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General Consultant for Mumbai Trans Harbour Link Project

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आपक क्र. 5230
दिनांक 20/06/2023

Ref No: MTHL/GC/MMRDA/LT/ENV-3644/2023

19th June 2023

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 –
Mumbai Trans Harbour Link Project- Submission of Half Yearly Report No. 15 from Jan to June 2023

Dear Sir,

We are hereby attaching the Half Yearly Report No. 15 from Jan - June 2023. You may please forward the same to the concerned departments for their record.

Thanking you,
Yours faithfully,

K.R. Shivananda
The Engineer
General Consultant (MTHL)

Encl: As above

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

SECRET

23/6/2023
DE (BA/6)

Information of Project officer and Nodal officer

1.	<p>Name of Project officer</p> <p>Email</p> <p>Phone /Fax Number</p>	<p>Executive Engineer, MTHL- Project Implementation Unit</p> <p>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</p> <p>Phone No.: 022-26594034</p>
2.	<p>Name of Nodal officers</p> <p>Email</p> <p>Phone /Fax Number</p>	<p>Engineer In Chief, MTHL Project Implementation Unit</p> <p>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</p> <p>Email: engineerinchief@mailmmrda.maharashtra.gov.in Phone No.: 022-26594032</p>



**15th HALF YEARLY REPORT FOR MUMBAI
TRANS HARBOUR LINK**

Jan- Jun 2023



Submitted to
Maharashtra Pollution Control Board (MPCB)

Submitted by



**एम एम आर डी ए
MMRDA**



January 2023 to June 2023

Photographs showing present progress of work

Please refer to the Quarterly Progress Report No. 23 (Oct- Dec 22) and 24 (Jan- March 23) 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 25 th 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	: Engineer In Chief,
	a) Address of the Concerned Project Chief Engineer (with Pin code & Telephone / Telex / Fax Numbers)	MTHL Project Implementation Unit 2 nd floor, New Administrative building, MMRDA, Engineering Division, Mumbai Metropolitan Region Development Authority (MMRDA), E-Block, BKC, Bandra Kurla Complex, Bandra East, Mumbai, Maharashtra 400051
	b) Address of the Concerned Project Chief Engineer (with Pin code & Telephone / Telex / Fax Numbers)	Phone No.: 022-26594034
6.	Salient features	: 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.
	a) of the Project	



No.	Particular	Information
		<p>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.</p> <p>Benefits:</p> <ul style="list-style-type: none"> • 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.	<p>Breakup of the Project Area :</p> <p>a) Submergence area: forest & non forest</p>	<p>Total Area of Right of Way: 120.228 Ha</p> <p>Forest area: 47.417 Ha</p> <p>Non-Forest area: 72.811 Ha</p>
	b) Others	--
8.	<p>Breakup of the project affected population with the enumeration of those losing Houses / Dwelling units only, Agricultural Land & Landless Laborers / Artisans:</p> <p>a) SC, ST / Adivasi</p> <p>b) Others</p> <p>(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)</p>	<p>Project affected population:</p> <p>Please refer to the Quarterly Progress Report No. 23 and 24 for the project affected population attached as Annexure-VI - 44</p> <p>MMRDA has approved eligibility of 6645 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</p>
9	<p>Financial Details: Project</p> <p>a) cost as originally planned and subsequent revised estimates and the year of price reference</p>	<p>The total cost of the project is Rs. 17,843 Crore</p> <p>Year of reference: 2016</p>
	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 break up 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. 16435.86Crore - 281 P. NO
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 22 nd 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 28 th 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. 20 and 21 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. Extension of Time (EoT) has been granted to the contractors is below: Package 1: 30-09-2023 Package 2: 27-09-2023 Package 3: 21-09-2021 06.08.2023 - 397
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	1) 08.03.2023 - by MOEF Nagpur 2) 22.05.23 - by EAC
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



January 2023 to June 2023

Name: - Shri. S. A. Wandhekar

Engineer In Chief, 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:

S. A. Wandhekar

Stamp:

ENGINEER-IN-CHIEF
ENGINEERING DIVISION
M.M.R.D.A.



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 25 th 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 2 nd 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 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 the 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 is being proposed in the mudflat area
(vii)	The muck materials shall be analyses	Noted and is being complied on. Muck



S. No.	Condition of 2013 clearance	Compliance
	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.	materials are collected and analyzed prior to dumping/disposal at identified locations. Muck analysis report from Package-I attached as Annexure-IV Excavation work has been completed for pkg 2
(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 being 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	Noted and will be complied



S. No.	Condition of 2013 clearance	Compliance
	with 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	<p>Noted and complied,</p> <p>An Environmental Management Cell has been set up and the structure of the committee comprises experts from the National Institute of Oceanography; a Representative of BNHS; a renowned expert in Ornithology; Director, of 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.</p> <p>Six meetings with the members have already commenced till date.</p>
(xv)	The funds earmarked for the environment management plan shall be included in the budget and this shall not be diverted for any other purpose.	<p>Noted,</p> <p>The total fund allocated for the environmental management is 335 crores and to date 377.54 Cr has been spent EMP expenditure details are attached as Annexure-V.</p>
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	Noted and complied



S. No.	Condition of 2013 clearance	Compliance
	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	
10.	All other statutory 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	<p>Noted and complied.</p> <p>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.</p> <p>The project proponent had allotted the construction work to L&T and JV of Daewoo and Tata through contract and the statutory clearances such as approvals for storage of diesel from Chief Controller of Explosive, Fire Department, Civil Aviation Department has been taken by them.</p> <p>After completion of the project MMRDA will ensure compliance.</p>
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	<p>Noted and complied.</p> <p>The advertisement for accord of the CRZ clearance was published in the (Lok Satta and Indian Express on 30.01. 2016)</p> <p>Annexure-X</p>
12	The clearance is subject to final order of the Hon'ble Supreme Court of India in	Noted



S. No.	Condition of 2013 clearance	Compliance
	the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004 as may be applicable to this project.	
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



S. No.	Condition of 2013 clearance	Compliance
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 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.	Noted and Complied

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 26 th 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 19 th July 2013, shall also be complied with in letter and spirit,	Noted. MMRDA is following the conditions stipulated in the CRZ Clearance dated 19 th 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 is being 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	This condition has been revised by MoEF& CC vide letter dated 28 th August,



Sr. No.	SPECIFIC CONDITIONS	COMPLIANCE STATUS
	night hours.	2017 having file no F. No. 11-65/2012-IA. III. Refer Annexure-VI (QPR)
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.	<p>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.</p> <p>Stage - II application is submitted to Deputy Conservator of Forest vide MMRDA letter 6-3-2017 and latest compliance submitted on 10-09-2018.</p> <p>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.</p>
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 28 th 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: <ol style="list-style-type: none"> 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. July to December 2022
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.
7	The project proponents shall inform to the Regional Office as well as the Ministry, the date	Noted.



Sr.No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	
8	A copy of the clearance letter shall be marked to the 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 receipt of the Clearance letter and a copy of the	Complied.



Sr.No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	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 monitored data (both in hard copies as well as	Noted. Six monthly reports on compliance & monitoring results of conditions stipulated in CRZ clearance is being submitted to MPCB Regional, sub regional office, Nagpur



Sr.No.	GENERAL CONDITIONS	COMPLIANCE STATUS
	by e-mail) to the respective Regional Office of MoEF & CC, the respective Zonal Office of CPCB and the SPCB.	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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BDPPS

**IN THE HIGH COURT OF JUDICATURE AT BOMBAY
ORDINARY ORIGINAL CIVIL JURISDICTON
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 Seeryai, 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



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.)

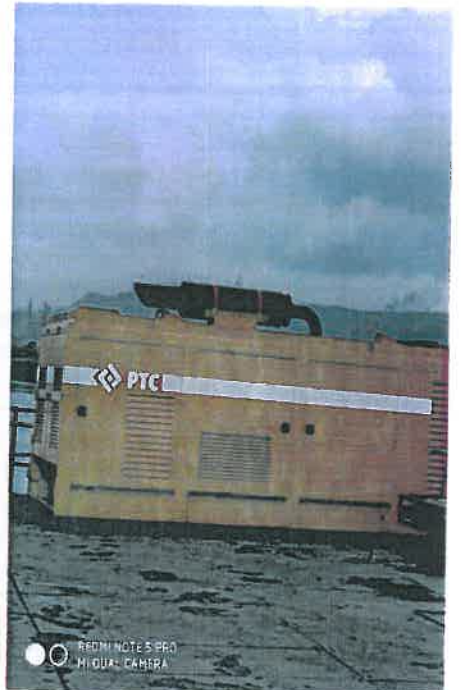


Annexure-II Environment Management Plan stipulated in CRZ clearance

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.	<ul style="list-style-type: none"> • 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

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

Attachment III



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

Attachment III



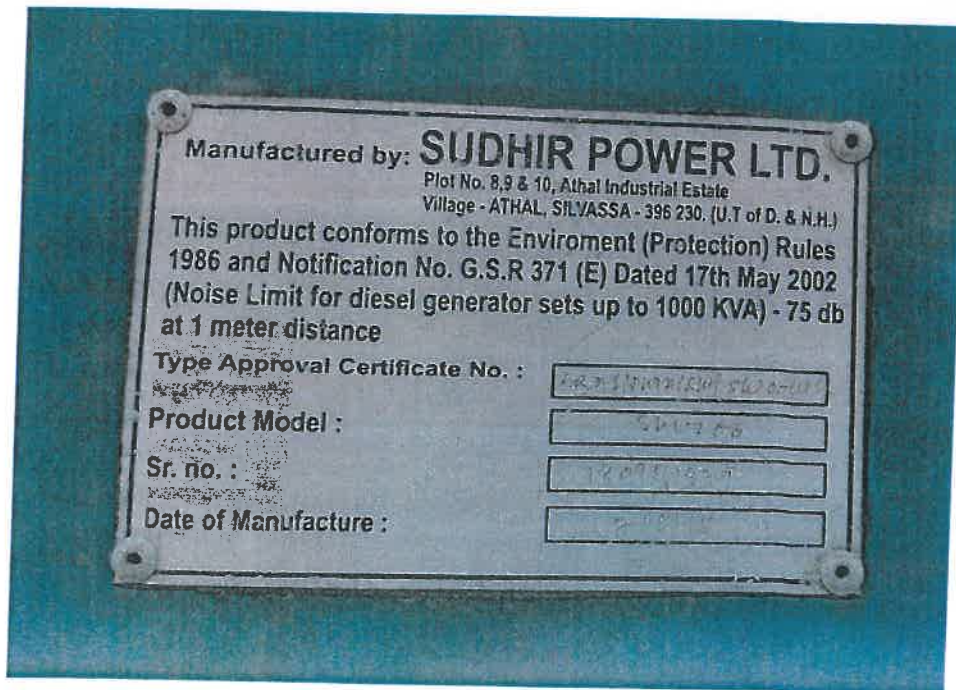
Photographic evidences of construction equipment used by contractors are provided with exhaust silencers to reduce noise

Attachment III



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

Attachment III





TEST REPORT

Name of Organization : M/s. L & T Constructions	
Customer Address : Gate No. 1 Sewri Timber Pond, Near GadiAdda, Sewri(East), Mumbai.	
Customer Reference : EH401WOD8000155 Dated 21.04.2022	
MoEFCC Validity : 16th Oct 2024	
Discipline/Group : Chemical- Pollution & Environment	Test Report No. : NIL/SO/08/22/001
Sample Type : Muck	Sample Code : NIL/SO/08/22/001
Sampling Method : NIL/Soil/SOP-11	Ambient Temperature : 25°C
Sampling Date : 24.08.2022	Sample Receive Date : 24.08.2022
Analysis Start Date : 25.08.2022	Analysis End Date : 30.08.2022
Reporting Date : 30.08.2022	Sample Qty & Pkng. : 1 kg ,Plastic Zip Lock bag
Sampling Location : C1P18 Muck Sample	Sampling Done By : Netel India Limited

Sr. No	Parameter	Result	Unit	Method
General Analyzed Parameters				
1	Cadmium(Cd)	1.2	mg/kg	Lab SOP No:NIL/SOP/15 dt 01/07/14
2	Lead(Pb)	25.83	mg/kg	Lab SOP No:NIL/SOP/15 dt 01/07/14
3	Chromium (as Cr6+)	<0.25	mg/kg	APHA 3500-Cr-B
4	Arsenic (As)	<0.01	mg/kg	EPA 3050B & By FIAS
5	Total Mercury (Hg)	<0.01	mg/kg	EPA 3050B & By FIAS
6	Copper (Cu)	79.33	mg/kg	Lab SOP No:NIL/SOP/15 dt 01/07/14
7	Dichloromethane	<1	mg/kg	By GC-FID
8	Carbon Tetrachloride	<1	mg/kg	By GC-FID
9	Benzene	<1	mg/kg	APHA 6200-C
10	Selenium (Se)	<0.01	mg/kg	EPA 3050B & By FIAS

Note :

1. This Test Report shall not be reproduced except in full, without written approval of the Laboratory
2. This Test Report refers only to the sample tested.
3. Any correction in this certificate invalidates the certificate.
4. The testing results reported reflects the quality of sample at the time of testing.
5. The Complaint register is available with the Laboratory as per Environment Protection Act 1986.

End of Report

Verified by

Surekha Jamdar
Technical Manager



Issued by

Shraddha Kere
Quality Manager





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: 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. : ULR-TC560023000002069F
REPORT NO. : UT/ELS/REPORT/2859/04-2023
ISSUE DATE : 25/04/2023
YOUR REF. : EH401WOD8000127 Amd No. 14
REF. DATE : 19/02/2022

SAMPLE PARTICULARS :

Sampling Plan Ref. No. : 01-04/2023
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 10/04/2023 13:00 Hrs. to 11/04/2023 13:00 Hrs.
Sample Registration Date : 12/04/2023
Analysis Starting Date : 12/04/2023
Analysis Completion Date : 20/04/2023
Ambient Air Temperature : 27.2 °C to 35.1 °C
Relative Humidity : 38.8 % to 69.2 %

AMBIENT AIR QUALITY MONITORING

Location Code : AM8
Sample Location : At Floating Batching Plant PB-2 Near MP-101
GPS Co-ordinates : N 18°59'16.80", E 72°55'12.20"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/170/04-2023

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	7	µg/m ³	80
2	Nitrogen Dioxide (NO ₂)	IS 5182 (Part 6) : 2006	44	µg/m ³	80
3	Particulate Matter (PM ₁₀)	EPA/625/R-96/010a Compendium Method 10-2.1	234	µg/m ³	100
4	Particulate Matter (PM _{2.5})	IS 5182 (Part 24) : 2019	47	µg/m ³	60
5	Ozone (O ₃) [†]	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m ³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.07	µg/m ³	1.0
7	Carbon Monoxide (CO) [†]	IS 5182 (Part 10) : 1999	1.7	mg/m ³	4
8	Ammonia (NH ₃)	ISC 16th Ed. Method 401	61	µg/m ³	400
9	Benzene (C ₆ H ₆)	IS 5182 (Part 11) : 2006	1.4	µg/m ³	5*
10	Benzo(α)Pyrene (BaP) - Particulate 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 National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV except for highlighted parameters, which are observed to be exceeding 24 hourly Time Weighted Average limits.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Respirable Dust Sampler	UT/LAB/125	Polltech	PEM-RDS 8NL	3513	19/09/2023
Fine Dust Sampler	UT/LAB/92	Polltech	PEM-ADS 2.5/10µ	15913	03/03/2024	

- 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 limit but not on two consecutive monitorings.

- END OF REPORT -



For ULTRA TECH,

Meghan Patil

(Authorized Signatory)



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: 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. : ULR-TC560023000001922F
REPORT NO. : UT/ELS/ REPORT/2664/04-2023
ISSUE DATE : 18/04/2023
YOUR REF. : EH401WOD8000127 Amd No. 14
REF. DATE : 19/02/2022

SAMPLE PARTICULARS :

Sampling Plan Ref. No.: : 01-04/2023
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 04/04/2023 13:00 Hrs. to
 05/04/2023 13:00 Hrs.
Sample Registration Date : 05/04/2023
Analysis Starting Date : 05/04/2023
Analysis Completion Date : 13/04/2023
Ambient Air Temperature : 26.1 °C to 31.1 °C
Relative Humidity : 54.1 % to 71.8 %

AMBIENT AIR QUALITY MONITORING

Location Code : AM8
Sample Location : At Floating Batching Plant PB-2
 Near MP-103
GPS Co-ordinates : N 18°59'14.8", E 72°55'19.0"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/077/04-2023

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	8	µg/m ³	80
2	Nitrogen Dioxide (NO ₂)	IS 5182 (Part 6) : 2006	38	µg/m ³	80
3	Particulate Matter (PM ₁₀)	EPA/625/R-96/010a Compendium Method 10-2.1	178	µg/m ³	100
4	Particulate Matter (PM _{2.5})	IS 5182 (Part 24) : 2019	45	µg/m ³	60
5	Ozone (O ₃) [†]	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m ³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.07	µg/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	61	µg/m ³	400
9	Benzene (C ₆ H ₆)	IS 5182 (Part 11) : 2006	1.6	µg/m ³	5*
10	Benzo(α)Pyrene (BaP) - Particulate 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 National Ambient Air Quality Monitoring Standard (NAAQMS), Part III- Section IV except for highlighted parameters, which are observed to be exceeding 24 hourly Time Weighted Average limits.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	SL No.	Calibration Valid up to
	Respirable Dust Sampler	UT/LAB/125	Polltech	PEM-RDS BNL	3513	19/09/2023
Fine Dust Sampler	UT/LAB/92	Polltech	PEM-ADS 2.5/10µ	15913	03/03/2024	

- 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 -



For ULTRA TECH,

Meghan Patil

(Authorized Signatory)



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. 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. : ULR-TC560023000002384F
REPORT NO. : UT/ELS/ REPORT/3282/05-2023
ISSUE DATE : 11/05/2023
YOUR REF. : EH401WOD8000127 Amd No. 14
REF. DATE : 19/02/2022

SAMPLE PARTICULARS

Sampling Plan Ref. No. : 01-04/2023
Sampling Procedure : UT/LQMS/SOP/AA01A
Date & Time of Sampling : 25/04/2023 13:35 Hrs. to 26/04/2023 13:35 Hrs.
Sample Registration Date : 26/04/2023
Analysis Starting Date : 26/04/2023
Analysis Completion Date : 04/05/2023
Ambient Air Temperature : 28.4 °C to 34.2 °C
Relative Humidity : 50.3 % to 71.3 %

AMBIENT AIR QUALITY MONITORING

Location Code : AM8
Sample Location : At Floating Batching Plant PB-2 Near MP-103
GPS Co-ordinates : N 18°59'16.90", E 72°55'14.50"
Sample Collected By : ULTRA TECH
Height of Sampler : 1 Meter
Sampling Duration : 24:00 Hours:Minutes
Sample Lab Code : UT/ELS/575/04-2023

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	12	µg/m ³	80
2	Nitrogen Dioxide (NO ₂)	IS 5182 (Part 6) : 2006	42	µg/m ³	80
3	Particulate Matter (PM ₁₀)	EPA/625/R-96/010a Compendium Method IO-2.1	211	µg/m ³	100
4	Particulate Matter (PM _{2.5})	IS 5182 (Part 24) : 2019	36	µg/m ³	60
5	Ozone (O ₃) [†]	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m ³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.08	µg/m ³	1.0
7	Carbon Monoxide (CO) [†]	IS 5182 (Part 10) : 1999	1.6	mg/m ³	4
8	Ammonia (NH ₃)	ISC 16th Ed. Method 401	61	µg/m ³	400
9	Benzene (C ₆ H ₆)	IS 5182 (Part 11) : 2006	1.5	µg/m ³	5*
10	Benzo(α)Pyrene (BaP) - Particulate 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 National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV except for highlighted parameters, which are observed to be exceeding 24 hourly Time Weighted Average limits.

Sampling Equipment Details	Instrument Used		Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Respirable Dust Sampler						
	Fine Dust Sampler						
			UT/LAB/125	Poltech	PEM-RDS 8NL	3513	19/09/2023
			UT/LAB/92	Poltech	PEM-ADS 2.5/10µ	15913	03/03/2024

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.

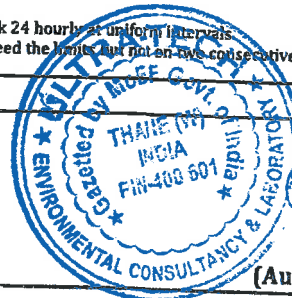
5. Any correction invalidates this test report.

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 -



For ULTRA TECH,

Meghan Patil

(Authorized Signatory)



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. 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. : ULR-TC560023000002131F
REPORT NO. : UT/ELS/ REPORT/2923/04-2023
ISSUE DATE : 27/04/2023
YOUR REF. : BH401WOD8000127 Amd No. 14
REF. DATE : 19/02/2022

SAMPLE PARTICULARS		AMBIENT AIR QUALITY MONITORING	
Sampling Plan Ref. No.:	01-04/2023	Location Code	AM8
Sampling Procedure	UT/LQMS/SOP/AA01A	Sample Location	At Floating Batching Plant PB-2
Date & Time of Sampling	17/04/2023 12:45 Hrs. to 18/04/2023 12:45 Hrs.	GPS Co-ordinates	N 18°59'18.5", E 72°55'32.6"
Sample Registration Date	19/04/2023	Sample Collected By	ULTRA TECH
Analysis Starting Date	19/04/2023	Height of Sampler	1 Meter
Analysis Completion Date	27/04/2023	Sampling Duration	24:00 Hours:Minutes
Ambient Air Temperature	27.3 °C to 36.8 °C	Sample Lab Code	UT/ELS/387/04-2023
Relative Humidity	39.4 % to 63.7 %		

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 2) : 2001	9	µg/m ³	80
2	Nitrogen Dioxide (NO ₂)	IS 5182 (Part 6) : 2006	34	µg/m ³	80
3	Particulate Matter (PM ₁₀)	EPA/625/R-96/010a Compendium Method IO-2.1	196	µg/m ³	100
4	Particulate Matter (PM _{2.5})	IS 5182 (Part 24) : 2019	40	µg/m ³	60
5	Ozone (O ₃) [†]	IS 5182 (Part 9) : 1974	BDL[DL=20]	µg/m ³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.09	µg/m ³	1.0
7	Carbon Monoxide (CO) [†]	IS 5182 (Part 10) : 1999	1.8	mg/m ³	4
8	Ammonia (NH ₃)	ISC 16th Ed. Method 401	58	µg/m ³	400
9	Benzene (C ₆ H ₆)	IS 5182 (Part 11) : 2006	1.5	µg/m ³	5*
10	Benzo(a)Pyrene (BaP) - Particulate 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

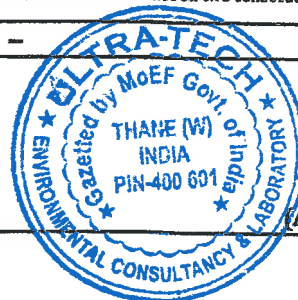
DL=Detection Limit

Remark/ Statement of Conformity: The parameters tested above are found to be within National Ambient Air Quality Monitoring Standard (NAAQMS), Part III-Section IV except for highlighted parameters, which are observed to be exceeding 24 hourly Time Weighted Average limits. NAAQMS is provided as Annexure-I for your reference.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sl. No.	Calibration Valid up to
	Respirable Dust Sampler	UT/LAB/125	Polltech	PEM-RDS BNL	3513	19/09/2023
	Fine Dust Sampler	UT/LAB/92	Polltech	PEM-ADS 2.5/10µ	15913	03/03/2024

- 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 -



For ULTRA TECH,

Meghan Patil

(Authorized Signatory)

DAEWOO-TPL JV

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

Ref: MTHL/BW-TPL/GC/LI/ENV/2023-4728

Date: 26 Apr 2023

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: : Dr. Sham, Siu hung Robin

Project : Procurement of Mumbai Trans Harbour Link Project (Package 2) Construction of 7.807km long bridge section (CH 16+380-CH 18+187) across Mumbai Bay including Shivaji Nagar Interchange

Subject : Submission of Quarterly Environmental Monitoring Reports (January 2023 - March 2023)

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 2023-March 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 January 2023-March 2023

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





TEST REPORT

ISSUED TO: M/s. BAEWOO-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-TC560023000001587F
REPORT NO.: UT/ELS/REPORT/2208/03-2023
ISSUE DATE: 04/04/2023
YOUR REF.: 83000601
REF. DATE: 07/10/2022

SAMPLE PARTICULARS		AMBIENT AIR QUALITY MONITORING	
Sampling Plan Ref. No.:	02-03/2023	Location Code	AM2
Sampling Procedure	HT/LQMS/SOP/AA01A	Sample Location	At Casting Yard Between Batching Plant No. 1 & 2 (Fortnightly 197 of 212)
Date & Time of Sampling	26/03/2023 14:15 Hrs. to 21/03/2023 14:15 Hrs.	GPS Co-ordinates	N 18°57'57.80", E 72°00'39.70"
Sample Registration Date	21/03/2023	Sample Collected By	ULTRA TECH
Analysis Starting Date	21/03/2023	Height of Sampler	1 Meter
Analysis Completion Date	29/03/2023	Sampling Duration	24:00 Hours:Minutes
Ambient Air Temperature	27.3 °C to 33.2 °C	Sample Lab Code	UT/ELS/481/03-2023
Relative Humidity	42.3 % to 48.4 %		

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/m ³	80
2	Nitrogen Dioxide (NO ₂)	IS 5182 (Part 6) : 2006	21	µg/m ³	80
3	Particulate Matter (PM ₁₀)	EPA/625/R-96/010a Compendium Method 10-2.1	74	µg/m ³	100
4	Particulate Matter (PM _{2.5})	IS 5182 (Part 24) : 2019	34	µg/m ³	60
5	Ozone (O ₃) [†]	IS 5182 (Part 9) : 1974	BDL (DL=20)	µg/m ³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.07	µg/m ³	1.0
7	Carbon Monoxide (CO) [†]	IS 5182 (Part 10) : 1999	1.3	mg/m ³	4
8	Ammonia (NH ₃)	ISC 16th Ed. Method 401	53	µg/m ³	400
9	Benzene (C ₆ H ₆)	IS 5182 (Part 11) : 2006	1.7	µg/m ³	5*
10	Benzo(a)Pyrene (BaP) - Particulate 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
	Respirable Dust Sampler	UT/LAB/237	Polltech	PKM-RDS 9	1023	18/10/2022
	Fine Dust Sampler	UT/LAB/106	Polltech	PBM-ADB 2.5/10µ	10213	06/01/2024

- Notes:
1. Samples were collected by following laboratory's SOP (HT/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 -



For ULTRA TECH,

 Meghan Patil
 (Authorized Signatory)

TEST REPORT

ISSUED TO: M/s. 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/2340/04-2023
ISSUE DATE: : 18/04/2023
YOUR REF.: : 83608601-A1
REF. DATE: : 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No.: : 02-03/2023
Sampling Procedure: : UT/LQMS/SOP/AA01A
Date & Time of Sampling: : 21/03/2023 11:15 Hrs. to 21/03/2023 15:15 Hrs.
Sample Registration Date: : 21/03/2023
Analysis Starting Date: : 21/03/2023
Analysis Completion Date: : 29/03/2023
Ambient Air Temperature: : 24.7 °C to 34.5 °C
Relative Humidity: : 47.4 % to 79.6 %

AMBIENT AIR QUALITY MONITORING

Location Code: : AM2
Sample Location: : At Casting Yard Between Batching Plant No. 1 & 2 (Fortnightly 197 of 212)
GPS Co-ordinates: : N 18°57'57.80", E 72°00'39.70"
Sample Collected By: : ULTRA TECH
Height of Sampler: : 1 Meter
Sampling Duration: : 4:00 Hours:Minutes
Sample Lab Code: : UT/ELS/483/03-2023

Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. or 1 Hr.**
1	Benzene (C ₆ H ₆)	IS 5182 (Part 11): 2006	1.7	µg/m ³	5*
2	Toluene	IS 5182 (Part 11): 2006	1.2	µg/m ³	--
3	o, m, p-Xylene	IS 5182 (Part 11): 2006	HDL(DL=1)	µg/m ³	--
4	Total VOC (as BTX)	IS 5182 (Part 11): 2006	2.9	µg/m ³	--

Remark/ Statement of conformity: Nil.

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sr. No.	Calibration Valid up to
		Low Flow Air Sampler	UT/LAB/181	Polltech	PEM-LFAS 4	116	13/01/2024

- Note:**
1. Samples were collected by following laboratory's SOP (UT/LQMS/SOP/AA01A) based on CPEB 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 90% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive monitorings.

- END OF REPORT -



For ULTRA TECH,

Meghan Patil
 (Authorized Signatory)





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

ULR NO.: ULR-TC560023000001566F
REPORT NO.: UT/ELS/REPORT/2207/03-2023
ISSUE DATE: 04/04/2023
YOUR REF.: 83000601
REF. DATE: 07/10/2022

SAMPLE PARTICULARS		AMBIENT AIR QUALITY MONITORING	
Sampling Plan Ref. No.:	02-03/2023	Location Code	AM3
Sampling Procedure	UT/LQMS/SOP/AA01A	Sample Location	NHAVA Temporary Bridge Nr. MP-322 (Fortnightly 198 of 212)
Date & Time of Sampling	20/03/2023 13:30 Hrs to 21/03/2023 13:30 Hrs	GPS Co-ordinates	N 18°58'35.3"; E 72°59'47.5"
Sample Registration Date	21/03/2023	Sample Collected By	ULTRA TECH
Analysis Starting Date	21/03/2023	Height of Sampler	1 Meter
Analysis Completion Date	29/03/2023	Sampling Duration	24:00 Hours:Minutes
Ambient Air Temperature	27.7 °C to 33.6 °C	Sample Lab Code	UT/ELS/480/03-2023
Relative Humidity	42.6 % to 70.8 %		

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 2): 2001	BDL(DL=5)	µg/m ³	80
2	Nitrogen Dioxide (NO ₂)	IS 5182 (Part 6): 2006	34	µg/m ³	80
3	Particulate Matter (PM ₁₀)	EPA/625/R-96/010a Compendium Method 10-2.1	91	µg/m ³	100
4	Particulate Matter (PM _{2.5})	IS 5182 (Part 24): 2019	21	µg/m ³	60
5	Ozone (O ₃) ¹	IS 5182 (Part 9): 1974	BDL(DL=20)	µg/m ³	180
6	Lead (Pb)	CPCB Guidelines, Volume-I, NAAQMS/36/2012-13	0.07	µg/m ³	1.0
7	Carbon Monoxide (CO) ¹	IS 5182 (Part 10): 1999	1.5	mg/m ³	4
8	Ammonia (NH ₃)	ISC 16th Ed. Method 401	60	µg/m ³	400
9	Benzene (C ₆ H ₆)	IS 5182 (Part 11): 2006	1.1	µg/m ³	5*
10	Benzof(a)Pyrene (BaP) - Particulate 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*

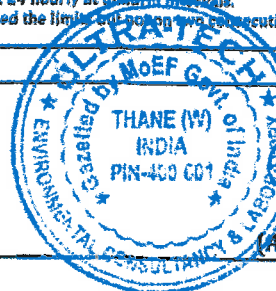
* Sampling Period 1 Hr. BDL: Below Detection Limit DL=Detection Limit

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
	Respirable Dust Sampler	UT/LAB/100	Politech	PEM-RDS 5N1	3813	03/10/2023
	Fine Dust Sampler	UT/LAB/93	Politech	PEM-ADS 2.5/10µ	16013	10/01/2024

- 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/2009-04 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 limit, but not on two consecutive monitoring.

- END OF REPORT -



For ULTRA TECH,

Meghan Patil

(Authorized Signatory)

TEST REPORT

ISSUED TO: M/s. 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.: UT/ELS/REPORT/2339/04-2023
REPORT NO.: UT/ELS/REPORT/2339/04-2023
ISSUE DATE: 16/04/2023
YOUR REF.: R3000601-A1
REF. DATE: 08/04/2023

SAMPLE PARTICULARS		AMBIENT AIR QUALITY MONITORING	
Sampling Plan Ref. No.:	02-03/2023	Location Code	AM3
Sampling Procedure	UT/LQMS/SOP/AA01A	Sample Location	NHAVA Temporary Bridge Nr. MP-222 (Fortnightly 198 of 212)
Date & Time of Sampling	21/03/2023 11:00 Hrs. to 21/03/2023 15:00 Hrs.	GPS Co-ordinates	N 18°58'35.3", E 72°59'47.5"
Sample Registration Date	21/03/2023	Sample Collected By	ULTRA TECH
Analysis Starting Date	21/03/2023	Height of Sampler	1 Meter
Analysis Completion Date	29/03/2023	Sampling Duration	4:00 Hours:Minutes
Ambient Air Temperature	24.6 °C to 30.5 °C	Sample Lab Code	UT/ELS/482/03-2023
Relative Humidity	47.3 % to 79.5 %		

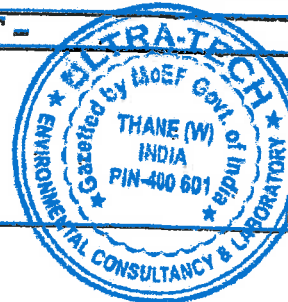
Sr. No.	Test Parameter	Test Method	Test Result	Unit	NAAQMS Industrial, Residential, Rural and Other Area 24 Hrs. of 1 Hr ²⁴
1	Benzene (C ₆ H ₆)	IS 5182 (Part 11) : 2006	2.1	µg/m ³	5*
2	Toluene	IS 5182 (Part 11) : 2006	1.0	µg/m ³	..
3	o-, m-, p-Xylene	IS 5182 (Part 11) : 2006	BDL(DL=1)	µg/m ³	..
4	Total VOC (as BTK)	IS 5182 (Part 11) : 2006	3.1	µg/m ³	..

Remark/ Statement of Conformity: Nil

Sampling Equipment Details	Instrument Used	Lab ID	Make	Model	Sr. No.	Calibration Valid up to
	Low Flow Air Sampler	UT/LAB/180	Polltech	PEM - LFAS 4	118	13/01/2024

- 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 -



For ULTRA TECH,

Meghan Patil
Meghan Patil
Authorized Signatory





TEST REPORT

ISSUED TO: BAEWOO TATA PROJECTS LIMITED- IV
 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/29333/04-2023
ISSUE DATE : 10/04/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No. : 02-03/2023
 Sampling Procedure : UT/LQMS/SOP/N01
 Date of Monitoring : 20/03/2023 to 21/03/2023

AMBIENT NOISE LEVEL MONITORING

Sample Lab Code : UT/ELS/484/03-2023
 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	Lmin	Lmax		Leq	Lmin	Lmax		
01:	At Nhava Temporary Bridge MP-222 Co-ordinates: 18°58'35.90"N, 72°59'47.00"E	06:00 to 07:00	65.6	58.3	73.2	22:00 to 23:00	66.4	59.2	76.2		
		07:00 to 08:00	69.8	58.3	82.3	23:00 to 00:00	65.6	57.3	73.8		
		08:00 to 09:00	67.4	58.8	77.7	00:00 to 01:00	63.6	54.6	72.2		
		09:00 to 10:00	66.8	58.7	76.9	01:00 to 02:00	61.8	51.7	71.6		
		10:00 to 11:00	68.1	58.7	76.7	02:00 to 03:00	58.8	49.1	68.5		
		11:00 to 12:00	69.3	60.4	78.8	03:00 to 04:00	62.4	46.2	75.7		
		12:00 to 13:00	69.6	62.3	79.8	04:00 to 05:00	62.2	49.7	74.7		
		13:00 to 14:00	72.6	66.6	81.8	05:00 to 06:00	63.6	53.6	73.1		
		14:00 to 15:00	71.9	64.2	81.7						
		15:00 to 16:00	71.6	60.8	82.3						
		16:00 to 17:00	72.1	60.8	82.8						
		17:00 to 18:00	71.4	58.3	81.6						
		18:00 to 19:00	69.4	57.7	77.0						
		19:00 to 20:00	75.8	59.2	87.7						
		20:00 to 21:00	67.5	59.1	76.3						
		21:00 to 22:00	65.2	58.9	73.4						
			L10	72.3			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				
			L50	64.7							
			L90	61.2							
	Day Leq	70.5			75						
		Night Leq	63.4			70					

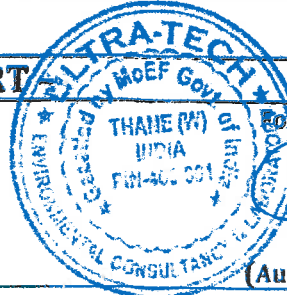
Remark/ Statement of Conformity: The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.

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 - SL-4035SD Sr. No. Q685620	Valid up to - 17/06/2023

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)

Environmental Consultancy & Laboratory

Lab. Gazetted by MoEF&CC-Govt. of India
 Lab. Accredited by NABL - ISO/IEC 17025:2017 (TC-5600, Valid until 03.08.2024 in the field of Testing)
 OCL-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 your Project: "MTIIL Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2334/04-2023
ISSUE DATE : 10/04/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No. : 02-03/2023
Sampling Procedure : UT/LQMS/SOP/N01
Date of Monitoring : 20/03/2023 to 21/03/2023

AMBIENT NOISE LEVEL MONITORING

Sample Lab Code : UT/ELS/485/03-2023
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	Lmin	Lmax		Leq	Lmin	Lmax					
02:	At casting yard, Between Batching Plant No. 01 & 02 Co-ordinates: 18°57'57.8"N, 73°00'00.70"E	06:00 to 07:00	56.4	52.2	63.9	22:00 to 23:00	64.0	57.8	72.6					
		07:00 to 08:00	64.6	63.9	66.5	23:00 to 00:00	63.9	58.2	75.6					
		08:00 to 09:00	59.8	51.9	72.8	00:00 to 01:00	60.4	56.9	68.7					
		09:00 to 10:00	61.6	54.8	71.3	01:00 to 02:00	59.6	54.6	67.9					
		10:00 to 11:00	72.3	50.4	89.6	02:00 to 03:00	60.6	54.4	72.7					
		11:00 to 12:00	68.5	50.7	79.8	03:00 to 04:00	60.1	53.5	72.3					
		12:00 to 13:00	65.7	47.8	79.8	04:00 to 05:00	57.1	53.4	65.7					
		13:00 to 14:00	77.1	45.3	91.8	05:00 to 06:00	57.0	54.0	63.0					
		14:00 to 15:00	68.7	45.4	82.3	..	..	..	..	
		15:00 to 16:00	68.7	46.5	80.6	..	..	..	..	
		16:00 to 17:00	67.0	49.5	78.6	..	..	..	..	
		17:00 to 18:00	61.9	52.8	73.8	..	..	..	..	
		18:00 to 19:00	61.0	52.3	72.7	..	..	..	..	
		19:00 to 20:00	64.2	51.3	78.0	..	..	..	..	
		20:00 to 21:00	59.1	51.0	69.0	..	..	..	..	
		21:00 to 22:00	57.0	48.7	66.9	..	..	..	..	
		L10		67.5			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							
		L50		59.6										
		L90		55.7										
		Day Leq		68.4								75		
		Night Leq		61.0								70		

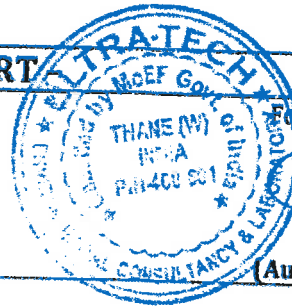
Remark/ Statement of Conformity: The observed values for LeqdB(A) for Day Time & Night Time are within the standard limits as per Ambient Air Quality Standards in respect of Noise prescribed in The Noise Pollution (Regulation and Control) Rules, 2000 for Industrial Zone.

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 - SL-4035SD Sr. No. 0685818	Valid up to - 17/08/2023

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,
 Thane (W)
 IN: A
 PAN: 400 201
 Meghan Patil
 (Authorized Signatory)

TEST REPORT

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

REPORT NO. : UT/ELS/REPORT/2331/04-2023
ISSUE DATE : 16/04/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

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

Sampling Plan Ref. No. : 02-03/2023
Sampling Procedure : UT/LQMS/SOP/W01A
Sample Registration Date : 20/03/2023
Date & Time of Sampling : 20/03/2023 at 11:45Hrs
Analysis Starting Date : 20/03/2023
Analysis Completion Date : 25/03/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/459/03-2023

Sample Type : Marine Water
Sample Location : At Marine Zone Near MP-172
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.

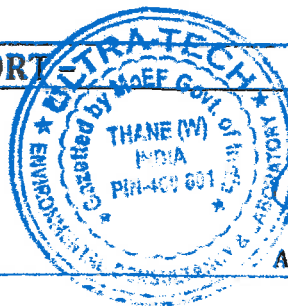
Sr. No.	Test Parameter	Test Method	Test Result	Unit	Standards Limits (Primary Water Quality Criteria for Class SW-IV Waters (For Harbour Waters), EP Rules - 1986)
1.	Temperature	IS 3025 (Part 09):1984	28.5	°C	--
2.	Turbidity	IS 3025 (Part 10):1984	21.1	NTU	--
3.	pH	IS 3025 (Part 11):2022	7.7	--	6.0 to 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	153	mg/L	--
8.	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009	5778	mg/L	--
9.	Salinity	COMAPS	33.3	ppt	--
10.	Oil & Grease	IS 3025 (Part 39):2021	BDL(DL=2)	mg/L	10
11.	Arsenic as As	APHA 23 rd 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 23 rd 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 analysed 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 IS 3025 (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

TEST REPORT

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

REPORT NO. : UT/ELS/REPORT/2332/04 2023
ISSUE DATE : 10/04/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No. : 02-03/2023
 Sampling Procedure : UT/LQMS/SOP/W01A
 Sample Registration Date : 20/03/2023
 Date & Time of Sampling : 20/03/2023 at 11:55Hrs
 Analysis Starting Date : 20/03/2023
 Analysis Completion Date : 25/03/2023
 Sample Collected By : ULTRA TECH
 Sample Lab Code : UT/ELS/460/03-2023

MARINE WATER QUALITY MONITORING

Sample Type : Marine Water
 Sample Location : At Intertidal Zone Near MP-195
 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 1986 - 1986)
1.	Temperature	IS 3025 (Part 09):1984	28.1	°C	..
2.	Turbidity	IS 3025 (Part 10):1984	0.5	NTU	..
3.	pH	IS 3025 (Part 11):2022	7.7	..	..
4.	Dissolved Oxygen	IS 3025 (Part 38):1989	6.8	mg/L	6.0 to 9.0
5.	Biochemical Oxygen demand (At 27°C for 3 Days)	IS 3025 (Part 44):1993	BDL(DL=2)	mg/L	Min. 3.0
6.	Chemical Oxygen Demand	IS 3025 (Part 46):1994	12	mg/L	5.0
7.	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986	145	mg/L	..
8.	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009	535.0	mg/L	..
9.	Salinity	EDMAPS	35.2	ppt	..
10.	Oil & Grease	IS 3025 (Part 39): 2021	BDL(DL=2)	mg/L	..
11.	Arsenic as As	APHA 23 rd Ed. 3114 E	BDL(DL=0.003)	mg/L	10
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 23 rd Ed. 3112 B	BDL(DL=0.006)	mg/L	..

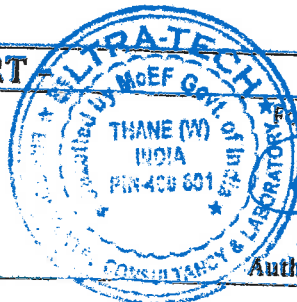
BDL: Below Detection Limit
 DL: Detection Limit

Remark/ Statement of Conformity: The given sample conforms 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



Environmental Consultancy & Laboratory

Lab. Gazetted by MoEF&CC, Govt. of India
 Lab. Accredited by NABL - ISO/IEC 17025:2017 ITC-5600, Valid until 03.08.2024 in the field of Testing)
 OCL-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-IV
 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/2335/04-2023
ISSUE DATE : 10/04/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No. : 02-03/2023
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/03/2023
Date & Time of Sampling : 20/03/2023 at 14:15Hrs
Analysis Starting Date : 20/03/2023
Analysis Completion Date : 28/03/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/461/03-2023

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	1115	kg/m ³
2.	Total Organic Carbon	IS:2720 (PART 22) : 1972	0.41	%
3.	pH	IS:2720 (PART 26) : 1987	7.4	-
4.	Conductivity (1:2soil:Water Extract)	IS:14767-2008	425	µS/cm
5.	Moisture Content	IS:2720 (PART 02) : 1973	13.9	%
6.	Sodium as Na	UT/LQMS/SOP/S19	648	mg/kg
7.	Potassium as K	UT/LQMS/SOP/S20	87	mg/kg
8.	Calcium as Ca	UT/LQMS/SOP/S21	364	mg/kg
9.	Magnesium as Mg	UT/LQMS/SOP/S22	295	mg/kg
10.	Sodium Adsorption Ratio	UT/LQMS/SOP/S26	13.5	(meq/kg) ^{1/2}
11.	Cation Exchange Capacity	UT/LQMS/SOP/S18	30.7	meq/100g
12.	Porosity	UT/LQMS/SOP/S48	53.2	%
13.	Silt	UT/LQMS/SOP/S30	55.6	%
14.	Clay	UT/LQMS/SOP/S30	44.2	%
15.	Cadmium as Cd	UT/LQMS/SOP/S35 & S37	BDL(DL=2)	mg/kg
16.	Chromium as Cr	UT/LQMS/SOP/S35 & S37	43	mg/kg
17.	Cobalt as Co	UT/LQMS/SOP/S35 & S37	15	mg/kg
18.	Copper as Cu	UT/LQMS/SOP/S35 & S37	112	mg/kg
19.	Iron as Fe	UT/LQMS/SOP/S35 & S37	43123	mg/kg
20.	Lead as Pb	UT/LQMS/SOP/S35 & S37	BDL(DL=5)	mg/kg
21.	Manganese as Mn	UT/LQMS/SOP/S35 & S37	1045	mg/kg
22.	Nickel as Ni	UT/LQMS/SOP/S35 & S37	86	mg/kg
23.	Zinc as Zn	UT/LQMS/SOP/S35 & S37	49	mg/kg

BDL-Below Detection Limit

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. 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/2335/04-2023 Dated 10/04/2023 for final conclusion.

- END OF REPORT -



For ULTRA TECH

Manjoshi

Manasi Namjoshi
 (Authorized Signatory)

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/2336/04-2023
 ISSUE DATE : 10/04/2023
 YOUR REF. : 83000601-A1
 REF. DATE : 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No. : 02-03/2023
 Sampling Procedure : UT/LQMS/SOP/S01A
 Sample Registration Date : 20/03/2023
 Date & Time of Sampling : 20/03/2023 at 14:15Hrs
 Analysis Starting Date : 20/03/2023
 Analysis Completion Date : 28/03/2023
 Sample Collected By : ULTRA TECH
 Sample Lab Code : UT/ELS/461/03-2023

SOIL QUALITY MONITORING

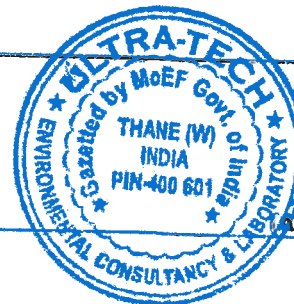
Sample Type : Soil Sample
 Sample Location : At Casting Yard
 Sample Quantity & Packing Details : 1kg in Plastic Bag Contained in Zip Lock Bag

Sr. No.	Test Parameter	Test Method	Test Result	Unit
1.	Salinity (1:2 soil: Water Extract)	Calculated in terms of Total Dissolved Solids	263.5	mg/L
2.	Gravel	UT/LQMS/SOP/S39	1.88	%
3.	Coarse Sand	UT/LQMS/SOP/S39	0.64	%
4.	Medium Sand	UT/LQMS/SOP/S39	1.52	%
5.	Fine Sand	UT/LQMS/SOP/S39	0.3	%
6.	Barium as Ba	UT/LQMS/SOP/S35 & S37	57	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 BARPW, 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/2335/04-2023 Dated 10/04/2023 for final conclusion.

- END OF REPORT -



For ULTRA TECH

M/Nanjoshi

Manasi Namjoshi
 (Authorized Signatory)

Environmental Consultancy & Laboratory

Lab. Gazetted by MoEF&CC, Govt. of India
 Lab. Accredited by NABL - ISO/IEC 17025:2017 ITC-5600 Valid until 03.08.2024 in the field of Testing)
 CCI-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.3 G.V. Brothers Bldg. Bala 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- IV
 3rd Floor, Transocean House, Lake Boulevard Road, Hiranandani Gardens,
 MHADA Colony 19, Powai, Mumbai - 400076, Maharashtra, India.
For Your Project: "MTHI Package 2 Project"

REPORT NO. : UT/ELS/REPORT/2337/04-2023
ISSUE DATE : 16/04/2023
YOUR REF. : 83000601-A1
REF. DATE : 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No. : 02-03/2023
Sampling Procedure : UT/LQMS/SOP/S01A
Sample Registration Date : 20/03/2023
Date & Time of Sampling : 20/03/2023 at 14:30Hrs
Analysis Starting Date : 20/03/2023
Analysis Completion Date : 28/03/2023
Sample Collected By : ULTRA TECH
Sample Lab Code : UT/ELS/462/03-2023

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	1.083	kg/m ³
2.	Total Organic Carbon	IS:2720 (Part 22) : 1972	0.50	%
3.	pH	IS:2720 (Part 26) : 1987	7.2	-
4.	Conductivity (1:2soil:Water Extract)	IS:14767: 2000	11086	µS/cm
5.	Moisture Content	IS:2720 (Part 02) : 1973	12.6	%
6.	Sodium as Na	UT/LQMS/SOP/S19	3124	mg/kg
7.	Potassium as k	UT/LQMS/SOP/S20	45	mg/kg
8.	Calcium as Ca	UT/LQMS/SOP/S21	525	mg/kg
9.	Magnesium as Mg	UT/LQMS/SOP/S22	319	mg/kg
10.	Sodium Adsorption Ratio	UT/LQMS/SOP/S26	24.7	(meq/kg) ^{1/2}
11.	Cation Exchange Capacity	UT/LQMS/SOP/S18	42.8	meq/100g
12.	Parasity	UT/LQMS/SOP/S40	52.1	%
13.	Silt	UT/LQMS/SOP/S39	60.4	%
14.	Clay	UT/LQMS/SOP/S39	37.4	%
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	19	mg/kg
18.	Copper as Cu	UT/LQMS/SOP/S35 & S37	112	mg/kg
19.	Iron as Fe	UT/LQMS/SOP/S35 & S37	54562	mg/kg
20.	Lead as Pb	UT/LQMS/SOP/S35 & S37	BDL (DL=5)	mg/kg
21.	Manganese as Mn	UT/LQMS/SOP/S35 & S37	728	mg/kg
22.	Nickel as Ni	UT/LQMS/SOP/S35 & S37	36	mg/kg
23.	Zinc as Zn	UT/LQMS/SOP/S35 & S37	58	mg/kg

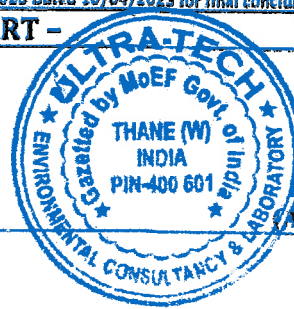
BDL-Below Detection Limit

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&PW, 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. This test report shall be referred along with Test Report No. UT/ELS/REPORT/2336/04-2023 Dated 10/04/2023 for final conclusion.

- END OF REPORT -



For ULTRA TECH

M. Namjoshi
 Manasi Namjoshi
 (Authorized Signatory)

TEST REPORT

ISSUED TO: DAEWOO-TATA PROJECTS LIMITED- JV

3rd Floor, Transocean House, Lake Boulevard Road, Hirahandani Gardens,
 MHADA colony 19, Powai, Mumbai - 400076, Maharashtra, India.
For Your Project: "MTHL Package 2 Project"

REPORT NO.: UT/ELS/REPORT/2338/04 2023
ISSUE DATE: 16/04/2023
YOUR REF.: 83000601-A1
REF. DATE: 08/04/2023

SAMPLE PARTICULARS

Sampling Plan Ref. No.: 02-03/2023
Sampling Procedure: UT/LQMS/SOP/S01A
Sample Registration Date: 20/03/2023
Date & Time of Sampling: 20/03/2023 at 14:30Hrs
Analysis Starting Date: 20/03/2023
Analysis Completion Date: 28/03/2023
Sample Collected By: ULTRA TECH
Sample Lab Code: UT/ELS/462/03-2023

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	7245.32	mg/L
2.	Gravel	UT/LQMS/SOP/S39	1.99	%
3.	Coarse Sand	UT/LQMS/SOP/S39	6.64	%
4.	Medium Sand	UT/LQMS/SOP/S39	1.22	%
5.	Fine Sand	UT/LQMS/SOP/S39	0.32	%
6.	Barium as Ba	UT/LQMS/SOP/S35 & S37	69	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 D&FW, MoA, Govt. 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/2337/04-2023 Dated 16/04/2023 for final conclusion

- END OF REPORT -



For ULTRA TECH

Manjoshi
 Manasi Namjoshi
 Authorized Signatory



Ref: MTHL/ P3/L&T/GC/LT/HSE-6003625/2023

Date: 03.04.2023

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 CE letter no 11-65/2012-IA.III dated 25.1.2016 granting CRZ clearance to the
Mumbai Trans Harbour Link Project.
2. CE 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 2023 for your kind information and
records.

1. Ambient Air quality (48 hrs)
2. Ambient Noise quality
3. Wastewater quality (labour colony)
4. DG Sets stack monitoring
5. Wastewater quality of sedimentation tank

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

For LARSEN & TOUBRO LIMITED,



(Satya Prakash)
Project Director



Mumbai Trans Harbour Link Project - Pkg. 3

CC: The Chief Engineer, MTHL-PIU, MMRDA, Mumbai, INDIA 400 051

Encl: MTHL PACKAGE-3 Sept -2021 Environment Monitoring Test Reports. [016 pages]



Sky Lab ANALYTICAL LABORATORY

- : ENVIRONMENTAL MONITORING
- : FOOD & MICROBIOLOGICAL TESTING
- : TEXTILE TESTING
- : ELEMENTAL ANALYSIS
- : TURNKEY, ENVIRONMENT CONSULTANCY

ULR NO: TCS15023000012970F

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/L&TU/AAM (22-23-0782)
REPORT DATE :29/03/2023
CUSTOMER REF :EH383W001000025
REF DATE :23/03/2021

SAMPLE TYPE:

AMBIENT AIR QUALITY MONITORING

SAMPLE REGISTRATION NO : : AAM (22-23-0782)
SAMPLING PLAN & METHOD NO : : As per Reference Method
SAMPLING DATE :23/03/2023 to 24/03/2023
SAMPLING TIME :02:00 PM TO 02:00 PM
ANALYSIS START DATE :27/03/2023
ANALYSIS COMPLETE DATE :29/03/2023

LOCATION : Jasai-2

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit*	Reference Method
1.	Particulate Matter as PM10	24 HRS	µg/m ³	83.3	100	IS:5182, (Part 23)
2.	Particulate Matter as PM2.5	24 HRS	µg/m ³	41.6	60	IS:5182, (Part 24)
3.	Sulphur Dioxide (SO ₂)	24 HRS	µg/m ³	29.5	80	IS:5182, (Part 2)
4.	Nitrogen Oxide (NOx)	24 HRS	µg/m ³	47.5	80	IS: 5182, (Part 6)
5.	Carbon Monoxide (CO)	8 HRS	mg/m ³	0.69	2	IS 5182 (Part 10)
6.	Ozone (O ₃)	8 HRS	µg/m ³	<20	100	Method 411, Methods of Air Sampling and Analysis, 3rd Edition
7.	Ammonia (NH ₃)	24 HRS	µg/m ³	18.1	400	Method 401, Methods of Air Sampling and Analysis, 3rd Edition
8.	Benzene (C ₆ H ₆)	24 HRS	µg/m ³	<0.10	5	IS 5182 (Part 11)
9.	Benzo(a)pyrene	24 HRS	ng/m ³	<1	1	IS 5182 (Part 12)
10.	Metal-Lead	24 HRS	µg/m ³	<0.1	1	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
11.	Metal-Arsenic	24 HRS	ng/m ³	<1	6	Method 302, Methods of Air Sampling and Analysis, 3rd Edition
12.	Metal-Nickel	24 HRS	ng/m ³	0.69	20	Method 822, Methods of Air Sampling and Analysis, 3rd Edition

*: 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

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Dist. Thane, Maharashtra, INDIA, Pincode - 421311
Mob. No. - 9867577309 / 310 / 312 / 9930060058
Email - mails@skylabenviro.com Website - www.skylabenviro.com



SALAC2322020614581



SKYLAB ANALYTICAL LABORATORY

- ENVIRONMENTAL MONITORING
- FOOD & MICROBIOLOGICAL TESTING
- TEXTILE TESTING
- ELEMENTAL ANALYSIS
- TURNKEY, ENVIRONMENT CONSULTANCY

TEST REPORT

NAME & ADDRESS OF CUSTOMER:

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

REPORT NO :SAL/FM/58/ L&TU/ AAM (22-23-0782)
REPORT DATE :29/03/2023
CUSTOMER REF :EH383W0D1000025
REF DATE :23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO : : AAM (22-23-0782)
SAMPLING PLAN & METHOD NO : :As per Reference Method
SAMPLING DATE :23/03/2023 to 24/03/2023
SAMPLING TIME :02:00 PM TO 02:00 PM
ANALYSIS START DATE :27/03/2023
ANALYSIS COMPLETE DATE :29/03/2023

AMBIENT AIR QUALITY MONITORING

LOCATION : Jasai-2

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit*	Reference Method
13.	Methane (CH4)	24 HRS	ppm	1.8	-	IS 5182 (Part 17)
14.	VOC (BTX)	24 HRS	ug/m ³	1.3	-	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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ULR NO: TC515023000012966F

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/ L&TU/ AAM (22-23-0783)
REPORT DATE : 29/03/2023
CUSTOMER REF : EH383W001000025
REF DATE : 23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO : AAM (22-23-0783)
SAMPLING PLAN & METHOD NO : As per Reference Method
SAMPLING DATE : 24/03/2023 to 25/03/2023
SAMPLING TIME : 01:55 PM TO 01:55 PM
ANALYSIS START DATE : 27/03/2023
ANALYSIS COMPLETE DATE : 29/03/2023

AMBIENT AIR QUALITY MONITORING

LOCATION : Jasai-2

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit ¹	Reference Method
1.	Particulate Matter as PM10	24 HRS	µg/m ³	89.6	100	IS:5182, (Part 23)
2.	Particulate Matter as PM2.5	24 HRS	µg/m ³	47.9	60	IS:5182, (Part 24)
3.	Sulphur Dioxide (SO ₂)	24 HRS	µg/m ³	34.6	80	IS:5182, (Part 2)
4.	Nitrogen Oxide (NO _x)	24 HRS	µg/m ³	52.7	80	IS:5182, (Part 6)
5.	Carbon Monoxide (CO)	8 HRS	mg/m ³	0.78	2	IS 5182 (Part 10)
6.	Ozone (O ₃)	8 HRS	µg/m ³	<20	100	Method 411, Methods of Air Sampling and Analysis, 3rd Edition
7.	Ammonia (NH ₃)	24 HRS	µg/m ³	20.7	400	Method 401, Methods of Air Sampling and Analysis, 3rd Edition
8.	Benzene (C ₆ H ₆)	24 HRS	µg/m ³	<0.10	5	IS 5182 (Part 11)
9.	Benzo(a)pyrene	24 HRS	ng/m ³	<1	1	IS 5182 (Part 12)
10.	Metal-Lead	24 HRS	µg/m ³	<0.1	1	Method 822, Methods of Air Sampling and Analysis, 3rd Edition
11.	Metal-Arsenic	24 HRS	ng/m ³	<1	6	Method 302, Methods of Air Sampling and Analysis, 3rd Edition
12.	Metal-Nickel	24 HRS	ng/m ³	0.76	20	Method 822, Methods of Air Sampling and Analysis, 3rd Edition

¹: 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



END OF REPORT

For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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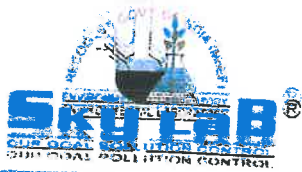


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TEST REPORT

NAME & ADDRESS OF CUSTOMER:

M/S : L & T CONSTRUCTION
MTHL-3 Project, Near Kharkopar Railway Station,
Ulwe, Navi Mumbai - 410206

REPORT NO : SAL/FM/S8/ L&TU/ AAM (22-23-0783)

REPORT DATE : 29/03/2023

CUSTOMER REF : EH383WOD1000025

REF DATE : 23/03/2021

SAMPLE TYPE:**AMBIENT AIR QUALITY MONITORING**

SAMPLE REGISTRATION NO : AAM (22-23-0783)
SAMPLING PLAN & METHOD NO : As per Reference Method
SAMPLING DATE : 24/03/2023 to 25/03/2023
SAMPLING TIME : 01:55 PM TO 01:55 PM
ANALYSIS START DATE : 27/03/2023
ANALYSIS COMPLETE DATE : 29/03/2023

LOCATION : Jasal-2

SAMPLE COLLECTED BY: SKYLAB

Sr.No.	Test Parameter	Duration	Unit	Result	Limit ^a	Reference Method
13.	Methane (CH ₄)	24 HRS	ppm	2.3	-	IS 5182 (Part 17)
14.	VOC (BTX)	24 HRS	µg/m ³	0.8	-	IS 5182 (Part 11)

^a: 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/L&TU/DGSM (22-23-0883)

REPORT DATE :31/03/2023

CUSTOMER REF :EH383WOD1000025

REF DATE :23/03/2023

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : DGSM (22-23-0883)

DG STACK EMISSION MONITORING

LOCATION :DG Stack-1 (62.5 KVA)
(Zero point-Jasai)

SAMPLING PLAN & METHOD NO. : As per Reference Method

SAMPLING DATE :23/03/2023

SAMPLING TIME :03:20 PM

ANALYSIS START DATE :25/03/2023

ANALYSIS COMPLETE DATE :31/03/2023

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	°C	113	NA	IS 11255 (Part 1)
4.	Velocity	m/s	8.0	NA	IS 11255 (Part 1)
5.	Flue Gas Discharge	Nm ³ /hr	174	NA	IS 11255 (Part 1)
6.	Total Particulate Matter (TPM)	mg/Nm ³	46.8	NS	IS 11255 (Part 1)
	Total Particulate Matter (TPM)	g/kwh	0.16	≤ 0.3	IS 11255 (Part 1)
7.	Carbon Monoxide (CO)	mg/Nm ³	90.4	NS	EPA Method 10
	Carbon Monoxide (CO)	g/kwh	0.315	≤ 3.5	EPA Method 10
8.	Nitrogen Oxide (NOx)	mg/Nm ³	68.1	NS	IS 11255, (Part 7)
	Nitrogen Oxide (NOx)	g/kwh	0.24	≤ 4.7	IS 11255, (Part 7)
9.	Hydrocarbon (HC)	mg/Nm ³	59	NS	Instrumental
	Hydrocarbon (HC)	g/kwh	0.205	≤ 4.7	Instrumental

NS: Not Specified. NA: Not Applicable. [#]: As per EPCB Guidelines.

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

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/ L&TU/ DGSM (22-23-0884)
REPORT DATE : 31/03/2023
CUSTOMER REF : EH383WOB1000025
REF DATE : 23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO: : DGSM (22-23-0884)
SAMPLING PLAN & METHOD NO: : As per Reference Method
SAMPLING DATE : 23/03/2023
SAMPLING TIME : 04:00 PM
ANALYSIS START DATE : 25/03/2023
ANALYSIS COMPLETE DATE : 31/03/2023

DG STACK EMISSION MONITORING

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 ¹	Reference Method
1.	Dimensions of Stack	m	0.1	NA	-
2.	Cross section area of Stack	m ²	0.008	NA	-
3.	Temperature	°C	111	NA	IS 11255 (Part 1)
4.	Velocity	m/s	8.6	NA	IS 11255 (Part 1)
5.	Flue Gas Discharge	Nm ³ /hr	188.1	NA	IS 11255 (Part 1)
6.	Total Particulate Matter (TPM)	mg/Nm ³	45.3	NS	IS 11255 (Part 1)
	Total Particulate Matter (TPM)	g/kwh	0.17	≤ 0.3	IS 11255 (Part 1)
7.	Carbon Monoxide (CO)	mg/Nm ³	81.3	NS	EPA Method 10
	Carbon Monoxide (CO)	g/kwh	0.306	≤ 3.5	EPA Method 10
8.	Nitrogen Oxide (NOx)	mg/Nm ³	76	NS	IS 11255, (Part 7)
	Nitrogen Oxide (NOx)	g/kwh	0.286	≤ 4.7	IS 11255, (Part 7)
9.	Hydrocarbon (HC)	mg/Nm ³	52	NS	Instrumental
	Hydrocarbon (HC)	g/kwh	0.196	≤ 4.7	Instrumental

NS: Not Specified. NA: Not Applicable. ¹: 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

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- TEXTILE TESTING
- ELEMENTAL ANALYSIS
- ELEMENTAL ANALYSIS
- TURNKEY, ENVIRONMENT CONSULTANCY

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/ L&TU/ DGSM (22-23-0885)

REPORT DATE : 31/03/2023

CUSTOMER REF : EH383 WOD1000025

REF DATE : 23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : DGSM (22-23-0885)

DG STACK EMISSION MONITORING

LOCATION : DG Stack-2, (250 KVA)
(Near Site Office)

SAMPLING PLAN & METHOD NO. : As per Reference Method

SAMPLING DATE : 23/03/2023

SAMPLING TIME : 04:30 PM

ANALYSIS START DATE : 25/03/2023

ANALYSIS COMPLETE DATE : 31/03/2023

SAMPLE COLLECTED BY : SKYLAB

STACK HEIGHT : 3.5 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	°C	117	NA	IS 11255 (Part 1)
4.	Velocity	m/s	8.9	NA	IS 11255 (Part 1)
5.	Flue Gas Discharge	Nm ³ /hr	192.2	NA	IS 11255 (Part 1)
6.	Total Particulate Matter (TPM)	mg/Nm ³	58.6	NS	IS 11255 (Part 1)
	Total Particulate Matter (TPM)	g/kwh	0.056	≤ 0.2	IS 11255 (Part 1)
7.	Carbon Monoxide (CO)	mg/Nm ³	93	NS	EPA Method 10
	Carbon Monoxide (CO)	g/kwh	0.09	≤ 3.5	EPA Method 10
8.	Nitrogen Oxide (NOx)	mg/Nm ³	112.3	NS	IS 11255, (Part 7)
	Nitrogen Oxide (NOx)	g/kwh	0.11	≤ 4.0	IS 11255, (Part 7)
9.	Hydrocarbon (HC)	mg/Nm ³	7.3	NS	Instrumental
	Hydrocarbon (HC)	g/kwh	0.070	≤ 4.0	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

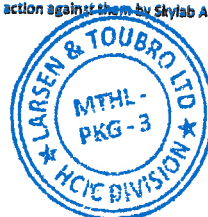


For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

END OF REPORT

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ULR NO: TC515023000012974F

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/L&TU/NM(22-23-2280)
REPORT DATE : 30/03/2023
CUSTOMER REF : EH383W001000025
REF DATE : 23/03/2023

SAMPLE TYPE:

SAMPLE REGISTRATION NO. : NM(22-23-2280)
SAMPLING PLAN & METHOD NO. : IS 9589: 1981
SAMPLING DATE : 23/03/2023 to 24/03/2023

AMBIENT NOISE MONITORING

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	66.7
07.00 to 08.00	67.0
08.00 to 09.00	66.6
09.00 to 10.00	67.6
10.00 to 11.00	67.4
11.00 to 12.00	66.5
12.00 to 13.00	66.7
13.00 to 14.00	66.5
14.00 to 15.00	66.6
15.00 to 16.00	67.8
16.00 to 17.00	67.6
17.00 to 18.00	67.4
18.00 to 19.00	63.6
19.00 to 20.00	68.8
20.00 to 21.00	68.9
21.00 to 22.00	67.2

Night Time (Hrs.)	Noise Level dB(A) Hourly L _{eq}
22.00 to 23.00	53.6
23.00 to 00.00	55.5
00.00 to 01.00	53.0
01.00 to 02.00	53.6
02.00 to 03.00	54.8
03.00 to 04.00	55.8
04.00 to 05.00	55.9
05.00 to 06.00	56.2

Noise Level Monitoring Report Summary

Lmin.	Lmax.	L _{eq} Day	L _{eq} Night	L ₉₀
53.0	68.9	66.7	54.9	62.6

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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Dist. Thane, Maharashtra, INDIA, Pincode - 421311
Mob. No. - 9867577309 / 310 / 312 / 9930060058
Email - mails@skylabenviro.com Website - www.skylabenviro.com

SALAC2322020614573



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- ELEMENTAL ANALYSIS
- TURNKEY ENVIRONMENT CONSULTANCY

ULR NO: TCS15023000012973F

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/L&TU/NM(22-23-2281) REPORT DATE :30/03/2023 CUSTOMER REF :EH383WOB1000025 REF DATE :23/03/2021
SAMPLE TYPE: SAMPLE REGISTRATION NO: :NM(22-23-2281) SAMPLING PLAN & METHOD NO: : IS 9889: 1981 SAMPLING DATE : 23/03/2023 to 24/03/2023		AMBIENT NOISE MONITORING SAMPLE LOCATION : Jasai-2 SAMPLING DURATION : 24 HRS

Day Time (Hrs.)		Noise Level dB(A) Hourly L _{eq}	Night Time (Hrs.)		Noise Level dB(A) Hourly L _{eq}
06.00 to 07.00		64.1	22.00 to 23.00		58.4
07.00 to 08.00		69.2	23.00 to 00.00		57.8
08.00 to 09.00		68.9	00.00 to 01.00		57.8
09.00 to 10.00		66.2	01.00 to 02.00		58.0
10.00 to 11.00		70.4	02.00 to 03.00		58.0
11.00 to 12.00		67.4	03.00 to 04.00		58.2
12.00 to 13.00		70.4	04.00 to 05.00		58.3
13.00 to 14.00		67.7	05.00 to 06.00		58.2
14.00 to 15.00		65.8			
15.00 to 16.00		68.3			
16.00 to 17.00		67.2			
17.00 to 18.00		65.5			
18.00 to 19.00		65.4			
19.00 to 20.00		73.6			
20.00 to 21.00		64.4			
21.00 to 22.00		67.1			

Noise Level Monitoring Report Summary

Lmin.	Lmax.	L _{eq} Day	L _{eq} Night	L _{eq}
57.8	73.6	72.3	64.1	68.2

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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ANALYTICAL LABORATORY

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- : FOOD & MICROBIOLOGICAL TESTING
- : TEXTILE TESTING
- : ELEMENTAL ANALYSIS
- : TURNKEY, ENVIRONMENT CONSULTANCY

ULR NO: TC515023000012975F

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/L&TU/NM(22-23-2282)
REPORT DATE :30/03/2023
CUSTOMER REF :EH383WGB1000025
REF DATE :23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO. :NM(22-23-2282)
SAMPLING PLAN & METHOD NO. : IS 9989: 1981
SAMPLING DATE : 23/03/2023 to 24/03/2023

AMBIENT NOISE MONITORING

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	71.3
07.00 to 08.00	74.7
08.00 to 09.00	68.4
09.00 to 10.00	68.4
10.00 to 11.00	71.0
11.00 to 12.00	72.0
12.00 to 13.00	74.7
13.00 to 14.00	64.5
14.00 to 15.00	68.4
15.00 to 16.00	65.0
16.00 to 17.00	64.8
17.00 to 18.00	64.4
18.00 to 19.00	67.9
19.00 to 20.00	62.8
20.00 to 21.00	63.9
21.00 to 22.00	60.4

Night Time (Hrs.)	Noise Level dB(A)
	Hourly L_{eq}
22.00 to 23.00	54.4
23.00 to 00.00	54.7
00.00 to 01.00	55.8
01.00 to 02.00	57.7
02.00 to 03.00	59.1
03.00 to 04.00	62.0
04.00 to 05.00	60.1
05.00 to 06.00	64.3

Noise Level Monitoring Report Summary

Lmin.	Lmax.	L_{eq} Day	L_{eq} Night	L_{SN}
54.4	74.7	69.6	62.7	70.9

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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Dist. Thane, Maharashtra, INDIA, Pincode - 421311
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ULR NO: TC515023000012976F

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/61/1 &TU/WW(22-23-2101)
REPORT DA :26/03/2023
CUSTOMER REF :EH383W0D1000025
REF DATE :23/03/2023

SAMPLE TYPE:
SAMPLE REGISTRATION NO. :WW(22-23-2101)
SAMPLING PLAN & METHOD NO. : IS 3025 Part 1:1987 RA 2019
SAMPLING DATE : 15/03/2023
SAMPLE RECEIPT DATE : 15/03/2023
ANALYSIS START DATE : 16/03/2023
ANALYSIS COMPLETE DATE : 26/03/2023

EFFLUENT WATER ANALYSIS
LOCATION : Sedimentation Tank, Gavan
SAMPLE SPECIFICATION : Treated Effluent Water
SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit ¹	Reference Method
1.	pH	-	8.58	8.5 - 9.0	IS 3025 (Part 11)
2.	Total suspended solids	mg/L	56	100	IS 3025 (Part 17)
3.	AMMONICAL Nitrogen	mg/L	<0.5	50	IS 3025 (Part 34)
4.	Total Nitrogen	mg/L	2.24	100	IS 3025 (Part 34)
5.	Chemical Oxygen Demand (COD)	mg/L	207	250	IS 3025 (Part 58)
6.	Biochemical Oxygen Demand (BOD)	mg/L	18.4	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

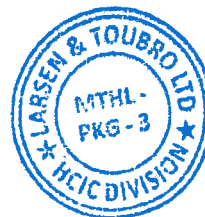


For SKYLAB ANALYTICAL LABORATORY

Technical Manager
Authorized Signatory

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- TURNKEY, ENVIRONMENT CONSULTANCY

ULR NO: FES15023000012977F

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/61/1 & TU/WW(22-23-2166)
 REPORT DA :31/03/2023
 CUSTOMER REF :EH383WOD1000025
 REF DATE :23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO. :WW(22-23-2166)
 SAMPLING PLAN & METHOD NO. : IS 3025 Part 1:1987 RA 2019
 SAMPLING DATE : 23/03/2023
 SAMPLE RECEIPT DATE : 23/03/2023
 ANALYSIS START DATE : 24/03/2023
 ANALYSIS COMPLETE DATE : 31/03/2023

EFFLUENT WATER ANALYSIS

LOCATION : Bio tank, Shald 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.	BH	-	7.21	5.5 - 9.0	
2.	Total suspended solids	mg/L	86	100	IS 3025 (Part 11)
3.	Total dissolved solids	mg/L	2204	NS	IS 3025 (Part 17)
4.	Biochemical Oxygen Demand (BOD)	mg/L	21.9	30	IS 3025 (Part 16)
					IS 3025 (Part 44)

NS: Not Specified. *: As per GPCB 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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- : TURNKEY, ENVIRONMENT CONSULTANCY

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/61/1 & TU/WW(22-23-2166)
REPORT DA :31/03/2023
CUSTOMER REF :EH383WOB1000025
REF DATE :23/03/2021

SAMPLE TYPE:
SAMPLE REGISTRATION NO. :WW(22-23-2166)
SAMPLING PLANS & METHOD NO. : IS 3025 Part 1:1987 RA 2019
SAMPLING DATE :23/03/2023
SAMPLE RECEIPT DATE :23/03/2023
ANALYSIS START DATE :24/03/2023
ANALYSIS COMPLETE DATE :31/03/2023

EFFLUENT WATER ANALYSIS
LOCATION : Bio tank, Shaid 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	APHA 23 rd Ed. 9221 E

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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- TEXTILE TESTING
- ELEMENTAL ANALYSIS
- TURNKEY ENVIRONMENT CONSULTANCY

ULR NO: TC515023600012978F

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/61/1 & TU/WW(22-23-2167)
REPORT DA : 31/03/2023
CUSTOMER REF :EH383W0D1000025
REF DATE :23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO. :WW(22-23-2167)
SAMPLING PLAN & METHOD NO. : IS 3025 Part 1:1987 RA 2019
SAMPLING DATE : 23/03/2023
SAMPLE RECEIPT DATE : 23/03/2023
ANALYSIS START DATE : 24/03/2023
ANALYSIS COMPLETE DATE : 31/03/2023

EFFLUENT WATER ANALYSIS

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	-	7.29	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	2238	NS	IS 3025 (Part 16)
4.	Biochemical Oxygen Demand (BOD)	mg/L	13.7	30	IS 3025 (Part 44)

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

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

Verified by

Sr. Analyst



For SKYLAB ANALYTICAL LABORATORY

Handwritten signature

Technical Manager
Authorized Signatory

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- TURNKEY, ENVIRONMENT CONSULTANCY

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/I & TU/WW(22-23-2167) REPORT DA : 31/03/2023 CUSTOMER REF :EH383W0D1000025 REF DATE :23/03/2021
SAMPLE TYPE: SAMPLE REGISTRATION NO: :WW(22-23-2167) SAMPLING PLAN & METHOD NO: : IS 3025 Part 1:1987 RA 2019 SAMPLING DATE : 23/03/2023 SAMPLE RECEIPT DATE : 23/03/2023 ANALYSIS START DATE : 24/03/2023 ANALYSIS COMPLETE DATE : 31/03/2023		EFFLUENT WATER ANALYSIS 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	APHA 23rd Ed. 9221 E

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
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ULR NO: TC515023000012976F

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/61/1 & TU/WW(22-23-2101)
REPORT DA :20/03/2023
CUSTOMER REF :EH383W0D1000025
REF DATE :23/03/2021

SAMPLE TYPE:

SAMPLE REGISTRATION NO. :WW(22-23-2101)
SAMPLING PLAN & METHOD NO. : IS 3025 Part 1:1987 RA 2019
SAMPLING DATE :15/03/2023
SAMPLE RECEIPT DATE :15/03/2023
ANALYSIS START DATE :16/03/2023
ANALYSIS COMPLETE DATE :20/03/2023

EFFLUENT WATER ANALYSIS

LOCATION : Sedimentation Tank, Gavan
SAMPLE SPECIFICATION : Treated Effluent Water

SAMPLE COLLECTED BY : SKYLAB
SAMPLE QUANTITY : 1 Ltrs

Sr. No.	Test Parameter	Unit	Result	Limit*	Reference Method
1.	pH	-	8.68	5.5 - 9.0	IS 3025 (Part 11)
2.	Total suspended solids	mg/L	56	100	IS 3025 (Part 17)
3.	Ammonical Nitrogen	mg/L	<0.5	50	IS 3025 (Part 34)
4.	Total Nitrogen	mg/L	2.24	100	IS 3025 (Part 34)
5.	Chemical Oxygen Demand (COD)	mg/L	207	250	IS 3025 (Part 58)
6.	Biochemical Oxygen Demand (BOD)	mg/L	18.4	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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EMP Expenditure Details up to March -23			
Sr. No	Environmental attribute	Provisions (As stipulated in CRZ clearance)	Cumulative Expenditure till March 2023
		(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

No. MMRDA/MTHL-PIU/JICA/QPR-23/ 1827 /2023 Date: 8th February 2022

To,
Chief Representative, JICA,
Mumbai Trans Harbour Link Project (I)
16th Floor, Hindustan Times House,
18-20, Kasturba Gandhi Marge, New Delhi-110-001

Kind Attn: Mr. SAITO Mitsunori,

Sub : Mumbai Trans Harbour Link Project (I) (ID-P255)
- **Quarterly Progress Report (QPR) No. 23 for Oct. 2022 to**
December 2022.

