shift two. *Skeletonema costatum* shows the most abundance in Phase shift I and winter season, with a slight increase in abundance in winter. While moving from winter season to summer season, *Skeletonema costatum* shows a steep decrease in their abundance. *Odentella sp.* was absent in the Phase shift I and showed an increase in its abundance in winter season and it became the most abundant species in the Phase shift II and summer seasons. *Rhizosolenia setigera* was only present in the winter and summer seasons and winter showed the most abundance.

At Station P4, Winter season showed the high species diversity (15no.) while Phase shift I showed the least (8no.). *Skeletonema costatum* was the most abundant species in the Phase shift I and winter season, however it showed a gradual decrease in the phase shift two and then slight increase in the summer season. *Nitzschia* sp was the second most abundant species in the Phase shift I and winter season, and then showed a gradual decrease in the Phase shift II and summer season. *Chaetoceros* sp was not found in the Phase shift I and summer season, while it showed a minimum abundance in the winter season and Phase Shift II. *Thalassiosira sp.* was absent in Phase shift I and present in other seasons with high abundance.

Station P5, the present study shows most species diversity during the winter (14 no) and the least in Phase shift II (8no.). *Skeletonema costatum* dominates the first two seasons, (Phase shift I and winter seasons), disappeared in Phase shift II and reappeared in the summer season with a moderate abundance. *Odentella sp* was the most abundant species in Phase Shift II and summer season. *Nitzschia* sp was the second most abundant species in Phase shift I and the winter season and then it showed a gradual decrease from winter season to summer season. *Cyclotella* sp. was absent in Phase Shift I and it appeared in winter to summer season with a gradual increase in their abundance.

In the entire study period it was observed that *Skeletonema costatum* has the highest contribution in the assemblage followed by *Odentella* sp.

Phase shift II showed the least species diversity. *Skeletonema costatum* was found to be highest in the first two seasons while it showed a significant decrease for its presence in the next two seasons, whereas *Odentella* sp. had lowest abundance in the first two seasons and it showed drastic increase in abundance in the following seasons. *Nitzschia sigma* was completely absent in the first three seasons, however it showed a slight increase in abundance in Summer. *Navicula* was found to be completely absent in Phase shift two. *Leptocylendrous* sp. Showed a sudden spike in abundance in Phase shift II and again it decreased in the following seasons.

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The IUCN red list of threatened species. Version 2021-22 https://www.iucnredlist.org.

Appendix 1. Photo Plate

PLATE 1: Sites / Habitats



Belpada Wetland



BPS Wetland



Mankhurd Saltpans



NRI Wetland



Sewri Construction site



TSC wetland

PLATE 2: Congregation of migratory birds at study sites



Congregation of Black-tailed Godwit



Congregation of Lesser Sandplover, Little Stints, Curlew Sandpiper and Kentish Plovers at Mankhurd Saltpans



Flock of gulls



Flock of Lesser Whistling ducks at Thane Creek



foraging of Waders, Greater Flamingos and Lessere Flamingos on exposed intertidal Mudflat of Thane Creek



Lesser Flamingos feeding at Thane Creek

PLATE 3: Migratory and resident birds at study sites



Eurasian curlew at TSC wetland



Ruddy turnstone at Vashi mudflats of Thane Creek



Long-toed stint with Temminck_s stint(1)



White stork in Thane Creek



Black-tailed godwit near Ghansoli mudflats



Greater flamingo at Vashi mudflats



Grey heron at Sewri mudflat



Painted stork at Vashi mudflat of Thane Creek



Western Reef Egret at Nhava-Sheva

PLATE 4: Bird ringing and recoveries



Tagged Lesser sandplover feeding at Vashi mudflat



Tagged Curlew sandpiper



Setting traps for waders mankhurd saltpan



Bird banding session at BPS

PLATE 5: Some raptors observed in the study area



Brahminy kite at Nhava-Sheva



Western Marsh Harrier at BPS



Osprey in flight in Thane Creek

MUMBAI TRA... HARBOUR LINK ...

Appendix 2- Checklist of birds recorded from Oct 2021-May 2022

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Anatidae												
Lesser Whistling Duck	*Dendrocygna javanica*	LC	M					+		+		
Indian Spot-billed Duck	*Anas poecilorhyncha*	LC	R	+	+	+	+	+		+		
Northern Shoveler	*Spatula clypeata*	LC	M	+		+		+		+		
Northern Pintail	*Anas acuta*	LC	M	+		+		+		+		
Garganey	*Spatula querquedula*	LC	M			+	+	+		+		
Cotton pygmy goose	*Nettapus coromandelianus*	LC	M			+						
Common Teal	*Anas crecca*	LC	M	+		+	+	+		+		
Ruddy Shelduck	*Tadorna ferruginea*	LC	M	+	+		+			+		
Eurasian wegion	*Mareca penelope*	LC	M			+				+		
Gadwall	*Mareca stripera*	LC	M					+				
Red-Crested Pochard	*Netta rufina*	LC	M		+							
Podicipedidae												
Little Grebe	*Tachybaptus ruficollis*	LC	R	+		+		+				
Ciconiidae												
White Stork	*Ciconia ciconia*	LC								+		
Painted Stork	*Mycteria leucocephala*	NT	R	+	+	+	+	+	+	+	+	+
Phoenicopteridae												
Greater Flamingo	*Phoenicopterus roseus*	LC	M	+	+	+	+			+	+	+
Lesser Flamingo	*Phoeniconaias minor*	NT	M	+		+	+			+	+	+
Threskiornithidae												
Black-headed Ibis	*Threskiornis melanocephalus*	NT	R	+	+	+	+	+		+	+	+

Appendix 2- Checklist of birds recorded from Oct 2021-May 2022

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Glossy Ibis	*Plegadis falcinellus*	LC	M	+		+	+	+		+		
Eurasian Spoonbill	*Platalea leucorodia*	LC	M	+	+	+	+			+		
Ardeidae												
Indian Pond Heron	*Ardeola grayii*	LC	R	+	+	+	+	+	+	+	+	+
Grey Heron	*Ardea cinerea*	LC	R	+	+	+	+	+	+	+	+	+
Purple Heron	*Ardea purpurea*	LC	R		+	+	+	+	+	+	+	
Green-backed Heron	*Butorides striata*	LC	R						+	+		
Cattle Egret	*Bubulcus ibis*	LC	R					+		+		
Great White Egret	*Ardea alba*	LC	R	+	+		+	+		+	+	+
Intermediate Egret	*Ardea intermedia*	LC	R	+	+	+	+	+	+	+	+	+
Little Egret	*Egretta garzetta*	LC	R	+	+	+	+	+	+	+	+	+
Western Reef Egret	*Egretta gularis*	LC	R	+	+	+	+	+	+	+	+	+
Phalacrocoracidae												
Little Cormorant	*Microcardo niger*	LC	R	+	+	+	+	+	+	+		+
Indian cormorant	*Phalacrocorax fuscicollis*	LC	R				+	+				
Great cormorant	*Phalacrocorax carbo*	LC	R				+					
Accipitridae												
Shikra	*Accipiter badius*	LC	R		+							
Black Kite	*Milvus migrans*	LC	R	+	+	+	+	+	+	+	+	
Western Marsh Harrier	*Circus aeruginosus*	LC	M	+	+	+	+			+		
Greater Spotted Eagle	*Clanga clanga*	VU	M							+		
Brahminy Kite	*Heliastur indus*	LC	R	+		+	+		+	+		+

Appendix 2- Checklist of birds recorded from Oct 2021-May 2022

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Booted Eagle	*Hieraaetus pennatus*	LC	M								+	
Oriental honey buzzard	*Pernis ptilorhynchus*	LC	R				+					
Pandionidae												
Osprey	*Pandion haliaetus*	LC	M				+			+		
Rallidae												
White-breasted Waterhen	*Amaurornis phoenicurus*	LC	R				+	+		+		
Common Coot	*Fulica atra*	LC	R	+		+	+	+		+		
Recurvirostridae												
Black-winged Stilt	*Himantopus himantopus*	LC	R	+	+	+	+	+	+	+		
Pied Avocet	*Recurvirostra avosetta*	LC	M	+		+	+			+		
Charadriidae												
Red-wattled Lapwing	*Vanellus indicus*	LC	R	+	+	+	+	+	+	+		
Pacific Golden Plover	*Pluvialis fulva*	LC	M	+	+		+	+		+		
Grey Plover	*Pluvialis squatarola*	LC	M	+	+	+	+		+	+	+	
Little Ringed Plover	*Charadrius dubius*	LC	M	+	+				+			+
Kentish Plover	*Charadrius alexandrinus*	LC	M	+	+				+	+		
Common ringed Plover	*Charadrius hiaticula*	LC	M						+			
Greater Sand Plover	*Charadrius leschenaultii*	LC	M	+								
Lesser Sand Plover	*Charadrius mongolus*	LC	M	+	+		+	+	+	+	+	+
Scolopacidae												
Ruff	*Calidris pugnax*	LC	M	+	+			+				
Common Snipe	*Gallinago gallinago*	LC	M	+	+	+	+	+				

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT GC

Appendix 2- Checklist of birds recorded from Oct 2021-May 2022

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Black-tailed Godwit	*Limosa limosa*	NT	M	+	+		+	+		+	+	
Bar-tailed Godwit	*Limosa lapponica*	NT	M	+			+			+		
Whimbrel	*Numenius phaeopus*	LC	M		+							
Eurasian Curlew	*Numenius arquata*	NT	M	+	+	+	+		+	+	+	+
Common Redshank	*Tringa totanus*	LC	M	+	+	+	+	+	+	+	+	+
Marsh Sandpiper	*Tringa stagnatilis*	LC	M	+	+	+	+	+	+	+	+	
Common Greenshank	*Tringa nebularia*	LC	M	+	+	+	+	+	+	+	+	+
Green sandpiper	*Tringa ochropus*	LC	M				+		+	+	+	+
Wood Sandpiper	*Tringa glareola*	LC	M	+	+	+	+	+	+	+		
Terek sandpiper	*Xenus cinereus*	LC	M	+				+		+		
Common Sandpiper	*Actitis hypoleucos*	LC	M	+	+	+	+	+	+	+	+	+
Ruddy Turnstone	*Arenaria interpres*	LC	M				+		+		+	
Red Knot	*Calidris canutus*	NT	M						+	+		
Great knot	*Calidris tenuirostris*	EN	M	+		+	+					
Long toed Stint	*Calidris subminuta*	LC	M						+			
Little Stint	*Calidris minuta*	LC	M	+	+	+	+	+	+	+	+	+
Temminck's Stint	*Calidris temminckii*	LC	M	+					+			
Curlew Sandpiper	*Calidris ferruginea*	NT	M	+	+		+		+	+	+	+
Dunlin	*Calidris alpina*	LC	M	+					+	+		
Broad-billed Sandpiper	*Calidris falcinellus*	LC	M	+			+	+	+	+		
Laridae												
Lesser Black Backed Gull	*Larus fuscus*	LC	M					+		+		
Pallas's Gull	*Larus ichthyaetus*	LC	M	+				+		+		

Appendix 2- Checklist of birds recorded from Oct 2021-May 2022

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRI	TSC	Kha	Man	TC	SEW	NS
Brown-headed Gull	*Larus brunnicephalus*	LC	M	+	+	+	+	+		+	+	+
Black-headed Gull	*Larus ridibundus*	LC	M	+		+	+	+		+	+	+
Slender-billed Gull	*Larus genei*	LC	M	+			+	+		+		
Common Gull-billed Tern	*Gelochelidon nilotica*	LC	M	+	+	+	+	+		+	+	+
Caspian Tern	*Hydroprogne caspia*	LC	M	+		+	+	+		+	+	
Common Tern	*Sterna hirundo*	LC	M							+		
River tern	*Sterna aurantia*	VU	M	+		+		+				
Little Tern	*Sternula albifrons*	LC	M	+				+		+		
Saunders's Tern	*Sternula saundersi*	LC	M				+		+			
Whiskered Tern	*Chlidonias hybrida*	LC	M	+	+	+	+			+	+	+
Alcedinidae												
White-breasted Kingfisher	*Halcyon smyrnensis*	LC	R	+	+	+	+	+	+	+		+
Common Kingfisher	*Alcedo atthis*	LC	R	+	+	+	+	+		+		
Black Capped Kingfisher	*Halcyon pileata*	VU	R					+		+		
Jacanidae												
Phesant-tailed Jacana	*Hydrophasianus chirurgus*	LC	R							+		
Rostratulidae												
Greater painted snipe	*Rotratula benghalensis*	LC	R						+			
Motacillidae												
Grey Wagtail	*Motacilla cinerea*	LC	M						+			

R/M = Resident / Migratory, BPS = Bhandup pumping station, BEL = Belpada, NRI = Non-residential Indian Complex, TSC = Training Ship Chanakya, Kha = Kharghar, Man = Mankhurd TC = Thane Creek, SEW = Sewri, NS = Nhava-Sheva, LC = Least Concerned, VU = Vulnerable, NT = Near Threatened.

F. No. 8-89/2013-FC
Government of India
Ministry of Environment, Forest and Climate Change
(FC Division)

Indira Paryavaran Bhawan,
Aliganj, Jorbagh Road,
New Delhi – 110003

Dated: 22nd January, 2016

To
The Principal Secretary (Forests),
Department of Environment & Forests,
Government of Maharashtra,
Nagpur.

Sub: Diversion of 47.4170 ha of forest land in favour of the Executive Engineer (MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai for six laning of Mumbai Trans Harbour Link Road in Raigad & Thane district in the State of Maharashtra.-regarding.,

Sir,

I am directed to refer to the Government of Maharashtra letter No. FLD-1313/CR-206/F-10 dated 30th September 2013 on the above mentioned subject seeking prior approval of Central Government in accordance with Section-2 of 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 recommendations of the Forest Advisory Committee, the Central Government hereby conveys the **'in-principle'** approval for diversion of 47.4170 ha of forest land in favour of the Executive Engineer (MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai for six laning of Mumbai Trans Harbour Link Road in Raigad & Thane district in the State of Maharashtra, subject to fulfillment 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 being diverted shall be raised and maintained by the State Forest Department at the cost of the User Agency.
iii. The land identified for the purpose of CA shall be clearly depicted on a Survey of India toposheet of 1:50,000 scale.
iv. 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.
v. The State Government shall charge the Net Present Value (NPV) of the forest land being diverted under this proposal from the User Agency as per the orders of the Hon'ble Supreme Court of India dated 28.03.2008, 24.04.2008 and 09.05.2008 in Writ Petition (Civil) No. 202/1995 and the guidelines issued by this Ministry vide its letter No. 5-3/2007-FC dated 05.02.2009 in this regard.

vi. At the time of payment of the Net Present Value (NPV) at the then prevailing rate, the User Agency shall furnish an undertaking to pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India.

vii. All the funds received from the User Agency under the project, shall be transferred to Ad-hoc CAMPA in the Saving Bank Account pertaining to the State concerned.

viii. The user agency shall take prior permission from Hon'ble National Green Tribunal before issue of order for diversion of forest land in accordance with the Hon'ble Mumbai High Court, Nagpur Bench orders dated 27/4/2005 and 7/6/2006 in Writ Petition No. 1277/2000 as per which permission of Hon'ble High Court is necessary for taking up projects and activities in forest areas within 10 Km from protected areas. in accordance with Accordingly, this condition may be stipulated in the in-principle approval.

ix. The state government/user agency shall take prior permission from Hon'ble High Court for Mangrove cutting before issue of order for diversion of the forest land in accordance with Hon'ble Mumbai High Court order dated 27/1/2010 in PIL 87 of 2006.

x. The state government/MMRDA shall implement the mitigation measures recommended by the BNHS as modified by the State Board for Wild Life, at the project cost. The state government shall identify the recommendations which are to be implemented by the state forest department, if any, and cost of such activities shall be deposited with Ad-hoc CAMPA. For the activities to be taken up by MMRDA they shall submit an undertaking to the effect that the the activities will be taken up at the project cost.

xi. Final notification for declaration of the area of 16.90 sq. km. in Thane creek of Thane district as sanctuary shall be issued before grant of Stage II approval. MMRDA shall contribute in establishment and management of the sanctuary, modalities for which shall be worked out by the state government.

xii. Maharastra Forest Department, through its Mangroves and Marine Biodiversity Conservation Foundation shall prepare a Mangroves and Marine Biodiversity Conservation Plan which shall be implemented at the project cost.

xiii. Non-forest land to be transferred and mutated in favour of the State Forest Department for raising Compensatory Afforestation shall be notified as reserved Forest under Section-4 or Protected Forest under Section-29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act.

xiv. The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required.

xv. No labour camp shall be established on the forest land.

xvi. 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.

xvii. The boundary of the diverted forest land, as applicable, shall be demarcated on ground at the project cost, by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar.

xviii. The layout plan of the proposal shall not be changed without the prior approval of the Central Government.

xix. The forest land shall not be used for any purpose other than that specified in the proposal.

xx. 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.

xxi. No damage to the flora and fauna of the adjoining area shall be caused.

xxii. The user agency in consultation with the State Government shall create and maintain alternate habitat/home for the avifauna, whose nesting trees are 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.

xxiii. Felling of trees on the forest land being diverted shall be reduced to the bare minimum and the trees should be felled under strict supervision of the State Forest Department.

xxiv. The User Agency shall raise strip plantation on either sides of the road and central verge at the project cost, as per IRC specification, with maintenance of 7-10 years. The User Agency shall also submit design of providing at least 2-3 rows of long rotation indigenous trees, as per provision of IRC-SP-21-2009 (Guidelines on landscaping & tree plantation), on either sides of the road before final clearance.

xxv. Wherever possible and technically feasible, the User Agency shall undertake afforestation measures along the roads within the area diverted under this approval, in consultation with the State Forest Department at the project cost.

xxvi. The reclamation of quarry should be done under the supervision of the State Forest Department. The quarry shall be reclaimed and afforested completely before the project is closed.

xxvii. Overburden shall not be dumped outside the width of the road. The muck generated in the earth cutting will be disposed off at the designate dumping sites and in no case the muck/debris shall be allowed to roll down the hill slopes.

xxviii. The User Agency will provide retaining walls, breast wall and drainage as per requirement to make the slope stable.

xxix. The User Agency will undertake comprehensive soil conservation measures at the project cost in consultation with the State Forest Department.

xxx. 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 and 05th February, 2013, in support thereof;

xxxi. The User Agency will assist the State Government in preservation of flora and fauna of the area in accordance with the plan prepared by the Chief Wildlife Warden of the State. Attention will be particularly given to providing safe crossing and corridors for wildlife species and protecting sensitive habitat like wetlands, grasslands and woodlands from degradation. Where canopy continuity is required for particular species, special measures shall be prescribed by the CWLW for providing crossing points. Where certain trees used for nesting/rookeries of species like birds of prey, herons, storks, hornbills, etc., are to be destroyed, alternative structure shall be provided and the trees transplanted.

xxxii. The User Agency shall not collect any toll from the vehicles carrying forest officers on duty.

xxxiii. The designing of culverts/bridges, if any, over the natural streams/rivers/canals should be done in such a manner that it does not hamper the natural course of water, does not give rise to water-logging, and also does not hamper movement of wild animals.

