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INTERNATIONAL

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General Consultant for Mumbai Trans Harbour Link Project

Ref No: MTHL/GC/MMRDA/LT/QPR- 601/2019

8th February 2019

To,  
The Chief Engineer  
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

**Project:** General Consultancy services for Mumbai Trans Harbour Link (MTHL)**Sub:** Quarterly Progress Report (QPR) No.7 for October-December 2018

Dear Sir,

With reference to the above subject, please find enclosed 2 copies of Quarterly Progress Report (QPR) No. 7 for the period of October-December 2018. You may forward the same to JICA at your earliest convenience.

Thanking you,

Yours faithfully,

Dr. S H Robin Sham, CBE  
(BSc, PhD, DIC, FCGI, FRSA, CEng, FICE, FStructE, FHKIE)  
The Engineer  
General Consultant (MTHL)

**Encl:** Two copies of Quarterly Progress Report No. 7-(Oct-Dec 2018)

**CC:** Superintendent Engineer – MMRDA - Mr. Sakhalkar  
Superintendent Engineer – MMRDA - Mr. Varaskar  
Executive Engineer – MMRDA – Mr. Bhisikar  
Executive Engineer – MMRDA – Mr. Vishal Jambhale





**एमएमआरडीए**  
**MMRDA**

Mumbai Metropolitan Region Development Authority

# Mumbai Trans Harbour Link Project

## Quarterly Progress Report - No.7

(From 1<sup>st</sup> October 2018 to 31<sup>st</sup> December 2018)



**Mumbai Trans Harbour Link Project  
Quarterly Progress Report No. 7  
1<sup>st</sup> October 2018 to 31<sup>st</sup> December 2018  
Loan Agreement No. ID-P255 (Tranche-I)**

**ORGANIZATION INFORMATION**

<b>Borrower</b>	<b>Mumbai Metropolitan Region Development Authority</b>	
	Person in Charge	<b>Metropolitan Commissioner, MMRDA</b>
	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
<b>Executing Agency</b>	<b>Mumbai Trans Harbour Link Project Implementation Unit</b>	
	Headed by:	Chief Engineer 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**

<b>Source of Finance</b>	JICA ODA Loan Portion:	238,572 million Japanese YEN (JPY)
	Tranche-I:	144,795 million Japanese YEN (JPY) (Loan Agreement signed on 31 <sup>st</sup> March 2017)
	Tranche-II:	66,909 Million Japanese YEN (JPY) (Loan Agreement to be signed)
<b>Terms and Conditions of JICA ODA Loan (Tranche-1)</b>	Interest Rate:	0.12233% (LIBOR-0.02233% + SPREAD RATE -0.1000%) from 20 <sup>th</sup> September 2018 to 19 <sup>th</sup> March 2019.
	Repayment Period:	30 years, including 10 years of grace period.



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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

- 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 Nager Interchange			Between Shivaji Nager Interchange and Chirle Interchange		
	2022	2032	2042	2022	2032	2042
Car	24,100	66,400	94,100	4,900	21,300	43,300
Taxi	2700	14,100	20,200	100	400	2,300
Bus	2,700	3,700	3,700	2,700	3,700	3,700
LCV	2,200	4,100	5,600	700	1,300	1,800
HCV	3,000	6,500	8,100	1,000	2,000	2,200
MAV	4,600	9,100	13,800	400	900	1,700
<b>Total</b>	<b>39,300</b>	<b>103,900</b>	<b>145,500</b>	<b>9,800</b>	<b>29,600</b>	<b>55,000</b>

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 Traffic 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**

<b>Location</b>	<b>Original: (P/M)</b> Mumbai Metropolitan Region Development Authority, Mumbai, State of Maharashtra	<b>Actual: (P/R and PCR)</b>
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**Table 2.1.2 Comparison of Original and Actual Scope**

Items	Original	Actual
<b>Construction work: 6-lane Marine Bridge Road (21.8 km)</b>		
Package-1 Ch 0+000-10+380 (10.380 km)	<ul style="list-style-type: none"> <li>1 Interchange (Sewri)</li> <li>Viaduct superstructure (Marine Portion: PC Box Girder &amp; Steel Box Girder with Steel Slab Land Portion: PC Box Girder &amp; PC-I Girder)</li> <li>Viaduct Substructure (RC Concrete Structure)</li> <li>Viaduct Foundation (Bored piles)</li> <li>Road Furniture and road side facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)</li> </ul>	(P/R and PCR)
Package-2 Ch 10+380-18+187 (7.80 km)	<ul style="list-style-type: none"> <li>1 Interchange (Shivaji Nagar)</li> <li>Viaduct superstructure (Marine Portion: PC Box Girder &amp; Steel Box Girder with Steel Slab Land Portion: PC Box Girder &amp; PC-I Girder)</li> <li>Viaduct Substructure (RC Concrete Structure)</li> <li>Viaduct Foundation (Bored piles)</li> <li>Road Furniture and road side facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)</li> </ul>	(P/R and PCR) Actual: No View Barriers
Package-3 Ch 18+187-21+800 (3.61 km)	<ul style="list-style-type: none"> <li>2 Interchanges (State Highway-54, National Highway-4B)</li> <li>Viaduct superstructure (Marine Portion: PC Box Girder &amp; Steel Box Girder with Steel Slab Land Portion: PC Box Girder &amp; PC-I Girder &amp; Steel Truss Girder for Rail-over-Bridges (ROB))</li> <li>Viaduct Substructure (RC Concrete Structure)</li> <li>Viaduct Foundation (Bored piles)</li> <li>Cutting Section (6-lane with Slope Protection)</li> <li>Road Furniture and road side facilities (Traffic Signs and Pavement Marking, Traffic Safety Devices, Crash Barrier, Drainage Structures, Noise Barriers, View Barriers)</li> </ul>	(P/R and PCR) Actual: No Noise Barriers & View Barriers