Sir,


The loan agreement for the Official Development Assistance (ODA) loan for the Mumbai Trans Harbour Link Project (I) is signed between Mumbai Trans Harbour Link Project (I) and Mumbai Metropolitan Region Development Authority (MMRDA) on 31st March 2017 & 29th March 2020 with MMRDA as a direct borrower of the loan.

The Quarterly Progress Report (QPR) No. 23 for the Mumbai Trans Harbour Link Project (I) for the period of October 2022 to December 2022 is enclosed herewith for information please.

Thanking you.

Yours faithfully,

Encl.: QPR-23 (October 2022 to December 2022)


(S. A. Wandhekar)
Engineer- In- Chief

मुंबई महानगर प्रदेश विकास प्राधिकरण

वांदे-कुर्ला संकुल, वांदे (पूर्व), मुंबई ४०००५१.
ईपीएबीएक्स +९१ २२४६६३ ०००१ / ४०००
<https://mmrda.maharashtra.gov.in>





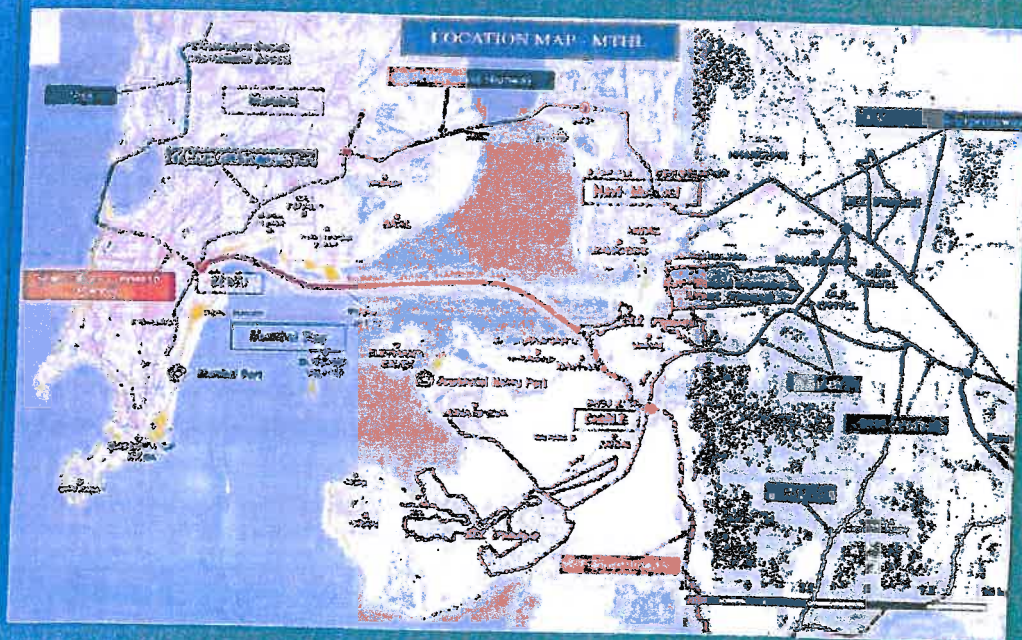
एमएमआरडीए
MMRDA

Mumbai Metropolitan Region Development Authority

Mumbai Trans Harbour Link Project

Quarterly Progress Report - No. 23

(From 1st Oct 2022 to 31st Dec 2022)



Mumbai Trans Harbour Link Project
Quarterly Progress Report No. 23
1st Oct 2022 to 31st Dec 2022
Loan Agreement No. ID-P255 (Tranche-I) & ID-P283 (Tranche-II)

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)
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.		23	DATE OF ISSUE		16/01/2023
DOC TITLE		Quarterly Progress Report No. 23			
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	08/01/2021	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	08/05/2021	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

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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 Action 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. The Government of Maharashtra (GoM), of which Mumbai Metropolitan Region is under

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	5,800	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	9,300	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



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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: 5-lane Marine Bridge Road (21.8 km)		
Package-1 Ch 0+000- 10+380 (10.380 km)	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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



EC



Items	Original	Actual
	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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-Classifer (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	<ul style="list-style-type: none"> 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 31 st Dec 2022
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 2024	Dec 2016 – Sep 2024
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 – Mar 2023 (Extended)
Package-4	Oct 2020 – Sep 2022	June 2022 – Aug 2023
5) Defect Liability Period		
Package-1 and Package-2	Oct 2022 – Sep 2024	Oct 2023 – Sep 2025
Package-3	Oct 2021 – Sep 2023	Apr 2023 – Mar 2025
Package-4	Oct 2022 – Sep 2024	Sep 2023 – Aug 2025
6) Commencement of Toll Collection	Sep 2022	Oct 2023
7) Selection of O&M Organization	Oct 2020 – Sep 2021	Oct 2022 – Sep 2023

Attachment 6, 7 & 8: Package wise construction schedules (progress) updated at the end of 3rd Quarter (Oct – Nov - Dec 2022).

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	16,552	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



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	323,356	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

1st Oct to 31st Dec 2022

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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	33,964	33,964	-	42,148	42,148		97,137	97,137	
Package-2	25,282	25,282	-	29,309	29,309		71,059	71,059	
Package-3	672	672	-	7,803	7,803		12,840	12,840	
Package-4 (ITS)	-		-	-			-		
Package-5 (Geotechnical Investigation)	-			196		196	337		337
Dispute Boards (Package-1, 2, 3 & 4)	-			-			-		-
Price Escalation	-			-			-		-
Physical Contingency	-			-			-		-
Consulting Services	1,539	1,539		653	653		1,539	1,539	
Land Acquisition*	-			7,601		7,601	13,073		13,073
Administration Cost	-			3,630		3,630	6,244		6,244
GST	-			16,592		16,592	28,538		28,538
Import Tax	-			-			-		-
Interest during construction	339		339				339		339
Front End Fee	-			1,869		1,869	3,215		3,215
Total	61,796	61,457	339	109,801	79,914	29,888	234,321	182,576	51,746

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	67,562	13,222	40,324	-	53,546	14,016
FY 2023						
FY 2024						
Total	234,322	142,252	40,324	-	182,576	51,746

(Note) 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.



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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 Jan 1975 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 Organisation Set-up & Implementation methods. Refer Annexure III Organisation 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		Actual: (P/R and PCR)
	Original: (P/M)		
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

 *CSH* *ELC*



2.4.2.2 Performance

Consultant's Progress:

October 2022:

- i) GC scrutinized & certified the following invoices claimed by the Contractors:
- ii) Package-1: IPC-59 -20% and IPC-60 -80% Ad-hoc under certification
- iii) Package-2: IPC-55 20% is under certification.
- iv) Package-3: IPC-50 20% is under certification.
- v) Package-4: GC certified 5% of mobilization advance.

November 2022:

- vi) GC scrutinized & certified the following invoices claimed by the Contractors:
- vii) Package-1: IPC-59 100% certified and IPC-60 80% Ad-hoc certified by GC.
- viii) Package-2: IPC-55 80% Ad-hoc Certified & IPC-55-20% is under certification.
- ix) Package-3: IPC-50 20% is under certification.

December 2022:

- x) GC scrutinized & certified the following invoices claimed by the Contractors:
- xi) Package-1: IPC-60 100% certified & IPC-61 80% Ad-hoc is certified.
- xii) Package-2: IPC-55 100% certified and IPC-56 80% Ad-hoc is certified.
- xiii) Package-3: IPC-50 100% certified and IPC-51 80% Ad-hoc is certified.
- xiv) Package-4: GC certified 5% of mobilization advance. Total 10% of mobilization certified by GC.

GC has prepared and submitted a total reimbursement claim of 182,575.85 million JPY to MMRDA / JICA in Dec 2022. (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%



Contractor's Progress:

Package-1 Physical Progress till 31st December 2022

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.	157	99.37%	
1.3	Piers	228	No.	224	98.35%	
1.4	Pier Caps	228	No.	207	90.79%	
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.	153	94.44%	
3.4	Pier Caps	162	No.	146	90.12%	
4 Permanent Bridge Works - Total						
4.1	Piles	1238	No.	1238	100.00%	
4.2	Pile Caps	313	No.	312	99.68%	
4.3	Piers	536	No.	523	97.57%	
4.4	Pier Caps	536	No.	499	93.10%	
5 Precast Segments						
5.1	Segment Casting	6713	No.	6184	92.12%	
5.2	Segment (Span) Erection+ Cast-in-Situ Slab	478	No.	368	76.99%	
6 OSD Structural Steel						
6.1	Fabrication	53703	MT	53703	100.00%	
6.2	Assembly (Large Blocks)	53703	MT	32629	60.76%	
6.3	OSD Span Erection	38	No.	19	50.00%	
7 Crash Barrier						
7.1	Crash Barrier - Median	20406	Rmt	5153	24.87%	
7.2	Crash Barrier - Outer	31077	Rmt	3981	12.80%	

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Package-2 Physical Progress till 31st Dec 2022

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.	44	91.67%	
3.5	Pier Head Segments	74	No.	56	75.68%	
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.	173	97.74%	
4.6	Pier Head Segments	170	No.	152	89.41%	
5	Precast Segments					
5.1	Segment Casting	3142	No.	2929	93.22%	
5.2	Segment (Span) Erection + Cast-in-Situ Slabs	272	No.	203	74.63%	
6	OSD Structural Steel					
6.1	Fabrication	34726	MT	34,726	100%	
6.2	Assembly (for Large Block)	34726	MT	9863	28.40%	
6.3	OSD Span Erection	32	No.	14	43.75%	
7	Crash Barrier					
7.1	Crash Barrier - Median	15614	Rmt	3498	22.40%	
7.2	Crash Barrier - Outer	20945	Rmt	2536	12.11%	



Package-3 Physical Progress till 31st Dec 2022

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.	187	98.94%	
1.6	Segment Casting	834	No.	834	100.00%	
1.7	Segment (Span) Erection	59	No.	53	89.83%	
1.8	Cast in-situ Slab	108	No.	97	89.83%	
1.9	Rail Overbridge (ROB) Span	20	No.	12	60.00%	
1.10	Crash Barrier - Median	5500	Rmt	1603	29.15%	
1.11	Crash Barrier - Outer	9000	Rmt	5354	41.68%	

Package-4 (ITS) Progress till 31st Dec 2022

1. The Date of Commencement - 27/06/2022.
2. STRABAG Infrastructure & Safety Solution GmbH and STRABAG AG JV has mobilized their resources and commenced with the design & construction activities.
3. Design & Drawings submission is in progress.
4. Geotechnical Investigation for Sub admin building & Service Road is completed.
5. Gahavan main admin building foundation & Column is in progress.

Please refer Attachment 9 - Site Progress Photos showing the development of the project.



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.

Package-1 Safety Report

S No.	Description	Unit	Oct-Nov-Dec 2022	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	4,111	2,759
2	Man-Days Worked	Days	474,824	6,599,459
3	Man-Hours Worked	Hours	3,798,591	56,250,690
4	Accident-Free Man Hours	Hours	4,175,838	4,175,838
5	Fatal Accidents (Reportable)	Incidents (Nos.)	1	6
6	Fatality Cases.	Fatalities (FAT)	1	7
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)	1	2
11	First Aid Cases.	FAC (#Cases)	18	319
12	Near Miss Incidents.	NMI (#Incidents)	7	130
13	Dangerous Occurrences.	DO (#Numbers)	1	6
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	2
15	Man-Hours Lost	Hours	48,720	345,296
16	Man-Days Lost	Days	6,090	43,171
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	1	0.302
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	5,345	767
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	2	0.338
20	Toolbox Talks	Sessions	13,697	1,51,270
21	Safety Walk down Inspections (Joint & CFT)	Numbers	18	245
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	108	4,142
23	Total Observations Raised (Safety)	Numbers	7,119	90,452
24	Health & Hygiene Inspections	Numbers	15	67
25	Total Observations Raised (Health & Hygiene)	Numbers	95	615
26	Training Sessions done for Offices & Sites	Sessions	502	3,579
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	8,821	46,614
28	Contractor Safety Committee Meetings	Numbers	3	39
29	Critical Excavations	Numbers	0	86
30	Pre-employment Medical check-ups	Persons	3,630	40,370
31	Safety Inductions completed	Persons	3,630	45,887
32	Mock drills Conducted	Numbers	3	35
33	Contractor's Internal Audits Conducted	Numbers	3	52



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Package-2 Safety Report

S No.	Description	Unit	Oct-Nov-Dec 2022	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	3,537	2,104
2	Man-Days Worked	Days	2,72,497	2,819,610
3	Man-Hours Worked	Hours	2,997,467	31,507,092
4	Accident-Free Man Hours	Hours	2,294,699	2,061,653
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	0
6	Fatality Cases.	Fatalities (FAT)	0	0
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	2	13
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	2	13
9	Restricted Work Medical Case	RWMC (#Incidents)	0	6
10	Medical Treatment Cases	MTC (#Incidents)	2	14
11	First Aid Cases.	FAC (#Cases)	16	191
12	Near Miss Incidents.	NMI (#Incidents)	44	394
13	Dangerous Occurrences.	DO (#Numbers)	2	17
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	3
15	Man-Hours Lost	Hours	1,032	6,680
16	Man-Days Lost	Days	129	835
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	2	0.413
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	127	27
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	4	1.047
20	Toolbox Talks	Sessions	1,182	13,076
21	Safety Walk down Inspections (Joint & CFT)	Numbers	11	183
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	336	1,932
23	Total Observations Raised (Safety)	Numbers	2,987	25,076
24	Health & Hygiene Inspections	Numbers	0	4
25	Total Observations Raised (Health & Hygiene)	Numbers	0	16
26	Training Sessions done for Offices & Sites	Sessions	209	1,396
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	3,810	26,656
28	Contractor Safety Committee Meetings	Numbers	3	54
29	Critical Excavations	Numbers	0	0
30	Pre-employment Medical check-ups	Persons	1,013	17,930
31	Safety Inductions completed	Persons	1,119	18,371
32	Mock drills Conducted	Numbers	3	45
33	Contractor's Internal Audits Conducted	Numbers	0	0

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Package-3 Safety Report

S No.	Description	Unit	Oct-Nov- Dec 2022	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	607	432
2	Man-Days Worked	Days	75,977	869,027
3	Man-Hours Worked	Hours	607,816	6,952,306
4	Accident-Free Man Hours	Hours	607,816	1,144,847
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)	6	130
12	Near Miss Incidents.	NMI (#Incidents)	10	47
13	Dangerous Occurrences.	DO (#Numbers)	0	1
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	0
15	Man-Hours Lost	Hours	0	2,216
16	Man-Days Lost	Days	0	277
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0	0.432
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	0	40
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0	0
20	Toolbox Talks	Sessions	483	8,673
21	Safety Walk down Inspections (Joint & CFT)	Numbers	12	193
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	60	665
23	Total Observations Raised (Safety)	Numbers	657	1,428
24	Health & Hygiene Inspections	Numbers	6	14
25	Total Observations Raised (Health & Hygiene)	Numbers	26	69
26	Training Sessions done for Offices & Sites	Sessions	66	383
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	1,746	2,754
28	Contractor Safety Committee Meetings	Numbers	3	50
29	Critical Excavations	Numbers	0	9
30	Pre-employment Medical check-ups	Persons	662	11,190
31	Safety Inductions completed	Persons	662	11,247
32	Mock drills Conducted	Numbers	3	44
33	Contractor's Internal Audits Conducted	Numbers	1	13

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Package-4 Safety Report

S No.	Description	Unit	Oct-Nov-Dec 2022	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	33	30
2	Man-Days Worked	Days	565	2,593
3	Man-Hours Worked	Hours	20,536	20,744
4	Accident-Free Man Hours	Hours	20,536	20,744
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	0
10	Medical Treatment Cases	MTC (#Incidents)	0	0
11	First Aid Cases.	FAC (#Cases)	0	0
12	Near Miss incidents.	NMI (#Incidents)	0	1
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	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	0
20	Toolbox Talks	Sessions	92	144
21	Safety Walk down Inspections (Joint & CFT)	Numbers	0	0
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	0	0
23	Total Observations Raised (Safety)	Numbers	61	70
24	Health & Hygiene Inspections	Numbers	0	0
25	Total Observations Raised (Health & Hygiene)	Numbers	0	0
26	Training Sessions done for Offices & Sites	Sessions	10	8
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	122	140
28	Contractor Safety Committee Meetings	Numbers	2	3
29	Critical Excavations	Numbers	1	0
30	Pre-employment Medical check-ups	Persons	0	0
31	Safety Inductions completed	Persons	42	45
32	Mock drills Conducted	Numbers	0	1
33	Contractor's Internal Audits Conducted	Numbers	0	1

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3.0 BENEFITS DERIVED FROM THE PROJECT (EFFECTIVENESS)

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 Countermeasure(s)	Actual Issues and Countermeasure(s)
<p>3.2.1 General Issues</p> <p>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.</p> <p>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 for engaging the Contractors.</p>	<p>(P/R and PCR)</p> <p>Appropriate Tolling Policy/ Rates finalization is in progress.</p> <p>A single Operation and Maintenance Contractor finalization is in progress.</p>
<p>3.2.2 Environmental and Social Consideration</p> <p>a. CRZ Clearance</p> <p>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.</p> <p>ii. Furthermore, renewed CRZ Clearance has been obtained in January 2016.</p> <p>iii. In accordance with the conditions for CRZ Clearance, appropriate measures shall be taken, and necessary budget</p>	<p>(P/R and PCR)</p> <ul style="list-style-type: none"> • 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



<p>shall be secured by MMRDA.</p>	<p>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.</p> <ul style="list-style-type: none"> • 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)
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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 28 th 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	-	<p>Pkg-1: Tree Cutting/ Transplantation permission from the Garden Dept., MCGM obtained on 24th Dec 2020.</p> <p>Pkg-2: Tree Cutting/ Transplantation permission obtained & completed.</p> <p>Pkg-3: Forest Department issued a concurrence on 19/05/2019. CIDCO's permission for Tree Cutting/ Transplantation obtained on 25th Nov 2019.</p>

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Clearance Required	Approving Authority	Responsible Organization	Obtained by when	Remark /Status
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)
<p>1. Establishment of Effective Environmental and Social Cell in PIU</p> <p>MMRDA confirmed that Social Development Cell (2 Officers), Land Cell (3 Officers), and Environmental Cell (2 Officers) had been set up.</p>	<p>Cell is established by MMRDA (Annexure III, Organization chart)</p>
<p>2. Rehabilitation and Land Acquisition Issues</p> <p>a. Affected Area and Population</p> <p>Due to the Project, 1282 non-titleholders will be involuntary resettled, and 108.4379 ha of land will be handed over by CIDCO.</p>	<p>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:</p> <ul style="list-style-type: none"> • 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 <p>Navi Mumbai: CIDCO has been finalizing the land acquisition closely monitored by Land Cell of MMRDA.</p> <p>CIDCO has possessed 106.3542 ha of land and handed over to MMRDA, except private land of 2.0837 ha.</p> <p>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.</p>



Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>b. Entitlement Policy</p> <p>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).</p>	<p>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.</p>
<p>c. Compensation to Project affected Fishermen</p> <p>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.</p>	<p>Updated Attachments 2-8 and 2-10 are enclosed in the report.</p>
<p>d. Implementation Schedule</p> <p>The Implementation schedule for land acquisition, resettlement and rehabilitation is attached as per Attachment 2-10.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>e. Grievance Redressal Mechanism</p> <p>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.</p>	<p>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.</p>
<p>f. Internal Monitoring</p> <p>Internal Monitoring of the Resettlement</p>	



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Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>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.</p>	<p>Internal Monitoring updates are mentioned in Attachment 2-8.</p>
<p>g. Qualitative Independent Evaluation</p> <p>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.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>h. RAP Implementation Budget</p> <p>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.</p>	<p>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.</p>
<p>i. Environmental Management Plan ("EMP")</p> <p>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.</p>	<p>EMP will be updated, if required, in due course of construction activities/progress.</p>
<p>j. Environmental Monitoring Plan ("EMoP")</p>	



Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>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 completion of construction. The required amount of estimated environmental monitoring budget is borne by MMRDA.</p>	<p>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.</p>
<p>k. Long Term Bird Monitoring</p> <p>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.</p>	<ul style="list-style-type: none"> 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

1st Oct to 31st Dec 2022



Indicators	Original (Year 2015)	Target (Year 2024) 2 Years After Commercial Operation
Number of Users (Persons/ year) * 2	-	48,077,504
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.

- 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.
- 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 NHA's manuals such as "NHA 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)



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Attachment 1- MMRDA & PIU Organization Chart

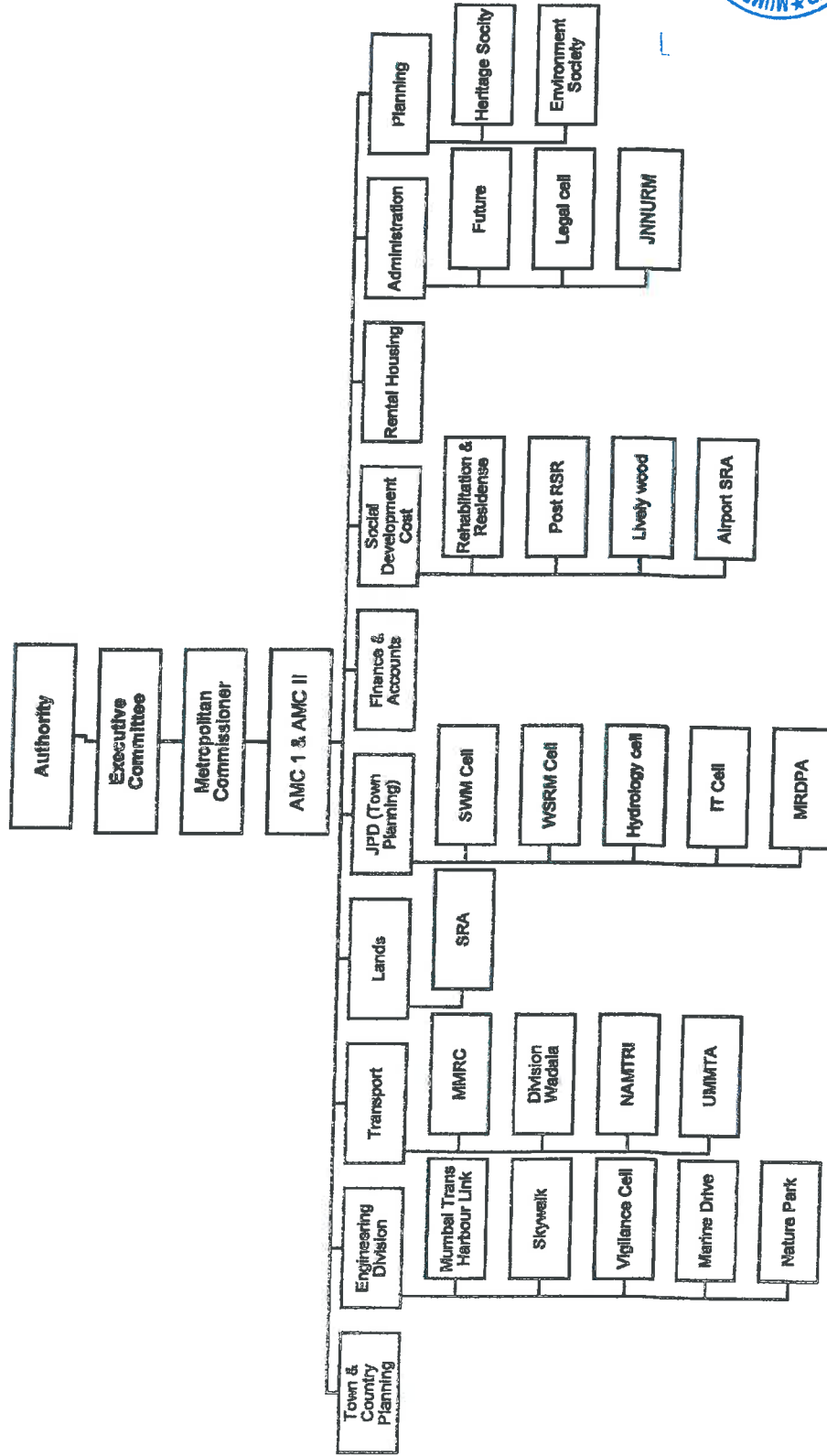


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1st Oct to 31st Dec 2022

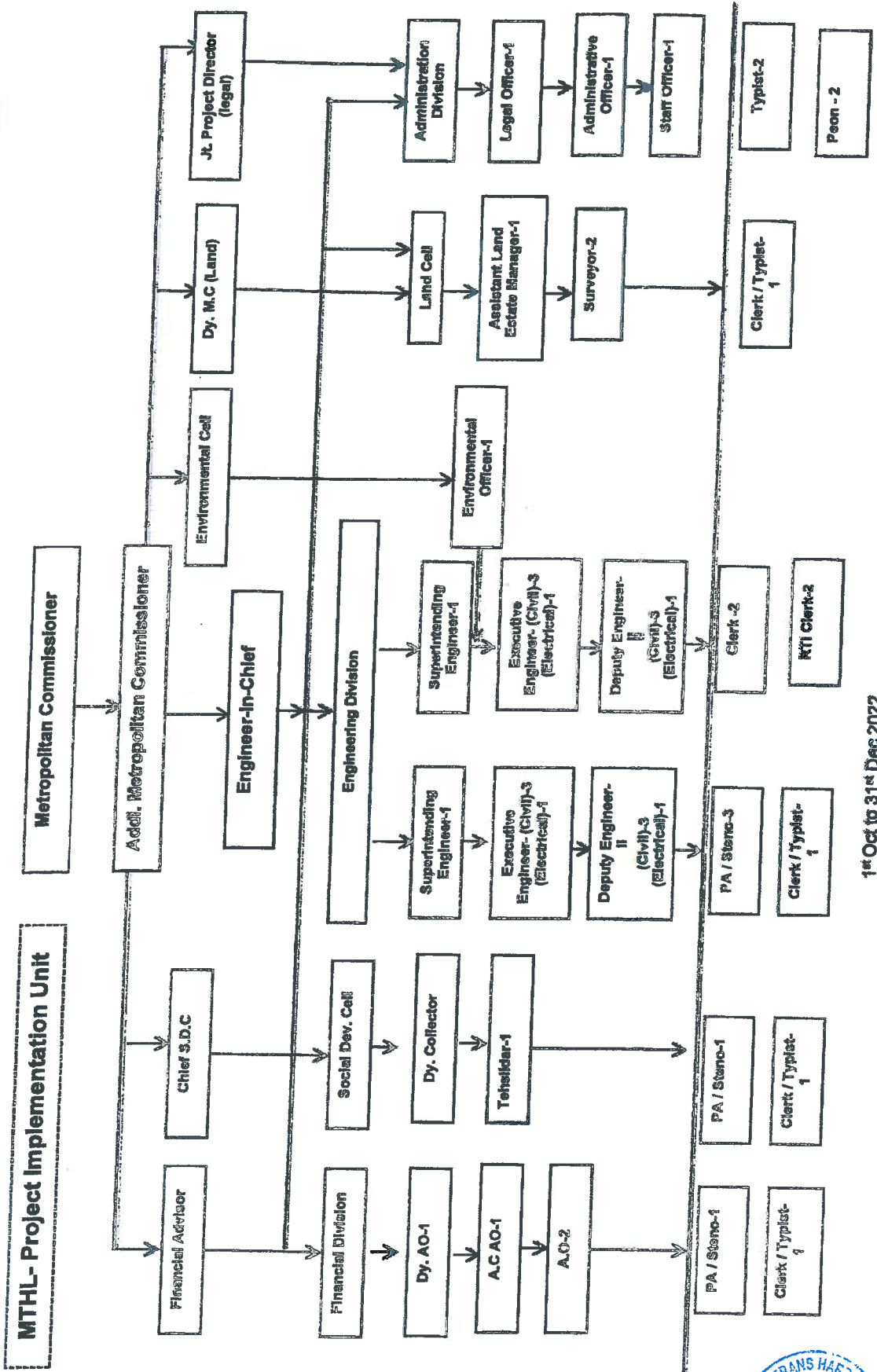
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MMRDA Organization chart



1st Oct to 31st Dec 2022

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1st Oct to 31st Dec 2022



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Attachment 2- Environmental & Social Impacts

Attachment 2-3 – Envi. Monitoring Plan with Package-wise Estimated Cost

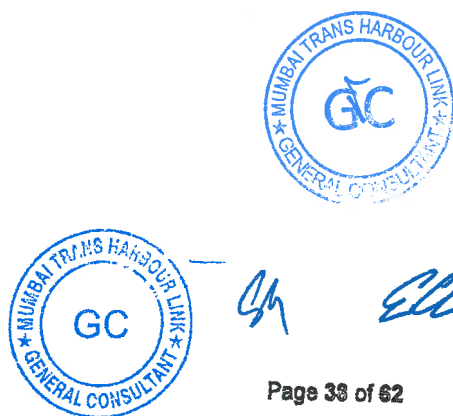
Attachment 2-4 – Environmental Monitoring Result Reporting Form

Attachment 2-6 – MTHL Land Acquisition Status

Attachment 2-8 – RAP Internal Monitoring Form

Attachment 2-10 – Schedule of the RAP Implementation

1st Oct to 31st Dec 2022



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Attachment 2-3

Environmental Monitoring Plan with Package-wise Estimated Cost

Category	Medium	Parameter	Frequency	Location	Method	Instrument	Estimated Cost (INR)	Remarks
1	Air Pollution	SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5} , O ₃ , CO, (6 Items)	1. Semi & Sewer lay area for package I 2. Near temporary bridge & casting yard in Goshan for package II 3. Goshan & Chitra for package III	1. Ambient Ambient Air Quality Standard, 2009	1. Frequency at all locations except 2 locations each near casting plants 4 Times / Year 2. Frequency only for 3 months (Jan-2019 to Mar-2019), then quarterly monitoring as per MOEF and CPCB norms	1. Conductance meter for quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement. 2. Contractor Monitoring plan has been designed as per BIA of 2015 3. Contractor team is conducting ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement. 4. The NAAQ standards are following MPCB frequency in addition to Environment Expert from G.C. The NAAQ standards are following High rate as that is the normal procedure. The frequency to be monitoring to be as which varies for different parameters as sub-parameters are required by us to ensure we have sufficient data in hands if there are additional items for Compensation in category. 5. Summary: Although the contractor team for all parameters at the time of bidding. Later modifications requested by EC were not accepted by P2, P1 and P3 accepted the modifications and hence the difference. Second point is P2 carrying out monitoring for the ambient CTE and CTD. In other packages how applied for package haven't obtained for P2. So we expect the monitoring frequency would change after obtaining CTE.	17,542,500	
		Water Pollution	pH, BOD, DO, Turbidity and ODS	IS / APWA	1. Semi & Sewer lay area for package I 2. Near temporary bridge & casting yard in Goshan for package II 3. Goshan & Chitra for package III	1. Semi & Sewer lay area for package I 2. Near temporary bridge & casting yard in Goshan for package II 3. Goshan & Chitra for package III	1. P1 received Consent CTR A CTD from MPCB and they are following MPCB frequency in addition to Environment Expert from G.C. The NAAQ standards are following High rate as that is the normal procedure. The frequency to be monitoring to be as which varies for different parameters as sub-parameters are required by us to ensure we have sufficient data in hands if there are additional items for Compensation in category. 2. Summary: Although the contractor team for all parameters at the time of bidding. Later modifications requested by EC were not accepted by P2, P1 and P3 accepted the modifications and hence the difference. Second point is P2 carrying out monitoring for the ambient CTE and CTD. In other packages how applied for package haven't obtained for P2. So we expect the monitoring frequency would change after obtaining CTE.	3,210,000
2	Water Pollution	pH, BOD, DO, Turbidity and ODS	1. Semi & Sewer lay area for package I 2. Near temporary bridge & casting yard in Goshan for package II 3. Goshan & Chitra for package III	IS / APWA	1. Semi & Sewer lay area for package I 2. Near temporary bridge & casting yard in Goshan for package II 3. Goshan & Chitra for package III	1. P1 received Consent CTR A CTD from MPCB and they are following MPCB frequency in addition to Environment Expert from G.C. The NAAQ standards are following High rate as that is the normal procedure. The frequency to be monitoring to be as which varies for different parameters as sub-parameters are required by us to ensure we have sufficient data in hands if there are additional items for Compensation in category. 2. Summary: Although the contractor team for all parameters at the time of bidding. Later modifications requested by EC were not accepted by P2, P1 and P3 accepted the modifications and hence the difference. Second point is P2 carrying out monitoring for the ambient CTE and CTD. In other packages how applied for package haven't obtained for P2. So we expect the monitoring frequency would change after obtaining CTE.	810,000	
							Water	Volume of waste including cutting saw and domestic garbage
3	Water	Volume of waste including cutting saw and domestic garbage	1. Semi & Sewer lay area for package I	Volumetric	1. Semi & Sewer lay area for package I	1. P1 received Consent CTR A CTD from MPCB and they are following MPCB frequency in addition to Environment Expert from G.C. The NAAQ standards are following High rate as that is the normal procedure. The frequency to be monitoring to be as which varies for different parameters as sub-parameters are required by us to ensure we have sufficient data in hands if there are additional items for Compensation in category. 2. Summary: Although the contractor team for all parameters at the time of bidding. Later modifications requested by EC were not accepted by P2, P1 and P3 accepted the modifications and hence the difference. Second point is P2 carrying out monitoring for the ambient CTE and CTD. In other packages how applied for package haven't obtained for P2. So we expect the monitoring frequency would change after obtaining CTE.	600,000	
							3,000,000	

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Category	No. of Impacted Items	Parameter	Method	Location	Frequency & year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Remarks
4 and 8	Soil Contamination/contaminants	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	2. Above temporary bridge & casting yard in Goshan for package I 3. Goshan & Chirle for package III	4 Times / Year Once six during work/execution part of work year.	150,000	1,500,000	150,000	100,000	4,750,000	Standard Control Pollution Control Manual (CPCB) - History of Environment & Forest (HEFR) - Mumbai Water Management Rules, 2013 Contractor has considered only Domestic sewage with respect to other effluents are not considered. Construction wastes will be
						1. Health 3 Times / Year 2. Noise 4 Times / Year					
9 and 10	Predicted Area / Ecosystem	Vibration (dB L10 or mm/sec) 1. Monitoring of another conditions including fauna-flora 2. Monitoring of Cutting Time and explanation/ transplanting area 3. Monitoring of Mangrove Plantation area appointed by MoEF	US Standard 1. Sway & Sway by area for package I 2. Above temporary bridge & casting yard in Goshan for package II 3. Goshan & Chirle for package III	1. Location Green area for package III Quarterly during the construction period 4 Times / Year	75,000	0	75,000	0	0	6,950,000	Not applicable for Pkg. 1 Not applicable for Pkg. 3
					6,500,000	7,200,000	6,500,000	0	13,700,000	Significant impacts are not caused by the project (None)	



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Sl. No.	Impacts & Conditions	Parameter	Method	Locations	Frequency / Year	Days (D/W)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard / Control Measure / Control Point (C/P) / Mitigation / Precaution / or other (Specify)	Remarks																																																								
11	Hydrology	Fleeting siltation and ecological parameter (1)Siltus on Supplemental EIA Table 6.1.15 for rail and 7 items such as 1) Suspended Solids 2) Chlorophyll 3) Phosphate 4) Nitrate, 5) Nitrite, 6) Particulate Organic Carbon, 7) SO ₂	4. Monitoring of sedimentation and ecological parameter (1)Siltus on Supplemental EIA Table 6.1.15 for rail and 7 items such as 1) Suspended Solids 2) Chlorophyll 3) Phosphate 4) Nitrate, 5) Nitrite, 6) Particulate Organic Carbon, 7) SO ₂	1.2.1.2. Monitoring of siltation and community survey	1-8. Benthos Survey	4 Times / Year	0	350,000	0	0	350,000	Standard for Soil: Supplemental EIA Table 6.1.15 Standard for Biological Parameter: - Dissolved Oxygen - Chlorophyll - Phosphate 0.1-0.05mg/l - Nitrate 15-50mg/l - Nitrite <0.25mg/l - Particulate Organic Carbon 10-100mg/m ³ - SO ₂ 10-45.00mg/m ³ Project activities and measures does not cause flooding and impacts on tidal conditions	Nil: applicable for Pkg.1 & 3																																																							
														2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year	0	115,000	115,000	Embankment shall be stabilized without any landslide and cracks	Nil: applicable for Pkg.1 & 3																																																
																					3 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year	0	115,000	115,000	Embankment shall be stabilized without any landslide and cracks	Nil: applicable for Pkg.1 & 3																																									
																												4 Times / Year	0	115,000	115,000	Embankment shall be stabilized without any landslide and cracks	Nil: applicable for Pkg.1 & 3																																			
																																		2 Locations (Camp site in Sewri and Shivaji Nagar) for Package II	2 Times / Year	0	125,000	125,000	Employment opportunity shall be provided fully	Nil: applicable for Pkg.1 & 3																												
																																									2 Locations	4 Times / year x 4.5 years	0	525,000	525,000	Infection disease rate shall not be caused by the project	Nil: applicable for Pkg.1 & 3																					
																																																2 Locations (Camp site in Sewri and Shivaji Nagar) for Package II	2 Times / year	0	500,000	500,000	Building And Other Construction Workers (Regulation of Employment and Conditions of Work) Act, 1947, "The Safety Act, 1948", "The Factories Act, 1947" and international standards such as "ILO Performance Standard 2 Labor and Working Conditions"	Any accidents are not caused by construction														
																																																							2 Locations (Camp site in Sewri and Shivaji Nagar) for Package II	4 Times / Year	0	400,000	400,000	Building And Other Construction Workers (Regulation of Employment and Conditions of Work) Act, 1947, "The Safety Act, 1948", "The Factories Act, 1947" and international standards such as "ILO Performance Standard 2 Labor and Working Conditions"	Any accidents are not caused by construction							
																																																														Total	81,40,500	325,354,000	12,00,000	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 4.8 years

Attachment 2.4
 This form is prepared for reporting the monitoring data as per the format. Only minimum required parameters are included in this form, and rest of parameters in Chapter 4 of appendix.

Sl. No.	Item	Parameter	Location	Frequency & year	Item and Standard	Monitoring Method				Remark			
						Location 1- Pig 1	Location 2 Pig 2	Location 3- Pig 3	Location 4				
1	Air pollution	SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5}	1. Sewer & Sewer lay area for package I	Quarterly monitoring is conducted at all locations.	National Ambient Air Quality Standards (NAAQS) (Standard for Sectors: Industrial and Residential)	Sewer	Shivaji Nagar	Chitre	BDL	BDL - Below Detectable Limit			
			2. Where temporary bridge & casting yard in Gharham for package II	4 Times / Year							10.00	15	
			3. Gharham & Chitre for package III	From March-2019 onwards monitoring is conducted quarterly as per MOEF and CPCB norms							20.00	31	29
			4. Sewer & Sewer lay area for package I	4 Times / Year							250.00	82	75
2	Water pollution	pH, BOD, DO, Turbidity and O&G	1. Sewer & Sewer lay area for package I	Quarterly	Metro water quality Standards - Class B/IV Harbour Waters (MWS)	Zone I	Zone II	Zone III Package-03	BDL	BDL - Below Detectable Limit			
			2. Where temporary bridge & casting yard in Gharham for package II	4 Times / Year							7.5	7.5	Not applicable
			3. Gharham & Chitre for package III	Not applicable							4.8	6.8	Not applicable
			4. Sewer & Sewer lay area for package I	4 Times / Year							11.3	21.5	Not applicable
			5. Sewer & Sewer lay area for package I	4 Times / Year							2.8	BDL	Not applicable
			6. Sewer & Sewer lay area for package I	4 Times / Year							BDL-2	BDL	Not applicable
			7. Sewer & Sewer lay area for package I	4 Times / Year							21	10	Not applicable
			8. Sewer & Sewer lay area for package I	4 Times / Year							1003		
			9. Sewer & Sewer lay area for package I	4 Times / Year							800		
			10. Sewer & Sewer lay area for package I	4 Times / Year							882		
3	Waste	Volume of waste soil, cutting tree and domestic garbage	1. Sewer & Sewer lay area for package I	Daily	Municipal Solid Waste Management Rules, 2015	5100	Shivaji Nagar Camp Site	CHITE Camp Site	BDL	BDL - Below Detectable Limit			
			2. Where temporary bridge & casting yard in Gharham for package II	4 Times / Year							1988 m.m.	NA	
			3. Gharham & Chitre for package III	Once site closing/rectification part of work start.							1. Tree Cutting: 418 trees (Till Dec 2022) 2. Transplanting: 600 Trees (Till Dec 2022)	Tree cutting work completed and half yearly report submitted to Client (April, 2022)	
			4. Sewer & Sewer lay area for package I	1. Monthly, 1 Time / Year 2. Semimonthly, 4 Times / Year							Schedules dictated by EMB	J.A. Bhatnagar, I.E. (EPCO) BDL	3.0 T for the quarter	1,875 kg
4	Soil Pollution	Soil Pollution Standard in limits (MOEF)	1. Sewer & Sewer lay area for package I	Soil Pollution sample at Sewer	Soil Pollution Standard in limits (MOEF)	BDL	BDL	BDL	BDL - Below Detectable Limit				
			2. Where temporary bridge & casting yard in Gharham for package II	Soil Pollution sample at Sewer						Not applicable			
			3. Sewer & Sewer lay area for package I	Soil Pollution sample at Sewer						Not applicable			

BDL

BDL



The Project for Construction of Dambed Trans Harbour Link
 Reporting Form of Environmental Monitoring during Construction
 Attachment 3-4
 3. Environmental Monitoring during Construction for 4-5 years

Pollution	4 Soil Contamination Heavy Metals & Oil & Grease	5 Noise and Vibration	6 Air Quality PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ , CO, O ₃ , H ₂ S, NH ₃ , CH ₄ , VOCs, SVOCs	7 Water Quality pH, DO, BOD, COD, TSS, NH ₄ ⁺ -N, NO ₃ ⁻ -N, NO ₂ ⁻ -N, PO ₄ ³⁻ -P, Cu, Zn, Pb, Cd, Cr, Mn, Fe, Ni, As, Hg, Se, Mo, Co, Ni, U, V, F, Cl, Br, I, B, Li, Sr, Ba, Y, Zr, Nb, Mo, Sn, Sb, Te, Bi, Po, At, Rn, Fr, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr, and other trace elements	8 Ecology Terrestrial and Aquatic	9 Climate Change GHG Emissions	10 Social and Cultural Heritage Archaeological, Historical, Cultural, Religious, Scientific, Educational, and Recreational	11 Cumulative Impacts	12 Other	13 Overall Assessment	14 Mitigation Measures	15 Monitoring Period (Jan-Jun 2022)	Attachment 3-4 17. Form to be prepared for reporting the monitoring results to the public. Only the monitoring results shall be included in the form. All other information shall be reported in the report.	
													16 4.1. Noise: 0.01mg/m ³	17 0.17	18 Not applicable for package-3	19 Childs (percentage) Commercial area
4	Heavy Metals & Oil & Grease	Ambient and road side noise (dB(A)Leq)	Soil Contamination Heavy Metals & Oil & Grease	Water Quality pH, DO, BOD, COD, TSS, NH ₄ ⁺ -N, NO ₃ ⁻ -N, NO ₂ ⁻ -N, PO ₄ ³⁻ -P, Cu, Zn, Pb, Cd, Cr, Mn, Fe, Ni, As, Hg, Se, Mo, Co, Ni, U, V, F, Cl, Br, I, B, Li, Sr, Ba, Y, Zr, Nb, Mo, Sn, Sb, Te, Bi, Po, At, Rn, Fr, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr, and other trace elements	Ecology Terrestrial and Aquatic	Climate Change GHG Emissions	Social and Cultural Heritage Archaeological, Historical, Cultural, Religious, Scientific, Educational, and Recreational	Cumulative Impacts	Other	Overall Assessment	Mitigation Measures	Monitoring Period (Jan-Jun 2022)	Attachment 3-4 17. Form to be prepared for reporting the monitoring results to the public. Only the monitoring results shall be included in the form. All other information shall be reported in the report.	
													16 4.1. Noise: 0.01mg/m ³	17 0.17	18 Not applicable for package-3	19 Childs (percentage) Commercial area
5	Noise and Vibration	Noise and Vibration	Soil Contamination Heavy Metals & Oil & Grease	Water Quality pH, DO, BOD, COD, TSS, NH ₄ ⁺ -N, NO ₃ ⁻ -N, NO ₂ ⁻ -N, PO ₄ ³⁻ -P, Cu, Zn, Pb, Cd, Cr, Mn, Fe, Ni, As, Hg, Se, Mo, Co, Ni, U, V, F, Cl, Br, I, B, Li, Sr, Ba, Y, Zr, Nb, Mo, Sn, Sb, Te, Bi, Po, At, Rn, Fr, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr, and other trace elements	Ecology Terrestrial and Aquatic	Climate Change GHG Emissions	Social and Cultural Heritage Archaeological, Historical, Cultural, Religious, Scientific, Educational, and Recreational	Cumulative Impacts	Other	Overall Assessment	Mitigation Measures	Monitoring Period (Jan-Jun 2022)	Attachment 3-4 17. Form to be prepared for reporting the monitoring results to the public. Only the monitoring results shall be included in the form. All other information shall be reported in the report.	
													16 4.1. Noise: 0.01mg/m ³	17 0.17	18 Not applicable for package-3	19 Childs (percentage) Commercial area
<p>4.1. Noise: 0.01mg/m³</p> <p>5. Chromium (Cr): 0.05mg/l</p> <p>6. Arsenic: 0.01mg/l or 1mg/kg (egg-laid egg)</p> <p>7. Total Phosphate: 0.05mg/l</p> <p>8. Total Phosphate: 0.05mg/l</p> <p>9. PCBs: Not detected</p> <p>10. Copper: 120mg/kg (only poultry laid egg)</p> <p>11. dichloromethane: 0.05mg/l</p> <p>12. carbon tetrachloride: 0.05mg/l</p> <p>13. 1,2-dichloroethane: 0.05mg/l</p> <p>14. 1,1-dichloroethane: 0.05mg/l</p> <p>15. 1,2-dichloroethane: 0.05mg/l</p> <p>16. 1,1,2-trichloroethane: 1mg/l</p> <p>17. 1,1,1-trichloroethane: 0.05mg/l</p> <p>18. 1,1,2-trichloroethane: 0.05mg/l</p> <p>19. 1,1,1-trichloroethane: 0.05mg/l</p> <p>20. 1,2-dichloroethane: 0.05mg/l</p> <p>21. Benzene: 0.05mg/l</p> <p>22. Arsenic: 0.05mg/l</p> <p>23. Dichlorobenzene: 0.05mg/l</p> <p>24. Hexachlorobenzene: 0.05mg/l</p> <p>25. polychlorinated biphenyls: 0.1mg/l</p> <p>Construction area Standard as per (S) anywhere (Japan Standard) Not construction area: Ambient Noise Standard in India (dB(A) Leq)</p> <p>Day time: 6-22 hr (continuous) dB(A)</p> <p>Night time: 23-5 hr (continuous) dB(A)</p> <p>Day time: 6-22 hr (10 min during 1-17 hr)</p> <p>Night time: 23-5 hr (10 min during 1-17 hr)</p> <p>Not allowed with 30 dB(A) construction limit</p> <p>Industrial Area: 30 dB(A) construction limit</p> <p>Day Time: 7:00 (6-22hr)</p> <p>Night Time: 23:00 (23-5hr)</p> <p>2. Commercial Area</p> <p>Day Time: 6:00 (6-22hr)</p> <p>Night Time: 23:00 (23-5hr)</p> <p>Construction area Standard 76 dB daytime (Japan standard) Not construction area: Vibration Standard (Japan Standard along the road)</p> <p>Day time: 6-22 hr (continuous)</p> <p>Night time: 23-5 hr (continuous)</p> <p>Not construction area</p> <p>1. Commercial Industrial Area</p> <p>Day Time: 7:00 (6-22hr)</p> <p>Night Time: 23:00 (23-5hr)</p>														
<p>1. Sewer & Sewer lay area for package I</p> <p>2. Noise temporary bridge & casting yard in Goven for package II</p> <p>3. Goven & Childs for package III</p> <p>4. Sewer (ST 200-500) (Industrial area)</p> <p>5. Sewer (ST 200-500) (Industrial area)</p> <p>6. Sewer (ST 200-500) (Industrial area)</p> <p>7. Sewer (ST 200-500) (Industrial area)</p> <p>8. Sewer (ST 200-500) (Industrial area)</p> <p>9. Sewer (ST 200-500) (Industrial area)</p> <p>10. Sewer (ST 200-500) (Industrial area)</p> <p>11. Sewer (ST 200-500) (Industrial area)</p> <p>12. Sewer (ST 200-500) (Industrial area)</p> <p>13. Sewer (ST 200-500) (Industrial area)</p> <p>14. Sewer (ST 200-500) (Industrial area)</p> <p>15. Sewer (ST 200-500) (Industrial area)</p> <p>16. Sewer (ST 200-500) (Industrial area)</p> <p>17. Sewer (ST 200-500) (Industrial area)</p> <p>18. Sewer (ST 200-500) (Industrial area)</p> <p>19. Sewer (ST 200-500) (Industrial area)</p> <p>20. Sewer (ST 200-500) (Industrial area)</p> <p>21. Sewer (ST 200-500) (Industrial area)</p> <p>22. Sewer (ST 200-500) (Industrial area)</p> <p>23. Sewer (ST 200-500) (Industrial area)</p> <p>24. Sewer (ST 200-500) (Industrial area)</p> <p>25. Sewer (ST 200-500) (Industrial area)</p> <p>26. Sewer (ST 200-500) (Industrial area)</p> <p>27. Sewer (ST 200-500) (Industrial area)</p> <p>28. Sewer (ST 200-500) (Industrial area)</p> <p>29. Sewer (ST 200-500) (Industrial area)</p> <p>30. Sewer (ST 200-500) (Industrial area)</p> <p>31. Sewer (ST 200-500) (Industrial area)</p> <p>32. Sewer (ST 200-500) (Industrial area)</p> <p>33. Sewer (ST 200-500) (Industrial area)</p> <p>34. Sewer (ST 200-500) (Industrial area)</p> <p>35. Sewer (ST 200-500) (Industrial area)</p> <p>36. Sewer (ST 200-500) (Industrial area)</p> <p>37. Sewer (ST 200-500) (Industrial area)</p> <p>38. Sewer (ST 200-500) (Industrial area)</p> <p>39. Sewer (ST 200-500) (Industrial area)</p> <p>40. Sewer (ST 200-500) (Industrial area)</p> <p>41. Sewer (ST 200-500) (Industrial area)</p> <p>42. Sewer (ST 200-500) (Industrial area)</p> <p>43. Sewer (ST 200-500) (Industrial area)</p> <p>44. Sewer (ST 200-500) (Industrial area)</p> <p>45. Sewer (ST 200-500) (Industrial area)</p> <p>46. Sewer (ST 200-500) (Industrial area)</p> <p>47. Sewer (ST 200-500) (Industrial area)</p> <p>48. Sewer (ST 200-500) (Industrial area)</p> <p>49. Sewer (ST 200-500) (Industrial area)</p> <p>50. Sewer (ST 200-500) (Industrial area)</p> <p>51. Sewer (ST 200-500) (Industrial area)</p> <p>52. Sewer (ST 200-500) (Industrial area)</p> <p>53. Sewer (ST 200-500) (Industrial area)</p> <p>54. Sewer (ST 200-500) (Industrial area)</p> <p>55. Sewer (ST 200-500) (Industrial area)</p> <p>56. Sewer (ST 200-500) (Industrial area)</p> <p>57. Sewer (ST 200-500) (Industrial area)</p> <p>58. Sewer (ST 200-500) (Industrial area)</p> <p>59. Sewer (ST 200-500) (Industrial area)</p> <p>60. Sewer (ST 200-500) (Industrial area)</p> <p>61. Sewer (ST 200-500) (Industrial area)</p> <p>62. Sewer (ST 200-500) (Industrial area)</p> <p>63. Sewer (ST 200-500) (Industrial area)</p> <p>64. Sewer (ST 200-500) (Industrial area)</p> <p>65. Sewer (ST 200-500) (Industrial area)</p> <p>66. Sewer (ST 200-500) (Industrial area)</p> <p>67. Sewer (ST 200-500) (Industrial area)</p> <p>68. Sewer (ST 200-500) (Industrial area)</p> <p>69. Sewer (ST 200-500) (Industrial area)</p> <p>70. Sewer (ST 200-500) (Industrial area)</p> <p>71. Sewer (ST 200-500) (Industrial area)</p> <p>72. Sewer (ST 200-500) (Industrial area)</p> <p>73. Sewer (ST 200-500) (Industrial area)</p> <p>74. Sewer (ST 200-500) (Industrial area)</p> <p>75. Sewer (ST 200-500) (Industrial area)</p> <p>76. Sewer (ST 200-500) (Industrial area)</p> <p>77. Sewer (ST 200-500) (Industrial area)</p> <p>78. Sewer (ST 200-500) (Industrial area)</p> <p>79. Sewer (ST 200-500) (Industrial area)</p> <p>80. Sewer (ST 200-500) (Industrial area)</p> <p>81. Sewer (ST 200-500) (Industrial area)</p> <p>82. Sewer (ST 200-500) (Industrial area)</p> <p>83. Sewer (ST 200-500) (Industrial area)</p> <p>84. Sewer (ST 200-500) (Industrial area)</p> <p>85. Sewer (ST 200-500) (Industrial area)</p> <p>86. Sewer (ST 200-500) (Industrial area)</p> <p>87. Sewer (ST 200-500) (Industrial area)</p> <p>88. Sewer (ST 200-500) (Industrial area)</p> <p>89. Sewer (ST 200-500) (Industrial area)</p> <p>90. Sewer (ST 200-500) (Industrial area)</p> <p>91. Sewer (ST 200-500) (Industrial area)</p> <p>92. Sewer (ST 200-500) (Industrial area)</p> <p>93. Sewer (ST 200-500) (Industrial area)</p> <p>94. Sewer (ST 200-500) (Industrial area)</p> <p>95. Sewer (ST 200-500) (Industrial area)</p> <p>96. Sewer (ST 200-500) (Industrial area)</p> <p>97. Sewer (ST 200-500) (Industrial area)</p> <p>98. Sewer (ST 200-500) (Industrial area)</p> <p>99. Sewer (ST 200-500) (Industrial area)</p> <p>100. Sewer (ST 200-500) (Industrial area)</p>														



Kindly check the letter No Ref No. 144/ PPA/AT/ROA/TA/SE-22/2020 dated on 12.12.2020

The Project for Construction of Stambal Trans Harbour Link
 Reporting Form of Environmental Monitoring during Construction
 Attachment 2-4
 4. Environmental Monitoring during Construction for 4.1.1 years

Monitoring Period - October 2022		Attachment 2-4	
Along MTHL alignment and mangrove riparian area for Package I	Quarterly during the construction Period	Shaurda is not existing, but quantity and quality should not be worsen	Shaurda is not existing, but quantity and quality should not be worsen
Along MTHL alignment and mangrove riparian area for Package II	Quarterly during the construction Period	1-4. Fauna-Flora (number of species and quality)	1-4. Fauna-Flora (number of species and quality)
1. Monitoring of marine conditions including temperature, salinity, pH and turbidity in area 2. Monitoring of Cutting in area 3. Monitoring of Mangrove Plantation area appointed by MoEF 4. Monitoring of sedimentation soil and riparian parameter (GS to be done with lead Table 6.1.15 for soil and 7 items such as 1) Net primary productivity, 2) Chlorophyll-a, 3) Phosphate, 4) Nitrate, 5) Paracetamol Carbon, 7) SODS	1. Number of species of bird 2. Number of species of fish 3. Estimated number of Fringe	1-1. Number of species of bird 1-2. Mangrove density and community survey 1-3. Number of species of mangrove 1-4. Density of mangrove (cut level/10m x 10m) 1-5. Benthos Survey 1-6. Number of species and quality by species	1-1. Number of species of bird 1-2. Mangrove density and community survey 1-3. Number of species of mangrove 1-4. Density of mangrove (cut level/10m x 10m) 1-5. Benthos Survey 1-6. Number of species and quality by species
Protector Area Ecotourism Hydrology Flooding situation	4 Times / Year	1-1. Number of species of bird 1-2. Mangrove density and community survey 1-3. Number of species of mangrove 1-4. Density of mangrove (cut level/10m x 10m) 1-5. Benthos Survey 1-6. Number of species and quality by species	1-1. Number of species of bird 1-2. Mangrove density and community survey 1-3. Number of species of mangrove 1-4. Density of mangrove (cut level/10m x 10m) 1-5. Benthos Survey 1-6. Number of species and quality by species
Not applicable for Package I 2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II Not applicable for Package III	4 Times / Year	1-1. Number of species of bird 1-2. Mangrove density and community survey 1-3. Number of species of mangrove 1-4. Density of mangrove (cut level/10m x 10m) 1-5. Benthos Survey 1-6. Number of species and quality by species	1-1. Number of species of bird 1-2. Mangrove density and community survey 1-3. Number of species of mangrove 1-4. Density of mangrove (cut level/10m x 10m) 1-5. Benthos Survey 1-6. Number of species and quality by species

This form is required for reporting the monitoring results to the Project Office. Only monitoring required information be included in this form. All other information is to be kept in the project files.

Approved by: (CRZ) (Mangrove) and one independent certified surveying firm shall be approved to conduct the survey. The formation of mangrove form shall be approved to conduct the survey.

Approved By Both CRZO and Forest Dept. Both Alibag and Uran (unflooded area)

Approved By Both CRZO and Forest Dept. Both Alibag and Uran (unflooded area)

Approved By Both CRZO and Forest Dept. Both Alibag and Uran (unflooded area)

Approved By Both CRZO and Forest Dept. Both Alibag and Uran (unflooded area)



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The Project for Construction of Mumbai Trans Harbour Link
 Research Firm of Environmental Monitoring during Construction
 Attachment 2-4
 1. Environmental Monitoring during Construction for 4.5 years

Attachment 2-4
 This form is prepared for reporting the monitoring for monitoring activities to ICA/Local office. Only relevant
 monitoring parameters are included in the form, and use of parameters in Table are covered.

Monitoring Period - Oct Dec 2022		Shreeji Nagar	Chirve	Chirve
8	Topography and Geology	Shreeji Nagar	Chirve	Chirve
9	Local soil of interest	In progress	Chirve	Chirve
10	Medical diseases such as HIV/AIDS	Swami Camp Site	Chirve	Chirve
11	Labour Environment	800 Local Workmen	Chirve	Chirve
12	Accident	Swami Camp Site	Chirve	Chirve
Other				



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 by the end of January 2023.

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.



**RAP Implementation Monitoring Form
For Mumbai Trans Harbour Link Project (MTHL)**

1. General Information

- a. RAP Implementation Monitoring Progress Status Report (PSR) for the 4th quarter of 2022
Results:
- b. Date of Preparing This form 30-12-2022
- c. Person Preparing This form

Name: Robin Sham
Position: Engineer and Team Leader
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 (1,088 persons) *
PAPs who do not need relocation (as residents)	0 persons	Titleholders: 0 persons
		Non-titleholders: 0 persons
Commercial PAPs who need relocation	66 (194 persons) *	Titleholders: 0 persons
		Non-titleholders: 66 (194 persons) *
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
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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 2017-22.
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



QPR No. 23 (Oct to Dec 2022) Attachment 2-8

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	226	0	227	98%	
	No. of Residential PAHs given possession of Alternate Tenements	231	226	0	227	98%	



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	62	0	62	94%	
	No. of Commercial R+C PAPs given possession of Alternate Shops/Tenements	66	62	0	62	94%	
	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	0	0	0	0%	
Rehabilitation	No. of PAHs / PAPs Identified for Livelihood Support in Post Resettlement Assessment						



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	1	0	1	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. 23 (Oct to Dec 2022) 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 31-12-2022

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



QPR No. 23 (Oct to Dec 2022) Attachment 2-8

Total applications	15097
Duplicate/Repeated Application	2428
Net Applications	12669
Approved applications	6645

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		
Nil	Nil	Nil	Nil	Nil



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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 (1388 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- 5532 Nos are approved.	23-12-2015	Up to 30-12-2022 1. Total up to date applications scrutinized = 12668 Nos. 2. Eligible = 6845 Nos. 3. Rejected = 6024 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.



SH
EVA



Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
6	Approval of compensation plan	FCC	23-11-2015	28-12-2017
7	Approval by MMRDA	MMRDA	23-11-2015	09-03-2021

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.

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	31-1-2023	



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	March 2023
2.11	Assessment of economic rehabilitation needs by individual household (within 6 months after handing over)	September 2019	March 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 March 2023



Attachment 3- JICA's Concurrence Status



Handwritten signatures in blue ink, including a large signature and a smaller one.

Status of JICA'S Concurrence

Sl. No.	Brief description	Procurement procedure	Bid Cost		PQ Documents	PQ Evaluation	Bid Documents	JICA'S Concurrence on		
			Local Currency (Cr Rs.)	Total (Cr Rs.)				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

1st Oct to 31st Dec 2022



Attachment 4- Project Procurement and Financial Status till 31st Dec 2022

ELL

SE



PROJECT PROCUREMENT AND FINANCIAL STATUS TILL 31st Dec 2022

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 31 st Dec 2022	% of Financial Progress till 31 st Dec 2022 (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	90.42%	88.51%
	Package-2 (CH 10+380 km to CH18+187 km)	5612.61	Awarded	DAEWOO-TPL JV	Mar 2018	21-Sep-2022	27-Sep-2023	89.03%	84.74%
	Package-3 (CH18+187 to CH21+800)	1013.79	Awarded	L&T	Mar 2018	21-Sep-2021	03-Mar-2023	87.28%	88.14%
ITS	Package-4 Intelligent Transport System (ITS)	427.00	Awarded	Sirabag GmbH JV	June 2022	Aug 2023	NA	NA	NA



1st Oct to 31st Dec 2022

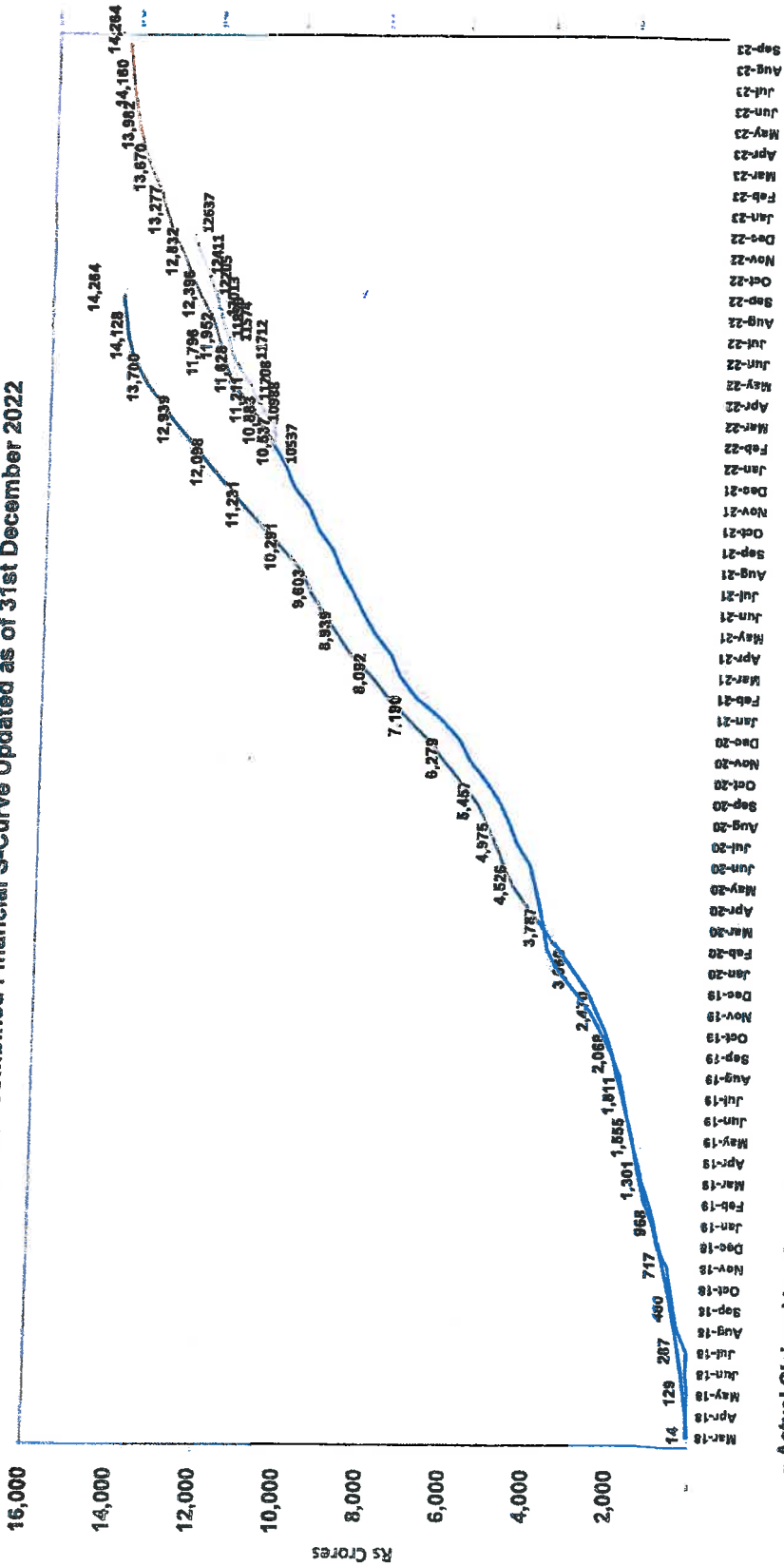
**Attachment 5- Financial S-Curve for Cumulative
Planned Vs Actual Amount in Rs Crores**



1st Oct to 31st Dec 2022

Page 43 of 62

MTHL - Combined Financial S-Curve Updated as of 31st December 2022



— Actual Claimed Invoice in Rs Crores
 - - - Planned Invoice as per the Catch-Up Plan
 — Actual Claimed Invoice as per the Catch-Up Plan in Rs Crores
 — Planned Invoice in Crores



**Attachment 6- Package-1's Construction Programme
Updated as of 31st Dec 2022**



Handwritten marks: 'SW' and '900'.
 Circular stamps: 'MUMBAI TRANS HARBOUR LINK PROJECT' and 'GC'.