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT *

xxxiv. 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 Officer of the Ministry regularly.

xxxv. 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.

xxxvi. 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.

After receipt of the compliance report on fulfillment of the conditions mentioned above, the proposal shall be considered for final approval under Section-2 of the Forest (Conservation) Act, 1980. Till receipt of the said final/Stage-II approval of the Central Government from this Ministry, transfer of the said forest land to the User Agency shall not be affected by the State Government.

Yours faithfully,

(Sandeep Sharma)
Assistant Inspector General of Forests (FC)

Copy to:

1. The PCCF, Government of Maharashtra, Nagpur.
2. The Nodal Officer, Office of the PCCF, Govt. of Maharashtra, Nagpur.
3. The Add. PCCF (Central) Regional Office, Nagpur.
4. User Agency
5. Guard file/Monitoring Cell.

(Sandeep Sharma)
Assistant Inspector General of Forests (FC)

(Sandeep Sharma)
Assistant Inspector General of Forests (FC)

Government of Maharashtra

Revenue and Forest Department

Government Order No.FLD-1313/C.R.206/F-10

Mantralaya, Mumbai 400032.

Date:-23.01.2024.

Reference:

1) Additional Principal Chief Conservator of Forests & Nodal Officer, Letter No. Desk-17/NC/RS-2/ID No.12181/(50)/1406/15-16, dt.02.11.2015.
2) Government of Maharashtra letter No.FLD-1313/C.R.206/F-10, dt.30.09.2013.
3) Ministry of Environment, Forests & Climate Change, Government of India, (FC Division) F. No. 8-89/2013-FC, dt. 22.01.2016.
4) Additional Principal Chief Conservator of Forests & Nodal Officer, Letter No. Desk-17/NC III/I.D-12181(Pt-3)/1529/2018-19, dt.02.11.2018.

   Letter No. Desk-17/Nodal/FCA-S2/P.I.D-3308/Thane/2575, dt. 04.12.2023.
5) Government of Maharashtra letter No.FLD-1313/C.R.206/F-10, dt.05.12.2023.
6) Ministry of Environment, Forests & Climate Change, Government of India (FC Division) F. No.8-89/2013-FC/12677, dt. .22.12.2023.
7) Additional Principal Chief Conservator of Forests & Nodal Officer, Letter No. Desk-17/Nodal/FCA/S2/PID-12181/Thane/2023-24/2861, dt. 08.01.2024.

Order:-

Whereas, the Additional Principal Chief Conservator of Forests & Nodal Officer, Nagpur vide letter under reference No.1 has submitted a proposal to the State Government for diversion of 47.4170 ha of forest land in favour of the Executive Engineer (MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai for six laning of Mumbai Trans Harbour Link Road in Raigad & Thane district in the State of Maharashtra;

AND whereas, the State Government vide under letter reference No.2 has sent the proposal for approval of Ministry of Environment, Forests & Climate Change, Government of India (FC Division);

AND whereas, the Government of India after due consideration, vide letter under reference No.3, accorded 'In-principle' approval to divert the 47.4170 ha. Forest Land for the

above project under section 2 of Forest (Conservation) Act, 1980. The said approval is subject to fulfillment of certain conditions by the User Agency;

AND whereas, the Additional Principal Chief Conservator of Forests & Nodal Officer, Maharashtra State, Nagpur vide letter under reference No.4 has submitted compliance of those conditions to the State of Maharashtra;

AND whereas, the State Government vide letters under reference No.5 has submitted compliance of those conditions to the Government of India;

AND whereas, the Ministry of Environment, Forests & Climate Change, Government of India (FC Division), vide under reference no. 6 accorded 'Final approval' to divert the of 47.4170 ha of Forest land in favour of 47.4170 ha of forest land in favour of the Executive Engineer (MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai for six laning of Mumbai Trans Harbour Link Road in Raigad & Thane district in the State of Maharashtra under section 2 of Forest (Conservation) Act, 1980;

AND whereas, the Additional Principal Chief Conservator of Forests & Nodal Officer, Maharashtra State, Nagpur vide letter under reference No.7 has requested State Government to issue diversion order in the matter;

NOW, therefore, Government of Maharashtra hereby directs that the area of 47.4170 ha consisting of Protected Forest, Mangrove, Restored Private Forest, Land more specifically described in the proposal submitted vide letter under reference No. 1 and as per details given in the Schedule given below, be diverted to the User Agency, i.e. Executive Engineer (MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai for construction of six laning of Mumbai Trans Harbour Link Road in Raigad & Thane district in the State of Maharashtra.

The diversion shall be effected subject to the terms and conditions mentioned in the letters dated 22.01.2016 and dated 22.12.2023 of MoEF&CC, Government of India (FC Division). This approval for diversion of forest land is also subject to compliance of following conditions by the User Agency-

1. If the number of Trees / Mangrove trees to be felled increases during implementation of the project, user agency shall obtain prior permission from Central Government and Hon'ble High Court accordingly.

2. Chief Conservator of Forests (T), Thane shall ensure that the project is being implemented only on forest land for which Central Government has granted forest clearance.

3. The User Agency shall comply with all the conditions stipulated in the 'in-principle' and 'final approval' letters of MoEF&CC, Government of India (FC Division), referred above. The Chief Conservator of Forests (T), Thane shall ensure the strict compliance of the conditions by the User Agency and shall furnish the report in this regard to

Additional Principal Chief Conservator of Forests and Nodal Officer, Maharashtra State, Nagpur from time to time.

4. For ensuring the compliances and for monitoring the duly prescribed activities and also to carry out other statuary duties, user agency shall facilitate unhindered access/entry in the area to the local forest Officer. In case the user agency prohibits the free access or create hindrances, the permission given under this Order for the diversion of forest area for the non-forest use shall be withdrawn.

5. User Agency shall not collect any toll from the vehicles carrying forest officers on duty.

6. Non-compliance of any of the conditions mentioned in MoEF&CC, Government of India (FC Division) letters dated 22.01.2016 and dated 22.12.2023, in this order and Rules & Guidelines made / issued under Forest (Conservation) Act, 1980, shall amount to violation of Forest (Conservation) Act, 1980 and action would be taken accordingly.

7. In case of non-compliance of any of the above conditions, the Chief Conservator of Forests (T), Thane shall report through the State Government to Ministry of Environment, Forests & Climate Change, Government of India (FC Division) as per procedure laid down in guidelines under the Forest (Conservation) Act, 1980.

SCHEDULE

Village	Taluka	Dist.	Sur. No.	Legal Status	Area (in ha.)
Alibag Division					
Gavan	Panvel	Raigad	24,25,26,27,41, to 44,52, to 60,76, to 78,80,81,127pt., 480,437pt., 442pt., 444pt., 446pt., 262, 391B.	Protected Forest (1.012 Ha.), Mangrove (37.2754 Ha)	38.2874 Ha.
Jasai	Uran		4/D,4/A,71/A,1A,71/2A, 71/4,71/5,127/3B/B,127/ 3B,127/4A,127/5,127/8,1 27/9,127/10A,127/10B.	Protected Forest (5.5001 Ha.) Restored Pvt. Forest (1.883 Ha)	7.3831 Ha.
Chirle			198,199,6/B (Old Sur No. 6pt)	Protected Forest (0.4465 Ha)	0.4465 Ha.
Thane Division					
Sewri	Kurla	Thane	CTS No. 865	Mangrove (1.30 Ha)	1.30 Ha.
Total Area					**47.4170 Ha.**

This Government Order is available on Government of Maharashtra's website www.maharashtra.gov.in with Reference No. 20240123173535621 9 This order has been signed digitally.

By order and in the name of the Governor of Maharashtra.

GANESH TUKARAM JADHAO

Digitally signed by GANESH TUKARAM JADHAO
DN: c=IN, o=GOVERNMENT OF MAHARASHTRA, ou=REVENUE AND FOREST DEPARTMENT, 2.5.4.20=0078f585512d3ac01315bbb1a4b473e1d7729dd7d3164410fe2956b9ee6e92d7d, postalCode=400032, st=Maharashtra, serialNumber=6FEEDE6066780560A76884233180D1C2969AA8588A5CDCCE1472491139655B0B, cn=GANESH TUKARAM JADHAO
Date: 2024.01.23 17:34:54 +05'30'

(Ganesh Jadhao)
Under Secretary to the Government of Maharashtra

Copy:

1. Secretary, Ministry of Environment, Forests & Climate Change, Government of India, New Delhi.
2. Principal Chief Conservator of Forests (HoFF), Maharashtra State, Nagpur.
3. Regional Officer (Central), Integrated Regional Office, Ministry of Environment, Forests & Climate Change, Government of India, Nagpur.
4. Principal Chief Conservator of Forests & CEO, Maha-CAMPA, Nagpur.
5. Addl. Principal Chief Conservator of Forests & Nodal Officer, Nagpur.
6. Additional Principal Chief Conservator of Forests (Conservation), Nagpur.
7. Collector, Raigad & Thane.
8. Chief Executive Officer, Zilha Parishad, Raigad & Thane.
9. Chief Conservator of Forests (T), Thane.
10. Deputy Conservator of Forests, Alibag & Thane.
11. Executive Engineer (MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai.
12. Select File.

I. Collector- Raigad & Thane and Chief Executive Officer, Zilha Parishad, Raigad & Thane, are hereby directed to forward the copy of this order to concerned Heads of Local Bodies, Panchayats, Municipal Bodies in addition to the relevant offices of the Government and they shall also ensure the display of this order on their notice board as well as on the notice board of local self-government bodies for the information of general public.

II. Executive Engineer (MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai is hereby directed to publish the entire order of forest clearances granted in verbatim along with the details of Survey No., Gut No., area and legal status of each Survey, Gut No. etc. and along with the conditions and safe guards imposed by the Central Government while granting forest clearances in two widely circulated daily

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newspapers, one in vernacular language and other in English language. Copy of the Newspapers be submitted to Chief Conservator of Forests (T), Thane, Deputy Conservator of Forests, Alibag & Thane.

III. Heads of Local Bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government are hereby directed to display the same on their notice board for 30 days from the date of receipt for the information of general public.

I/60805/2023

भारत सरकार
GOVERNMENT OF INDIA
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE

Regional Office
Ground Floor, East Wing
New Secretariat Building
Civil Lines, Nagpur - 440001
apccfcentral-ngp-mef@gov.in

F.No. 8-89/2013-FC/12677

Date:22.12.2023

To,

The Principal Secretary (Forests),
Revenue and Forest Department,
Hutatma Rajguru Chowk
Madam Cama Marg
Mantralaya, Mumbai – 400032.

Sub: Diversion of 47.4170 ha of forest land in favour of the Executive Engineer(MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai for six laning of Mumbai Trans Harbour Link Road in Raigad & Thane district in the State of Maharashtra. - regarding.

Sir,

The undersigned is directed to refer to the State Government of Maharashtra's letter no. FLD-1313/C.R.206/F-10 dated 30.09.2013 on the above subject seeking prior approval of the Central Government under Section-2 of the Van (Sankashan Evam Samvardhan) Adhiniyam, 1980. After careful examination of the proposal of the State Government, 'in-principle' approval was accorded by the Central Government vide its letter of even number dated 22.01.2016. The Addl. PCCF and Nodal Officer (FCA), Government of Maharashtra, vide his letter no. Desk-17/NC/IV/D-12181(Pt-3)/(50)/1529/2018-19 dated 02.11.2018 and the Government of Maharashtra's letter no. FLD-1313/C.R.-206/F-10 dated 05.12.2023 and the Addl. PCCF and Nodal Officer (FCA), Government of Maharashtra's letter no. Desk-17/Nodal/FCA-S2/PID-3308/Thane/2575 dated 04.12.2023 submitted a report on the compliance of conditions stipulated in the 'in-principle' approval and requested the State Government to grant final approval to the proposal.

After careful consideration of the proposal and the compliance report submitted by the State Government, I am directed to convey the Central Government's 'final approval' under Section– 2 of the Van (Sankashan Evam Samvardhan) Adhiniyam, 1980 for diversion of 47.4170 ha of forest land in favour of the Executive Engineer(MTHL), MMRDA, Bandra Kurla Complex, Bandra (E), Mumbai for six laning of Mumbai Trans Harbour Link Road in Raigad & Thane district in the State of Maharashtra subject to the fulfilment of the following conditions:

i. Legal status of the forest land shall remain unchanged;
ii. The boundary of the diverted forest land shall be suitably demarcated on ground by the User Agency at the project cost;
iii. Compensatory afforestation over an extent of 39.417 ha (out of 47.417 ha non-forest land mutated in favour of forest department) and maintained by the State Forest Department from the amount which has already been realized from the User Agency;
iv. The State Forest Department shall carry out afforestation over an extent of

8.00 ha of degraded forest area identified in the Compt No 41/1 at village Parade and shall ensure proper maintenance from the amount which has already been realized from the User Agency;

v. 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;

vi. **The State Government shall realize differential Net Present Value (NPV) from the User Agency as per the Ministry guideline No 5-3/2011-FC(Vol-I) dated 22.03.2022 and ensure to deposit same in to the designated CAMPA account through online. The State Government shall inform Regional Office, Nagpur after realization of differential NPV;**

vii. **The State Government reported that, as per the final notification of Eco Sensitive Zone of Kamala Bird Sanctuary, the project alignment falls outside the notified ESZ area and hence prior permission from Hon'ble National Green Tribunal is not required. In view of the above, the State Government shall ensure no such works which qualifies as contempt of the Hon'ble Mumbai High Court, Nagpur Bench orders dated 27/4/2005 and 7/6/200 6in Writ Petition No. 1277/2000;**

viii. **The state government/user agency shall ensure that, the orders / directions of the Hon'ble High Court are strictly compiled with while cutting or destruction of Mangrove;**

ix. The state government/MMRDA shall implement the mitigation measures recommended by the BNHS as modified by the State Board for Wild Life, at the project cost by the concerned agencies as reported by the State Government in the compliance report;

x. MMRDA shall contribute in establishment and management of the Thane Creek Flammingo Sanctuary;

xi. Maharashtra Forest Department, through its Mangroves and Marine Biodiversity Conservation Foundation shall prepare a Mangroves and Marine Biodiversity Conservation Plan which shall be implemented from the amount which has already been realized from the User Agency;

xii. Non-forest land transferred and mutated in favour of the State Forest Department for raising Compensatory Afforestation shall be notified as reserved Forest under Section-4 or Protected Forest under Section-29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act and **State Government shall submit a copy of the such notification order to the Regional Office, Nagpur within three months from the date issuance of this order for record purpose;**

xiii. The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental (Protection) Act, 1986, if required;

xiv. No labour camp shall be established on the forest land;

xv. 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.

xvi. The layout plan of the proposal shall not be change without the prior approval of the Central Government

xvii. The forest land shall not be used for any purpose other than that specified in the proposal and **diverted forest area shall not exceeds 47.4170 ha;**

xviii. 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;

xix. No damage to the flora and fauna of the adjoining area shall be caused
xx. **The State Government shall install 150 numbers of artificially made nest from the amount which has already been realized from the User Agency to ensure proper protection of existing avifauna in the area;**
xxi. Felling of trees on the forest land being diverted shall be reduced to the bare minimum and the trees should be felled under strict supervision of the State Forest Department;
xxii. **The User Agency through State Government expressed regarding** inability to carryout strip plantation through out the stretch as the 95% of the stretch is a bridge. Hence, wherever possible, the strip plantation shall be carryout on the forest stretch diverted under the project at the project cost;
xxiii. The reclamation of quarry should be done under the supervision of the State Forest Department. The quarry shall be reclaimed and afforested completely before the project is closed;
xxiv. Over burden shall not be dumped outside the width of the road. The muck generated in the earth cutting will be disposed off at the designate dumping sites and in no case the muck/debris shall be allowed to roll down the hill slopes;
xxv. The User Agency will provide retaining walls, breast wall and drainage as per requirement to make the slope stable;
xxvi. The State Forest Department shall carryout comprehensive soil conservation measures **from the amount which has already been realized from the User Agency;**
xxvii. The State Government, Maharashtra/ Nodal Officer (FCA), Maharashtra shall ensure settlement of rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (No. 2 of 2007) before issuing an order for handing over of forest land to the User Agency as per Rule- 9 (6) (b) (ii) of Forest (Conservation) Rules, 2022 dated 28.06.2022;
xxviii. The User Agency will assist the State Government in preservation of flora and fauna of the area in accordance with the plan prepared by the Chief Wildlife Warden of the State. Attention will be particularly given to providing safe crossing and corridors for wildlife species and protecting sensitive habitat like wetlands, grasslands and woodlands from degradation. Where canopy continuity is required for particular species, special measures shall be prescribed by the CWLW for providing crossing points. Where certain trees used for nesting/rookeries of species like birds of prey, herons, storks, hornbills, etc., are to be destroyed, alternative structure shall be provided and the trees transplanted;
xxix. The User Agency shall not collect any toll from the vehicles carrying forest officers on duty;
xxx. The designing of culverts/bridges, if any, over the natural streams/rivers/canals should be done in such a manner that it does not hamper the natural course of water, does not give rise to water-logging, and also does not hamper movement of wild animals;
xxxi. 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 Officer of the Ministry regularly;
xxxii. Violation of any of these conditions will amount to violation of**Van (Sanrakshan Evam Samvardhan) Adhiniyam 1980** and action would be taken as per the provision of **Adhiniyam** and rules /guidelines issued there

I/60805/2023

under;

xxxiii. Any other condition that the Ministry of Environment, Forests & Climate Change may stipulate from time to time in the interest of conservation, protection and development of forests & wildlife;

xxxiv. 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. This issues with the approval of DDGF(C), Regional Office, MoEF&CC, Nagpur.