Items	Original	Actual
Package-4 ITS (Intelligent Transport System)	<ul style="list-style-type: none"> <li>• Administrative Buildings</li> <li>• Toll Booths (1 for main alignment and each on and off rumps for 3 interchanges)</li> <li>• 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))</li> <li>• Highway Lighting (Whole sections Low-positioned lighting for some sections)</li> <li>• Electrical Powering System including HV/ LV Ring Network across the Bridge.</li> </ul>	<p style="text-align: center;"><i>(P/R and PCR)</i></p>
Consulting Services	<ul style="list-style-type: none"> <li>• Tender Assistance</li> <li>• Construction Supervision</li> <li>• Facilitation of Implementation of Environmental Management Plan (EMP), Environmental Monitoring plan (EMoP).</li> </ul>	<p style="text-align: center;"><i>(P/R and PCR)</i></p>

## 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 PRC) as on 31 <sup>st</sup> Dec 2018
1) Completion of Land Acquisition and Resettlement	March 2019	March 2019
2) Consulting Services		
a) Selection of Consultant	May – December 2016	May – December 2016
b) Consultancy Works	December 2016 – September 2024	December 2016 – September 2024
3) Selection of Contractor		
Package 1-3 (Civil)		
a) Pre-Qualification Process	May – December 2016	May – December 2016
b) Main Bidding	January – December 2017	January – December 2017
c) JICA's Concurrence of Contract	February-2018	February-2018
Package 4 (ITS)		
a) Pre-Qualification Process	January 2019 – May 2019	March 2019 – May 2019
b) Main Bidding	June 2019 – September 2020	June 2019 – September 2020
Package 5 (Geotechnical Investigation)		
a) Main Bidding	March-2016	March-2016
4) Civil Construction		
Package 1 and 2	March 2018 – September 2022	March 2018 – September 2022
Package 3	March 2018 – September 2021	March 2018 – September 2021
Package 4	October 2020 – September 2022	October 2020 – September 2022
Package 5 (Geotechnical Investigation)	March 2016– June 2016	March 2016– June 2016
5) Defect Liability Period		
Package 1, 2 and 4	October 2022 – September 2024	October 2022 – September 2024
Package 3	October 2021 – September 2023	October 2021 – September 2023
6) Commencement of Toll Collection	September -2022	September -2022
7) Selection of O&M Organization	October 2020 – September 2021	October 2021 – September 2022

**Attachment:** Project Implementation Programme updated till the quarter (Oct-Dec 2018) end, 31<sup>st</sup> December 2018.

### 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.

## 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	34,398	34,398	0	45,376	45,376	0	105,713	105,713	0
Package-2	26,513	26,513	0	32,617	32,617	0	77,774	77,774	0
Package-3	759	759	0	8,276	8,276	0	13,766	13,766	0
Package-4 (ITS)	0	0	0	1,444	1,444	0	2,269	2,269	0
Package-5 (Geotechnical Investigation)	0	0	0	166	0	166	260	0	260
Dispute Boards (Package-1, 2, 3 & 4)	63	63	0	45	45	0	134	134	0
Price Escalation	2,251	2,251	0	7,133	7,133	0	13,460	13,460	0
Physical Contingency	6,398	6,398	0	9,506	9,489	17	21,338	21,312	26
Consulting Services	1,650	1,650	0	1,587	1,587	0	4,145	4,145	0
Land Acquisition*	0	0	0	11,293	0	11,293	17,748	0	17,748
Administration Cost	0	0	0	4,898	0	4,898	7,698	0	7,698
GST	0	0	0	18,238	0	18,238	28,663	0	28,663
Import Tax	0	0	0	13,435	0	13,435	21,114	0	21,114
Interest during construction	2,942	0	2,942	0	0	0	2,942	0	2,942
Front End Fee	477	0	477	0	0	0	477	0	477
<b>Total</b>	<b>75,451</b>	<b>72,032</b>	<b>3,419</b>	<b>154,013</b>	<b>105,967</b>	<b>48,046</b>	<b>317,501</b>	<b>238,572</b>	<b>78,929</b>

(Note) 1. Exchange Rate: US\$1=Rs. 71.9, US\$1=JPY 113.0, Rs.1 = JPY 1.57

2. Price Escalation (a) Foreign Currency Portion: 1.83% p.a.

(b) Local Currency Portion: 4.13% p.a.

3. Physical Contingency: 10%

4. Base Year for Cost Estimation: December 2018

\* Base Cost for Land Acquisition considered in the year 2016 was INR 9,062,669,696.

The base cost has been revised to INR 11,293 million considering Price Escalation and 10% Physical Contingency.

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	2,753	2,753	-	6,688	6,688		13,309	13,309	
Package-2	2,394	2,394	-	2,450	2,450		5,234	5,234	
Package-3	73	73	-	431	431		737	737	
Package-4 (ITS)	-		-	-			-		
Package-5 (Geotechnical Investigation)	-			196		196	308		308
Dispute Boards (Package-1, 2, 3 & 4)	-			-			-		-
Price Escalation	-			4	4		6	6	-
Physical Contingency	-			-			-		-
Consulting Services	321	321		256	256		736	736	
Land Acquisition*	-			3,420		3,420	5,369		5,369
Administration Cost	-			1,302		1,302	2,044		2,044
GST	-			761		761	1,195		1,195
Import Tax	-			-			-		-
Interest during construction	-			-			-		-
Front End Fee	-			-			-		-
<b>Total</b>	<b>5,541</b>	<b>5,541</b>	<b>-</b>	<b>15,508</b>	<b>9,828</b>	<b>5,679</b>	<b>28,938</b>	<b>20,021</b>	<b>8,916</b>

(Note) 1. Exchange Rate: Rs.1 = JPY 1.57 for MMRDA Portion only

2. Price Escalation (a) Foreign Currency Portion: 1.83% p.a.

(b) Local Currency Portion: 4.13% p.a.

3. Physical Contingency: 10%

4. Base Year for Cost Estimation: December 2018

\* Base Cost for Land Acquisition considered in the year 2016 was INR 9,062,669,696.

The base cost has been revised to INR 11,293 million considering Price Escalation and 10% Physical Contingency.