MUMBAI TRANS HARBOUR LINK PACKAGE 1
UPDATED REVISED WORK PROGRAM FOR DECEMBER 2012



AECOM
AECOM
 General Consultant for Mumbai Trans Harbour Link Project

Activity No.	Activity Name	BLT Start	BLT End	Original Start	Original End	Completion %	Percentage Complete	Start Date	End Date	2018	2019	2020	2021	2022	2023	2024
M1000	Mumbai Trans Harbour Link Package 1															
M1001	Commencement Date	0	25-Mar-16	0	25-Mar-16		100%									
M1002	Construction	203	24-Mar-16	203	24-Mar-16		100%									
M1003	Procurement	145	15-Jun-16	145	15-Jun-16		100%									
M1004	Construction	145	15-Jun-16	145	15-Jun-16		100%									
M1005	Construction	73	24-Mar-16	73	24-Mar-16		100%									
M1006	Construction	40	25-Mar-16	40	25-Mar-16		100%									
M1007	Construction	82	24-Mar-16	82	24-Mar-16		100%									
M1008	Construction	95	24-Mar-16	95	24-Mar-16		100%									
M1009	Construction	62	23-Mar-16	62	23-Mar-16		100%									
M1010	Construction	157	24-Mar-16	157	24-Mar-16		100%									
M1011	Construction	84	01-Apr-16	84	01-Apr-16		100%									
M1012	Construction	121	11-Jun-16	121	11-Jun-16		100%									
M1013	Construction	6	26-Feb-22	6	26-Feb-22		100%									

Activity No.	Activity Name	BLT Start	BLT End	Original Start	Original End	Completion %	Percentage Complete	Start Date	End Date	2018	2019	2020	2021	2022	2023	2024
M1014	Construction	157	24-Mar-16	157	24-Mar-16		100%									
M1015	Construction	94	01-Apr-16	94	01-Apr-16		100%									
M1016	Construction	121	11-Jun-16	121	11-Jun-16		100%									
M1017	Construction	6	26-Feb-22	6	26-Feb-22		100%									
M1018	Construction	47	23-Mar-16	47	23-Mar-16		100%									
M1019	Construction	52	23-Mar-16	52	23-Mar-16		100%									
M1020	Construction	145	15-Jun-16	145	15-Jun-16		100%									
M1021	Construction	73	24-Mar-16	73	24-Mar-16		100%									
M1022	Construction	40	25-Mar-16	40	25-Mar-16		100%									
M1023	Construction	82	24-Mar-16	82	24-Mar-16		100%									
M1024	Construction	95	24-Mar-16	95	24-Mar-16		100%									
M1025	Construction	62	23-Mar-16	62	23-Mar-16		100%									
M1026	Construction	157	24-Mar-16	157	24-Mar-16		100%									
M1027	Construction	84	01-Apr-16	84	01-Apr-16		100%									
M1028	Construction	121	11-Jun-16	121	11-Jun-16		100%									
M1029	Construction	6	26-Feb-22	6	26-Feb-22		100%									
M1030	Construction	47	23-Mar-16	47	23-Mar-16		100%									
M1031	Construction	52	23-Mar-16	52	23-Mar-16		100%									
M1032	Construction	145	15-Jun-16	145	15-Jun-16		100%									
M1033	Construction	73	24-Mar-16	73	24-Mar-16		100%									
M1034	Construction	40	25-Mar-16	40	25-Mar-16		100%									
M1035	Construction	82	24-Mar-16	82	24-Mar-16		100%									
M1036	Construction	95	24-Mar-16	95	24-Mar-16		100%									
M1037	Construction	62	23-Mar-16	62	23-Mar-16		100%									
M1038	Construction	157	24-Mar-16	157	24-Mar-16		100%									
M1039	Construction	84	01-Apr-16	84	01-Apr-16		100%									
M1040	Construction	121	11-Jun-16	121	11-Jun-16		100%									
M1041	Construction	6	26-Feb-22	6	26-Feb-22		100%									
M1042	Construction	47	23-Mar-16	47	23-Mar-16		100%									
M1043	Construction	52	23-Mar-16	52	23-Mar-16		100%									
M1044	Construction	145	15-Jun-16	145	15-Jun-16		100%									
M1045	Construction	73	24-Mar-16	73	24-Mar-16		100%									
M1046	Construction	40	25-Mar-16	40	25-Mar-16		100%									
M1047	Construction	82	24-Mar-16	82	24-Mar-16		100%									
M1048	Construction	95	24-Mar-16	95	24-Mar-16		100%									
M1049	Construction	62	23-Mar-16	62	23-Mar-16		100%									
M1050	Construction	157	24-Mar-16	157	24-Mar-16		100%									

Legend:
 - Actual Work: Blue bar
 - Remaining Work: Green bar
 - Critical Remaining Work: Red bar
 - Milestone: Diamond symbol
 - Summary: Grey bar



© Drees & Partners



**MUMBAI TRANS HARBOUR LINK PACKAGE 1,
UPDATED REVISED WORK PROGRAM FOR DECEMBER 2022**

AECOM **PROCO** **TDM**
General Consultant for Mumbai Trans Harbour Link Project



Total
Post

2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

2031 2032 2033 2034 2035 2036 2037 2038 2039 2040

2041 2042 2043 2044 2045 2046 2047 2048 2049 2050

2051 2052 2053 2054 2055 2056 2057 2058 2059 2060

2061 2062 2063 2064 2065 2066 2067 2068 2069 2070

2071 2072 2073 2074 2075 2076 2077 2078 2079 2080

2081 2082 2083 2084 2085 2086 2087 2088 2089 2090

2091 2092 2093 2094 2095 2096 2097 2098 2099 2100

2101 2102 2103 2104 2105 2106 2107 2108 2109 2110

2111 2112 2113 2114 2115 2116 2117 2118 2119 2120

2121 2122 2123 2124 2125 2126 2127 2128 2129 2130

Activity Name	BLI ID	BLI Desc	BCT No.	Start Date	End Date	Duration	WBS	WBS Desc	WBS Code	WBS Level	WBS Status	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	WBS % Complete	
2021 2022 2023 2024 2025 2026 2027 2028 2029 2030																							
2031 2032 2033 2034 2035 2036 2037 2038 2039 2040																							
2041 2042 2043 2044 2045 2046 2047 2048 2049 2050																							
2051 2052 2053 2054 2055 2056 2057 2058 2059 2060																							
2061 2062 2063 2064 2065 2066 2067 2068 2069 2070																							
2071 2072 2073 2074 2075 2076 2077 2078 2079 2080																							
2081 2082 2083 2084 2085 2086 2087 2088 2089 2090																							
2091 2092 2093 2094 2095 2096 2097 2098 2099 2100																							
2101 2102 2103 2104 2105 2106 2107 2108 2109 2110																							
2111 2112 2113 2114 2115 2116 2117 2118 2119 2120																							
2121 2122 2123 2124 2125 2126 2127 2128 2129 2130																							

SH

SK



Actual Level of Effort
Actual Work
Remaining Work
Critical Pathwork
Milestone
Summary activity

**Attachment 7- Package-2's Construction Programme
Updated as of 31st Dec 2022**

SH *SK*



MUMBAI TRANS HARBOUR LINK PROJECT (PACKAGE 2) CONSTRUCTION OF 7.807KM LONG BRIDGE SECTION (CH 10 380 - CH 18 187) ACROSS THE MUMBAI BAY INCL. SHEVAJINAGAR INTERCHANGE UNDER IDENTIFICATION NO MMRDA/ENG/000753

ANNEXURE-3 CONSTRUCTION UPDATED PROGRAMME_ABSTRACT (PACKAGE 2)

#	Activity ID	Activity Name	Original Bl. Project Start	Actual Start	Actual Finish	Schedule % Performance % Complete	2018	2019	2020	2021	2022	2023	2024	2025
64		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
65		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
66		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
67		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
68		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
69		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
70		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
71		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
72		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
73		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
74		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
75		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
76		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
77		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
78		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
79		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
80		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
81		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
82		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
83		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
84		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
85		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
86		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
87		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
88		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
89		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
90		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
91		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
92		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
93		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
94		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
95		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
96		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
97		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
98		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
99		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
100		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
101		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
102		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
103		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
104		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
105		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
106		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								
107		STEEL MODULATED UPPER AND LOWER DECK STEEL BEAMS	28/08/2018	28/08/2018	28/08/2018	100%								

Primary Baseline █ **Critical Remaining Work** █ **summary**
Actual Work █ **Milestone** ◆
Remaining Work █ **% Complete** █

EMPLOYER: MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)
CONTRACTOR: DAEWOO-TPL JV
Date: 25-Dec-22 **Revision:** R0 **Checked:** **Approved:**



ANNEXURE-5 CONSTRUCTION UPDATED PROGRAMME_ABSTRACT (PACKAGE 2)

MUMBAI TRANS HARBOUR LINK PROJECT (PACKAGE 2) CONSTRUCTION OF 7.807KM LONG BRIDGE SECTION (CH 10 380 - CH 18 187) ACROSS THE MUMBAI BAY INCL. SHIVAJINAGAR INTERCHANGE UNDER IDENTIFICATION NO MMRDA/ENG/000753

Sl. No.	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete	2018	2019	2020	2021	2022	2023	2024	2025
108	MODULE-10_MP224 - MP220	188	14-Jan-19	15-Apr-19	05-Oct-18	11-Jan-20	100%	100%								
109	MAIN BRIDGE PILE FOUNDATION, CRZ 2 (5000-51400) FROM MP220 TO MP226	205	20-Sep-16	27-Sep-16	08-Nov-16	21-Feb-20	100%	100%								
110	MODULE-11_MP231 - MP227	48	17-Aug-19	27-Nov-19	08-Nov-19	21-Feb-20	100%	100%								
111	MODULE-16_MP236 - MP232	77	18-Mar-19	20-Apr-19	08-Aug-19	25-Oct-19	100%	100%								
112	MODULE-16_MP240 - MP237	113	20-Oct-18	28-Nov-18	18-Nov-18	11-Apr-19	100%	100%								
113	MODULE-17_MP265 - MP261	84	23-Mar-19	17-Jun-19	06-Oct-18	14-Jun-20	100%	100%								
114	MODULE-18_MP246 - MP246	74	21-Jan-19	29-Mar-19	14-Oct-18	09-Feb-20	100%	100%								
115	MAIN BRIDGE PILE FOUNDATION INTERFERAL, CRZ-1 FROM MP228 TO MP228	516	20-Sep-16	06-Jun-20	15-Jul-20	25-Aug-20	100%	100%								
116	MODULE-10_MP211 - MP 207	283	24-Mar-20	06-Jun-20	04-Nov-18	19-Feb-20	100%	100%								
117	MODULE-11_MP219 - MP 212	277	27-Feb-19	03-Apr-20	15-Oct-18	24-Feb-20	100%	100%								
118	MODULE-12_MP221 - MP217	225	01-Apr-19	30-Oct-18	25-Feb-20	28-Aug-20	100%	100%								
119	MODULE-13_MP228 - MP223	313	30-Oct-18	09-Feb-20	24-Jun-20	16-Jun-20	100%	100%								
120	MAIN BRIDGE PILE FOUNDATION, MARINE 1545 TO 14400 FROM MP187 TO MP188	57	13-Sep-19	01-Oct-19	13-Oct-19	13-Oct-20	100%	100%								
121	MODULE-04_MP203 - MP203	282	25-Feb-20	19-May-20	18-Feb-20	28-Dec-20	100%	100%								
122	MODULE-04_MP201 - MP197	146	02-Aug-20	08-Sep-20	13-Oct-20	07-Feb-21	100%	100%								
123	MODULE-04_MP191 - MP187	82	21-Aug-20	28-Sep-20	31-Aug-20	30-Dec-20	100%	100%								
124	MAIN BRIDGE PILE FOUNDATION, MARINE 1545 TO 14400 FROM MP171 TO MP176	279	17-Nov-19	23-Mar-21	17-Sep-20	08-Dec-20	100%	100%								
125	STEEL MODULE-03_MP165 - MP163	80	30-Mar-20	21-May-20	08-Oct-20	15-Feb-21	100%	100%								
126	STEEL MODULE-02_MP182 - MP177	335	27-Mar-19	16-Jul-20	17-Mar-20	25-Jun-21	100%	100%								
127	STEEL MODULE-01_MP178 - MP174	165	30-Jul-20	26-Jan-21	18-Apr-21	21-Feb-22	100%	100%								
128	MAIN BRIDGE PILE FOUNDATION, MARINE 1545 TO 14400 FROM MP148 TO MP150	723	19-Sep-19	28-Sep-21	10-Mar-21	25-Sep-22	100%	100%								
129	MODULE-05_MP171 - MP167	183	19-Jun-19	16-Oct-19	10-Mar-21	25-Sep-22	100%	100%								
130	MODULE-04_MP165 - MP162	507	24-Mar-18	18-Feb-19	24-Feb-21	30-Feb-21	100%	100%								
131	MODULE-03_MP161 - MP157	360	23-Jan-18	18-Apr-18	03-Apr-19	28-Mar-21	100%	100%								
132	MODULE-02_MP166 - MP162	84	16-Apr-18	27-Jul-19	21-Dec-20	27-Aug-21	100%	100%								
133	MODULE-01_MP151 - MP146	107	04-Oct-18	28-Feb-19	25-Dec-20	19-Apr-21	100%	100%								
134	MAIN BRIDGE PILE CAP BOTTOM SLAB, CRZ 1545 TO 14400 FROM MP148 TO MP148	1008	27-Mar-19	07-Apr-21	19-Apr-21	19-Apr-21	100%	100%								
135	MAIN BRIDGE PILE CAP BOTTOM SLAB, CRZ 1545 TO 14400 FROM MP148 TO MP148	356	17-Jan-19	12-Dec-19	15-Aug-19	28-May-20	0%	0%								
136	MODULE-11_MP231 - MP227	154	20-Sep-16	14-Feb-17	24-Feb-20	24-Feb-20	0%	0%								
137	MODULE-15_MP240 - MP237	122	17-Feb-19	22-Mar-19	24-Feb-20	24-Feb-20	0%	0%								
138	MODULE-16_MP236 - MP232	113	20-Oct-18	28-Nov-18	24-Feb-20	24-Feb-20	0%	0%								
139	MODULE-17_MP265 - MP261	84	23-Mar-19	17-Jun-19	06-Oct-18	14-Jun-20	0%	0%								
140	MODULE-18_MP246 - MP246	74	21-Jan-19	29-Mar-19	14-Oct-18	09-Feb-20	0%	0%								
141	MAIN BRIDGE PILE CAP BOTTOM SLAB, INTERFERAL, 1445 TO 14400 FROM MP187 TO MP188	188	06-Apr-19	18-Jul-20	30-Dec-19	30-Apr-20	0%	0%								
142	MODULE-10_MP211 - MP 207	283	24-Mar-20	06-Jun-20	04-Nov-18	19-Feb-20	0%	0%								
143	MODULE-11_MP219 - MP 212	277	27-Feb-19	03-Apr-20	15-Oct-18	24-Feb-20	0%	0%								
144	MODULE-12_MP221 - MP217	225	01-Apr-19	30-Oct-18	25-Feb-20	28-Aug-20	0%	0%								
145	MODULE-13_MP228 - MP223	313	30-Oct-18	09-Feb-20	24-Jun-20	16-Jun-20	0%	0%								
146	MAIN BRIDGE PILE CAP BOTTOM SLAB, MARINE 1545 TO 14400 FROM MP187 TO MP188	1008	27-Mar-19	07-Apr-21	19-Apr-21	19-Apr-21	0%	0%								
147	MODULE-04_MP203 - MP203	282	25-Feb-20	19-May-20	18-Feb-20	28-Dec-20	0%	0%								
148	MODULE-04_MP201 - MP197	146	02-Aug-20	08-Sep-20	13-Oct-20	07-Feb-21	0%	0%								
149	MODULE-04_MP191 - MP187	82	21-Aug-20	28-Sep-20	31-Aug-20	30-Dec-20	0%	0%								
150	MAIN BRIDGE PILE CAP BOTTOM SLAB, CRZ 1545 TO 14400 FROM MP171 TO MP176	279	17-Nov-19	23-Mar-21	17-Sep-20	08-Dec-20	0%	0%								
151	STEEL MODULE-03_MP165 - MP163	80	30-Mar-20	21-May-20	08-Oct-20	15-Feb-21	0%	0%								
152	STEEL MODULE-02_MP182 - MP177	335	27-Mar-19	16-Jul-20	17-Mar-20	25-Jun-21	0%	0%								
153	STEEL MODULE-01_MP178 - MP174	165	30-Jul-20	26-Jan-21	18-Apr-21	21-Feb-22	0%	0%								
154	MAIN BRIDGE PILE FOUNDATION, MARINE 1545 TO 14400 FROM MP148 TO MP150	723	19-Sep-19	28-Sep-21	10-Mar-21	25-Sep-22	0%	0%								
155	MODULE-05_MP171 - MP167	183	19-Jun-19	16-Oct-19	10-Mar-21	25-Sep-22	0%	0%								

EMPLOYER: MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)
CONTRACTOR: DAEWOO-TPL JV

Date: 28-Dec-22
Revision: R0
Checked: [Signature]
Approved: [Signature]

MUMBAI TRANS HARBOUR LINK PROJECT (PACKAGE 2) CONSTRUCTION OF 7.807KM LONG BRIDGE SECTION (CH 10 380 - CH 18 187) ACROSS THE MUMBAI BAY INCL. SHIVAJINAGAR INTERCHANGE UNDER IDENTIFICATION NO MMRDA/ENG/000753

ANNEXURE-3 CONSTRUCTION UPDATED PROGRAMME_ABSTRACT (PACKAGE 2)

Activity ID	Activity Name	Original Duration	Actual Start	Actual Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete	2018	2019	2020	2021	2022	2023	2024	2025
154	STEEL MODULE 01_MP195 - MP171	10	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
155	STEEL MODULE 02_MP182 - MP177	16	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
156	STEEL MODULE 03_MP185 - MP183	10	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
157	MAIN BRIDGE PILE CAP BOTTOM SLAB_MARINE 10x380-11x480 FROM MP148 TO MP170	300	22-Dec-16	21-Jun-20	26-Jun-21	22-Jun-22	0%	0%								
158	MODULE 05_MP171 - MP167	18	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
159	MODULE 04_MP166 - MP162	19	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
160	MODULE 03_MP161 - MP157	11	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
161	MODULE 02_MP156 - MP152	5	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
162	MODULE 01_MP151 - MP146	10	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
163	MAIN BRIDGE PILE CAP INSTALLATION	311	27-Dec-16	28-Jun-20	01-Jun-21	01-Jun-22	100%	100%								
164	MAIN BRIDGE PILE CAP LAND 17x414-18x188 FROM MP281 TO MP288	377	27-Dec-16	15-Jun-19	01-Jun-19	27-Jun-20	100%	100%								
165	MODULE 21_MP281 - MP287	30	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
166	MODULE 20_MP286 - MP282	52	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
167	MODULE 19_MP285 - MP281	54	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
168	MODULE 18_MP284 - MP280	213	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
169	MAIN BRIDGE PILE CAP 16x180-17x414 FROM MP282 TO MP280	328	04-Jun-19	05-Jun-20	28-Jun-20	15-Sep-20	100%	100%								
170	MODULE 15_MP281 - MP287	250	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
171	MODULE 14_MP286 - MP282	251	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
172	MODULE 13_MP285 - MP281	150	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
173	MODULE 12_MP284 - MP280	147	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
174	MODULE 11_MP283 - MP281	147	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
175	MODULE 10_MP282 - MP280	199	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
176	MAIN BRIDGE PILE CAP INTERMEDIAL 14x180-16x180 FROM MP208 TO MP225	95	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
177	MODULE 09_MP211 - MP207	15	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
178	MODULE 08_MP210 - MP206	11	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
179	MODULE 07_MP209 - MP205	11	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
180	MAIN BRIDGE PILE CAP_MARINE 13x410-14x180 FROM MP187 TO MP206	413	01-Feb-20	06-Jun-21	13-Jun-20	23-Aug-22	100%	100%								
181	MODULE 05_MP206 - MP202	15	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
182	MODULE 04_MP205 - MP197	65	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
183	MODULE 03_MP196 - MP192	50	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
184	MODULE 02_MP191 - MP187	50	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
185	MAIN BRIDGE PILE CAP_MARINE (STEEL) 11x480-13x410 FROM MP171 TO MP188	465	20-Jun-20	23-Aug-21	18-Aug-20	13-Oct-22	100%	100%								
186	STEEL MODULE 01_MP176 - MP171	15	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
187	STEEL MODULE 02_MP182 - MP177	15	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
188	STEEL MODULE 03_MP186 - MP183	10	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
189	MAIN BRIDGE PILE CAP_MARINE 10x380-11x480 FROM MP146 TO MP170	323	05-Jun-19	17-Feb-20	08-Feb-21	23-Aug-22	100%	100%								
190	MODULE 05_MP171 - MP167	18	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
191	MODULE 04_MP166 - MP162	23	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
192	MODULE 03_MP161 - MP157	13	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
193	MODULE 02_MP156 - MP152	5	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
194	MODULE 01_MP151 - MP146	10	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
195	MAIN BRIDGE SUBSTRUCTURE	102	05-Jun-19	23-Sep-21	09-Jun-19	09-Jun-21	100%	100%								
196	MAIN BRIDGE SUBSTRUCTURE	102	05-Jun-19	23-Sep-21	09-Jun-19	09-Jun-21	100%	100%								
197	MAIN BRIDGE SUBSTRUCTURE	102	05-Jun-19	23-Sep-21	09-Jun-19	09-Jun-21	100%	100%								
198	MODULE 21_MP281 - MP287	30	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								
199	MODULE 20_MP286 - MP282	52	01-Jun-20	01-Jun-21	01-Jun-20	01-Jun-21	0%	0%								

EMPLOYEE: MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)

CONTRACTOR: DAEWOO-ITL JV

Date: 25-Dec-22

Revision: 00

Checked: Approved

ANNEXURE-5 CONSTRUCTION UPDATED PROGRAMME_ABSTRACT (PACKAGE 2)

MUMBAI TRANS HARBOUR LINK PROJECT (PACKAGE 2) CONSTRUCTION OF 7.807KM LONG BRIDGE SECTION (CH 10 380 - CH 18 187) ACROSS THE MUMBAI BAY INCL. SHIVAJINAGAR INTERCHANGE UNDER IDENTIFICATION NO MMRDA/ENG/000753

Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Completion %	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
200	MODULE-00_NP206-NP208	229	10-Jan-18	17-May-19	11-May-20	21-Jun-21	100%										
201	MODULE-01_NP204-NP209	338	28-Feb-18	30-Sep-19	15-May-20	27-Aug-21	100%										
202	MODULE-02_NP205-NP207	355	28-Feb-18	09-Feb-20	04-Jul-20	11-Aug-21	100%										
203	MODULE-03_NP206-NP208	236	04-Dec-19	03-Feb-20	02-Feb-20	25-Jun-21	100%										
204	MODULE-04_NP206-NP207	134	16-Jul-18	19-Dec-19	06-Jan-20	08-Aug-20	100%										
205	MODULE-05_NP206-NP207	68	13-Aug-19	30-Oct-19	04-Nov-19	27-Jan-20	100%										
206	MODULE-06_NP206-NP204	171	23-May-18	28-Sep-19	24-Oct-19	27-Jan-20	100%										
207	MODULE-07_NP206-NP204	336	25-Jun-19	28-Sep-19	03-Jan-20	24-Oct-19	100%										
208	MODULE-08_NP206-NP207	417	10-Jan-18	18-Oct-20	13-Feb-20	08-Jun-21	100%										
209	MODULE-09_NP206-NP207	304	24-Feb-20	16-Oct-20	10-Feb-20	03-Jul-21	100%										
210	MODULE-10_NP206-NP207	305	11-May-18	17-Jul-20	13-Aug-20	23-Nov-21	100%										
211	MODULE-11_NP206-NP207	97	17-Jul-19	05-Jun-20	30-Jun-20	08-Jan-21	100%										
212	MODULE-12_NP206-NP207	235	06-Jun-20	15-Jun-20	20-Oct-20	20-Feb-21	100%										
213	MODULE-13_NP206-NP207	110	10-Jun-20	16-Jun-20	14-Jun-20	20-Feb-21	100%										
214	MODULE-14_NP206-NP207	179	13-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
215	MODULE-15_NP206-NP207	176	17-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
216	MODULE-16_NP206-NP207	182	25-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
217	MODULE-17_NP206-NP207	61	18-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
218	MODULE-18_NP206-NP207	218	17-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
219	MODULE-19_NP206-NP207	230	23-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
220	MODULE-20_NP206-NP207	176	17-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
221	MODULE-21_NP206-NP207	230	18-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
222	MODULE-22_NP206-NP207	187	17-Jun-20	18-Jun-20	14-Jun-20	20-Feb-21	100%										
223	MODULE-23_NP206-NP207	120	10-Jun-20	13-Jun-20	20-Sep-21	07-Jan-22	100%										
224	MODULE-24_NP206-NP207	77	11-Jul-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
225	MODULE-25_NP206-NP207	81	25-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
226	MODULE-26_NP206-NP207	64	07-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
227	MODULE-27_NP206-NP207	59	15-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
228	MODULE-28_NP206-NP207	133	17-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
229	MODULE-29_NP206-NP207	133	17-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
230	MODULE-30_NP206-NP207	165	13-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
231	MODULE-31_NP206-NP207	114	05-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
232	MODULE-32_NP206-NP207	182	06-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
233	MODULE-33_NP206-NP207	212	30-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
234	MODULE-34_NP206-NP207	263	15-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
235	MODULE-35_NP206-NP207	87	20-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
236	MODULE-36_NP206-NP207	64	14-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
237	MODULE-37_NP206-NP207	132	21-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
238	MODULE-38_NP206-NP207	133	05-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
239	MODULE-39_NP206-NP207	201	16-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
240	MODULE-40_NP206-NP207	271	09-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
241	MODULE-41_NP206-NP207	174	20-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
242	MODULE-42_NP206-NP207	200	05-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
243	MODULE-43_NP206-NP207	191	24-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
244	MODULE-44_NP206-NP207	187	30-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
245	MODULE-45_NP206-NP207	189	23-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
246	MODULE-46_NP206-NP207	186	18-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
247	MODULE-47_NP206-NP207	194	10-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
248	MODULE-48_NP206-NP207	114	01-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
249	MODULE-49_NP206-NP207	48	23-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										
250	MODULE-50_NP206-NP207	184	18-Jun-20	14-Jun-20	20-Sep-21	07-Jan-22	100%										

Primary Baseline Actual Work Remaining Work Critical Remaining Work summary Milestone % Complete

EMPLOYER: MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)
 CONTRACTOR: DAEWOO-TPL JV
 Date: 28-Dec-22
 Revision: RD
 Checked: Approved

MUMBAI TRANS HARBOUR LINK PROJECT (PACKAGE 2) CONSTRUCTION OF 7.807KM LONG BRIDGE SECTION (CH 10 360 - CH 18 187) ACROSS THE MUMBAI BAY INCL SHIVAJINAGAR INTERCHANGE UNDER IDENTIFICATION NO MM/RDA/ENG/000753

ANNEXURE-5 CONSTRUCTION UPDATED PROGRAMME_ABSTRACT (PACKAGE 2)

#	Activity Name	Original Duration	BL Project Start	BL Project Finish	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete	Year															
									2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030			
357	FINAL PRICE STEEL CENTER INSTALLATION, SHIPING 11 months, 12 months from 21-07-2019	360	03-08-20	03-08-22	03-08-20	03-08-22	100%	100%																
358	STEEL MODULE-01, MP176 - MP174 (INSTALLATION)	60	07-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
359	STEEL MODULE-02, MP162 - MP177 (INSTALLATION)	157	03-Oct-20	30-Sep-21	01-Jun-22	15-Dec-22	100%	100%																
360	STEEL MODULE-03, MP165 - MP163 (INSTALLATION)	77	30-Sep-21	07-Oct-21	23-Nov-22		100%	21%																
361	MISCELLANEOUS CENTER INSTALLATION	63	10-Nov-19	24-Nov-22	24-Nov-22		100%	21%																
362	STEEL MODULE 04, MP182 - MP181 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
363	STEEL MODULE 05, MP178 - MP179 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
364	STEEL MODULE 06, MP174 - MP175 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
365	STEEL MODULE 07, MP179 - MP180 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
366	STEEL MODULE 08, MP180 - MP181 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
367	STEEL MODULE 09, MP181 - MP182 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
368	STEEL MODULE 10, MP182 - MP183 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
369	STEEL MODULE 11, MP183 - MP184 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
370	STEEL MODULE 12, MP184 - MP185 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
371	STEEL MODULE 13, MP185 - MP186 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
372	STEEL MODULE 14, MP186 - MP187 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
373	STEEL MODULE 15, MP187 - MP188 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
374	STEEL MODULE 16, MP188 - MP189 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
375	STEEL MODULE 17, MP189 - MP190 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
376	STEEL MODULE 18, MP190 - MP191 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
377	STEEL MODULE 19, MP191 - MP192 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
378	STEEL MODULE 20, MP192 - MP193 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
379	STEEL MODULE 21, MP193 - MP194 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
380	STEEL MODULE 22, MP194 - MP195 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
381	STEEL MODULE 23, MP195 - MP196 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
382	STEEL MODULE 24, MP196 - MP197 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
383	STEEL MODULE 25, MP197 - MP198 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
384	STEEL MODULE 26, MP198 - MP199 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
385	STEEL MODULE 27, MP199 - MP200 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
386	STEEL MODULE 28, MP200 - MP201 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
387	STEEL MODULE 29, MP201 - MP202 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
388	STEEL MODULE 30, MP202 - MP203 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
389	STEEL MODULE 31, MP203 - MP204 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
390	STEEL MODULE 32, MP204 - MP205 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
391	STEEL MODULE 33, MP205 - MP206 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
392	STEEL MODULE 34, MP206 - MP207 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
393	STEEL MODULE 35, MP207 - MP208 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
394	STEEL MODULE 36, MP208 - MP209 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
395	STEEL MODULE 37, MP209 - MP210 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
396	STEEL MODULE 38, MP210 - MP211 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
397	STEEL MODULE 39, MP211 - MP212 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
398	STEEL MODULE 40, MP212 - MP213 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
399	STEEL MODULE 41, MP213 - MP214 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
400	STEEL MODULE 42, MP214 - MP215 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
401	STEEL MODULE 43, MP215 - MP216 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
402	STEEL MODULE 44, MP216 - MP217 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
403	STEEL MODULE 45, MP217 - MP218 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
404	STEEL MODULE 46, MP218 - MP219 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																
405	STEEL MODULE 47, MP219 - MP220 (INSTALLATION)	60	03-Oct-21	01-Jun-22	01-Jun-22	01-Jun-22	100%	100%																

EMPLOYERS: MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)

CONTRACTOR: DAEWOO-TPL JV

Date: 25-Dec-22

Revision: R0

Checked:

Approved:

Legend: Primary Baseline (Blue), Actual Work (Green), Remaining Work (Red), Critical Remaining Work (Pink), Milestone (Yellow), % Complete (Grey)

Page Number: 118

ANNEXURE-3 CONSTRUCTION UPDATED
PROGRAMME_ABSTRACT (PACKAGE 2)

Activity ID	Activity Name	Original B.C. Project Start	Original B.C. Project End	Performance % Complete												
				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026		
406	INTERCHANGE RAMP PILE CAP_1A	04-Jun-18	13-Jun-18	100%												
407	MODULE_26_INTERCHANGE RAMP PIER_1A	04-Jun-18	13-Jun-18	100%												
408	MODULE_27_INTERCHANGE RAMP PIER_1B	05-Jul-18	24-Jul-18	100%												
409	MODULE_28_INTERCHANGE RAMP PIER_1C	05-Jul-18	24-Jul-18	100%												
410	MODULE_29_INTERCHANGE RAMP PIER_1D	05-Jul-18	24-Jul-18	100%												
411	MODULE_30_INTERCHANGE RAMP PIER_1E	05-Jul-18	24-Jul-18	100%												
412	MODULE_31_INTERCHANGE RAMP PIER_1F	05-Jul-18	24-Jul-18	100%												
413	MODULE_32_INTERCHANGE RAMP PIER_1G	05-Jul-18	24-Jul-18	100%												
414	MODULE_33_INTERCHANGE RAMP PIER_1H	05-Jul-18	24-Jul-18	100%												
415	MODULE_34_INTERCHANGE RAMP PIER_1I	05-Jul-18	24-Jul-18	100%												
416	MODULE_35_INTERCHANGE RAMP PIER_1J	05-Jul-18	24-Jul-18	100%												
417	MODULE_36_INTERCHANGE RAMP PIER_1K	05-Jul-18	24-Jul-18	100%												
418	MODULE_37_INTERCHANGE RAMP PIER_1L	05-Jul-18	24-Jul-18	100%												
419	MODULE_38_INTERCHANGE RAMP PIER_1M	05-Jul-18	24-Jul-18	100%												
420	MODULE_39_INTERCHANGE RAMP PIER_1N	05-Jul-18	24-Jul-18	100%												
421	MODULE_40_INTERCHANGE RAMP PIER_1O	05-Jul-18	24-Jul-18	100%												
422	MODULE_41_INTERCHANGE RAMP PIER_1P	05-Jul-18	24-Jul-18	100%												
423	MODULE_42_INTERCHANGE RAMP PIER_1Q	05-Jul-18	24-Jul-18	100%												
424	MODULE_43_INTERCHANGE RAMP PIER_1R	05-Jul-18	24-Jul-18	100%												
425	MODULE_44_INTERCHANGE RAMP PIER_1S	05-Jul-18	24-Jul-18	100%												
426	MODULE_45_INTERCHANGE RAMP PIER_1T	05-Jul-18	24-Jul-18	100%												
427	MODULE_46_INTERCHANGE RAMP PIER_1U	05-Jul-18	24-Jul-18	100%												
428	MODULE_47_INTERCHANGE RAMP PIER_1V	05-Jul-18	24-Jul-18	100%												
429	MODULE_48_INTERCHANGE RAMP PIER_1W	05-Jul-18	24-Jul-18	100%												
430	MODULE_49_INTERCHANGE RAMP PIER_1X	05-Jul-18	24-Jul-18	100%												
431	MODULE_50_INTERCHANGE RAMP PIER_1Y	05-Jul-18	24-Jul-18	100%												
432	MODULE_51_INTERCHANGE RAMP PIER_1Z	05-Jul-18	24-Jul-18	100%												
433	MODULE_52_INTERCHANGE RAMP PIER_2A	05-Jul-18	24-Jul-18	100%												
434	MODULE_53_INTERCHANGE RAMP PIER_2B	05-Jul-18	24-Jul-18	100%												
435	MODULE_54_INTERCHANGE RAMP PIER_2C	05-Jul-18	24-Jul-18	100%												
436	MODULE_55_INTERCHANGE RAMP PIER_2D	05-Jul-18	24-Jul-18	100%												
437	MODULE_56_INTERCHANGE RAMP PIER_2E	05-Jul-18	24-Jul-18	100%												
438	MODULE_57_INTERCHANGE RAMP PIER_2F	05-Jul-18	24-Jul-18	100%												
439	MODULE_58_INTERCHANGE RAMP PIER_2G	05-Jul-18	24-Jul-18	100%												
440	MODULE_59_INTERCHANGE RAMP PIER_2H	05-Jul-18	24-Jul-18	100%												
441	MODULE_60_INTERCHANGE RAMP PIER_2I	05-Jul-18	24-Jul-18	100%												
442	MODULE_61_INTERCHANGE RAMP PIER_2J	05-Jul-18	24-Jul-18	100%												
443	MODULE_62_INTERCHANGE RAMP PIER_2K	05-Jul-18	24-Jul-18	100%												
444	MODULE_63_INTERCHANGE RAMP PIER_2L	05-Jul-18	24-Jul-18	100%												
445	MODULE_64_INTERCHANGE RAMP PIER_2M	05-Jul-18	24-Jul-18	100%												
446	MODULE_65_INTERCHANGE RAMP PIER_2N	05-Jul-18	24-Jul-18	100%												
447	MODULE_66_INTERCHANGE RAMP PIER_2O	05-Jul-18	24-Jul-18	100%												
448	MODULE_67_INTERCHANGE RAMP PIER_2P	05-Jul-18	24-Jul-18	100%												
449	MODULE_68_INTERCHANGE RAMP PIER_2Q	05-Jul-18	24-Jul-18	100%												
450	MODULE_69_INTERCHANGE RAMP PIER_2R	05-Jul-18	24-Jul-18	100%												
451	MODULE_70_INTERCHANGE RAMP PIER_2S	05-Jul-18	24-Jul-18	100%												
452	MODULE_71_INTERCHANGE RAMP PIER_2T	05-Jul-18	24-Jul-18	100%												
453	MODULE_72_INTERCHANGE RAMP PIER_2U	05-Jul-18	24-Jul-18	100%												
454	MODULE_73_INTERCHANGE RAMP PIER_2V	05-Jul-18	24-Jul-18	100%												
455	MODULE_74_INTERCHANGE RAMP PIER_2W	05-Jul-18	24-Jul-18	100%												
456	MODULE_75_INTERCHANGE RAMP PIER_2X	05-Jul-18	24-Jul-18	100%												

Actual Work	◆	Critical Remaining Work	summary
Remaining Work	■	Milestone	◆
	◆	% Complete	■

EMPLOYER:
MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
(MMRDA)

CONTRACTOR:
DAEWOO-TPL JV

9 of 10

MUMBAI TRANS HARBOUR LINK PROJECT (PACKAGE 2) CONSTRUCTION OF 7.807KM LONG BRIDGE SECTION
(CH 10.380 - CH 18.187) ACROSS THE MUMBAI BAY INCL. SHIVAJINAGAR INTERCHANGE
UNDER IDENTIFICATION NO MM/RD/A/ENG/000753

ANNEXURE-5 CONSTRUCTION UPDATED
PROGRAMME_ABSTRACT (PACKAGE 2)

#	Activity Name	Original BL Project Start Duration	BL Project Start	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete	2018	2019	2020	2021	2022	2023	2024	2025
456	INTERCHANGE STRUCTURE CA														
457	INTERCHANGE RETAINING WALLS CA														
458	INTERCHANGE STRUCTURE CB														
459	INTERCHANGE RETAINING WALLS CB														
460	MISCELLANEOUS FINISHING WORKS	376	19-Aug-20	15-Nov-22	29-Jul-23	100%	0%								
461	CONCRETE JOINT														
462	GRAVEL BATTERS & SQUARE WALLS														
463	PAVING (INCLUDING	65	24-Mar-22	23-Sep-22		100%	0%								
464	PAVING)														
465	TRAINING MOOHS														
466	PROJECT HANDING OVER														
467	CHECKLIST														
468	DEFECT LIABILITY PERIOD (DLP)														
469	PRICE SCHEDULE														
470	SCHEDULE 4	2482	23-Mar-18	21-Mar-23	23-Mar-18	98.25%	93.25%								
471	SCHEDULE 2	1644	23-Mar-18	22-Sep-22	23-Mar-18	100%	98.27%								
472	SCHEDULE 3	1644	23-Mar-18	22-Sep-22	23-Mar-18	100%	98%								
473	SCHEDULE 43	1644	23-Mar-18	22-Sep-22	23-Mar-18	100%	94.4%								
474	SCHEDULE 43	1644	23-Mar-18	22-Sep-22	23-Mar-18	100%	0.28%								
475	MTHL PKG2-RAMBOLL DESIGN PROGRAMME_25122022_APPROVED_MPR.57														



EMPLOYER: MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)

CONTRACTOR: DAEWOO-IPL JV

Date: 25-Dec-22

Revision: R0

Checked: Approved

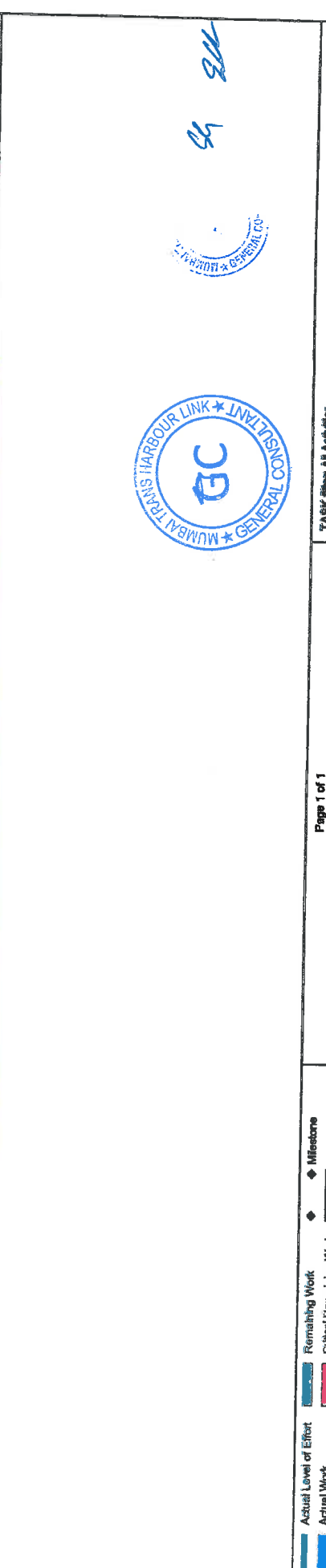
**Attachment 8- Package-3's Construction Programme
Updated as of 31st Dec 2022**



1st Oct to 31st Dec 2022

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Activity ID	Activity Name	Original Duration	BLT Start	BLT Finish	Start	Finish	Activity % Complete	Schedule % Complete	Performance % Complete	Earned Value Cost	Budgeted Total Cost	02-Jan-23 13:20
1	Procurement of Mumbai Trans Harbour Link Project (P)	1545	23-Mar-18	03-Aug-23	23-Mar-18	31-Aug-23	100%	100%	100%	Rs1,37,99,99,999	Rs1,37,99,99,999	02-Jan-23 13:20
	Commencement Date (CD)	0	30-Sep-18	03-Mar-23	30-Sep-18	31-Aug-23	100%	100%	100%	Rs0	Rs0	02-Jan-23 13:20
	Milestones (As level of effort)											
	KD1001	0	30-Sep-18	30-Sep-18	30-Sep-18	31-Aug-23	100%	100%	100%	Rs0	Rs0	
	KD1002	0	29-Jun-20	29-Jun-20	29-Jun-20	29-Jun-20	100%	100%	100%	Rs0	Rs0	
	KD1003	0	17-Aug-20	17-Aug-20	17-Aug-20	17-Aug-20	100%	100%	100%	Rs0	Rs0	
	KD1004	0	27-Nov-20	27-Nov-20	27-Nov-20	27-Nov-20	100%	100%	100%	Rs0	Rs0	
	KD1005	0	25-Dec-21	25-Dec-21	25-Dec-21	25-Dec-21	100%	100%	100%	Rs0	Rs0	
	KD1006	0	08-Dec-22	08-Dec-22	11-Mar-23	11-Mar-23	0%	0%	0%	Rs0	Rs0	
	KD1007	0	17-Feb-23	17-Feb-23	05-Aug-23	05-Aug-23	0%	0%	0%	Rs0	Rs0	
	KD1008	0	03-Mar-23	03-Mar-23	31-Aug-23	31-Aug-23	0%	0%	0%	Rs0	Rs0	
	Financial Milestone	1487	25-Mar-18	03-Mar-23	25-Mar-18	31-Aug-23	0%	0%	0%	Rs0	Rs0	
	Interim Milestone	748	17-Sep-18	19-Aug-22	25-Mar-18	13-Feb-23	0%	0%	0%	Rs0	Rs0	
	Delay Events	1183	16-Apr-18	25-Jul-22	19-Apr-18	25-Dec-22	0%	0%	0%	Rs0	Rs0	
	Document Submittals	1183	22-Mar-18	25-Jul-22	09-Apr-18	30-Sep-19	100%	100%	100%	Rs74,692,885	Rs74,692,885	
	Employer's Obligation / Land Handover	787	25-Jan-18	19-Dec-22	25-Jan-18	13-Mar-23	0%	0%	0%	Rs0	Rs0	
	Employer's Obligation (Each Of - General Item)	1043	25-Apr-18	25-Jul-22	19-Apr-18	30-Sep-19	100%	100%	100%	Rs133,857,165	Rs142,351,985	
	Survey & Geotechnical Investigation Works	1073	15-Feb-18	25-Oct-22	25-Apr-18	28-Dec-22	100%	100%	100%	Rs242,300,773	Rs242,300,773	
	Procurement Works	1073	15-Feb-18	25-Oct-22	15-Feb-18	04-Mar-23	100%	100%	100%	Rs158,122,500	Rs158,122,500	
	Co-ordinated Fabrication & Manufacturing Works	1015	21-Feb-19	04-Sep-22	21-Feb-19	25-Jan-23	100%	100%	100%	Rs1,380,656,073	Rs1,387,190,469	
	Construction Works	1306	26-Sep-18	02-Mar-23	26-Sep-18	30-Aug-23	97.57%	97.57%	97.57%	Rs350,805,563	Rs350,805,563	
	Preconstruction Activity											
	Sub-Structures (Open Foundation) Pkg. Pkg (Gp)											
	Super Structures											
	Bearing Installation											
	Bridge Abutments & Weir/Retents Item											
	RE Wall											
	At-Grade Work											
	Water Piping											
	Asphalt Pavement Kerb traffic sign											
	Compounds wall with safety fence											
	Completion of Interface Activity	42	25-Jul-22	17-Aug-22	28-Dec-22	13-Feb-23	0.01%	0%	0%	Rs0	Rs77,301,024	
	Testing & Commissioning Works	32	24-Jan-23	03-Mar-23	24-Jan-23	30-Aug-23	0%	0%	0%	Rs0	Rs0	



Handwritten initials 'SH' and 'SK' in blue ink.

Attachment 9- Project Progress Photos for Dec 2022



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Package 1- Site Progress Photos

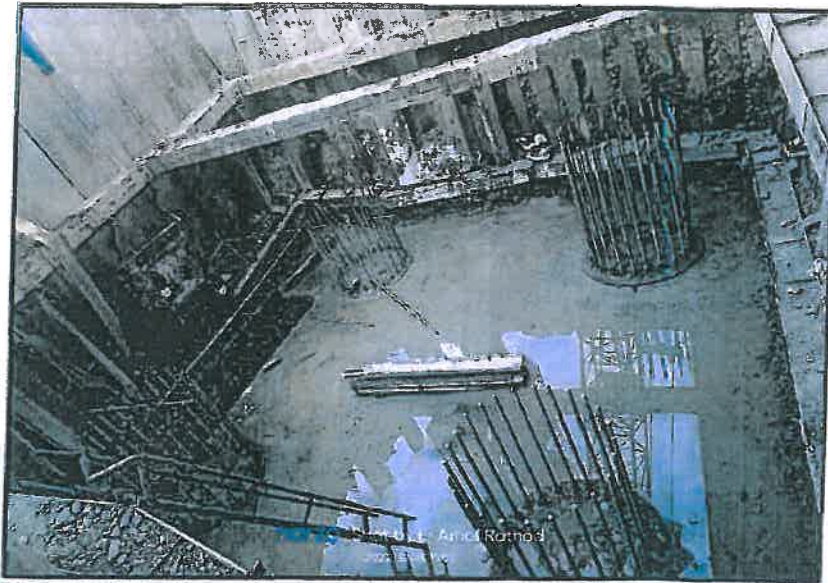


Photo no.1-Interchange Section - AP34 Pile Cap Preparation.



Photo no.2 Interchange Section - AP34 Pile Cap Reinforcement



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Signature

1st Oct to 31st Dec 2022

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Photo no.3 Interchange Section - C1P8 Pier Shutter

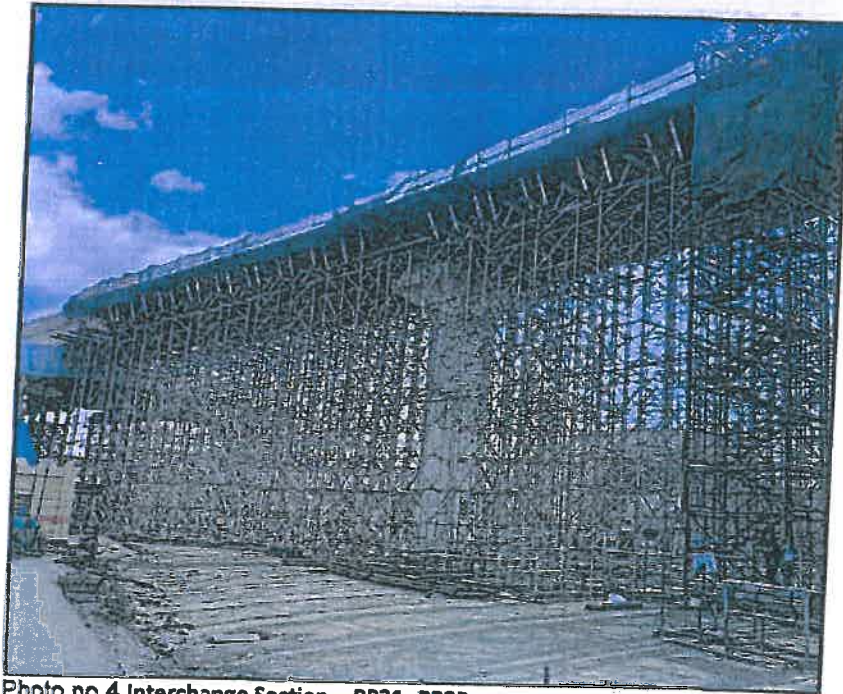


Photo no.4 Interchange Section - BP31- BP33

1st Oct to 31st Dec 2022



Handwritten signatures in blue ink, including the letters 'SH' and 'SLH'.



Photo no.5 Interchange Section - C1P22 Top View.

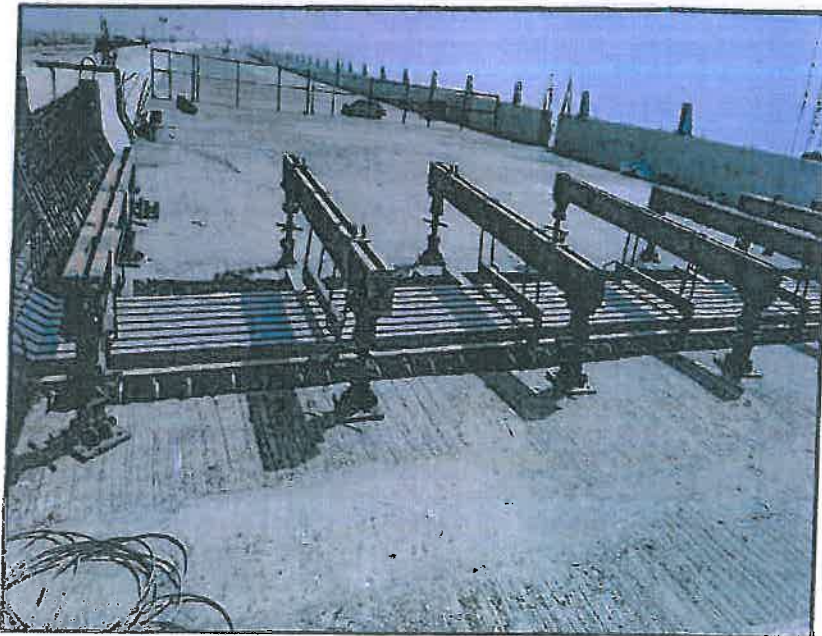


Photo no.6 Intertidal Section- EJ Fixing Trail Work At MP-20

1st Oct to 31st Dec 2022



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Photo no.7 Intertidal Section- Surface Preparation Work For Water Proffing Mockup



Photo no.8 Intertidal Section- LG-08



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1st Oct to 31st Dec 2022

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Photo no.9 Marine Section- LG-4 MP 104-105 N



Photo no.10 ODS-4 Location at Marine



SG

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Package 2 – Site Progress Photos

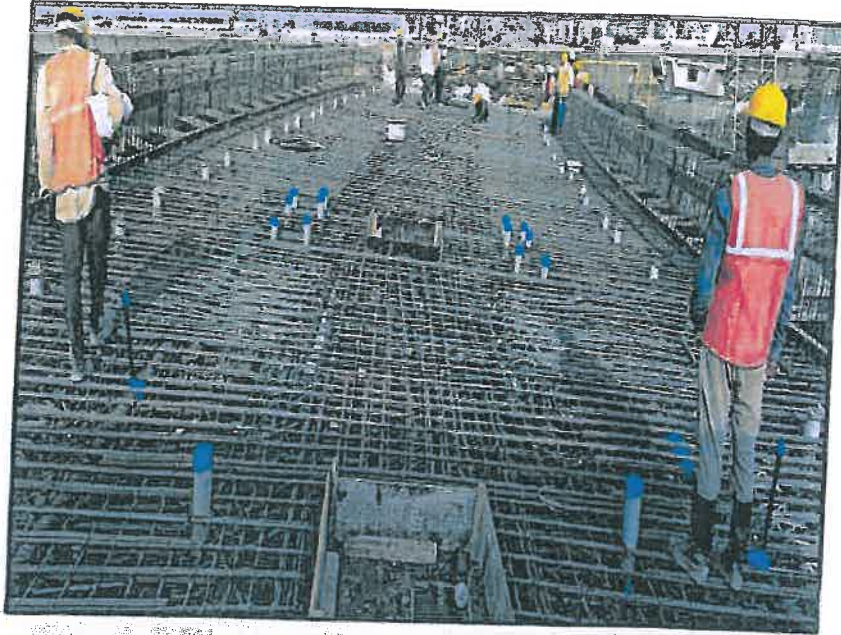


Photo no.1-Ramp CA- Top slab side formwork alignment in progress at Span CAP-4 to CAP-5.

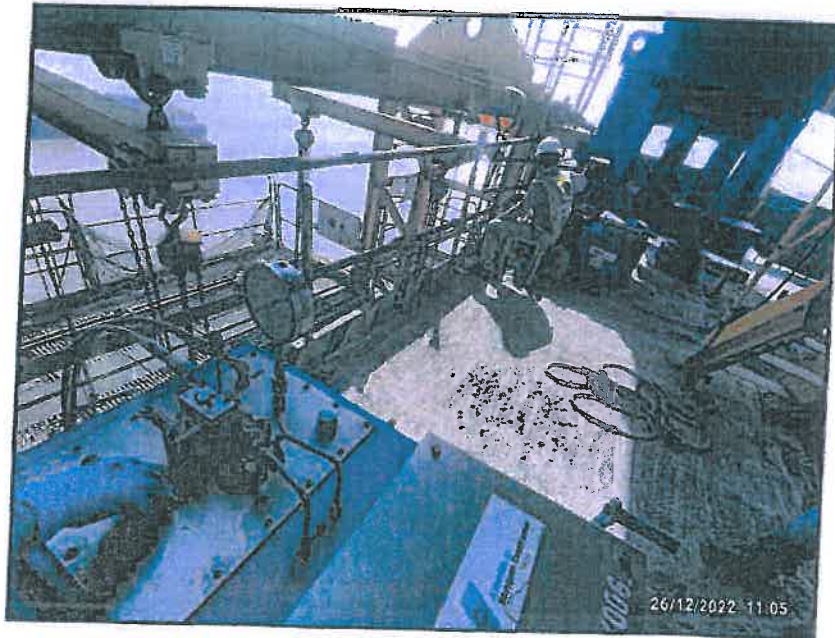


Photo no.2-First stage stressing in progress at Span MP 153-154 RHS.

1st Oct to 31st Dec 2022



Handwritten signatures and initials in blue ink.



Photo no.3- Pier final lift concreting in progress at MP 191 RHS Substation.

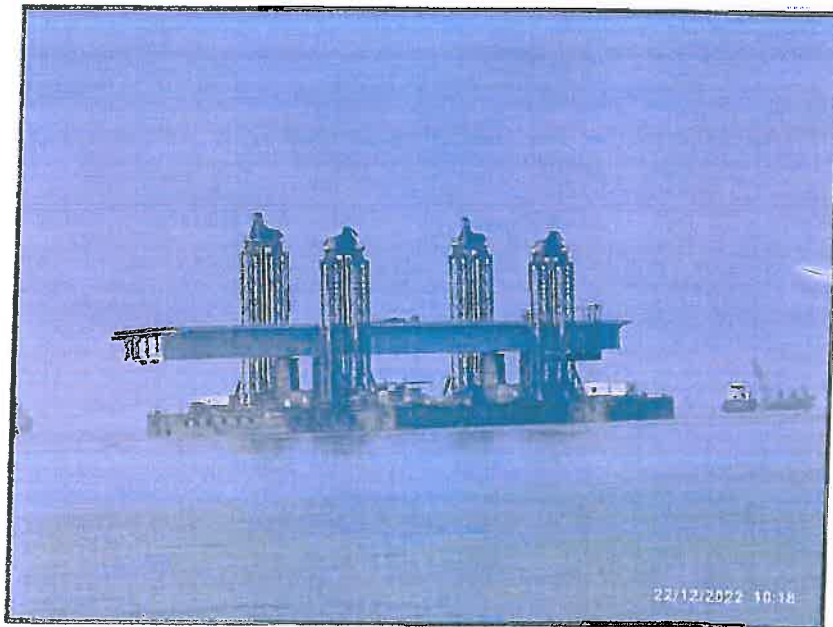


Photo no.4-15th OSD span for arrived at Marine Parking.

1st Oct to 31st Dec 2022



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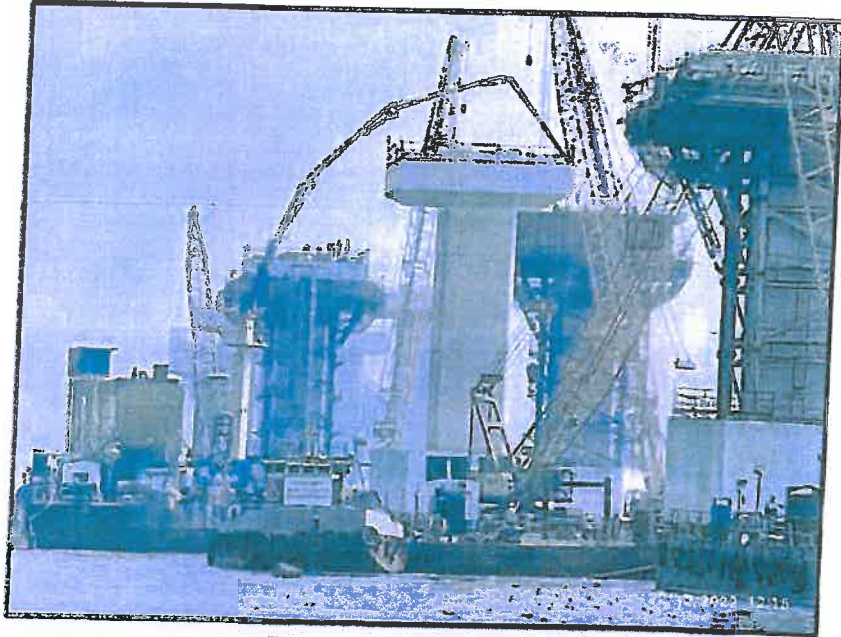


Photo no.5-Pier cap concreting in progress at MP 173 LHS.



Photo no.6-Ramp AC – Soil compaction test in progress.

1st Oct to 31st Dec 2022



Handwritten initials 'GC' and '44' in blue ink.



Photo no.7-Integral Pier Head Segment concrete in progress at MP 160 RHS.

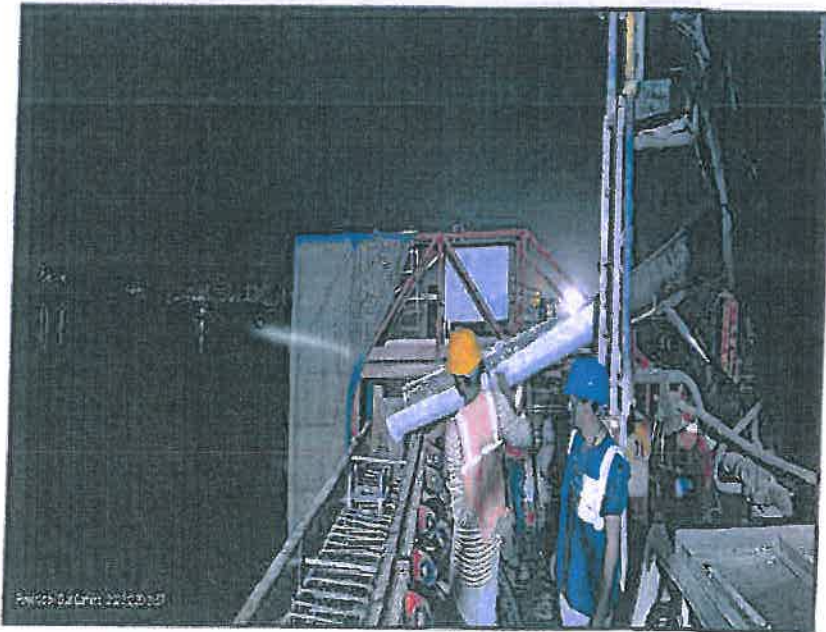


Photo no.8-Crash barrier concrete in progress at Span MP 212-213 LHS.

1st Oct to 31st Dec 2022



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Photo no.9- Aerial View



Photo no.10- Aerial View

1st Oct to 31st Dec 2022



SM *SLK*

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Photo no.12- Wet joint formwork in progress at span MP 152-153 RHS and segment lifting in progress at span MP 152-153 LHS.



Package-2 Aerial View

1st Oct to 31st Dec 2022



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Package 3 – Site Progress Photos



Photo no.1- Chirle Ramp PMP outer crash barrier shuttering work.

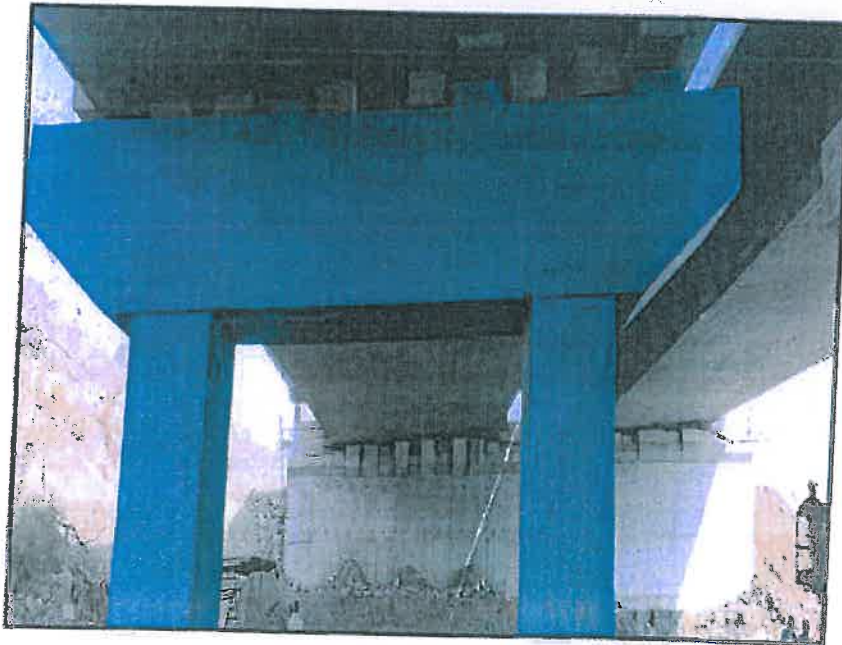


Photo no.2- Anti-Carbonation paint work in progress at Jasai Pier RP01.

1st Oct to 31st Dec 2022



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Photo no.3- Gavan main Viaduct.



Photo no.4- At-grade location.

1st Oct to 31st Dec 2022



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Photo no.5- Jasai Viaduct.



Photo no.6- JMP ramp at Chirle Interchange

1st Oct to 31st Dec 2022



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Photo no.7- MPP ramp at Chirle Interchange



Photo no.8- MJP ramp at Chirle Interchange.

1st Oct to 31st Dec 2022



94 *[Signature]*

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Annexure-1 JICA Reimbursement backup Oct'2022



Reimbursement details for the month of October 2022

Date of disbursement	Amount of Disbursement in JPY
14-Oct-22	JPY 9,302,304
14-Oct-22	JPY 3,024,665
14-Oct-22	JPY 182,545,479
14-Oct-22	JPY 71,552,214
14-Oct-22	JPY 154,698,461
14-Oct-22	JPY 75,386,720
14-Oct-22	JPY 87,499,228
14-Oct-22	JPY 71,984,956
14-Oct-22	JPY 308,083,852
14-Oct-22	JPY 114,405,164
14-Oct-22	JPY 363,977,378
14-Oct-22	JPY 12,420,147
14-Oct-22	JPY 310,939,666
14-Oct-22	JPY 95,248,998
21-Oct-22	JPY 26,670,960
21-Oct-22	JPY 103,334,119
21-Oct-22	JPY 442,050,529
21-Oct-22	JPY 555,611,697



Date of disbursement	Amount of Disbursement in JPY
21-Oct-22	JPY 103,201,375
21-Oct-22	JPY 2,586,667
21-Oct-22	JPY 40,322,953
21-Oct-22	JPY 20,368,423
21-Oct-22	JPY 222,220,095
21-Oct-22	JPY 269,793,768
21-Oct-22	JPY 134,677,577
21-Oct-22	JPY 1,475,267,947
21-Oct-22	JPY 511,442,016
21-Oct-22	JPY 138,758,404
21-Oct-22	JPY 664,278,659
21-Oct-22	JPY 45227,392
21-Oct-22	JPY 1,004,956,323
21-Oct-22	JPY 9,511,780
21-Oct-22	JPY 253,177,487
21-Oct-22	JPY 2,377,982
21-Oct-22	JPY 781,558,519
21-Oct-22	JPY 38,696,521



Handwritten initials and a signature in blue ink.

Date of disbursement	Amount of Disbursement in JPY
21-Oct-22	JPY 60,988,604
21-Oct-22	JPY 212,951,332
21-Oct-22	JPY 23,174,138
21-Oct-22	JPY 20,996,607
21-Oct-22	JPY 1,226,712,351
21-Oct-22	JPY 42,098,554
21-Oct-22	JPY 36,353,993
21-Oct-22	JPY 148,301,581
21-Oct-22	JPY 608,841,660
21-Oct-22	JPY 213,099,717
21-Oct-22	JPY 5,810,314
21-Oct-22	JPY 384,155,188
21-Oct-22	JPY 926,267,335
21-Oct-22	JPY 40,187,075
21-Oct-22	JPY 569,413,163
21-Oct-22	JPY 91,004,327
25-Oct-22	JPY 307,871,037
25-Oct-22	JPY 10,597,578



SH *SK*

Date of disbursement	Amount of Disbursement in JPY
25-Oct-22	JPY 9,088,499
25-Oct-22	JPY 692,007,747
25-Oct-22	JPY 25,211,197
25-Oct-22	JPY 88,196,688
25-Oct-22	JPY 3,190,829
Total Amount	14,453.67 Million JPY



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Annexure-2 JICA Reimbursement backup Nov'2022



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Reimbursement details for the month of November 2022

Date of disbursement	Amount of Disbursement in JPY
01-Nov-22	JPY 115,809,163
25-Nov-22	JPY 871,638,117
25-Nov-22	JPY 245,929,942
25-Nov-22	JPY 66,158,584
25-Nov-22	JPY 268,374,761
25-Nov-22	JPY 20,848,284
29-Nov-22	JPY 90,547,595
Total Amount	1,679.31 million JPY



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Annexure-3 JICA Reimbursement backup Dec'2022



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Reimbursement details for the month of December-2022

Date of Disbursement	Amount of Disbursement in JPY
2-Dec-22	JPY 57,113,956
9-Dec-22	JPY 126,574,782
9-Dec-22	JPY 20,947,326
9-Dec-22	JPY 1,849,856,049
9-Dec-22	JPY 578,651,834
9-Dec-22	JPY 72,743,882
9-Dec-22	JPY 21,294,295
9-Dec-22	JPY 157,330,918
9-Dec-22	JPY 6,302,799
9-Dec-22	JPY 702,324,266
9-Dec-22	JPY 27,756,044
9-Dec-22	JPY 175,580,982
9-Dec-22	JPY 6939011
9-Dec-22	JPY 1716153811
9-Dec-22	JPY 24,841,309
9-Dec-22	JPY 36,428,942
28-Dec-22	JPY 62,700,070
28-Dec-22	JPY 24,899,777
28-Dec-22	JPY 41,663,138
Total Amount	5709.90 Million JPY



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MMRDA

Mumbai Metropolitan Region Development Authority

Mumbai Trans Harbour Link Project

Quarterly Progress Report - No. 24

(From 1st Jan 2023 to 31st March 2023)



Mumbai Trans Harbour Link Project
Quarterly Progress Report No. 24
1st Jan 2023 to 31st March 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 31 st Mar 2017)
	Tranche-II:	66,909 million Japanese YEN (JPY) (Loan Agreement signed on 27 th Mar 2020)
	Tranche-III:	30,755 million Japanese YEN (JPY) (Loan Agreement signed on 27 th Feb 2023)
Terms and Conditions of JICA ODA Loan (Tranche-1)	Repayment Period:	30 years, including 10 years of the grace period.



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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	08/05/2021	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



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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 Action 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. The Government of Maharashtra (GoM), of which Mumbai Metropolitan Region is under



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 (PIR, 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

- 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	2,700	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

- 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.
- 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

- 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.
- 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.
- 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).
- 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.
- 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-Classifer (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)
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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)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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
	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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-Classifer (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	<ul style="list-style-type: none"> 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 31 st Mar 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 2024	Dec 2016 – Sep 2024
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 – Mar 2023 (Extended)
Package-4	Oct 2020 – Sep 2022	June 2022 – Aug 2023
5) Defect Liability Period		
Package-1 and Package-2	Oct 2022 – Sep 2024	Oct 2023 – Sep 2025
Package-3	Oct 2021 – Sep 2023	Apr 2023 – Mar 2025
Package-4	Oct 2022 – Sep 2024	Sep 2023 – Aug 2025
6) Commencement of Toll Collection	Sep 2022	Oct 2023
7) Selection of O&M Organization	Oct 2020 – Sep 2021	Oct 2022 – Sep 2023

Attachment 6, 7 & 8: Package wise construction schedules (progress) updated at the end of 3rd Quarter (Oct – Nov - Dec 2022).



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	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



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

1st Jan 2023 to 31st Mar 2023



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	36,107	36,107	-	43,761	43,761		104,463	104,463	
Package-2	25,481	25,481	-	30,642	30,642		73,478	73,478	
Package-3	752	752	-	7,996	7,996		13,038	13,038	
Package-4 (ITS)	-		-	355	355		579	579	
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*	-			8,807		8,807	15,148		15,148
Administration Cost	-			2,667		2,667	4,587		4,587
GST	-			17,665		17,665	30,384		30,384
Import Tax	-			-			-		-
Interest during construction	339		339	-			339		339
Front End Fee	423		423				423		423
Total	63,355	62,594	762	112,451	83,115	29,334	244,827	193,609	51,217

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	78,067	13,734	50,846	-	64,579	13,487
FY 2023						
FY 2024						
Total	244,827	142,764	50,846	-	193,609	51,217

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 Jan 1975 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 Organisation Set-up & Implementation methods. Refer Annexure III Organisation 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	<u>Package-1:</u> 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	<u>Package-2:</u> 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	<u>Package-3:</u> 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	<u>Package-4:</u> 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	<u>Package-5:</u> To conduct the geotechnical investigation	Local Competitive Bidding Process	No Change
Consulting Services			
1	Consulting Service for Supervision	Short List Method (QCBS)	No Change



2.4.2.2 Performance

Consultant's Progress:

January 2023:

- i) GC scrutinized & certified the following invoices claimed by the Contractors:
- o Package-1: IPC-60-100% Certified and IPC-62 -80% Certified by GC.
 - o Package-2: IPC-56 100% Certified and IPC-57 -80% Certified by GC.
 - o Package-3: IPC-50 100% Certified and IPC-52 -80% Certified by GC.

February 2023:

GC scrutinized & certified the following invoices claimed by the Contractors:

- o Package-1: IPC-61 100% certified and IPC-63 80% Ad-hoc certified by GC.
- o Package-2: IPC-57 100% certified & IPC-58-80% Ad-hoc certified by GC.
- o Package-3: IPC-52 100% certified & IPC-53-80% Ad-hoc certified by GC.

March 2023:

GC scrutinized & certified the following invoices claimed by the Contractors:

- o Package-1: IPC-62-100% Certified and IPC-64 -80% Certified by GC.
- o Package-2: IPC-58 100% Certified and IPC-59 -80% Certified by GC.
- o Package-3: IPC-53 100% Certified by GC.
- o Package-4: IPC-01 80% certified by GC.

GC has prepared and submitted a total reimbursement claim of 9986.63 million JPY to MMRDA / JICA in Mar 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%.



Contractor's Progress:**Package-1 Physical Progress till 31st March 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.	444	92.89%	
6	OSD Structural Steel					
6.1	Fabrication	53703	MT	53703	100.00%	
6.2	Assembly (Large Blocks)	53703	MT	49100	91.43%	
6.3	OSD Span Erection	38	No.	31	81.58%	
7	Crash Barrier					
7.1	Crash Barrier - Median	20718	Rmt	10735	51.81%	
7.2	Crash Barrier - Outer	31099	Rmt	15669	50.38%	



Package-2 Physical Progress till 31st March 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.	254	93.98%	
6	OSD Structural Steel					
6.1	Fabrication	34726	MT	34,726	100%	
6.2	Assembly (for Large Block)	34726	MT	31,724	90.06%	
6.3	OSD Span Erection	32	No.	26	81.25%	
7	Crash Barrier					
7.1	Crash Barrier - Median	15614	Rmt	8562	54.84%	
7.2	Crash Barrier - Outer	20945	Rmt	11,438	54.61%	



Package-3 Physical Progress till 31st March 2023

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.	12	60.00%	
1.10	Crash Barrier – Median	5500	Rmt	3142	57.13%	
1.11	Crash Barrier - Outer	9000	Rmt	5663	62.92%	

Package-4 (ITS) Progress till 31st March 2023

1. Design & Drawings submission is in progress.
2. Geotechnical Investigation for Sub admin building & Service Road is completed.
3. Gahavan main admin building foundation & Column is in progress.

Please refer Attachment 9 - Site Progress Photos showing the development of the project.



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.

Package-1 Safety Report

S No.	Description	Unit	Jan-Feb-Mar 2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	4,207	2,789
2	Man-Days Worked	Days	481,586	6,599,459
3	Man-Hours Worked	Hours	3,852,685	56,250,690
4	Accident-Free Man Hours	Hours	3,073,609	4,175,838
5	Fatal Accidents (Reportable)	Incidents (Nos.)	1	6
6	Fatality Cases.	Fatalities (FAT)	1	7
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)	13	319
12	Near Miss Incidents.	NMI (#Incidents)	10	130
13	Dangerous Occurrences.	DO (#Numbers)	1	6
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	2
15	Man-Hours Lost	Hours	48,720	345,296
16	Man-Days Lost	Days	6,090	43,171
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	1	0.302
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	5,764	767
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	1	0.338
20	Toolbox Talks	Sessions	11,804	1,51,270
21	Safety Walk down Inspections (Joint & CFT)	Numbers	32	245
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	140	4,142
23	Total Observations Raised (Safety)	Numbers	3,993	90,452
24	Health & Hygiene Inspections	Numbers	30	67
25	Total Observations Raised (Health & Hygiene)	Numbers	204	819
26	Training Sessions done for Offices & Sites	Sessions	89	3,668
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	2,412	49,026
28	Contractor Safety Committee Meetings	Numbers	3	42
29	Critical Excavations	Numbers	0	86
30	Pre-employment Medical check-ups	Persons	2,956	46,956
31	Safety Inductions completed	Persons	2,956	48,843
32	Mock drills Conducted	Numbers	3	38
33	Contractor's Internal Audits Conducted	Numbers	3	55

1st Jan 2023 to 31st Mar 2023



Package-2 Safety Report

S No.	Description	Unit	Jan-Feb-Mar 2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	3,523	2,117
2	Man-Days Worked	Days	268,673	3,088,283
3	Man-Hours Worked	Hours	2,955,403	34,462,495
4	Accident-Free Man Hours	Hours	2,955,403	5,017,056
5	Fatal Accidents (Reportable)	Incidents (Nos.)	0	0
6	Fatality Cases.	Fatalities (FAT)	0	0
7	Lost Time Injury Incidents (Reportable)	Incidents (Nos.)	0	13
8	Lost Time Injury Cases (Persons Injured)	# Injured Persons	0	13
9	Restricted Work Medical Case	RWMC (#Incidents)	1	7
10	Medical Treatment Cases	MTC (#Incidents)	0	14
11	First Aid Cases.	FAC (#Cases)	6	197
12	Near Miss Incidents.	NMI (#Incidents)	25	419
13	Dangerous Occurrences.	DO (#Numbers)	2	19
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	3
15	Man-Hours Lost	Hours	0	6,680
16	Man-Days Lost	Days	0	835
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0	0.377
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	0	24
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	1	0.987
20	Toolbox Talks	Sessions	1,182	14,258
21	Safety Walk down Inspections (Joint & CFT)	Numbers	13	196
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	336	2,268
23	Total Observations Raised (Safety)	Numbers	2,380	27,456
24	Health & Hygiene Inspections	Numbers	0	4
25	Total Observations Raised (Health & Hygiene)	Numbers	0	16
26	Training Sessions done for Offices & Sites	Sessions	217	1,613
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	4,559	31,215
28	Contractor Safety Committee Meetings	Numbers	3	57
29	Critical Excavations	Numbers	0	0
30	Pre-employment Medical check-ups	Persons	750	18,680
31	Safety Inductions completed	Persons	754	19,125
32	Mock drills Conducted	Numbers	4	49
33	Contractor's Internal Audits Conducted	Numbers	0	0



Package-3 Safety Report

S No.	Description	Unit	Jan-Feb-Mar 2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	394	423
2	Man-Days Worked	Days	49,085	918,112
3	Man-Hours Worked	Hours	392,678	7,344,984
4	Accident-Free Man Hours	Hours	392,678	1,537,525
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)	3	133
12	Near Miss Incidents.	NMI (#Incidents)	4	51
13	Dangerous Occurrences.	DO (#Numbers)	0	1
14	Reportable Sick Cases (Succumbed due Covid)	Sick (#Persons)	0	0
15	Man-Hours Lost	Hours	0	2,216
16	Man-Days Lost	Days	0	277
17	Reportable Incident Frequency Rate / Million Man Hours	# (FAT+ Injuries)/MMH	0	0.408
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	0	38
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	0	0
20	Toolbox Talks	Sessions	380	9,053
21	Safety Walk down Inspections (Joint & CFT)	Numbers	12	205
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	60	725
23	Total Observations Raised (Safety)	Numbers	670	2,098
24	Health & Hygiene Inspections	Numbers	6	20
25	Total Observations Raised (Health & Hygiene)	Numbers	24	93
26	Training Sessions done for Offices & Sites	Sessions	66	449
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	1,552	4,306
28	Contractor Safety Committee Meetings	Numbers	3	53
29	Critical Excavations	Numbers	0	9
30	Pre-employment Medical check-ups	Persons	422	11,612
31	Safety Inductions completed	Persons	422	11,669
32	Mock drills Conducted	Numbers	3	47
33	Contractor's Internal Audits Conducted	Numbers	0	13



Package-4 Safety Report

S No.	Description	Unit	Jan-Feb-Mar 2023	Cumulative
1	Average Daily Manpower (all Workmen & Staff)	Numbers	189	74
2	Man-Days Worked	Days	13,760	16,821
3	Man-Hours Worked	Hours	110,080	134,568
4	Accident-Free Man Hours	Hours	110,080	134,568
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	0
10	Medical Treatment Cases	MTC (#Incidents)	1	1
11	First Aid Cases.	FAC (#Cases)	2	2
12	Near Miss Incidents.	NMI (#Incidents)	3	4
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	0
18	Reportable Incident Severity Rate / Million Man Hours	Days Lost/MMHr	0	0
19	Total Injury Incident Frequency Rate / 1M Man Hours	TIFR	24	7
20	Toolbox Talks	Sessions	210	324
21	Safety Walk down Inspections (Joint & CFT)	Numbers	7	7
22	Routine Safety Inspections (Safety Team with Reports)	Numbers	5	5
23	Total Observations Raised (Safety)	Numbers	120	202
24	Health & Hygiene Inspections	Numbers	0	0
25	Total Observations Raised (Health & Hygiene)	Numbers	0	0
26	Training Sessions done for Offices & Sites	Sessions	38	50
27	Personnel Attended Training Sessions (Classroom & Site)	Persons	1,125	1,265
28	Contractor Safety Committee Meetings	Numbers	1	4
29	Critical Excavations	Numbers	0	1
30	Pre-employment Medical check-ups	Persons	125	125
31	Safety Inductions completed	Persons	158	213
32	Mock drills Conducted	Numbers	1	2
33	Contractor's Internal Audits Conducted	Numbers	0	1
3.0 BENEFITS DERIVED FROM THE PROJECT (EFFECTIVENESS)				



(This section will be developed when the operational plan is available)

Facilities (P/R and PCR)	Description of condition (P/R and PCR)	Problems, its Background and Remedial Action Plan (P/R and PCR)
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3.2 Precautions (Measures to be adopted/ Points which require special attention)

Original Issues and Countermeasure(s)	Actual Issues and Countermeasure(s)
<p>3.2.1 General Issues</p> <p>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.</p> <p>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 for engaging the Contractors.</p>	<p>(P/R and PCR)</p> <p>Appropriate Tolling Policy/ Rates finalization is in progress.</p> <p>A single Operation and Maintenance Contractor finalization is in progress.</p>
<p>3.2.2 Environmental and Social Consideration</p> <p>a. CRZ Clearance</p> <p>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.</p> <p>ii. Furthermore, renewed CRZ Clearance has been obtained in January 2016.</p> <p>iii. In accordance with the conditions for CRZ Clearance, appropriate measures shall be taken, and necessary budget shall be secured by MMRDA.</p>	<p>(P/R and PCR)</p> <ul style="list-style-type: none"> • 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.