Yours faithfully,

(C.B. Tashildar)
AIGF (Central)

Copy to:

i. The IGF (RoHQ), Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jorbagh Road, Aliganj, New Delhi- 110003 for information please.
ii. The PCCF (HoFF), Government of Maharashtra, Nagpur.
iii. User agency.
iv. Guard file.

(C.B. Tashildar)
AIGF (Central)

Annexure IX

A-Permission letter for Tree cutting by CIDCO

B-Permission letter for Tree cutting by CIDCO

Annexure-V

CITY AND INDUSTRIAL DEVELOPMENT CORPORATION OF MAHARASHTRA LIMITED

(CIN - U99999 MH 1970 SGC - 014674)

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. NO.CIDCO/Hort/2019/191 *Date :* 25.11.2019

To,
Shri. G.G.Ddeshpande,
Executive Engineer (MMRDA),
Mumbai Trans Harbour Link (MTHL),
Bandra Kurla Complex, Bandra East,
Mumbai – 400051.

Sub: - Permission for removal of existing trees falling in the alignment of construction of Mumbai Trans Harbour Link (MTHL) Project (CH.18+187-CH.19+607KM and CH.20+087-CH.21+800KM) on Navi Mumbai side.

Ref:- MTHL/CIDCO/Tree Removal Permission/19/012/MTHL dt.14.05.2019

Sir,

With reference to above it is to inform that your request for removal of 348 no of trees falling in the alignment of construction of Mumbai Trans Harbour Link (MTHL) Project (CH.18+187-CH.19+607KM and CH.20+087-CH.21+800KM) on Navi Mumbai side has been considered by the Tree Authority under section 8(3) of the Maharashtra (Urban Areas) Protection and Preservation of Trees Act, 1975 & rules called the Maharashtra (Urban Areas) Protection and Preservation of Tree rules – 2009 & amendment up to 2016 subject to the following conditions.:

1) The Tree Authority Committee of CIDCO has granted the permission to cut 266 no of existing trees and to transplant 82 no of existing trees. You should retain 504 no of existing trees. The details are as below;

Sr. No	Description	Tree no.
1	Trees to be cut	1, 3, 4, 5, 6, 7, 8, 9, 12, 13, 15, 16, 17, 18, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 59, 66, 67, 80, 90, 101, 102, 103, 104, 105, 118, 119, 120, 121, 123, 143, 144, 147, 148, 149, 150, 151, 153, 156, 157, 158, 159, 162, 165, 166, 173, 174, 175, 176, 177, 178, 179, 186, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 225, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 277, 278, 279, 289, 325, 327, 330, 336, 346, 350, 355, 356, 363, 367, 382, 384, 385, 386, 387, 389, 390, 391, 401, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436,

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		437, 438, 439, 440, 441, 444, 445, 447, 449, 450, 451, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 496, 497, 498, 499, 500, 501, 503, 504, 517, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 597, 599, 600, 601, 602, 603, 604, 624, 627, 628, 637, 639, 640, 641, 642, 643, 644, 658, 659, 661, 662, 663, 667, 678, 679, 680, 682, 683, 684, 688, 696, 698, 699, 700, 701, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 715, 730, 731, 744, 745, 754, 756, 758, 760, 761, 762, 773, 775, 776, 778, 779, 780, 783, 784, 785, 786, 787, 789, 790, 792, 793, 794, 795, 797, 824, 825, 826, 827, 831, 832.
2	Trees to be Transplant	2, 14, 19, 20, 21, 58, 65, 68, 79, 91, 122, 152, 154, 155, 160, 161, 163, 164, 274, 275, 276, 324, 326, 328, 329, 331, 332, 333, 334, 335, 347, 348, 349, 354, 357, 364, 365, 366, 383, 388, 413, 448, 452, 598, 638, 647, 660, 664, 665, 666, 668, 669, 670, 671, 672, 675, 676, 677, 681, 685, 686, 687, 689, 690, 691, 692, 693, 694, 695, 697, 702, 714, 732, 743, 755, 757, 759, 777, 781, 788, 791, 796.
3	Trees to be Retain	10, 11, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 56, 57, 60, 61, 62, 63, 64, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 81, 82, 83, 84, 85, 86, 87, 88, 89, 92, 93, 94, 95, 96, 97, 98, 99, 100, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 124, 125, 126, 128, 129, 130, 131, 132, 133, 135, 136, 137, 138, 139, 140, 141, 142, 145, 146, 167, 168, 169, 170, 171, 172, 180, 181, 182, 183, 184, 185, 187, 188, 189, 190, 191, 192, 193, 194, 218, 219, 220, 221, 222, 223, 224, 226, 227, 228, 229, 230, 231, 232, 233, 234, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 280, 281, 282, 283, 284, 285, 286, 287, 288, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 337, 338, 339, 340, 341, 342, 343, 344, 345, 351, 352, 353, 358 359, 360, 361, 362, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 392, 393, 394, 395, 396, 397, 398, 399, 400, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 442, 443, 446, 453, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 502, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 605, 606, 607, 608, 609, 610, 611, 612, 615, 616, 617, 618, 619, 620, 621, 622, 623, 625, 626, 629, 630, 631, 632, 633, 634, 635, 636, 645, 646, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 673, 674, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 746, 747, 748, 749, 750, 751, 752, 753, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 774, 782, 798, 799, 800, 801, 802, 803, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 828, 829, 830, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858.

2) As per the provision under Section 8(3) (a) of the said Act, you are hereby directed that no tree shall be cut/transplanted until fifteen days (15) after the permission is given by the Tree Authority.

MUMBAI TRANS HARBOUR LINK * GENERAL CONSTRUCTION *

1/2

Scanned with CamScanner

3) It is mandatory on your part to plant 2 no of trees against each tree to be cut. As per the provision of Maharashtra (Urban Areas) Protection and Preservation of Trees (amendment) Act, 2010 the new trees shall be plant within fifteen days from the date of tree (s) is felled.

4) You have to plant 532 no of new trees (against cutting of 266 no of trees) & to transplant 82 no of existing trees at Survey No. 347, Village- Gavhan, Tal-Uran, Dist-Raigad. While planting trees, suitable distance should be kept from the boundary of the plots, so that the newly planted trees will not obstruct the construction of compound wall or any other civil structure in future.

   You shall maintain & protect the new tree plantation (532 no of trees) and transplanted trees (82 no of existing trees) for the period of three years & care should be taken so that tree grows properly & give a report to the tree officer about the condition of these trees once in six months for a period of three years as per the form – G under section 9(2).

5) Your attention is kindly drawn to the provisions under section of 21 of the Maharashtra (Urban Areas) Protection & Preservation of Trees Act. 1975, as modified on 9th June, 2004.

   21 (1) Whoever fells any tree or causes any tree to be felled in contraventions of the provision of the Act or without reasonable excuse fails to comply with any order issued or condition imposed by the Tree Officer or the Tree Authority or voluntarily obstructs and member of the Tree Authority or the Tree Officer or any officers and Servants subordinate to him in the discharge of their functions under this Act. Shall, on convection, be punished with the fine of not less than one thousand rupees which may extend up to five thousand rupees for every offence and also with imprisonment for a term of not less than one week, which may extent up to one year.

   (3) The felling or causing of felling of each tree without the Permission of The Tree Authority shall constitute a separate offence.

6) At the time of transplanting or cutting of trees, if any social problem occurs, you will have to resolve the same at your end.

7) You shall submit the report for Cutting and transplantation of the trees carried out to Tree officer, CIDCO.

8) Tree authority Committee, CIDCO has granted the permission for removal of 348 no of trees (To Cut 266 nos and to transplant 82 nos). At the time of actual execution of work, applicant Executive Engineer, MTHL Project, MMRDA should take care to remove only those trees which are falling in alignment of construction activities.

9) The said permission is valid only up to 90 days from the receipt thereof.

Thanking You.

Yours faithfully

15/11/13

Tree Officer

(Tree Authority Committee, CIDCO)

3/3

Scanned with CamScanner

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MMRDA

No. MTHL-PIU/GC/Tree permission/1507/12-2020 Date : 30th December 2020

To,
The Engineer, General Consultant
AECOM Asia Company Ltd. - PADECO Co. Ltd. - DAR Al-Handasah
Consultants (Share & Partners)- T.Y.Lin International (Consortium),
A-Wing, 6th Floor, Old MMRDA Building,
Bandra Kurla Complex, Bandra (East), Mumbai – 400051

Sub :- **Mumbai Trans Harbour Link Project (MTHL)**
- Permission for Removal of Tree Coming In The Proposed construction of Mumbai Harbour Link Project (Package 1) 10.380 Km long bridge section (CH-0+000 – Ch- 10+380) across The Mumbai bay including Sewri F/South'Ward.

Ref : Letter from Tree Authority, MCGM DySG/C/27/Prop dated 24th December 2020.

Sir,

MMRDA is in receipt of Permission letter for Removal of Tree for Package 1 of Mumbai Harbour Link Project.

The copy of letter alongwith duely signed drawing by MCGM officials is enclosed herewith for further necessary action please.

This letter is issued with the approval of the Chief Engineer.

Thanking you

Encl: MCGM permission letter & drawing

Yours faithfully,

(A.R. Bhisikar)
Executive Engineer, MTHL-PIU

Copy to: Project Manager, L&T –IHI Consortium MTHL Pkg-1, Project office, Gate no.1, Sewri Timber Pond (STP) Yard, Near Gadi Adda , Sewti (E), Mumbai 400015 for necessary action please.

Office of the Supdt .of Gardens
Veermata Jijabai Bhosale Udyan.
Penguin Building , 2nd Floor
Dr.Ambedkar Road, Byculla (East).
Mumbai-400 027.

DySG/C/127 Dt. 24/12/2020

To,
Additional Metropolitan Commissioner (MMRDA)
Bandra - Kurla Complex.
Bandra (E). Mumbai - 400051

Sub : Permission for Removal Of Trees Coming In The Porposed Construction Of Mumbai Line Project (Package – 1) – 10.380 km Long Bridge Section (CH-0+000-CH-10+380) Across The Mumbai Bay Including Sewri In 'F/South' Ward.

Sir / Madam,

Please refer to your letter No MMRDA/MTHL-PIU/L&T-IHI/Tree Proposal-Pkg-1/107/07-2018 dt. 18.06.2018 for Permission for Removal Of Trees Coming In The Porposed Construction Of Mumbai Line Project (Package – 1) – 10.380 km Long Bridge Section (CH-0+000-CH-10+380) Across The Mumbai Bay Including Sewri In 'F/South' Ward. Mumbai. has been considered by the Tree Authority under Section 8(3) of The Maharashtra (Urban Areas) Protection & Preservation of Trees Act 1975,as modified up to January 2018.

Hence . You are hereby directed to plant 840 nos trees in lieu of Cutting 420 (Four Hundred Twenty) trees (Tree no.- 19. 22 to 25, 34. 35, 39. 40, 44, 45, 51, 52, 57, 58, 61, 63, 67, 71, 72, 74. 75. 78, 80 to 82, 87. 91, 92, 101, 104, 106, 108, 110 to 112, 113, 118. 121 to 124, 128, 130, 137, 140. 141. 143 to 152, 154 to 159, 161 to 165, 167 to 177, 179 to 186, 188 to 196, 199. 201 to 205, 207 to 230. 232 to 234, 236, 238, 239, 241. 242, 244, 245, 249. 250, 253, 256 to 261, 267, 269, 272, 274 to 290. 292, 293, 295 to 300, 302, 307 to 311, 314, 319, 321, 324. 325, 327, 328, 330 to 333, 336 to 342, 345 347, 350 to 360, 363 to 367, 370 to 381, 384, 385, 389, 391, 391A, 392, 396, 399, 431, 432, 435, 443. 448, 451, 451, 458, 459, 461, 462, 463, 465, 466, 467, 469 to 472, 477, 478, 484 to 487, 492, 499, 502 504 to 509, 517, 521, 524 to 538, 541 to 543, 545, 547, 549 to 551, 553, 557, 561, 563 to 565, 568. 570, 575, 579, 580, 584, 591, 595, 609, 618 to 620, 623 to 626, 629, 630, 633, 634, 636, 660, 668 to 673 674 to 676, 678, 679, 683, 699, 704, 705, 709, 710, 713, 716, 719, 766, 768, 779, 781, 784, 785, 790, 793, 833, 842, 913, 916, 918, 920, 921, 928, 929, 934, 936, 941, 942, 947 to 949, 952, 955 960, 962 to 965, 976, 979, 981, 986, 988, 989, 996, 997, 1001, 1007 to 1009, 1011, 1014, 1023, 1046. 1061 to 1064, 1066, 1072, 1073, 1079, 1082 to 1084, 1090, 1094, 1695, 1097, 1132, 1137 to 1140. 1142 to 1152, 1154, 1158,) within 15 days from the execution of tree cutting. Transplant 526 (Five Hundred Twenty Six) trees (Tree no.- 04, 33, 36 to 38, 41 to 43, 46 to 50, 53 to 56, 59, 60, 62, 64 to 66. 68 to 70, 73, 76, 77, 79, 83 to 86, 88 to 90, 93 to 100, 102, 103, 105, 107, 109, 112A, 114 to 117, 119. 120, 125 to 127, 129, 131 to 136, 138, 139, 142, 153, 160, 166, 178, 187, 197, 198, 200, 206, 231, 235. 237, 240, 243, 246 to 248, 251, 252, 254, 255, 262 to 266, 268, 270, 271, 273, 291, 294, 301, 303 to 306, 312, 313, 315 to 318, 320, 322, 323, 326, 329, 334, 335, 343, 344, 346, 348, 349, 361, 362, 368. 369, 382, 383, 386 to 388, 390, 393 to 395, 397, 398, 40 to 402, 481, 482, 491, 492, 494 to 498, 500. 501, 503, 510 to 516, 518 to 520, 522, 523, 539, 540, 544, 546, 548, 552, 554 to 556, 558 to 560m. 562, 566, 567, 569, 571 to 574, 576 to 578, 581 to 583, 585 to 590, 592 to 594, 608, 610 to 612, 614. 615, 621, 622, 627, 628, 631, 632, 635, 663 to 665, 667, 669, 670, 673, 677, 680, 681, 682, 684 to 693. 693A, 694 to 698, 700 to 703, 706 to 708, 711, 712, 714, 715, 716A, 716B, 717, 718, 720 to 765. 765A, 767, 769 to 778, 780, 782, 783, 786, 788, 789, 791, 792, 794 to 800, 800A, 801 to 825, 825A. 826, 826A, 827 to 832, 834 to 841, 843 to 848, 911, 911A, 912, 914, 915, 917, 919, 922 to 927, 930 to 933, 935, 937 to 940, 943 to 946, 950, 951, 953, 954, 956, 957, 958, 959, 961, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 977, 978, 980, 982, 983, 984, 985, 987, 990, 991, 992, 993, 994, 995, 998, 999, 1000, 1002, 1003, 1004, 1005, 1005A, 1006, 1010, 1012, 1013, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1065 1067, 1068, 1069, 1070, 1071, 1074, 1075 1076, 1077, 1078, 1080 1081, 1085, 1086, 1087, 1088, 1089, 1091, 1092, 1093, 1096, 1098, 1133, 1134, 1135, 1136, 1141, 1153, 1155, 1156, 1157,) is sanctioned by the Tree Authority's vide its Resolution no. 05 dt. 02.12.2020.

As per the provision under Section 8 (3) (a) of the said Act, you are hereby directed that no tree shall be cut/ transplant until fifteen days (15) after the permission is given by the Tree Authority. And also you are requested to inform the Jr.Tree officer / Hort .Asstt. of concern ward about the date and time of cutting of trees as per permission, so that the representative of this office will remain present to ensure the work carried out properly Jr. Tree Office 'F/South ' ward whose contact no is 9930354292. & Hort.Asstt. F/South Ward 9-05583650.

You are further requested to execute the work of cutting / Transplanting of trees please wise as when required.

The remaining **226** (Two Hundred Twenty Six) trees (01, 02, 03, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 26, 27, 28, 29, 30, 31, 32, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 433, 434, 436, 437, 438, 439, 440, 441, 442, 444, 445, 446, 447, 449, 452, 453, 454, 455, 456, 457, 460, 464, 468, 473, 474, 475, 476, 479, 480, 483, 488, 489, 490, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 613, 616, 617, 637, 638, 638A, 638B, 639 to 662, 849 to 910, 1099; 1101, 1101A, 1100, 1102, 1103, 1104 to 1128, 1129, 1130, 1131) shall be **Retained** as it is , as per plan attached.

Whoever fells any tree or causes any tree to be felled in contraventions of the provisions of the Act or without reasonable excuse fails to comply with any order issued or condition imposed by the Tree Officer or the Tree Authority or voluntarily obstructs any member of the Tree Authority or the Tree Officer or any Officers and Servants subordinate to him in the discharge of their functions under this Act, shall, on convection, be punished with the fine of not less than one thousand rupees which may extend up to five thousand rupees for every offense and also with imprisonment for a term of not less than one week. Which may extent up to one year. The felling or causing of felling of each tree without the permission of the Tree Authority shall constitute a separate offense.

As per provision under section 19 (b) you are directed to plant trees in open spaces as well as R.G. Area as per the norms of Tree Authority before getting occupation /completion certificate of the constructed propose work.