2.3.1.b Comparison of Originally Planned and Actually Incurred Cost BY YEAR

Table 2.3.1.b.(i) Originally Planned Cost BY YEAR

(All Figures are in JPY mil)

Cost Breakdown	Total	JICA Portion				Others (MMRDA Portion)
		Tranche I	Tranche II	Tranche III	Sub Total	
FY 2017	12,679	10,134	0	0	10,134	2,545
FY 2018	30,771	22,707	0	0	22,707	8,064
FY 2019	72,379	56,816	0	0	56,816	15,563
FY 2020	92,944	55,138	16,040	0	71,178	21,765
FY 2021	66,397	0	50,869	0	50,869	15,527
FY 2022	27,683	0	0	20,113	20,113	7,570
FY 2023	3,723	0	0	565	565	3,158
FY 2024	10,925	0	0	6,189	6,189	4,735
<b>Total</b>	<b>317,501</b>	<b>144,795</b>	<b>66,909</b>	<b>26,868</b>	<b>238,571</b>	<b>78,929</b>

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	15,199	10,789	-	-	10,789	4,410
FY 2019						
FY 2020						
FY 2021						
FY 2022						
FY 2023						
FY 2024						
<b>Total</b>	<b>28,937</b>	<b>20,021</b>	<b>-</b>	<b>-</b>	<b>20,021</b>	<b>8,916</b>

(Note) 1. Exchange Rate used: Rs.1 = JPY 1.57 for MMRDA Portion only

2. Fiscal Year starting from 1<sup>st</sup> April and ending on 31<sup>st</sup> March.

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 January 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 February 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 April 2012. Employment of consultants should be implemented in accordance with "Guidelines of Employment of Consultant under Japanese ODA Loans", dated in April 2012. "Principles of Procurement under the Project" is attached for brief explanation of the above Guidelines.

#### **Actual, if changed: (P/R and PCR)**

There is no change made in 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)	
<b>Construction Works</b>			
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)	No Change
5	<u>Package-5:</u> To conduct the geotechnical investigation	Local Competitive Bidding Process	No Change
<b>Consulting Services</b>			
1	Consulting Service for Supervision	Short List Method (QCBS)	No Change

### 2.4.2.2 Performance

#### Consultant's Progress:

##### October 2018:

- 1 Mr. R A Rajeev, Metropolitan Commissioner (MC), MMRDA along with MMRDA & GC officials visited MTHL Project - all the three packages on 17<sup>th</sup> October 2018 to monitor the progress.
- 2 GC scrutinized & certified Invoice No. IPC-002 for the Package-2.
- 3 Monthly Progress Review Meetings (PRM) with the Package-1 & 2 Contractors were conducted at the GC Office on 3<sup>rd</sup> October 2018. Whereas, for the Package-3, the monthly PRM was conducted on 8<sup>th</sup> October 2018.
- 4 Interface Coordination Meeting with all the 3 Package Contractors was conducted on 24<sup>th</sup> October 2018 to discuss interface issues/ requirement between the packages.
- 5 GC reviewed GIR (Geotechnical Interpretative Report) – Phase 1 for the Package-1 and a “NONO” has been issued. GIR – Phase 2 for Package-1 was under review by GC.

##### November 2018:

- 1 JICA Fact-finding Mission comprising of Mr. TAKANAO Kanda, Assistant Director JICA – South Asia Department, Mr. KENJI Isomoto, Senior Technical Advisor, JICA HQ – Infrastructure Engineering Department and Mr. Anurag Sinha – Lead Development Specialist JICA-India visited MMRDA from 29<sup>th</sup> October to 2<sup>nd</sup> November 2018 to review & recommend Tranche-II loan amount. GC briefed the project progress status in various scheduled meetings and provided necessary documents to the Mission during the aforesaid period.
- 2 JICA Representatives along with MMRDA & GC officials also visited sites of all three Packages on 1<sup>st</sup> November 2018 to monitor the progress.
- 3 GC scrutinized & certified following invoices under ad-hoc basis (i.e., 80% amount of the submitted invoices): - i) IPC-002 for the Package-1 ii) IPC-003 for the Package-2
- 4 Mr. Khandare, Additional Metropolitan Commissioner (AMC), chaired the Project Review Meetings with all the 3 Package Contractors on 12<sup>th</sup> November 2018.

##### December 2018:

- 1 JICA Mission comprising of Mr. NISHI Yosuke, Sr. Deputy Director, JICA HQ, Mr. IRIE Masuru, Asst. Director, JICA HQ, Mr. ISOMOTO Kenji, Sr. Technical Advisor, JICA HQ and Mr. MOMOKO Furuhashi, Representative, JICA-India visited MMRDA from 10<sup>th</sup> December to 14<sup>th</sup> December 2018 to study the feasibility of Tranche-II loan amount. During the aforesaid period, MMRDA assisted the Mission and provided necessary documents with the assistance from GC.
- 2 JICA Representatives along with MMRDA & GC officials also visited the site of Package-1 on 12<sup>th</sup> December 2018 to monitor the progress.
- 3 Monthly Progress Review Meetings with the Package-1 & 2 Contractors conducted at the GC Office on 5<sup>th</sup> December 2018. Whereas, for the Package-3, the meeting took place on 6<sup>th</sup> December 2018.
- 4 GC scrutinized & certified Invoice No. IPC-005 & IPC-006 for the Package-1 under ad-hoc basis (i.e., 80% amount of the submitted invoices).
- 5 GC completed enumerating the affected fishermen in the Mumbai Suburban and Navi Mumbai Area and the report submitted to MMRDA. MMRDA approved and provided compensation to the affected fishermen of the Mumbai Suburban.

**Contractor's Progress:**

**Package-1 Physical Progress**

S. No	Activity	Unit	Total Scope	Cumulative Achieved till 31 <sup>st</sup> Dec 2018	% of Work done Progress	Remarks
<b>1</b>	<b>Geotechnical investigation (field works only)</b>					
1.1	Marine	Nos.	194	194	100%	
1.2	Intertidal	Nos.	117	114	97%	
1.3	Interchange	Nos.	228	169	74%	
	<b>Total</b>	<b>Nos.</b>	<b>539</b>	<b>477</b>	<b>88%</b>	
<b>2</b>	<b>Temporary Access Bridge</b>					
2.1	No. of Piles	Nos.	624	126	20%	
2.2	Bridge Deck Erection	RMT	2900	462	16%	
<b>3</b>	<b>Gantry Track Foundation for PC Yard</b>					
3.1	Gantry Track Foundation for PC Yard	RMT	1840	1493	81%	