	<ul style="list-style-type: none"> • 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)
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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 28 th 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	-	<p>Pkg-1: Tree Cutting/ Transplantation permission from the Garden Dept., MCGM obtained on 24th Dec 2020.</p> <p>Pkg-2: Tree Cutting/ Transplantation permission obtained & completed.</p> <p>Pkg-3: Forest Department issued a concurrence on 19/05/2019. CIDCO's permission for Tree Cutting/ Transplantation obtained on 25th Nov 2019.</p>
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)
<p>1. Establishment of Effective Environmental and Social Cell in PIU</p> <p>MMRDA confirmed that Social Development Cell (2 Officers), Land Cell (3 Officers), and Environmental Cell (2 Officers) had been set up.</p>	<p>Cell is established by MMRDA (Annexure III, Organization chart)</p>
<p>2. Rehabilitation and Land Acquisition Issues</p> <p>a. Affected Area and Population</p> <p>Due to the Project, 1282 non-titleholders will be involuntary resettled, and 108.4379 ha of land will be handed over by CIDCO.</p>	<p>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:</p> <ul style="list-style-type: none"> • 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 <p>Navi Mumbai: CIDCO has been finalizing the land acquisition closely monitored by Land Cell of MMRDA.</p> <p>CIDCO has possessed 106.3542 ha of land and handed over to MMRDA, except private land of 2.0837 ha.</p> <p>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.</p>
<p>b. Entitlement Policy</p> <p>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).</p>	<p>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.</p>



Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>c. Compensation to Project affected Fishermen</p> <p>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.</p>	<p>Updated Attachments 2-8 and 2-10 are enclosed in the report.</p>
<p>d. Implementation Schedule</p> <p>The Implementation schedule for land acquisition, resettlement and rehabilitation is attached as per Attachment 2-10.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>e. Grievance Redressal Mechanism</p> <p>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.</p>	<p>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.</p> <p>Fishermen: GRC for resolving grievances of the fisherfolk was set up as per the compensation policy and is in operation.</p>
<p>f. Internal Monitoring</p> <p>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.</p>	<p>Internal Monitoring updates are mentioned in Attachment 2-8.</p>
<p>g. Qualitative Independent Evaluation</p> <p>An Independent Evaluation Agency will be hired by MMRDA for evaluation of RAP implementation. An external</p>	



Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>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.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>h. RAP Implementation Budget</p> <p>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.</p>	<p>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.</p>
<p>i. Environmental Management Plan ("EMP")</p> <p>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.</p>	<p>EMP will be updated, if required, in due course of construction activities/progress.</p>
<p>j. Environmental Monitoring Plan ("EMoP")</p> <p>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-</p>	<p>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.</p>



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.	<ul style="list-style-type: none"> • 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
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FIRR	Original: 1.5%	Actual: (PCR) ____%
	Cost: Project Cost, O&M cost, Land Acquisition cost Benefit: Toll Revenue Project Life: 32 Years	

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:

<p>Original: (P/M and PCR)</p> <p><u>Monitoring Organization</u></p> <p>PIU shall be In-Charge of Monitoring activities for the Project.</p> <p><u>Submission of QPR and PCR</u></p> <p>The timely submission of the following documents is required by MMRDA.</p> <p>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.</p> <p>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.</p>
<p>Actual: (P/R and PCR)</p> <p>Monitoring Organization</p> <p>PIU for MTHL has been established for monitoring the Project.</p> <p>Submission of QPR and PCR</p> <p>This QPR No. 22 is submitted for the period of 1st July to 30th Sep 2022.</p>

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

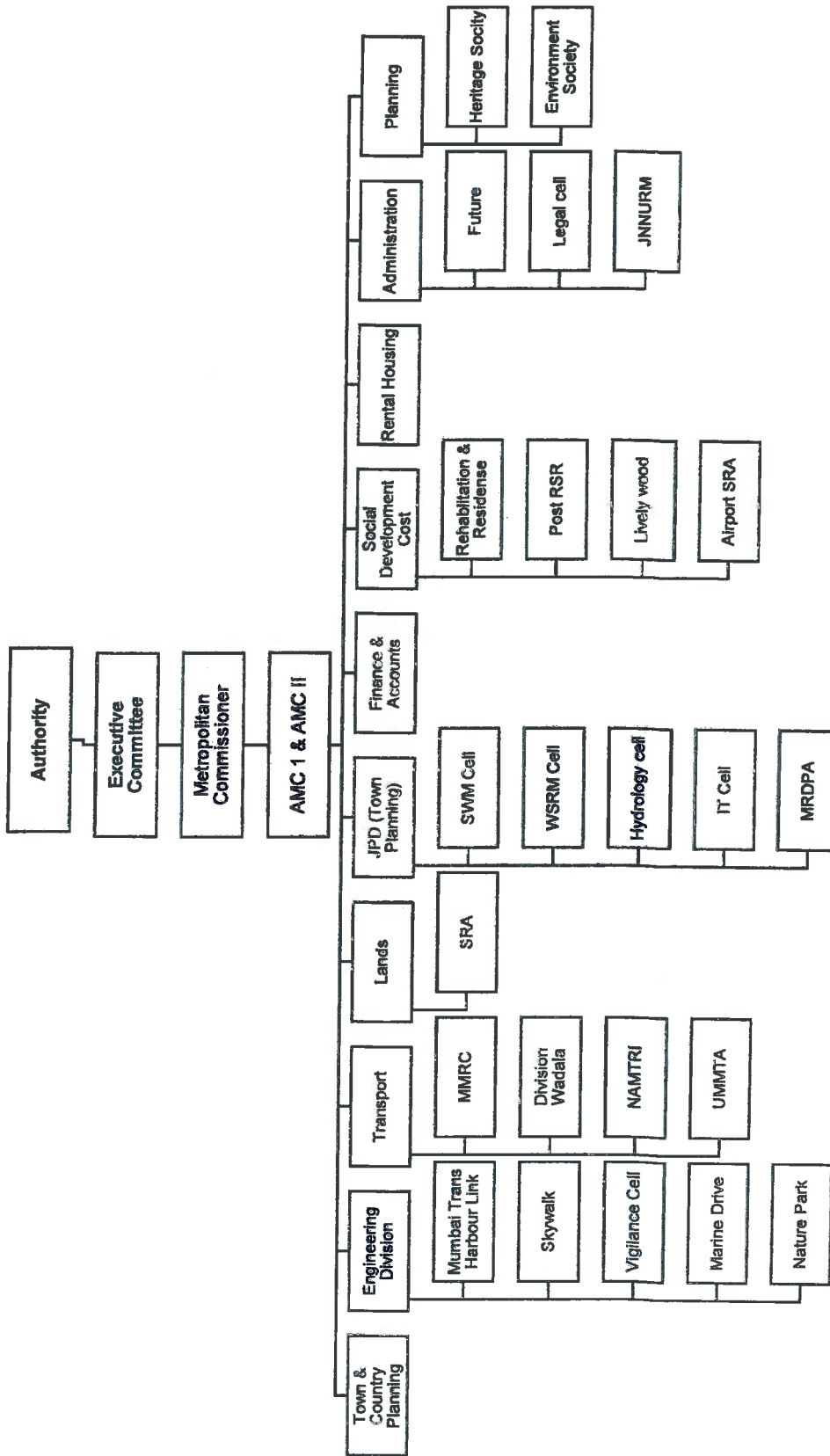
Please raise any lessons learned from the project experience, which might be valuable for the future JICA assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

(PCR)

Attachment 1- MMRDA & PIU Organization Chart

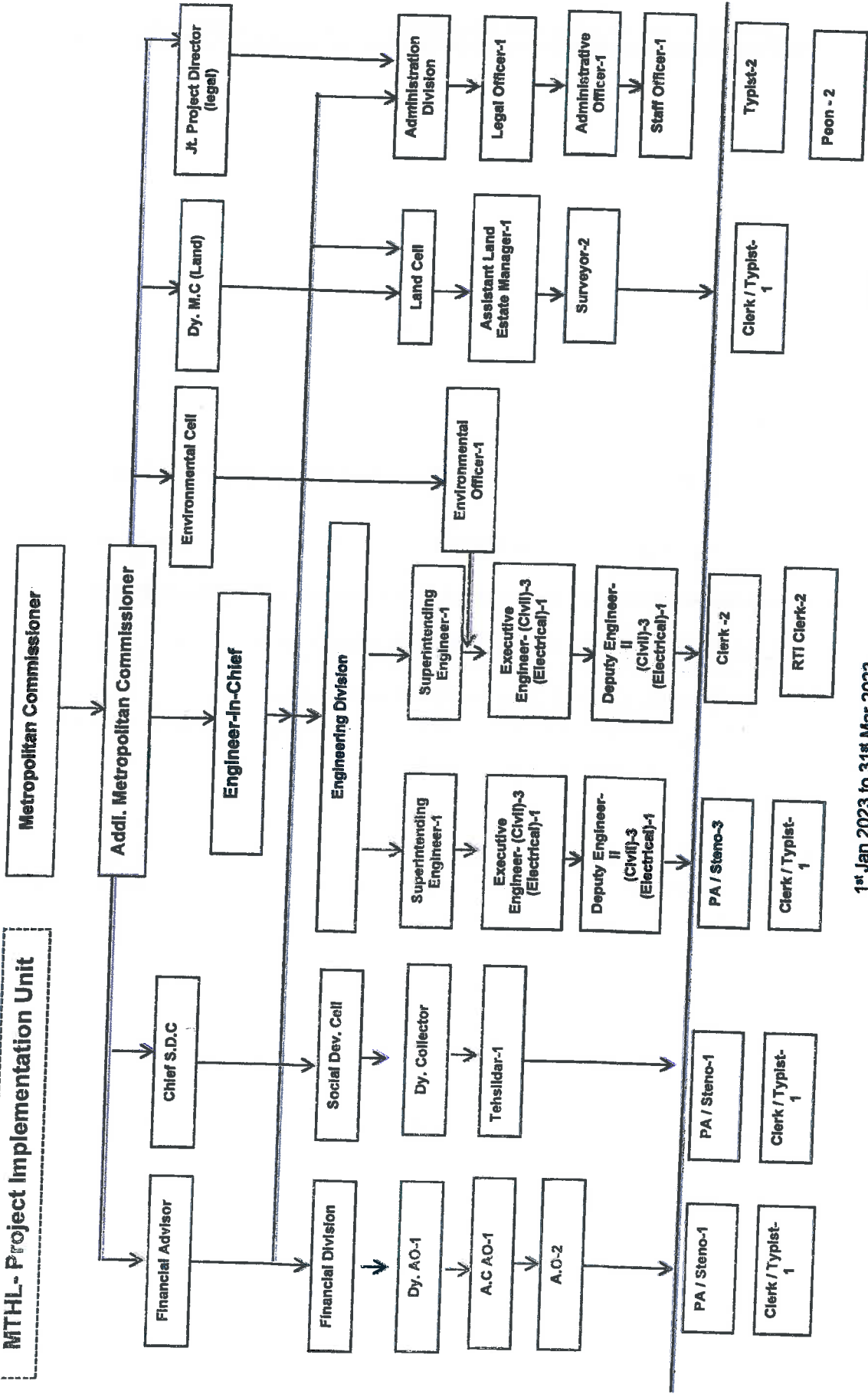


MMRDA Organization chart



1st Jan 2023 to 31st Mar 2023

MTHL- Project Implementation Unit



1st Jan 2023 to 31st Mar 2023



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



Environmental Monitoring Plan with Package-wise Estimated Cost

Attachment 2-3

No.	Category	Impacted Item as per JICA Guidelines	Parameter	Method	Location	Frequency / Year	Cost (INR)	Cost Pkg. 1 (INR)	Cost Pkg. 2 (INR)	Cost Pkg. 3 (INR)	Total Cost (INR)	Remarks
1	Pollution	Air pollution	SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5} , O ₃ , CO, (6 hours)	National Ambient Air Quality Standards, 2009	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & existing yard in Gadhani for package II 3. Gadhani & Chirke for package III	Fortnightly at all locations except 2 locations each near Sanching plants 4 Times / Year Fortnightly only for 3 months (Jan-2019 to Mar-2019). Then quarterly monitoring as per MOEF and CPCB norms	1,800,000	15,000,000	1,800,000	742,500	17,542,500	P1 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement. P 2 contractor Monitoring Plan has been designed as per BIA of 2015 P3 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement. P 1 received Consent CTR & CTO from MPCB and they are following MPCB frequency in addition to Environment Report 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 other statutory requirements are required by us to ensure sufficient dilution. If there are additional claims for Compensation in CS category. Summary : Although the contract conditions for all packages were same at the time of bidding. Later modifications suggested by GC were not accepted by P 1 and P3 accepted the modifications and hence the difference. Second point is P 1 is carrying out monitoring as per consent CTR and CTO. Both contractor packages haven't obtained it yet. So we expect the monitoring frequency would change after obtaining CTR.
2		Water pollution	pH, BOD, DO, Turbidity and O&G	IS / AWWA	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & existing yard in Gadhani for package II 3. Gadhani & Chirke for package III	Quarterly 4 Times / Year Not applicable	810,000	2,400,000	810,000	0	3,210,000	PM ₁₀ : 100 / 100µg/m ³ PM _{2.5} : 60 / 60µg/m ³ O ₃ : 180 / 180µg/m ³ CO: 0.4 / 0.4mg/m ³ Marine water quality Standard - Class SW-IV Harbour Waters (MPCB) pH: 6.5-9 DO: 3 mg/l Turbidity: 30 NTU BOD: 5 mg/l O & G: 10 mg/l Water Pollution not applicable for Pkg. 3
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 CAD waste, Pile stock, from all areas like, Interchase, Interchase and marine. The disposal location is as per MOEF approved location Bhayandrapada, Thane.



Category	No.	Impacted Item on IICA Guidelines	Parameter	Method	Location	Frequency in year	Cost (INR)	Cost Pkg. 1 (INR)	Cost Pkg. 2 (INR)	Cost Pkg. 3 (INR)	Total Cost (INR)	Standard Control Pollution Control Board (SCPCB) - Ministry of Environment & Forest (MoEF)	Remarks
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 2. Nhava temporary bridge & existing yard in Gadhvan for package II 3. Gadhvan & Chirke for package III	1. Once site clearing work/execution part of work start. 2. Sediments: 4 Times /Year	150,000	1,500,000	150,000	100,000	1,750,000	Municipal Solid Waste Management Rules, 2013 Generated waste shall be reused or disposed at designated sites. Steps have been identified and the location for Pkg. 1 is at Bhayander Pada in Thane. For Pkg. 2 & 3 is in Navi Mumbai at Pushpak Node near "Teen Thal Junction" along the Ambar Mang. Construction wastes will be	72. contractor has considered only Domestic waste with respect to SCPCB. Construction wastes are not considered. Construction wastes will be
5		Noise and vibration	Ambient and road side noise (dB(A) _{1sec})	IS Standard	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & existing yard in Gadhvan for package II 3. Gadhvan & Chirke for package III	1. If any spillage/ leakage take place from chemical, fuel storage area. *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon *Shimoga,asa,amb. fortnightly 2 Times / Year Fortnightly	150,000	54,000	150,000	360,000	574,000	-Construction Noise: 85dB(A) -Ambient Noise Standards in India (dB (A)) 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) - Construction vibration 75dB	Not applicable for Pkg. 1
9 and 10		Protected Area / Biosphere	1. Monitoring of conditions including fauna-flora 2. Monitoring of Cutting and replantation/ transplanting area 3. Monitoring of Mangrove Plantation and record number and species appointed by P&R	Ocular inspection and quantitative survey 1-1. Fauna-Flora Line-Point census	1. Location Green area for package III Along MTHL alignment and mangrove replant area for package I Along MTHL alignment and mangrove replant area for package II Not applicable for Package III	Quarterly during the construction period 4 Times / Year	75,000	0	6,500,000	0	13,760,000	- Vibration Standards readable 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) Significant impacts are not caused by the project (None)	Not applicable for Pkg. 3



Category	No.	Impacted Item on ICA Guidelines	Parameter	Method	Location	Frequency	Cost (PKR)	Cost (USD)	Cost (EUR)	Total Cost (PKR)	Total Cost (USD)	Total Cost (EUR)	Remarks				
Natural environment	11	Hydrology	Monitoring of sedimentation soil and ecological parameter (18 items as per terminal BIA Table 6.1.15 for soil and 7 items such as 1) Nitrate, 2) Chlorophyll-a, 3) Phosphate, 4) Nitrite, 5) Nitrite, 6) Particulate Organic Carbon, 7) SIO ₂)	1-2: Mangrove density and community survey	Not applicable for Package I	350,000	0	350,000	0	350,000	350,000	0	350,000	Not applicable for Page 1 & 3			
				1-3: Bamboo Survey													
				2-1: Cutting trees confirmation													
				3-1: Mangrove survey in the replanted area													
				Flood level measurement during high precipitation periods	2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year	115,000	0	115,000	0	115,000	115,000	115,000	0	115,000	Not applicable for Page 1 & 3	
				Visual survey about stability of embankment	Not applicable for Package I												
				Conditions in embankment area	Interchanges in Shivaji Nagar for Package II	4 Times / Year	115,000	0	115,000	0	115,000	115,000	115,000	0	115,000	Not applicable for Page 1 & 3	
				Local economy such as employment and livelihood	Not applicable for Package II												
				Local conflict of interest	Affected area	As per Actuals											
				Construction of worker's township	2 Locations (Camp site in Sewri and Shivaji Nagar) for Package II	2 Times / Year	125,000	0	125,000	0	125,000	125,000	125,000	0	125,000	Employment opportunity shall be provided fairly	
				Social environment	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	535,000	0	535,000	535,000	0	535,000	Infection disease rate shall not be caused by the project
Confirmation of safety device 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	500,000	0	500,000	"Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1962", The Building and other construction worker's welfare Act, 1916" and international standards such as "IPC Performance Standard 2 Labor and Working Condition"		
Construction worker's condition	Not applicable for Package I														Any accidents are not caused by construction		
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	400,000	0	400,000					
				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

Attachment 2.4

This form is prepared for reporting the monitoring results to JICA India Office. Only minor (m) required parameters are included in this form, and not all parameters in EIVOP are covered.

Area	No.	Item	Parameter	Location	Frequency a year	Item and Standard	Monitoring Result				Remark
							Location 1 - Pkg 1	Location 2 - Package 2	Location 3- Pkg 3	Location 4	
1	Air pollution	SO ₂ , NO _x , PM ₁₀ , PM _{2.5}	1. Sewri & Sewri bay area for package I 2. Nivasa temporary bridge & casting yard in Gachhan for package II 3. Gachhan & Chirle for package III	4 Times / Year From March -2019 onwards monitoring is conducted quarterly as per MOEF and CPCB norms	National Ambient Air Quality Standards (NAAQS) (Statement for Zonal, Industrial and Residential)	Sewri	Shivvel Nagar	Chirle			
						9.17	BDL	32			BDL - Below Detectable Limit
						1. SO ₂ : 80µg/m ³					
						2. NO _x : 80µg/m ³	34	50			
						3. PM ₁₀ : 100µg/m ³	81	86			
						4. PM _{2.5} : 50µg/m ³	21	45			
						5. CO: 10mg/m ³	1.53	1.5	0.73		
						6. VOCs	1.01	3.1	1.65		
2	Water pollution	PH, BOD, DO, Turbidity and O&G	1. Sewri & Sewri bay area for package I 2. Nivasa temporary bridge & casting yard in Gachhan for package II 3. Gachhan & Chirle for package III	4 Times / Year Not applicable	Water quality standards - Class BIIIIV Harbour Waters (HPCB)	Zone I	Zone II	Zone III Package-03			
						7.5	7.7	Not applicable			
						1. pH: 6.5-8					
						2. DO: 3 mg/l	4.7	5.9			
						3. Turbidity: 30 NTU	17.2	21.1			
						4. BOD: 5 mg/l	2.8				
						5. O & G: 10 mg/l	BDL				
						6. COD	25	18			
3	Waste	Volume of waste, cutting tree and domestic garbage	1. Sewri & Sewri bay area for package I 2. Nivasa temporary bridge & casting yard in Gachhan for package II 3. Gachhan & Chirle for package III	4 Times / Year Once site clearing work/execution part of work start.	Generated waste self (t) total Generated cutting tree (ha) total Generated domestic waste (month) total Confirmation of garbage disposal (visual survey)	80.8 Tonnes for 3 months	Shivvel Nagar Camp Site	Chirle Camp Site			
						NA				Both of forest and CIDCO area (234+75)= 509	
						Generated waste self (t) total	Approx. 2000 Cull Collected in Jamba bags and Disposed off in EBB Location.	NA			
						Generated cutting tree (ha) total					
						Generated domestic waste (month) total	3.5 T/quarter	2.1 T for the quarter			
						Confirmation of garbage disposal (visual survey)	Waste is disposed through CIDCO through Municipal Corporation.				
						Soil Pollution Standard in India (MOEF)	Soil sample at Sewri	Soil sample at GC			
						1. Cadmium: 0.01mg/l	BDL				
						2. total cyanide : not detected	NA				
						3. organic phosphorus: not detected	NA				



The Project for Construction of Mumbai Tames Harbour Link
Reporting Form of Environmental Monitoring During Construction
Attachment 3.4

1. Environmental Monitoring during Construction for 4.5 years

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.

Pollution		Monitoring Period: Jan - March 2023		8.17						
4 Soil Contamination/Infiltration Heavy Metals & Oil & Greases	Storage area only	4. Lead: 0.01mg/g 5. Chromium (VI): 0.05mg/g 6. Arsenic: 0.01mg/g or 1.0mg/m³ (top-level soil) 7. Total mercury: 0.005mg/g 8. Alkali metallic: not detected 9. PCBs: Not detected 10. Copper: 1.25mg/g (only sandy field soil) 11. Dichloromethane: 0.02mg/g 12. Carbon tetrachloride: 0.02mg/g 13. 1,1-Dichloroethane: 0.001mg/g 14. 1,1-Dichloroethene: 0.001mg/g 15. n-Hexane: 0.01mg/g 16. 1,1,1-Trichloroethane: 0.01mg/g 17. 1,1,2-Trichloroethane: 0.006 mg/g 18. Methylenechloride: 0.01mg/g 19. Benzene: 0.05mg/g 20. 1,2-Dichlorobenzene: 0.02mg/g 21. Toluene: 0.05mg/g 22. Xylene: 0.05mg/g 23. Ethylbenzene: 0.02mg/g 24. Benzene: 0.01mg/g 25. n-Hexane: 0.01mg/g	BQ [DL-0.8] Not detected BQ [DL-0.1] Not detected Not detected Not detected Not detected 154 Not detected Not detected Not detected Not detected Not detected Not detected Not detected Not detected Not detected Not detected Not detected Not detected Not detected Not detected							
		Soil Sewer & Sewer bay area for package I 2. Union territory 3. Ghatam & Chiller for package III	Permit/only 2 Times / Year	Sewer (ST 200-008) (Industrial area)	Sewer (ST 200-008) (Commercial area)	Sewer (ST 200-008) (Industrial area)	Sewer (ST 200-008) (Commercial area)	Sewer (ST 200-008) (Industrial area)	Sewer (ST 200-008) (Commercial area)	Sewer (ST 200-008) (Industrial area)
		1 Location Garson area for package III Vibration (dB) shall be converted from rms to dB	Half yearly	NOT MONITORED VILLAGE IN NOT CONSTRUCTION AREA	NOT MONITORED VILLAGE IN NOT CONSTRUCTION AREA	NOT MONITORED VILLAGE IN NOT CONSTRUCTION AREA	NOT MONITORED VILLAGE IN NOT CONSTRUCTION AREA	NOT MONITORED VILLAGE IN NOT CONSTRUCTION AREA	NOT MONITORED VILLAGE IN NOT CONSTRUCTION AREA	NOT MONITORED VILLAGE IN NOT CONSTRUCTION AREA
5 Noise and vibration	Along MTR Alignment and mangrove resident area for Package I	Quarterly during construction Period	Construction area Standard 88 db(A) day/Time (Japan standard) Not construction area: Ambient Noise Standard in India (dB(A) Leq) Day time: 6-22 hr (continuous) 68(A) Night time: 22-6 hr (continuous) 58(A) (only son section) Day time: 6-22 hr (10 min during 6-17 hr) Night time: 22-6 hr (10 min 22-24 hr)	Construction area Standard 78 db day/Time (Japan standard) Not construction area: Vibration Standard (Japan Standard along the road) Day time: 6-22 hr (continuous) Night time: 22-6 hr (continuous) Note (unadopted village in NOT construction area) 1. Commercial Industrial Area	Construction area Standard 76 db day/Time (Japan standard) Not construction area: Vibration Standard (Japan Standard along the road) Day time: 6-22 hr (continuous) Night time: 22-6 hr (continuous) Note (unadopted village in NOT construction area) 1. Commercial Industrial Area	Construction area Standard 76 db day/Time (Japan standard) Not construction area: Vibration Standard (Japan Standard along the road) Day time: 6-22 hr (continuous) Night time: 22-6 hr (continuous) Note (unadopted village in NOT construction area) 1. Commercial Industrial Area	Construction area Standard 76 db day/Time (Japan standard) Not construction area: Vibration Standard (Japan Standard along the road) Day time: 6-22 hr (continuous) Night time: 22-6 hr (continuous) Note (unadopted village in NOT construction area) 1. Commercial Industrial Area	Construction area Standard 76 db day/Time (Japan standard) Not construction area: Vibration Standard (Japan Standard along the road) Day time: 6-22 hr (continuous) Night time: 22-6 hr (continuous) Note (unadopted village in NOT construction area) 1. Commercial Industrial Area	Construction area Standard 76 db day/Time (Japan standard) Not construction area: Vibration Standard (Japan Standard along the road) Day time: 6-22 hr (continuous) Night time: 22-6 hr (continuous) Note (unadopted village in NOT construction area) 1. Commercial Industrial Area	
			Day Time: 70 (6-22hr) Night Time: 65 (22-6hr)	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	
			Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	Day Time: 65.4 Night Time: 65.6	



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 4.8 years

		Along MTH alignment and mangrove riparian area for package II	4 Times / Year	1-4. Fauna-Flora (number of species and quantity)	Bird monitoring is being done by a separate agency BHRS	N/A	N/A	Bird Monitoring report by BHRS. It has been submitted separately.			
6	Protected Area	1. Monitoring of invertebrate condition including fauna-flora 2. Monitoring of Cutting Tree and nation/Transpiration area. 3. Monitoring of Mangrove Plantation area established by MCEF 4. Monitoring of sedimentation soil and ecological parameter (25 kg soil parameter test) for EIA and 7 items such as 1) Net primary productivity, 2) Chlorophyll-a, 3) Nitrate, 4) Nitrite, 5) Nitrogen, 6) Organic Carbon, 7) SiO2		1-1. Fauna-Flora (number of species and quantity)	Bird monitoring is being done by a separate agency BHRS	N/A	N/A	Bird Monitoring report by BHRS. It has been submitted separately.			
				(1) Number of species of bird	28						
7	Hydrology	Flooding situation	4 Times / Year	(2) Number of species of fish	25						
				(3) Estimated number of fishings	>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	Derris - Avicennia sp.						
				(2) Density of mangrove (no trees/0m x 10m)	EIA, NIA submitted.						
				1-3. Benthic Survey	Flora, fauna, sphyroplanon, zooplankton, Benthos						
				(1) Number of species and quantity by species							
				2-1. Cutting tree confirmation	1. Tree Cutting: 487 trees (7th Mar 2023) 2. Transplanting 500 Trees (7th Mar 2023)	20 trees were cut with approval of Forest Department on 28-10- 2018. Compensatory plantation of 40 trees were done in conjunction during the period 15-10-2020 to 16-10- 2020.	Cutting of tree - 341 Transplantation - 64				
				(1) Number of cutting tree and species		407	20	341			
				3-1. Mangrove survey in the riparian area	Being carried out by Mangrove Foundation						
8	Topography and Geology	Conditions in embankment area	4 Times / year x 4.5 years	(1) Number of species of mangrove							
				(2) Density of mangrove (no trees/0m x 10m)							
				4. Ecological Parameter							
				(1) Net primary Productivity: <1,500 mgC/m ² /day							
				(2) Chlorophyll-a - <4mg/m ³							
				(3) Phosphate: <1.5mg/l							
				(4) Nitrate: <15mg/l							
				(5) Nitrite: <2mg/l							
				(6) Parasites Organic Carbon: <16-100mg/m ³							
				(7) SiO2: <105,000ppm							
9	Local conflict of interests	Construction worker's township	4 Times / year x 4.5 years	Criteria for evaluation Project activities and structures does not cause flooding and impacts on field conditions	Being carried out by Mangrove Foundation						
				Monitoring of flooding situation							
				Criteria for evaluation Embankment shall be stabilized without any landslide and cracks							
				Monitoring of embankment							
				Criteria for evaluation Employment opportunity shall be provided to local community							
				Number of hand workers by community							
				Criteria for evaluation Infection disease rate shall not be caused by the project							





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 - March 2023		Attachment 2-4	
10	Infectious diseases such as HIV/AIDS	Number of infected patient	4 times / year x 4.5 years
2	Locations (major camp site in Sewri and Shivaji Nagar)		
11	Labour Environment	Construction workers condition	2 times / year x 4.5 years
12	Accident	Number of accidents	4 times / year x 4.5 years
Other			

Confirmation of health check record and impact project site	Criteria for evaluation: Building And Other Construction Workers Safety and Health Act, 1988 - "The building and other construction workers safety and health Act, 1988" Performance Standard 2 Labor and Working Conditions"	Weekly site inspection	Site Visual Inspection	Criteria for evaluation Any accidents are not caused by construction Number of reported accident	1	Sewri Site	Shreeji Nagar Camp Site	NI	NS
<p>Check on all check site specific infections, Zoonotic infections, ERT team with trained first aiders available</p> <p>Distribution of Safety kits to 225 Workers Site workers were consulted, 220 Male and 5 female workers consulted at Site Rajeev Sharma, Surgeon for workers, Organized Sport Play for workers, Health Talk by Dr. Achay Shah Site specific training on Hazards of Smoking, Alcohol, and other health promoting activities Promoting awareness for health education with the community Sanstha.</p>	<p>Regular health check-ups are done. In-house check-ups are organized at site and labor camps along with Male nurses, Trained first aiders and 24x7 ambulance services.</p> <p>Regular Health check-up is carried out by site Doctor.</p>	<p>Regular health check-ups are done. In-house check-ups are organized at site and labor camps along with Male nurses, Trained first aiders and 24x7 ambulance services.</p> <p>Shreeji Nagar Camp Site</p>	<p>Confirming with BOCW Act 1988</p>	<p>Confirming with BOCW Act 1988</p>	<p>Child/Other area</p>	<p>Child/Other area</p>	<p>Child/Other area</p>	<p>NS</p>	<p>NS</p>

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 Progress Status Report (PSR) for the 4th quarter of 2022- 2023

b. Date of Preparing This form

c. Person Preparing This form

31-03-2023

Name: Robin Sham

Position: Engineer and Team Leader

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.



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 2017-22.
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	226	0	227	98%	
	No. of Residential PAHs given possession of Alternate Tenements	231	226	0	227	98%	

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	62	0	62	94%	
	No. of Commercial R+C PAPs given possession of Alternate Shops/Tenements	66	62	0	62	94%	
	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	0	0	0	0%	
Rehabilitation	No. of PAHs / PAPs identified for Livelihood Support in Post Resettlement Assessment						

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	1	0	1	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						



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 31-03-2023

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

Total applications	15097
Duplicate/Repeated Application	2428
Net Applications	12669
Approved applications	6645

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		
Nil	Nil	Nil	Nil	Nil



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- 5532 Nos are approved.	23-12-2015	Up to 31-03-2023 1. Total up to date applications scrutinized = 12669 Nos. 2. Eligible = 6645 Nos. 3. Rejected = 6024 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. 24 (Jan to March 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	



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	March 2023
2.11	Assessment of economic rehabilitation needs by individual household (within 6 months after handing over)	September 2019	March 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 March 2023



Attachment 3- JICA's Concurrence Status



Status of JICA'S Concurrence

Sl. No.	Brief description	Procurement procedure	Bid Cost		JICA'S Concurrence on					Contract
			Local Currency (Cr.Rs.)	Total (Cr.Rs)	PQ Documents	PQ Evaluation	Bid Documents	Technical Evaluation	Financial Evaluation	
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 Mar 2023**



PROJECT PROCUREMENT AND FINANCIAL STATUS TILL 31st March 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 31 st March 2023	% of Financial Progress till 31 st March 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	30-Sep-2023	93.85%	91.20%
	Package-2 (CH 10+380 km to CH18+187 km)	5612.61	Awarded	DAEWOO-TPL JV	Mar 2018	21-Sep-2022	27-Sep-2023	93.85%	88.76%
	Package-3 (CH18+187 to CH21+800)	1013.79	Awarded	L&T	Mar 2018	21-Sep-2021	03-Mar-2023	89.02%	90.31%
ITS	Package-4 Intelligent Transport System (ITS)	449.00	Awarded	Sirabag GmbH JV	June 2022	30-Sep-2023	-	Baseline programme submitted on 3 rd Apr 2023 and its under GC review	11.49%



Attachment 5- Financial S-Curve for Cumulative Planned Vs Actual Amount in Rs Crores

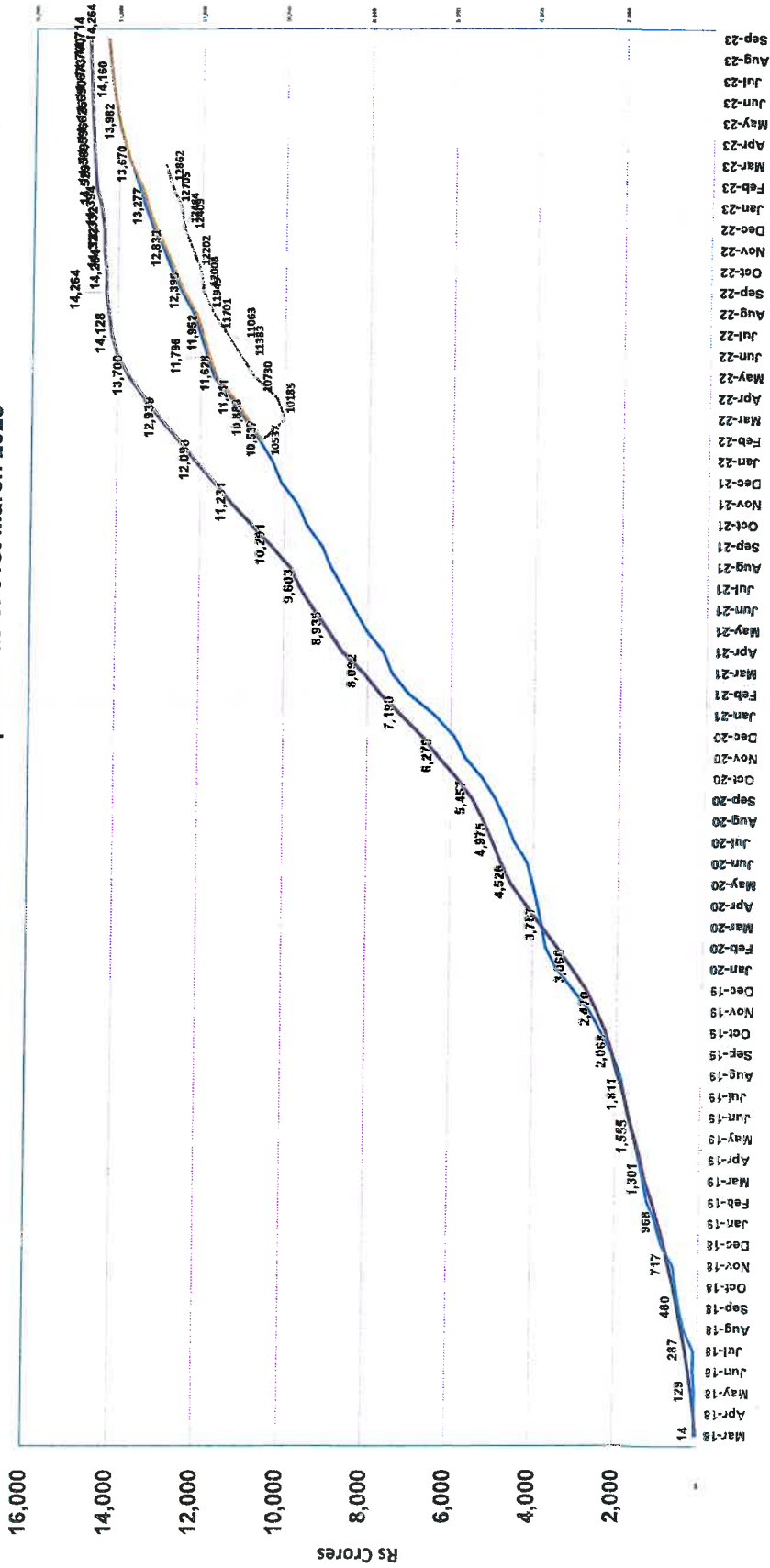
1st Jan 2023 to 31st Mar 2023

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MTHL - Combined Financial S-Curve Updated as of 31st March 2023



— Actual Claimed Invoice in Rs Crores
 - - - Planned Invoice as per the Catch-Up Plan
- - - Actual Claimed Invoice as per the Catch-Up Plan in Rs Crores
 - - - Planned Invoice in Crores



**Attachment 6- Package-1's Construction Programme
Updated as of 25th Mar 2023**

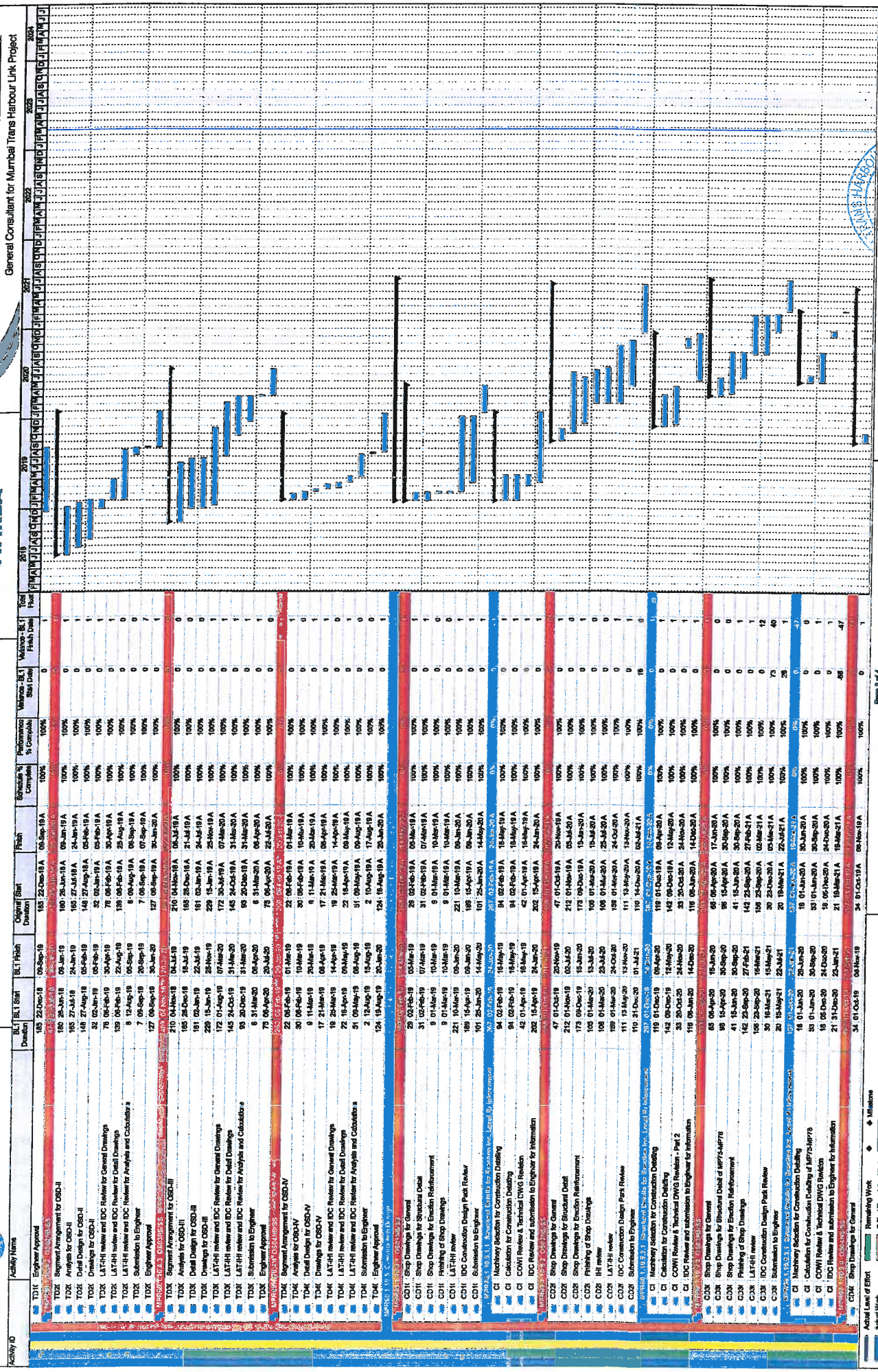




Mumbai Trans Harbour Link Package 1, Updated Design Submission Program for March 2023



General Consultant for Mumbai Trans Harbour Link Project



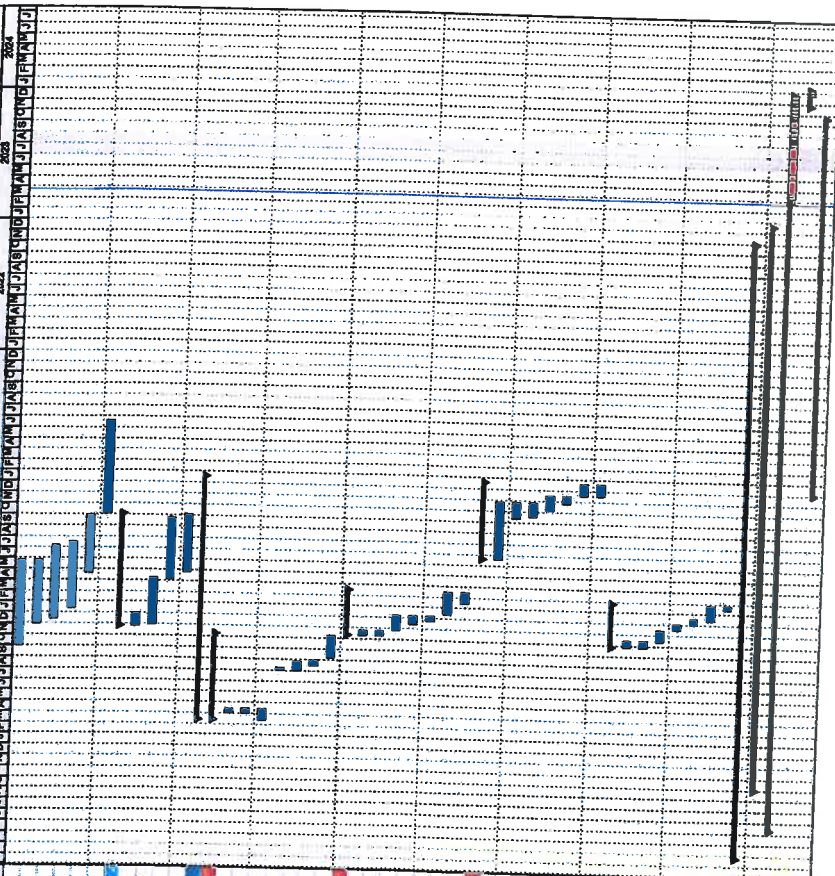
Actual Level of Effort, Actual Work, Remaining Work, Critical Remaining Work, Milestones, Summary



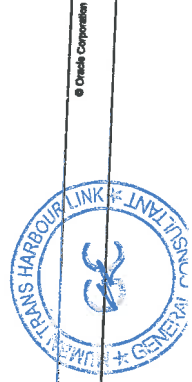
MUMBAI TRANS HARBOUR LINK PACKAGE 1, UPDATED DESIGN SUBMISSION PROGRAM FOR MARCH 2023



General Consultant for Mumbai Trans Harbour Link Project



Activity ID	Activity Name	BLT Start	BLT End	BLT Finish	Original Start	Original End	Original Finish	Schedule % Complete	Performance % Complete	Value - BLT Start Date	Value - BLT Finish Date	Value - BLT Plan Date
COA1	Shop Drawing for Structural Guide	210	01-Oct-19	25-Mar-20	210	01-Oct-19A	25-Mar-20A	100%	100%	0	0	0
COA2	Shop Drawing for Erection Reinforcement	160	01-Dec-19	25-Mar-20	160	01-Dec-19A	25-Mar-20A	100%	100%	0	0	0
COA3	Working of Shop Drawing	171	16-Dec-19	05-Jul-20	171	16-Dec-19A	05-Jul-20A	100%	100%	0	0	0
COA4	L1-L11 tender	148	14-Jul-20	13-Jul-20	148	14-Jul-20A	13-Jul-20A	100%	100%	0	0	0
COA5	BDC Construction Design Peak Review	89	23-Apr-20	23-Sep-20	89	23-Apr-20A	23-Sep-20A	100%	100%	0	0	0
COA6	Submission to Engineer	210	05-Oct-20	14-Sep-21	210	05-Oct-20A	14-Sep-21A	100%	100%	0	0	0
CI	Interim Selection for Construction Detailing	30	26-Nov-19	30-Dec-19	30	26-Nov-19A	30-Dec-19A	100%	100%	0	0	0
CI	Calculation for Construction Detailing	119	01-Dec-19	09-Apr-20	119	01-Dec-19A	09-Apr-20A	100%	100%	0	0	0
CI	COMI Review & Instructed DWG Revision - Part 2	89	05-Apr-20	24-Sep-20	89	05-Apr-20A	24-Sep-20A	100%	100%	0	0	0
CI	BDC Review and submission to Engineer for Information	89	27-Apr-20	04-Oct-20	89	27-Apr-20A	04-Oct-20A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Large Pile	14	07-Apr-19	15-Apr-19	14	07-Apr-19A	15-Apr-19A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Small Member	29	15-Apr-19	15-Apr-19	29	15-Apr-19A	15-Apr-19A	100%	100%	0	0	0
PR1K	Material Order Input	29	15-Apr-19	15-Apr-19	29	15-Apr-19A	15-Apr-19A	100%	100%	0	0	0
PR1K	Preparing Steel Reinforcement	8	01-Aug-19	05-Aug-19	8	01-Aug-19A	05-Aug-19A	100%	100%	0	0	0
PR1K	Steel Plate RQCg	5	19-Aug-19	26-Aug-19	5	19-Aug-19A	26-Aug-19A	100%	100%	0	0	0
PR1K	Material Shipping	62	06-Sep-19	08-Nov-19	62	07-Sep-19A	08-Nov-19A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Large Pile	14	11-Nov-19	25-Nov-19	14	11-Nov-19A	25-Nov-19A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Small Member	40	26-Nov-19	25-Nov-19	40	26-Nov-19A	25-Nov-19A	100%	100%	0	0	0
PR1K	Material Order Input	22	16-Dec-19	05-Jan-20	22	16-Dec-19A	05-Jan-20A	100%	100%	0	0	0
PR1K	Preparing Steel Reinforcement	13	26-Dec-19	05-Jan-20	13	26-Dec-19A	05-Jan-20A	100%	100%	0	0	0
PR1K	Steel Plate RQCg	57	15-Jan-20	17-Mar-20	57	15-Jan-20A	17-Mar-20A	100%	100%	0	0	0
PR1K	Material Shipping	29	15-Feb-20	17-Mar-20	29	15-Feb-20A	17-Mar-20A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Large Pile	83	22-Jan-20	28-Nov-20	83	22-Jan-20A	28-Nov-20A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Small Member	41	15-Oct-20	28-Nov-20	41	15-Oct-20A	28-Nov-20A	100%	100%	0	0	0
PR1K	Material Order Input	58	18-Oct-20	28-Nov-20	58	18-Oct-20A	28-Nov-20A	100%	100%	0	0	0
PR1K	Preparing Steel Reinforcement	55	07-Nov-20	07-Jan-21	55	07-Nov-20A	07-Jan-21A	100%	100%	0	0	0
PR1K	Steel Plate RQCg	42	26-Nov-20	14-Jan-21	42	26-Nov-20A	14-Jan-21A	100%	100%	0	0	0
PR1K	Quality Checking	30	14-Jan-21	17-Feb-21	30	14-Jan-21A	17-Feb-21A	100%	100%	0	0	0
PR1K	Material Shipping	30	12-Feb-21	24-Mar-21	30	12-Feb-21A	24-Mar-21A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Large Pile	17	26-Oct-19	14-Nov-19	17	26-Oct-19A	14-Nov-19A	100%	100%	0	0	0
PR1K	Rough Cutting Plan for Small Member	27	15-Nov-19	14-Nov-19	27	15-Nov-19A	14-Nov-19A	100%	100%	0	0	0
PR1K	Material Order Input	14	18-Dec-19	14-Dec-19	14	18-Dec-19A	14-Dec-19A	100%	100%	0	0	0
PR1K	Preparing Steel Reinforcement	16	02-Jan-20	18-Jan-20	16	02-Jan-20A	18-Jan-20A	100%	100%	0	0	0
PR1K	Steel Plate RQCg	36	16-Jan-20	28-Feb-20	36	16-Jan-20A	28-Feb-20A	100%	100%	0	0	0
PR1K	Quality Checking	10	18-Feb-20	24-Feb-20	10	18-Feb-20A	24-Feb-20A	100%	100%	0	0	0
PR1K	Material Shipping	1709	23-Mar-20	23-Apr-21	1709	23-Mar-20A	23-Apr-21A	0%	0%	0	0	0
PR1K	Rough Cutting Plan for Large Pile	758	01-Oct-19	22-Aug-21	758	01-Oct-19A	22-Aug-21A	0%	0%	0	0	0
PR1K	Rough Cutting Plan for Small Member	1271	01-Jun-19	22-Oct-23	1271	01-Jun-19A	22-Oct-23A	0%	0%	0	0	0
PR1K	Material Order Input	28	26-Jun-20	28-Sep-20	28	26-Jun-20A	28-Sep-20A	0%	0%	0	0	0
PR1K	Preparing Steel Reinforcement	841	26-Jul-20	23-Sep-21	841	26-Jul-20A	23-Sep-21A	0%	0%	0	0	0
PR1K	Steel Plate RQCg	76	02-Nov-21	25-Nov-23	76	02-Nov-21A	25-Nov-23A	0%	0%	0	0	0



Actual Level of Effort, Remaining Work, Critical Remaining Work, Milestone Summary

**Attachment 7- Package-2's Construction Programme
Updated as of 25th Mar 2023**



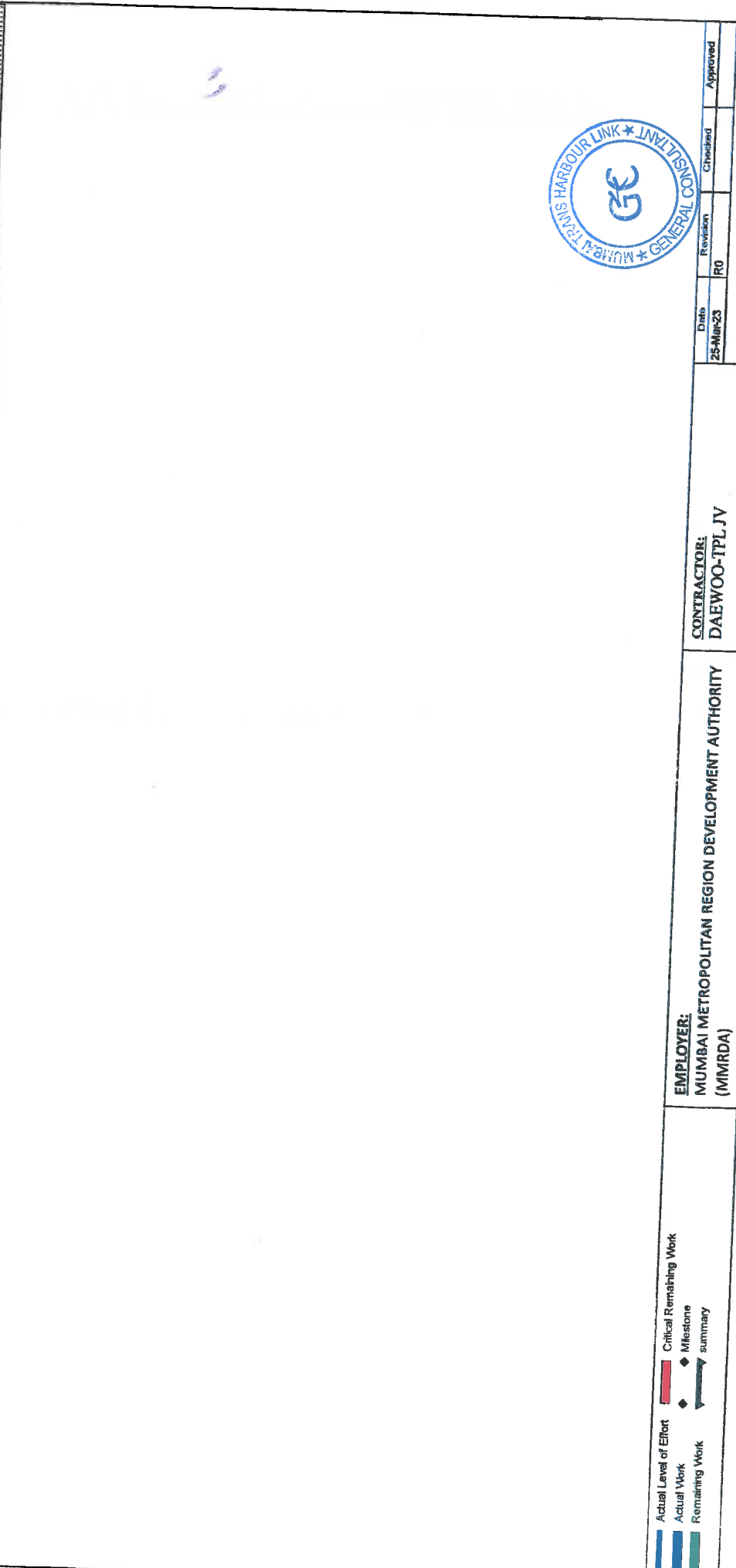
Table with columns: # Activity ID, Activity Name, Critical Path, Start, End, Actual Start, Actual Finish, Schedule % Complete, Performance % Complete. Rows include activities like STEEL MODULES DELIVERY TO THE CONTRACTOR'S ASSEMBLY YARD, STEEL SPAN ASSEMBLY, STEEL GIRDER ASSEMBLY, etc.

EMPLOYER: MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY (MMRDA)
CONTRACTOR: DAEWOO-TPL JV
Date: 25-Mar-23
Revision: R0
Checked:
Approved:

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 INCL. SHIVAJINAGAR INTERCHANGE
 UNDER IDENTIFICATION NO MMRDA/ENG/000753

ANNEXURE-3 CONSTRUCTION UPDATED
 PROGRAMME_ABSTRACT (PACKAGE 2)

#	Activity ID	Activity Name	Original BA Project Start	BA Project Start	BA Project End	Actual Start	Actual Finish	Schedule % Complete	Performance % Complete
464		EXPANSION JOINT	21-Mar-22	21-Mar-22	21-Mar-22			0%	
465		CRACK REPAIRS & SHORING PILES	21-Mar-22	21-Mar-22	21-Mar-22			0%	
466		WATER PENETRATION	21-Mar-22	21-Mar-22	21-Mar-22			0%	
467		REPAIRMENT	21-Mar-22	21-Mar-22	21-Mar-22			0%	
468		CONCRETE WORKS	21-Mar-22	21-Mar-22	21-Mar-22			0%	
470		PROJECT HANDINGOVER CHECKLIST	21-Mar-22	21-Mar-22	21-Mar-22			0%	
471		DEFECT LIABILITY PERIOD (DLP)	21-Mar-22	21-Mar-22	21-Mar-22			0%	
472		PRICE SCHEDULE	21-Mar-22	21-Mar-22	21-Mar-22			0%	
473		SCHEDULE-1	21-Mar-22	21-Mar-22	21-Mar-22			0%	
474		SCHEDULE-2	21-Mar-22	21-Mar-22	21-Mar-22			0%	
475		SCHEDULE-3	21-Mar-22	21-Mar-22	21-Mar-22			0%	
476		SCHEDULE-4	21-Mar-22	21-Mar-22	21-Mar-22			0%	
477		SCHEDULE-5	21-Mar-22	21-Mar-22	21-Mar-22			0%	
478		MTHL-PKG2-RAWEOLL DESIGN PROGRAMME_25032023_APPROVED_WPR.60	21-Mar-22	21-Mar-22	21-Mar-22			0%	



EMPLOYER:
 MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
 (MMRDA)

CONTRACTOR:
 DAEWOO-TPL JV

Date	Revision	Checked	Approved
25-Mar-23	RO		

**Attachment 8- Package-3's Construction Programme
Updated as of 25th Mar 2023**



Activity ID	Activity Name	Original B/LT Start Duration	BLT Start	BLT Finish	Start	Finish	Classic Schedule Layout	Activity % Complete	Schedule % Complete	Performance % Complete	Earned Value Cost	Planned Value Cost	28-Mar-23 14:32
Procurement of Mumbai Trans Harbour Link P3													
Comencement Date (CD)													
1	Milestones (As level of effort)	0	03-Mar-23	03-Mar-23	23-Mar-19 A	12-Oct-23	100%	99.31%	99.02%	Rs9,024,841,658	Rs9,000,000,000	Apr	
KD1001	KD1 [Construction programme]	316	30-Sep-19	03-Mar-23	23-Mar-19 A	12-Oct-23	100%	0%	100%	Rs0	Rs0		
KD1002	KD2 [NOC for technical design]	0	30-Sep-19	30-Sep-19 A	30-Sep-19 A	30-Sep-19 A	100%	100%	100%	Rs0	Rs0		
KD1003	KD3 [NOC for Good for consl]	0	28-Jun-20	28-Jun-20	28-Jun-20 A	28-Jun-20 A	100%	100%	100%	Rs0	Rs0		
KD1004	KD4 [Substantial completion]	0	17-Aug-20	17-Aug-20	17-Aug-20 A	17-Aug-20 A	100%	100%	100%	Rs0	Rs0		
KD1005	KD5 [Substantial completion]	0	27-Nov-20	27-Nov-20	27-Nov-20 A	27-Nov-20 A	100%	100%	100%	Rs0	Rs0		
KD1006	KD6 [Substantial completion]	0	25-Dec-21	25-Dec-21	25-Dec-21 A	25-Dec-21 A	100%	100%	100%	Rs0	Rs0		
KD1007	KD7 [Substantial completion]	0	06-Dec-22	06-Dec-22	19-May-23	19-May-23	100%	100%	100%	Rs0	Rs0		
KD1008	KD8 [Final completion & hand	0	17-Feb-23	17-Feb-23	27-Sep-23	27-Sep-23	100%	100%	100%	Rs0	Rs0		
Financial Milestones													
Interface Milestone													
Delay Events													
Document Submittals													
Employer's Obligation / Land Handover													
Survey & Geotechnical Investigation Works													
Design Works													
Procurement Works													
Co-ordinated Fabrication & Manufacturing Works													
Construction Works													
Preconstruction Activity													
Sub-Structures (Open Foundation, Pier, Pier Cap)													
Super-Structures													
Bearings Installation													
Bridge Arcillaries & Miscellaneous Item													
RE Wall													
At Grade work													
Water Proofing													
Asphalt Pavement, Kerb, traffic sign													
Compound wall with safety fence													
Completion of Interface Activity													
Testing & Commissioning Works													
1	26-Jul-22	17-Aug-22	25-Mar-23	27-Mar-23	27-Mar-23	27-Mar-23	0.02%	0%	0%	Rs0	Rs149,149,156		
24	24-Jan-23	03-Mar-23	03-Mar-23	03-Mar-23	03-Mar-23	03-Mar-23	0%	0%	0%	Rs0	Rs149,048		
27-Mar-23, Completion of Interface Activity													



TASK filter: All Activities

Attachment 9- Project Progress Photos for Mar 2023



Package 1- Site Progress Photos



Photo no.1- OSD 2 & OSD 3



Photo no.2 Water proffing membrane at Ch.2530





Photo no.3 Ch. 1290 SMA paving in progress



Photo no.4 Composite girder BP 24- BP 26



Photo no.5 BP 29-30 Cast in situ shuttering in progress



Photo no.6 Interchange view towards South Mumbai



Photo no.8 Intertidal Section- LG-08



Photo no.9 Casting of Last Segment at Precast yard

Package 2 – Site Progress Photos



Photo no.1- Deck Waterproofing works in progress at LHS Carriageway.



Photo no.2- Preparatory works for 26th OSD erection in progress at Span MP 173-173A LHS.





Photo no.3- Expansion Joint Cantilever slab concrete in progress.



Photo no.4- Crash barrier concreting in progress at ramp AC.



Photo no.5- Segment lifting in progress at Span MP 164-165 LHS.



Photo no.6- Application of Tack coat in progress at LHS Carriageway.



Photo no.7- SMA laying in progress at LHS Carriageway.



Photo no 8-Application of Tack coat in progress at LHS Carriageway.

Package 3 – Site Progress Photos

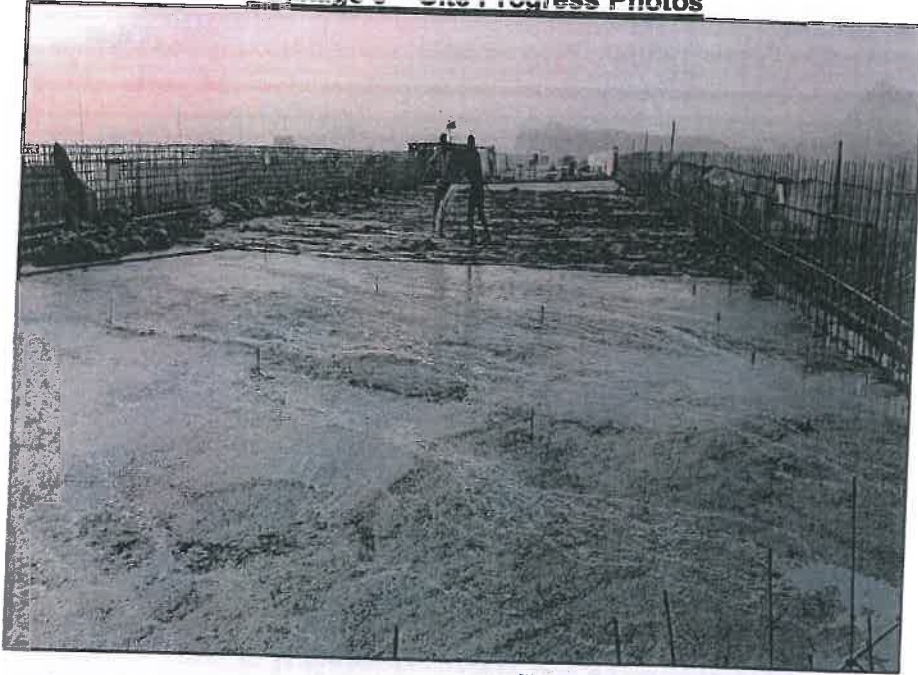


Photo no.1- Deck slab concrete casting completed at RMP 273-274



Photo no.2- MPP RAMP Embankment works.

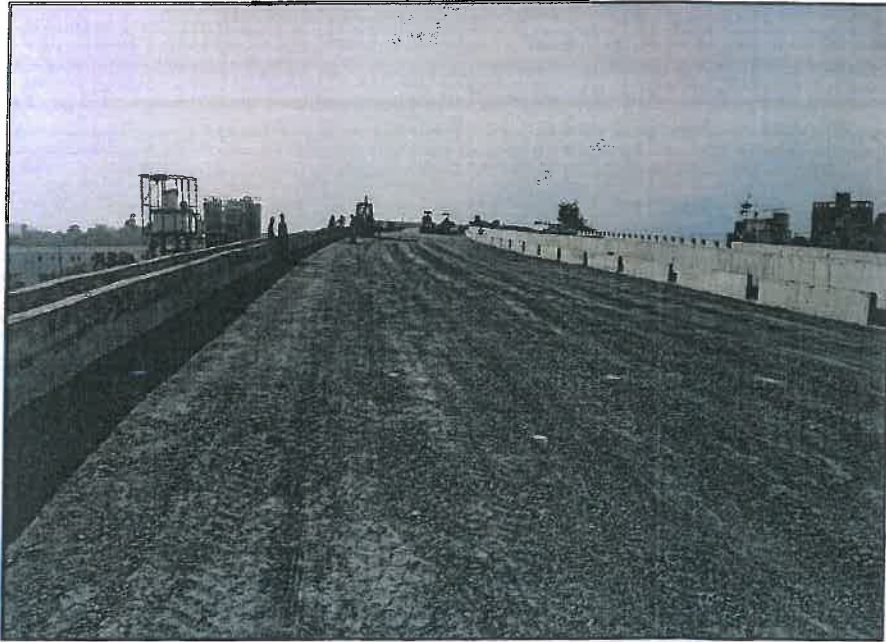


Photo no.3- GSB laying work at RHS CH 18+930 to 19+070.



Photo no.4- A Outer crash barrier shuttering work at Chirle span RP36-37.t-grade location.



Photo no.5- Steel girder erection work at Jasai SH-54 span RP 19-20.



Photo no.6- Anti carbonation paint work at Chirle Ramp JMP.



Photo no.7- Main viaduct at Gavan location.

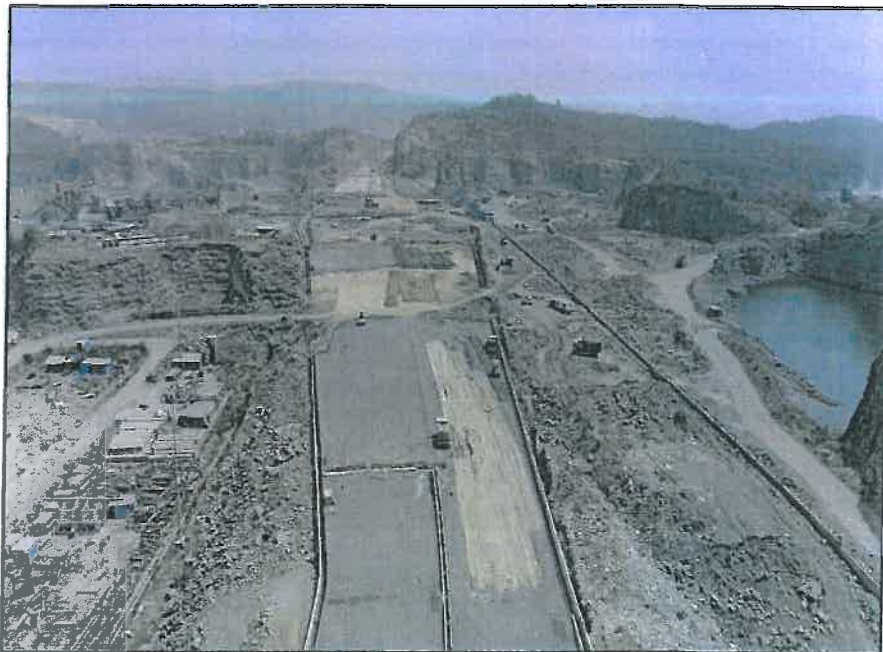


Photo no.8- At grade location.



Photo no.9- JMP and MPP ramp at Chirle Interchange.



Photo no.10- Jasai Viaduct.

Package 4 – Site Progress Photos



Mar 11, 2023 at 11:38:38
Mumbai Trans Harbour Link Road
Navi Mumbai 410206
MH
India

Photo no.1- Plinth beam reinforcement and Shuttering work is in progress

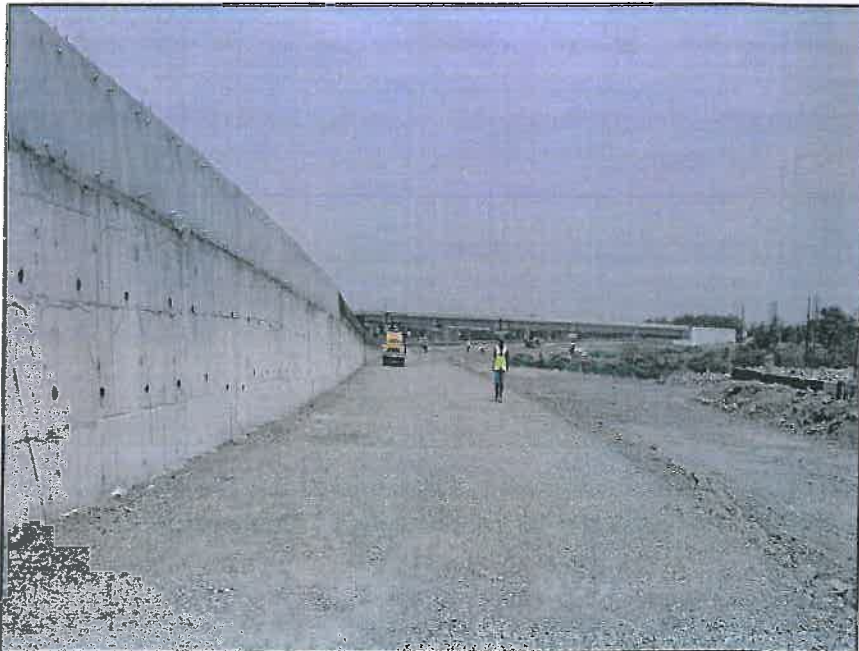


Photo no.2- GSB spreading under progress at SN Service Road CH 300 to 90



Annexure-1 JICA Reimbursement backup Jan'2023



Reimbursement details for the month of January 2023

Date of disbursement	Amount of Disbursement in JPY
17-Jan-2023	JPY 685,333,985
17-Jan-2023	JPY 15,383,592
Total Amount	700.71 Million JPY



Annexure-2 JICA Reimbursement backup Feb'2023



Reimbursement details for the month of February 2023

Date of disbursement	Amount of Disbursement in JPY
03-Feb-2023	JPY 18,876,309
10-Feb-2023	JPY 31,139,524
10-Feb-2023	JPY 7,464,863
10-Feb-2023	JPY 7,784,883
10-Feb-2023	JPY 31,034,997
10-Feb-2023	JPY 7,693,778
10-Feb-2023	JPY 39,520,885
14-Feb-2023	JPY 943,507,053
14-Feb-2023	JPY 395,069,574
14-Feb-2023	JPY 1,393,371,460
14-Feb-2023	JPY 447,752,790
14-Feb-2023	JPY 253,351,501
14-Feb-2023	JPY 7,310,158
14-Feb-2023	JPY 182,329,116
14-Feb-2023	JPY 57,018,586
14-Feb-2023	JPY 16,539,645
14-Feb-2023	JPY 209,533,048



14-Feb-2023	JPY 81,502,917
14-Feb-2023	JPY 58,415,242
14-Feb-2023	JPY 5,570,446
14-Feb-2023	JPY 273,394,634
14-Feb-2023	JPY 72,697,741
17-Feb-2023	JPY 194,897,822
17-Feb-2023	JPY 47,019,188
17-Feb-2023	JPY 16,410,146
17-Feb-2023	JPY 8,471,850
17-Feb-2023	JPY 72,398,621
17-Feb-2023	JPY 26,365,058
28-Feb-2023	JPY 5,190,309
Total Amount	4911.63 Million JPY



Annexure-3 JICA Reimbursement backup Mar'2023



Reimbursement details for the month of March 2023

Date of Disbursement	Amount of Disbursement in JPY
13-Mar-2023	JPY 428,160,758
13-Mar-2023	JPY 6,150,421
13-Mar-2023	JPY 9,107,236
13-Mar-2023	JPY 175,263,452
13-Mar-2023	JPY 4,060,416
13-Mar-2023	JPY 930,794,090
13-Mar-2023	JPY 150,654,394
13-Mar-2023	JPY 13,832,079
13-Mar-2023	JPY1,457,436,410
13-Mar-2023	JPY 570,612,766
13-Mar-2023	JPY 996,834,517
13-Mar-2023	JPY 50,021,201
13-Mar-2023	JPY 14,406,730
14-Mar-2023	JPY 305,997,131
15-Mar-2023	JPY 50,779,374
15-Mar-2023	JPY 26,919,453
15-Mar-2023	JPY 16,814,100
15-Mar-2023	JPY 56,379,112
15-Mar-2023	JPY 29,972,261
24-Mar-2023	JPY 12,025,325



24-Mar-2023	JPY 45,198,856
24-Mar-2023	JPY 28,590,337
29-Mar-2023	JPY 29,031,589
29-Mar-2023	JPY 12,102,189
Total Amount	5421.14 Million JPY



Mumbai Metropolitan Region Development Authority

C - 14 / 15, MMRDA Office Bulding

Bandra Kuria Complex, Bandra (E).

Mumbai - 400051

PAN : AAATM7106R

EXPENSES ON MTHL

Group Summary

1-Apr-2022 to 31-Mar-2023

Page 1

Figures in Crores

Particulars	Opening Balance	Transactions		Closing Balance
		Debit	Credit	
Administrative Charges (MTHL)	1.15 Dr			1.15 Dr
Advertisement & Publicity (MTHL)	0.35 Dr			0.35 Dr
Civil Work (MTHL) - Package-I	5,739.24 Dr	2,426.80	294.97	7,871.07 Dr
Civil Work (MTHL) - Package-II	4,828.02 Dr	1,354.21	123.21	6,059.01 Dr
Civil Work (MTHL) - Package-III	908.63 Dr	195.81	25.42	1,079.02 Dr
Civil Work (MTHL) - Package-IV		46.74		46.74 Dr
Compensation to Fisheries (MTHL)	118.91 Dr	74.32		190.70 Dr
Compensation to Leaseholders-MTHL	13.25 Dr		2.54	13.25 Dr
Counter Guarantee Fees (MTHL) (MOF)	135.81 Dr	85.41		221.22 Dr
Deposit with CIDCO for MTHL	11.21 Dr			11.21 Dr
Forex Loss/ Gain Against JICA Loan No IDP-255	487.97 Cr	146.22		341.75 Cr
Forex Loss/ Gain on Mobilisation Advance (MTHL)	29.44 Cr		4.46	33.90 Cr
Front End Fees for JICA Loan (MTHL)	27.23 Dr			27.23 Dr
General Consultants Fees (MTHL)	130.59 Dr	37.14		167.71 Dr
General Consultants Fees (MTHL) - Taxable	4.69 Dr	34.55	0.02	39.24 Dr
Geotechnical Investigation (MTHL)	19.60 Dr			19.60 Dr
Interest & Bank charges on JICA Loan (MTHL)	15.44 Dr	27.11		38.81 Dr
Land Acquisition Cost (MTHL)	857.43 Dr	4.88	3.74	857.48 Dr
Land Acquisition Cost (MTHL) Taxable	60.21 Cr	84.01	4.83	23.19 Dr
Legal Charges (MTHL)	0.09 Dr		0.61	0.09 Dr
Other Miscellaneous (MTHL)	80.55 Dr	1.14		81.69 Dr
Professional Charges (MTHL)	0.12 Dr			0.12 Dr
Repairs & Maintainance (MTHL)	0.08 Dr			0.08 Dr
Security Deposits - Land (MTHL)	11.10 Dr			11.10 Dr
Service Tax on Mobilisation Adv. on MTHL	3.07 Dr			3.07 Dr
Stamp Duty Reimbursement (MTHL)	0.10 Dr			0.10 Dr
Surveys & Studies (MTHL)	47.47 Dr	0.81		48.28 Dr
Grand Total	12,376.50 Dr	4,519.14	459.79	16,435.86 Dr





Office of the Additional Principal Chief Conservator of Forests,
Mangrove Cell, Mumbai

And Executive Director, Mangrove and Marine Biodiversity
Conservation Foundation of Maharashtra

302, Wakefield House, 3rd Floor, Ballard Estate, Above Britannia & Co. Restaurant, Fort,
Mumbai-400 001

Ph: 022-2694984 / 85 Email: ccfmumbai@gmail.com / ccfmangrove@mahaforest.gov.in



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



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



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





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



Dhansar 2 (2018-19)

Survey No-64



Latitude: 19.709881
Longitude: 72.727158
Elevation: 63.55±12 m
Accuracy: 7.4 m
Note: dhansar25

Powered by GeoEye



Latitude: 19.709843
Longitude: 72.727357
Elevation: 60.85±13 m
Accuracy: 10.8 m
Note: dhansar25

Powered by GeoEye



Navapur (2018-19)
Survey No-161



Salvad (2018-19)

Survey No-107



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



"Conservation of nature, primarily biological diversity,
through action based on research, education and public awareness."

Hornbill House, Shaheed Bhagat Singh Road
Opposite Lion Gate, Fort, Mumbai 400 001

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**Monitoring and Mitigating the Impacts of Mumbai
Trans-Harbour Link on Flamingos and other
Avifauna and Formulating a Conservation Blueprint
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2022

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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 Mudflat, 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.

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.

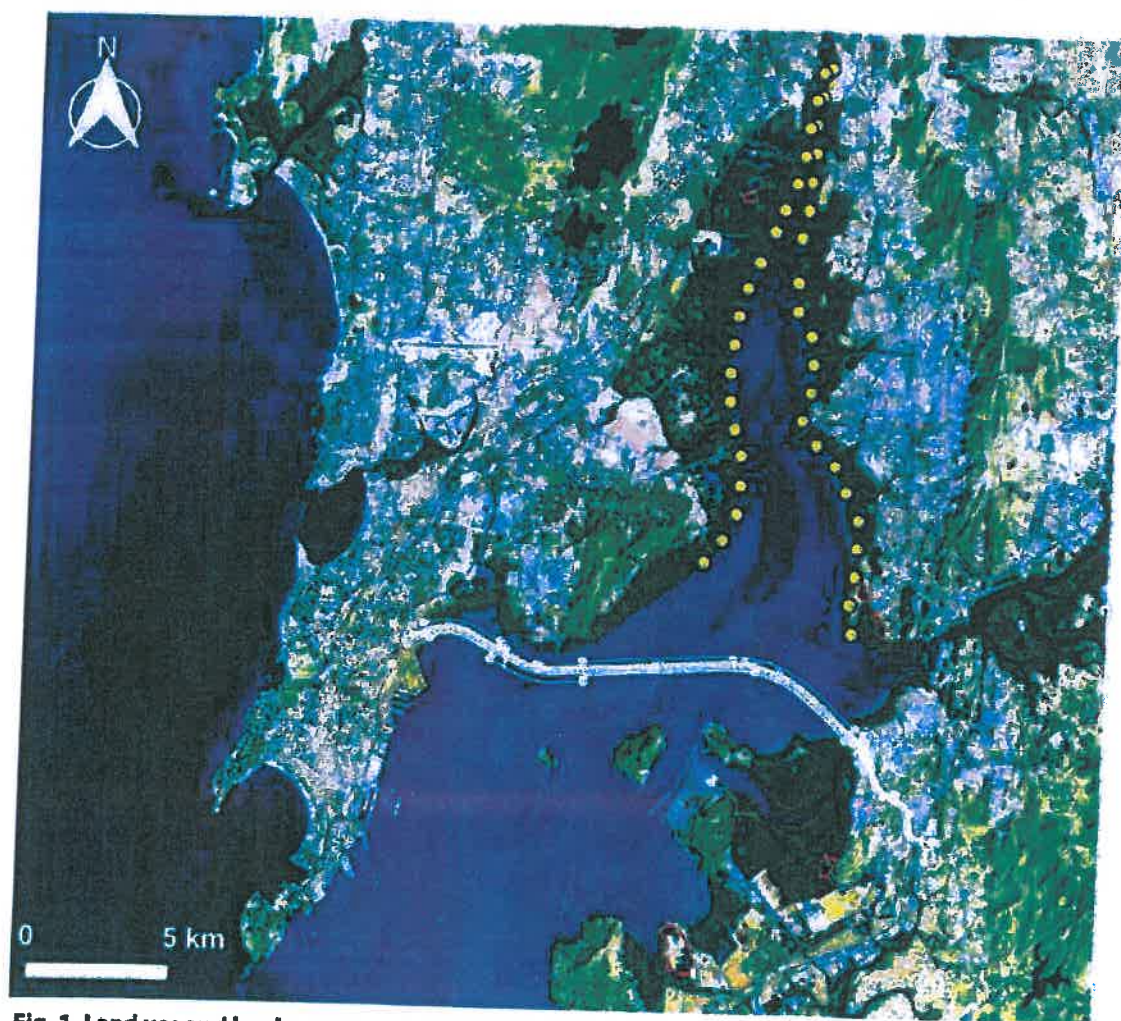


Fig. 1. Land use and land cover map of study area with study sites: Land use and land cover map of the study area was developed using Landsat 8 satellite imagery (January 2018; band combinations = 7, 5 and 3). Wetlands are highlighted with red polygons and the transects with yellow circles. Forest and 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).