As per direction of the Tree Authority, you are hereby directed to submit the photographs taken while transplanting of trees and the C.D. of the transplantation of the trees, you are also requested to plant indigenous variety of trees having circumference of 6" above and height of 10'-12' above. The list of indigenous variety of trees is enclosed herewith for your ready reference and compliance.

Thanking you.

Yours faithfully.

Supdt.of Gardens
& Tree Officer

Annexure X

Clearance letter marked to concerned Panchayat /local NGO

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
मुंबई महानगर प्रदेश विकास प्राधिकरण

No. ED/MTHL/CRZ Clearance/publish/16

Engineering Division
Dt. 29th Jan 2016

To,
Additional Chief Secretary (Environment)
Environment Department,
Govt. of Maharashtra,
Mantralaya, Mumbai – 400 032

Sub: Mumbai Trans Harbour Link (MTHL) project
- CRZ Clearance reg.

Ref : Ministry of Environment, Forest and Climate Change, Govt of India letter No. F.No.11-65/2012-IA.III Dt. 25th January 2016

Sir,

Ministry of Environment, Forest and Climate Change, vide letter referred above, has accorded CRZ clearance to the Mumbai Trans Harbour Link (MTHL) project. The copy of the clearance is submitted herewith for your information for ready reference.

Thanking you,

Yours faithfully,

(P.D.Mamdapure)
Engineer-in-Chief

Encl: Copy of CRZ clearance letter

Copy submitted to
The Member Secretary, Maharashtra Pollution Control Board, Sion (E), Mumbai **with a request to publish the CRZ Clearance on your website.**

Copy submitted for information to,
1. The Secretary (Forest), Revenue & Forest Dept, Govt. of Maharashtra, Mantralaya , Mumbai
   Encl: Copy of CRZ clearance letter
2. The Chairman, Maharashtra Coastal Zone Management Authority, Mumbai
   Encl: Copy of CRZ clearance letter
3. The Director, Bombay Natural History Society, Hornbill house, Dr. Salim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai – 400 001
   Encl: Copy of CRZ clearance letter
4. The Chief Executive Officer, Raigad Zilla Parishad, Alibaug
   Encl: Copy of CRZ clearance letter
5. The Assistant Commissioner (F-South ward), MCGM, 'F/S' ward Office, Jagganath Bhatankar Marg & Dr. B. A. Road Junction, Parel Naka, Mumbai-400 012
   Encl: Copy of CRZ clearance letter
6. The Block Development Officer, Uran - Taluka
   Encl: Copy of CRZ clearance letter
7. Sarpanch, Jasai Village, Tal: Uran, District Raigad
8. Sarpanch, Gavan Village, Tal: Panvel, District Raigad
9. Sarpanch, Chirle Village, Tal: Uran, District Raigad
10. The Block Development officer, Panvel-Taluka : Encl: Copy of CRZ clearance letter.

Bandra - Kurla Complex, Bandra (East), Mumbai - 400 051.

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
मुंबई महानगर प्रदेश विकास प्राधिकरण

No. ED/MTHL/CRZ Clearance/publish/16

Engineering Division
Dt. 29th Jan 2016

To,
Additional Chief Secretary (Environment)
Environment Department,
Govt. of Maharashtra,
Mantralaya, Mumbai – 400 032

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- CRZ Clearance reg.

Ref : Ministry of Environment, Forest and Climate Change, Govt of India letter No. F.No.11-65/2012-IA.III Dt. 25th January 2016

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Thanking you,

Yours faithfully,

(P.D.Mamdapure)
Engineer-in-Chief

Encl: Copy of CRZ clearance letter

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The Member Secretary, Maharashtra Pollution Control Board, Sion (E), Mumbai **with a request to publish the CRZ Clearance on your website.**

Copy submitted for information to,
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   Encl: Copy of CRZ clearance letter
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3. The Director, Bombay Natural History Society, Hornbill house, Dr. Salim Ali Chowk, Shaheed Bhagat Singh Road, Mumbai – 400 001
   Encl: Copy of CRZ clearance letter
4. The Chief Executive Officer, Raigad Zilla Parishad, Alibaug
   Encl: Copy of CRZ clearance letter
5. The Assistant Commissioner (F-South ward), MCGM, 'F/S' ward Office, Jagganath Bhatankar Marg & Dr. B. A. Road Junction, Parel Naka, Mumbai-400 012
   Encl: Copy of CRZ clearance letter
6. The Block Development Officer, Uran - Taluka
   Encl: Copy of CRZ clearance letter
7. Sarpanch, Jasai Village, Tal: Uran, District Raigad
8. Sarpanch, Gavan Village, Tal: Panvel, District Raigad
9. Sarpanch, Chirle Village, Tal: Uran, District Raigad
10. The Block Development officer, Panvel-Taluka : Encl: Copy of CRZ clearance letter.

Bandra - Kurla Complex, Bandra (East), Mumbai - 400 051.
EPABX : 2659 0001 - 04 / 2659 4000 • FAX : 2659 1264 • WEB SITE : https://mmrda.maharashtra.gov.in

SP GOVT COLONY P.O <46005
EM864[illegible]7711N
Counter No:1,OP-Code:56K
To:THE CHIEF SECRETARY,MAHA POLLUTION CONT
MUMBAI, PIN:400022
From:MUMBAI METROPOLITION REGION , DEVLOPME
Wt:25grams,
Amt:17.00 ,01/02/2016 ,11:20
Taxes:Rs.2.00<Track on www.indiapost.gov.

SP GOVT COLONY P.O <46005
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Counter No:1,OP-Code:56K
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MUMBAI, PIN:400032
From:MUMBAI METROPOLITION REGION , DEVLOPME
Wt:25grams,
Amt:17.00 ,01/02/2016 ,11:21
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MUMBAI, PIN:400032
From:MUMBAI METROPOLITION REGION , DEVLOPME
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SP GOVT COLONY P.O <46005
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Counter No:1,OP-Code:56K
To:THE CHIEF SECRETARY,ENVIRONMENT DEPT
MUMBAI, PIN:400032
From:MUMBAI METROPOLITION REGION , DEVLOPME
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Amt:17.00 ,01/02/2016 ,11:19
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SP GOVT COLONY P.O <46005
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Counter No:1,OP-Code:56K
To:SECRETARY,REVENEU & FOREST
MUMBAI, PIN:400032
From:MUMBAI METROPOLITION REGION , DEVLOPMENT A
Wt:25grams,
Amt:17.00 ,01/02/2016 ,11:20
Taxes:Rs.2.00<Track on www.indiapost.gov.in>>

SP GOVT COLONY P.O <46005
EM864[illegible]7711N
Counter No:1,OP-Code:56K
To:CHAIRMEN,MAHA COASTAL ZONE
MUMBAI, PIN:400032
From:MUMBAI METROPOLITION REGION , DEVLOP
Wt:25grams,
Amt:17.00 ,01/02/2016 ,11:21
Taxes:Rs.2.00<Track on www.indiapost.g

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
मुंबई महानगर प्रदेश विकास प्राधिकरण

No.ED/MTHL/CRZ/2016

Engineering Division
Date: 16/02/2016

To,
Chief Conservator of Forests,
Near Micro Wave Tower,
Bara Banglow Area,
Thane (East) – 400 603.

Sub.: Mumbai Trans Harbour Link Road.
- CRZ Clearance for Mumbai Trans Harbour Sea Link (MTHL) by M/s. Mumbai Metropolitan Region Development Authority Reg.

Ref.: Letter obtained from Ministry of Environment & Forests (IA.III Division) No. F.No.11-65/2012-IA-III dated 25/01/2016.

Sir,

Ministry of Environment & Forests (IA.III Division) has accorded Costal Regulation Zone Clearance (CRZ) for Mumbai Trans Harbour Link Project vide above referred letter.

As required under point no. 8 of General Conditions, the project proponent – Mumbai Metropolitan Region Development Authority has published CRZ clearance in two local Newspapers i.e. India Express – English language and Loksatta – Marathi language on 29/01/2016. The copies of same are enclosed herewith for your information and record please. A copy of CRZ clearance is also enclosed herewith for your ready reference.

Thanking you.

Yours faithfully,

(P.D. Mamdapure)
Engineer-In-Chief

Encl.: 1. Copy of Notice published in Newspapers.
2. Copy of CRZ clearance from MoEF.

भारतीय डाक
India Post

SP AUDIT BHAVAN PO <400051>
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ठीवरील
टामुळे
तील मागणीत
ी असून, गेल्या
क वर्षात भारताच्या
ीचे प्रमाण घटले

२०१२-१३ या आर्थिक वर्षात देशातून झालेली एकूण निर्यात ढोबळ राष्ट्रीय उत्पादनाच्या १७.३ टक्के इतकी होती. त्याआधीच्या वर्षात ही निर्यात १७.६ टक्के होती.

ाली

बकी

बँकेने बाजाराकडे लक्ष
ी गाठली तेव्हा बँकेने
र मागणी नोंदवीतात.
येतो.
क्ष, डेव्हलपमेंट क्रेडिट बँक.

- नीचांकी पातळीच्या टप्प्यावर नेहमीप्रमाणे रिझर्व्ह बँक मैदानात आली.
- सरकारी बँकांच्या माध्यमातून रिझर्व्ह बँकेने डॉलर विक्री सुरु केली. त्यामुळे घसरणीला ब्रेक लागला. तरीही दिवस अखेरीस ११० पैसे गमावलेला रुपया १ डॉलरला ६४.३० रुपये अशा भावावर बंद झाला.

मुंबई महानगर प्रदेश विकास प्राधिकरण

MMRDA

(महाराष्ट्र शासन अंगिकृत)
सी १४ आणि सी -१५वांद्रे-कुर्ला संकुल, वांद्रे (पूर्व),
मुंबई -४०० ०५१, दुरध्वनी: २६५९०००१-०४/२६५९ ४०००
फॅक्स:२६५९१२६४ वेबसाईट : www.mmrda.maharashtra.gov.in

कामाचे नाव : मुंबई पारबंदर प्रकल्प (शिवडी ते न्हावा)

संदर्भ : केंद्रीय पर्यावरण विभागाचे दि.१९.०७.२०१३ रोजीचे पत्र.

मुंबई पारबंदर प्रकल्पास केंद्रीय पर्यावरण व वने विभागाने दि.१९.०७.२०१३ रोजी पत्र क्र.F.No.11-65/2012-IA-III अन्वये सागरी नियंत्रण विषयक (CRZ) मान्यता दिलेली आहे. सदर पत्रांची प्रत महाराष्ट्र राज्य प्रदुषण नियंत्रण मंडळकडे उपलब्ध आहे तसेच ती केंद्रीय पर्यावरण व वन विभागाच्या http:// www.envfor.nic.in सांकेतिक स्थळावर पाहता येईल.

क्र.अभि/मुं.प्रा.प्र./कें.प.वि./मान्यता/१३
दिनांक : २६.०८.२०१३
ठिकाण : मुंबई

सही/-
मुख्य अभियंता,
अभियांत्रिकी विभाग.

योजना

१४ दिनांकित २६.०८.२०१३
टेशन्स् दरम्यान ५ वी आणि ६ वी
णी, मॉडिफिकेशन, तपासणी आणि

ल शुद्धिपत्रक. सदर शुद्धिपत्रक हे

	सुधारित वेळ आणि तारीख
० वा.	११.०९.२०१३ रोजी १५.०० वा.
० वा.	११.०९.२०१३ रोजी १५.३० वा.

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महाराष्ट्र विमानतळ विकास कंपनी मर्या.

MADC

मुंबई कार्यालय : ८ वा मजला, सेंटर - १, वर्ल्ड ट्रेड सेंटर, कफ परेड, मुंबई - ४०० ००५.
दूरध्वनी क्र.: +९१-२२-४९२१ २१२१ फॅक्स: +९१-२२-२२१६ ३८१४
नागपूर कार्यालय : पहिला मजला, सेंट्रल फॅसिलिटी बिल्डिंग, मिहान-सेझ, खापरी (रेल्वे) जवळ, नागपूर - ४४१ १०८. दूरध्वनी क्र.: ०७१०४-६६५६६५, फॅक्स: ०७१०४-६६५६००

ई-निविदा सूचना

नागपूर विमानतळ, मिहान एसईझेड परिसर व एमएडीसी (श्रेणी-I) च्या नॉन-एसईझेड परिसरात सुरक्षा व संरक्षण पुरवण्यासाठी तसेच शिर्डी, सोलापूर (बोरामणी), धुळे, फलटण, कराड, चंद्रपूर व अमरावती (श्रेणी-II) येथील विमानतळांवर सुरक्षा सेवा पुरविण्याकरिता एमएडीसी ऑन लाईन ई-निविदा आमंत्रित करीत आहे.

ई-निविदा पोर्टलद्वारा निविदा सादर करण्याची शेवटची तारीख व वेळ २६.०९.२०१३ ला दु. १५.०० वाजेपर्यंत फक्त. निविदा दस्तावेज आणि इतर तपशील दि. २७.०८.२०१३ पासून https://mahatenders.gov.in ह्या वेवसाईट वरुन डाउनलोड केले जाऊ शकतात. निविदापूर्व सभा दि. ७.०९.२०१३ रोजी आहे. यावाबतचेही कुठलेही स्पष्टीकरण / शुध्दीपत्रक केवळ वेबसाईटवरच उपलब्ध केले जाईल.

उपाध्यक्ष व व्यवस्थापकीय संचालक

सर्व्हिसेस

विल्डिंग लेाबा, मुबई-
शेत कामाकरता निविदा जारी
एमईएसमध्ये कंत्राटदाराच्या
शास. विभागासोबत कार्यरत
. पात्र वगपिक्षा.एक वर्ग खाली
करू शकतील. तथापि, अशा
मिळाल्यावरच विचार करण्यात

बिल्डिंग क्र. 'एस' ची विशेष
(रु. लाखात) : रु. १०७
ा रकमेची राशी लागू असेल
१०००/- जीई (एनडब्ल्यू)
शत्रता निकष : वर्ग "ई" व
१९ सप्टेंबर २०१३. निविदा
दा स्वीकारण्याची तारीख :

/बँकर्स चेक संलग्न नसलेल्या
येणार नाही. निविदेची किंमत
या तारखेपासून सहा महिन्याचे
ाड्यूल्ड बँकेंच्या डीडी/बँकर्स

उत्तर मध्य रेल्वे, अलाहाबाद

निविदा सूचना

कार्यालय वरि. मंडल यांत्रिक इंजिनियर (डिझेल) झांशी

निविदा सूचना क्र.: ०४/१३-१४/डिझेल/झांशी दिनांक : १९.०८.२०१३

भारताच्या राष्ट्रपतीकरिता व त्यांचे वतीने वरिष्ट मंडल यांत्रिक इंजिनियर (डिझेल) उत्तर मध्य रेल्वे, झांशी द्वारे खालील कामाकरिता वैध, प्रतिष्ठित, अनुभवी कंत्राटदाराकडून मोहोरबंद निविदा मागविण्यात येत आहे. निविदा क्र. झांशी/एम/डिझेल/डब्ल्यूसी/टी-०४/१३-१४ कामाचे नाव: डिझेल लोकोमोटीव्हमध्ये ड्रायव्हर केबिनच्या फेरनूतनीकरणाचे कार्य. कामाचा अदमासे खर्च ₹ १०५०५०००/- काम पूर्ण करण्याचा अवधी : २४ महिने, बयाणा रक्कम: ₹ २०२५३०/- निविदा प्रपत्राचे मूल्य: ₹ ५२५०/-(५% व्हॅटसहित), अटी: १. निविदा फॉर्म बंद लिफाफ्यामध्ये सादर करावा, त्यावर कामाचे नाव व टेंडर नंबर अंकित केला असावा. २. बर दिलेली बयाणा रक्कम प्रत्येक निविदेसोबत कोणत्याही एका मान्य स्वरूपात जमा करावी, जसे निविदा प्रपत्रात निर्देशित आहे. तसेच तो वरिष्ट मंडल वित्त प्रबंधक/उत्तर मध्य रेल्वे/झांशी यांचे नावे जारी करावी. ३. निविदा सादर होण्य रकमेत जिथे वरील रक्कम जमा केल्याची मूळ पावती, जी उत्तर मध्य रेल्वेच्या कोणत्याही रेल्वेस्टेशन/ स्टेशन बुकिंग कार्यालयांमध्ये जारी केलेली असावी किंवा डिमांड ड्राफ्ट, जो शेड्यूल्ड बँक/ राष्ट्रीयीकृत बँकेने वरिष्ट मंडल वित्त व्यवस्थापक, उत्तर मध्य रेल्वे, झांशी यांचे नावे जारी केलेला असावा. ४. निविदा फॉर्मची विक्री: निविदा सुरु दिनांक ६.९.२०१३ ते २६.९.२०१३ पर्यंत कोणत्याही कामाच्या दिवशी

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ते बोलीदात्यांच्या समक्षात उघडण्यात येतील. कोणतीही कारण न देता कोणतीही किंवा सर्व ई-प्रोक्युरमेंट' सेवेसाठ आकारीत ई.एम.डी. पोर्टलचे पत्र पाहावे. कोणतीही कारण न देता कोणतीही किंवा सर्व

क्र.	कामाचे (पावसाळा वगळून)	इसारा ठेव अनामत (रु.)	वर्ग/ प्रवर्ग	प्रति प्रत ई-निविदा कागदपत्रे मूल्य (५% व्हॅटसहित)
१.	०६ महिने	८२,०१५+ १९,२१२=	'एस'	कागदपत्रांचे मूल्य :
२.	दोन्ही बाजू एकत्रवेळी दुरुस्त करणे	रु. १,७३,३००/-	-वही	₹०,०००/-
				५% व्हॅट : ५००/-
				एकूण: ₹०,५००/-

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(मेकॅनिकल प्रोजेक्ट)
ऑनलाइन ऑफर डिस्प्लेवर

टिपणी/-

१ वरील २७/०८/२०१३ पासून डाऊनलोड करता येतील.
ी नोटीसमध्ये असो किंवा नसो त्याचा ऑनलाईन बोली ारे प्राप्त कागदपत्रांशी ई.म.पा. सर्व नोटीसांना कायदा ठरत असल्यास ग्राह्य असतील.