**Package-2 Physical Progress**

S. No	Activity	Unit	Total Scope	Cumulative Achieved till 31 <sup>st</sup> Dec 2018	% of Work done Progress	Remarks
<b>1</b>	<b>Geotechnical investigation (Field Works only)</b>					
1.1	Marine	Nos.	154	142	92%	
1.2	Intertidal	Nos.	84	84	100%	
1.3	Interchange	Nos.	66	66	100%	
	<b>Total</b>	<b>Nos.</b>	<b>304</b>	<b>292</b>	<b>96%</b>	
<b>2</b>	<b>Temporary Access Bridge</b>					
2.1	No. of Piles	Nos.	804	82	10%	
2.2	Bridge Deck Erection	RMT	2100	110	5%	
<b>3</b>	<b>Gantry Track Foundation for PC Yard</b>					
3.1	Gantry Track Foundation for PC Yard	RMT	1480	850	57%	

**Package-3 Physical Progress**

S. No	Activity	Unit	Total Scope	Cumulative Achieved till 31 <sup>st</sup> Dec 2018	% of Work done Progress	Remarks
1	Centre Line Fixing (Temp. Marking)	km <sup>2</sup>	3.61	3.39	94%	
2	Survey Pillars Fixing in the Casting Yard & ROW	Nos.	108	80	74%	
3	Tree Survey	km <sup>2</sup>	3.61	1.869	52%	
4	Topography Survey	km <sup>2</sup>	3.61	3.26	90%	
5	Geotechnical Investigation Works	Nos.	210	136	65%	

**Package-4 (ITS)**

Pre-Qualification documents will be submitted to MMRDA soon.

**Health & Safety and Environment (HSE)**

The HSE Plan has been submitted by the respective construction agency for the Packages which is being monitored by the GC on a regular basis.

**Package-1 Safety Report**

Sr. No	Description	For Oct- Dec 2018	Cumulative till 31 <sup>st</sup> Dec 2018
1	Number of Man-Hours (Accident Free Man-Hours)	1048284	1971612
2	Number of Man-Days	101600	217014
3	Number of Reportable Fatal Accidents	0	0
4	Number of Non-Fatal Accidents	0	0
5	Number of Near Miss Incidents	3	3
6	Number of First Aid Cases	5	12
7	Number of Dangerous Occurrences	0	0
8	Number of Reportable Sick Cases	0	0
9	Number of Man-Hours Lost	0	0
10	Number of Man-Days Lost	0	0
11	Number of Reportable Accidents per 100,000 Man-Hours Worked	0	0
12	Number of Inspections done for Offices & Site	16	32
13	Number of Training/ Induction done for Office & Site	15	44
14	Daily Average Manpower (Including all Workmen & Staff) for the Month	2829	655

**Package-2 Safety Report**

Sr. No	Description	For Oct- Dec 2018	Cumulative till 31 <sup>st</sup> Dec 2018
1	Number of Man-Hours (Accident Free Man-Hours)	479490	821552
2	Number of Man-Days	43590	77876
3	Number of Reportable Fatal Accidents	0	0
4	Number of Non-Fatal Accidents	0	0
5	Number of Near Miss Incidents	3	10
6	Number of First Aid Cases	5	12
7	Number of Dangerous Occurrences	1	1
8	Number of Reportable Sick Cases	0	0
9	Number of Man-Hours Lost	0	0
10	Number of Man-Days Lost	0	0
11	Number of Reportable Accidents per 100,000 Man-Hours Worked	0	0
12	Number of Inspections done for Offices & Site	82	167
13	Number of Training/ Induction done for Office & Site	670	1297
14	Daily Average Manpower (Including all Workmen & Staff) for the Month	1453	307



**Package-3 Safety Report**

Sr. No	Description	For Oct- Dec 2018	Cumulative till 31 <sup>st</sup> Dec 2018
1	Number of Man-Hours (Accident Free Man-Hours)	46260	81003
2	Number of Man-Days	5783	10125
3	Number of Reportable Fatal Accidents	0	0
4	Number of Non-Fatal Accidents	0	0
5	Number of Near Miss Incidents	0	0
6	Number of First Aid Cases	0	0
7	Number of Dangerous Occurrences	0	0
8	Number of Reportable Sick Cases	0	0
9	Number of Man-Hours Lost	0	0
10	Number of Man-Days Lost	0	0
11	Number of Reportable Accidents per 100,000 Man-Hours Worked	0	0
12	Number of Inspections done for Offices & Site	12	17
13	Number of Training/ Induction done for Office & Site	16	20
14	Daily Average Manpower (Including all Workmen & Staff) for the Month	174	279

Please refer **Attachment 5 - Site Progress Photos** for the development of the project.

### 3.0 BENEFITS DERIVED FROM THE PROJECT (EFFECTIVENESS)

#### 3.1 Operational and Physical Condition

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

Facilities	Description of condition	Problems, its Background and Remedial Action Plan
(P/R and PCR)	(P/R and PCR)	(P/R and PCR)

#### 3.2 Precautions

Original Issues and Countermeasure(s)	Actual Issues and Countermeasure(s)
<p><b>3.2.1 General Issues</b></p> <p><b>1. Toll Arrangement/ Toll Rate</b> 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><b>2. Operation and Maintenance</b> MMRDA proposes to appoint separate agencies for Operation &amp; Maintenance of the bridge and for Toll Management System. Both the agencies for O &amp; 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 adequate budget for engaging the Contractors.</p>	<p>(P/R and PCR)</p> <p>Appropriate Tolling Policy/ Rates will be finalized by December 2020.</p> <p>Single Operation and Maintenance Contractor will be appointed by December 2020.</p>
<p><b>3.2.2 Environmental and Social Consideration</b></p> <p><b>a. CRZ Clearance</b></p> <ul style="list-style-type: none"> <li>Supplemental EIA has been approved by MMRDA and disclosed on the website of JICA. Supplemental EIA report has been disclosed also on the website of MMRDA.</li> <li>Furthermore, renewed CRZ Clearance has been obtained in January 2016.</li> <li>In accordance with the conditions for CRZ Clearance, appropriate measures shall be</li> </ul>	<p>(P/R and PCR)</p> <ul style="list-style-type: none"> <li>MMRDA has Uploaded Supplemental EIA &amp; SIA on MMRDA website.</li> <li>The CRZ clearance for MTHL was granted on 25/1/2016 from MoEF&amp;CC and same has been communicated to the contractors. MMRDA has been actively monitoring the conditions of the MoEF&amp;CC approval condition and will continue during the construction phase.</li> <li>MMRDA appointed Mangroves &amp;</li> </ul>