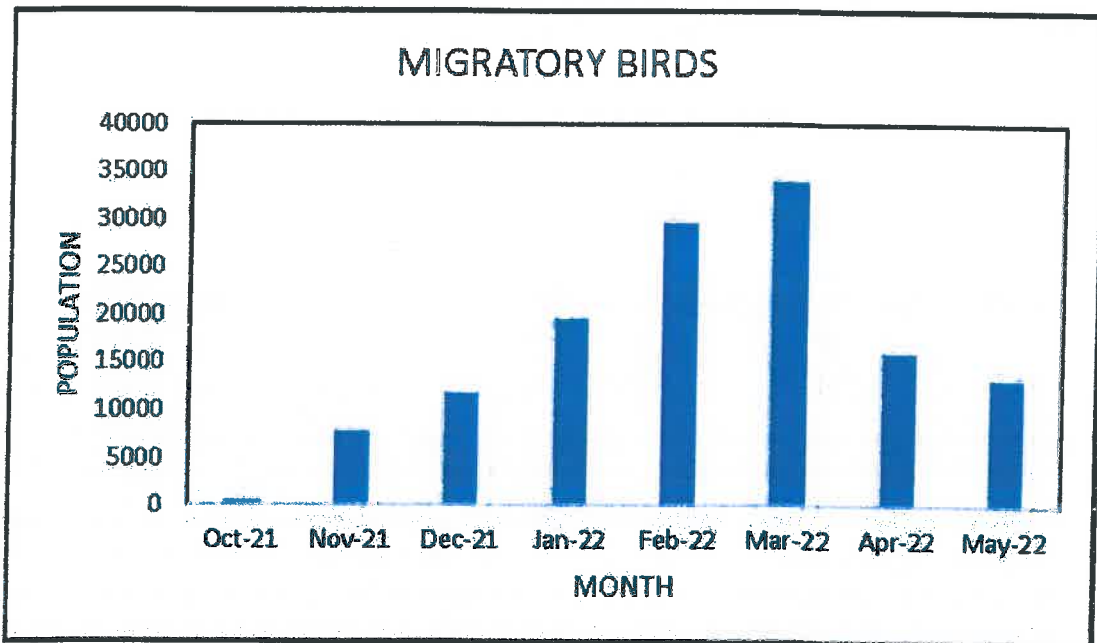


Fig. 2: Migratory shorebird abundance in the wetlands from Oct 21-May 22

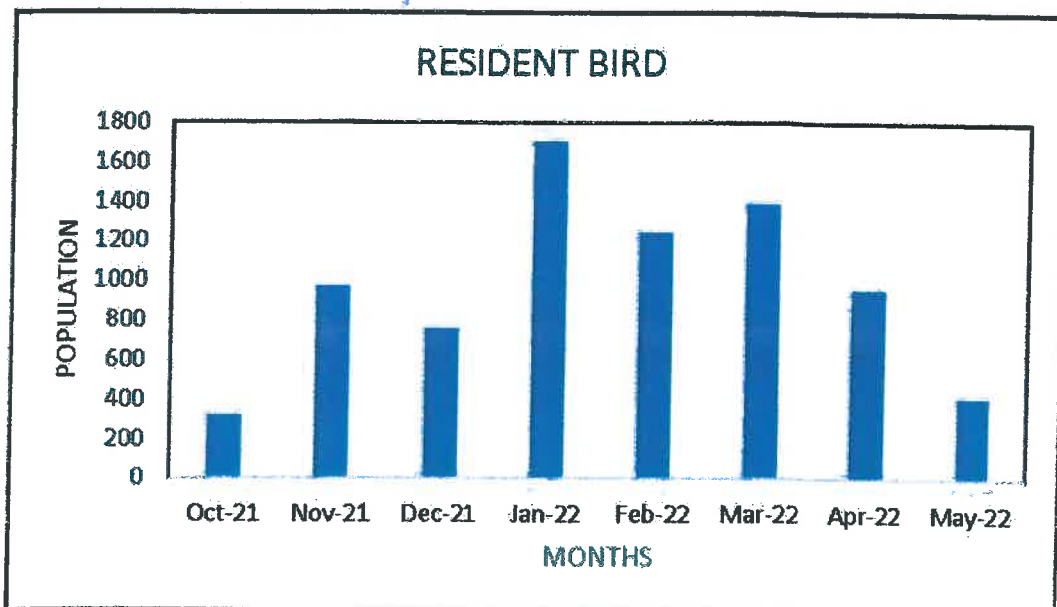


Fig. 3: Resident shorebird abundance in the wetlands Oct 21-May 22



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 (<i>Mycteria leucocephala</i>)	NT
2	Lesser Flamingo (<i>Phoeniconaias minor</i>)	NT
3	Black-headed Ibis (<i>Threskiornis melanocephalus</i>)	NT
4	Black-tailed Godwit (<i>Limosa limosa</i>)	NT
5	Eurasian Curlew (<i>Numenius arquata</i>)	NT
6	Great Knot (<i>Calidris tenuirostris</i>)	EN
7	Curlew Sandpiper (<i>Calidris ferruginea</i>)	NT
8	River tern (<i>Sterna aurantia</i>)	NT
9	Bar-tailed Godwit (<i>Limosa lapponica</i>)	NT



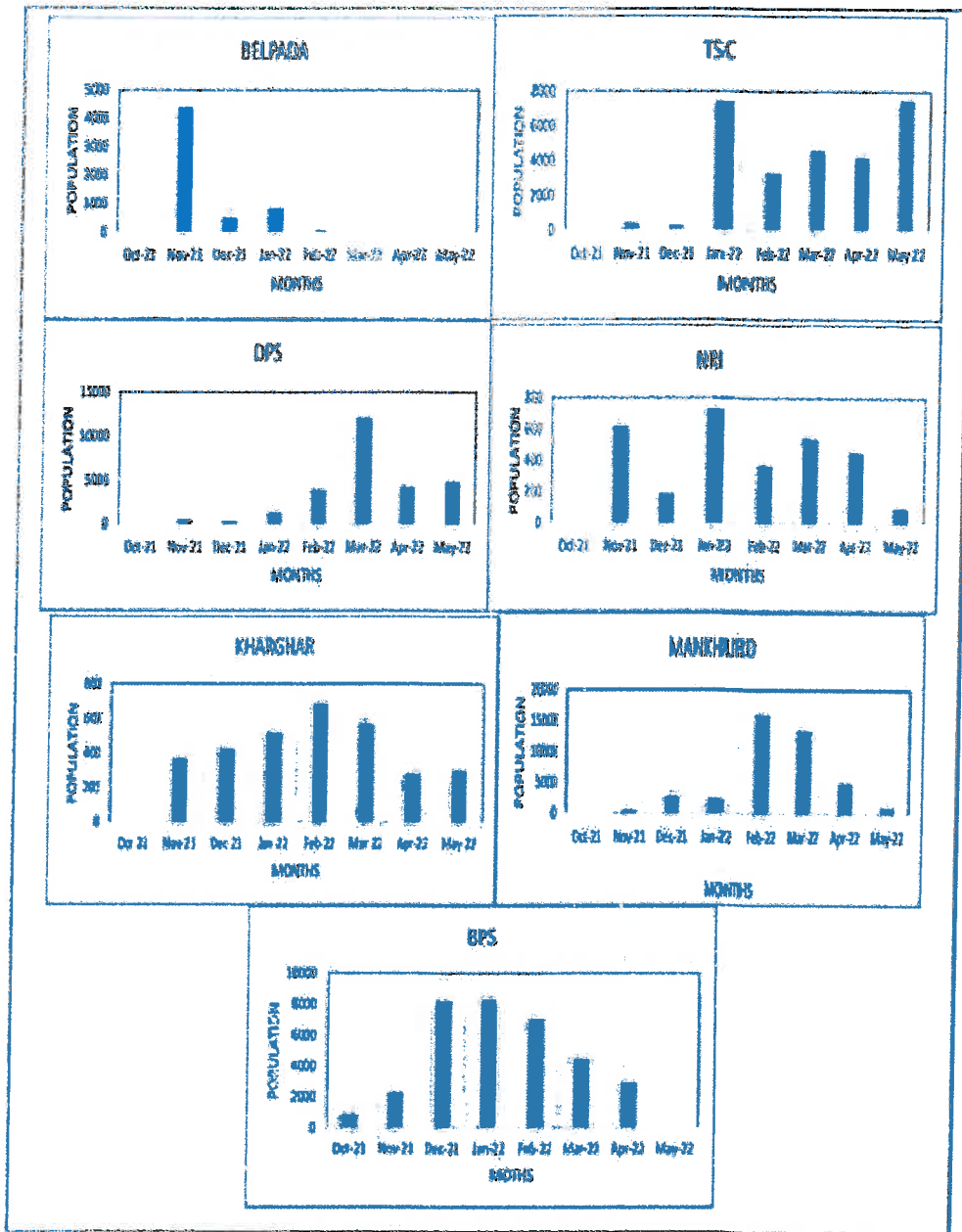


Fig. 4: Site-specific abundance of the shorebirds in the wetlands Oct 21-May 22

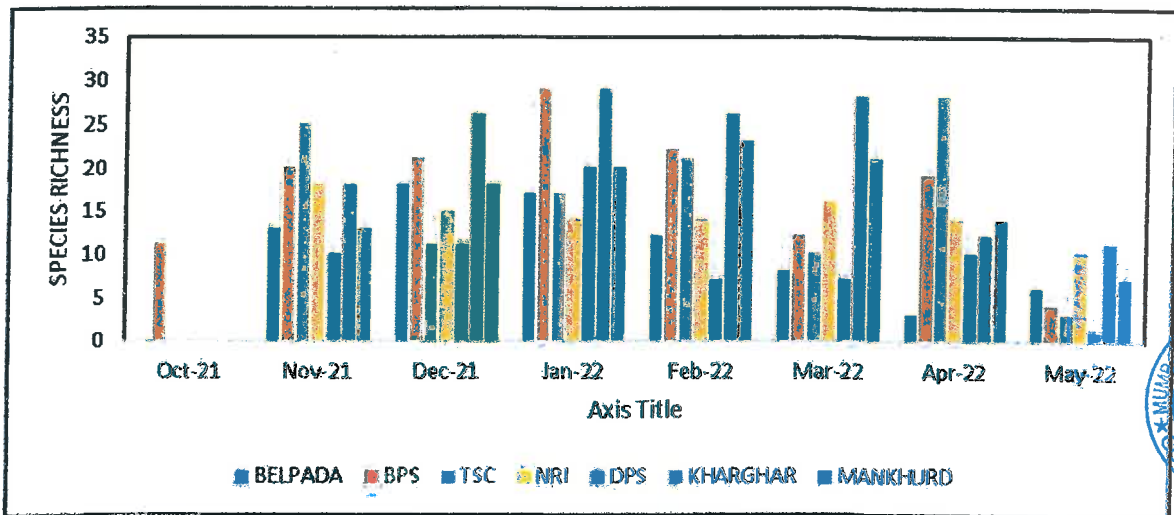


Fig. 5: Species richness of migratory shorebirds in the wetlands Oct 21-May 22



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.

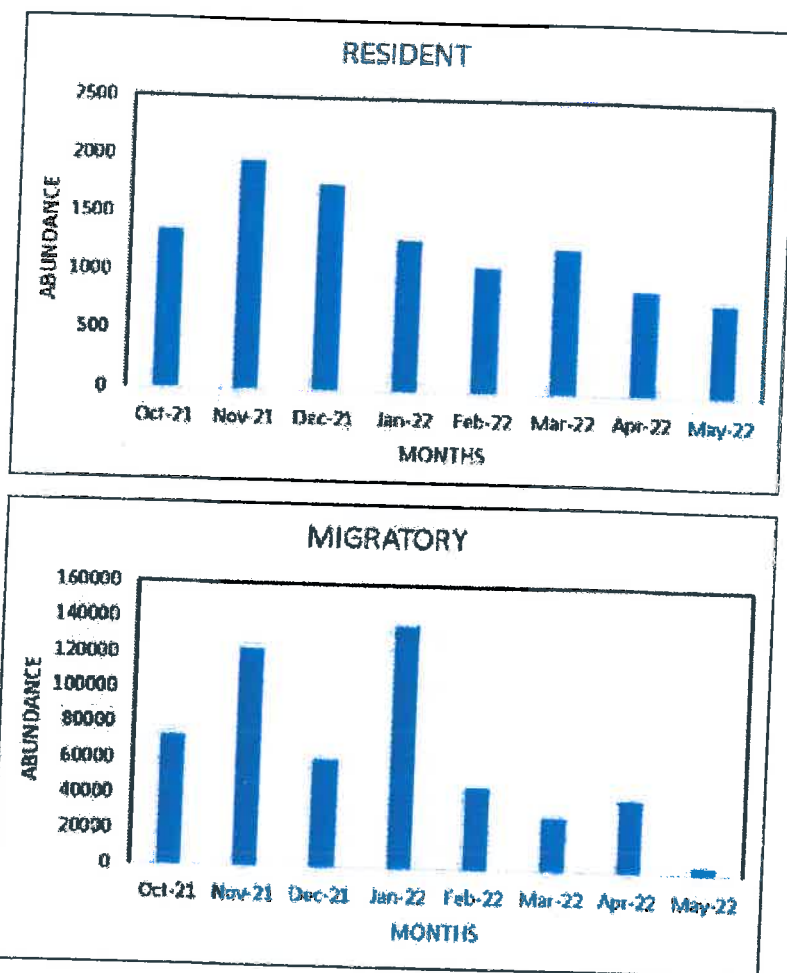


Fig. 6: Abundance of migratory shorebirds and resident birds in the creek Oct 21-May 22

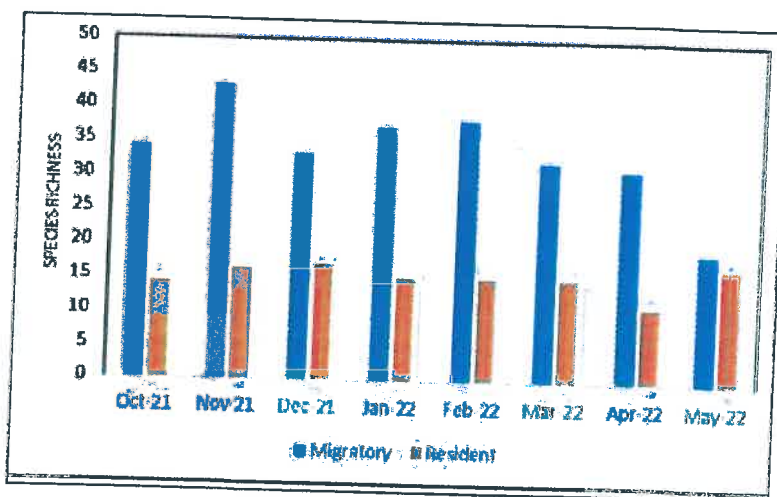


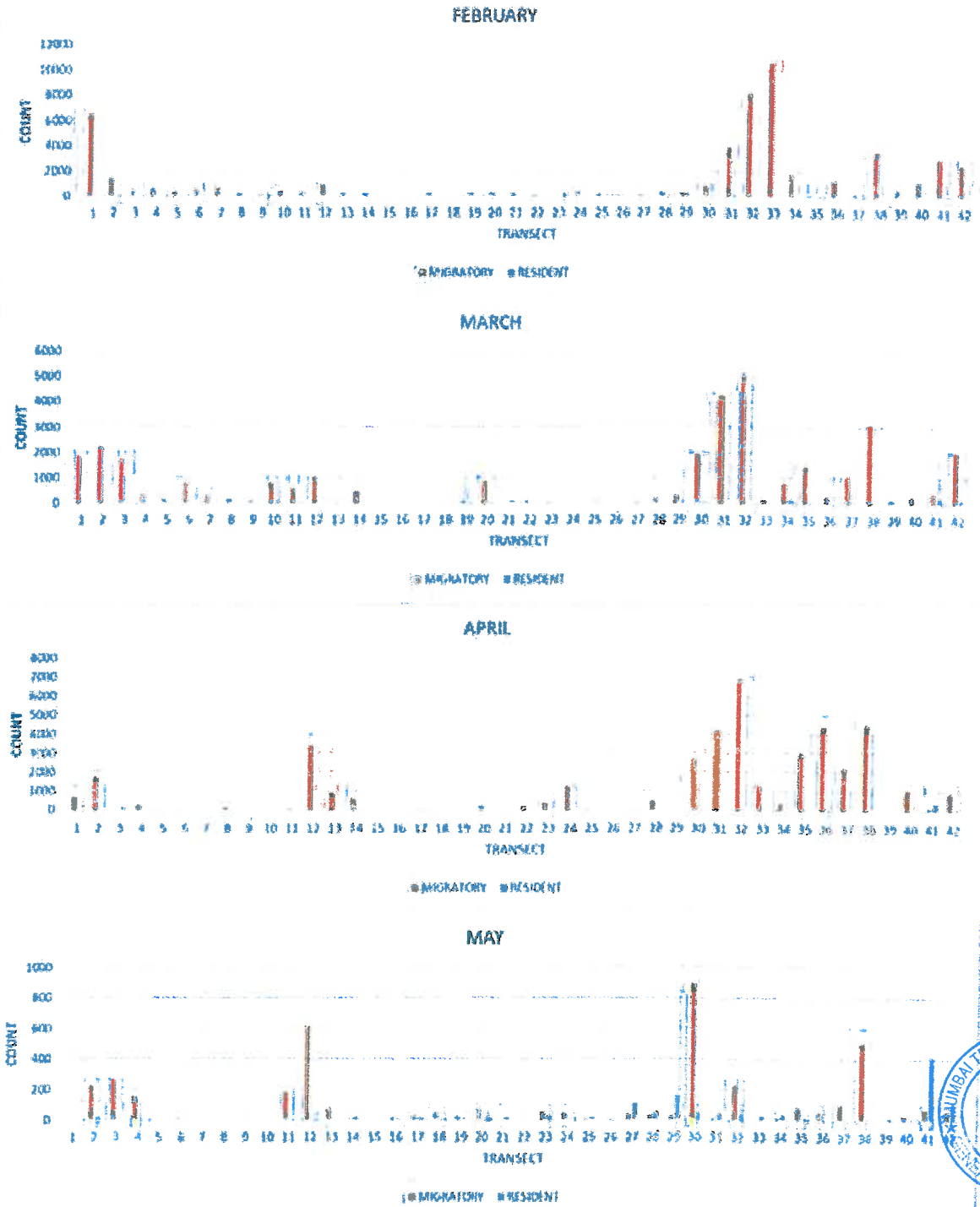
Fig. 7: Species richness of migratory shorebirds and resident birds in the creek Oct 21-May 22



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.



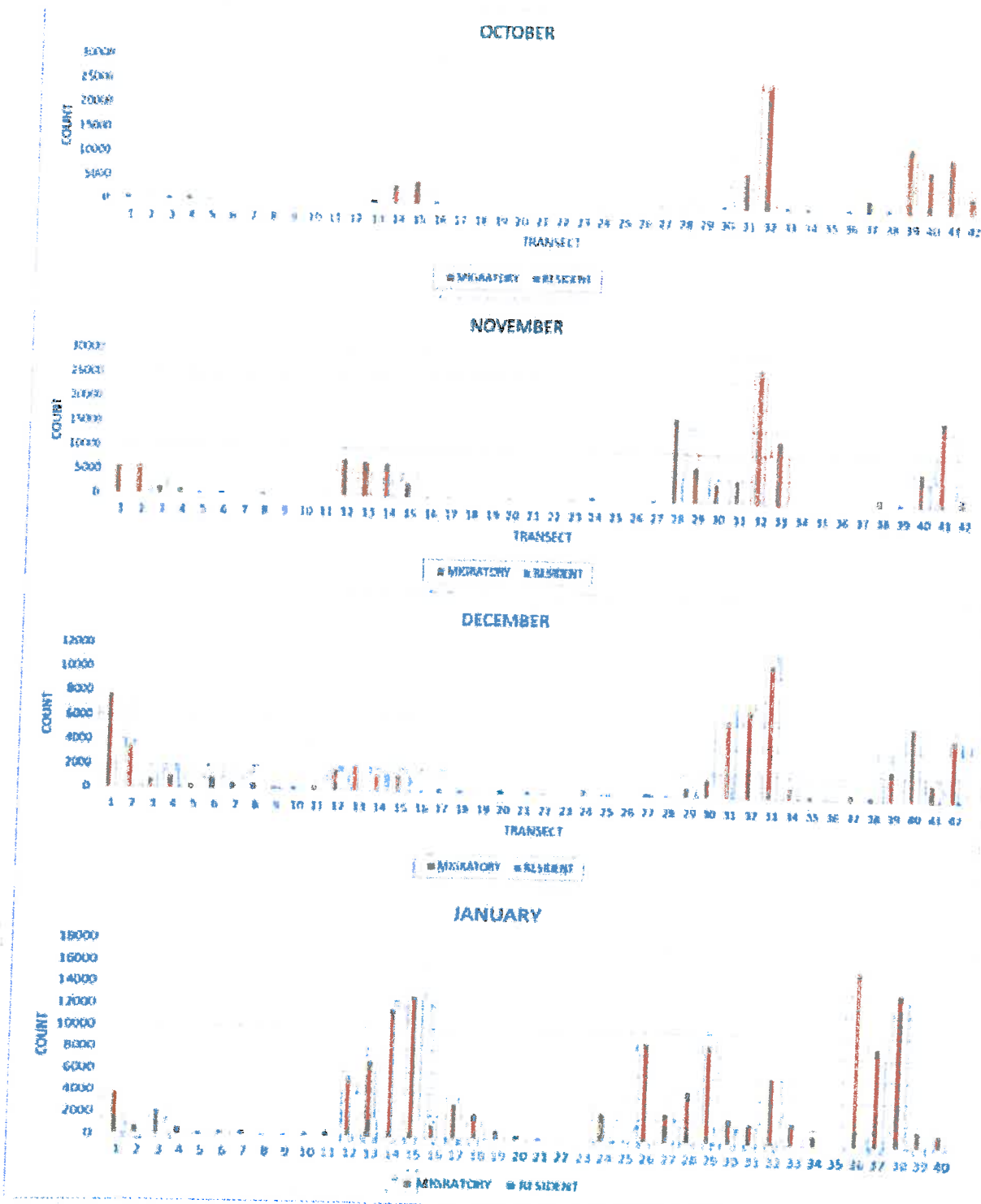


Fig. 8: Abundance of migratory and resident birds in Thane Creek, and Sewri and Nhava-Sheva mudflats Oct 21-May 22

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.



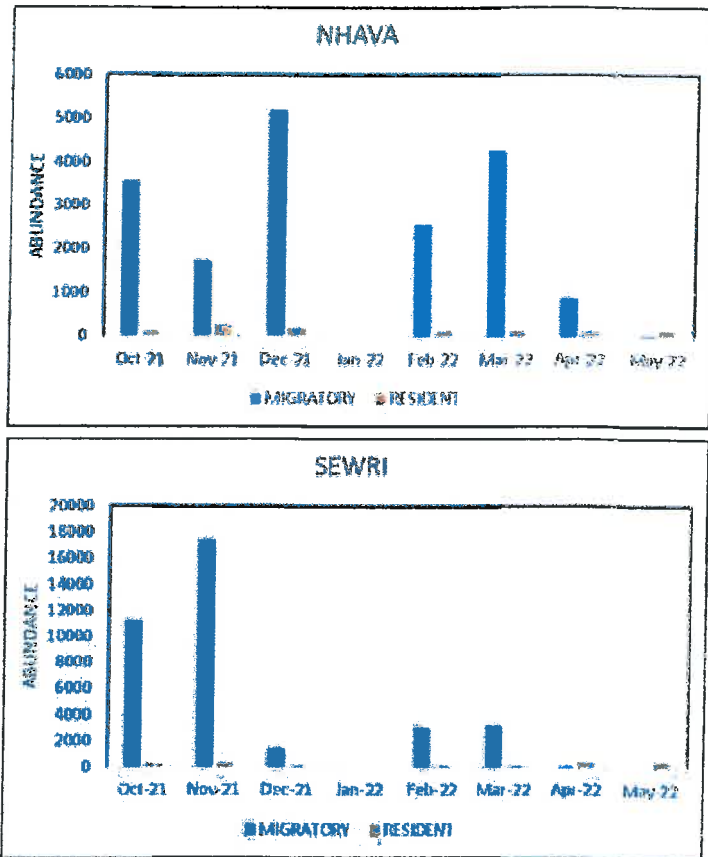


Fig. 9: Abundance of migratory and resident birds at Sewri and Nhava-Sheva mudflats Oct 21–May 22

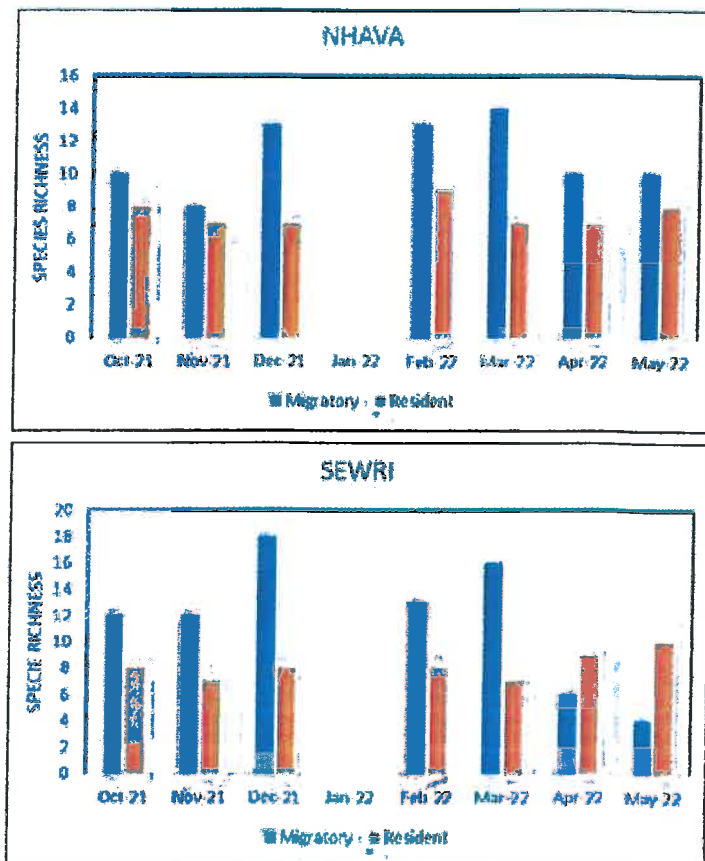


Fig. 10: Species richness at Sewri and Nhava-Sheva mudflats Oct 21–May 22



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).

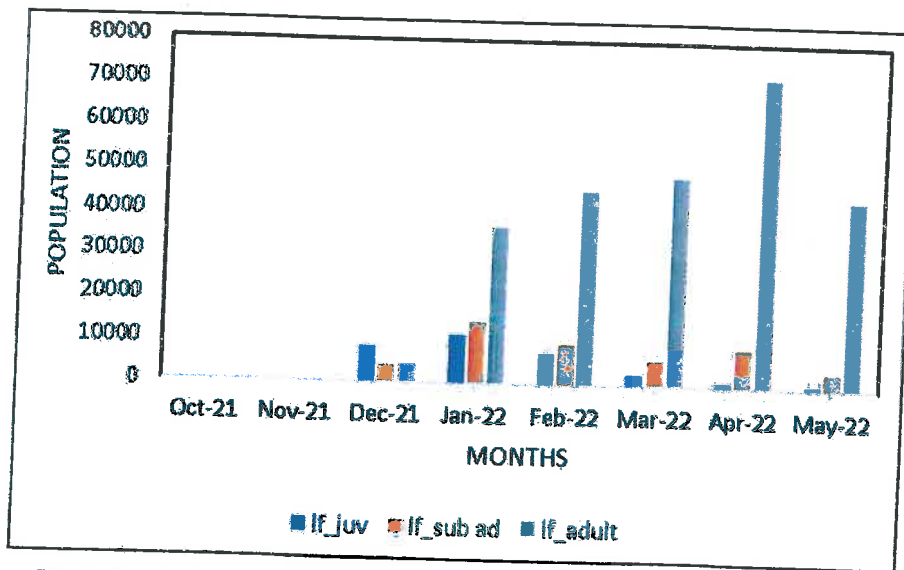


Fig. 11: Population of Lesser Flamingos recorded from Thane Creek Oct. 21-May 22

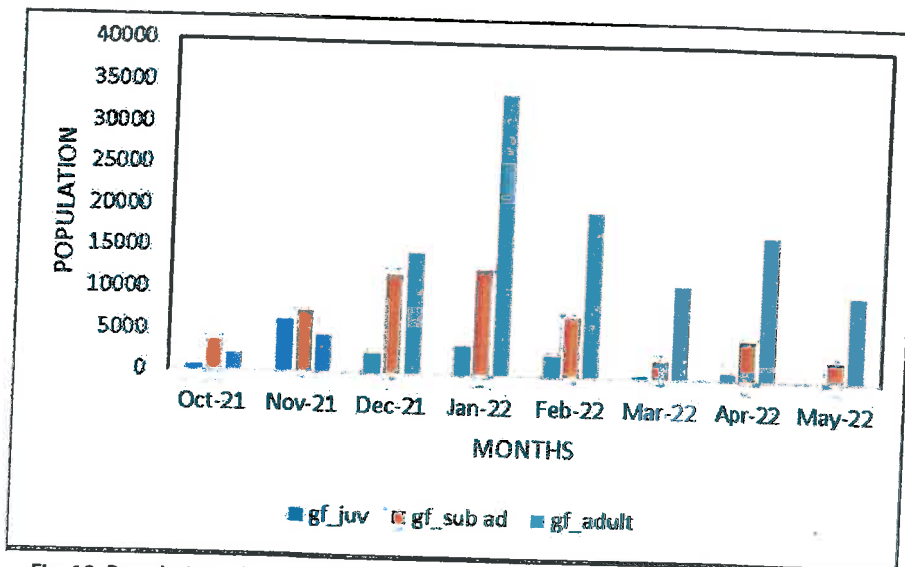


Fig. 12: Population of Greater Flamingos recorded from Thane Creek Oct. 21-May 22



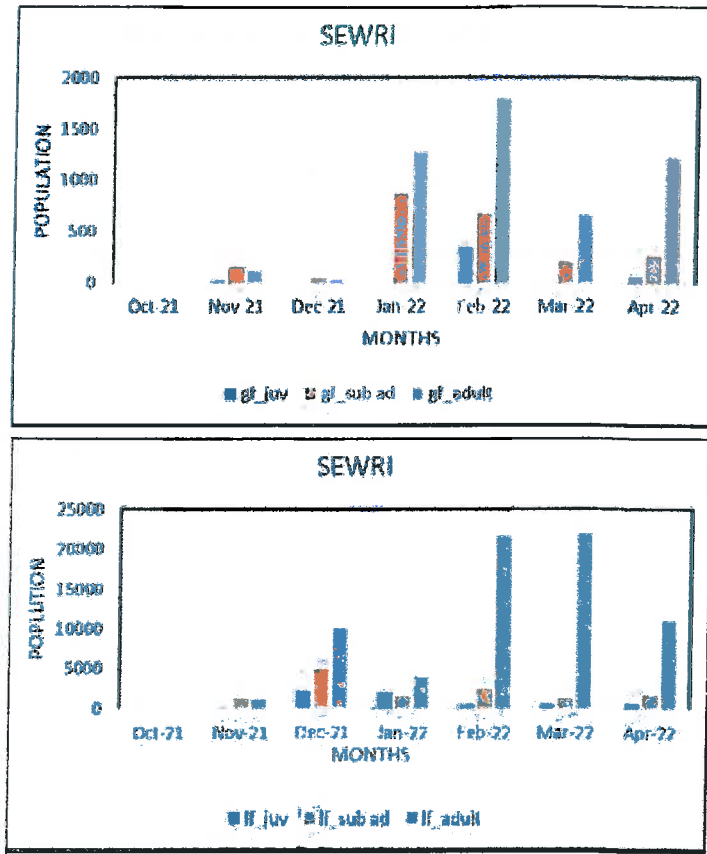


Fig. 13: Population of Lesser and Greater flamingos recorded from Sewri Oct. 21–May 22

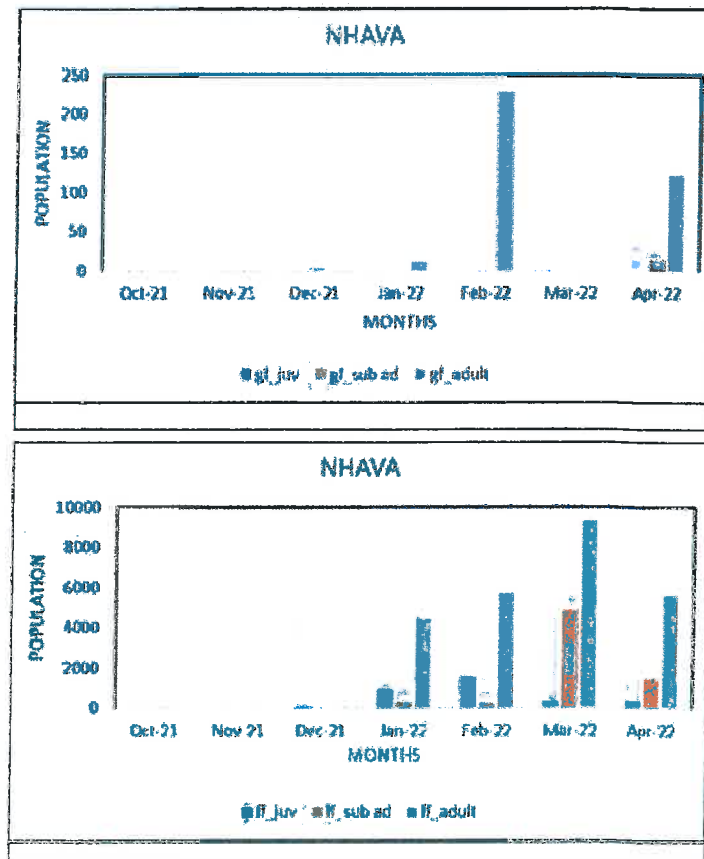


Fig. 14: Population of Lesser and Greater flamingos recorded from Nhava-Sheva mudflats Oct. 21–May 22



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).

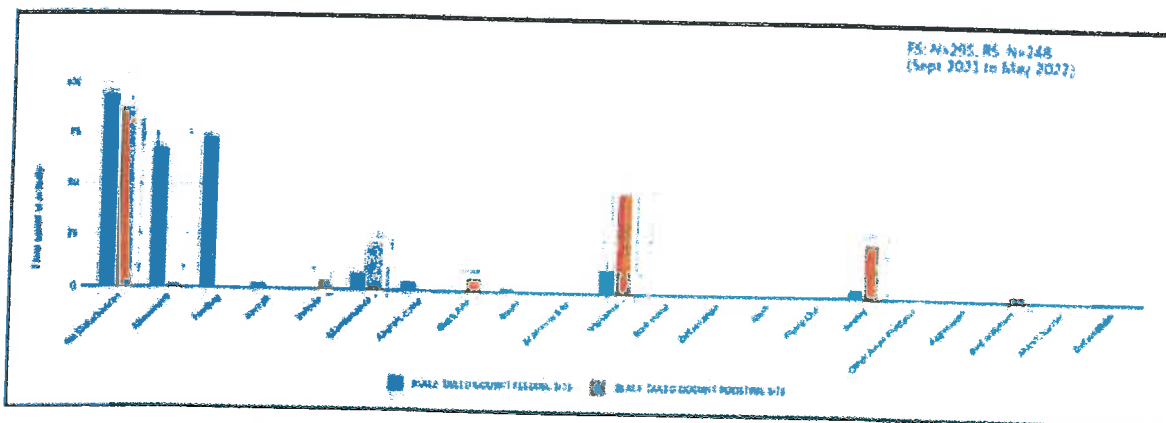


Fig. 15: Activity budget of Black-tailed godwit at feeding and roosting site

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%).

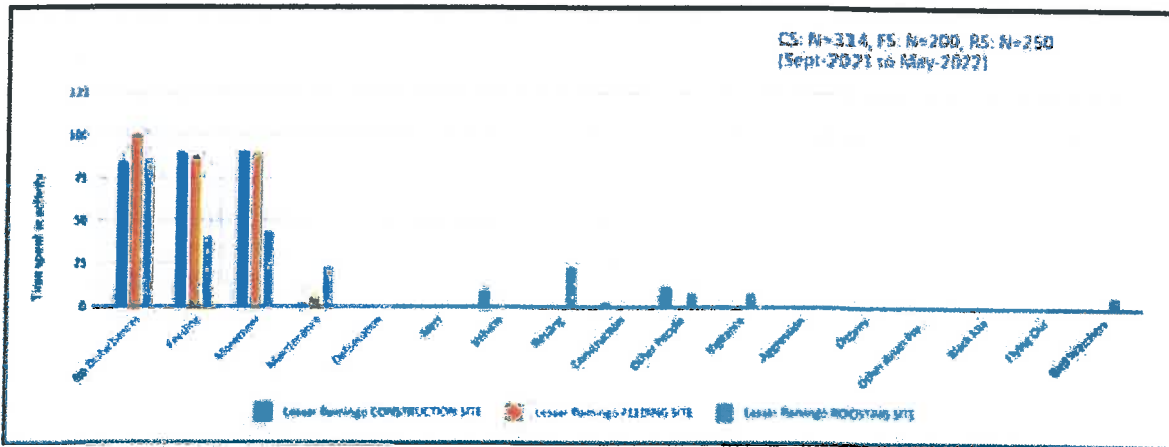


Fig. 16: Activity budget of Lesser flamingo at feeding, roosting and construction site

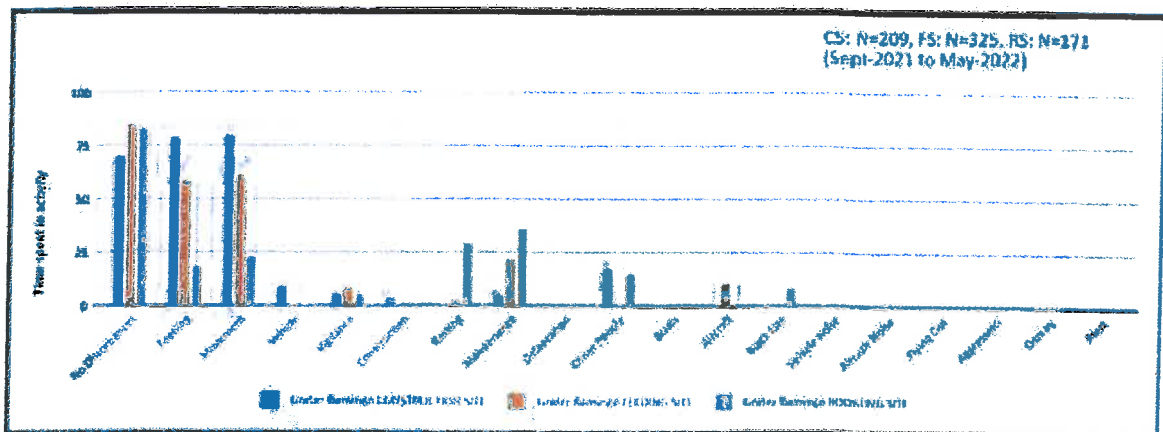


Fig. 17: Activity budget of Greater flamingo at feeding, roosting and construction site

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	<i>Himantopus himantopus</i>	Black winged stilt	0	0	0	0	0	3	1	4
2	<i>Limosa limosa</i>	Black-tailed godwit	5	0	0	6	5	5	0	21
3	<i>Calidris falcinellus</i>	Broad-billed sandpiper	17	75	19	47	14	36	16	224
4	<i>Gallinago gallinago</i>	Common snipe	0	0	1	1	0	0	0	2
5	<i>Anas crecca</i>	Common teal	2	0	0	2	0	0	0	4
6	<i>Tringa nebularia</i>	Common greenshank	9	0	1	7	2	19	4	42
7	<i>Tringa totanus</i>	Common redshank	179	43	96	209	147	149	17	840
8	<i>Actitis hypoleucos</i>	Common sandpiper	31	26	12	10	6	12	15	112
9	<i>Calidris ferruginea</i>	Curlew sandpiper	161	246	205	237	241	298	277	1665
10	<i>Calidris alpina</i>	Dunlin	26	107	65	63	70	23	2	356
11	<i>Numenius arquata</i>	Eurasian curlew	1	0	0	1	0	3	0	5
12	<i>Calidris tenuirostris</i>	Great knot	0	2	3	3	0	0	0	8
13	<i>Phoenicopterus roseus</i>	Greater flamingo	0	0	0	2	1	1	1	5
14	<i>Rostratula benghalensis</i>	Greater painted snipe	0	0	0	0	0	0	1	1
15	<i>Charadrius leschenaultii</i>	Greater sand plover	1	1	0	2	3	1	0	8
16	<i>Tringa ochropus</i>	Green sandpiper	1	0	0	0	0	1	0	2
17	<i>Pluvialis squatarola</i>	Grey plover	0	2	4	1	3	1	3	14
18	<i>Phalacrocorax fuscicollis</i>	Indian cormorant	1	0	0	0	2	0	0	3
19	<i>Charadrius alexandrinus</i>	Kentish plover	0	3	2	1	3	0	0	9
20	<i>Phoeniconaias minor</i>	Lesser flamingo	0	0	0	0	12	18	1	31
21	<i>Charadrius mongolus</i>	Lesser sand plover	236	509	537	271	413	220	191	2377
22	<i>Charadrius dubius</i>	Little ringed plover	1	1	2	0	0	0	0	4
23	<i>Calidris minuta</i>	Little stint	375	232	154	153	272	182	311	1679
24	<i>Sternula albifrons</i>	Little tern	0	0	60	18	26	25	36	165
25	<i>Tringa stagnatilis</i>	Marsh sandpiper	5	1	7	11	14	36	6	80
26	<i>Spatula clypeata</i>	Northern shoveler	0	2	1	0	0	0	0	3
27	<i>Pluvialis fulva</i>	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	<i>Calidris canutus</i>	Red knot	0	0	0	1	0	0	0	1
29	<i>Vanellus indicus</i>	Red-wattled lapwing	2	0	0	0	0	0	0	2
30	<i>Areneria interpres</i>	Ruddy turnstone	2	1	0	0	1	4	3	11
31	<i>Calidris pugnax</i>	Ruff	1	0	0	0	0	0	0	1
32	<i>Sternula saundersi</i>	Saunders's tern	0	14	53	54	3	11	10	145
33	<i>Larus genei</i>	Slender billed gull	0	0	0	0	1	0	0	1
34	<i>Tringa erythropus</i>	Spotted redshank	0	0	0	0	0	0	1	1
35	<i>Calidris temminckii</i>	Temminck's stint	13	12	0	0	0	3	0	28
36	<i>Xenus cinereus</i>	Terek sandpiper	26	37	63	28	17	18	61	250
37	<i>Numenius phaeopus</i>	Whimbrel	0	1	0	0	0	2	0	3
38	<i>Chlidonias hybrida</i>	Whiskered tern	0	44	0	0	0	0	0	44
39	<i>Tringa glareola</i>	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	<i>Calidris falcinellus</i>	Broad-billed sandpiper	0	2	0	3	1	1	4	11
2	<i>Tringa nebularia</i>	Common greenshank	0	0	0	0	0	1	0	1
3	<i>Tringa totanus</i>	Common redshank	47	1	10	57	45	79	14	253
4	<i>Actitis hypoleucos</i>	Common sandpiper	0	4	0	2	5	0	3	14
5	<i>Calidris ferruginea</i>	Curlew sandpiper	11	10	10	26	23	36	43	159
6	<i>Calidris alpina</i>	Dunlin	0	1	4	6	2	3	1	17
7	<i>Calidris tenuirostris</i>	Great knot	0	0	1	0	0	0	0	1
8	<i>Charadrius leschenaultii</i>	Greater sand plover	0	0	0	0	0	1	0	1
9	<i>Pluvialis squatarola</i>	Grey plover	0	0	0	1	0	0	0	1
10	<i>Charadrius mongolus</i>	Lesser sand plover	10	10	21	15	37	19	25	137
11	<i>Calidris minuta</i>	Little stint	16	2	3	3	7	3	10	44
12	<i>Sternula albifrons</i>	Little tern	0	0	0	0	1	1	1	3
13	<i>Tringa stagnatilis</i>	Marsh sandpiper	0	1	1	0	0	1	0	3
14	<i>Pluvialis fulva</i>	Pacific golden plover	0	0	0	0	0	0	1	1
15	<i>Areneria interpres</i>	Ruddy turnstone	0	0	1	0	0	0	0	1
16	<i>Sternula saundersi</i>	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	<i>Xenus cinereus</i>	Terek sandpiper	2	7	5	4	8	6	24	56
18	<i>Tringa glareola</i>	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	<i>Himantopus himantopus</i>	Black winged stilt	0	0	0	0	0	1	0	1
2	<i>Limosa limosa</i>	Black-tailed godwit	0	1	1	0	7	24	10	43
3	<i>Calidris falcinellus</i>	Broad-billed sandpiper	0	1	4	0	0	3	0	8
4	<i>Tringa nebularia</i>	Common greenshank	0	9	5	1	1	1	1	18
5	<i>Tringa totanus</i>	Common redshank	30	38	40	6	35	58	8	215
6	<i>Actitis hypoleucos</i>	Common sandpiper	0	0	0	1	0	1	0	2
7	<i>Calidris ferruginea</i>	Curlew sandpiper	22	35	81	2	23	52	36	251
8	<i>Calidris alpina</i>	Dunlin	0	0	13	2	2	9	1	27
9	<i>Phoenicopterus roseus</i>	Greater flamingo	0	0	0	0	0	1	0	1
10	<i>Charadrius leschenaultii</i>	Greater sand plover	0	0	0	0	1	3	0	4
11	<i>Pluvialis squatarola</i>	Grey plover	1	1	1	0	3	10	9	25
12	<i>Phoeniconaias minor</i>	Lesser flamingo	0	0	0	0	3	0	0	3
13	<i>Charadrius mongolus</i>	Lesser sand plover	17	28	39	2	25	212	45	368
14	<i>Charadrius dubius</i>	Little ringed plover	0	0	0	2	0	0	0	2
15	<i>Calidris minuta</i>	Little stint	15	13	37	2	6	21	12	106
16	<i>Tringa stagnatilis</i>	Marsh sandpiper	0	1	5	1	16	26	0	49
17	<i>Pluvialis fulva</i>	Pacific golden plover	0	0	0	0	0	0	1	1
18	<i>Areneria interpres</i>	Ruddy turnstone	4	0	3	0	0	0	0	7
19	<i>Xenus cinereus</i>	Terek sandpiper	0	1	2	1	4	3	1	12
20	<i>Tringa glareola</i>	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.

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)

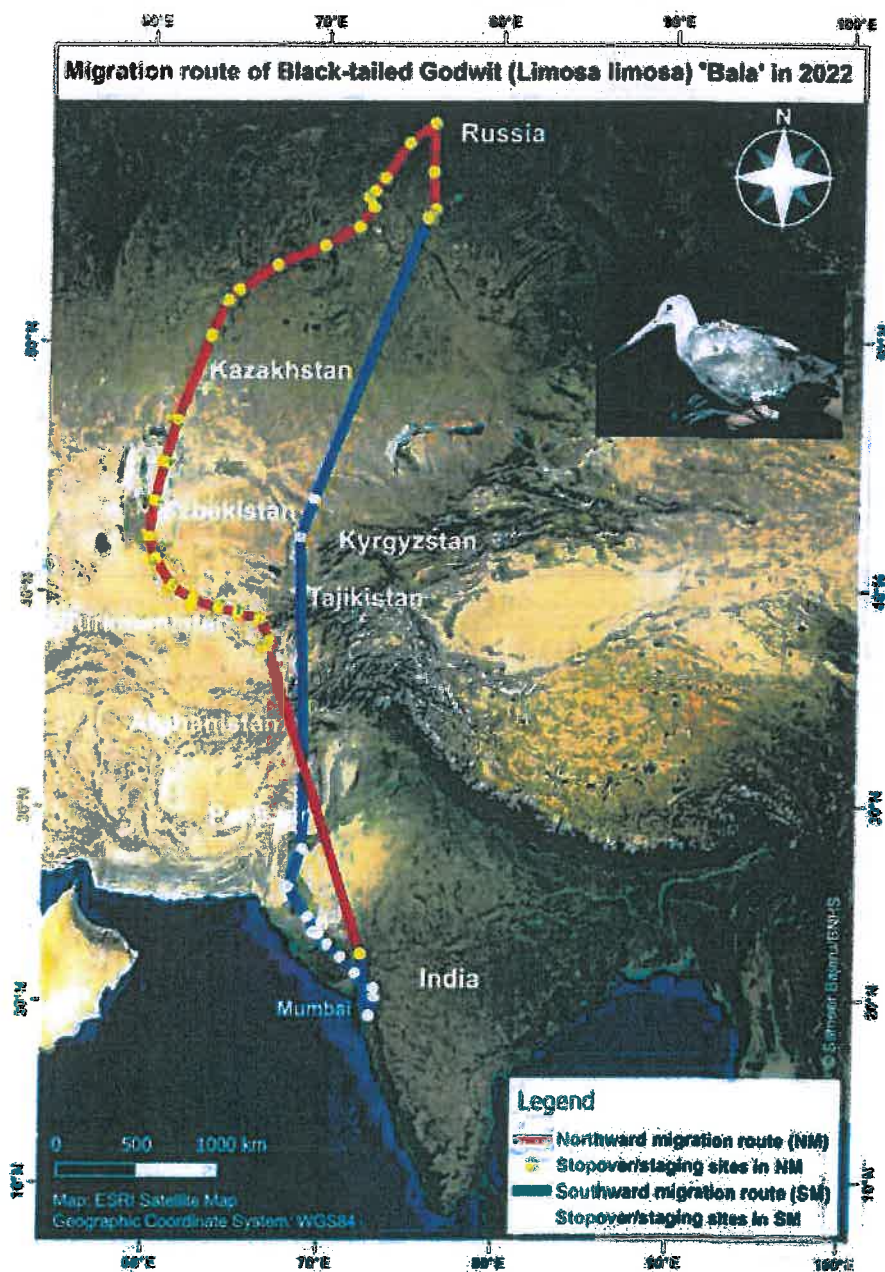


Fig. 18: Complete migration route of Black—tailed godwit "Bala"



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, Odontella 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/m³,1508.78g/m³). During the entire study period, it was observed that the total macrobenthic density and biomass of East bank was (58030.38/m³,961.78g/m³), East-West bank was (1602.46/m³,0.389g/m³) and West bank exhibited (44541.82/m³ 546.52g/m³). 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 E I (5715.01/m³,117.71g/m³), E II (13748.75/m³, 203.41g/m³), E III (8607.09/m³, 527.0g/m³) E IV (6404.06/m³, 136.56g/m³) and E V (1928.45/m³, 4.31g/m³). The Pre-monsoon season exhibited the least density and biomass at all the clusters: E I (2423.14/m³, 0.97g/m³), E II (5197.00/m³, 12.07g/m³), E III (8168.00/m³, 12.46g/m³) E IV (4405.00/m³, 42.98g/m³) and E V (1433.57/m³, 5.84g/m³). The highest values of density were observed during Post-monsoon season for cluster E II (13748.75/m³), whereas least values were observed during Pre-monsoon season for cluster E V (1433.57/m³). The highest biomass was observed in cluster E III during Post-monsoon season (527.00g/m³) Lowest biomass was noted in E I during Pre-monsoon season (0.97g/m³). 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/m³,117.71g/m³) to Pre-monsoon season (2423.14/m³,0.97g/m³). 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/m³) than that of the Pre-monsoon season (0.32g/m³).



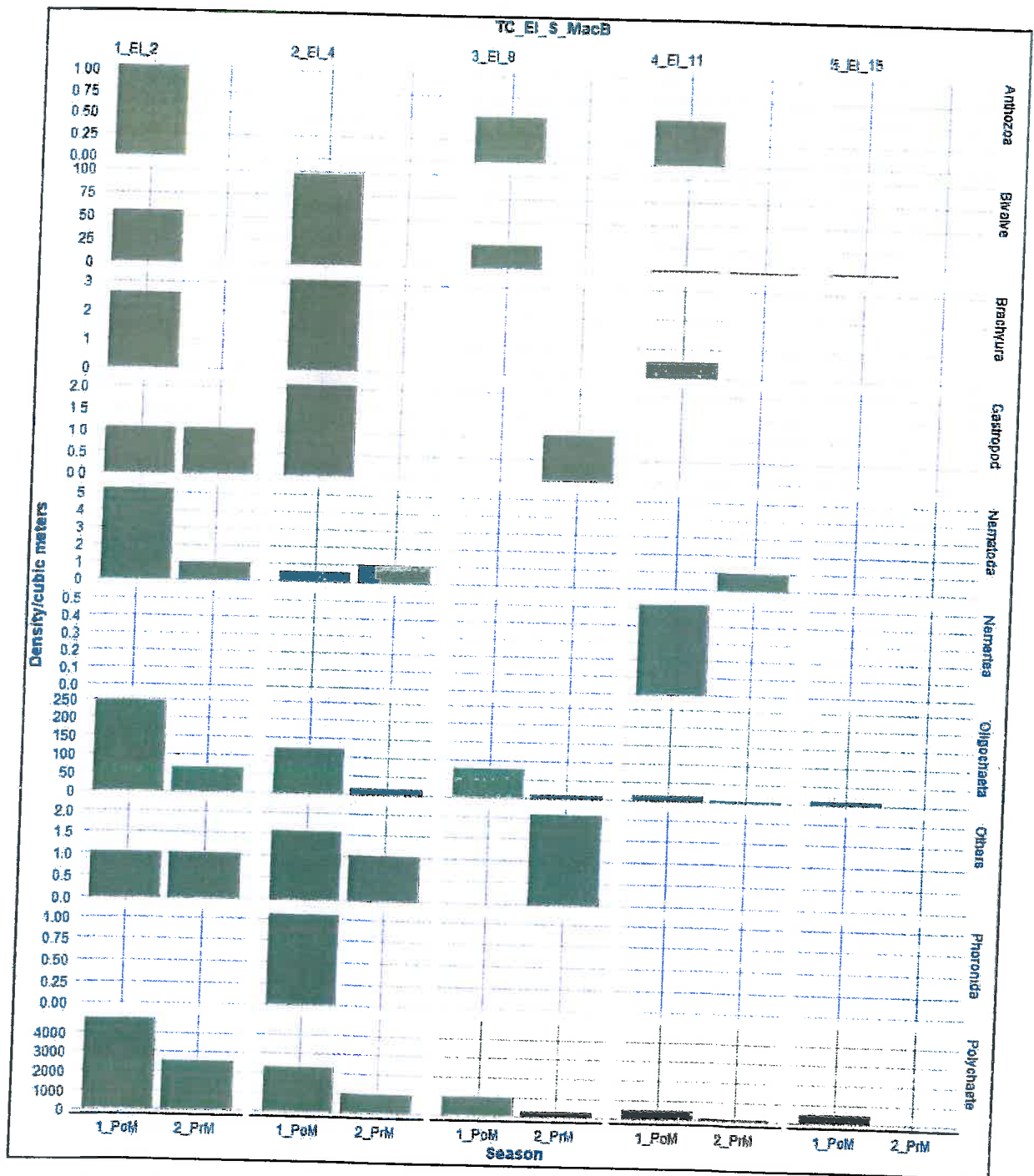


Fig. 21.1: Vertical stratification of macro-benthic density /m³ in the intertidal mudflats of EI cluster of Thane creek during the study period 2021-22

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.



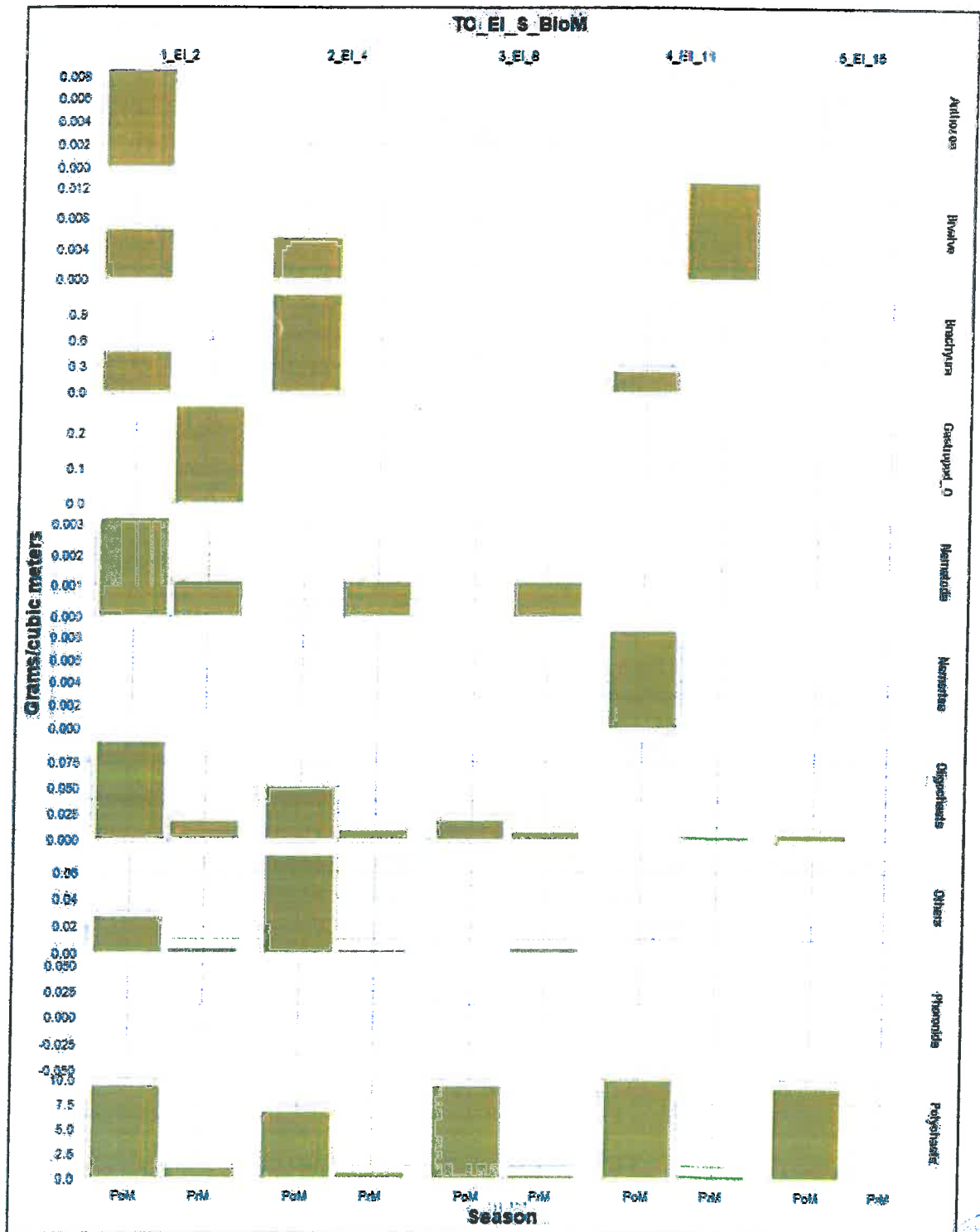


Fig. 21.2: Vertical stratification of macro-benthic biomass g/m³ in the intertidal mudflats of EI cluster of Thane creek during the study period 2021-22



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).

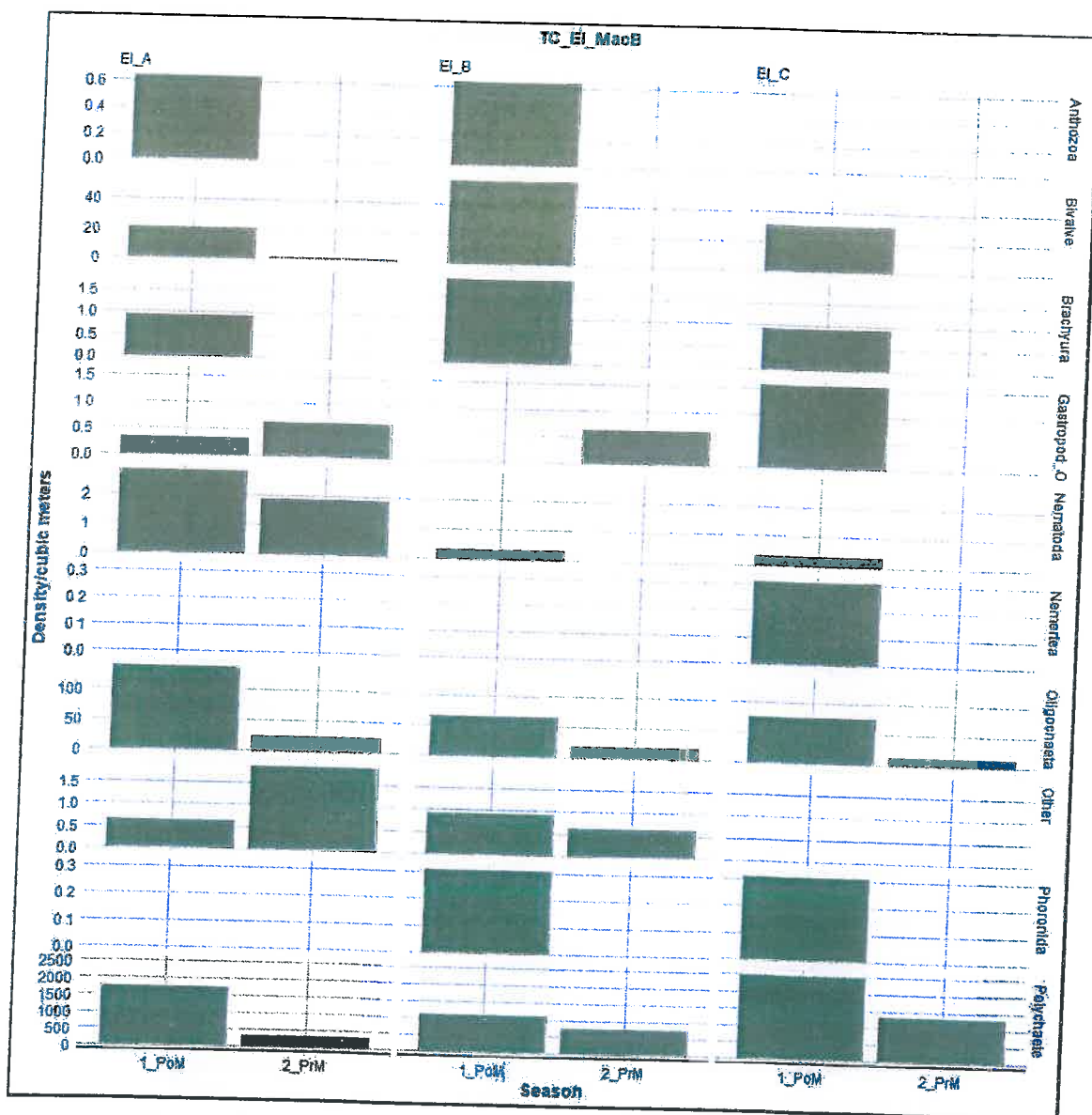


Fig. 21.3: Zonal variation of macrobenthic density/ m³ in the intertidal mudflats of EI cluster of Thane creek during 2021-22

Intertidal zonation:

During the Post-monsoon season, Zone C had exhibited the highest macrobenthic density (2574.06/m³) followed by Zone A (1899.07/m³) and Zone B (1241.88/m³). During the Pre-monsoon season, Zone C had exhibited the highest macrobenthic density (1306.88/m³) followed by Zone B (762.51/m³) and Zone A (353.76/m³). 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/m³) followed by Zone C (8.72 g/m³) and Zone B (2.97 g/m³) during the Post-Monsoon season. Zone C (0.39g/m³) showed the highest biomass followed by Zone A (8.72g/m³) and Zone B (2.97g/m³) 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/m³, 67.80g/m³) to Pre-monsoon season (2722.03/m³, 4.02g/m³) season. There was a decline in the macrobenthic diversity from Post-monsoon season (10 No) to Pre-monsoon season (5 No).



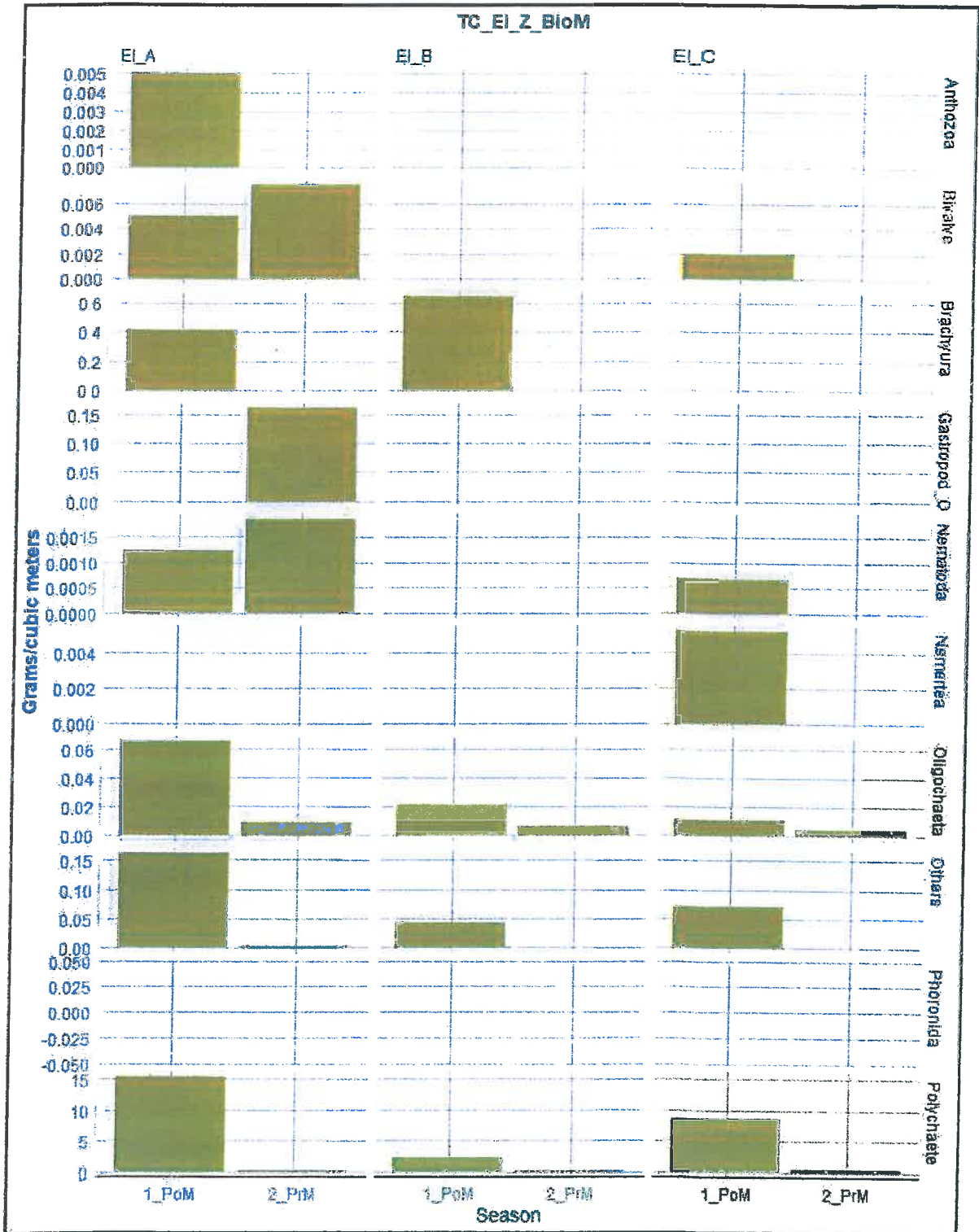


Fig. 21.4: Zonal variation of macrobenthic Biomass g/m³ in the intertidal mudflats of EI cluster of Thane creek during the study period 2021-22



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, Oligochaeta, Bivalve and Gastropod were observed in all strata during both seasons.

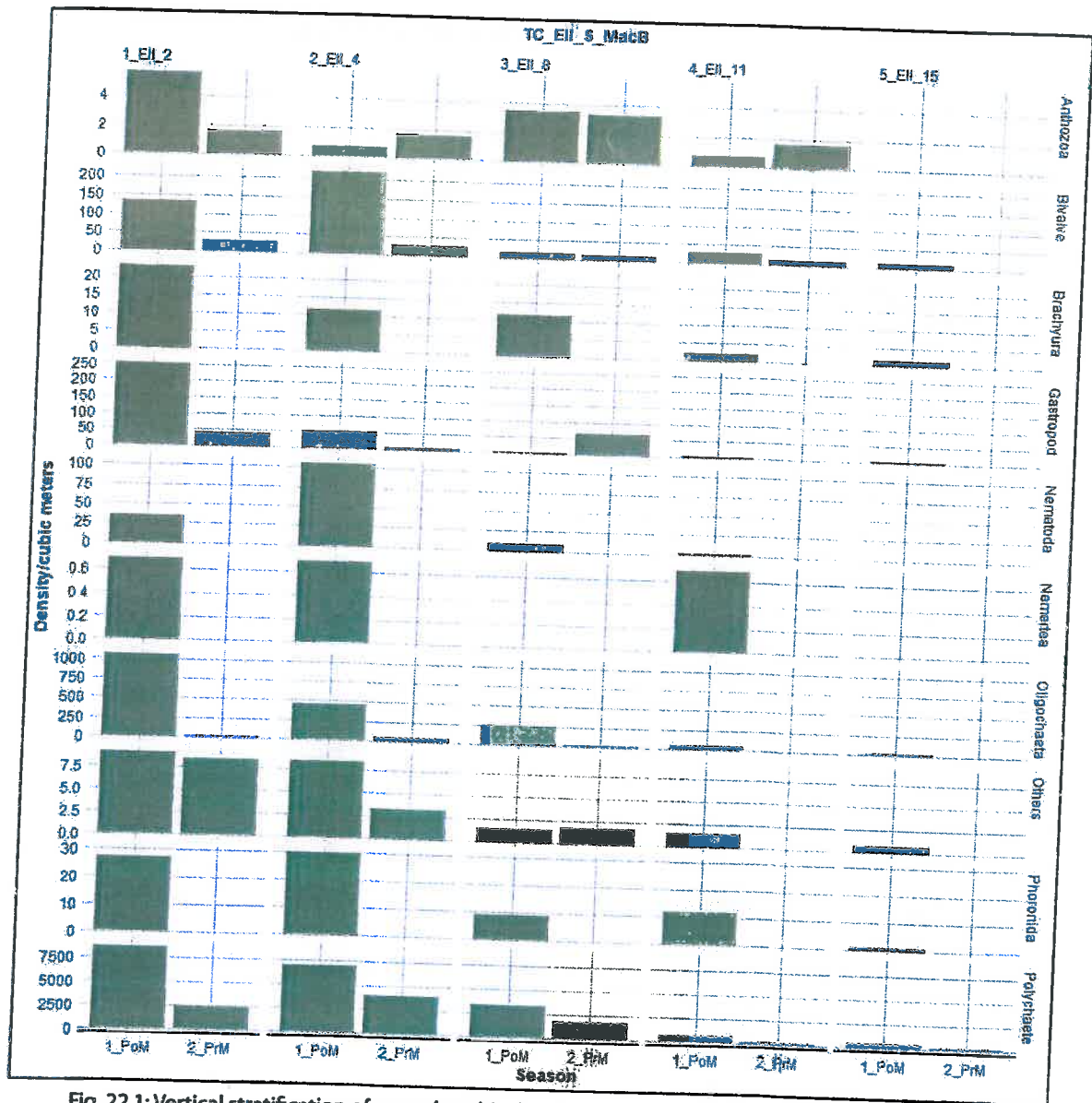


Fig. 22.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of EII cluster of Thane creek during the study period 2021-22

Polychaete (51.99g/m³) shows higher biomass followed by Bivalve (9.62g/m³), Gastropod (3.74g/m³), Brachyura (1.10g/m³), Phoronida (0.42g/m³) during the Post-monsoon season. During Pre-monsoon season, the higher biomass was shown by Polychaete (2.86g/m³) followed by Bivalve (.46g/m³), Gastropod (0.44g/m³), Anthozoa (0.26 g/m³).

Intertidal zonation:

Maximum contribution towards overall macrobenthic density was observed from Zone B (6897.41/ m³) and the least density was observed from Zone C (5676.74/m³) during both seasons. Polychaete density have increased from Zone B (4568.33/m³) to Zone A (3938.33/m³) in Post-monsoon season. During Pre-monsoon season, Zone C (1788/m³) exhibited highest density of Polychaete followed by Zone B (1675/m³) and Zone A (1547/m³). During Post-monsoon season, Polychaete (155.98 g/m³) had maximum contribution to overall biomass followed by Bivalves (28.76 g/m³), Gastropoda(11.13 g/m³),. During the Pre-monsoon season, Polychaete biomass (8.58 g/m³) was highest followed by Bivalves (1.37 g/m³) and Gastropoda, (1.31 g/m³).



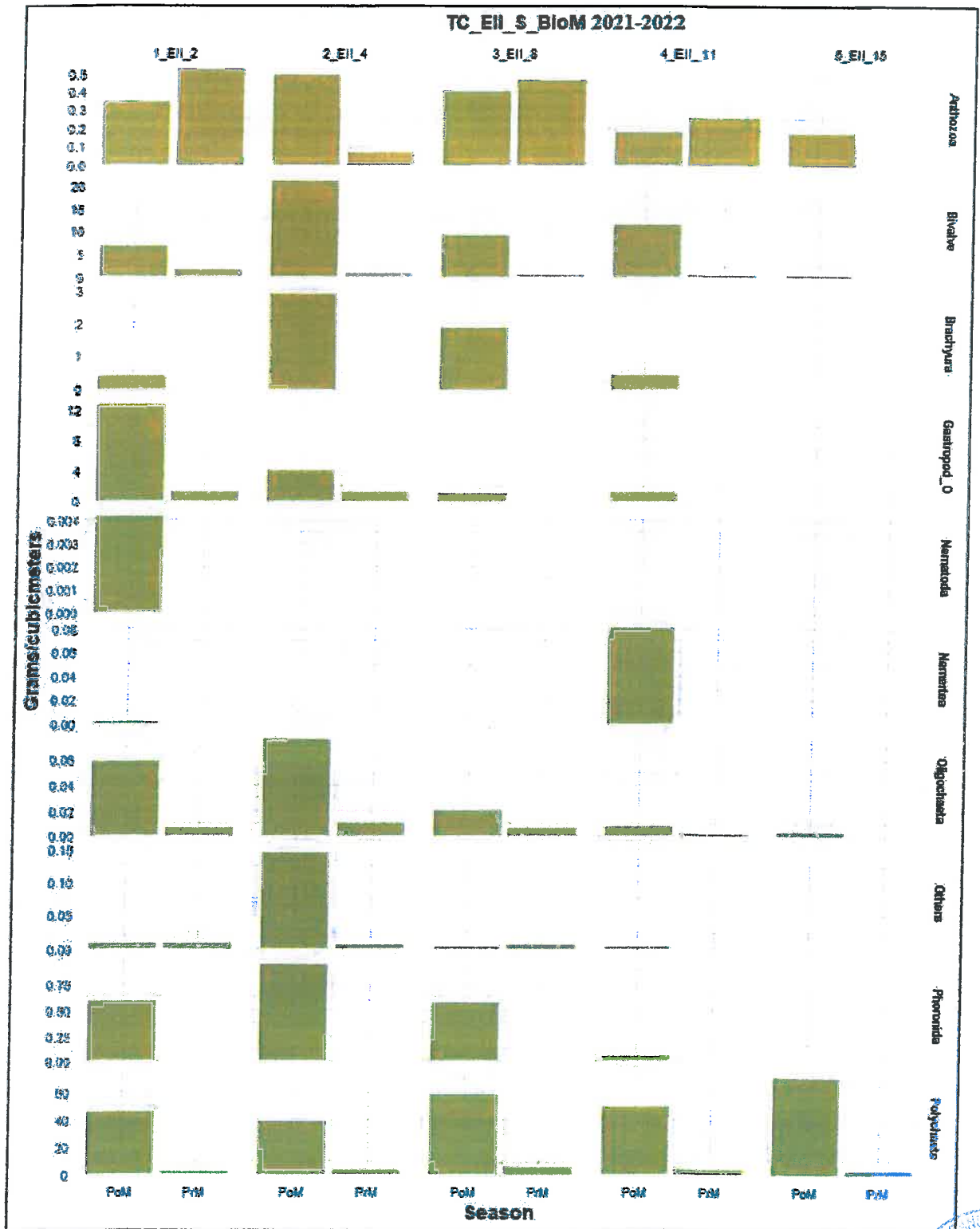


Fig. 22.2: Vertical stratification of macro-benthic biomass g/m³ in the intertidal mudflats of EII cluster of Thane creek during the study period 2021-22



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.