निविदेची किमत परत करण्यात येईल, तसेच कंत्राटदार ने उच्च अधिकाऱ्यांकडे अपील सी डब्ल्यूई (आर्मी), त्याचा निर्णय अंतिम व बंधनकारक राहील आणि कंत्राटदार ला पात्र राहणार नाही.

ात एसईएसच्या सर्व कार्यालयात आणि एसईएस वेबसाईट davp.10102/11/1093/1314

TENDERS & NOTICES

RAJIV GANDHI JEEVANDAYEE AROGYA YOJANA SOCIETY
Government of Maharashtra
Jeevandayee Bhavan, E.S.I.S Hospital Compound,
Ganpat Jadhav Marg, Mumbai - 400016
Phone and Fax: 022-24912291
Email: hc.off1@jeevandayee.gov.in Website: www.jeevandayee.gov.in

CORRIGENDUM II

Ref-Tender Notice- RFP for Printing, Packaging, and Distribution of Health Card Stationery across Maharashtra State dated 3rd August 2013. There have been some modifications in the RFP document. The last date of the submission of the Tender is now extended to 31st August 2013 up to 2 PM. The details of the same in bidding for this tender can be seen on our website www.jeevandayee.gov.in .

Sd/-
CEO

NORTHERN RAILWAY
CORRIGENDUM
OFFICE OF THE MEDICAL DIRECTOR,
NORTHERN RAILWAY CENTRAL HOSPITAL
BASANT LANE, DELHI-110055
File No. E/Med/SR/74/13
Advt.No.NRCH/SR/2013/002 Dt.: 05.2013
ENGAGEMENT OF SENIOR RESIDENTS
In continuation to previous advertisement published vide Advt. No. NRCH/SR/2013/001 dated 20.07.13 for appointment of Senior Residents, the age limit may be read as:- (1) General - 33 Years (2) OBC - 36 Years (3) SC & ST - 38 Years
Instead of - (1) General/UR - 33 Years
(2) OBC/SC/ST - 38 Years 1898/13
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MMRDA (A Government of Maharashtra Undertaking)
Plot Nos. C-14 & 15, Bandra-Kurla Complex, Bandra (E).
Mumbai – 400 051. Tel. 26590001-04, Fax: 26591264.
Website: www.mmrda.maharashtra.gov.in

Name of work : Mumbai Trans Harbour Link Project.
Ref:- letter from Ministry of Environment and Forests dated 19.7.2013.

Ministry of Environment and Forests, GOI has accorded Coastal Regulation Zone clearance to the Mumbai Trans Harbour Link Project vide their letter no F.No.11-65/2012-IA-III dated 19.7.2013. Copies of clearance letter are available with the State Pollution Control Board. It can be also downloaded from the website of the Ministry of Environment & Forests at http:// www.envfor.nic.in

Date: 26/08/2013
Place : Mumbai
No.ED/MTHL/MoEF/Clearance/13

Sd/-
Chief Engineer,
Engineering Division

PUNJAB STATE TRANSMISSION CORPORATION LIMITED
pstcl
Regd. Off. : PSEB H.O., The Mall, Patiala-147001
Office of Chief Engineer/Transmission System, Shakti Sadan, Patiala-147001

CORRIGENDUM NO-2

Last date and time for sale of Bid documents, receipt and opening of Tender against Enquiry No. STQ-2012 for Tower Package for the construction of following 400KV lines on turnkey basis:
1. 400KV S/s Nakodar - 400 KV Wadala Granthian D/C line - 90 Kms.
2. 400KV S/s Dhuri (Bhalwan) - 400KV S/S Amloh (Near Bhagwanpura) D/c Line - 48Kms has been revised as follows:

Tender Enquiry No: STQ-2012

	Old Revised Date & Time	New Revised Date & Time
i) Last date of sale of Bid Documents:-	26.08.2013 upto 15.00Hrs.	07.10.2013 upto 15.00Hrs.
ii) Last date/time for Bid Submission:-	29.08.2013 upto 11.00Hrs.	10.10.2013 upto 11.00Hrs.
iii) Date/Time for Opening of Bids:-	29.08.2013 at 15.00Hrs.	10.10.2013 at 15.00Hrs.

Detailed NIT/Corrigendum No. 2 may be down loaded from PSTCL web site: www.pstcl.org.

Dy. CE/TS (Design),
PSTCL, Patiala

C-235/2013TS

Use Solar Power for Domestic Use

PUNJAB STATE TRANSMISSION CORPORATION LIMITED
pstcl
(Regd. Office, PSEB, Head Office, The Mall, Patiala-147001)
NOTICE INVITING TENDER

1. **Type of Tender :** Open Tender
2. **Name & complete address of office giving tender :** Chief Engineer / TS, 3rd Floor, Shakti Sadan, PSTCL, Patiala
3. **Tender Enquiry No. :** STQ-1020
4. **Scope of Work :** Manufacture, fabrication, galvanization & supply of 220 KV tower material as per PSTCL Specification STQ-1020 **Qty. - 8800 MT**
5. **Starting date of down-loading from website https://pstcl.nprocure.com :** Date of Publication
6. **Last date of downloading from website https://pstcl.nprocure.com : 23.9.2013** upto 3.00 PM
7. **Last date/time for bid sub-mission : 26.9.13** upto 11.00 AM
8. **Date/time for opening of bids : 26.9.2013 at 2.30 PM**
9. **Cost of specification :** Rs. 2500/-
10. **Mode of Payment :** As per specification
11. Tender specification can only be downloaded from website **https://pstcl.nprocure.com.** Details regarding e-Tendering are available on website **www.pstcl.org.** All the prospective bidders are requested to get their digital signatures, register themselves on the web site **https://pstcl.nprocure.com** and get conversant with the process of on line submission of tenders well in time so as to submit the tender by the due deadline. No request for extension in the due date of tender opening on the above grounds shall be entertained.

C-236/2013 TS

Dy.CE/TS (Design),
PSTCL, Patiala.

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TATA MEMORIAL HOSPITAL
E. BORGES ROAD, PAREL, MUMBAI-400 012

अर्थचक्र

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75	+ 38.69



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२०१२-१३ या आर्थिक वर्षात देशातून झालेली एकूण निर्यात ढोबळ राष्ट्रीय उत्पादनाच्या १७.३ टक्के इतकी होती. त्याआधीच्या वर्षात ही निर्यात १७.६ टक्के होती.



RUPEE/$ 64.31 + 0.90
EURO 86.03 - 0.04
GOLD/10g 32330 + 530
SILVER/Kg 55085 + 183

...ळकट झाला : कमावलेली वाढ गमावली

...याची ११० पैशांची डुबकी

...च्या तुलनेत रुपयाने आज पुन्हा एकदा डुबकी मारताना ११० पैसे गमावले. शुक्रवारी कमावलेली सर्व वाढ रुपयाने गमावली आहे. १ आता ६४.३० रुपये

...विनिमय बाजारात ...त आहे. त्याचा दबाव ... त्याच बरोबर ...बुतीमुळे स्थानिक ... कोसळत आहे. ...रुपयावर येत आहे, ...विदेशी चलन ...दलालाने सांगितले. ...फिचने आज ...भारताची आर्थिक ...दिसत आहे. वित्तीय ...याचे उद्दिष्ट भारताने ...नाही, तर रेटिंग

...य विदेशी चलन ...सकाळी रुपया ...ला. एका डॉलरची ...रुपये असा ओपनचा ...आदल्या सत्रात ...र तो बंद झालेला ...ओपनला ४८ पैसे

सोमवारी सायंकाळी ४.३० वाजेपर्यंत रिझर्व्ह बँकेने बाजाराकडे लक्ष दिले नाही. बाजाराने अगदीच नीचांकी पातळी गाठली तेव्हा बँकेने हस्तक्षेप केला. महिना अखेर असल्याने तेल आयातदार मागणी नोंदवीतात. यामुळे डॉलरची मागणी वाढते आणि रुपयावर दबाव येतो.

- नवीन रघुवंशी, कोष उपाध्यक्ष, डेव्हलपमेंट क्रेडिट बँक.

- नीचांकी पातळीच्या टप्प्यावर नेहमीप्रमाणे रिझर्व्ह बँक मैदानात आली.
- सरकारी बँकांच्या माध्यमातून रिझर्व्ह बँकेने डॉलर विक्री सुरू केली. त्यामुळे घसरणीला ब्रेक लागला. तरीही दिवस अखेरीस ११० पैसे गमावलेला रुपया १ डॉलरला ६४.३० रुपये अशा भावावर बंद झाला.
- रुपयाची घसरण आणि महसुलाच्या वाढीबाबत निर्माण झालेला संशय सामुळे सरकारने आज एक निवेदन जारी केले. वित्तीय तूट ४.८ टक्क्यांवर नियंत्रित केली जाईल, असा विश्वास सरकारने व्यक्त केला.

मुंबई शहर परिवहन परियोजना
(रेल कॉम्पोनेट)
शुद्धिपत्रक क्र. १

निविदा क्र. एमआरव्हीसी/डब्ल्यु/इएल/१/ओएचइ/ठाणे-दिवा/२०१३-१४ दिनांकित २६.०८.२०१३

कामाचे नाव: ''मध्य रेल्वेच्या (एमयुटीपी-II) ठाणे आणि दिवा स्टेशन्स दरम्यान ५ वी आणि ६ वी लाईनीच्या तरतुदीसहच्या संबंधात ओएचई याचे डिझाइन, पुरवठा, उभारणी, मॉडिफिकेशन, तपासणी आणि कार्यान्वित करणे आणि इतर कामे''

अलीकडील वरील कामाकरिता आयएफबी प्रसिद्धीच्या जारीचे खालील शुद्धिपत्रक. सदर शुद्धिपत्रक हे बोली कागदपत्राचे अविभाज्य भाग आहे.

अ. क्र.	वर्णन	मूळ वेळ आणि तारीख	सुधारित वेळ आणि तारीख
१.	बोली सादर करण्याची अंतिम तारीख आणि वेळ	२७.०८.२०१३ रोजी १५.०० वा.	११.०९.२०१३ रोजी १५.०० वा.
२.	बोली उघडण्याची तारीख आणि वेळ	२७.०८.२०१३ रोजी १५.३० वा.	११.०९.२०१३ रोजी १५.३० वा.

मुंबई रेल्वे विकास कॉर्पोरेशन लि.
२ रा मजला, स्टेशन बिल्डिंग, चर्चगेट, मुंबई - ४०० ०२०.
फॅक्स क्र.: (०२२)-२२०१ ६९७२ * वेबसाईट : www.mrvc.indianrailways.gov.in

संपर्क व्यक्ती:
१. डायरेक्टर प्रोजेक्टस् टेलि.क्र. ०२२-२२०००९०२ ईमेल-dp@mrvc.gov.in
२. चीफ इलेक्ट्रीकल इंजिनीयर प्रोजेक्टस् टेलि.क्र. ०२२-२२०७३१५० ईमेल-ceeprj@mrvc.gov.in

मिलिटरी इंजिनियर सर्व्हिसेस

१. मुख्य अभियंता (नेव्ही) मुंबई, २६, अस्साये बिल्डिंग, कोलाबा, मुंबई-४००००५, भारताच्या राष्ट्रपतींच्यावतीने खालील निर्देशित कामाकरिता निविदा जारी करण्यासाठी एमईएसचे पात्र सूचीबद्ध कंत्राटदार आणि एमईएसमध्ये कंत्राटदाराच्या निवडीकरिता पात्रता निकषाची पूर्तता करणाऱ्या इतर शास. विभागासोबत कार्यरत

मुंबई महानगर प्रदेश विकास प्राधिकरण
(महाराष्ट्र शासन अंगिकृत)
MMRDA
सी १४ आणि सी -१५वांद्रे-कुर्ला संकुल, वांद्रे (पूर्व), मुंबई -४०० ०५१. दुरध्वनी: २६५९०००१-०४/२६५९ ४००० फॅक्स: २६५९१२६४ वेबसाईट : www.mmrda.maharashtra.gov.in

कामाचे नाव : मुंबई पारबंदर प्रकल्प (शिवडी ते न्हावा)
संदर्भ : केंद्रीय पर्यावरण विभागाचे दि. १९.०७.२०१३ रोजीचे पत्र.

मुंबई पारबंदर प्रकल्पास केंद्रीय पर्यावरण व वने विभागाने दि. १९.०७.२०१३ रोजी पत्र क्र. F.No.11-65/2012-IA-III अन्वये सागरी नियंत्रण विषयक (CRZ) मान्यता दिलेली आहे. सदर पत्रांची प्रत महाराष्ट्र राज्य प्रदुषण नियंत्रण मंडळकडे उपलब्ध आहे तसेच ती केंद्रीय पर्यावरण व वन विभागाच्या http:// www.envfor.nic.in सांकेतिक स्थळावर पाहता येईल.

क्र.अभि/मुं.प्रा.प्र./कें.प.वि./मान्यता/१३
दिनांक : २६.०८.२०१३
ठिकाण : मुंबई

सही/-
मुख्य अभियंता,
अभियांत्रिकी विभाग.

महाराष्ट्र विमानतळ विकास कंपनी मर्या.
MADC
मुंबई कार्यालय : ८ वा मजला, सेंटर - १, वर्ल्ड ट्रेड सेंटर, कफ परेड, मुंबई - ४०० ००५. दूरध्वनी क्र.: +९१-२२-४९२१ २१२१ फॅक्स: +९१-२२-२२१६ ३८१४.
नागपूर कार्यालय : महिला मजला, सेंट्रल फॅसिलिटी बिल्डिंग, विहान-रोड, खापरी (रेल्वे) जवळ, नागपूर - ४४१ १०८. दूरध्वनी क्र.: ०७१०४-६६५६६५, फॅक्स: ०७१०४-६६५६००

ई-निविदा सूचना

नागपूर विमानतळ, मिहान एसईझेड परिसर व एमएडीसी (श्रेणी-I) च्या गैर-एसईझेड परिसरात सुरक्षा व संरक्षण पुरवण्यासाठी तसेच शिर्डी, सोलापूर (बोरामणी), धुळे, फलटण, कराड, चंद्रपूर व अमरावती (श्रेणी-II) येथील विमानतळांवर सुरक्षा सेवा पुरविण्याकरिता एमएडीसी ऑन लाईन ई-निविदा आमंत्रित करीत आहे.

ई-निविदा पोर्टलद्वारा निविदा सादर करण्याची शेवटची तारीख व वेळ २६.०९.२०१३ ला दु. १५.०० वाजेपर्यंत पडत. निविदा दस्तावेज आणि इतर तपशील दि. २७.०८.२०१३ पासून https://mahatenders.gov.in हा वेबसाईट वरून डाउनलोड केले जाऊ

टाटा मेमोरियल हॉस्पिटल
ई.बोर्जेस मार्ग, परळ
मुंबई-४०० ०१२

निविदा सूचना

संदर्भ: टीएमएच/एचआरडीओ/टेंडर/०४/२०१३ दिनांक: २३/८/२०१३

सिक्युरिटी गार्ड (माजी सैनिक) (३६+६ रिलिवर) च्या पदाकरिता कंत्राट तत्वावर मॅनपॉवर सर्व्हिसेसच्या आऊटसोर्सिंगकरिता सुरचापित एजन्सीज् यांच्याकडून दोन भागात म्हणजेच, भाग 'ए' (तांत्रिक बोली) आणि भाग 'बी' (वित्तीय बोली) यात मोहोरबंद निविदा आमंत्रित करीत आहे. गरजेच्या आवश्यकतेनुसार सिक्युरिटी गार्डाची संख्या (२०+४ रिलिवर्स) द्वारे वाढविण्यात येत आहे. इच्छुक बोलीदारांनी पात्रता अर्हता आणि इतर माहितीकरिता कृपया वेबसाईट http://tmc.gov.in ला भेट द्यावी. निविदाकारांनी रु. ५००/- चे निविदा मूल्य परत न होणारे त्यांच्या निविदेसहित सादर करणे आवश्यक आहे. निविदाकारांनी ''शेड्युल'' वरून डाऊनलोड करावे आणि प्रस्ताव भरावे. निविदा संचालक, टीएमसी यांना पाठवावी आणि त्याला एचडीआर ऑफिसर, टीएमएच, सर्व्हिस ब्लॉक, २ रा मजला यांच्या कार्यालयात सादर करावी. निविदा सादर करण्याची अंतिम तारीख १०/०९/२०१३.

मध्य रेल्वे

हाऊसकिपिंग देखभालीचे आऊटसोर्सिंग आणि एसी डोर्मिटरीचे परिचा...

भारताच्या राष्ट्रपतीच्या वतीने आणि त्यांच्याकरिता दी सिनियर डिव्हिजनल कमर्शियल मॅनेजर, तळमजला अॅनेक्स बिल्डिंग, मुंबई एजन्सीज्/पक्षकारांकडून मोहोरबंद लिफाफ्यात खुली निविदा आमंत्रित करीत आहे. सादर करण्याची तारीख, वेळ २७/०९/२० दिवशी १५.३० वा. उघडण्यात येईल.

अ. क्र.	कामाचे नाव	अंदाजित मूल्य रुपयात	इसारा ठेव अनामत रु.	निविदा अ... मूल्य
१.	सीएसटीएम स्टेशन येथील एसी डोर्मिटरीचे परिचालन आणि हाऊसकिपिंग देखभालीचे आऊटसोर्सिंग.	४४,८०,२००/-	८९,६०४/-	रु.३,०००/-
२.	एलटीटी स्टेशन येथील रिटायरिंग रूमस् एसी डोर्मिटरीचे परिचालन, हाऊसकिपिंगचे आऊटसोर्सिंग.	३३,९९,७२६/-	७९,९९५/-	रु.३,०००/-

विहित निविदा अर्ज सिनि.डिव्हिजनल कमर्शियल मॅनेजर यांच्या कार्यालयातून कोणत्याही कामाच्या दिवसात १०.०० वा. ते १७.... मूल्याचा रु. ३०००/- चा मुख्य लेखपाल, मध्य रेल्वे, मुंबई सीएसटी यांच्या नाव देय असलेला डिमांड ड्राफ्ट/पे ऑर्डर सादर करून मूल्य परत होणार नाही. निविदा अर्ज हस्तांतरीत करता येणार नाही. जर निविदा उघडण्याच्या तारखेला जर कोणत्याही कारणास्तव कामाच्या दुसऱ्या दिवशी त्याच वेळेला उघडण्यात येईल. निविदा सूचना वेबसाईट www.cr.indianrailways.gov निविदा कागदपत्र डाऊनलोड करता येतील आणि सादर करता येतील तथापि ...