<p>taken, and necessary budget shall be secured by MMRDA.</p>	<p>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.</p> <ul style="list-style-type: none"> <li>Rs 91.42 Crore had been deposited to Mangroves &amp; Marine Biodiversity Foundation, Mumbai for the development &amp; conservation of mangrove area and its afforestation. Such funds will be managed by the mangrove foundation of Maharashtra State.</li> <li>As per the revised CRZ clearance condition, Rs 4.98 Crore has been paid for the consulting services to develop a Mahul creek Effluent Treatment Plant (ETP). IIT Mumbai is appointed for the DPR study. DPR is under preparation by IIT, Mumbai.</li> </ul>
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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 <sup>th</sup> November 2016	
Tree Cutting /Transplantation	Respective Tree Authorities	Contractor for respective Packages	-	Pkg-1 Tree cutting/ Transplantation is yet to be confirmed. Pkg-2 Tree Cutting/ Transplantation permission obtained & completed. Pkg-3 Tree Cutting Survey is in progress.

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 has applied for obtaining the Consent to Establish to MPCB.

### 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><b>1. Establishment of Effective Environmental and Social Cell in PIU</b> 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><b>2. Rehabilitation and Land Acquisition Issues</b></p> <p><b>a. Affected Area and Population</b> Due to the Project, 1282 non-titleholders will be involuntary resettled, and 108.09 ha of land will be handed over by CIDCO.</p>	<p><b>Sewri:</b> Involuntary resettlement in Sewri section has been further validated by Social Development Cell of MMRDA. Out of 298 Project Affected Households (PAHs), MMRDA has confirmed the consent of the 232 PAHs for the resettlement site in HDIL buildings at Kurla (E).</p> <p>Out of 67 PAH's (included 1 R+C) 38 PAHs had given their consent to shift to Kanjurmarg East for commercial, 23 PAHs had given their consent to shift to HDIL Kurla for residential, 5 PAHs had given their consent to shift to Kanjurmarg East for residential, 1 PAH had given their consent to shift to Bhakti Park Wadala for residential.</p> <p><b>Navi Mumbai:</b> CIDCO is finalizing the land acquisition on Navi Mumbai side monitored by Land Cell of MMRDA. Out of 108.09 ha ROW 98.75 ha has been handed over by CIDCO to MMRDA. CIDCO is in the process of handing over the balance 9.34 ha land to MMRDA.</p>
<p><b>b. Entitlement Policy</b></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</p>	<p>There are no changes to enforce the entitlement policy. As per the <b>Attachment 2-5</b> 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>JICA guidelines for Environmental and social considerations (2010) (“Guidelines”) (<b>Attachment 2-5</b>).</p>	
<p><b>c. Compensation to Project affected Fishermen</b> 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 <b>Attachments 2-8 and 2-10</b> are enclosed in the report.</p>
<p><b>d. Implementation Schedule</b> The Implementation schedule for land acquisition, resettlement and rehabilitation is attached as per <b>Attachment 2-10</b>.</p>	<p>Updated <b>Attachment 2-10</b> is enclosed in the report.</p>
<p><b>e. Grievance Redressal Mechanism</b> 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>GRC for resolving grievances of the fisherfolk has been set up.</p>
<p><b>f. Internal Monitoring</b> 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 (<b>Attachment 2-8</b>) 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 <b>Attachment 2-8</b>.</p>
<p><b>g. Qualitative Independent Evaluation</b> An Independent Evaluation Agency will</p>	

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>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 <b>Attachment 2-10</b> is enclosed in the report.</p>
<p><b>h. RAP Implementation Budget</b>                      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 Aid Memoire dated 14/12/18, the base cost Budget towards RAP Implementation is updated as Rs 1129.3 Cr.</p>
<p><b>i. Environmental Management Plan (“EMP”)</b>                      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. (<b>Attachment 2-1</b>). 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 time.</p>
<p><b>j. Environmental Monitoring Plan (“EMoP”)</b>                      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. (<b>Attachment 2-4</b>).</p>	<p>Environmental Monitoring Results during the construction phase are mentioned in <b>Attachment 2-4</b> and is attached with the report.</p>



Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>After completion of the construction, EMoP shall be implemented by MMRDA, and the results shall be submitted to the JICA India Office semi-annually until two years after complementation of construction. The required amount of estimated environmental monitoring budget is borne by MMRDA.</p>	
<p><b>k. Long Term Bird Monitoring</b> MMRDA committed to conduct the long-term monitoring of birds and its habitat in Sewri mud-flats with the assistance of hired bird expert. During the long-term monitoring, MMRDA will share information and receive advices from external experts including the one from NGOs and civil society.</p>	<ul style="list-style-type: none"> <li>• MMRDA has entrusted the work of bird monitoring and implementation of Flamingos and birds related mitigation measures &amp; bird monitoring program to Mangrove and Marine Biodiversity Foundation.</li> <li>• Rs. 31.92 Crore deposited to Mangrove foundation, Mumbai for periodical disbursement to BNHS.</li> </ul>

### 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.

<b>EIRR</b>	<p><b>Original:</b> 15.4% Cost: Project cost (excluding Price Escalation, Tax and Duties and Administration cost) O&amp;M cost, Land Acquisition Benefit: Travel Time cost and Vehicle Operation cost Project Life: 32 Years</p>	<p><b>Actual: (PCR)</b> _____% Cost:</p>
<b>FIRR</b>	<p><b>Original:</b> 1.6% Cost: Project Cost, O&amp;M cost, Land Acquisition cost Benefit: Toll Revenue Project Life: 32 Years</p>	<p><b>Actual: (PCR)</b> _____%</p>

### 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><b>Original: (P/M and PCR)</b></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><b>a. Quarterly Progress Report (QPR):</b> 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 <b>Annex I</b>; 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 &amp; Quarterly Progress Reports (including S-Curve Chart) prepared by the Consultant to JICA India Office on regular basis till project completion.</p> <p><b>b. Project Completion Report (PCR):</b> 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 <b>Annex I</b>.</p>
<p><b>Actual: (P/R and PCR)</b></p> <p><b>Monitoring Organization</b></p> <p>PIU for MTHL has been established for monitoring the Project.</p> <p><b>Submission of QPR and PCR</b></p> <p>This QPR No. 7 is submitted for a period of 1<sup>st</sup> October to 31<sup>st</sup> December 2018.</p>

### 3.6 Achievement of the Project Objective

(PCR)
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#### 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)

### 1.2 Overall Evaluation

Please describe your evaluation on the overall outcome of the project.