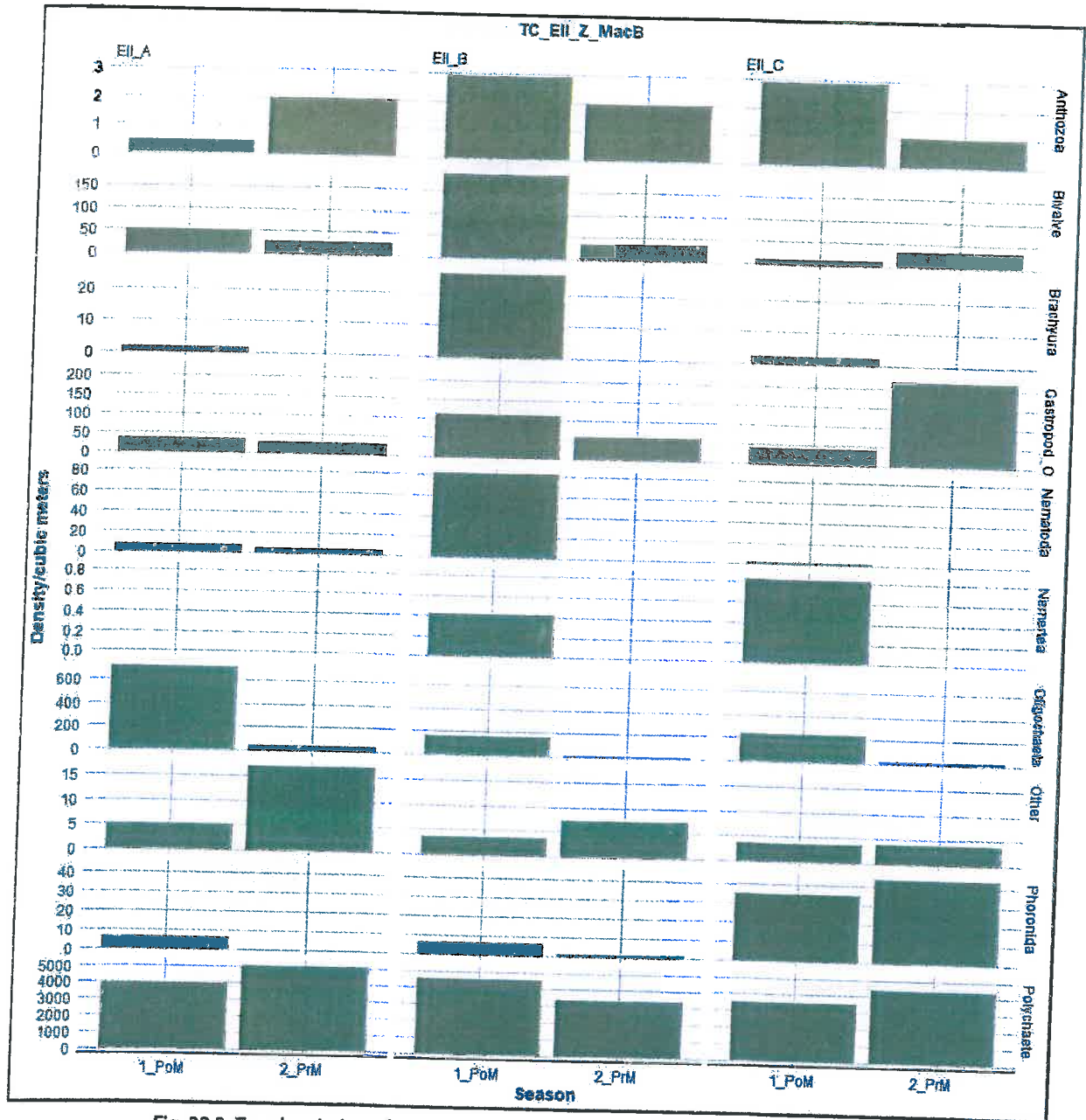


Fig. 22.3: Zonal variation of macrobenthic density/m³ in the intertidal mudflats of E II cluster of Thane creek during 2021-22

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.



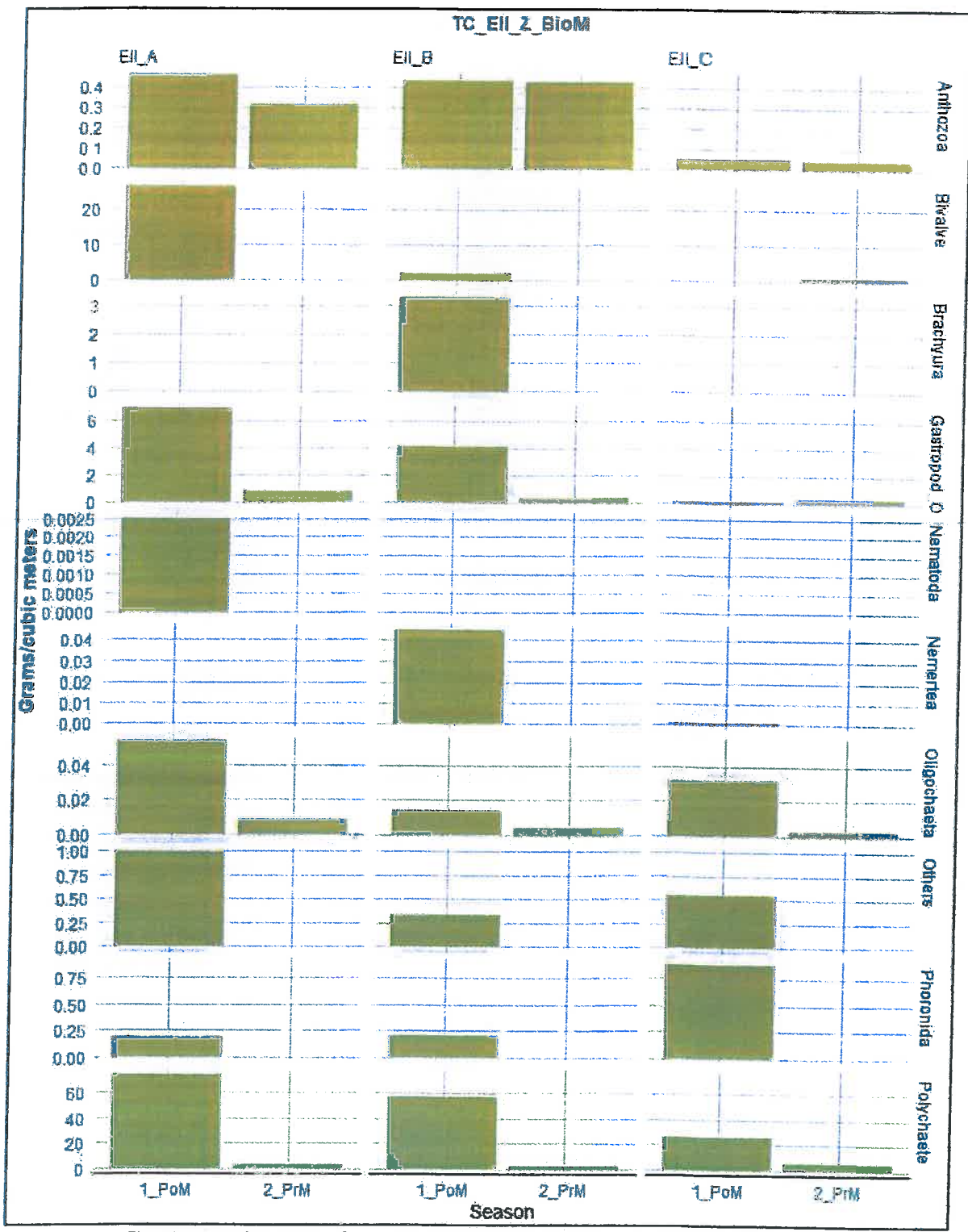


Fig. 22.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of EII cluster of Thane creek during the study period 2021-22

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



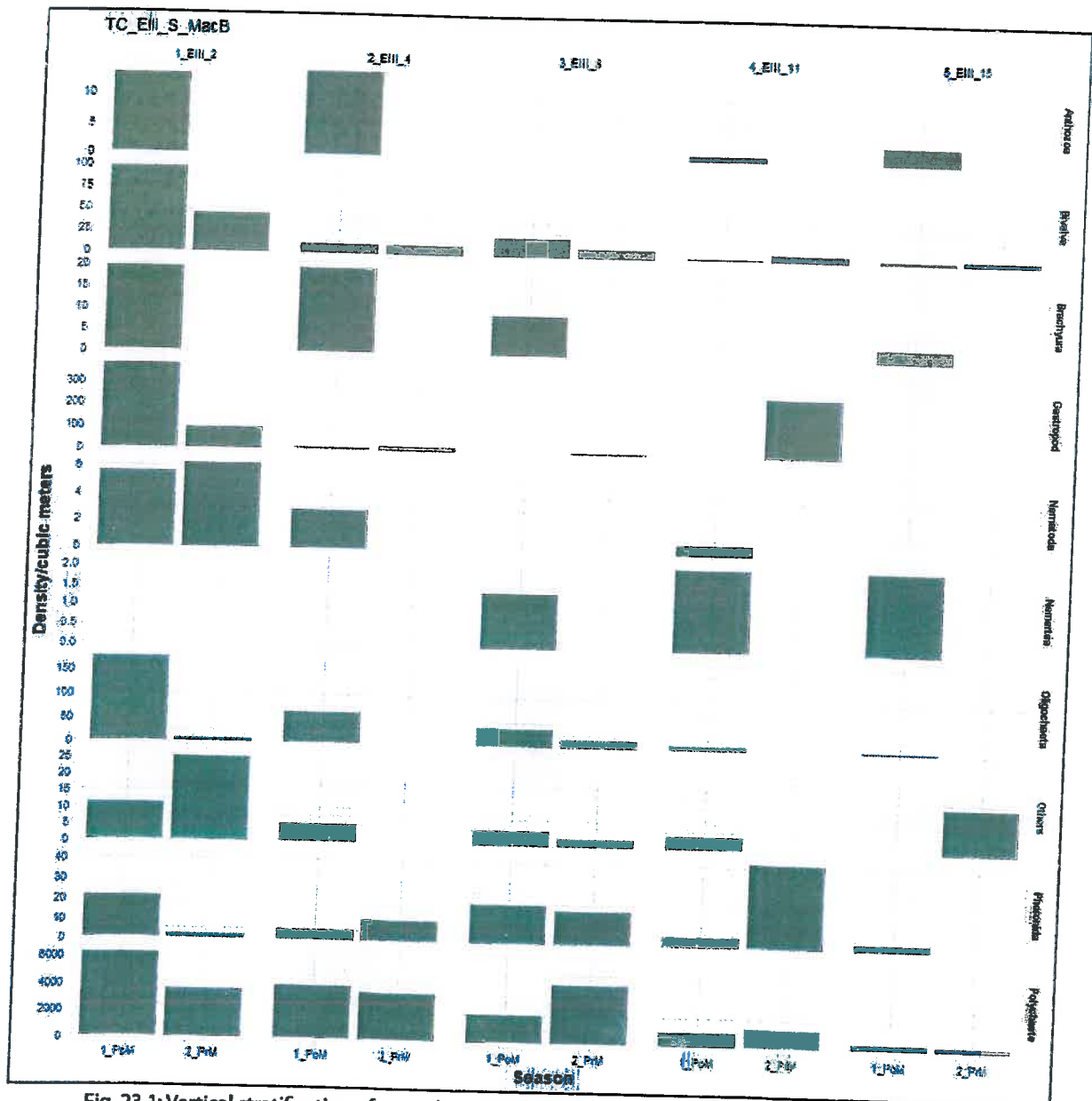


Fig. 23.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of EIII cluster of Thane creek during the study period 2021-22

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.



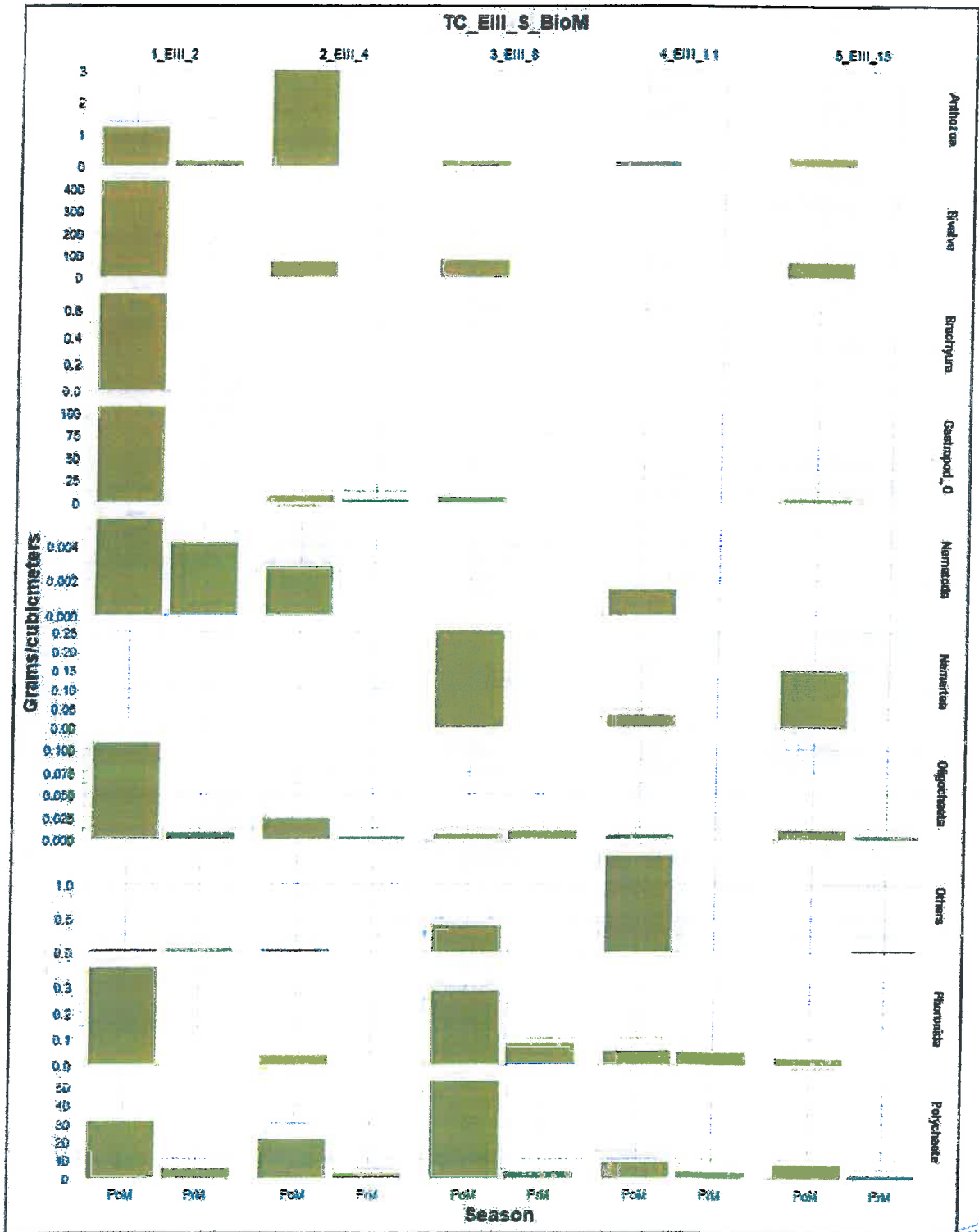


Fig. 23.2: Vertical stratification of macro-benthic biomass g/m³ in the intertidal mudflats of EIII cluster of Thane creek during the study period 2021-22



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 (102.53g/m³) followed by upper stratum 0-2 cm (53.11g/m³), lower stratum 11-15 cm (46.07g/m³), 2-4

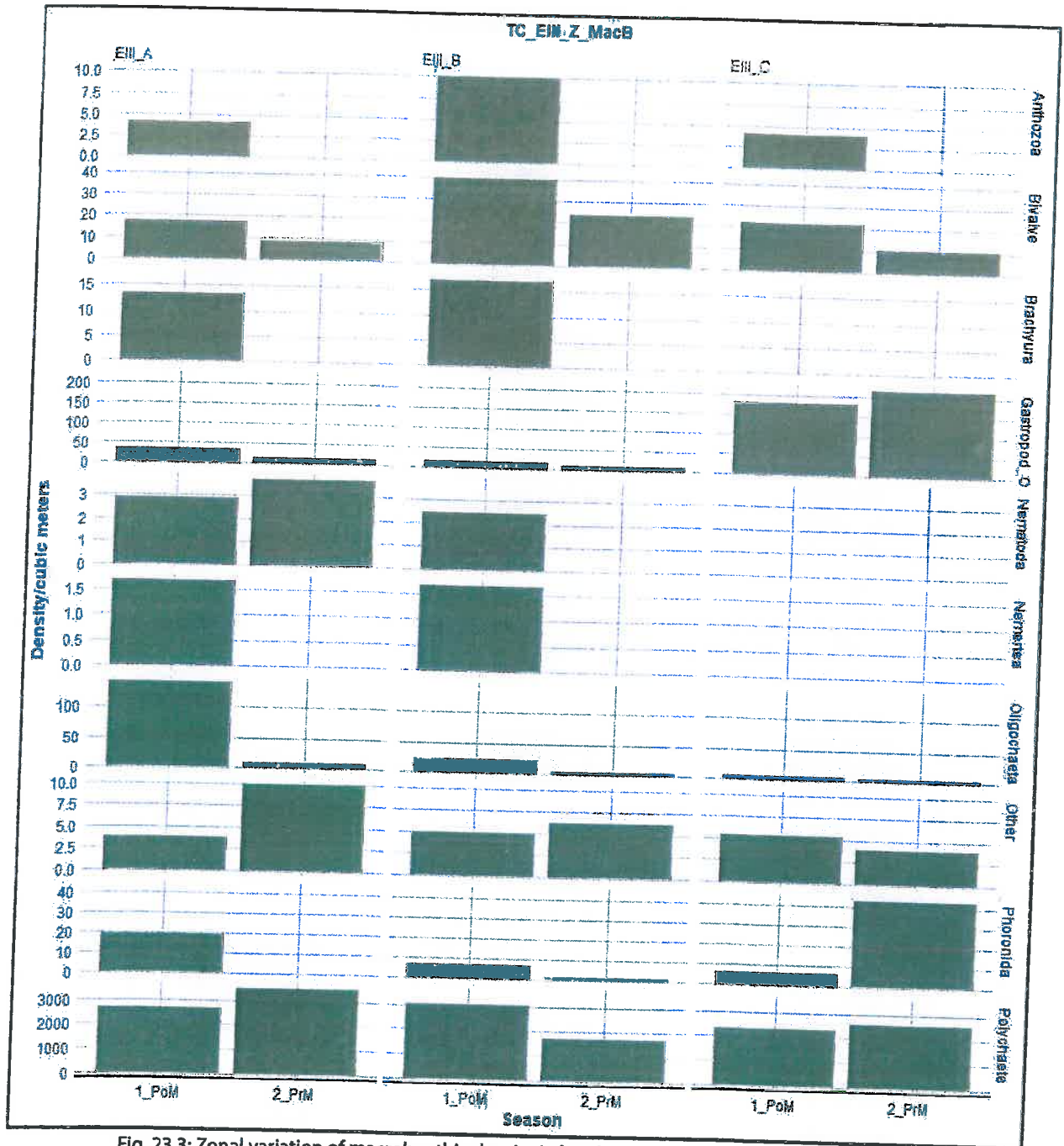


Fig. 23.3: Zonal variation of macrobenthic density/m³ in the intertidal mudflats of EIII cluster of Thane creek during 2021-22

cm(24.26g/m³) and 4-8 cm(16.01g/m³) 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/ m³) followed by strata 2-4 cm (4276.57/m³) and stratum 4-8 cm (2727.25/ m³). Brachyura (10.93/ m³) showed the least contribution to the overall density followed by Nematoda (11.97/ m³).

Intertidal Zonation

Polychaete had contributed maximum to the overall macrobenthic density (9926.13/ m³). Macro benthic density has declined from Zone B (2248.44/m³) during Post-monsoon season followed by Zone C (2141.25/m³) and Zone A (2014.37/m³). During Pre-monsoon season, Zone B (2106.6/ m³) exhibited



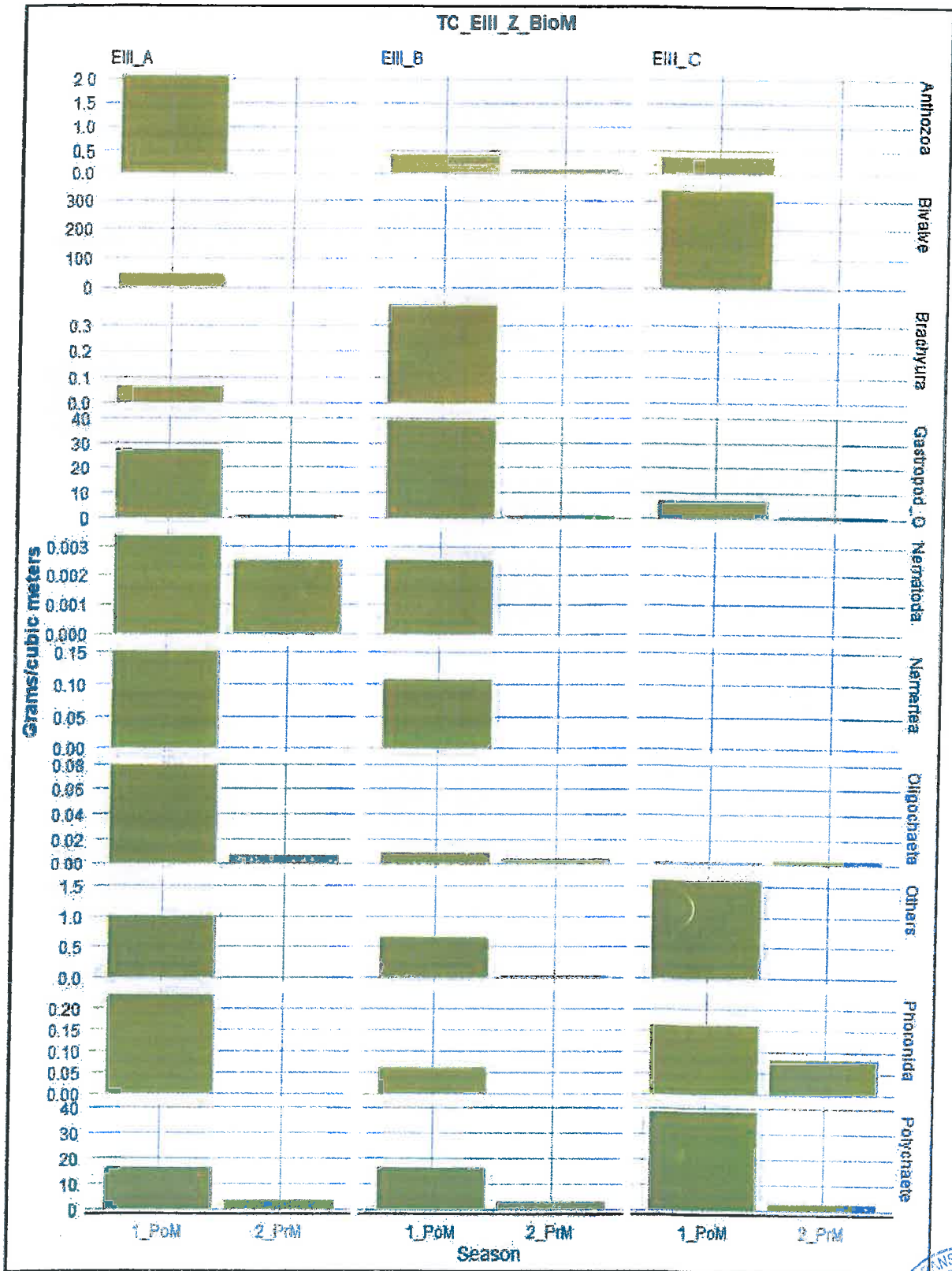


Fig. 23.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of EIII cluster of Thane creek during the study period 2021-22

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).



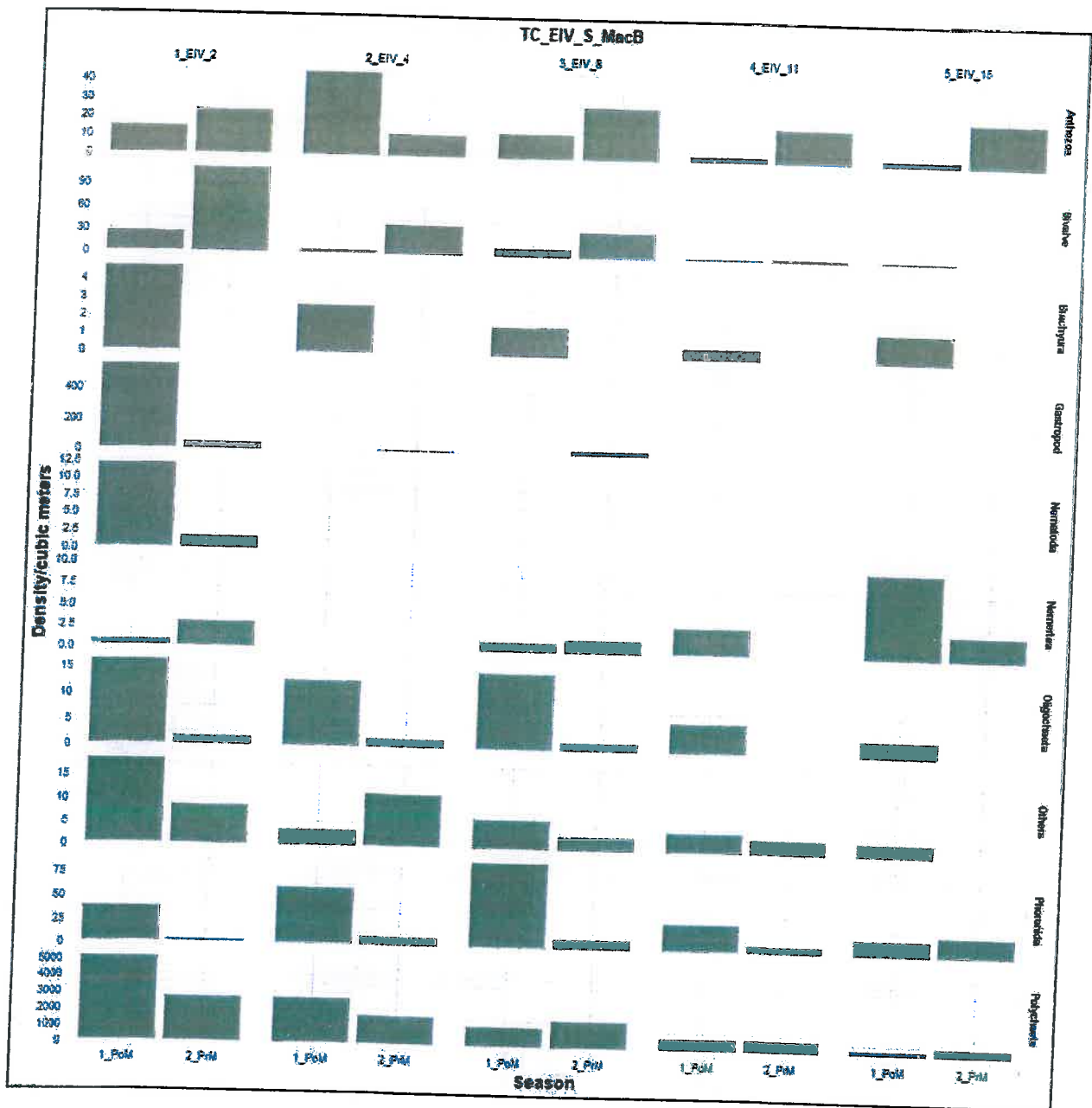


Fig. 24.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of EIV cluster of Thane creek during the study period 2021-22

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



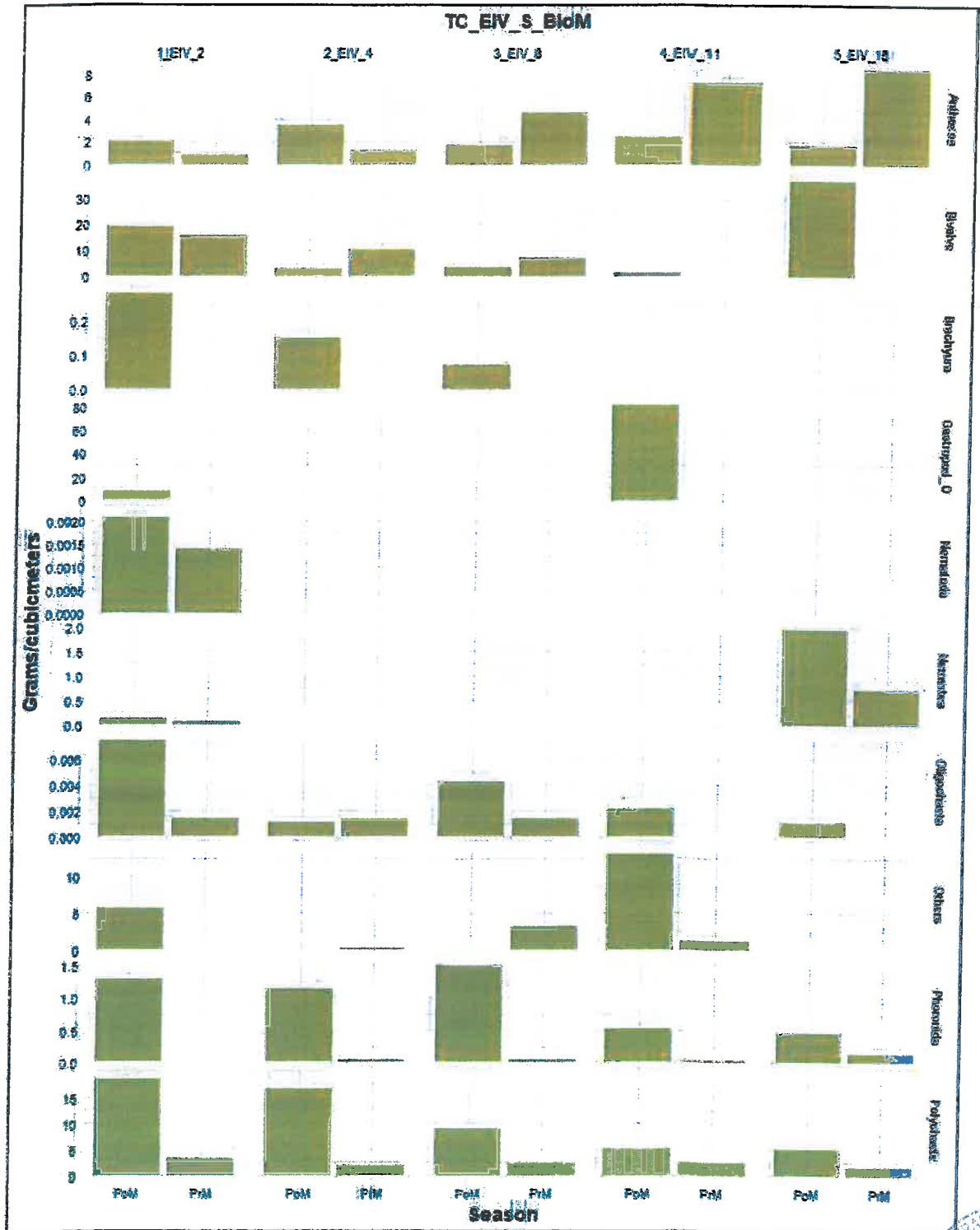


Fig. 24.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of EIV cluster of Thane creek during the study period 2021-22

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/

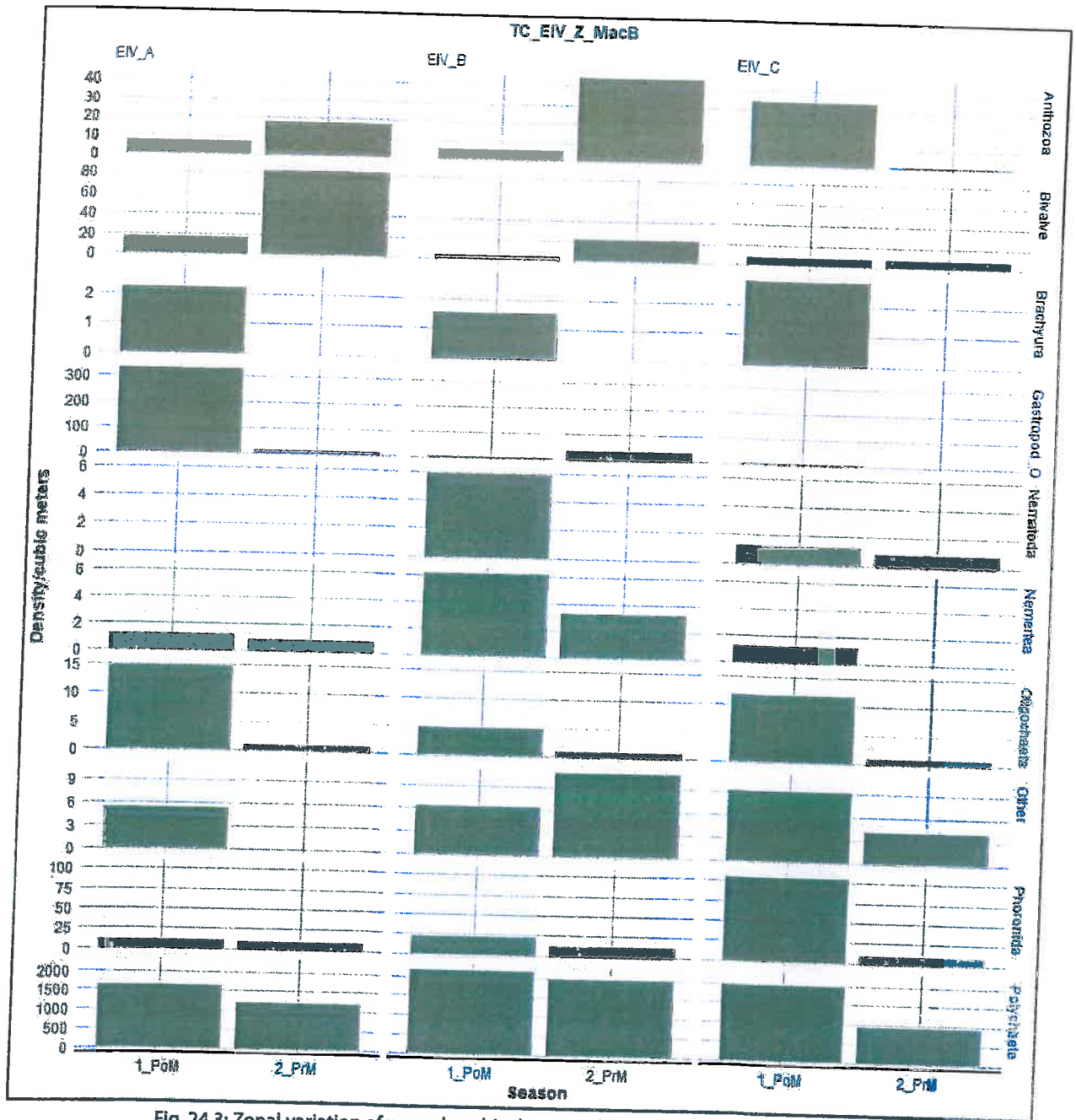


Fig. 24.3: Zonal variation of macrobenthic density/m³ in the intertidal mudflats of E IV cluster of Thane creek during 2021-22

m³) followed by Zone B (565.71/m³) and Zone C (272.86/m³) in Pre-monsoon season. Zone A (1.59g/m³) had exhibited highest biomass during Post-monsoon and Zone B (3.40g/m³) 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/m³; avg. 0.129g/m³), was noted during the Post-monsoon season, whereas Pre-monsoon season showed comparatively less macrobenthic density and biomass (40.23/m³; 0.003g/m³).



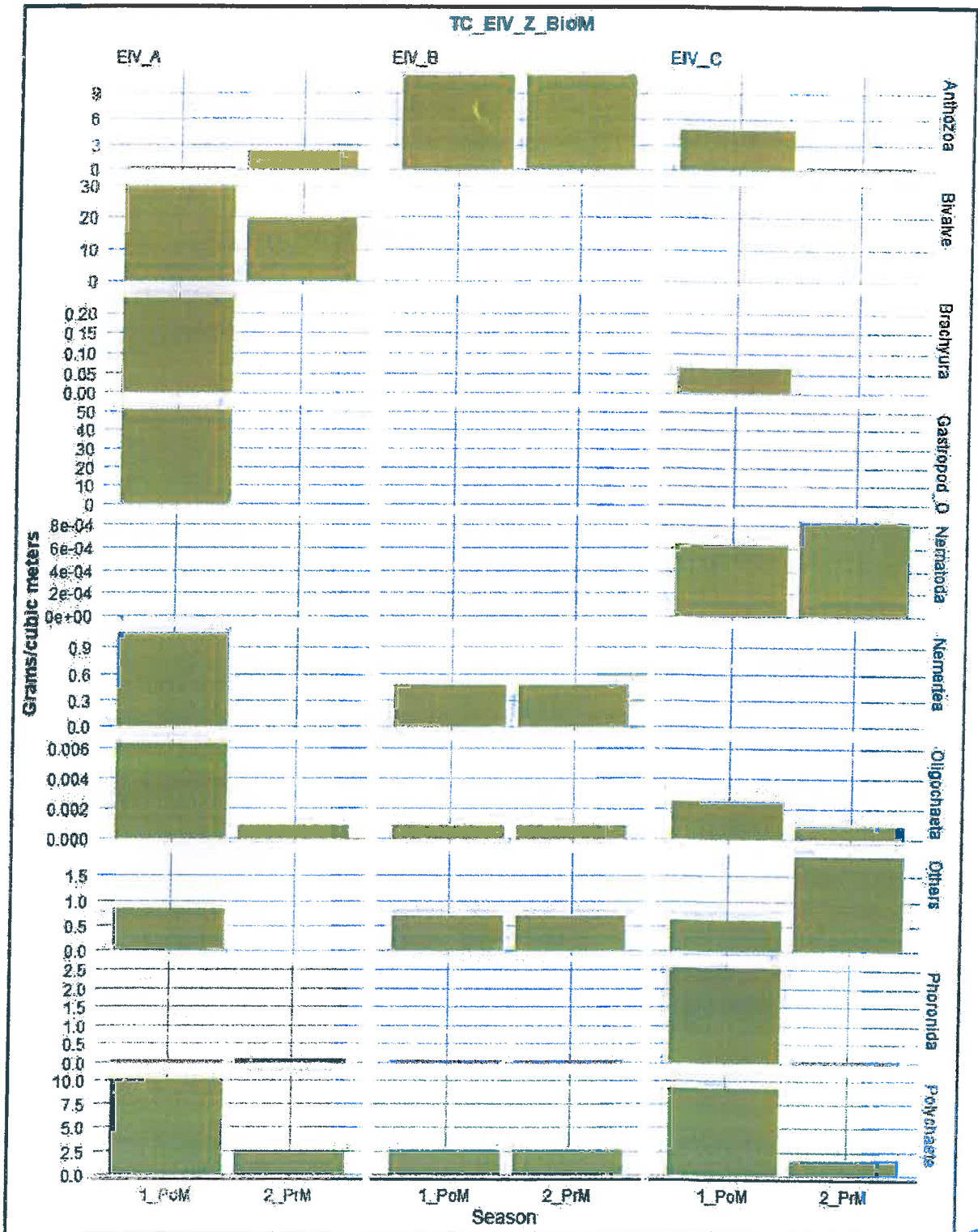


Fig. 24.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of E IV cluster of Thane creek during the study period 2021-22



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

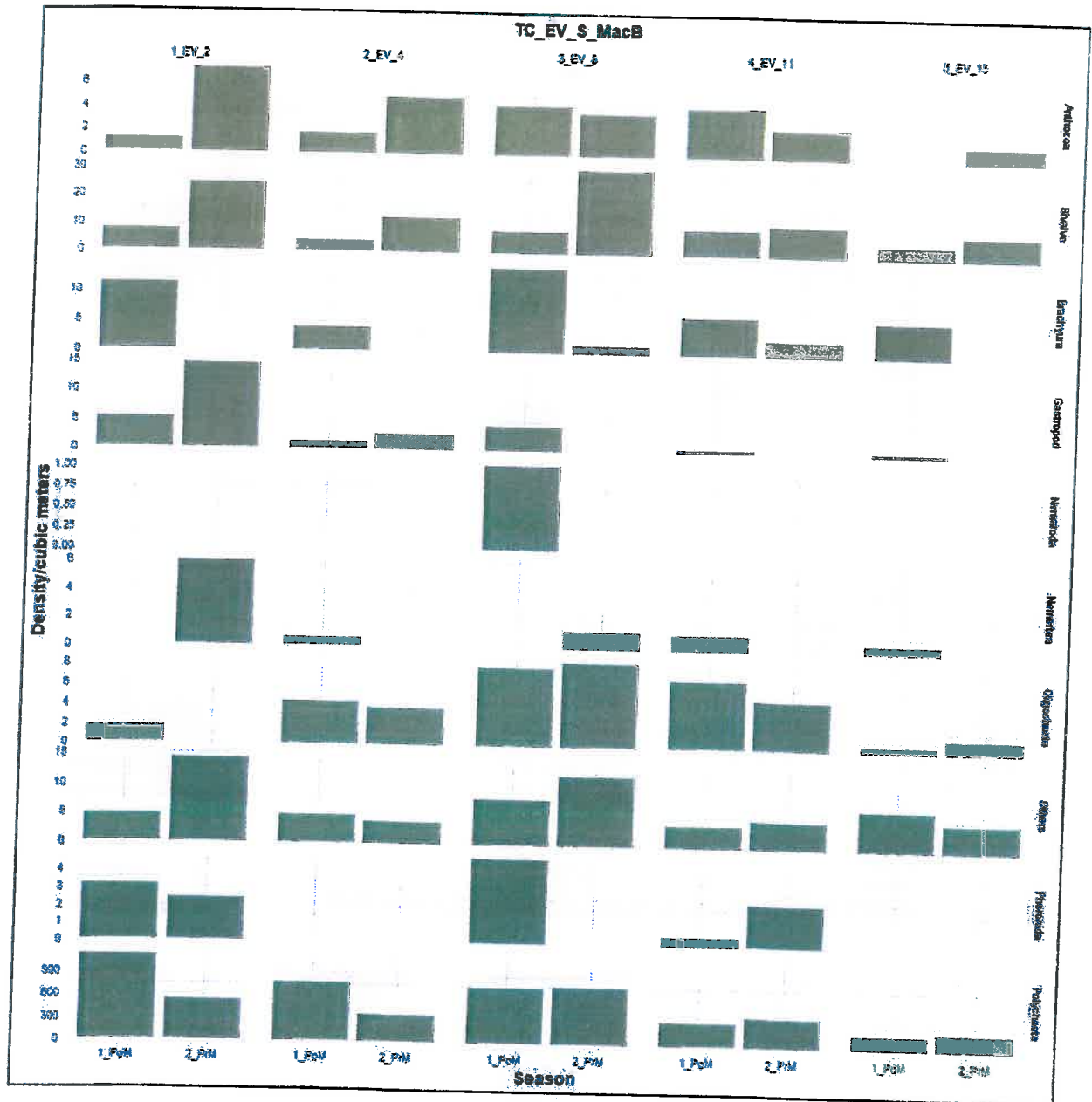


Fig. 25.1: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of EV cluster of Thane creek during 2021-22

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 to 15 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



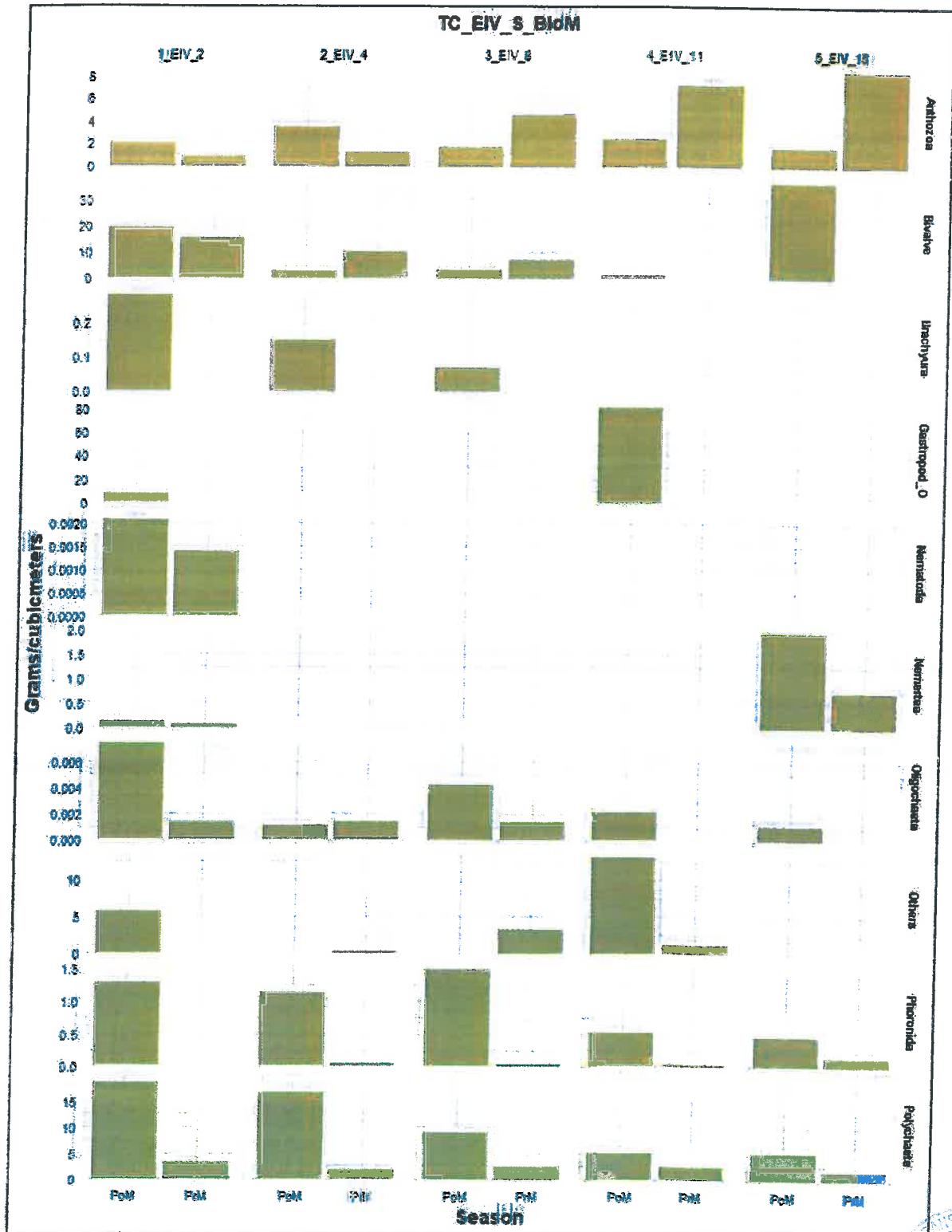


Fig. 24.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of EIV cluster of Thane creek during the study period 2021-22

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.



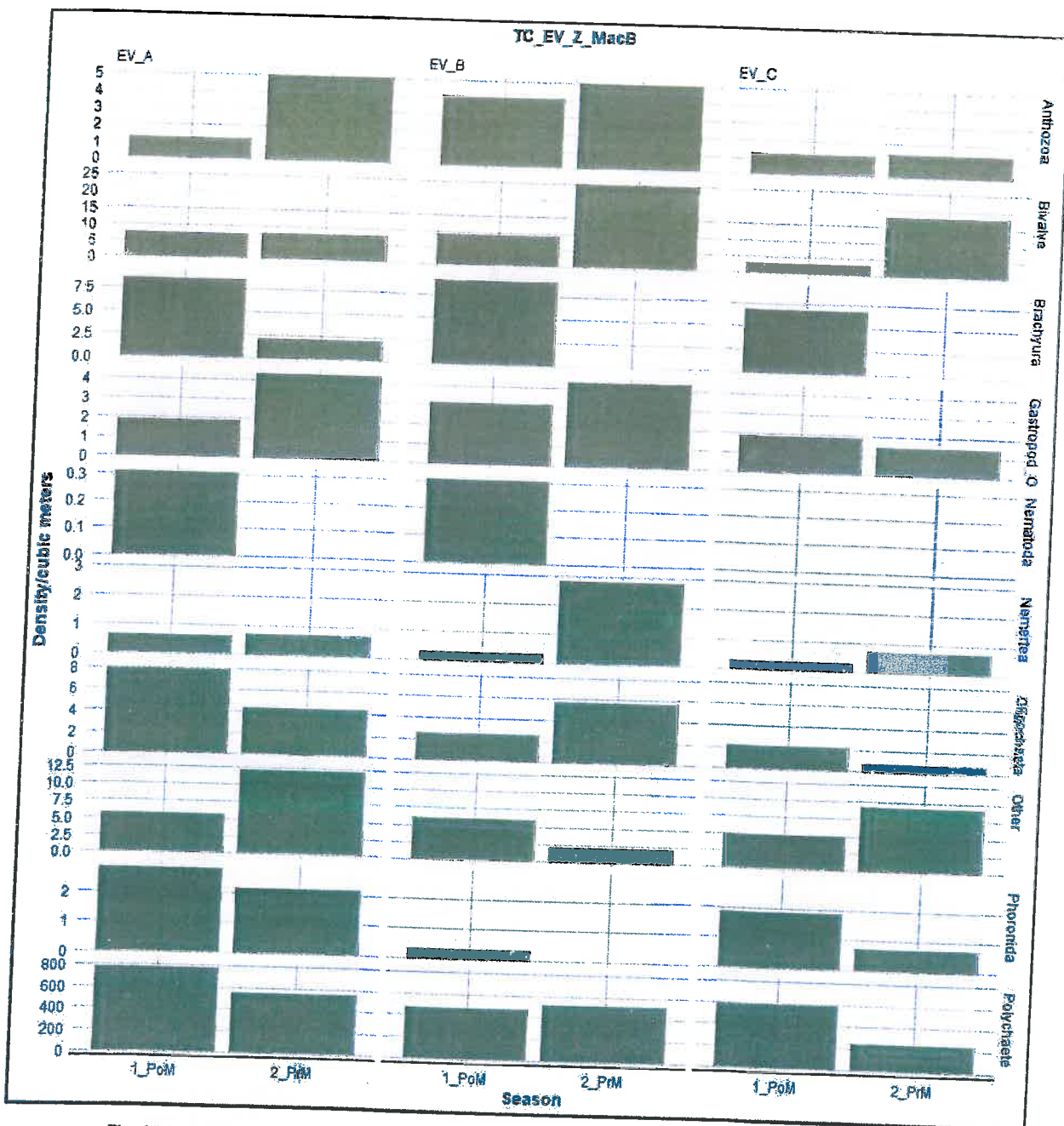


Fig. 25.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of EV cluster of Thane creek during 2021-22

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/m³, 127.98g/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



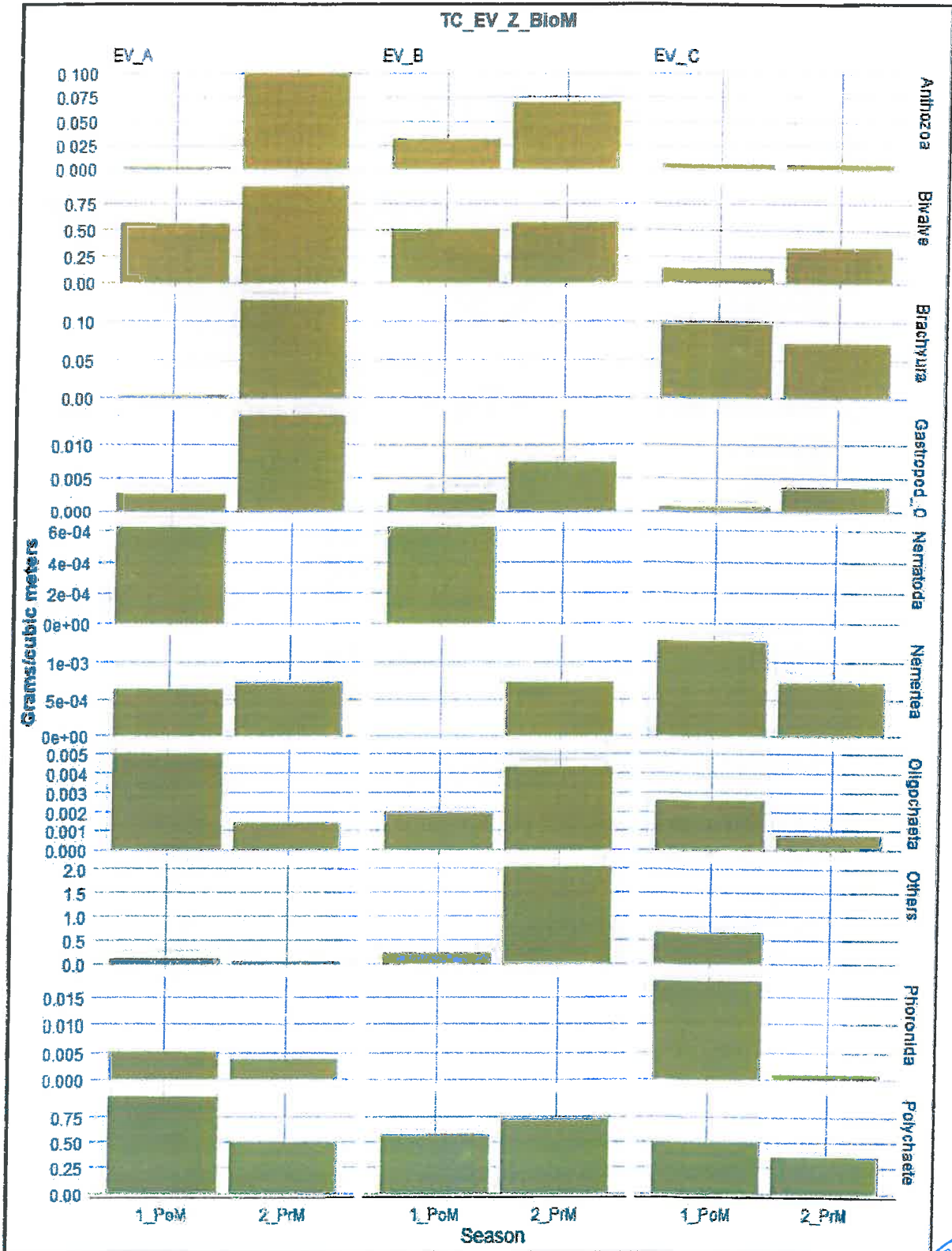
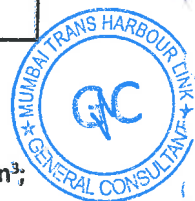


Fig. 25.4: Zonal variation of macrobenthic biomass g/m³ in the Intertidal mudflats of EV cluster of Thane creek during the study period 2021-22

(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.



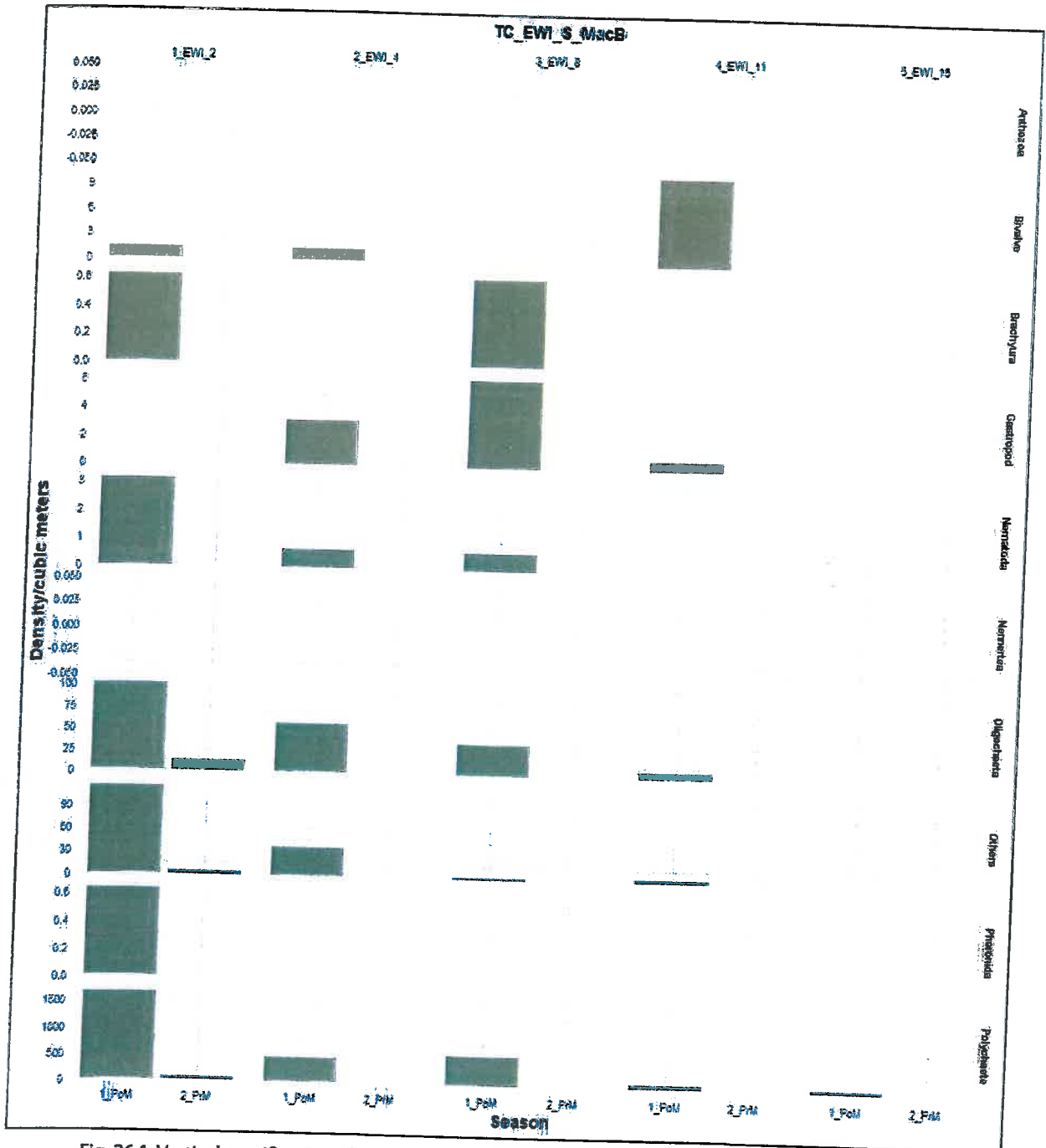


Fig. 26.1: Vertical stratification of macrobenthic density /m³ in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021-22

The highest values of biomass were observed in the Post-monsoon season for cluster WIII (127.98g/m³) and WIV (29.92g/m³). The least values of biomass were observed during Pre-monsoon season at WI (0.160 g/m³).

WI (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/m³, 4.244g/m³) to Pre-monsoon season (1536.6/m³, 0.160 g/m³)



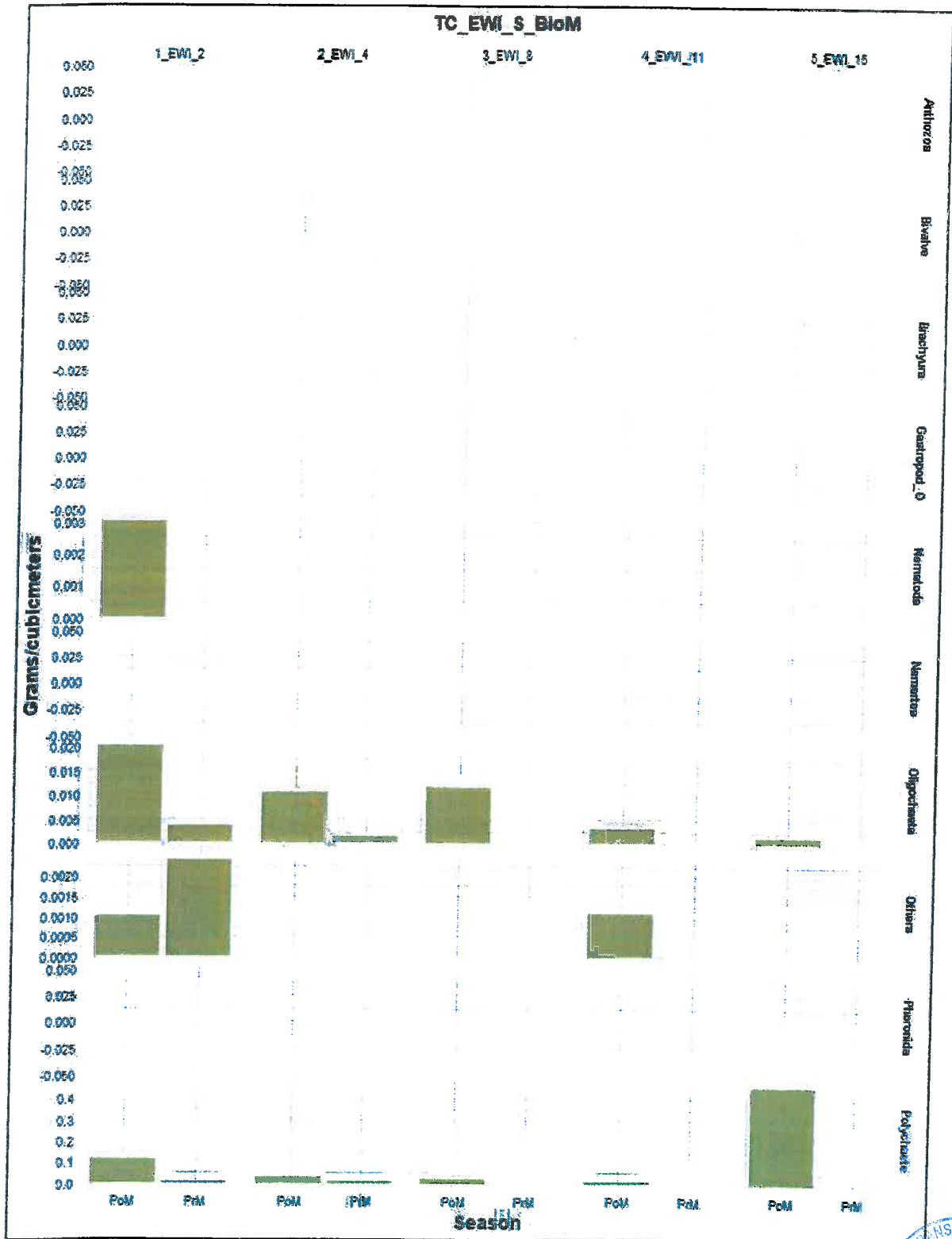


Fig. 26.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021-22

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-



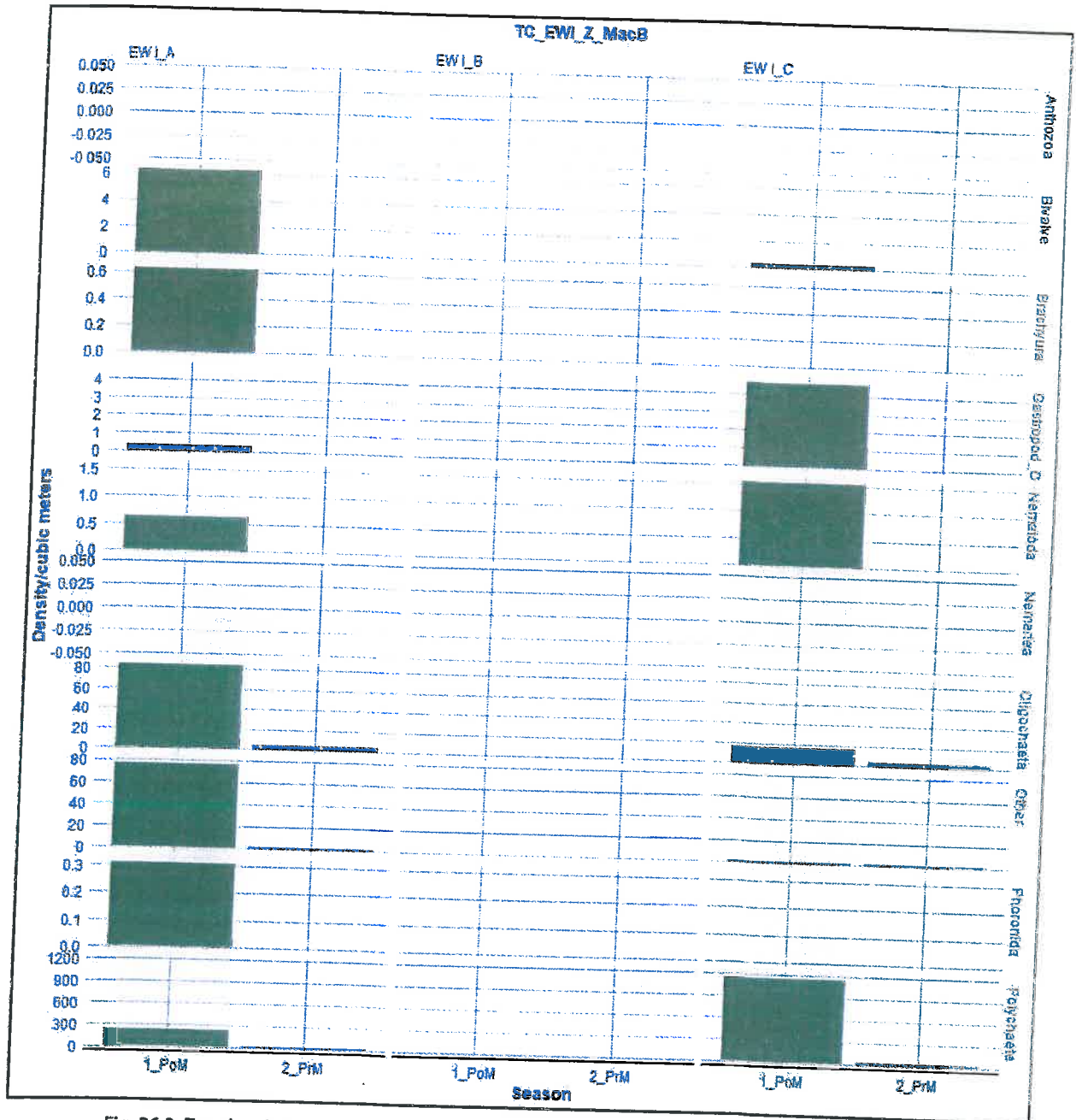


Fig. 26.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021-22

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



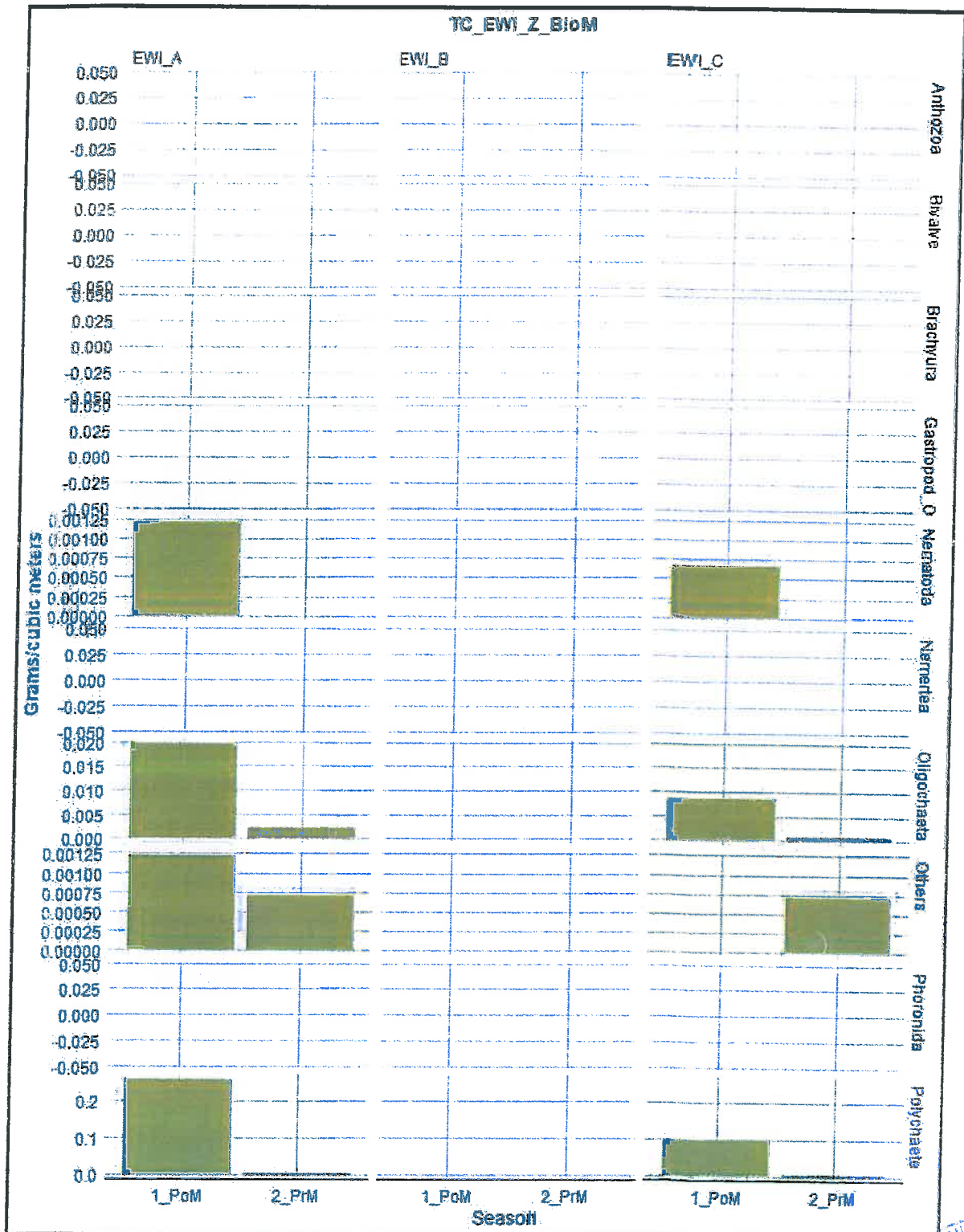


Fig. 26.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of EWI cluster of Thane creek during the study period 2021-22

(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



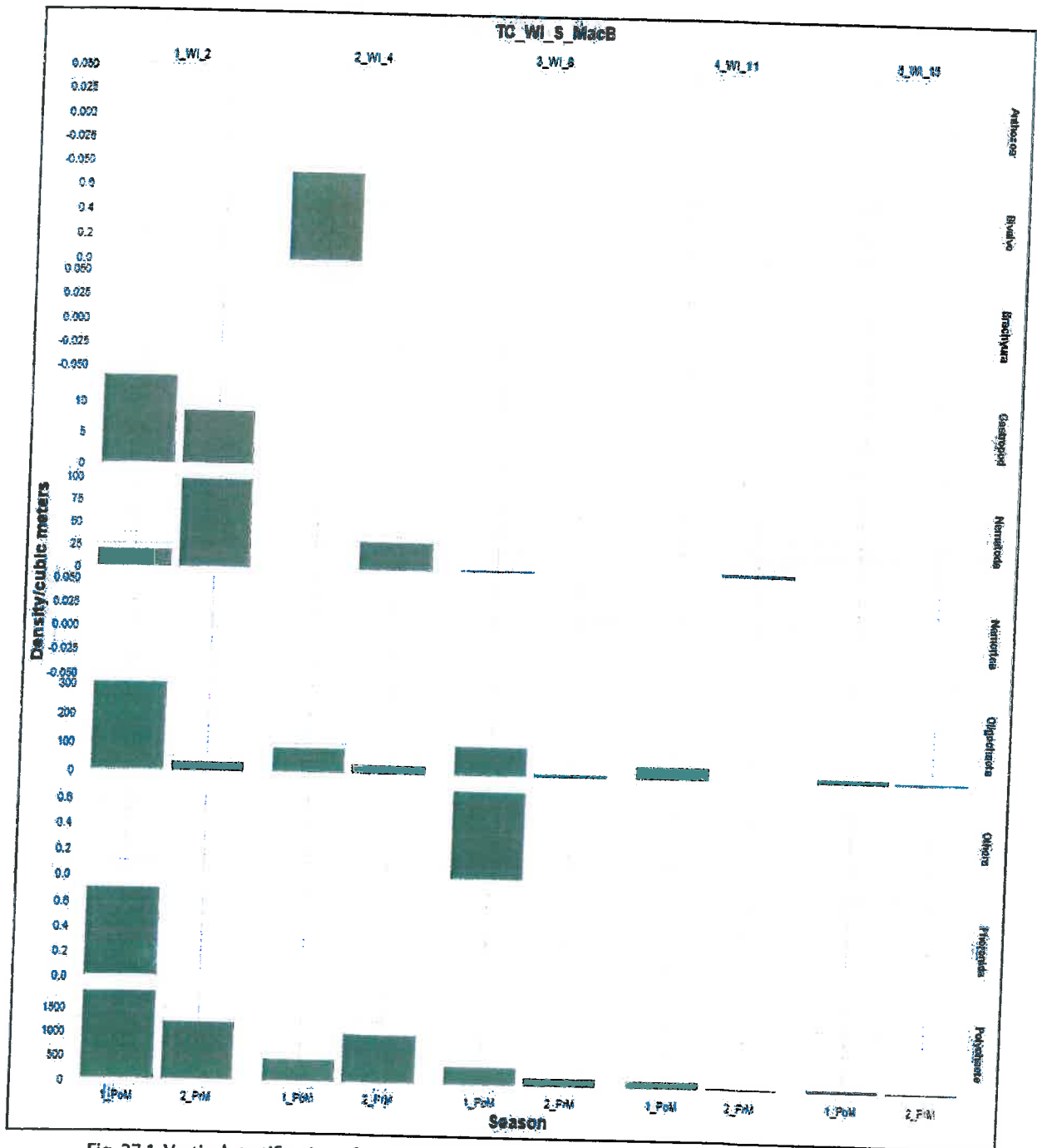


Fig. 27.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of WI cluster of Thane creek during the study period 2021-22

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.