TENDERS & NOTICES

RAJIV GANDHI JEEVANDAYEE AROGYA YOJANA SOCIETY
Government of Maharashtra
Jeevandayee Bhavan, E.S.I.S Hospital Compound,
Ganpal Jadhav Marg, Mumbai - 400018
Phone and Fax: 022-24912291
Email: hc.ofl1@jeevandayee.gov.in Website: www.jeevandayee.gov.in

CORRIGENDUM II

Ref-Tender Notice- RFP for Printing, Packaging, and Distribution of Health Card Stationery across Maharashtra State dated 3rd August 2013. There have been some modifications in the RFP document. The last date of the submission of the Tender is now extended to 31st August 2013 up to 2 PM. The details of the same in bidding for this tender can be seen on our website www.jeevandayee.gov.in.

Sd/-
CEO

NORTHERN RAILWAY
CORRIGENDUM
OFFICE OF THE MEDICAL DIRECTOR,
NORTHERN RAILWAY CENTRAL HOSPITAL
BASANT LANE, DELHI-110055
File No. E/Med/SR/74/13
Advt. No. NRCH/SR/2013/002 Dt.: 08.2013
ENGAGEMENT OF SENIOR RESIDENTS
In continuation to previous advertisement published vide Advt. No. NRCH/SR/2013/001 dated 20.07.13 for appointment of Senior Residents, the age limit may be read as:- (1) General - 33 Years (2) OBC - 36 Years (3) SC & ST - 38 Years instead of - (1) General/UR - 33 Years (2) OBC/SC/ST - 38 Years. 1898/13
Serving Customers With A Smile

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
MMRDA (A Government of Maharashtra Undertaking)
Plot Nos. C-14 & 15, Bandra-Kurla Complex, Bandra (E),
Mumbai - 400 051. Tel. 26590001-04, Fax: 26591264.
Website: www.mmrda.maharashtra.gov.in

Name of work : Mumbai Trans Harbour Link Project.
Ref: letter from Ministry of Environment and Forests dated 19.7.2013.
Ministry of Environment and Forests, GOI has accorded Coastal Regulation Zone clearance to the Mumbai Trans Harbour Link Project vide their letter no F.No.11-65/2012-IA-III dated 19.7.2013. Copies of clearance letter are available with the State Pollution Control Board. It can be also downloaded from the website of the Ministry of Environment & Forests at http:// www.envfor.nic.in

Date: 26/08/2013
Place : Mumbai
No.ED/MTHL/MoEF/Clearance/13

Sd/-
Chief Engineer,
Engineering Division

PUNJAB STATE TRANSMISSION CORPORATION LIMITED
Regd. Off.: PSEB H.O., The Mall, Patiala-147001
Office of Chief Engineer/Transmission System, Shakti Sadan, Patiala-147001

CORRIGENDUM NO.2

Last date and time for sale of Bid documents, receipt and opening of Tender against Enquiry No. STQ-2012 for Tower Package for the construction of following 400KV lines on turnkey basis:

PUNJAB STATE TRANSMISSION CORPORATION LIMITED
(Regd. Office, PSEB, Head Office, The Mall, Patiala-147001)
NOTICE INVITING TENDER

1. Type of Tender : Open Tender
2. Name & complete address of office giving tender : Chief Engineer / TS, 3rd Floor, Shakti Sadan, PSTCL, Patiala
3. Tender Enquiry No. : STQ-1020
4. Scope of Work : Manufacture, fabrication, galvanization & supply of 220 KV tower material as per PSTCL Specification STQ-1020 Qty. - 8800 MT
5. Starting date of downloading from website https://pstcl.nprocure.com : Date of Publication
6. Last date of downloading from website https://pstcl.nprocure.com : 23.9.2013 upto 3.00 PM
7. Last date/time for bid submission : 26.9.13 upto 11.00 AM
8. Date/time for opening of bids : 26.9.2013 at 2.30 PM
9. Cost of specification : Rs. 2500/-
10. Mode of Payment : As per specification

AWARDS

Central Bank celebrates Independence Day



Malay Mukherjee and Raj Kumar Goyal, Executive Directors, and Capt. S Kannan, CSO., seen during flag hoisting ceremony

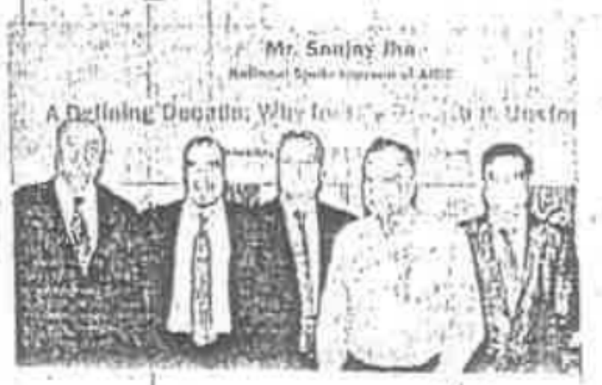
Central Bank Of India celebrated 67th Independence Day on August 15, 2013 at its corporate office in Mumbai. Flag hoisting was carried out by Malay Mukherjee and Raj Kumar Goyal Executive Directors, Executives and staff members of the bank were also present on the occasion.



ral areas. To keep the expansion momentum going, the bank is planning to take its branch network to 800 by the end of current fiscal and "God willing, we will be having 1000 branches by the end of FY15," he said.

The new business units include Soimoh in Tral area of Pulwama district, Wandevalgam and Ahlan Gadole in Anantnag, Trenz and Fruit Mandi Prichoo in Shopian. "We have a strong commitment to J&K, our core area of operations. In an effort to make the state financially inclusive, the bank has always ensured to make its presence felt in every block of the state, including unbanked and far flung areas," the Chairman said.

IMC organises interaction



An interactive meeting was organised by the Indian Merchants' Chamber, Mumbai on August 22, 2013. The topic was, 'A Defining Decade – Why India's Growth is Unstoppable'. Shailesh Vaidya, President, IMC, said, "The Indian economy is currently facing tough times. The critical growth v/s inflation conflict is assuming political overtones, with the biggest sufferer being the economy." Sanjay Jha, National Spokesperson, Congress (I), said, ""The problem of the rupee falling drastically is partly global and partly domestic. The recovery of the US economy is the main reason for the rupee's woes. Though the US-Eurozone recovery is bad in the short term, it holds lot of promise over the long term. Unemployment rates are declining and the $4 trillion that went into the emerging markets is now find-

ANNOUNCEMENTS

NHB profits rise

National Housing Bank (NHB) an nounced its annual results for the finar cial year ended 30th June, 2013. Th Bank posted a net profit of 450 cro during the current year as against 38 crore in the previous year, an increase over 16%. The loans and advances of t Bank increased by 6,113 crore fro 28490 crore to 34,603 crore, an increas of 22%. The Bank's total loan disburse ments during the year were 17,63 crore (previous year 14,454 crores), growth of 22% out of which the share rural housing was about 44%, aggregat ing to 7,718 crores. Of the total disburse ments made during the year, loans up 15 lakh constituted about 60%. Th Bank crossed the cumulative refinanc disbursement of 1,00,000 crore durir the year 2012-13.

IDBI Bank hikes rates

IDBI Bank has increased interest rat on foreign currency non-resident FCN (B) and non-resident external (NRI deposits across select maturity buc ets, aimed at attracting foreign currer cy inflows from NRI diaspora. Intere rates on FCNR (B) deposits for the ten of 3 years and above has been i creased by 100 basis points (bp across all nine currencies. In respect NRE Deposits, the rates have be hiked for the tenor of more than years up to 7 years by up to 25 bps 50 bps. The bank is now offering a pe interest rate of 9.5% on NRE deposits a result of the above revision. No pr mature penalty shall be levied on ret NRI deposits. The revised rates, whic took effect from August 20, 2013, sh be valid up to November 30, 2013 su ject to review.

www.vizagsteel.com, http://www.eprocure.gov.in/epublish

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

MMRDA

(A Govt. of Maharashtra Undertaking)
C-14 & 15, Bandra-Kurla Complex, Bandra (E),
Mumbai - 400 051. Tel. 26594001-04 Fax 26591264
Email: ce.mmrda@gmail.com
Website : https://www.mmrda.maharashtra.gov.in

Sub. : Mumbai Trans Harbour Link Project
Ref. : Letter from Ministry of Environment & Forests dated 25/01/2016.

Ministry of Environment & Forests, GoI has granted coastal regulation zone clearance to the Mumbai Trans Harbour Link Project vide their letter no. F.No.11-65/2012-IA-III dated 25/01/2016. Copies of clearance letter can be downloaded form website of Ministry of Environment & Forests at http://environmentclearance.nic.in

No.ED/MTHL/MoEF/Clearance/16 Sd/-
Date: 29/01/2016 Engineer-in-Chief
Place: Mumbai Engineering Division

CENTRAL PUBLIC WORKS DEPARTMENT

NOTICE INVITING E-TENDERS

The Indian EXPRESS Sat, 30 January 2016
epaper editions epaper.indianexpress.com

page no. 24

ⵊ ४ कार्ड्स ⵊ बॉटल लॅप (द्वि. २-सायं.५)
• कोर्स ३ ते ७ फेब्रु.२०१६ • १५ जागा
अधिक माहितीसाठी संपर्क: 9920592150

CENTRAL PUBLIC WORKS DEPARTMENT

NOTICE INVITING E-TENDERS

The Executive Engineer, Mumbai Central Division No. II, CPWD Nirman Sadan, 2nd Floor, Kane Nagar, Antop Hill, Mumbai-37 invites on behalf of President of India online item rate tenders for following works :-

1. **NIT No.58/EE/MCD II/2015-16 [Recall]**
Name of Work :- Addition/Alteration to CGH at S.M Plot, Sector-VII, Antop Hill, Mumbai-37 during 2015-16 SH Upgradation of Bldg No 51 (Flat 10 Nos 2063, 2064, 2066, 2073, 2074, 2075, 2084, 2085, 2087, 2089). **Estimated Cost** :- Rs.9,68,484/-, **Earnest Money** :- Rs.19,370/-, **Period of completion**:- 05 (Five) Months, **Last Date and Time of Submission of Tender** :- 15.00 hrs. of 06/02/2016 and opening on 06/02/2016 at 3.30 PM

2. **NIT No.97/EE/MCD II/2015-16**
Name of Work :- A/R & M/O to CGH at SPL, Kane Nagar, Sector-II & III, Mumbai-37, during 2015-16. SH:Repairs to internal rooms by plastering and painting. **Estimated Cost** - Rs[illegible],260/-, **Earnest Money** :- Rs.15,645/-, **Period of completion**:- 03 (Three) Months, **Last Date and Time of Submission of Tender** :- 15.00 hrs. of 06/02/2016 and opening on 06/02/2016 at 3.30 PM

3. **NIT No.98/EE/MCD II/2015-16**
Name of Work :- Urgent internal repairs and painting of 35 Nos. new allotted vacant and dilapidated quarters of building No.53, 54, 55 and 58 Revenue pool (Income Tax Department). **Estimated Cost** :- Rs.14,66,365/-, **Earnest Money** :- Rs.29,327/-, **Period of completion**:- 06 (Six) Months, **Last Date and Time of Submission of Tender** :- 15.00 hrs. of 06/02/2016 and opening on 06/02/2016 at 3.30 PM

4. **NIT No.99/EE/MCD II/2015-16**
Name of Work :- Structural repairs to distressed building of CGH. SPL,Kane Nagar in Sector-III, Antop Hill, Mumbai-37 during 2015-16. SH:Minor repairs with external painting to building No.31, **Estimated Cost** :- Rs.7,41,875/-, **Earnest Money** :- Rs.14,838/-, **Period of completion**:- 03 (Three) Months, **Last Date and Time of Submission of Tender** :- 15.00 hrs. of 06/02/2016 and opening on 06/02/2016 at 3.30 PM

5. **NIT No.100/EE/MCD II/2015-16**
Name of Work :- Special Repair to S.M.Plot Phase-II, Sector-II, Antop Hill, Mumbai-37 during 2015-16 SH:Repairs to manholes, gully traps and sewerlines building No.1 to 51. **Estimated Cost** :- Rs.17,69,072/-, **Earnest Money** :- Rs.35,381/-, **Period of completion**:- 12 (Twelve) Months, **Last Date and Time of Submission of Tender** :- 15.00 hrs. of 06/02/2016 and opening on 06/02/2016 at 3.30 PM

6. **NIT No.102/EE/MCD II/2015-16**
Name of Work :-Aesthetic improvement of CGS Colony at S.M.Plot, Phase-II, Sector-VII, Antop Hill, Mumbai-37 during 2015-16. SH:Development of pump house area by surface dressing, cement concrete, repairs to sluice chamber, pump house near building No.25 (Section A), **Estimated Cost** :- Rs.7,37,019/-, **Earnest Money** :- Rs.14,740/-, **Period of completion**:- 02 (Two) Months, **Last Date and Time of Submission of Tender** :- 15.00 hrs. of 06/02/2016 and opening on 06/02/2016 at 3.30 PM

7. **NIT No.103/EE/MCD II/2015-16**
Name of Work :-Providing concertina coil over existing grill compound wall, north side of the building No.186,188 & 2, around the garden at Sector-VI, Kane Nagar, Mumbai-. **Estimated Cost** :- Rs.6,92,458/-, **Earnest Money** :- Rs.13,849/-, **Period of completion**:- 01 (One) Month, **Last Date and Time of Submission of Tender** :- 15.00 hrs. of 06/02/2016 and opening on 06/02/2016 at 3.30 PM

Bid / tender forms and other details can be obtained from website www.tenderwizard.com/CPWD or www.cpwd.gov.in, www.tenderhome.com and www.eprocure.gov.in

EX-SERVICEMEN CONTRIBUTORY HEALTH SCHEME (ECHS)

1. Application invited for appointment of one 'HELPER' each at ECHS Polyclinic Solapur, Osmanabad, Latur and Beed for six months (may extended) on contractual basis
2. Conversant with Hindi and Marathi, min. qualification SSC
3. Fixed salary - Rs 8000 - pm.
4. Send application with CV by E-mail, Registered Post or through ECHS Polyclinic by 10 Feb 2016 to undermentioned address.

Contact 0241-2321233 (working hours) (Excluding Sundays and Gazzated Holidays)
ECHS Cell, Station Headquarters
PO : Camp, Jamkhed Road, Ahmednagar-414002
Contact No: 0241-2323565, 2321233
E-mail: echscellstnhqnagar@yahoo.com

मुंबई महानगर प्रदेश विकास प्राधिकरण

MMRDA

(महाराष्ट्र शासन अंगिकृत)
सी - [illegible], वांद्रे-कुर्ला संकुल, वांद्रे (पूर्व), मुंबई-[illegible]
दूरध्वनी : [illegible] फॅक्स : [illegible]
ई-मेल : ce.mmrda@gmail.com
वेबसाईट : https://www.mmrda.maharashtra.gov.in

विषय : मुंबई पारबंदर प्रकल्प
संदर्भ : केंद्रीय पर्यावरण विभागाचे दिनांक २५/०१/२०१६ रोजीचे पत्र

मुंबई पारबंदर प्रकल्पास केंद्रीय पर्यावरण व वने विभागाने पत्र क्र. F.No.11-65/2012-IA-III दिनांक २५/०१/२०१६ अन्वये सागरी नियंत्रण क्षेत्र विषयक (CRZ) मान्यता दिलेली आहे. सदर पत्राची प्रत केंद्रीय पर्यावरण व वन विभागाच्या http://environmentclearance.nic.in या सांकेतिक स्थळावर उपलब्ध आहे.

क्र.अभि/मुं.पा.प्र/के.प.वि/मान्यता/१६
दिनांक : २९/०१/२०१६
स्थळ : मुंबई

सही/-
प्रमुख
अभियांत्रिकी विभाग

सिडको

शुद्धिपत्रक- २

शहर आणि औद्योगिक विकास महामंडळ (महाराष्ट्र) मर्यादित

सिडको नवी मुंबई प्रकल्पग्रस्तांसाठी UPSC (Civil Services) - २०१७ स्पर्धा परीक्षेच्या तयारी करिता दिल्ली येथील नामवंत कोचिंग इन्स्टीट्यूटमध्ये नि:शुल्क कोचिंग मूळ जाहिरात दिनांक - २३.१२.२०१५, शुद्धिपत्रक-१ - ०६.०१.२०१६ सदरील बदल बार्टी, पुणे यांनी कळविला आहे.

सिडको नवी मुंबई प्रकल्पग्रस्तासाठी कौशल्यवृद्धी कार्यक्रम सिडकोतारा अंतर्गत पात्र प्रकल्पग्रस्त पदवीधरांसाठी दिल्ली येथील नामवंत कोचिंग इन्स्टीट्यूटमध्ये (वाजीराम एंड रवी, अल्टरनेटीव्ह लर्निंग सिस्टीम प्रा.लि., श्रीराम आय.ए.एस.) UPSC Civil Services-2017 - Preliminary and Mains या दोन्ही स्पर्धा परीक्षा पूर्व तयारीसाठी उमेदवारांना पुरस्कृत (Sponsor) करण्यात येणार आहे. सदर नामवंत कोचिंग इन्स्टीट्यूटमध्ये प्रवेशपरीक्षा COMMON ENTRANCE TEST (CIDCO-DELHI-CET-2017) बार्टी, पुणे च्या माध्यमातून देण्यात येईल, तरी त्यासाठी ऑनलाईन अर्ज मागविण्यात येत आहे.