(PCR)

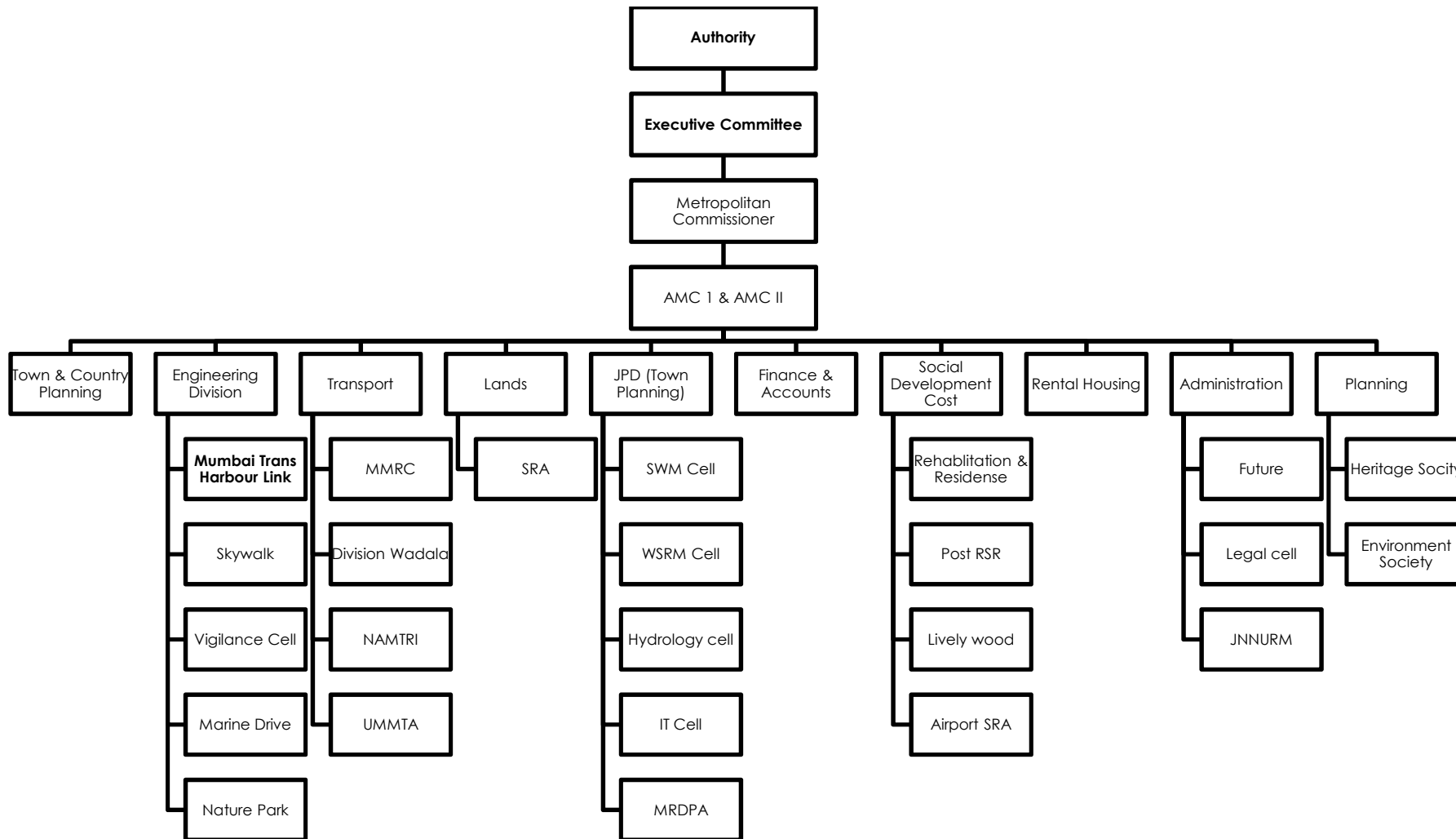
### 5.3 Lessons Learnt and Recommendations