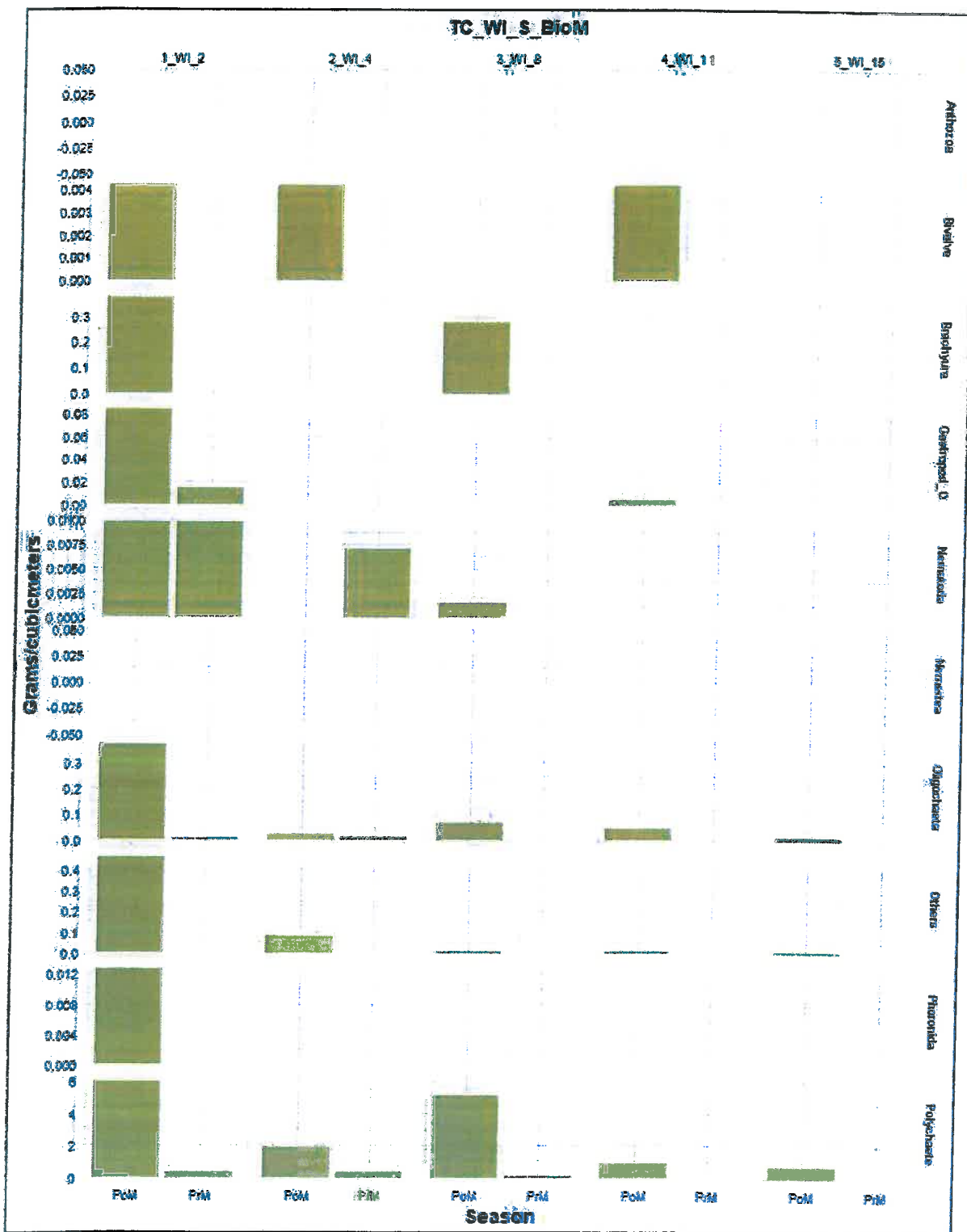


Fig. 27.2: Vertical stratification of macrobenthic biomass g/m³ in the Intertidal mudflats of WI cluster of Thane creek during the study period 2021-22

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-



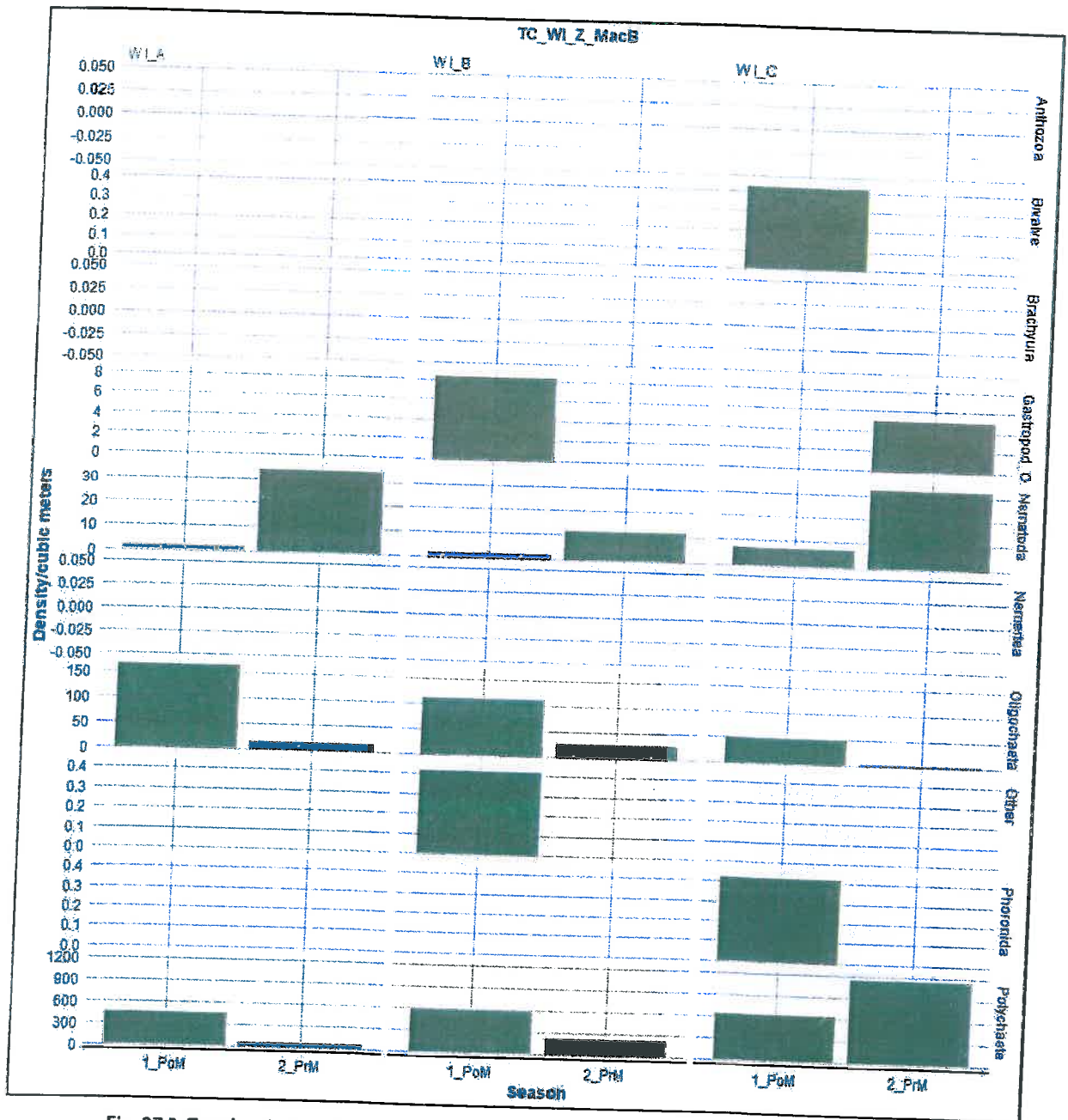


Fig. 27.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of WI cluster of Thane creek during 2021-22

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, Gastropoda 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 stratum 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 stratum (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



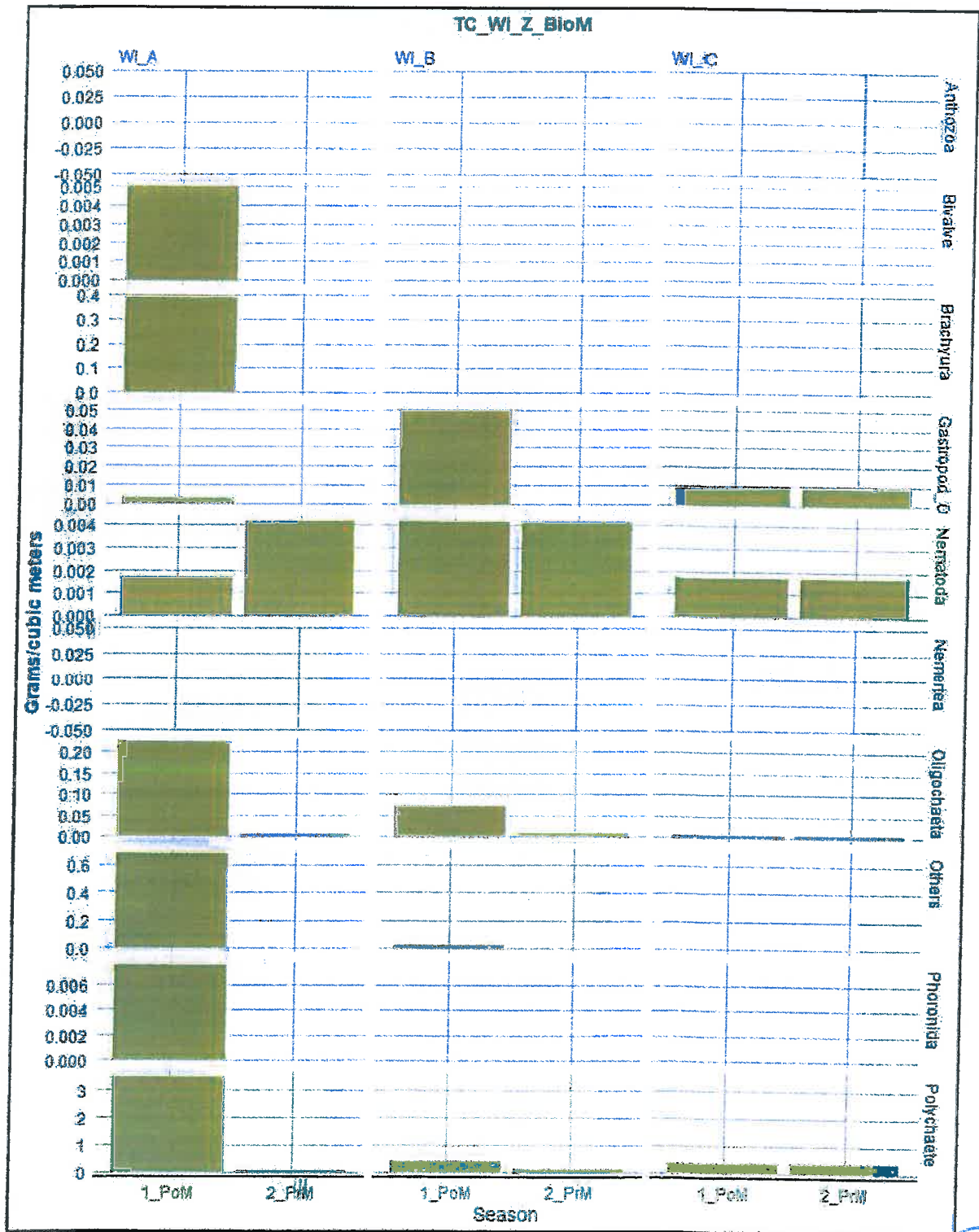


Fig. 27.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of WI cluster of Thane creek during the study period 2021-22

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



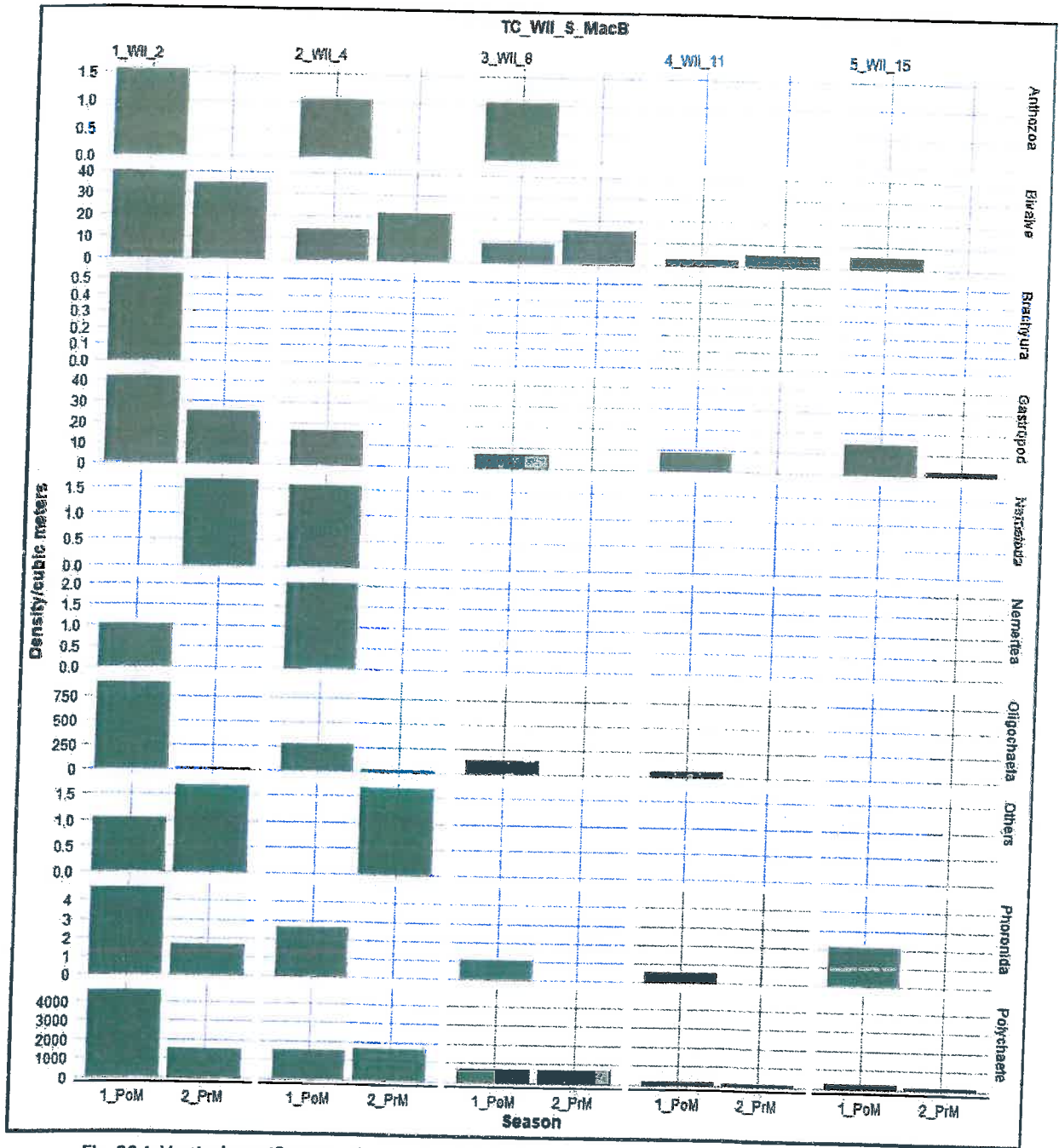


Fig. 28.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of WII cluster of Thane creek during the study period 2021-22

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



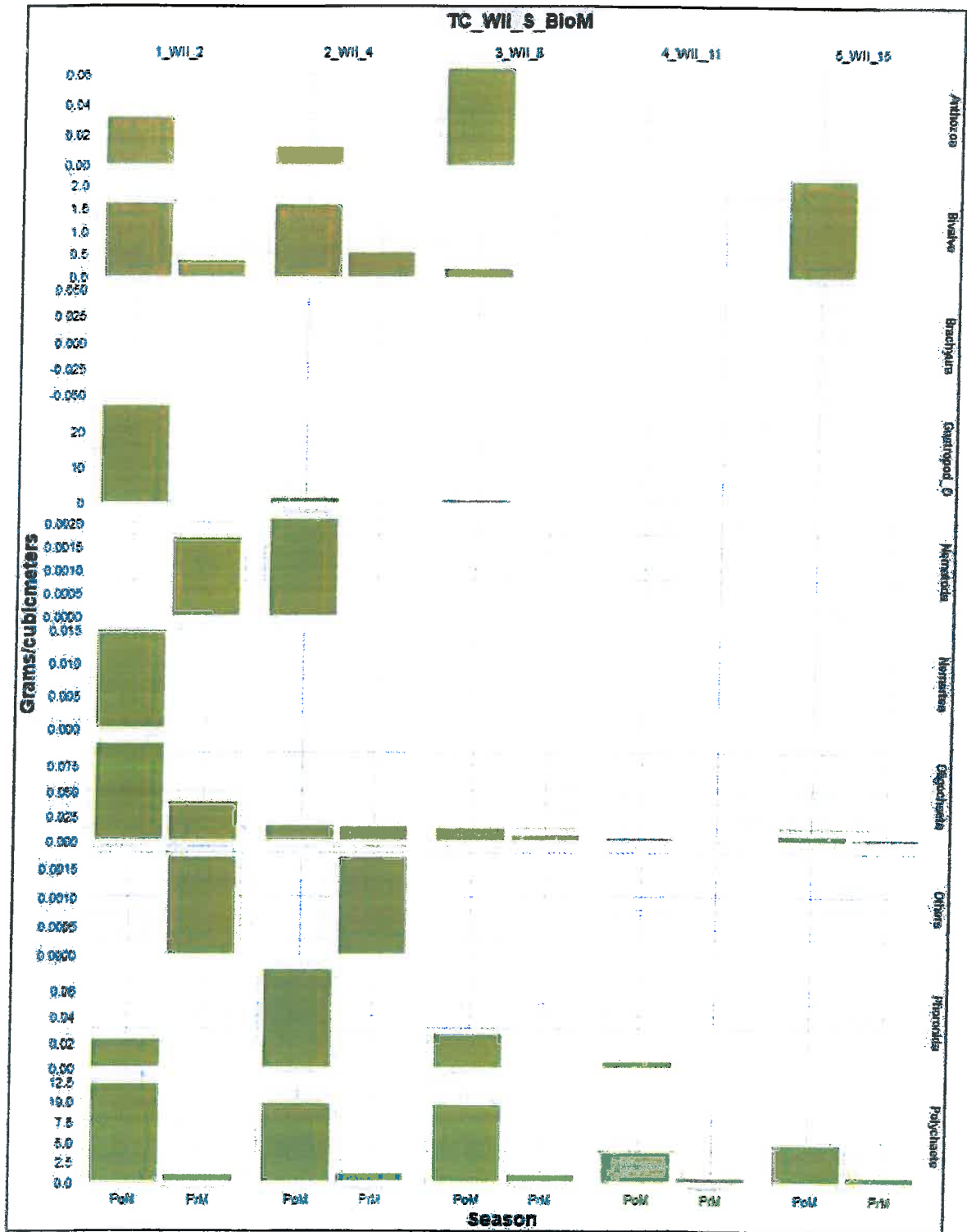


Fig. 28.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of WII cluster of Thane creek during the study period 2021-22

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

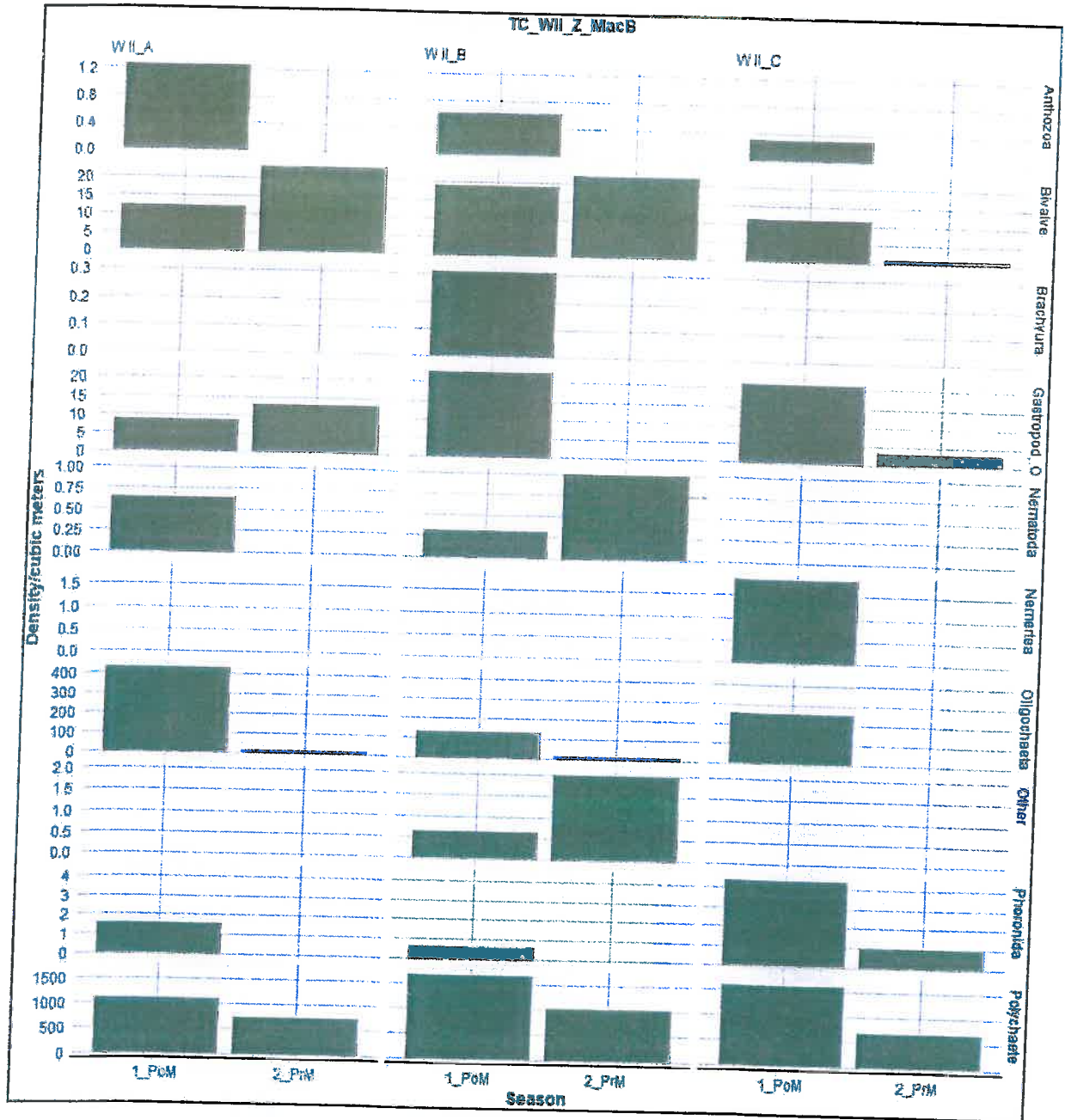


Fig. 28.3: Zonal variation of macrobenthic density /m³ in the intertidal mudflats of WII cluster of Thane creek during 2021-22

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 stratum 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 stratum. 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.



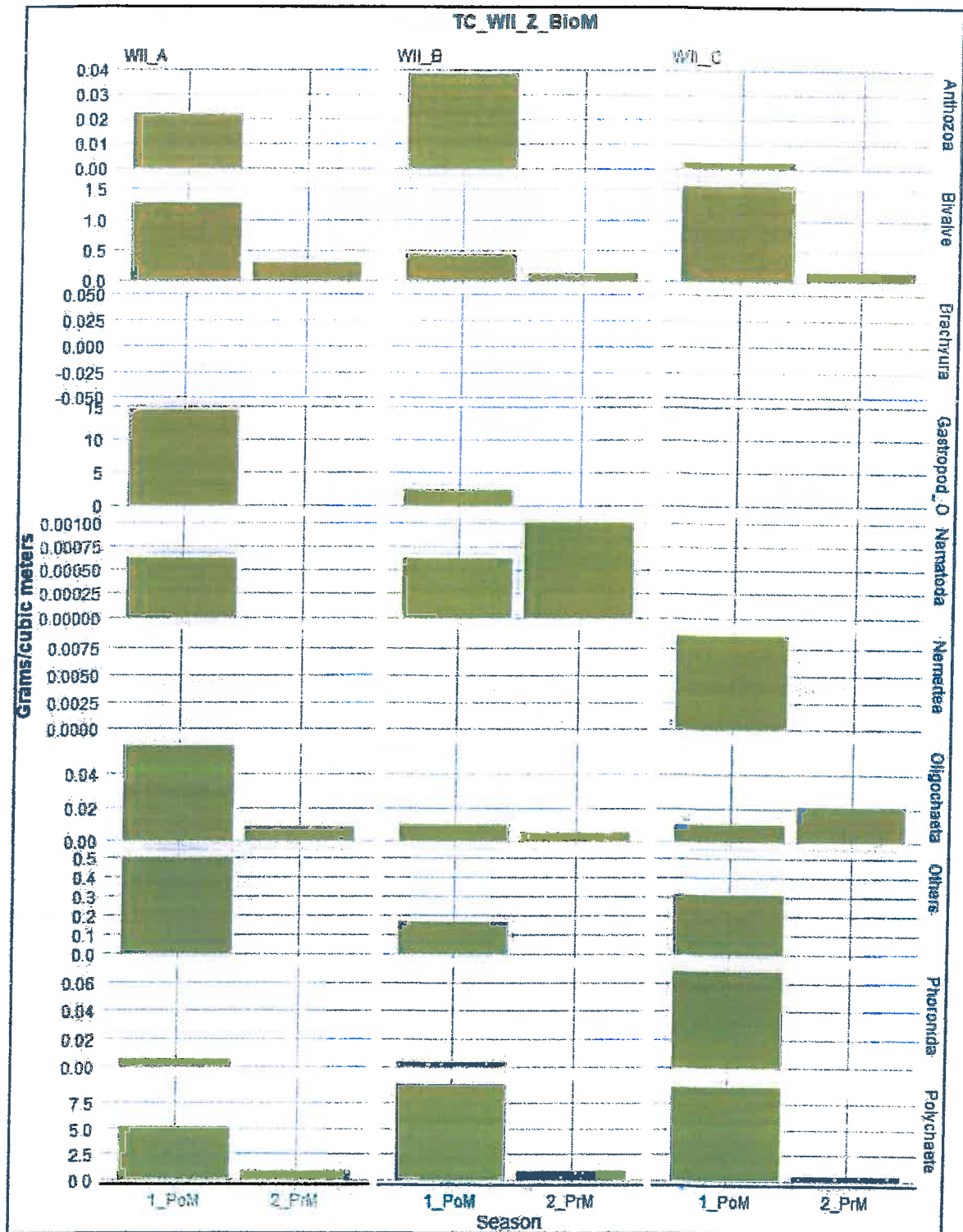


Fig. 28.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of WII cluster of Thane creek during the study period 2021-22



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

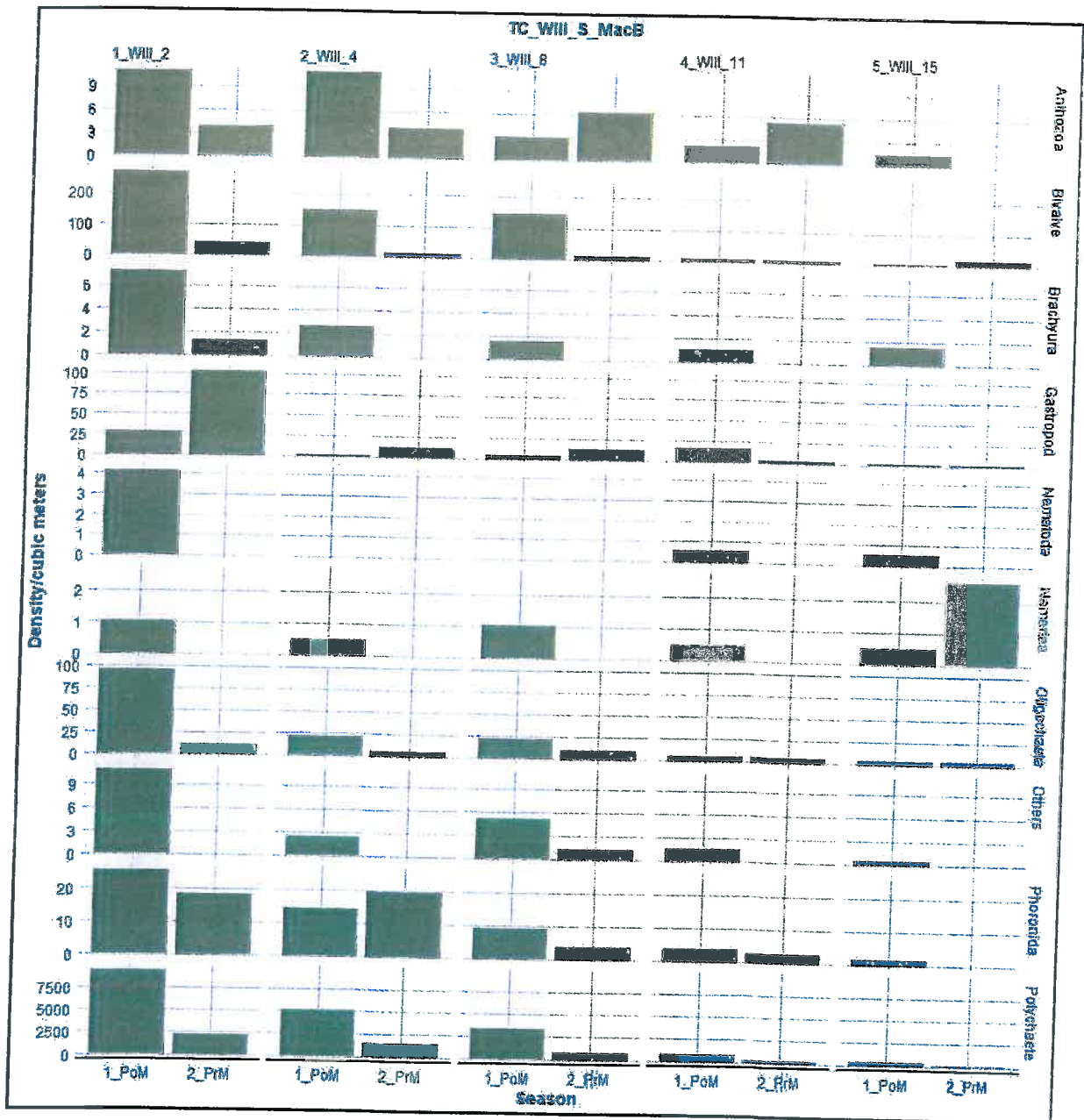


Fig. 29.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of Will cluster of Thane creek during the study period 2021-22

(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.



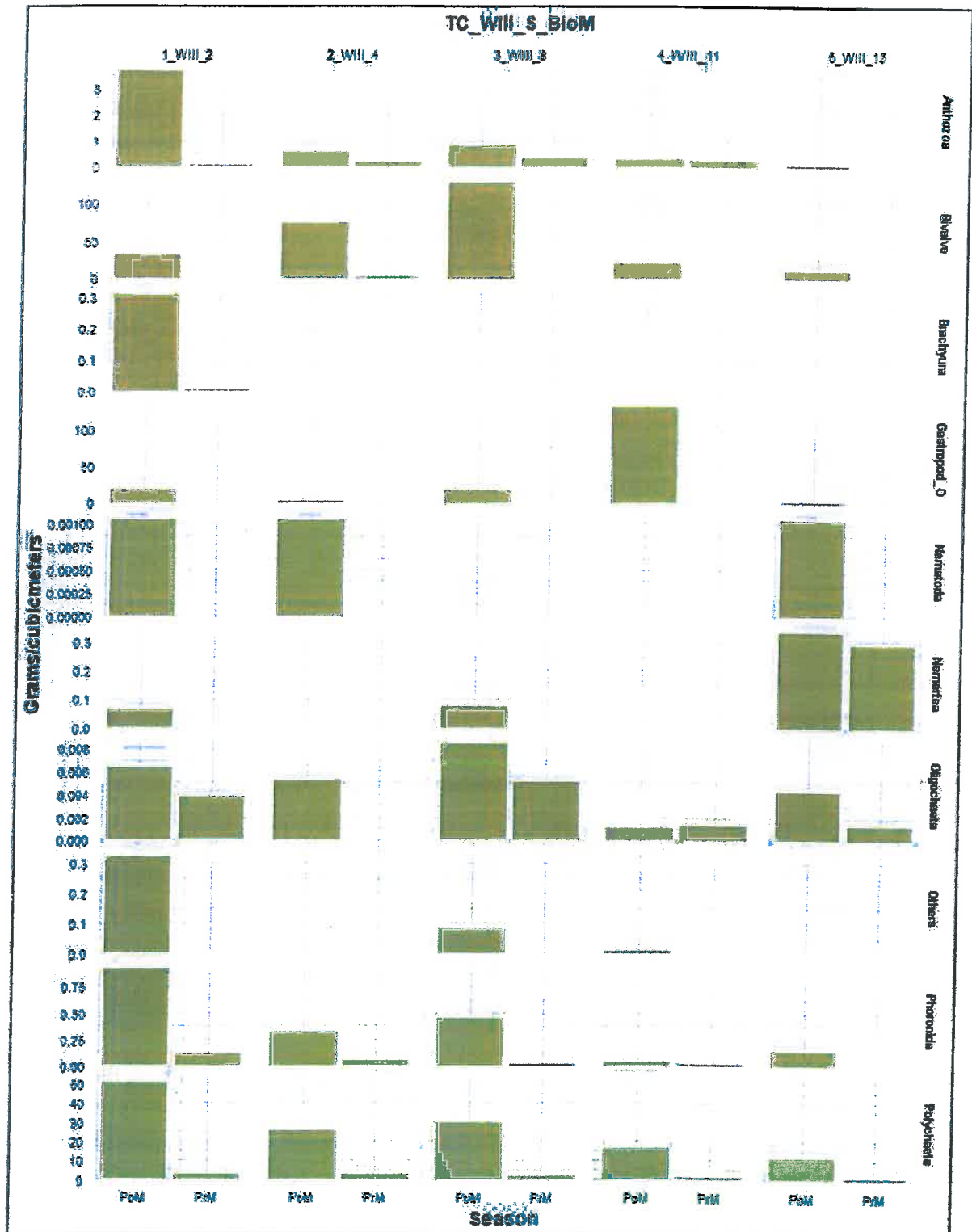


Fig. 29.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of WIII cluster of Thane creek during the study period 2021-22

Vertical stratification

Anthozoa and Polychaete were present in all the stratum in both the seasons. Nematode was only present during Post Monsoon seasons of strata 8 and 11. Nemereta 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.



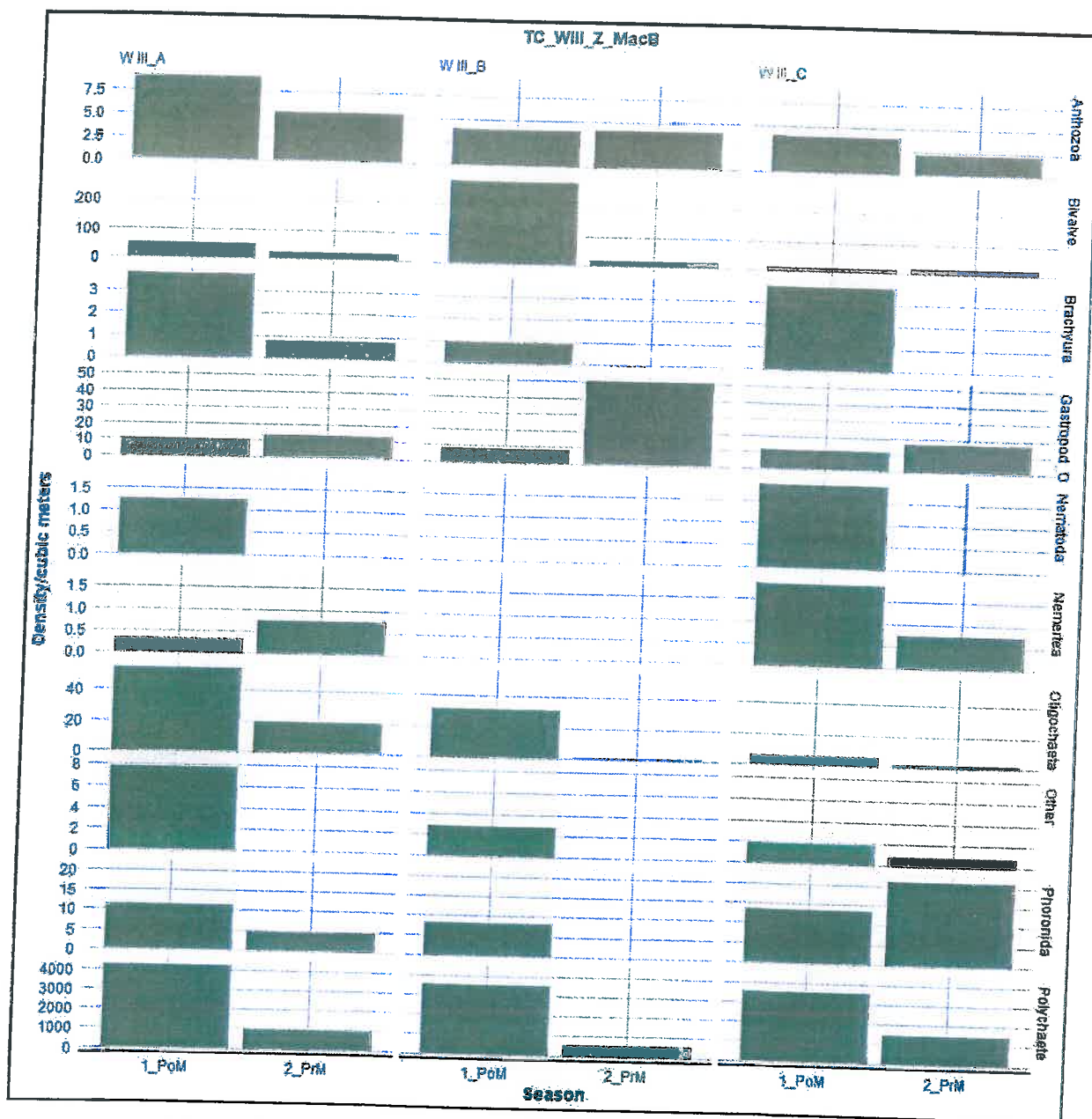


Fig. 29.3: Zonal variation of macrobenthic density g /m³ in the intertidal mudflats of W III cluster of Thane creek during the study period 2021-22

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



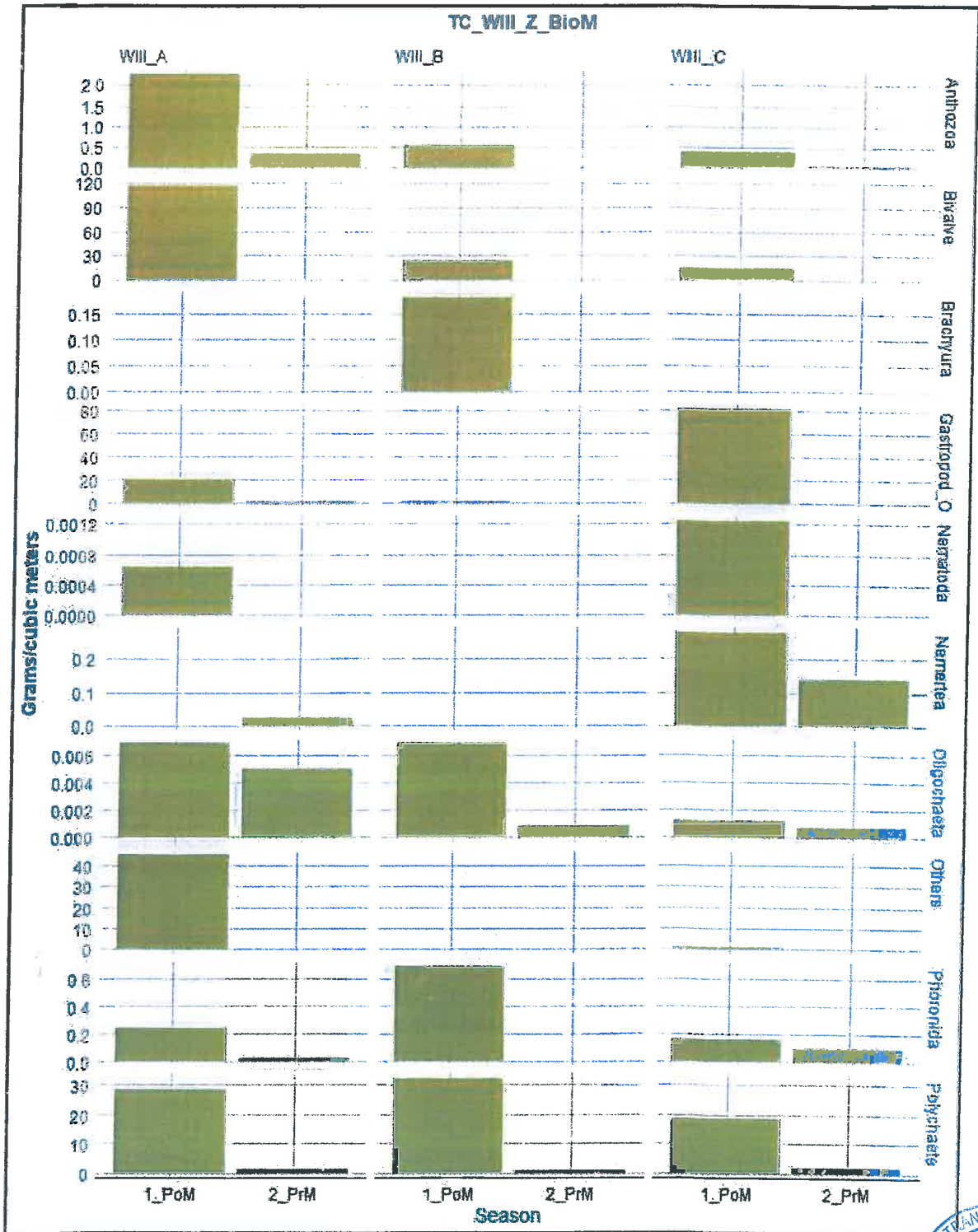


Fig. 29.4: Zonal variation of macrobenthic biomass g/m³ in the intertidal mudflats of W III cluster of Thane creek during the study period 2021-22

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.



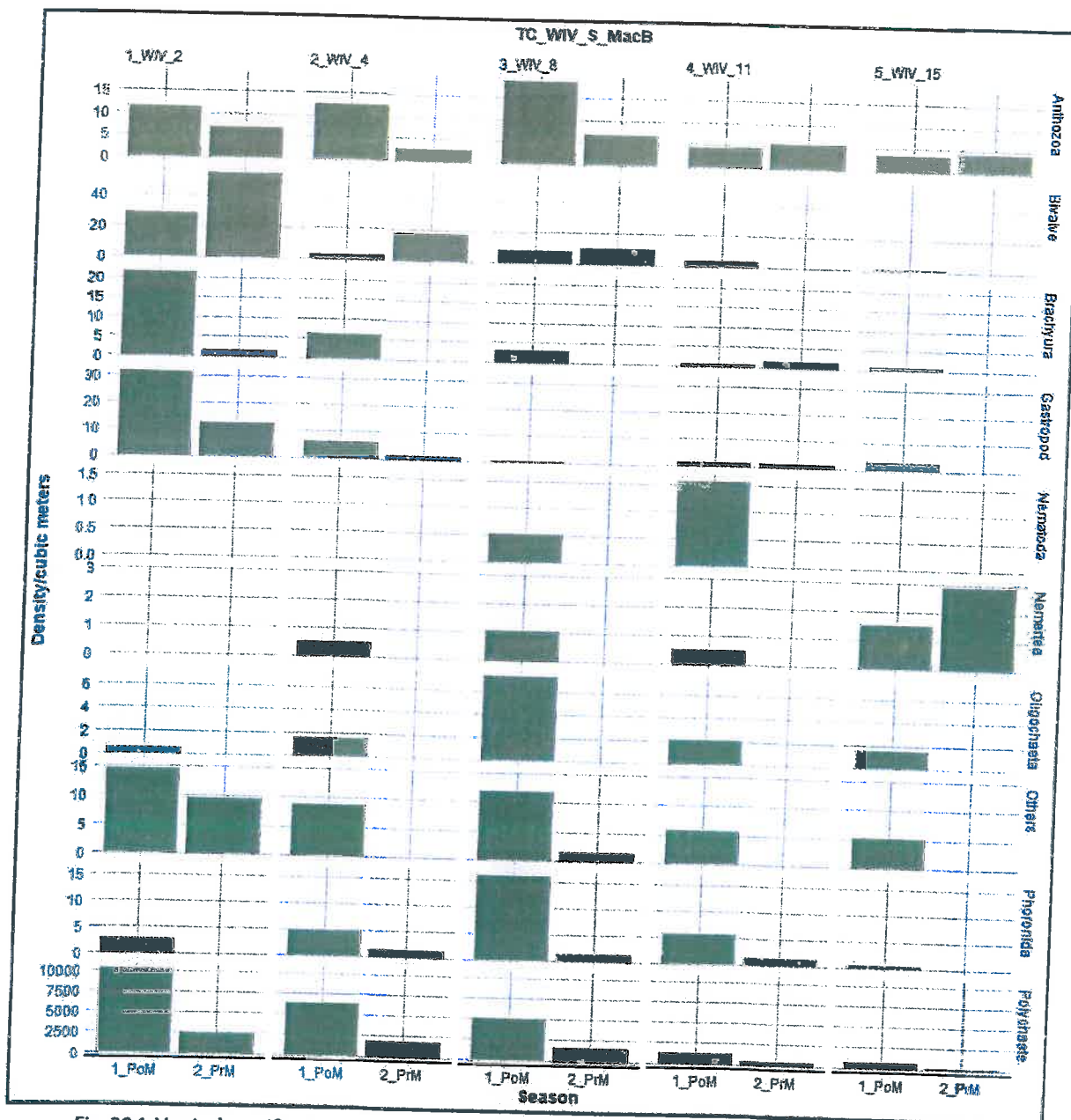
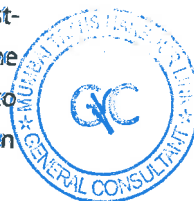


Fig. 30.1: Vertical stratification of macrobenthic density/m³ in the intertidal mudflats of WIV cluster of Thane creek during the study period 2021-22

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



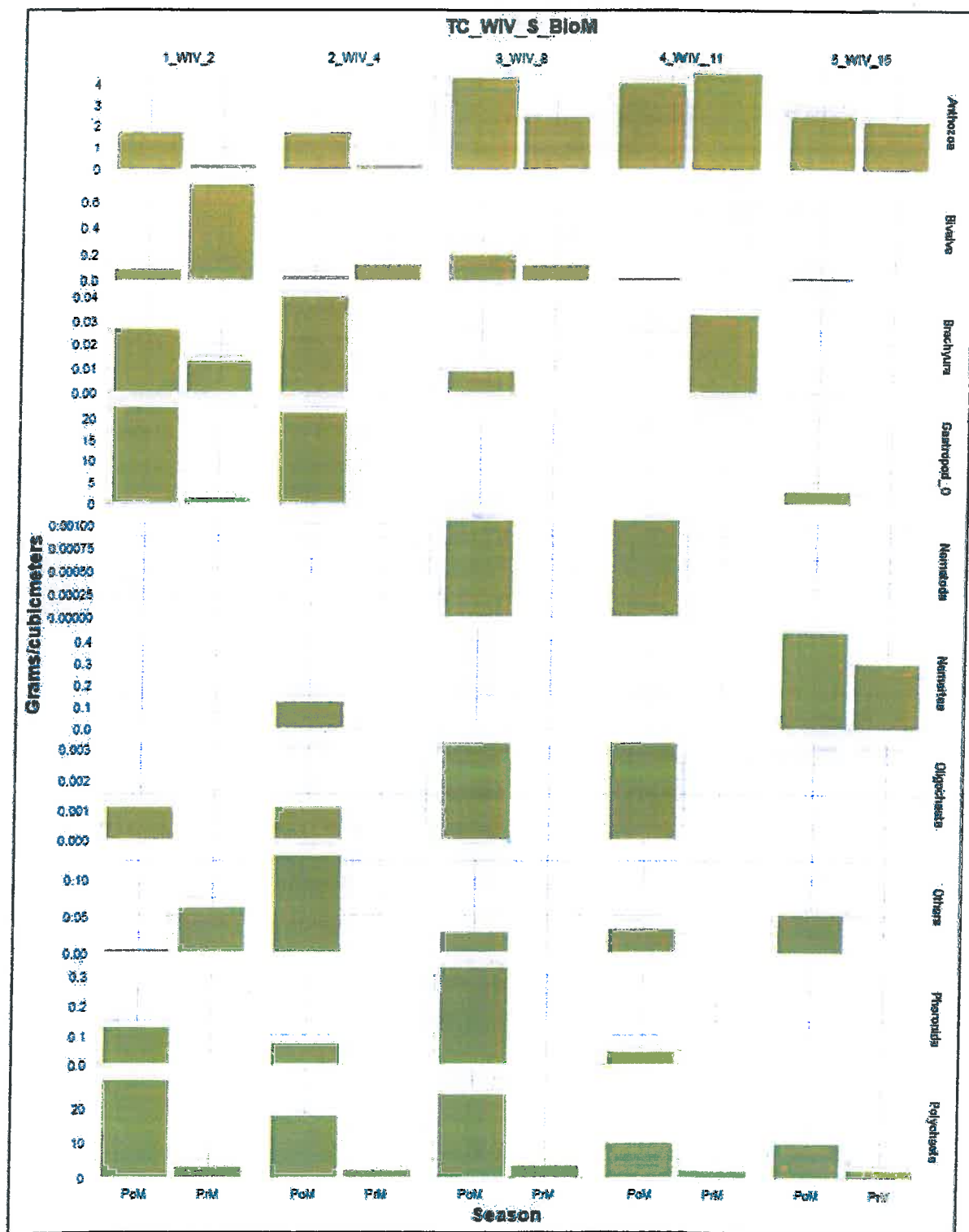


Fig. 30.2: Vertical stratification of macrobenthic biomass g/m³ in the intertidal mudflats of WIV cluster of Thane creek during the study period 2021-22

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-

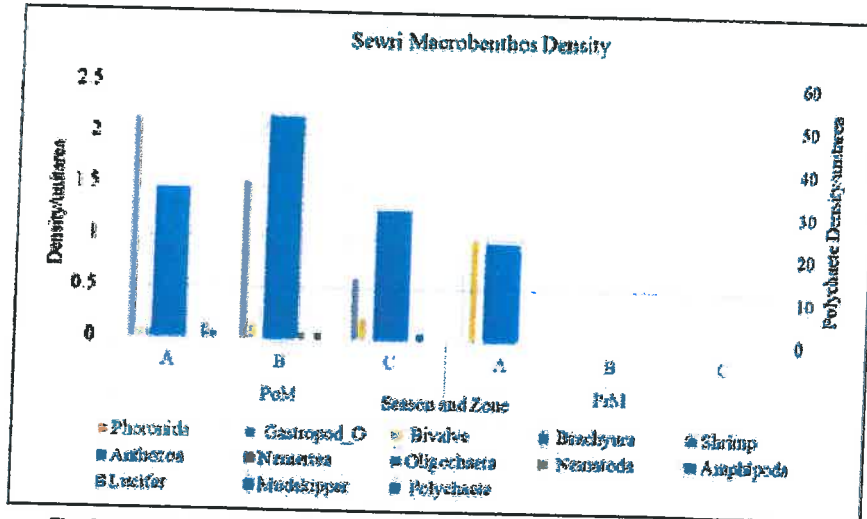


Fig. 31.1: Seasonal variation of macrobenthic density /m³ of Sewri during the study period 2021-22

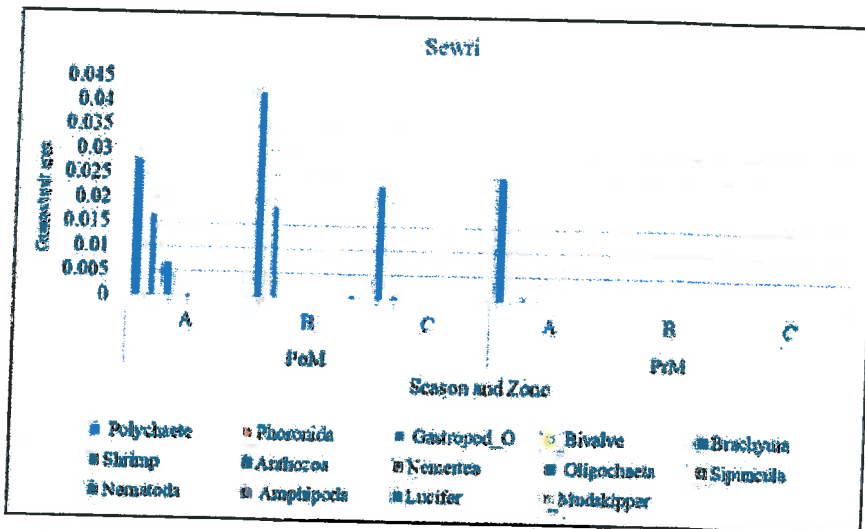


Fig. 31.2: Seasonal variation of macrobenthic biomass g/m³ of Sewri during the study period 2021-22

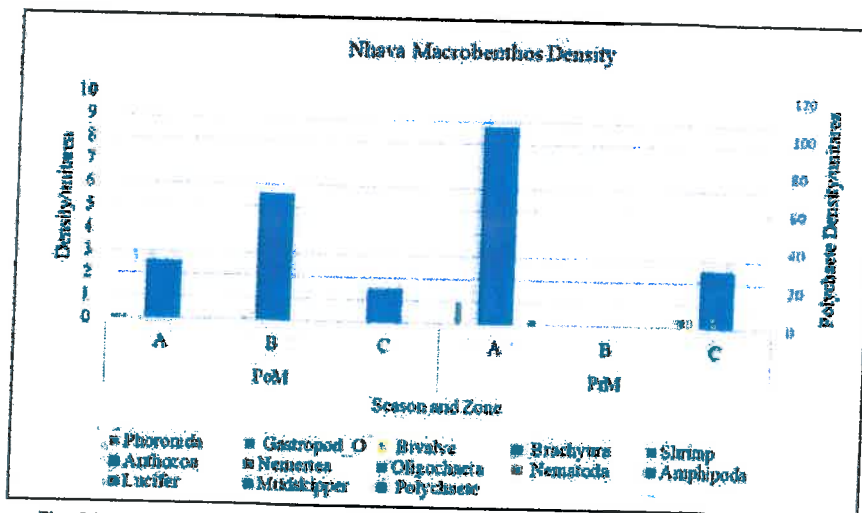


Fig. 32.1: Seasonal variation of macrobenthic density/m³ of Nhava during the study period- 2021-22



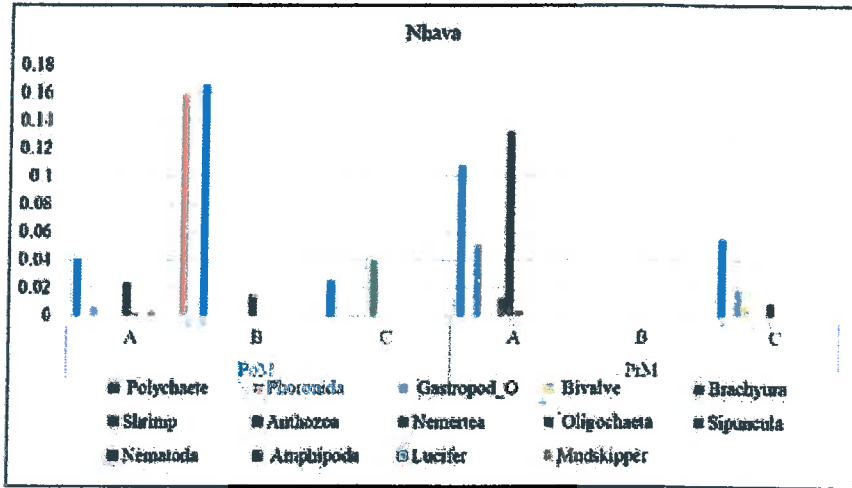


Fig. 32.2: Seasonal variation of macrobenthic biomass g/m³ of Nhava during the study period 2021-22

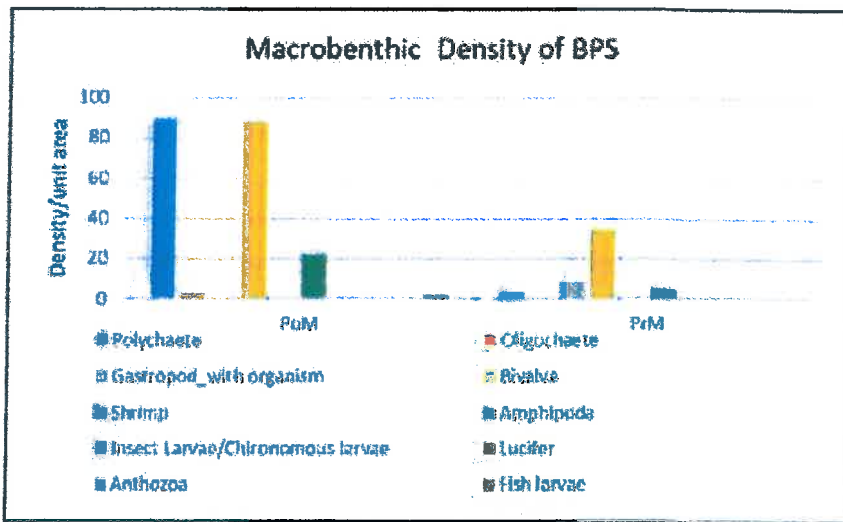


Fig. 33.1: Seasonal variation of macrobenthic density/m³ in BPS wetland during the study period-2021-22

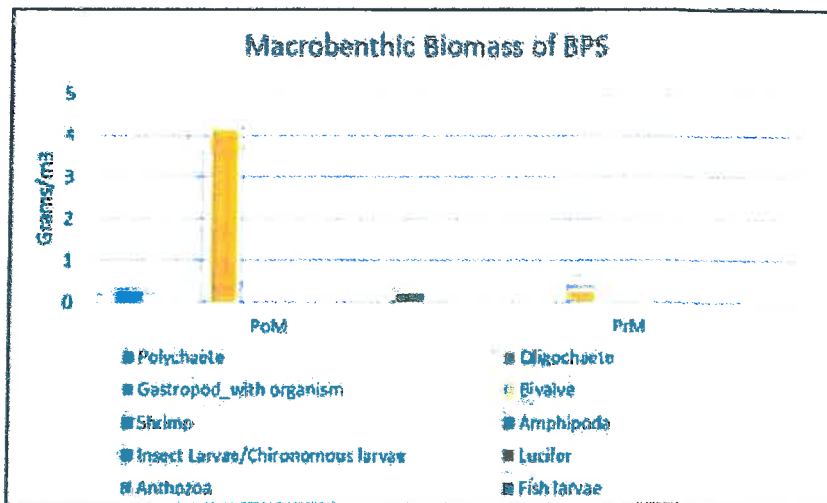


Fig. 33.2: Seasonal variation of macrobenthic biomass g/m³ in BPS wetland during the study period-2021-22



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.

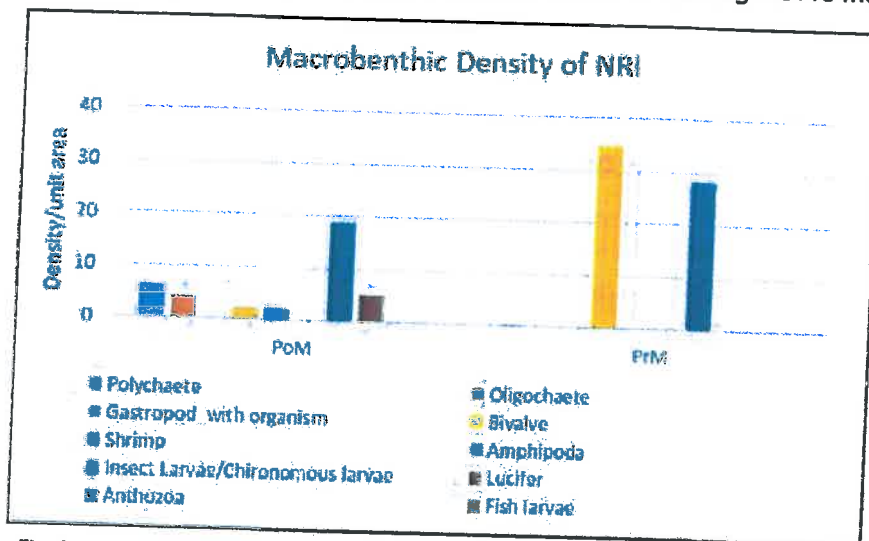


Fig. 34.1: Seasonal variation of macrobenthic density/ m^3 in NRI wetland during the study period 2021-22

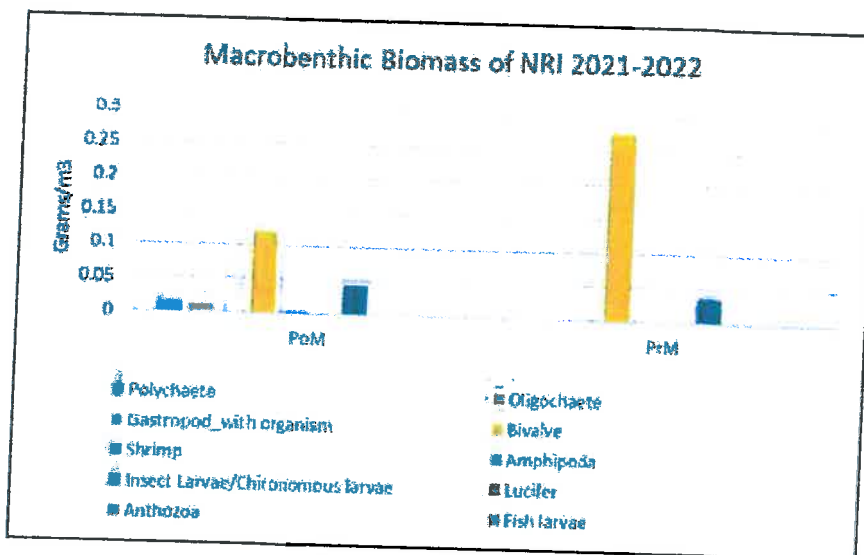


Fig. 34.2: Seasonal variation of macrobenthic biomass g/m^3 in NRI wetland during the study period-2021-22

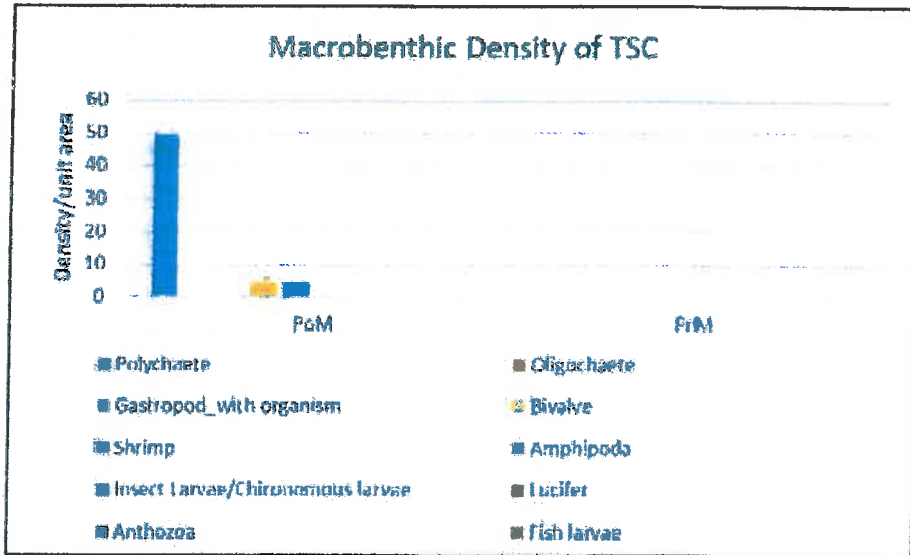


Fig. 35.1: Seasonal variation of macrobenthic density /m³ TSC wetland during the study period- 2021-22

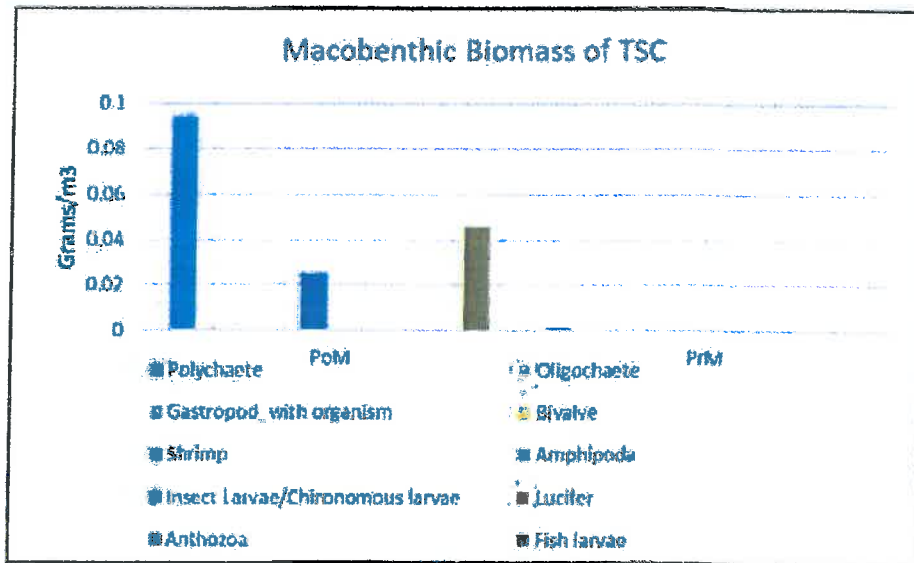


Fig. 35.2: Seasonal variation of macrobenthic biomass g /m³ in TSC wetland the study period- 2021-22

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.



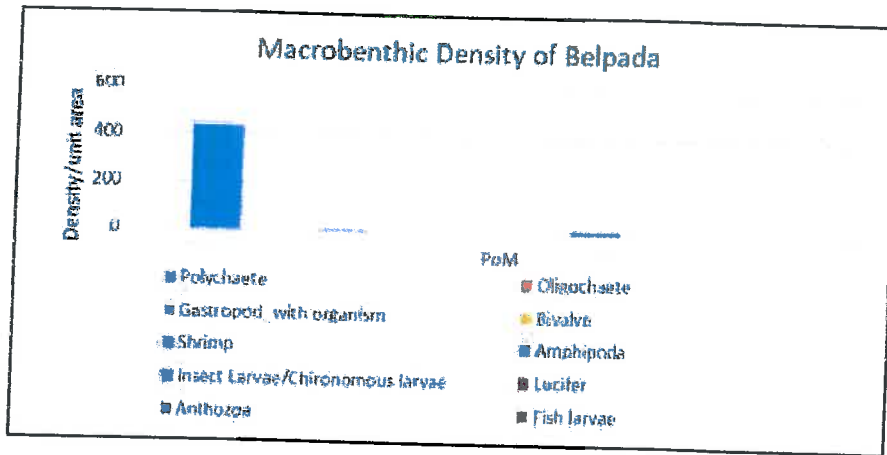


Fig. 36.1: Seasonal variation of macrobenthic density /m³ in Belpada wetlands the study Period - 2021-22

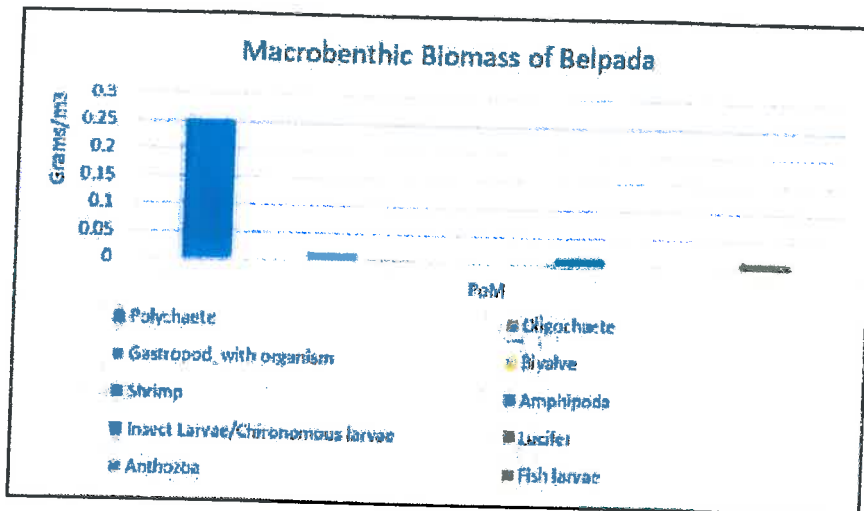


Fig. 36.2: Seasonal variation of microbenthic biomass g/m³ in Belpada wetland during the study period-2021-22

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 Polychaete 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 polychaete (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.



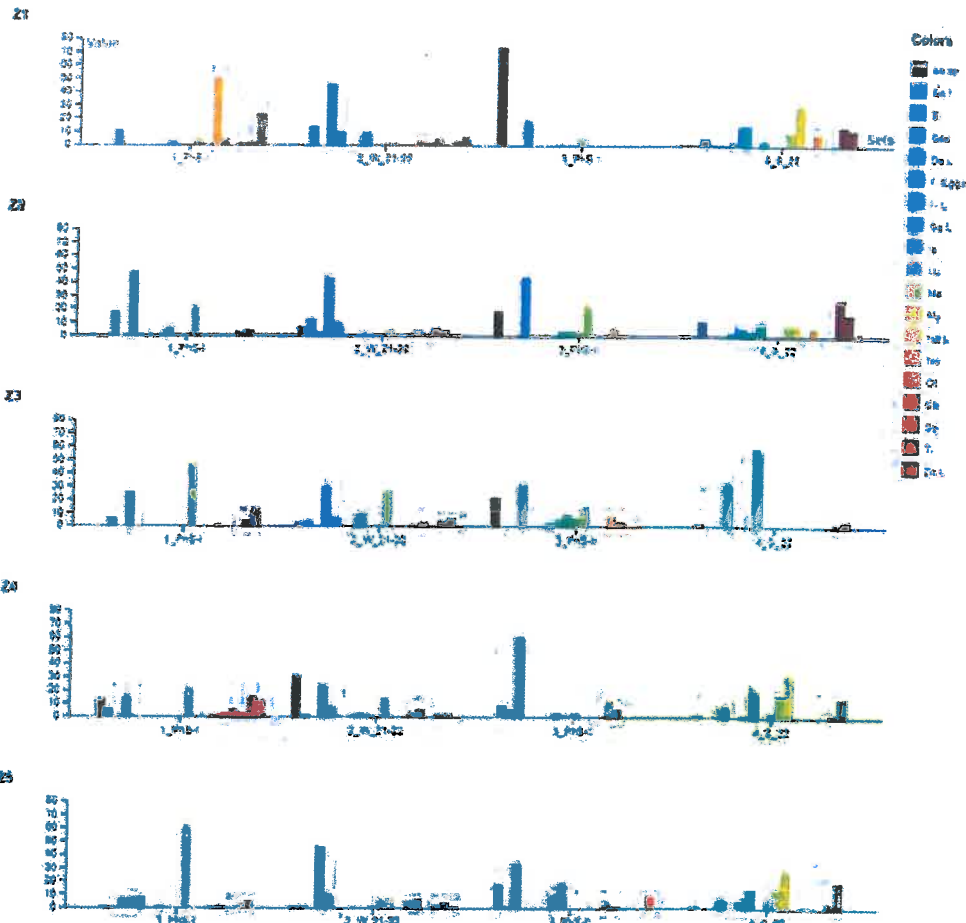


Fig. 37.1: Seasonal Variation in Zooplankton diversity along the five stations of Thane creek during the study period 2021-22

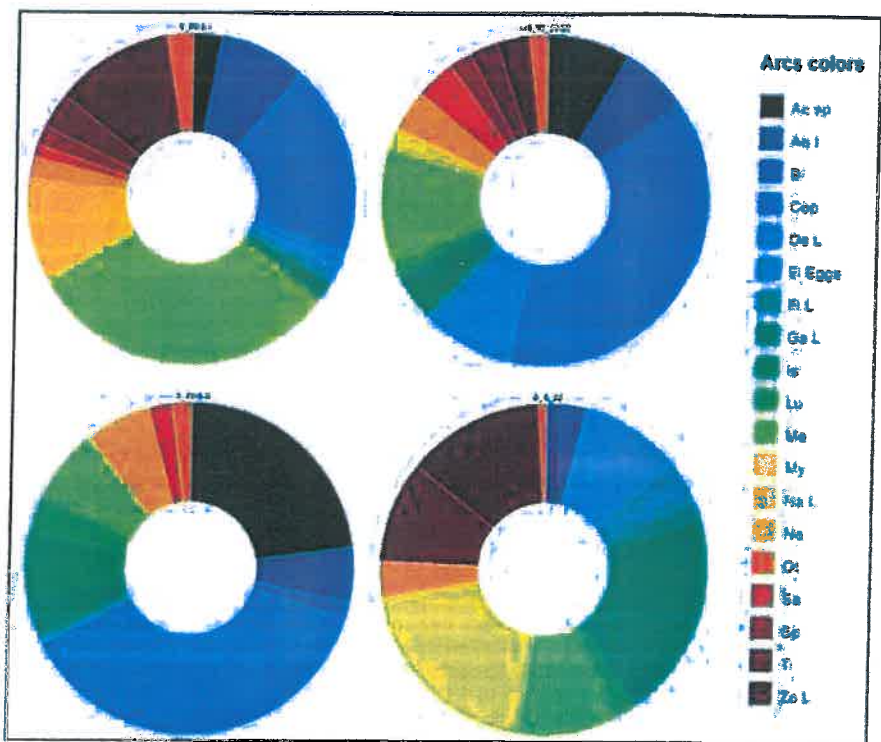


Fig. 37.2: Overall seasonal variation in Zooplankton diversity in Thane Creek during the study period 2021-2022



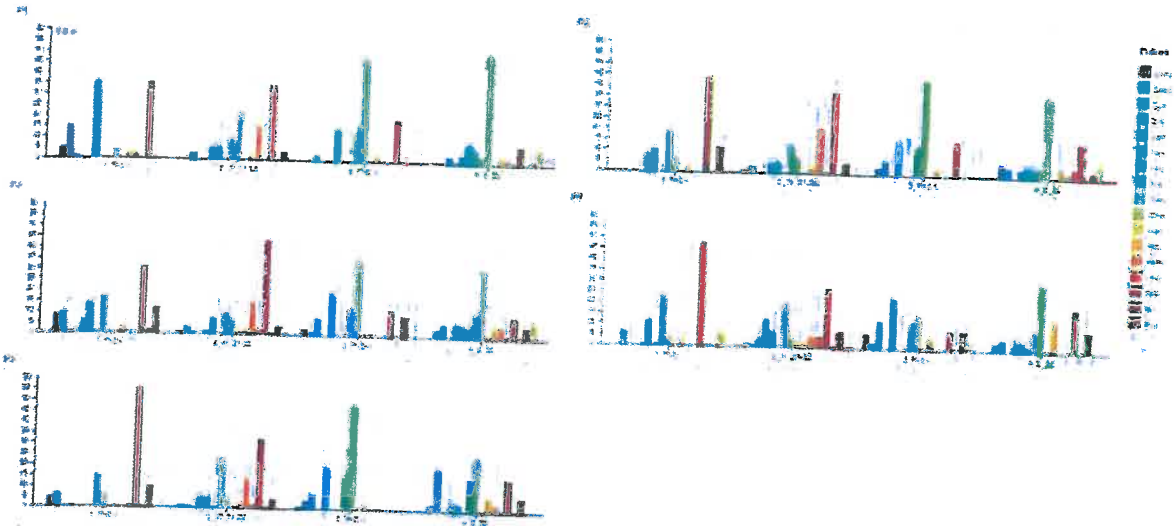


Fig. 38.1: Seasonal Variation in Phytoplankton diversity along the five stations of Thane creek during the study period 2021-22

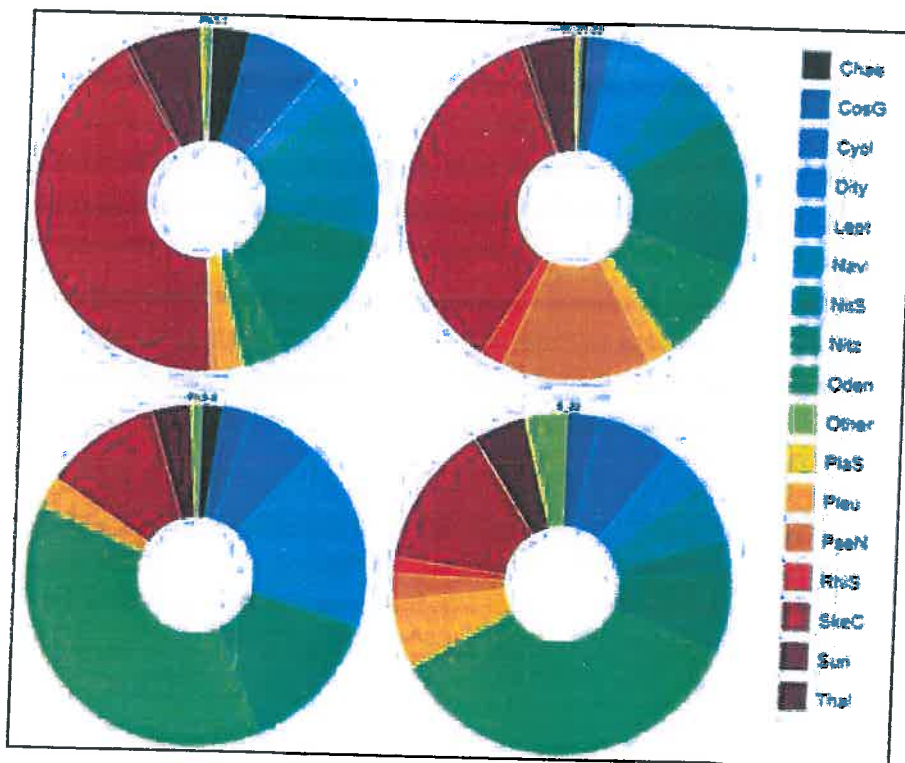


Fig. 38.1: Seasonal Variation in Phytoplankton diversity along the five stations of Thane creek during the study period 2021-22



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/ m³) observed as compared to the other wetlands. Polychaete (431.97/ m³) was the most dominant group contributing maximum to macrobenthic density followed by insect larvae (9.19/ m³) and Gastropod (8.79/ m³). Polychaete (0.25g/ m³) and Gastropod (0.02g/ m³) 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 Mysisida.

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 *Odontella* 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 *Odontella* 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. *Odontella 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. *Odontella 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 *Odontella 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 *Odontella 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.