ऑनलाईनद्वारे अर्ज स्विकारण्याची अंतिम तारीख	दि. १९ मार्च, २०१६
ई- प्रवेश पत्र (Admit Card) मिळण्याची तारीख	दि. १९ मार्च, २०१६
CIDCO-DELHI-CET-2016 परीक्षेची तारीख	दि. २७ मार्च, २०१६

ऑनलाईन अर्ज करण्यासाठी
http://barti.maharashtra.gov.in->NOTICEBOARD->CIDCO-DELHI-CET-2017 वर क्लिक करा
अधिक माहितीसाठी संपर्क - http://cidcopgp.[illegible].gov.in कार्यालय दूरध्वनी [illegible], [illegible]

व्यवस्थापक (पुनर्वसन)

CIN - U99999MH1970SGC[illegible]
www.cidco.maharashtra.gov.in

www.Larsentoubro.com

Registered Office: L&T

EXTRACT OF STATE FOR THE QUA

Partic

1	Total Income from Operations (r
2	Net Profit after tax, minority inte of associates (before extraordin
3	Net Profit after tax, minority inte of associates (after extraordina
4	Equity share capital
5	Reserves (excluding revaluation Balance Sheet of previous year)
6	Earnings per share of ₹ 2/- each (not annualised): (a) Basic EPS (₹) (b) Diluted EPS (₹)
7	Earnings per share of ₹ 2/- each (not annualised): (a) Basic EPS (₹) (b) Diluted EPS (₹)

Notes:

(i) The Company reports conso Regulation 33 of the SEBI (L results are available on the C and NSE (www.nseindia com nine months ended Decembe

Partic

Total Income from Operations (net)
Profit before tax
Profit after tax

(ii) The above is an extract of the Regulation 33 of the SEBI (Li Quarterly Financial Results ar respectively and on the Comp

(iii) The above extract is based or results in newspapers with ad March 31, 2015 added to facil

Mumbai
January 29, 2016

Annexure XI

TOC letters issued to Contractors

Ref No: MTHL/P1/GC/L&T-IHI/LT/ CNT-4096**/2024** **10th January 2024**

To,
L&T – IHI Consortium
MTHL Pkg 1 Project Office,
Gate No. 01, Sewri Timber Pond (STP) Yard,
Near Gadi Adda, Sewri (E)
Mumbai – 400015.

Project: Procurement of Mumbai Trans Harbour Link Project (Package-1)- Construction of 10.380 km long bridge section (CH 0+000 to CH10+380) across the Mumbai Bay Including Sewri Interchange. Contract No: MMRDA/ENG1/000752 dated 26th December 2017.

Sub: Taking Over Certificate for the Mumbai Trans Harbor Link, Package-01

Ref:

1. Letter of Acceptance (LOA) No. MMRDA/MTHL/PKG-1/LOA/11-17 issued by MMRDA dated 17.11.2017.
2. Package-01 Contract No: MMRDA/ENG1/000752 dated 26th December 2017.
3. Contractor's letter: MTHL/P1/LT-IHI/GC/LT/CNT-0007287/2023 dated 21-12-2023.
4. GC's Letter: MTHL/P1/GC/L&T-IHI/LT/CNT-4029/2023 dated 23-11-2023.

Dear Sir,

The Contractor vide letter no. 7287/2023 dated 21-12-2023 has notified the Engineer for a Taking-Over Certificate pursuant to Sub-Clause 10.1 of GCC.

Pursuant to Sub-Clause 10.1 "***Taking Over of the Works***" of the Conditions of the Contract and reference to your Notice 7287/2023 as referred above. The Engineer further refers to all applicable Clause and Sub-Clause which are relevant to the Taking over of the works as per the Contract Agreement.

Pursuant to the following Clauses:

1. Employer's Requirement (ERG), Clause 8 "*Testing of Civil Works and Architectural Works*"
2. ERG, Sub-Clause 8.1 "*Schedule for Tests*"
3. GC, Clause-9 "*Tests on Completion*"
4. GC, Sub-Clause 9.1 "*Contractor's Obligations*"

Contractor vide their letter no. 7287 dated 21-12-2023 had notified The Engineer and Employer regarding conducting Tests on Completion for major and minor structures as per Employer Requirements ERG of the contract agreement. Further, the Contractor vide

their letter no. 7320 dated 03.01.2024 submitted the detail inventory of structures for conducting the completion tests.

Accordingly, the Engineer witnessed and observed that the Contractor has successfully completed the following Tests on Completion:

a. Visual and Physical Test
b. Test Drive.
c. Riding Quality Test.
d. Pavement composition Test.
e. Cross-section Test.
f. Structural Test for Bridges.
g. Other Tests.
h. Environmental Audit.
i. Safety Review.

Pursuant to Sub-Clause 7.4 "*Testing*" The Engineer certifies that the Contractor has carried out Tests on Completion in accordance with the Contract.

Pursuant to Clause-5.6 "*As-Built Documentation*" the Contractor had submitted part of the As-Built Documentation and are found to be in conformance with the requirement of Contract Agreement.

Pursuant to Clause-8.4 "*Extension of Time*" The Employer has declared the Appointed Date for Pkg-1 as 23-03-2018. The Original Completion of the Works was 1643 days. Accordingly, the original schedule Completion Date was 22-09-2022, which was revised with EOT-1 for 374 days i.e. till 30-09-2023. Subsequently, on the interim basis the Time of Completion of the works was till 15-12-2023 as per approved EOT-2 for 76 days. However, the final determination of the EOT is pending with the Engineer.

Pursuant to the Clause 11 (Defects Liability), a Defect Notification Period of 730days starts from date of completion of the Works as certified in Taking-Over Certificate.

Pursuant to the Sub-Clause 8.2 "*Completion*" Mumbai Trans Harbour Link Project, (MTHL) Package-1 Contractor successfully completed the Works on 5th January 2024 in accordance with the Contract dated 26th December 2017, except for the minor outstanding work / defects listed in the attached schedule to this certificate which should not substantially affect the use of MTHL Package-01 works for their intended purpose. The Completion Certificate to this effect has been issued by the Engineer on 5th January 2024.

Based on the above and considering that the test results are found to be in conformance with the requirement of Contract Agreement, the Engineer determines that the Mumbai Trans Harbour Link Project, (MTHL) Package-1 has been successfully completed by the Contractor and can be safely and reliably placed in services of users.

In view of the above, pursuant to Sub-Clause 10.1 "*Taking Over of the Works*" of the Conditions of the Contract, as per the approval of the Employer, the Engineer issues this Taking-Over Certificate for the Works except for the minor outstanding work / defects listed in the attached schedule to this certificate.

The Package-01 Contractor shall support for all Operations and Maintenance of the Bridge till the Engineer issues Taking over of balance Works.

Thanking you,
Yours faithfully,

K.R. Shivananda
The Engineer
General Consultant (MTHL)

CC: Engineer-in-Chief, MMRDA.
Superintending Engineer – MMRDA - Mr. Purushottam Nimje
Superintending Engineer – MMRDA – Mr. Arjun Korgaonkar
} By Email



Annexure-A

TAKING OVER CERTIFICATE	
Project / Works	Procurement of Mumbai Trans Harbour Link Project (Package-01) Construction of 10.380 km long bridge section (CH 0+000 - 10+380) across the Mumbai Bay including Shivaji Nagar Interchange.
Contract No.	MMRDA/ENG1/000752 dated 26th December 2017.
Employer	Mumbai Metropolitan Region Development Authority (MMRDA)
General Consultant	M/s AECOM Asia Company Ltd. – PADECO Co. Ltd. – Dar Al-Handasah Consultants -TY Lin International Consortium.
Contractor	M/s L&T – IHI Consortium.
Commencement Date	23rd March 2018.

Pursuant Sub-Clause 10.1 of the General Conditions of Contract, the Engineer hereby certifies that the Works have been completed by the Contractor in accordance with the Contract, on the date given below, except for the minor outstanding works listed below, which will not substantially affect the use of the Works for their intended purpose.

The actual date of Completion of the Works is 05/01/2024 excluding works mentioned below.

Accordingly, date of expiry of Defects Notification Period will be 04/01/2026 (730 days from the Date of Completion of the Works).

Details of the Outstanding Works:

1. Installation of the View Barriers to be completed by 27th May 2024
2. Removal of Temporary Jetty (TAB) and Kerosine Jetty to be completed by 31/07/2024.
3. Items on punch list to be completed by 04/02/2024
4. Items for compliance to Environmental and Road safety audit by 04/02/2024

K. R. Shivananda, the Engineer, General Consultant (MTHL)

Date: 10/01/2024

MUMBAI TRANS HARBOUR LINK * GC * GENERAL CONSULTANT

AECOM | PADECO | dar | TYLIN

General Consultant for Mumbai Trans Harbour Link Project

Ref No: MTHL/P2/GC/DW-TPL/LT/CNT-2932**/2024** **10th January 2024**

To,
DAEWOO-TPL Joint Venture
(M/s DAEWOO Engineering & Construction Co. Ltd. And M/s Tata Projects Ltd.)
11th Floor, Hiranandani Knowledge Park, Technology Street,
Powai, Mumbai-400076, Maharashtra, India.
Phone No: 91-2267402900.

Project: Procurement of Mumbai Trans Harbour Link Project (Package 2) Construction of 7.807 km long bridge section (CH 10+380 –CH 18+187) across the Mumbai Bay including Shivaji Nagar Interchange-Contract No.: MMRDA/ENG1/000753 dated 19th January 2018.

Sub: Taking Over Certificate for the Mumbai Trans Harbor Link, Package-02

Ref:

1. Letter of Acceptance (LOA) No. MMRDA/MTHL/PKG-2/LOA/11-17 issued by MMRDA dated 17-11-2017.
2. Package-02 Contract No: MMRDA/ENG1/000753 dated 19th January 2018.
3. Contractor's letter: MTHL/DW-TPL/GC/LT/CON/2023-5333 dated 30-12-2023.
4. GC's Letter: MTHL/P2/GC/DW-TPL/LT/2888/2023 dated 22-11-23.

Dear Sir,

The Contractor vide letter no. 2023-5333 dated 30-12-2023 has notified the Engineer for a Taking-Over Certificate pursuant to Sub-Clause 10.1 of GCC.

Pursuant to Sub-Clause 10.1 "*Taking Over of the Works*" of the Conditions of the Contract and reference to your Notice 2023-5333 as referred above, the Engineer further refers to all applicable Clause and Sub-Clause which are relevant to the Taking over of the works as per the Contract Agreement, including the following.

1. Employer's Requirement (ERG), Clause 8 "*Testing of Civil Works and Architectural Works*"
2. ERG, Sub-Clause 8.1 "*Schedule for Tests*"
3. GC, Clause-9 "*Tests on Completion*"
4. GC, Sub-Clause 9.1 "*Contractor's Obligations*"

The Contractor vide their letter no. 5028 dated 30.08.2023 had notified the Engineer and Employer regarding conducting Tests on Completion for major and minor structures as per Employer Requirements ERG of the Contract agreement. Further, the Contractor vide their letter no. 5284 dated 08.12.2023 submitted the detail inventory of structures for conducting the completion tests.

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

Accordingly, the Engineer witnessed and observed that the Contractor has successfully completed the following Tests on Completion:

a. Visual and Physical Test
b. Test Drive.
c. Riding Quality Test.
d. Pavement composition Test.
e. Cross-section Test.
f. Structural Test for Bridges.
g. Other Tests.
h. Environmental Audit.
i. Safety Review.

Pursuant to Sub-Clause 7.4 "*Testing*" the Engineer certifies that the Contractor has carried out Tests on Completion in accordance with the Contract.

Pursuant to Clause-5.6 "*As-Built Documentation*" the Contractor had submitted part of the As-Built Documentation and are found to be in conformance with the requirement of Contract Agreement.

Pursuant to Clause-8.4 "*Extension of Time*" the Employer has declared the Commencement Date for Pkg-2 as 23-03-2018. The original Time for Completion of the Works was 1643 days. Accordingly, the original scheduled Completion Date was 22-09-2022, which was revised with approved EOT-1 for 372 days i.e. till 27-09-2023. Subsequently, on the interim basis the Time for Completion of the Works was till 15-12-2023 as per approved EOT-2 for 79 days. However, the final determination of the EOT is pending with the Engineer.

Pursuant to the Clause 11 (Defects Liability), a Defect Notification Period of 730 days starts from date of completion of the Works as certified in Taking-Over Certificate.

Pursuant to the Sub-Clause 8.2 "*Completion*" Mumbai Trans Harbour Link Project, (MTHL) Package-2 Contractor successfully completed the Works on 5th January 2024 in accordance with the Contract dated 19th January 2018, except for the minor outstanding work / defects listed in the attached schedule to this certificate which should not substantially affect the use of MTHL Package-02 works for their intended purpose. The Completion Certificate to this effect has been issued by the Engineer on 5th January 2024.

Based on the above and considering that the test results are found to be in conformance with the requirement of Contract Agreement, the Engineer determines that the Mumbai Trans Harbour Link Project, (MTHL) Package-2 has been successfully completed by the Contractor and can be safely and reliably placed in services of users.

In view of the above, pursuant to Sub-Clause 10.1 "*Taking Over of the Works*" of the Conditions of the Contract, as per the approval of the Employer, the Engineer issues this Taking-Over Certificate for the Works except for the minor outstanding work / defects listed in the attached schedule to this certificate.

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

The Package-02 Contractor shall support for all Operations and Maintenance of the Bridge till the Engineer issues Taking over of the balance Works.

Thanking you,
Yours faithfully,

K.R. Shivananda
The Engineer
General Consultant (MTHL)

CC: Engineer-in-Chief, MMRDA.
Superintending Engineer – MMRDA - Mr. Yatin Sakhalkar
Superintending Engineer – MMRDA – Mr. Abhijit Bhisikar } By Email

MUMBAI TRANS HARBOUR LINK
GENERAL CONSULTANT
CC

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

Annexure-A

TAKING OVER CERTIFICATE	
Project / Works	Procurement of Mumbai Trans Harbour Link Project (Package-02) Construction of 7.807 km long bridge section (CH 10+380 –CH 18+187) across the Mumbai Bay including Shivaji Nagar Interchange.
Contract No.	MMRDA/ENG1/00753 dated 19th January 2018.
Employer	Mumbai Metropolitan Region Development Authority (MMRDA).
General Consultant	M/s AECOM Asia Company Ltd. – PADECO Co. Ltd. – Dar Al-Handasah Consultants -TY Lin International Consortium.
Contractor	Daewoo-TPL JV (M/s DAEWOO Engineering & Construction Co. Ltd. and M/s Tata Projects Ltd. Joint Venture).
Commencement Date	23rd March 2018.

Pursuant Sub-Clause 10.1 of the General Conditions of Contract, the Engineer hereby certifies that the Works have been completed by the Contractor in accordance with the Contract, on the date given below, except for the minor outstanding works listed below, which will not substantially affect the use of the Works for their intended purpose.

The actual date of Completion of the Works is 05/01/2024 excluding works mentioned below

Accordingly, date of expiry of Defects Notification Period will be 04/01/2026 (730 days from the Date of Completion of the Works) excluding balance works.

Details of the Outstanding Works:

1. Installation of the View Barriers to be completed by 27/05/2024
2. Installation of Grating between median of both carriageways to be completed by 04/02/2024
3. Removal of Temporary Jetty (TAB) - to be completed by 27/05/2024.
4. Items on punch list to be completed by 04/02/2024
5. Items for compliance to Environmental and Road safety audit to be completed by 04/02/2024

K. R. Shivananda, the Engineer, General Consultant (MTHL)

Date: 10/01/2024

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT * GC

Ref No: MTHL/P3/GC/L&T-IHI/LT/CNT - 2297 /2024 **10th January 2024**

To,
Larsen & Toubro Limited
L&T Construction, C/O Larsen and Toubro Ltd,
Mount Poonamali Road, Manpakkam,
PBN 979 Chennai-600089, Tamil Nadu, INDIA.

Project: Procurement of Mumbai Trans Harbour Link Project (Package-3) -Construction of 3.613 km long viaduct section (CH 18+187 to CH21+800) including interchanges at State Highway-54 and at National Highway-4B near Chirle in Navi-Mumbai. IFB No.: MMRDA/ENG1/000754 dated 26th December 2017.

Sub: Taking Over Certificate for the Mumbai Trans Harbor Link, Package-03

Ref:

1. Letter of Acceptance (LOA) No. MMRDA/MTHL/PKG-3/LOA/11-17 dated 17/11/2017.
2. Package-03 Contract No: MMRDA/ENG1/000754 dated 26th December 2017.
3. Contractor's letter: MTHL/P3/L&T/GC/LT/CNT-0004018/2024 dated 08-01-2024.
4. GC Letter no. MTHL/P3/GC/L&T-IHI/LT/CNT- 2291 dated 02.01.2024.

Dear Sir,

The Contractor vide letter no. 4018 dated 08-01-2024 has notified the Engineer for a Taking-Over Certificate pursuant to Sub-Clause 10.1 of GCC.

Pursuant to Sub-Clause 10.1 "*Taking Over of the Works*" of the Conditions of the Contract and reference to your Notice 4018-2024 as referred above. The Engineer further refers to all applicable Clause and Sub-Clause which are relevant to the Taking over of the works as per the Contract Agreement, including the following.

1. Employer's Requirement (ERG), Clause 8 "*Testing of Civil Works and Architectural Works*"
2. ERG, Sub-Clause 8.1 "*Schedule for Tests*"
3. GC, Clause-9 "*Tests on Completion*"
4. GC, Sub-Clause 9.1 "*Contractor's Obligations*"

Contractor vide their letter no. 3413 dated 02.11.2023 had notified The Engineer and Employer regarding conducting Tests on Completion for major and minor structures as per Employer Requirements ERG of the contract agreement. Further, the Contractor vide their letter no. 3982 dated 21.12.2023 and 3994 dated 29.12.23 submitted the detail inventory of structures for conducting the completion tests.

Accordingly, The Engineer witnessed and observed that the Contractor has successfully completed the following tests on completion:

a. Visual and Physical Test
b. Test Drive.
c. Riding Quality Test.
d. Pavement composition Test.
e. Cross-section Test.
f. Structural Test for Bridges.
g. Other Tests.
h. Environmental Audit.
i. Safety Review.