*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.*

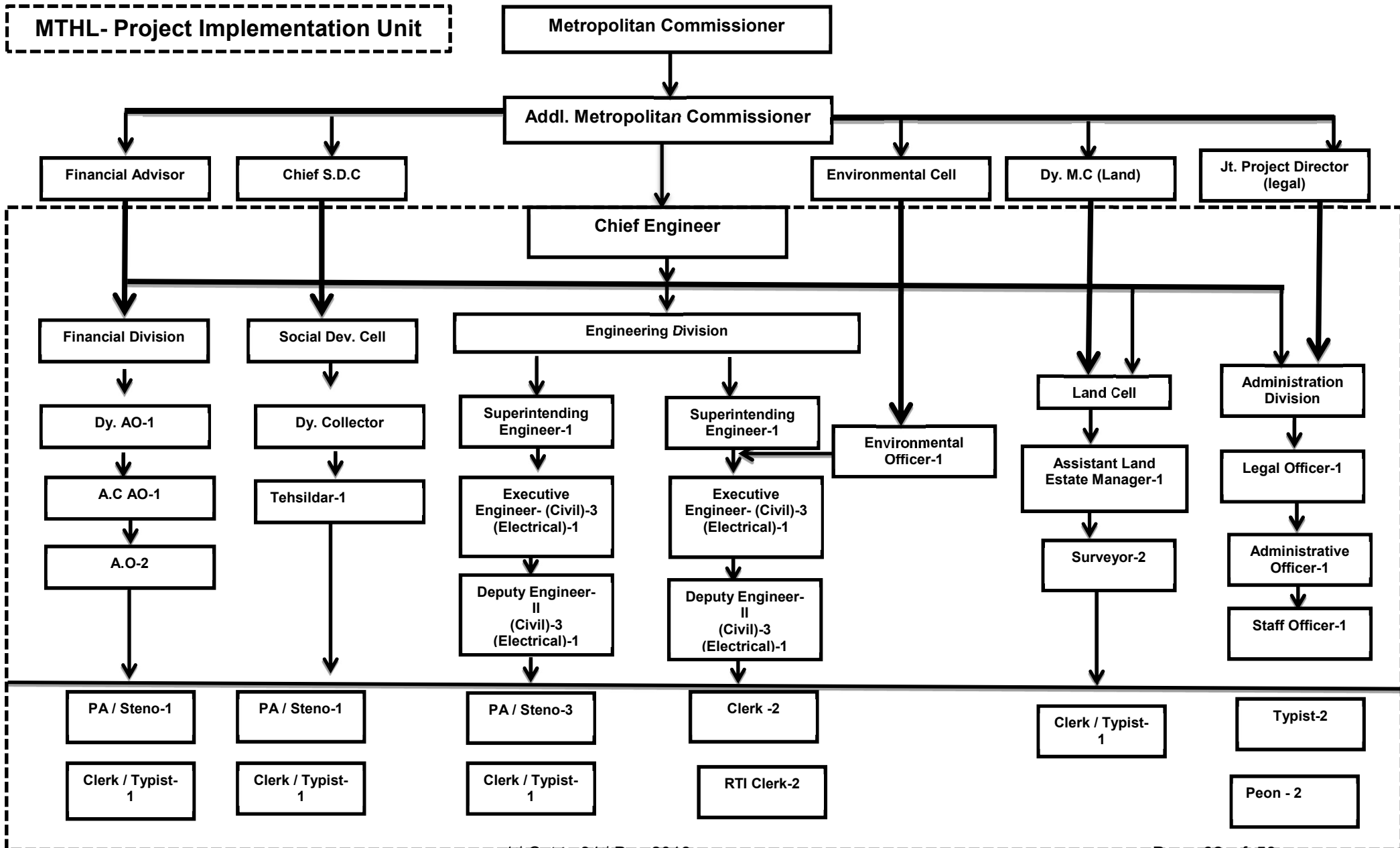
(PCR)

## **Attachment 1- MMRDA & PIU Organization Chart**

**MMRDA Organization chart**







## **Attachment 2- Environmental & Social Impacts Attachments**

**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**

**The Project for Construction of Mumbai Trans Harbour Link  
Reporting Form of Environmental Monitoring during Construction**

Attachment 2-4

Attachment 2-4

Pre- Construction Environmental Monitoring Baseline Data
<b>Monitoring Period - October to December 2018</b>

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.

**1. Environmental Monitoring during Construction for 4.5 years**

Area	No.	Item	Parameter	Location	Frequency a year	Item and Standard	Monitoring Result				Remark - reasons why the data is exceeding standard - counter measures when the data is exceeding		
							Location 1- Pkg 1	Location 2- Pkg 2	Location 3- Pkg 3	Location 4			
Pollution	1	Air pollution	SO <sub>2</sub> , NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	1. Sewri & Sewri bay area for package I	Fortnightly at all locations except 2 locations each near Batching plants	<b>National Ambient Air Quality Standards (NAAQS)</b>  <b>(Standard for 24hrs: Industrial and Residential)</b>	Sewri	Shivaji Nagar	Chirle				
				2. Nhava temporary bridge & casting yard in Gavhan for package II	4 Times / Year								
				3. Gavhan & Chirle for package III	Fortnightly only for 3 months (Jan-2019 to Mar-2019). Then quarterly monitoring as per MOEF and CPCB norms								
					1. SO <sub>2</sub> : 80µg/m <sup>3</sup>	BDL [DL=10]	17	12					
					2. NO <sub>2</sub> : 80µg/m <sup>3</sup>	16	56	20					
					3. PM <sub>10</sub> : 100µg/m <sup>3</sup>	68	248	651		PM10 is high due to the ancillary development taking place around the area around Pkg II & III			
					4. PM <sub>2.5</sub> : 60µg/m <sup>3</sup>	39	79	80					
		2	Water pollution	pH, BOD, DO, Turbidity and O&G	1. Sewri & Sewri bay area for package I	Quarterly	<b>Marine water quality Standards – Class SW-IV Harbour Waters (MPCB)</b>	Zone I	Zone II	Zone III			
	2. Nhava temporary bridge & casting yard in Gavhan for package II				4 Times / Year	1. pH : 6.5-9							7.6
	3. Gavhan & Chirle for package III				Not applicable	2. DO: 3 mg/l							6.9
						3. Turbidity: 30 NTU							7.8
						4. BOD: 5 mg/l							BDL[DL=2]
					5. O & G: 10 mg/l		BDL[DL=10]			NOT applicable For MTHL Package-03			
		3	Waste	Volume of waste soil, cutting tree and domestic garbage	1. Sewri & Sewri bay area for package I	Daily	<b>Municipal Solid Waste Management Rules, 2013</b>	Sewri Camp Site	Shivaji Nagar Camp Site	Chirle Camp Site			
	2. Nhava temporary bridge & casting yard in Gavhan for package II				4 Times / Year	Generated waste soil (t) total							Collected in jumbo bags
	3. Gavhan & Chirle for package III				Once site clearing work/execution part of work start.	Generated cutting tree (ha) total							
						Generated domestic waste (t/month) total							Camp not established yet, site municipal waste is collected and disposed by CIDCO.
									Yes				
		4	Soil Contamination/sedimentation	Heavy Metals & Oil & Grease	1. Sewri & Sewri bay area for package I	1. Muck: 1 Time / Year 2. Sediments: 4 Times / Year	<b>Soil Pollution Standard in India (MOEF)</b>	AB-12 TAB Sewri, dated 21/07.2018					
	2. Nhava temporary bridge & casting yard in Gavhan for package II					1. Cadmium: 0.01mg/l							0.5
	3. Gavhan & Chirle for package III				*If any spillage/ leakage take place from chemical, fuel storage area. *One time grab sample to be collected during Bridge Construction *Pre & Post Monsoon at Storage area only	2. total cyanide : not detected							
					3. organic phosphorus: not detected								
					4. lead: 0.01mg/l	0.48							
					5. chromium (VI): 0.05mg/l	BDL							
					6. arsenic: 0.01mg/l or 15mg/kg (agri-land soil)	BDL							
					7. total mercury: 0.005mg/l	BDL							
					8. alkyl mercury: not detected								
					9. PCBs: not detected								
					10. copper: 125mg/kg (only paddy field soil )	0.96							
					11. dichloromethane: 0.02mg/l	3.84							
					12. carbon tetrachloride: 0.002mg/l								
					13. 1,2-dichloroethane: 0.004mg/l								
					14. 1,1-dichloroethylene: 0.02mg/l								
					15. cis-1,2-dichloroethylene: 0.04mg/l								
					16. 1,1,1-trichloroethane: 1 mg/l								
					17. 1,1,2-trichloroethane: 0.006 mg/l								
					18. trichloroethylene: 0.03mg/l								
					19. tetrachloroethylene: 0.01mg/l								
					20. 1,3-dichloropropene: 0.002mg/l								
					21. thiuram: 0.006mg/l								
		22. simazine: 0.003mg/l											