References:

- Apte, D., R. Khot, S. Selvam, S. Bajar, M. Prabhu, R. Pitale, S. Jain, S. Sankapal, P. Noronha, P. Chogale, K. Chandel, and P. Sail (2019): 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. Second year report. Submitted to Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra. pp. 1–48.
- Burger, J. (1989): Least tern populations in coastal New Jersey: Monitoring and management of a regionally-endangered species. *Journal of Coastal Research* 5: 801-811.
- Burger, J. and Gochfeld, M. (1991): Human activity influence and diurnal and nocturnal foraging of sanderlings (*Calidris alba*). *The Condor*. 93: 259-265.
- Burton, N., Rehfish, M. and Clark, N. (2003): Impacts of Disturbance from Construction Work on the Densities and Feeding Behavior of Waterbirds Using the Intertidal Mudflats of Cardiff Bay, UK. *Environmental management*. 30: 865-71. 10.1007/s00267-002-2733-4.
- Fitzpatrick, S. and Bouchez, B. (1998): Effects of recreational disturbance on the foraging behaviour of waders on a rocky beach. *Bird Study*. 45: 157-171.
- Fritz, H., Guillemain, M. and Durant, D. (2002): The cost of vigilance for intake rate in the mallard (*Anas platyrhynchos*): an approach through foraging experiments. *Ethol Ecol Evol*. 14: 91–97.
- Lafferty, K. (2001): Birds at a Southern California beach: Seasonality, habitat use and disturbance by human activity. *Biodiversity and Conservation* 10: 1949-1962.
- Ramli, R. and Norazlimi, N. (2017): The Effects of Disturbance on the Abundance and Foraging Behaviour of Shorebirds and Waterbirds in the Tropical Mudflat Areas. *Sains Malaysiana*. 46: 365-372. 10.17576/jsm-2017-4603-02.
- Spencer, J. (2010): Migratory shorebird ecology in the Hunter Estuary, South-Eastern Australia. Sydney, New South Wales, Australia. Ph.D. thesis. Australian Catholic University.
- Ydenberg, R. and Dill, L. (1986): The economics of fleeing from predators. *Advances in the Study of Behaviour* 16: 229-249.
- 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 Salt pans



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 Lesser Flamingos on exposed intertidal Mudflat of Thane Creek



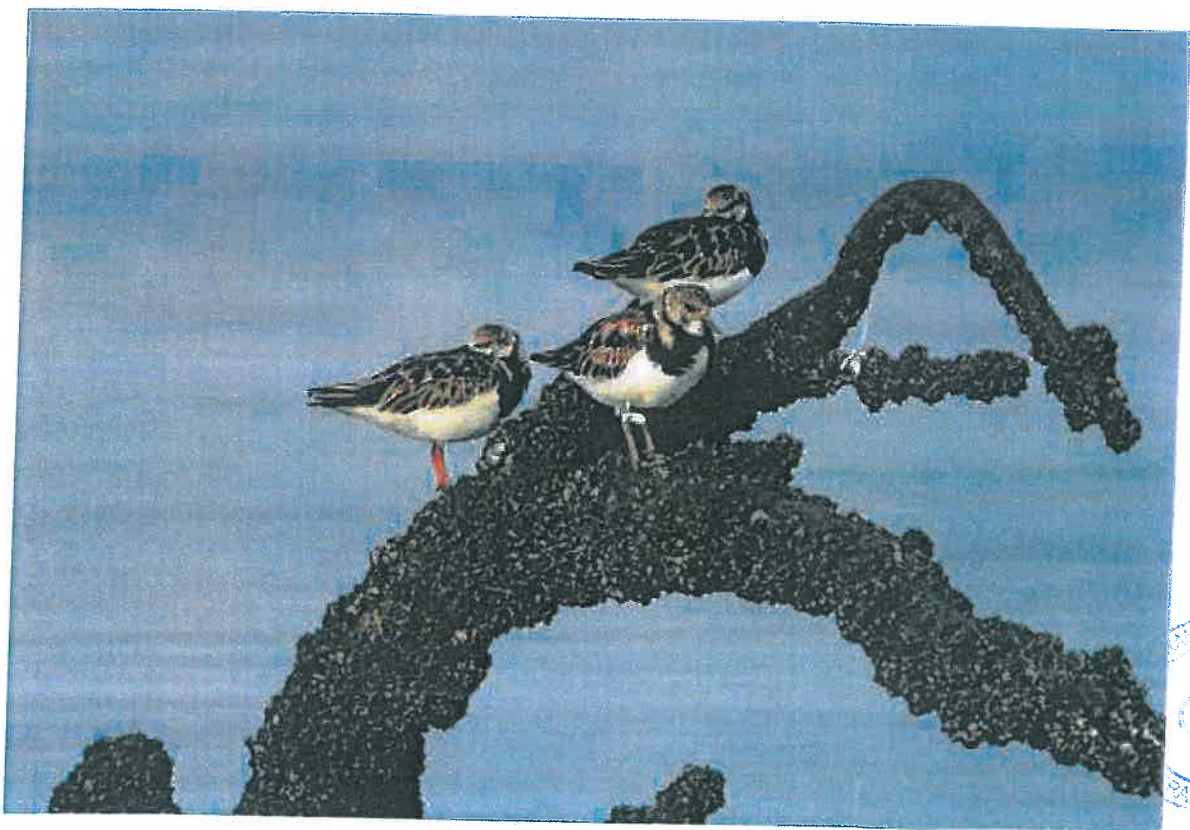
Lesser Flamingos feeding at Thane Creek



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



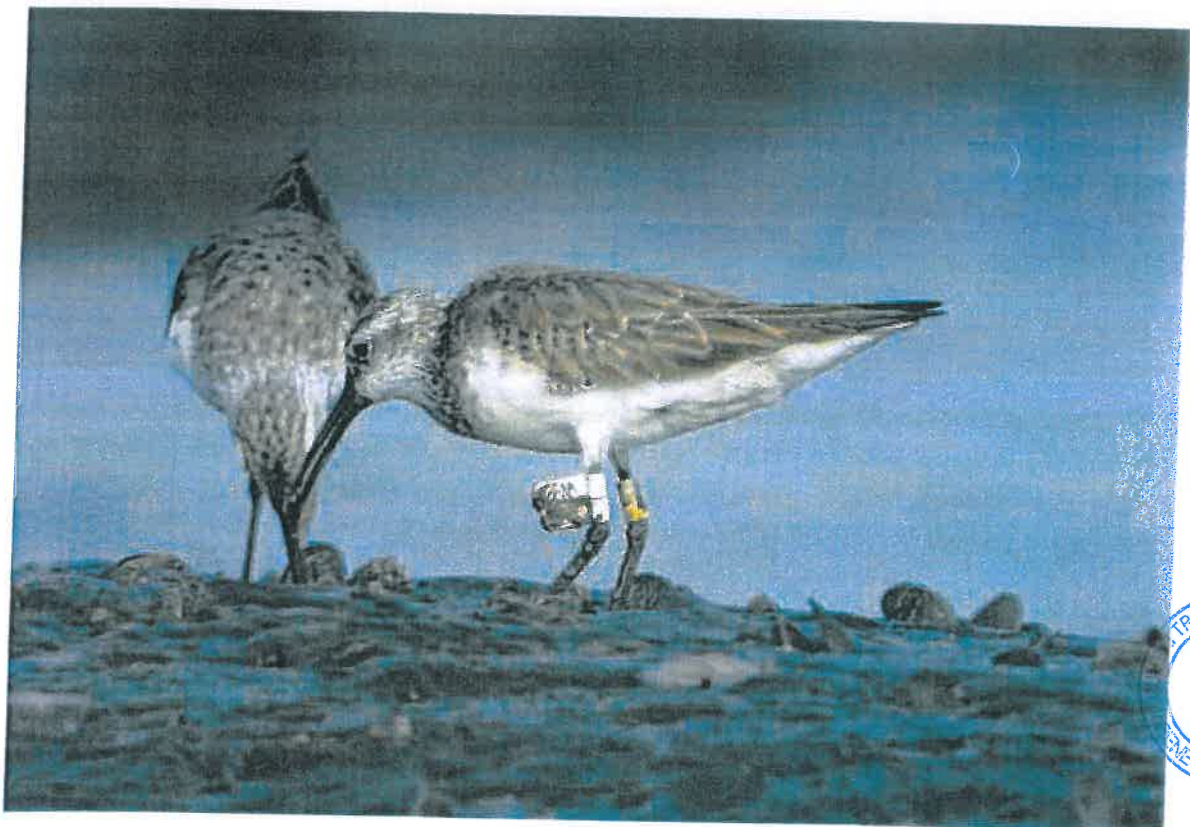
Western Reef Egret at Nhava-Sheva



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



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	<i>Dendrocygna javanica</i>	LC	M					+			+	
Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	LC	R	+	+	+	+	+				
Northern Shoveler	<i>Spatula clypeata</i>	LC	M	+		+		+				
Northern Pintail	<i>Anas acuta</i>	LC	M	+		+		+				
Garganey	<i>Spatula querquedula</i>	LC	M	+		+		+				
Cotton pygmy goose	<i>Nettapus coromandelianus</i>	LC	M			+						
Common Teal	<i>Anas crecca</i>	LC	M	+		+		+				
Ruddy Shelduck	<i>Tadorna ferruginea</i>	LC	M	+	+		+					
Eurasian widgeon	<i>Mareca penelope</i>	LC	M			+						
Gadwall	<i>Mareca strepera</i>	LC	M					+				
Red-Crested Pochard	<i>Netta rufina</i>	LC	M		+							
Podicipedidae												
Little Grebe	<i>Tachybaptus ruficollis</i>	LC	R	+		+		+				
Ciconiidae												
White Stork	<i>Ciconia ciconia</i>	LC								+		
Painted Stork	<i>Mycteria leucocephala</i>	NT	R	+	+	+	+	+	+	+	+	+
Phoenicopteridae												
Greater Flamingo	<i>Phoenicopterus roseus</i>	LC	M	+	+	+	+					+
Lesser Flamingo	<i>Phoeniconaias minor</i>	NT	M	+		+	+					+
Threskiornithidae												
Black-headed Ibis	<i>Threskiornis melanocephalus</i>	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	<i>Plegadis falcinellus</i>	LC	M	+		+	+	+		+		
Eurasian Spoonbill	<i>Platalea leucorodia</i>	LC	M	+	+	+	+					
Ardeidae												
Indian Pond Heron	<i>Ardeola grayii</i>	LC	R	+	+	+	+	+	+	+	+	+
Grey Heron	<i>Ardea cinerea</i>	LC	R	+	+	+	+	+	+	+	+	+
Purple Heron	<i>Ardea purpurea</i>	LC	R		+	+	+	+	+	+	+	+
Green-backed Heron	<i>Butorides striata</i>	LC	R									
Cattle Egret	<i>Bubulcus ibis</i>	LC	R						+	+		
Great White Egret	<i>Ardea alba</i>	LC	R	+	+		+	+		+		
Intermediate Egret	<i>Ardea intermedia</i>	LC	R	+	+	+	+	+	+	+	+	+
Little Egret	<i>Egretta garzetta</i>	LC	R	+	+	+	+	+	+	+	+	+
Western Reef Egret	<i>Egretta gularis</i>	LC	R	+	+	+	+	+	+	+	+	+
Phalacrocoracidae												
Little Cormorant	<i>Microcaro niger</i>	LC	R	+	+	+	+	+	+	+		
Indian cormorant	<i>Phalacrocorax fuscicollis</i>	LC	R				+	+				+
Great cormorant	<i>Phalacrocorax carbo</i>	LC	R				+	+				
Accipitridae												
Shikra	<i>Accipiter badius</i>	LC	R		+							
Black Kite	<i>Milvus migrans</i>	LC	R	+	+	+	+	+	+	+		
Western Marsh Harrier	<i>Circus aeruginosus</i>	LC	M	+	+	+	+					+
Greater Spotted Eagle	<i>Clanga clanga</i>	VU	M									
Brahminy Kite	<i>Heliastur indus</i>	LC	R	+		+	+		+	+	+	+



Appendix 2- Checklist of birds recorded from Oct 2021-May 2022

COMMON NAME	SCIENTIFIC NAME	IUCN STATUS	STATUS	BPS	BEL	NRH	TSC	Kha	Man	TC	SEW	NS
Booted Eagle	<i>Hieraetus pennatus</i>	LC	M								+	
Oriental honey buzzard	<i>Pernis ptilorhynchus</i>	LC	R				+					
Pandionidae												
Osprey	<i>Pandion haliaetus</i>	LC	M				+			+		
Rallidae												
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	LC	R				+	+		+		
Common Coot	<i>Fulica atra</i>	LC	R	+		+	+	+		+		
Recurvirostridae												
Black-winged Stilt	<i>Himantopus himantopus</i>	LC	R	+		+	+	+	+	+		
Pied Avocet	<i>Recurvirostra avosetta</i>	LC	M	+		+	+			+		
Charadriidae												
Red-wattled Lapwing	<i>Vanellus indicus</i>	LC	R	+		+	+	+	+	+		
Pacific Golden Plover	<i>Pluvialis fulva</i>	LC	M	+			+	+		+		
Grey Plover	<i>Pluvialis squatarola</i>	LC	M	+		+	+		+	+	+	
Little Ringed Plover	<i>Charadrius dubius</i>	LC	M	+					+			+
Kentish Plover	<i>Charadrius alexandrinus</i>	LC	M	+		+			+	+		
Common ringed Plover	<i>Charadrius hiaticula</i>	LC	M						+			
Greater Sand Plover	<i>Charadrius leschenaultii</i>	LC	M	+								
Lesser Sand Plover	<i>Charadrius mongolus</i>	LC	M	+		+	+	+	+	+	+	+
Scolopacidae												
Ruff	<i>Callidris pugnax</i>	LC	M	+		+						
Common Snipe	<i>Gallinago gallinago</i>	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
Black-tailed Godwit	<i>Limosa limosa</i>	NT	M	+	+		+	+		+	+	
Bar-tailed Godwit	<i>Limosa lapponica</i>	NT	M	+			+			+		
Whimbrel	<i>Numenius phaeopus</i>	LC	M									
Eurasian Curlew	<i>Numenius arquata</i>	NT	M	+	+		+		+	+		
Common Redshank	<i>Tringa totanus</i>	LC	M	+	+		+	+	+	+	+	+
Marsh Sandpiper	<i>Tringa stagnatilis</i>	LC	M	+	+		+	+	+	+	+	+
Common Greenshank	<i>Tringa nebularia</i>	LC	M	+	+		+	+	+	+	+	
Green sandpiper	<i>Tringa ochropus</i>	LC	M	+	+		+	+	+	+	+	+
Wood Sandpiper	<i>Tringa glareola</i>	LC	M	+			+		+	+	+	+
Terek sandpiper	<i>Xenus cinereus</i>	LC	M	+	+		+	+	+	+		
Common Sandpiper	<i>Actitis hypoleucos</i>	LC	M	+				+		+		
Ruddy Turnstone	<i>Arenaria interpres</i>	LC	M	+	+		+	+	+	+	+	+
Red Knot	<i>Calidris canutus</i>	LC	M				+		+		+	
Great knot	<i>Calidris tenuirostris</i>	NT	M						+	+		
Long toed Stint	<i>Calidris subminuta</i>	EN	M	+			+					
Little Stint	<i>Calidris subminuta</i>	LC	M									
Temminck's Stint	<i>Calidris minima</i>	LC	M	+	+		+	+	+	+	+	+
Curlew Sandpiper	<i>Calidris temminckii</i>	LC	M	+					+			
Dunlin	<i>Calidris ferruginea</i>	NT	M	+	+		+		+			
Broad-billed Sandpiper	<i>Calidris alpina</i>	LC	M	+	+		+		+	+	+	+
Laridae	<i>Calidris falcinellus</i>	LC	M	+			+	+	+	+		
Lesser Black Backed Gull	<i>Larus fuscus</i>	LC	M									
Pallas's Gull	<i>Larus ichthyaetus</i>	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	<i>Larus brunnecephalus</i>	LC	M	+	+	+	+	+		+	+	+
Black-headed Gull	<i>Larus ridibundus</i>	LC	M	+		+	+	+		+	+	+
Slender-billed Gull	<i>Larus genei</i>	LC	M	+			+	+		+		
Common Gull-billed Tern	<i>Gelochelidon nilotica</i>	LC	M	+	+	+	+	+		+	+	+
Caspian Tern	<i>Hydroprogne caspia</i>	LC	M	+		+	+	+		+	+	
Common Tern	<i>Sterna hirundo</i>	LC	M							+		
River tern	<i>Sterna aurantia</i>	VU	M	+		+		+				
Little Tern	<i>Sternula albifrons</i>	LC	M	+				+		+		
Saunders's Tern	<i>Sternula saundersi</i>	LC	M				+		+			
Whiskered Tern	<i>Chlidonias hybrida</i>	LC	M	+	+	+	+			+	+	+
Alcedinidae												
White-breasted Kingfisher	<i>Halcyon smyrnenis</i>	LC	R	+	+	+	+	+	+	+		+
Common Kingfisher	<i>Alcedo atthis</i>	LC	R	+	+	+	+	+		+		
Black Capped Kingfisher	<i>Halcyon pileata</i>	VU	R					+		+		
Jacaniidae												
Phasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	LC	R								+	
Rostratulidae												
Greater painted snipe	<i>Rostratula benghalensis</i>	LC	R						+			
Motacillidae												
Grey Wagtail	<i>Motacilla cinerea</i>	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.

क्र. भूवमिशा/एम.टी.एच.एल./तळा/पर्यायी वन जमिन/390/2023.

दिनांक : 14/02/2023

प्रति,
मा. तहसिलदार तळा,
ता. तळा, जि. रायगड,

विषय :- मुंबई ट्रान्स हार्बर लिंक रोड (MTHL) प्रकल्पात बाधित होणाऱ्या मौजे- जासई येथील 2-८-४७ हे.आर जमिनीचे पर्यायी वनीकरणासाठी मौजे- पिटसई येथील 2-०८-४७ हे.आर जमिन वन विभागास हस्तांतरित करणेबाबत.

संदर्भ :- मा. जिल्हाधिकारी, रायगड यांचेकडील पत्र क्र. मशा/जमिन/अ-०३/शा.ज./पर्या.वन/MTHL/ 2022, दिनांक 06/09/2022 रोजीचे आदेश.

महोदय,

संदर्भाकित पत्रास अनुलक्षून विषयांकित प्रकरणी आपणास कळविण्यात येते की, मुंबई ट्रान्स हार्बर लिंक रोड (MTHL) प्रकल्पांतर्गत बाधित होणाऱ्या वन जमीनीचे बदली पर्यायी वनीकरणासाठी मौजे- पिटसई, ता. तळा येथील स.नं. 169 मधील 2-०८-४७ हे.आर पर्यायी वनिकरण म्हणून देण्याचे प्रस्ताविले आहे. याकामी मुल्यांकनाची रक्कम रू. 4,39,८५३/- (अक्षरी : पाच लाख सदतीस हजार आठशे त्रेपन्न मात्र) ईतकी अदा करण्याबाबत संदर्भाय पत्रान्वये आदेशित करण्यात आले आहे.

२. त्यानुसार प्राधिकरणामार्फत सदर मुल्यांकन रक्कम रू. 4,39,८५३/- (अक्षरी : पाच लाख सदतीस हजार आठशे त्रेपन्न मात्र) चा (बँक ऑफ महाराष्ट्र, धनादेश क्र. ८९१७२८, दिनांक 13/02/2023) धनादेश आपले कार्यालयाचे नावे काढण्यात आला असून, सदरचा धनादेश सोबत जोडला आहे.

३. तरी, त्याची पोचपावती देण्यास विनंती असे.

आपला,

 15-2-23

(चं.का.अभंग)

भूमि व मिळकत व्यवस्थापक (स.का.)

मुं.म.प्र.वि.प्रा.

o/c R



महसुल सहाय्यक
तहसिलदार कार्यालय, तळा
जि. रायगड.
दि. 16/2/2023

मुंबई महानगर प्रदेश विकास प्राधिकरण

वांद्रे-कुर्ला संकुल, वांद्रे (पूर्व), मुंबई 400049.
ईपीएबीएक्स +९१ २२ २६ ७०६१ / ४०००
https://mmrda.maharashtra.gov.in

NOT FOR LEGAL PURPOSE

वाव नमुना साठ (बांधिकार बांधिलेख पत्रक)

[यदापत्र वरील महसूल बांधिकार बांधिलेख बांधिलेख (बांधिकार बांधिलेख पत्रक) तिक, १९७१ सालीक तिक ३,५,६ कालि ठ]

नाव :- पिटसई (554767)
ULPIN : 31189578408

गट क्रमांक व उपविभाग : 169/1

मु-धारणा पध्दती : सरकारी

<p>भोगक व आकारणी</p> <p>खाली क्र. 10184</p> <p>भोगकटादाराची नांव</p> <p>साद्यपत्र शासन वर विभाग</p>	<p>दोराचे रकम</p> <p>१) सांगकड बांधिलेख</p> <p>२) सांगकड बांधिलेख</p> <p>३) सांगकड बांधिलेख</p> <p>४) सांगकड बांधिलेख</p> <p>५) सांगकड बांधिलेख</p> <p>६) सांगकड बांधिलेख</p> <p>७) सांगकड बांधिलेख</p> <p>८) सांगकड बांधिलेख</p> <p>९) सांगकड बांधिलेख</p> <p>१०) सांगकड बांधिलेख</p>	<p>दोरा</p> <p>१९.६८.७६</p>	<p>आकार</p> <p>५.४६</p>	<p>ए.फा.</p> <p>२.४५.७१</p>	<p>कुठे, खेड व इतर आंगणकार</p> <p>मुळाचे नाव व नं. १९</p> <p>दरमजारी</p> <p>आवकिक औरकार : नाही</p>
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मिळू :- रावगाड

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मुजना : या सुकेतवळावर दहाविलेनी माहिती ही कोणत्याही शासकीय अथवा कायदेशीर बाबीसाठी वापरता येणार नाही.

वाव नमुना बारा (पिकाची नोंदवही)

[यदापत्र वरील महसूल बांधिकार बांधिलेख बांधिलेख (बांधिकार बांधिलेख पत्रक) तिक, १९७१ सालीक तिक ३,५,६ कालि ठ]

नाव :- पिटसई (554767)
गट क्रमांक व उपविभाग : 169/1



वर्ष	हंगाम	खता क्रमांक	पिकाचा प्रकार	पिकाचे नाव	नव विधित	अजल विधित	यत्न विधित	मागावकीमातः
(1)	(२)	(३)	(४)	(५)	(६)	(७)	(८)	मागावकीमातः
								मागावकीमातः

NOT FOR LEGAL PURPOSE


CITY AND INDUSTRIAL DEVELOPMENT CORPORATION OF MAHARASHTRA LIMITED

(CIN : 099999 MH 1970 SOC : 014574)

REGD. OFFICE:

"NIRMAL", 2nd Floor, Nalman 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,

In case of any corruption related complaints, please visit :
cidco.maharashtra.gov.in / CIDCO VIGILANCE MODULE NEW / Userlogin.aspx

1/3

369

2	Trees to be Transplant	<p>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, 746, 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.</p>
3	Trees to be Retain	<p>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.</p> <p>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, 675, 674, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 738, 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.</p>

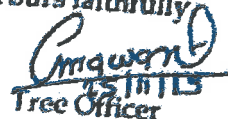
2) As per the provision under Section 8(3) (a) of the said Act, you are hereby directed that no tree shall be cut/transplanted until fifteen days (15) after the permission is given by the Tree Authority.



- 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, 2016 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-Ratgad. 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 conviction, 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, MTHH. 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


Tree Officer

(Tree Authority Committee, CIDCO)



3/3

371

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.I.in 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/Southth 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.

Mumbai Metropolitan Region Development Authority

Bandra-Kurla Complex, Bandra East, Mumbai 400 051
T +91 22 2659 1234 EPABX +91 22 2659 0001 / 4000 F +91 22 2659 1112 / 1264
<https://mmrda.maharashtra.gov.in>



Office of the Supdt. of Gardens
Veermata Jijabai Bhosale Udyan.
Penguin Building, 2nd Floor
Dr. Ambedkar Road, Byculla (East).
Mumbai-400 027.

Prop
DySG/CI/27 ~~IF-1-F/SOUTH/OD/AMC~~
24/12/2020

Additional Metropolitan Commissioner (MMRDA)
Bandra - Kuria 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.

Sr. Madam.

Please refer to your letter No MMRDA/MTYL-PIU/L&T-IHL/Tree Proposal-Pkg-1/107/07-2018
of 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, 450, 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, 67,
672, 674 to 676, 678, 679, 683, 699, 704, 705, 709, 710, 713, 716, 719, 766, 768, 779, 781, 784, 785,
787, 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, 1095, 1097, 1132, 1137 to 1146,
1147 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,
129, 135 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 9930354202. &
Hort. Asstt. F/South Ward 9-05583650.



You are further requested to execute the work of cutting / Transplanting of trees please wise as per plan 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, 1095; 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 conviction, 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 falling 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



Fishermen Compensation summary:MTHL

Sr.no.	Name of Village	Total Appl. Received	Duplicate in DA	Net Appl.		
					C1	C2
Influence Zone (24 Village)						
1	Bamandongri	273	22	251	1	1
2	Belpada	1185	273	912	0	7
3	Ganeshpuri	276	51	225	0	37
4	Gavhan	2162	315	1847	0	14
5	Jasai	926	93	833	0	0
6	Jawale	51	0	51	0	1
7	Kombadbhuja	413	48	365	1	23
8	Kopar	994	231	763	2	5
9	Moha	475	117	358	22	25
10	Mora	818	222	596	0	102
11	Morave	539	163	376	14	21
12	Nhava	1646	498	1148	0	32
13	Shelghar	241	30	211	0	0
14	Shivajinagar	202	51	151	1	4
15	Ulwe	218	37	181	1	3
16	Uran	683	21	662	0	11
17	Vahal	411	43	368	0	2
18	Belapur	110	5	105	0	5
19	Diwale	455	64	391	12	201
20	Sarsole	266	18	248	0	30
21	Karave	178	0	178	0	44
22	Mahul	1062	81	981	129	77
23	Sewri	305	2	303	0	1
24	Trombay	1208	43	1165	49	219
A	Total	15097	2428	12669	232	865

Out of Influence Zone (65 Village)

Sr. No.	Village Name	Total Application	DA	Net Appl.	C1	C2
ACF Thane-Palghar						
1	Airoli	76	47	29	0	29
2	Diwa-Koliwada	122	110	12	0	12
3	Ghansoli	340	310	30	0	30
4	Talvali	54	52	2	0	2
5	Kopar khairne	245	240	5	0	5
6	Nerul	5	4	1	0	1
7	Vashi Gaon	256	205	51	0	51
8	Shahabaj	6	5	1	0	1
9	Fanaspada	4	3	1	0	1
10	Jhugaon	201	194	7	0	7



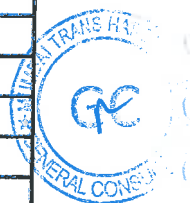
	Total	1309	1170	139	0	139
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ACF Raigad

11	Dhutum	398	397	1	0	1
12	Gharapuri	261	244	17	0	17
13	Kelavane	105	103	2	0	2
14	Koprol	70	66	4	0	4
15	Takigaon	21	20	1	0	1
16	Vindhane	12	10	2	0	2
17	Dighode	708	691	17	0	17
18	Kundegaon	548	515	33	0	33
19	Targhar	110	108	2	0	2
20	Waghivali	112	108	4	0	4
	Total	2345	2262	83	0	83

Village of out of influence zone having No Boat docu

21	Belondkhar	72	72	0	0	0
22	Bhambvi	5	5	0	0	0
23	Bhavra	7	7	0	0	0
24	Bhendkhala	12	12	0	0	0
25	Bhivandi	1	1	0	0	0
26	Bokadvira	1	1	0	0	0
27	Bonkode	10	10	0	0	0
28	Chanje	3	3	0	0	0
29	Chirle	64	64	0	0	0
30	Dadarpada	89	89	0	0	0
31	Daktijui	3	3	0	0	0
32	Dawannagar	1	1	0	0	0
33	Dongari	12	12	0	0	0
34	Ekatghar	12	12	0	0	0
35	Funde	4	4	0	0	0
36	Gothvali	55	55	0	0	0
37	Govandi	1	1	0	0	0
38	Govthane	3	3	0	0	0
39	Jambhulpada	17	17	0	0	0
40	Jaskhar	505	505	0	0	0
41	Kaigav	4	4	0	0	0
42	Kamote	4	4	0	0	0
43	Karal	118	118	0	0	0
44	Karanja	4	4	0	0	0
45	Kevale	1	1	0	0	0
46	Kopara	20	20	0	0	0
47	Kopri	2	2	0	0	0
48	Kudave	1	1	0	0	0
49	Kukshet	5	5	0	0	0
50	Mothijui	50	50	0	0	0
51	Mulkhed	2	2	0	0	0



52	Navghar	151	151	0	0	0
53	Navinsheva	42	42	0	0	0
54	Pagote	1	1	0	0	0
55	Panje	44	44	0	0	0
56	Rabale	5	5	0	0	0
57	Ranjanpada	1	1	0	0	0
58	Sanpada	25	25	0	0	0
59	Savarkhar	162	162	0	0	0
60	Sonari	275	275	0	0	0
61	Surangpada	8	8	0	0	0
62	Taloja	23	23	0	0	0
63	Varche Aowle	5	5	0	0	0
64	Veshvi	259	259	0	0	0
65	Wadala	1	1	0	0	0
	Total	2090	2090	0	0	0
B		5744	5522	222	0	222
A+B	Grand Total	20841	2428	12891	232	1087



Total Approved Applications			Rejected
C2 verified by ACF	C3 verified by ACF	Total Approved	
1	28	30	221
5	477	482	430
36	35	71	154
14	1311	1325	522
0	18	18	815
1	0	1	50
21	131	153	212
1	228	231	532
25	134	181	177
100	375	475	121
20	88	122	254
31	307	338	810
0	15	15	196
4	61	66	85
3	14	18	163
7	600	607	55
2	1	3	365
0	15	15	90
98	52	162	229
0	83	83	165
0	67	67	111
63	603	795	186
0	72	72	231
205	817	1071	94
637	5532	6401	6268

C2 verified by ACF	C3 verified by ACF	Total Approved	Rejected
15	0	15	14
0	0	0	12
15	0	15	15
0	0	0	2
1	0	1	4
0	0	0	1
25	0	25	26
0	0	0	1
0	0	0	1
3	0	3	4



0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
124	0	124	98
761	5532	6525	11790



MAHARASHTRA COASTAL ZONE MANAGEMENT AUTHORITY

Tel. No. : 2202 9388
E-mail : dir1.mev-mh@nic.in
Website: <https://mczma.gov.in/>

No. CRZ 2022/CR 185/TC 4
Office of the -
Maharashtra Coastal Zone Management Authority,
Environment & Climate Change Department,
15th Floor, New Administrative Building,
Mantralaya, Mumbai- 400 032
Date: 09th December. 2022

To,
Director (IA-III),
Coastal Zone Regulation,
Ministry of Environment, Forests & Climate Change,
Indira Paryavaran bhavan, Jor Bagh Road,
New Delhi - 110 003.

Subject: Proposal for extension of Mumbai Trans Harbour Link (MTHL) project by MMRDA

The Maharashtra Coastal Zone Management Authority in its 161st meeting held on 10th November, 2022 deliberated the subject proposal for extension of Mumbai Trans Harbour Link (MTHL) project.

2. The Authority noted that the proposal is for implementing the MTHL project. The MTHL was awarded the CRZ clearance by MoEF&CC vide it's letter No. F. No. 11-65/2012-IA.III dated 25th January, 2016. General consultant has opined that the CRZ clearance is valid till 24th January, 2021. Presently, physical progress is about 83%. Considering Covid 19 pandemic situation, the project timeline has been extended from Sep, 2022 to Sep, 2023. Thus the total extension granted to the contractor is about 12 months.

3. The Authority noted that the main bridge work will be completed by Sep, 2023, however, the dismantling of Temporary Access Bridge (TAB) and other ancillary works will be completed post construction of main bridge as these facilities will be required till end of construction. In view of this, a proposal is submitted for extension for the CRZ clearance for further 3 years.

4. The Authority noted that as per para 4.2 of the CRZ Notification, 2011 amended on 6th March, 2018, *the clearance accorded to the projects under this notification shall be valid for a period of seven years from the date of issue of such clearance:*
Provided that the construction activities shall commence within a period of five years from the date of the issue of clearance and the construction be completed and the operations be commenced within seven years from the date of issue of such clearance:

Provided further that the period of validity may be extended for a maximum period of three years in case an application is made to the concerned authority by the applicant within the validity period, along with recommendation for extension of validity of the clearance by the concerned State / Union Territory Coastal Zone Management Authority";

5. The Authority noted that the validity of the CRZ clearance is for period of 7 years from the date of issue of CRZ clearance. In the instant case, the CRZ clearance dated 25th January, 2016 is valid upto January, 2023. As informed by the MMRDA during the meeting, work of the project is ongoing and physical progress is about 85%.



6. In the light of above, after deliberation, the Authority decided to recommend the proposal to MoEF&CC, New Delhi for extension of the validity of CRZ clearance dated 25th January, 2016 for further 3 years from January, 2023 i.e. upto 25th January, 2026.

7. Minutes of the meeting attached herewith.


(Abhay Pimperkar)

Director, Environment & MS, MCZMA

Copy for information to:

1. **Secretary (Environment) & Chairperson, (MCZMA), Environment & CC Department, Room No. 217 (Annex), Mantralaya, Mumbai -32.**
2. **Member Secretary, Maharashtra Pollution Control Board, Kalpataru Point, 3rd and 4th floor, Road No. 8, Sion Cir, opp. PVR Theater, Mumbai -400022**
3. **District Collector, Mumbai City, Old Custom House, Shahid bhagar Sing Marg, Fort, Mumbai - 01**
4. **Municipal Commissioner, Municipal Corporation of Greater Mumbai, Fort, Mumbai - 01**
5. **Engineer In Chief, MTHL project, 2nd floor New Administrative building, MMRDA, Engineering Division, E block, BKC, Bandra Kurla Complex, Bandra (E), Mumbai - 51 - You are requested to apply online on Parivesh Portal of MoEF&CC, New Delhi along with this CRZ recommendation letter.**
6. **Select File (TC 4)**





MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
मुंबई महानगर प्रदेश विकास प्राधिकरण

No. ED/MTHL/CRZ Clearance/publish/16

Engineering Division
Dt. 29th Jan 2016

①

29/01/16

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,

Mamdapure
(P.D.Mamdapure)
Engineer-in-Chief

②

29/01/16

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 : End: 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

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,

(Signature)
(P.D.Mamdapur)
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.



SP GOVT DELHI P.O 400051 भारतीय डाक
 PIN:64867711
 Counter No:1,UP-Code:56K
 To:DEPARTMENT OF ENVIRONMENT & FOREST
 MUMBAI, PIN:400032
 From:MUMBAI METROPOLITAN REGION, DEVELOPMENT
 Wt:25grams.
 Sat:17.00 01/02/2016 11:19
 Taxes:Rs.2.00<Track on www.indiapost.gov.in



SP GOVT DELHI P.O 400051 भारतीय डाक
 PIN:648677511
 Counter No:1,UP-Code:56K
 To:CHIEF SECRETARY,MSHA POLLUTION CONTROL
 MUMBAI, PIN:400032
 From:MUMBAI METROPOLITAN REGION, DEVELOPMENT
 Wt:25grams.
 Sat:17.00 01/02/2016 11:20
 Taxes:Rs.2.00<Track on www.indiapost.gov.in



SP GOVT DELHI P.O 400051 भारतीय डाक
 PIN:648677511
 Counter No:1,UP-Code:56K
 To:COMMISSIONER,COMMERCIAL TAXES
 MUMBAI, PIN:400012
 From:MUMBAI METROPOLITAN REGION, DEVELOPMENT
 Wt:25grams.
 Sat:17.00 01/02/2016 11:19
 Taxes:Rs.2.00<Track on www.indiapost.gov.in



SP GOVT DELHI P.O 400051 भारतीय डाक
 PIN:648677511
 Counter No:1,UP-Code:56K
 To:AD CHIEF SECRETARY,ENVIRONMENT DEPT
 MUMBAI, PIN:400032
 From:MUMBAI METROPOLITAN REGION, DEVELOPMENT
 Wt:25grams.
 Sat:17.00 01/02/2016 11:21
 Taxes:Rs.2.00<Track on www.indiapost.gov.in



SP GOVT DELHI P.O 400051 भारतीय डाक
 PIN:6486778411
 Counter No:1,UP-Code:56K
 To:SECRETARY,REVENUE & FOREST
 MUMBAI, PIN:400032
 From:MUMBAI METROPOLITAN REGION, DEVELOPMENT &
 Wt:25grams.
 Sat:17.00 01/02/2016 11:20
 Taxes:Rs.2.00<Track on www.indiapost.gov.in>



SP GOVT DELHI P.O 400051 भारतीय डाक
 PIN:648677811
 Counter No:1,UP-Code:56K
 To:CHANDRAN,MSHA COASTAL ZONE
 MUMBAI, PIN:400032
 From:MUMBAI METROPOLITAN REGION, DEVELOPMENT
 Wt:25grams.
 Sat:17.00 01/02/2016 11:21
 Taxes:Rs.2.00<Track on www.indiapost.gov.in>





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.

SF ADDIT BHAVAN PD (400051)

EM9172056091

Counter No:1, OP-Code:SVH

To:ADDL PRINCIPAL CON,CIVIL LINES

NAGPUR, PIN:440001

From:MMRDA, BANDRA E

Wt:30grams,

Ast:40.00, 17/02/2016, 12:02

Taxes:Rs.5.00<<Track on www.indiapost.gov.in



19/02/16



Bandra - Kurla Complex, Bandra (East), Mumbai - 400 051.

EPABX : 2659 0001 - 04 / 2659 4000 • FAX : 2659 1262 • WEB SITE : <https://www.mmrda.maharashtra.gov.in>

386

MUMBAI, TUESDAY
27.08.2013

TENDERS & NOTICES

RAJIV GANDHI JEEVANDAYEE AROGYA YOJANA SOCIETY
Government of Maharashtra
Jeevandayee Bhavan, E.S.I.S Hospital Compound,
Ganpat Jadhav Marg, Mumbai - 400018
Phone and Fax: 022-24912281
Email: hc.011@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

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY
(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 this Mumbai Trans Harbour Link Project vide their letter to F.No.11-65/2012-IA-III dated 19.7.2013. Copies of clearances 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.mil.in>

Sd/-
Chief Engineer,
Engineering Division
No.ED/MTHL/MoEF/Clearance/13
Mumbai

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. STC-2012 for Tower Package for the construction of following 400KV lines on turnkey basis:

NORTHERN RAILWAY CORRIGENDUM
OFFICE OF THE MEDICAL DIRECTOR,
NORTHERN RAILWAY CENTRAL HOSPITAL
BAGMATI LANE, DELHI-110005
File No. EFM 6 d/S R/7 & 13
Adm.No.NRCHSR2013020N: 08.2013
ENGAGEMENT OF SENIOR RESIDENTS
In continuation to previous advertisement published vide Advt. No. NRCHSR/2013/001 dated 20.07.13 for appointment of Senior Residents, the age limit may be read as: (1) General - 35 Years (2) OBC - 36 Years (3) SC & ST - 38 Years
Instead of: (1) General - 35 Years (2) OBC - 36 Years (3) SC & ST - 38 Years
(2) OBC/SC/ST - 38 Years - 188843

PUNJAB STATE TRANSMISSION CORPORATION LIMITED
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.: STC-1020
4. Scope of Work: Manufacture, fabrication, galvanization & supply of 220 KV tower material as per PSTCL Specification
5. Starting date of downloading date of downloading from website: <http://pstcl.procure.com>
6. Last date of downloading from website: <http://pstcl.procure.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

PSYCHOMETER

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.



WEEKLY UPDATE ON THE BEACONS IN INDIA'S PROGRESS

Central Bank Of India (CBI) announced its annual results for the financial year ended 30th June, 2013. The Bank posted a net profit of 450 crore during the current year as against 38 crore in the previous year, an increase of over 10%. The loans and advances of the Bank increased by 6,113 crore from 28,490 crore to 34,603 crore, an increase of 22%. The Bank's total loan disbursements during the year were 17,633 crore (previous year 14,154 crores), a growth of 22% out of which the share in rural housing was about 34%, aggregating to 7,718 crores. Of the total disbursements made during the year, loans upto 15 lakh constituted about 60%. The Bank crossed the cumulative refinance disbursement of 1,00,000 crore during the year 2012-13.

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 official growth vs inflation conflict is assuming political overtones, with the biggest sufferer being the economy." Sanjay Jha, National Spokesperson, Congress (I), said, "The probability 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



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NHB profits rise

National Housing Bank (NHB) announced its annual results for the financial year ended 30th June, 2013. The Bank posted a net profit of 450 crore during the current year as against 38 crore in the previous year, an increase of over 10%. The loans and advances of the Bank increased by 6,113 crore from 28,490 crore to 34,603 crore, an increase of 22%. The Bank's total loan disbursements during the year were 17,633 crore (previous year 14,154 crores), a growth of 22% out of which the share in rural housing was about 34%, aggregating to 7,718 crores. Of the total disbursements made during the year, loans upto 15 lakh constituted about 60%. The Bank crossed the cumulative refinance disbursement of 1,00,000 crore during the year 2012-13.

IDBI Bank hikes rates

IDBI Bank has increased interest rate on foreign currency non-resident NRI (B) and non-resident external (NRE) deposits across select maturity line. The move is aimed at attracting foreign currency inflows from NRI diaspora. Interest rates on FCNR (B) deposits for the tenor of 3 years, and above, has been increased by 100 basis points. (B) across all nine currencies. In respect of NRE Deposits, the rates have been linked for the tenor of more than years up to 7 years by up to 25 bps 50bps. The bank is now offering a pre-interest rate of 9.5% on NRE deposits a result of the above revision. No premature penalty shall be levied on NRI deposits. The revised rates, which took effect from August 20, 2013, shall be valid up to September 30, 2013, subject to review.



MMRDA

MUMBAI METROPOLITAN REGION DEVELOPMENT AUTHORITY

MA 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, Govt 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
from website of Ministry of Environment & Forests at
<http://environmentclearance.nic.in>

No.ED/MTHL/MoEF/Clearance/16

Sd/-

Date: 29/01/2016

Place: Mumbai

Engineer-in-Chief
Engineering Division

CENTRAL PUBLIC WORKS DEPARTMENT NOTICE INVITING E-TENDERS

The Indian **EXPRESS** Sat. 30 January 2016
e-paper editions epaper.indianexpress.com

page no. 24



७४ कार्ड्स ७ बॉटल लॅप (दु. २-साय. ५)
 ६ कार्ड्स ३ ते ७ फेब्रु. २०१६ ६१५ जागा
 आधिक माहितीसाठी संपर्क: 9920592150

CENTRAL PUBLIC WORKS DEPARTMENT
NOTICE INVITING E-TENDERS

The Executive Engineer, Mumbai Central Division No. II, CPWD, Narman 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 Bridg.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 :- AVR & 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.1,260/-, 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 III/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 III/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 anholes, 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 III/2015-16
 Name of Work :-Aesthetic improvement of CGS Colony at V.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 use 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 III/2015-16
 Name of Work :-Providing concertina coil over existing grill compound wall, north side of the building No.186,188 & 189 around the garden at Sector-VI, Kane Nagar, Mumbai-37. 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
 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 contractua' basis
2. Conversant with Hindi and Marathi min. qualification SSC.
3. Fixed salary - Rs 6000 - 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

www.larsentoubro.com

Registered Office: L&T

EXTRACT OF STATE FOR THE QUARTER

Particulars

1	Total Income from Operations (net)
2	Net Profit after tax, minority inte of associates (before extraordinary items)
3	Net Profit after tax, minority inte of associates (after extraordinary items)
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 consolidated financial results as per Regulation 33 of the SEBI (Listing Regulations) 2009 and the results are available on the Company's website and the NSE (www.nseindia.com) and BSE (www.bseindia.com) websites for the nine months ended December 31, 2015.

Particulars

Total Income from Operations (net)
Profit before tax
Profit after tax

(ii) The above is an extract of the Quarterly Financial Results as per Regulation 33 of the SEBI (Listing Regulations) 2009 and on the Company's website and the NSE (www.nseindia.com) and BSE (www.bseindia.com) websites for the nine months ended December 31, 2015.

(iii) The above extract is based on results in newspapers with add up to March 31, 2015 added to facilitate comparison with the results for the corresponding period of the previous year.

Mumbai
 January 29, 2016



मुंबई महानगर प्रदेश विकास प्राधिकरण

(महाराष्ट्र शासन अंतर्गत)
MMRDA
 सौ. - १४ व १५, मॉडर्न-कुर्ना संयुक्त, वॉर्ड (पूर्वी), मुंबई-४०० ०५५
 दूरध्वनी : २२५२४००५-०४ फॅक्स : ०२२५२२६४
 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 वन 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.मं/के.प.वि/मान्यता/१६
 दिनांक : २९/०१/२०१६
 स्थळ : मुंबई

सही/-
 प्रमुख
 अभियांत्रिकी विभाग



शुद्धिपत्रक - २

शहर आणि औद्योगिक विकास महामंडळ (महाराष्ट्र) मर्यादित
 सिडको नवी मुंबई प्रकल्पग्रस्तांसाठी UPSC (Civil Services) - २०१७ मधील परीक्षेच्या तयारी करिता दिव्ही येथील नामवंत कोचिंग इन्स्टिट्यूटमध्ये नि.शुल्क कोचिंग मूळ बाहिगत दिनांक - २३.१२.२०१५, शुद्धिपत्रक-१-०६.०१.२०१६ सदरील बदल वारी, पुणे येथील कळविला आहे.

सिडको नवी मुंबई प्रकल्पग्रस्तांसाठी कोशल्यवृद्धी कार्यक्रम सिडकोतारा अंतर्गत पात्र प्रकल्पग्रस्त पदवीधरांसाठी दिव्ही येथील नामवंत कोचिंग इन्स्टिट्यूटमध्ये (बाजीराम एंड रवी, अल्टरनेटिव्ह लर्निंग सिस्टीम प्रा.ली., श्रीराम आय.ए.एस.) UPSC Civil Services-2017 - Preliminary and Mains या दोन्ही स्पर्धा परीक्षा पूर्व तयारीसाठी उमेदवारांना पुस्कृत (Sponsor) करण्यात येणार आहे. सरत नामवंत कोचिंग इन्स्टिट्यूटमध्ये प्रवेशपरीक्षा COMMON ENTRANCE TEST (CIDCO-DELHI-CET-2017) वारी, पुणे च्या माध्यमाने देण्यात येईल, तसे त्यासाठी ऑनलाईन अर्ज मागविण्यात येत आहे.

ऑनलाईन अर्ज स्विकारण्याची अंतिम तारीख	दि. ११ 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 कापण्यासाठी
<http://barti.maharashtra.gov.in> > NOTICEBOARD > CIDCO-DELHI-CET-2017 वर क्लिक करा.
 अधिक माहितीसाठी संपर्क - <http://cidcopap.sgg.gov.in> फोननंबर ६५०८२५०२, ६५०८८००, ६५०८८००

चवस्थापक (मुनर्वसन)
 CIN - U99999 MH 1877 SGC 014674
www.cidco.maharashtra.gov.in

Ref No: MMRDA/MTHL/P1/GC/EOT-1//2021 /751
Date: 22.11.2021

To,
The Team Leader,
 M/s AECOM Asia Company Ltd.
 (In Consortium with PADECO Co. Ltd –
 Dar-Al-Handasah - T.Y. Lin International)
 6th floor, A Wing, MMRDA Bldg (Old),
 E-Block, BKC, Bandra (East) Mumbai-51

MTHL	
General Consultant	
INWARD NO:	MMRDA 1275
DATE	23.11.2021

Project: Procurement of Mumbai Harbour Link Project (package 1) Construction of 10.380 Km Long bridge section (CH-0+000 – Ch- 10+380) across the Mumbai bay including Sewri Interchange under Identification NO MMRDA/ENG1/000752

--- Extension of Time limit to M/s L&T for completion of contract for Pkg-1

Ref:-

1. Contract Agreement: MMRDA/ENG/000752 dated 26.12.2017
2. MMRDA's Letter of Acceptance (LOA) to M/s L&T-IHI Consortium dated 17.11.2017
3. GC's letter of Commencement to M/s L&T-IHI Consortium dated 23.03.2018
4. M/s L&T-IHI Consortium letter to GC 09.04.2021 requesting EOT to contract of Pkg-1
5. M/s L&T-IHI Consortium letter to GC 24.06.2021 on additional clarification on EOT proposal Pkg-1
6. GC's recommendation to MMRDA vide letter no. MTHL/P1/GC/MMRDA/LT/CNT-2292/2021 dated 07.09.2021.
7. MMRDA letter to JICA vide No. MMRDA/MTHL-PIU/P1/EOT-1/0698/2021dt29/10/2021.
8. Letter from JICA vide No. JICA (ID) 2021-662 dt. 22/11/2021.

Dear Sir,

This has reference to the various letters received by Employer referred above for EOT for MTHL Package 1 Contract. The Contract was awarded to M/s L&T-IHI Consortium with the commencement date 23.08.2018 and as per the Contract; the original completion period is 22.09.2022.

The GC vide their letter dated 07.09.2021, verified the reasons for delay and critical path for completion of the balance work and recommended to MMRDA for approving EOT up to 30.09.2023 (374 days).

It is observed that unavoidable delays beyond the control of Contractor i.e permission from various authorities, realignment at OSD-02 and OSD-03 foundations due to mismatch in ONGC Pipeline and laying of new MbPT pipeline, Covid-19 pandemic restrictions etc is the governing delay affecting the completion of the overall project.

Therefore, the Engineer has recommended an interim Extension of Time for a period of 374 days to be granted to the Contractor under 8.4(b) of the General Conditions of the Contract. The contractor is entitled to claim under the clause 20.1 of GCC and shall be paid the actual costs incurred by him for

Mumbai Metropolitan Region Development Authority

Bandra-Kurla Complex, Bandra East, Mumbai 400 051

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<https://mmrda.maharashtra.gov.in>



such extension of validity of insurances & PBG etc upon submission of proof of payment to the satisfaction of the Engineer

Employer has received concurrence from JICA for EOT to Package 1 for the period of 374 days i.e. till 30th September 2023. Copy of letter of JICA is enclosed herewith for your reference.

In the JICA letter, they have requested MMRDA to setup a mechanism for rigorous review of the safety protocols, processes and mechanism adopted by the contractor to avoid recurrence of safety incidents under the captioned packages. GC is also requested to take note of JICA's point set up a mechanism for rigorous review of the safety at worksite.

This is for your kind information.

Thanking you.

Yours faithfully,
Sunil Wandhekar
(Sunil Wandhekar)
Engineer-In-Chief

Encl: As Above.

- TL Fwd to
- ① Chandrakant Bansod
 - ② Kishore Raju
 - ③ Sim Ashok on 23.11.2021

MTHL			
General Consultant [Pkg -]			
Department	A	I	Rmk
Resident Engineer			
Contract Administration			
Quantity Survey / Billing			
Planning & Monitoring			
Quality Control			
Safety / Environment			
Utilities / Social			
Design Related			
Foundation			
Substructure			
Superstructure PC/Steel			
Geotechnical			
Administration			





JICA (ID) 2021- 652
November 22, 2021

Mr. Sunil Wandhekar,
Engineer-in-Chief,
MMRDA
Mumbai

**Sub: Mumbai Trans Harbour Link Project (MTHL): ID-P 255 & ID-P 263
Extension of Time for Package 1**

Ref: MMRDA/MTHL-PIU/P1/EOT-1/0698/2021 dated October 29, 2021

Dear Mr. Wandhekar,

This has reference to your captioned letter wherein MMRDA has submitted a proposal for Extension of Time (EoT) for package 1 under the captioned project.

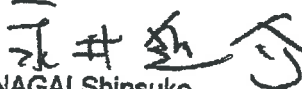
Upon review, it is understood by JICA that the GC of the project has recommended that Extension of Time (EoT) for a period of 374 days (With Revised Completion date as September 30, 2023) shall be granted to the Contractor of Package 1 under 8.4 (b) of the GCC and the same has been accepted and agreed by MMRDA. In view of the above, MMRDA is requested to go-ahead with your proposal and issue the EoT to the contractor of the captioned package in accordance with your proposal.

We wish to take this opportunity to reiterate that amendment to the contract documents concurred by JICA (including amendment in contract price, variations and additional items among others) shall require prior written concurrence from JICA in accordance with the Loan Agreement of the captioned project.

In view of frequent accidents during civil works under Package 1 of the captioned project, we wish to request MMRDA to set up a mechanism for rigorous review of the safety protocols, processes and mechanisms adopted by the contractor to avoid recurrence of safety incidents under the captioned package.

Your kind cooperation in this matter shall be highly appreciated.

Yours sincerely,


NAGAI Shinsuke
Senior Representative



CC:

Mr. Avanish Mishra, Deputy Director General, DEA, Ministry of Finance, New Delhi
Mr. SUNOUCHI Tatsuhiko, Director, SAD1, JICA HQ, Tokyo

14.10.2021



No.MMRDA/MTHL-PIU/GC /2021/674

Date : 13th October 2021

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

MTHL General Consultant	
INWARD NO:	MMRDA 1238
DATE	14.10.21

**Sub: Mumbai Trans Harbour Link (MTHL) Project (Package-2)
- Extension of Time (EOT)**

**Ref: General consultant letter no. MTHL/GC/MMRDA/LT/EOT-2314/2021 dated 15th
October 2021.**

Sir,

The work of MTHL Package -2 has been awarded to M/s Daewoo-TPL JV at a contract value of Rs. 5612.61 crs. The original time given to the contractor for package -2 is 54 months from commencement of work (ie up to 22/09/2022). The contractor M/s Daewoo-TPL JV has submitted proposal requesting EOT accounting for delays up to 25/09/2020.

General Consultant has submitted that the governing delays which are affecting the completion of overall project and recommended for interim Extension of Time for a period of 372 days to be granted to the contractor. General Consultant has arrived at projected completion date as 27/09/2023 i.e. extended time of 372 days for all the delays.

In view of above, General Consultant is requested to confirm that the extension of time limit does not increase the original estimated project cost.

Thanking you,

Yours faithfully

S. A. Wandhekar

(S. A. Wandhekar)
Engineer- In- Chief



Mumbai Metropolitan Region Development Authority

Bandra-Kurla Complex, Bandra East, Mumbai 400 051.

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Ref No: MTHL/P3/GC/MMRDA/LT/EOT-2nd/2023/2015

02.05.2023

To,
The Team Leader,
M/s AECOM Asia Company Ltd.
(In Consortium with PADECO Co. Ltd –
Dar-Al-Handasah - T.Y. Lin International)
6th floor, A Wing, MMRDA Bldg (Old),
E-Block, BKC, Bandra (East) Mumbai-51

Project: Procurement of Mumbai Trans Harbour Link Project (Package 3), Construction of 3.613km long viaduct section (CH 18+187 – CH 21+ 800) including interchanges at State Highway-54 and at National Highway-4B near Chirle in Navi Mumbai Contract No.:MMRDA/ENG/000754 dated 26th December 2017.

--- Extension of Time limit to M/s L&T for completion of contract for Pkg-3

- Ref:-
1. Contract Agreement MMRDA/ENG1/000754 dated 26.12.2017
 2. MMRDA's Letter of Acceptance (LOA) to M/s L&T dated 17.11.2017.
 3. GC's letter of Commencement to L&T dated 23.03.2018
 4. MMRDA letter of EOT NO.MTHL/P3/GC/MMRDA/LT/EOT-0605/2021,dt.21.09.2021
 5. L&T's letter to GC 28.11.2022 requesting EOT to contract of Pkg-3.
 6. GC's recommendation to MMRDA vide letter no. Letter THL/P3/GC/MMRDA/LT/CNT-3427/2023 dated 18.02.2023
 7. JICA letter no JICA(ID)202-080 dt 24/04/2023

Dear Sir,

This has reference to the EOT for MTHL Package 3 Contract. The Contract awarded to Larsen & Toubro Limited. The commencement date was issued on 23.08.2018 and as per the Contract, the original completion period is 21.09.2021 further the Employer approved an extension for 529 days with the project completion date as 03.03.2023. The same was communicated to the Contractor vide letter mentioned at reference no.4 above.

The GC vide their letter dated 18.02.2023 has verified the reasons for delay and critical path for completion of the balance work and recommended to MMRDA for approving EOT upto 06.08.2023 (156 days).

It is observed that due to unavoidable delays in the handing over of the ROW, delay in approval of ROB,s GAD Drawings and change in Employer Requirements of crash barrier etc. is the governing delay affecting the completion of the overall project.


Therefore, the Engineer has recommended an interim Extension of Time for a period of 156 days to be granted to the Contractor under 8.4(b) of the General Conditions of the Contract. The contractor is entitled to claim under the clause 20.1 of GCC and shall be paid the actual costs incurred by him for such extension of validity of insurances & PBG etc upon submission of proof of payment to the satisfaction of the Engineer

We have reviewed the GCs recommendations and received concurrence from JICA, hence agreed to consider the EOT. Copy of letter of JICA is enclosed herewith for your reference.

This is for your kind information.

Thanking you.

Yours faithfully,


(Sunil Wandhekar)
Engineer-In-Chief

Encl: As Above.

JICA (ID) 2023-080
April 24, 2023

Mr. S.A Wandhekar,
Engineer-in-Chief, MMRDA
Mumbai

**Sub: IB-P255 & IB-P283: Mumbai Trans Harbour Link Project (MTHL)
Extension of Time for Package 3**

Ref: Letter No. MTHL/P3/GC/MMRDA/LT/EOT-2/2023/1988 dated April 17, 2023

Dear Mr. Wandhekar,


This has reference to the captioned letter wherein MMRDA has submitted a proposal for Extension of Time (EOT) of Package 3 under the captioned project.

Upon review, it is noted by JICA that the General Consultants (GC) of the project had earlier recommended an interim EOT for a period of 529 days (with completion date as March 3, 2023) to be granted to the contractor of Package 3 and the same has been accepted and agreed by MMRDA and JICA. Now, the contractor for Package 3 had submitted a proposal for further EOT on account of delays in handing over ROW, delay in approvals of GAD drawings of ROBs and change in Employer Requirements pertaining to crash barriers. It is understood by JICA that the Engineer has analyzed the impact of each delay event and has determined that an EOT for a further period of 156 days (New Completion date of August 6, 2023) may be granted to the contractor under Clauses 8.4 (b) and 8.5 of the GCC of the captioned package. It is further noted that MMRDA has agreed to the recommendations of the GC.

In view of the above, MMRDA is requested to go-ahead with your proposal and issue the EOT to the contractor of the captioned package in accordance with your proposal. We wish to take this opportunity to reiterate that amendment to the contract document concurred by JICA (including amendment in contract price, variations in scope, additional items etc.) shall require prior written concurrence from JICA in accordance with the Loan Agreement of the captioned project.

Your kind cooperation in the matter will be highly appreciated.

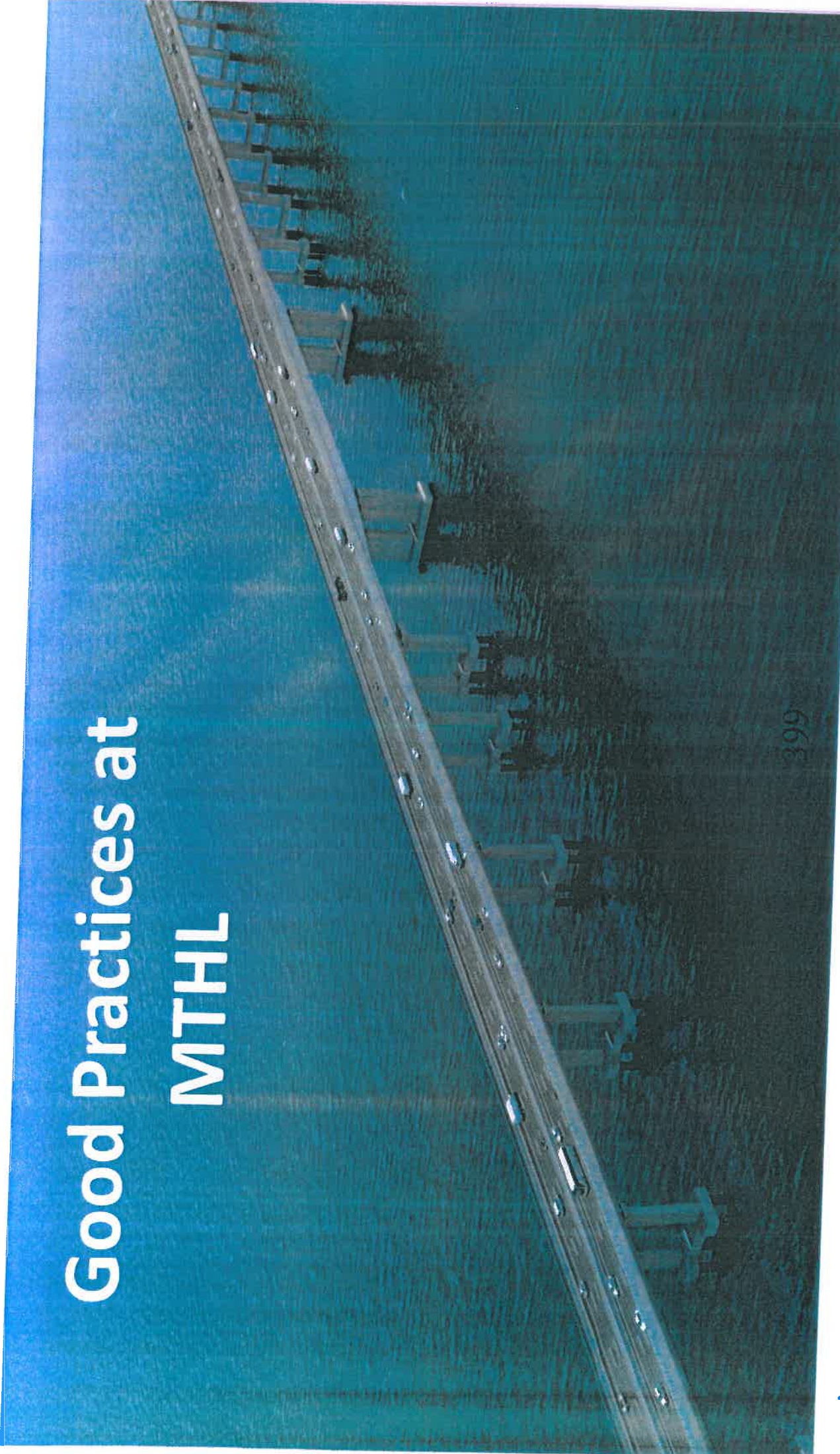
Yours sincerely,



TANIGUCHI Hajime
Senior Representative

CC: Mr. Avanish Mishra, Deputy Director General, DEA, Ministry of Finance, New Delhi
Mr. Sunouchi Tatsuhiko, Senior Director SAD 1, JICA HQ, Tokyo.

Good Practices at MTHL



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Drinking Water Testing & Maintenance



Removal of Dust from site



Removal of Dust using Mechanical dust sweeper



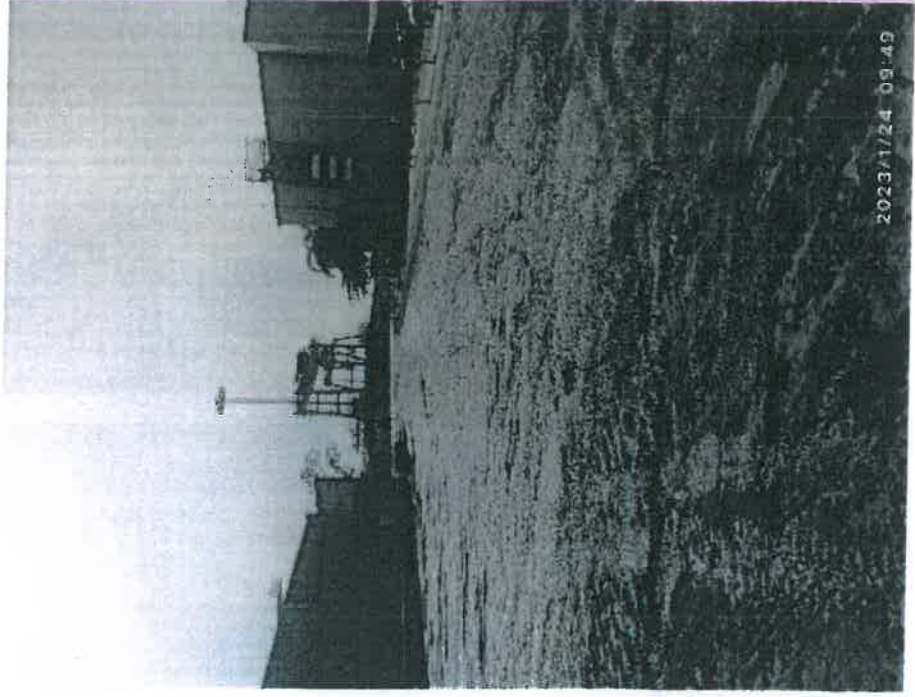
Manual collection of dust from site



Water sprinkling by water tanker



Water sprinkled on access road



Water sprinkled Project Access road



Water sprinkled manually too



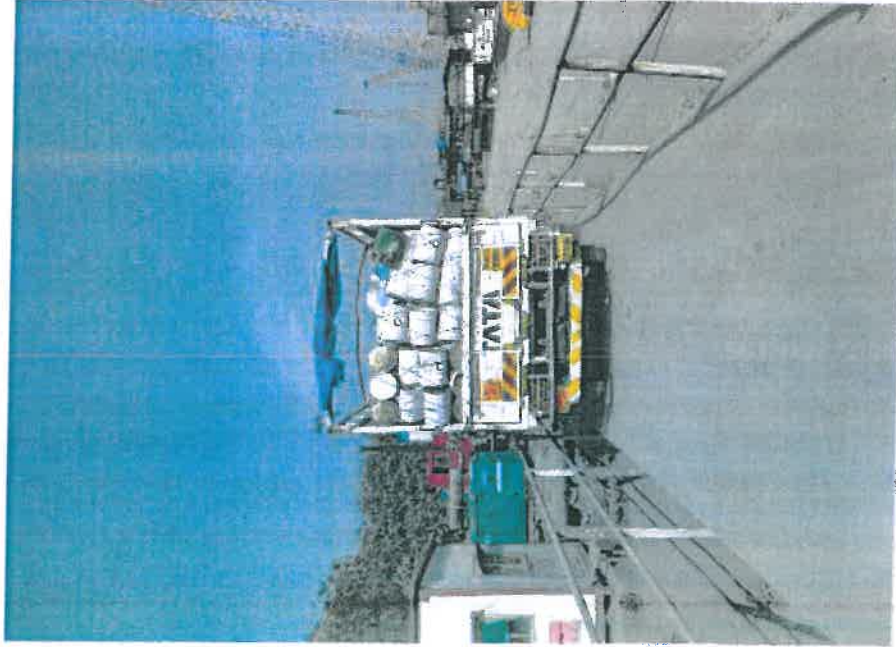
Solar Panel cleaning



Garbage Collection Points



Waste Disposal



Disposal of Recyclable Scrap Waste

Municipal Waste Disposal

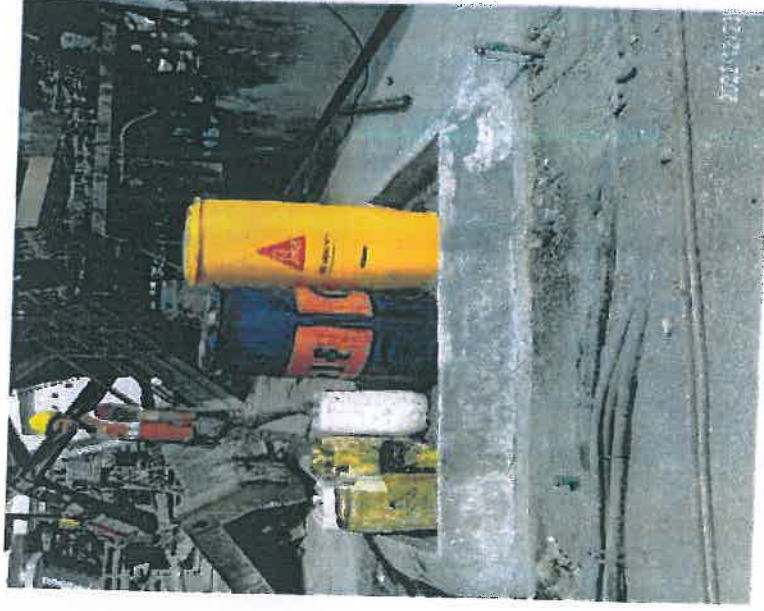
406



Use of Drip trays for Maintenance work



Bund wall tray structure to avoid spillage of oil, diesel & other reagents

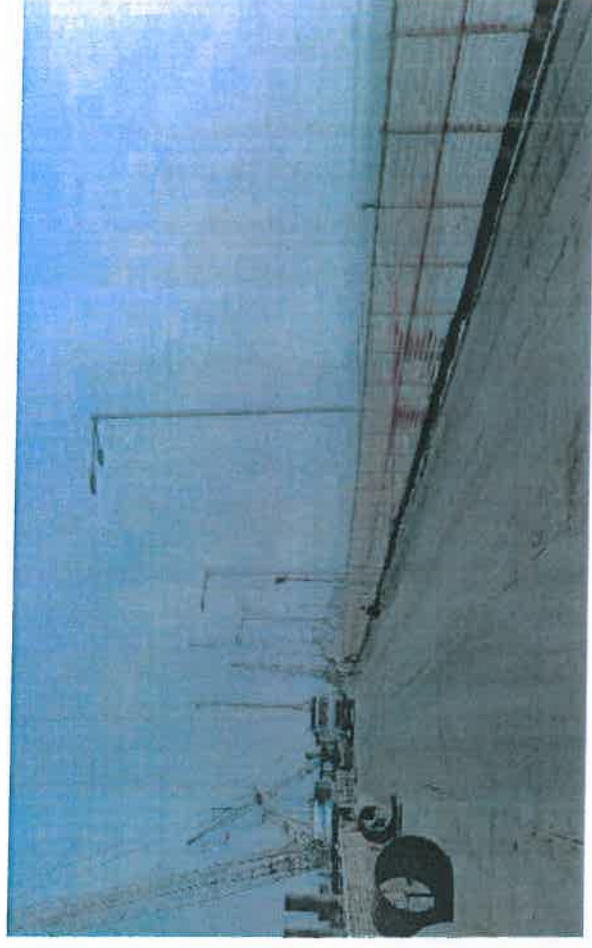


Use of Drip trays for storage



Energy Conservation and Provision of Light

- This special lighting system is installed because the birds and aquatic life are sensitive to light.
- Installed warm white colour, 3000 kelvin temperature lights of Philips make at TAB
- These eco-friendly lights are LED type with average surface illuminance 30 lux and are used specially because the project alignment is passing through Sewri mudflat area which is ecologically sensitive.



Warm white light with 3000 K temperature are installed at Temporary Access Bridge.



Special Lights at TAB

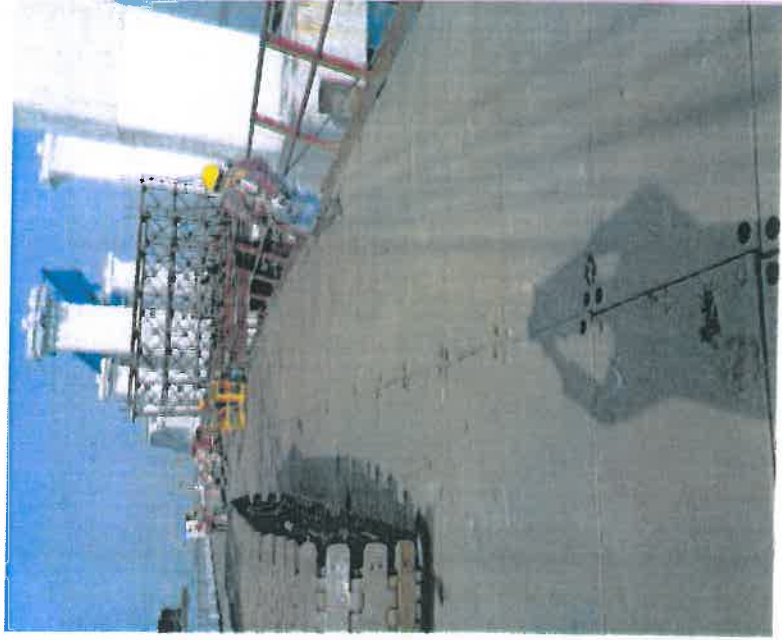
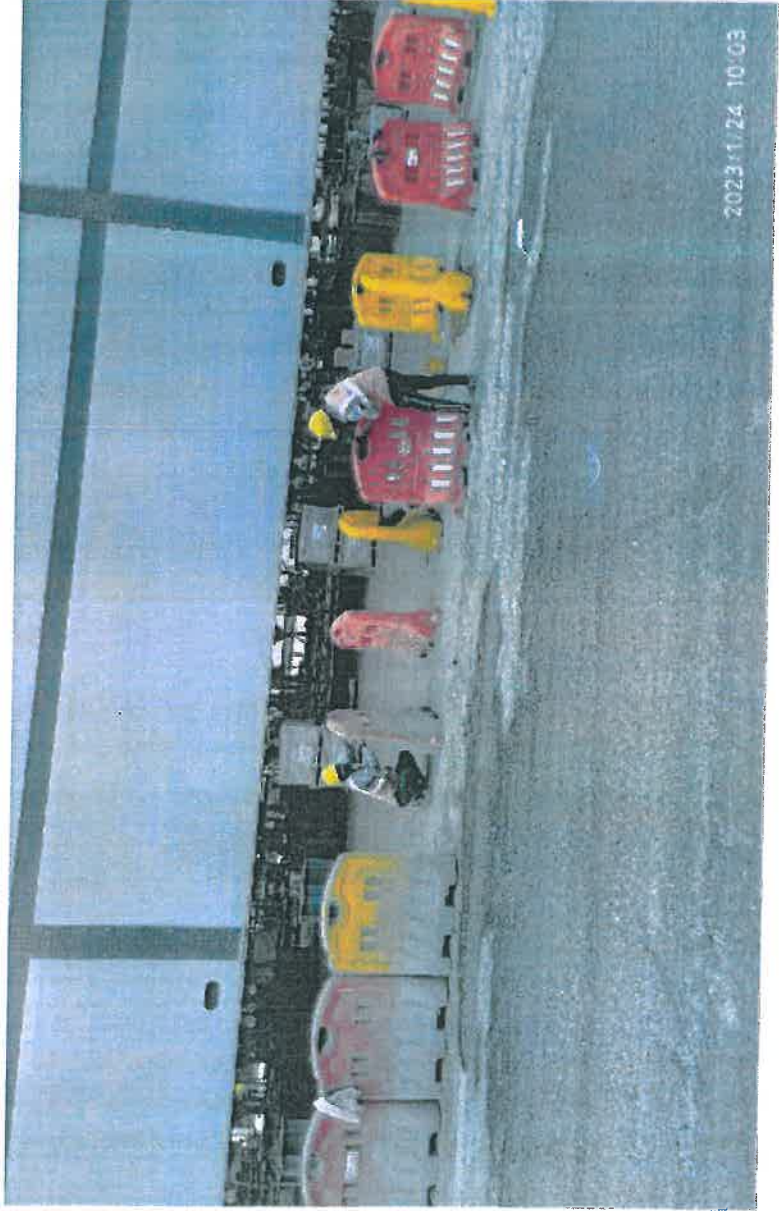
408



Housekeeping at site



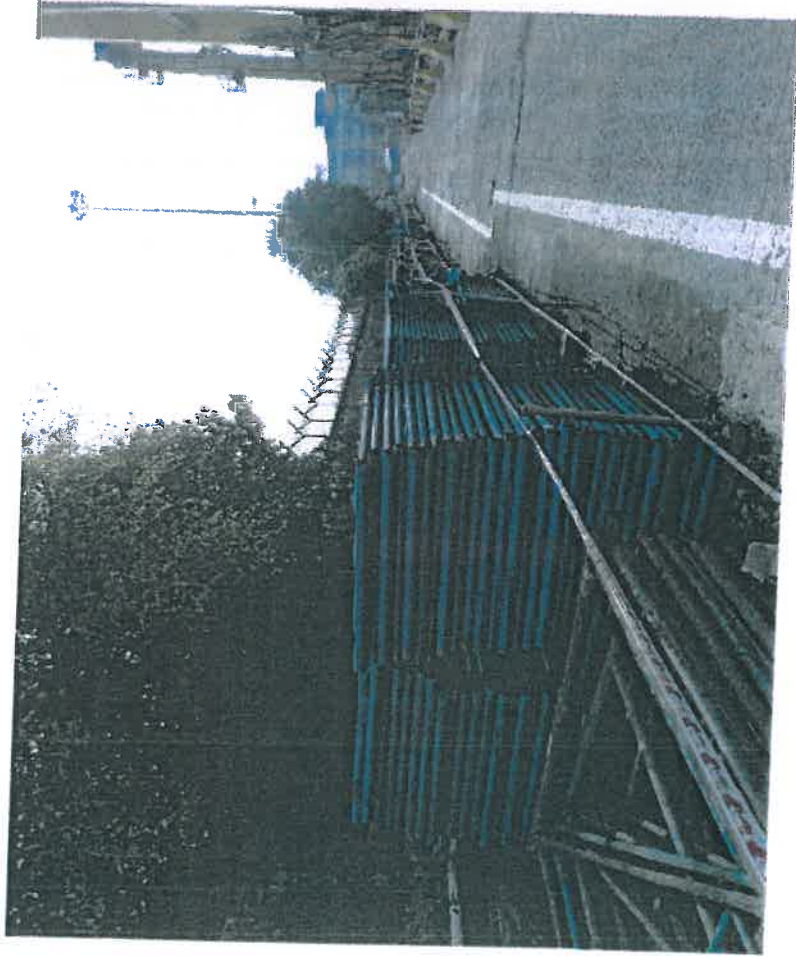
Housekeeping



410



Stacking of Material



411



Reuse of Material on site



Use of Empty drums for Speed limit indication



Use of Empty drums for collection of segregated Material

412



Empty Wooden boxes for Temporary Material storage



Temporary Collection of Waste Material



Environmental Signages



Training, Monthly meetings & Discussions