Pursuant to Sub-Clause 7.4 "*Testing*" The Engineer certifies that the Contractor has carried out Tests on Completion in accordance with the Contract.

Pursuant to Clause-5.6 "*As-Built Documentation*" The Contractor had submitted Part of the As-Built Documentation and are found to be in conformance with the requirement of Contract Agreement.

Pursuant to Clause-8.4 "*Extension of Time*" The Employer has declared the Commencement Date for Package-03 as 23-03-2018. The original Time for Completion of the Works was 1279 days Accordingly, the original scheduled Completion Date was 21-09-21. which was revised with approved EOT-1 for 528 days i.e., 03-03-2023, and EOT-02 for 156 days i.e., 06-08-2023 Subsequently, on the interim basis the Time for Completion of the works till 07-12-23. However, the final determination of the EOT is pending with the Engineer.

Pursuant to the Clause 11 (Defects Liability), a defect notification Period of 730 days starts from date of completion of the Works as certified in Taking-Over Certificate.

Pursuant to the Sub-Clause 8.2 "*Completion*" Mumbai Trans Harbour Link Project, (MTHL) Package-3 Contractor successfully completed the Works on 5th January 2024 in accordance with the Contract dated 26th December 2017, except for the minor outstanding work / defects listed in the attached schedule to this certificate which should not substantially affect the use of MTHL Package-03 works for their intended purpose. The Completion Certificate to this effect has been issued by the Engineer on 5th January 2024.

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

Based on the above and considering that the test results are found to be in conformance with the requirement of Contract Agreement, The Engineer determines that the Mumbai Trans Harbour Link, (MTHL) Package-3 has been successfully completed by the Contractor and can be safely and reliably placed in services of users.

In the view of the above, pursuant to Sub-Clause 10.1 "Taking Over of the Works" of the Conditions of the Contract, as per the approval of the Employer, the Engineer issues this Taking-Over Certificate for the Works except for the minor outstanding work/defects listed in the attached schedule to this certificate.

The Package-03 Contractor shall support for all Operations and Maintenance of the Bridge till the Engineer issues Taking over of balance Works.

Thanking you,
Yours faithfully,

K.R. Shivananda
The Engineer
General Consultant (MTHL)

CC: Engineer-in-Chief, MMRDA.
Superintending Engineer – MMRDA - Mr. Purushottam Nimje
Executive Engineer – MMRDA – Mr. Arjun Korgaonkar } By Email

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

Annexure-A

TAKING OVER CERTIFICATE	
Project / Works	Procurement of Mumbai Trans Harbour Link Project (Package-03) Construction of 3.613 km long viaduct section (CH 18+187 to CH21+800) including interchanges at State Highway-54 and at National Highway-4B near Chirle in Navi-Mumbai. IFB No.: MMRDA/ENG1/000754 dated 26th December 2017.
Contract No.	MMRDA/ENG1/00754 dated 26th December 2017
Employer	Mumbai Metropolitan Region Development Authority (MMRDA)
General Consultant	M/s AECOM Asia Company Ltd. – PADECO Co. Ltd. – Dar Al-Handasah Consultants -TY Lin International Consortium
Contractor	Larsen & Toubro Limited
Commencement Date	23rd March 2018

Pursuant Sub-Clause 10.1 of the General Conditions of Contract, the Engineer hereby certifies that the Works have been completed by the Contractor in accordance with the Contract, on the date given below, except for the minor outstanding works listed below, which will not substantially affect the use of the Works for their intended purpose.

The actual date of Completion of the Works is 05/01/2024 excluding works mentioned below.

Accordingly, date of expiry of Defects Notification Period will be 04/01/2024 (730 days from the Date of Completion of the Works).

Details of the Outstanding Works:

1. Fixing of Cantilever Gantry pertaining to Traffic Signage – to be completed by 31/01/2024
2. The JMP Ramp –SH 54 merger is incomplete due to the pending of Forest Dept.
3. Items on punch list by 04.02.2024
4. Items for compliance to Environmental and Road safety audit by 04.02.2024

K. R. Shivananda, the Engineer, General Consultant (MTHL)

Date: 10/01/2024

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT *

Ref No: MTHL/P4/GC/STR/LT/ICNT -0829/2024 **10th January 2024**

To,
M/5 STRABAG Infrastructure & Safety Solutions GmbH& STRABAG AG
STRABAG Infrastructure & Safety Solutions GmbH
Ignaz-Kock-Str. 19, A-1210 Vienna, Austria
Strabag AG
Ortenburger Strasse-27,
9800 Spittal Ander Drau, Austria.

Kind Attn: Mr. Tarun Sharma

Project: Procurement of Mumbai Trans Harbour Link Project (Package-4) Design, Supply, Installation, Testing and Commissioning of Intelligent Transport System (ITS), Toll Management System, Electrical Works, Highway Illumination System, Construction of Toll Plazas and Administrative Buildings including Command Control Centre under Contract no. MMRDA/ENG 1/0002561 dated 5th August 2022.

Sub: Taking Over Certificate for the Mumbai Trans Harbor Link, Package-04

Ref:

1. Letter of Acceptance (LOA) No MMRDA/MTHL/PKG4/LOA/2022/1172 dated 05-05-2022.
2. Package-04 Contract No: MMRDA/ENG 1/0002561. Dated 5th August 2022.
3. GC's Letter MTHL/P4/GC/STR/LT/CNT- 804 dated 12-01-2024.
4. Contractor's Letter MTHL/P4/STR/GC/LT/CNT/2024/1028 dated 10-01-2024.

Dear Sir,

The Contractor vide Letter no 1028 dated 10.01.2024 has notified the Engineer for a Taking-Over Certificate pursuant to Sub-Clause 10.1 of GCC.

Pursuant to Sub-Clause 10.2 "***Taking Over of parts of the Works***" of the Conditions of the Contract and reference to your Notice 1028 dated 10-01-2024 as referred above. The Engineer further refers to all applicable Clause and Sub-Clause which are relevant to the Taking over of parts of the works as per the Contract Agreement, including the following.

1. Employer's Requirement (ERG), Clause 8 "*Testing of Civil Works and Architectural Works*"
2. ERG, Sub-Clause 8.1 "*Schedule for Tests*"
3. GC, Clause-9 "*Tests on Completion*"
4. GC, Sub-Clause 9.1 "*Contractor's Obligations*"

The Contractor vide their letter no. 952 dated 14-12-2023 had notified The Engineer and Employer regarding conducting Tests on Completion for major and minor structures as

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

per Employer Requirements ERG of the contract agreement. Further, the Contractor vide their letter no. 994 dated 29.12.2023 submitted the detail inventory of structures for conducting the completion tests.

Accordingly, the Engineer witnessed and observed that the Contractor successfully completed the following tests on completion:

Pursuant to Sub-Clause 7.4 "*Testing*" The Engineer certifies that the Contractor has carried out Tests on Completion in accordance with the Contract.

Pursuant to Clause-5.6 "*As-Built Documentation*" The Contractor had submitted Part of the As-Built Documentation and are found to be in conformance with the requirement of Contract Agreement.

Pursuant to Clause-8.4 "*Extension of Time*" the Employer has declared the Commencement Date for The Package-4 as 27.06.2022. The original Time for Completion of the works was 460 days. Accordingly, the original scheduled Completion date was 30-09-2023. Which was revised with approved EOT-1 for 76 days till 15.12.2023, on the interim basis. However, the final determination of EOT is pending with the Engineer.

Pursuant to the Clause 11 (Defects Liability), a Defect Notification Period of 730 days starts from date of completion of the works as certified in Taking-Over Certificate.

Pursuant to the Sub-Clause 8.2 "*Completion*" Mumbai Trans Harbour Link Project, (MTHL) Package-4 Contractor successfully completed the Part of Works on 5th January 2024 in accordance with the Contract on 4th August 2022, except for the minor outstanding work / defects listed in the attached schedule to this certificate which should not substantially affect the use of MTHL Package-04 works for their intended purpose. The Completion Certificate to this effect has been issued by The Engineer on 5th January 2024.

Based on the above and considering that the test results are found to be in conformance with the requirement of Contract Agreement, the Engineer determines that the Mumbai Trans Harbour Link Project, (MTHL) Package-4 had been successfully completed by the Contractor and can be safely and reliably placed in services of users.

In view of the above, pursuant to Sub-Clause 10.2 "Taking Over of parts of the Works" of the Conditions of the Contract, as per the approval of the Employer, the Engineer issues this Taking-Over Certificate for part of works except for the minor outstanding work / defects listed in the attached schedule to this certificate.

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

The Package-04 Contractor shall be responsible for all Operations and Maintenance of the Bridge, as per terms of the Contract till the Engineer issues Taking Over Certificate (TOC) for balance works.

Thanking you,
Yours faithfully,

K.R. Shivananda
The Engineer
General Consultant (MTHL)

CC: Engineer-in-Chief, MMRDA.
Superintending Engineer – MMRDA - Mr. Purushottam Nimje
Executive Engineer – MMRDA – Mr. Arjun Korgaonkar
} By Email

Annexure-A

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

PART TAKING OVER CERTIFICATE	
Project / Works	Procurement of Mumbai Trans Harbour Link Project (Package-4) Design, Supply, Installation, Testing and Commissioning of Intelligent Transport System (ITS), Toll Management System, Electrical Works, Highway Illumination System, Construction of Toll Plazas and Administrative Buildings including Command Control Centre under Contract no. MMRDA/ENG 1/0002561 dated 5th August 2022.
Contract No.	MMRDA/ENG 1/0002561 dated 5th August 2022
Employer	Mumbai Metropolitan Region Development Authority (MMRDA)
General Consultant	M/s AECOM Asia Company Ltd. – PADECO Co. Ltd. – Dar Al-Handasah Consultants -TY Lin International Consortium
Contractor	JV OF M/s STRABAG INFRASTRUCTURE & SAFETY SOLUTIONS GMBH & STRABAG AG
Commencement Date	4th June 2022

Pursuant Sub-Clause 10.2 of the General Conditions of Contract, the Engineer hereby certifies that the Works have been completed partly by the Contractor in accordance with the Contract, on the date given below, except for the minor outstanding works listed below, which will not substantially affect the use of the Works for their intended purpose.

The actual date of Completion of the Works is 05/01/2024 excluding works mentioned below.

Accordingly, date of expiry of Defects Notification Period will be 04/01/202(730 days from the Date of Completion of the Works).

Details of the Outstanding Works:

1. Food plaza 1 and wayside amenities to be completed by 04/02/24
2. Food plaza 2 and wayside amenities to be completed by 04/02/24
3. Weigh Bridges to be completed by 04/02/24
4. Approach Roads of Ramp 1, Ramp 2, Ramp 3, Ramp 4 Ramp 5 and Ramp 6 to be completed as per Engineer instructions
5. Items on punch list to be completed by 04/02/24
6. Items for compliance to Environmental and Road safety audit to be completed by 04/02/24

K. R. Shivananda, the Engineer, General Consultant (MTHL)

Date: 10/01/2024

MUMBAI TRANS HARBOUR LINK * GENERAL CONSULTANT * GC

Project Office: 6th Floor, Block-I, MMRDA Old Building, Bandra-Kurla Complex, Bandra (E), Mumbai 400 051.

Annexure XII

MCZMA mom for granting CRZ Extension

laboratory equipment that can be used for high quality academic and research purpose for marine and coastal biodiversity.

(vi) Any temporary physical infrastructure setup and excavated material during laying of pipelines shall not be dumped in water bodies or adjacent areas and the site shall be restored to its original condition after completion of construction of work.

(vii) No storage reservoir for sea water shall be permitted and only pipelines conveyance system shall be installed.

(viii) No groundwater shall be extracted within the CRZ area to meet the water requirements during the construction and/or operation phase of the project.

(ix) Permanent labour camp, machinery and material storage shall not be set up in the CRZ area.

(x) The project proponents certify that there is no legal restriction on the proposed project activities at the proposed site. However, Project Proponent shall comply order/direction, if any, issued by Hon'ble Court/tribunal on the project.

(xi) All the conditions stipulated by the Odisha Coastal Zone Management Authority for CRZ clearance under CRZ Notification, 2019 *vide* letter no. OCZMA/33/2022/5/OCZMA, dated 19/01/2023 and commitments made by the PP before the OCMA and EAC shall be followed in letter and spirit.

(xii) All necessary clearance from the concerned authority, as may be applicable should be obtained prior to commencement of project or activity.

Agenda 3.4

Proposal for extension of Mumbai Trans Harbour Link (MTHL) project by MMRDA

[IA/MH/CRZ/411891/2022; F. NO.11-65/2012-IA.III]

"The EAC noted that the Project Proponent has given undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP report. If any part of the data/information submitted is found to be false/misleading at any stage, the project will be rejected and Environmental and or CRZ Clearance given, if any, will be revoked at the risk and cost of the project proponent."

Earlier the proposal was examined by EAC in its 325th meeting held on 17/04/2023; wherein the Project Proponent along with his EIA consultant made a presentation on above said proposal. The EAC took note of following key parameters and salient features of the project as presented during the meeting as well as the details provided in the brief and application for this project:

(i) The proposal is for Extension of validity in CRZ Clearance of Mumbai Trans Harbour Link (MTHL) project by Mumbai Metropolitan Region Development Authority (MMRDA) has submitted, made a detailed presentation of the

project and informed that project was accorded CRZ clearance proposal vide letter No. F.No.11-65/2012-IA-III dated 25th January, 2016 and requested for extension of validity of the above CRZ Clearance by another 3 years i.e. till 24/01/2026 (total 10 years).

(ii) The PP intimated that the project is in progress and about 90% progress is achieved till date. The PP also intimated that the extension for validity of CRZ clearance has been recommended by Maharashtra Coastal Zone Management Authority (MCZMA) *vide* their letter No. CRZ 2022/CR 185/TC 4, dated 09/12/2022.

(iii) The Committee took note that the extension for validity of CRZ clearance has been recommended by MCZMA. The committee also noted that the PP has also submitted last six month compliance report for the conditions of CRZ clearance granted for the record of the Ministry as same submitted to IRO. The Committee was also informed that the project proponent had applied to the MCZMA before the expiry of the validity of said clearance i.e. 25/01/2023.

(iv) The EAC made detailed deliberation on the proposal and decided to make a site visit to understand the current status of the project and proposal was accordingly deferred.

(v) Subsequently, the EAC (CRZ) Sub-Committee visited site on 23/05/2023 of Construction Mumbai Trans-Harbour Link project by M/s MTHL along with Environmental consultants, Safety Officers and Project Engineers.

(vi) The Sub-Group Committee site visit report along with suggested observations on the project was placed before the EAC (CRZ) for its consideration and further action.

2. The committee deliberated on the site visit done by the Sub-Committee and concur the observations of site visit report and recommended by MCZMA and the Committee recommended the proposal for Extension of validity in CRZ Clearance CRZ Clearance by another 3 years i.e. till 24/01/2026 (total 10 years) subject to following **additional conditions:**

(i) Monitoring of adjacent mudflats area and water quality needs to done by Fergusson College's Advance Research Center for Ecology for next 5 years and suggest mitigation measures, if required and PP should comply the same and submit report to IRO. Accordingly, 5 Crore as a onetime grant to be provided as a part of EMP to Fergusson College's Advance Research Center for Ecology within 3 months from the grant of extension of CRZ clearance for developing state of art laboratory and undertake the studies as desired and for other academic and research purposes. Any additional funds that may be necessary to be provided during the course of the studies additionally.

(ii) IISER-Pune to be engaged in the mangrove related research for next 5 years and suggest conservation measures, if required and PP should comply the same and submit report to IRO. Accordingly, 5 Crore as a onetime grant to be provided as a part of EMP to IISER-Pune within 3 months from the grant of extension of CRZ clearance for developing state of art laboratory

MUMBAI TRANS HARBOUR LINK GENERAL CONSULTANT GC

and undertake the studies as desired and for other academic and research purposes. Any additional funds that may be necessary to be provided during the course of the studies additionally.

(iii) Construction material and structures/scaffoldings erected for construction at site shall be cleared immediately after finishing construction and it shall be ensured that no construction waste, garbage and machinery or equipment are left post construction.

(iv) All the condition stipulated by Maharashtra Coastal Zone Management Authority (MCZMA) *vide* their letter No. CRZ 2022/CR 185/TC 4, dated 09/12/2022 and commitments made by the PP before the MCZMA and EAC shall be followed in letter and spirit.

(v) All the terms and conditions as mentioned in the earlier CRZ Clearance dated 25th January, 2016 and commitments made by the PP before the MCZMA and EAC shall be followed in letter and spirit.

(vi) All necessary clearance from the concerned authority, as may be applicable should be obtained.

Agenda 3.5

Proposal for Construction of Versova-Bandra Sea Link Project by M/s Maharashtra State Road Development Corporation Ltd.- CRZ Clearance

[IA/MH/CRZ/421589/2023; F.NO.11/27/2023-IA.III]

"The EAC noted that the Project Proponent has given undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP report. If any part of the data/information submitted is found to be false / misleading at any stage, the project will be rejected and Environmental and or CRZ Clearance given, if any, will be revoked at the risk and cost of the project proponent."

Earlier the proposal was examined by EAC in its 327th meeting held on 15/05/2023; wherein the Project Proponent along with his EIA consultant made a presentation on above said proposal. The EAC took note of following key parameters and salient features of the project as presented during the meeting as well as the details provided in the brief and application for this project:

(i) The proposal [Versova Bandra Sea Link (VBSL) project] is for construction of Sea Link from Versova to Bandra in the suburbs along the west coast of Mumbai. It is an extension of the 'Rajeev Gandhi Sea Link' between Bandra and Worli. The Bandra-Worli Sea Link is already built and operational. The Worli – Nariman Point coastal road project is under construction.

(ii) The length of the sea link is approximately 9.800 km with intermediate dispersal points at Juhu Koliwada and Carter Road (near Otters Club) and end connectors at Versova and Bandra. The sea link passes through the Arabian sea, approximately 900 m away from the coast.