Regarding soil contamination/sedimentation, some items shall be selected from the total 25 standards items during the Detailed Design. Only the selected items shall be reported to JICA, and the rest of items shall be deleted from this form.

**The Project for Construction of Mumbai Trans Harbour Link  
Reporting Form of Environmental Monitoring during Construction**

Attachment 2-4

Attachment 2-4

Pre- Construction Environmental Monitoring Baseline Data
<b>Monitoring Period - October to December 2018</b>

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.

**1. Environmental Monitoring during Construction for 4.5 years**

5	Noise and vibration	Ambient and road side noise (dB(A) LAeq)	1. Sewri & Sewri bay area for package I	Fortnightly	23. thiobencarb: 0.02mg/l 24. benzene: 0.01mg/l 25. selenium: 0.01mg/l						
			2. Nhava temporary bridge & casting yard in Gavhan for package II	2 Times / Year	Construction area Standard 85 dB(A) daytime (Japan standard) Not construction area : Ambient Noise Standard in India (dB(A) LAeq)	Sewri (ST 200-500) (Industrial area)	Sea Section (ST5000-5500) Migratory Bird Area (no standard on sea section)	Shivaji Nagar (Commercial area)			
			3. Gavhan & Chirle for package III	Fortnightly	Day time : 6-22 hr (continuous) dB(A)	71.8	70.2	58.9			
					Night time: 22-6 hr (continuous) dB(A) (only sea section)	64.7	68.1	47.5			
					Day time : 6-22 hr (10 min during 9-17 hrs)						
					Night time: 22-6 hr (10 min 22-24 hr)						
					Note (standard values in Not construction area)						
					1. Industrial Area						
					Day Time: 75 (6-22hr)						
					Night Time: 70 (22-6hr)						
		2. Commercial Area:									
		Day Time: 65 (6-22hr)									
		Night Time: 55 (22-6hr)									
		Vibration (dB) shall be converted from mm/s to dB	1 Location Gavan area for package III	Half yearly	Construction area Standard 75 dB daytime (Japan standard) Not construction area : Vibration Standard (Japan Standard along the road)	Sewri (ST 200-500) (Industrial area)	Shivaji Nagar (Commercial area)				
					Day time : 6-22 hr (continuous)		0.2				
					Night time: 22-6 hr (continuous)		0.2				
					Note (standard values in Not construction area)	25					
					1. Commercial /Industrial Area						
					Day Time: 70 (7-20hr)						
					Night Time: 65 (20-7hr)						
6	Protected Area	1. Monitoring of mudflat conditions including fauna-flora 2. Monitoring of Cutting Tree and replantation/transplantation area 3. Monitoring of Mangrove Plantation area appointed by MoEF 4. Monitoring of sedimentation soil and ecological parameter (25 items on EIA main text Table 6.1.15 for soil and 7 items such as 1) Net primary productivity, 2) Chlorophyll-a, 3) Phosphate, 4) Nitrate, 5) Nitrite, 6) Particulate Organic Carbon, 7) SiO2)	Along MTHL alignment and mangrove replant area for Package I	Quarterly during the construction Period	Standard is not existing, but quantity and quality should not be worsen	Sewri side (ST500-5500)	Sea Section (ST5500-16000)	Shivaji Nagar side (app. ST16000-19000)	Mangrove Replantation area appointed by State Government		
			Along MTHL alignment and mangrove replant area for package II	4 Times / Year	1-1. Fauna-Flora (number of species and quantity)						
			Not applicable for Package III		(1) Number of species of bird						
					(2) Number of species of fish						
					(3) Estimated number of Flamingo						
					1-2: Mangrove density and community survey				not required		
					(1) Number of species of mangrove				not required		
					(2) Density of mangrove (xx trees/10m x 10m)				not required		
					1-3: Benthos Survey				not required		
					(1) Number of species and quantity by species	152 Species and 95No/m2			not required		
		2-1: Cutting tree confirmation				not required	20				
		(1) Number of cutting tree and species				not required					
		3-1: Mangrove survey in the replant area				not required	not required				
		(1) Number of species of mangrove	not required			not required	not required				
		(2) Density of mangrove (xx trees/10m x 10m)	not required			not required	not required				
		4. Ecological Parameter									
		(1) Net primary Productivity : <1,500 mgC/m3/day at surface	460								
		(2) Chlorophyll-a: <4mg/m3	1.9								
		(3) Phosphate: 0.1-90µg/l	119								
		(4) Nitrate: 1.0-500µg/l	4402								
		(5) Nitrite: <125µg/l									
		(6) Particulate Organic Carbon: 10-100mg/m3									
		(7) SiO2: 10-5,000µg/l	2019								
7	Hydrology	Flooding situation	Not applicable for Package I		Criteria for evaluation Project activities and structures does not cause flooding and impacts on tidal conditions	Sewri	Shivaji Nagar				

Regarding protected area (CRZ and Important Bird Area) and ecosystem, detailed long-term monitoring plan will be established during baseline survey of birds. This tentative monitoring form shall be updated based on the detailed long-term monitoring plan.

**The Project for Construction of Mumbai Trans Harbour Link**  
**Reporting Form of Environmental Monitoring during Construction**  
 Attachment 2-4

Attachment 2-4

Pre- Construction Environmental Monitoring Baseline Data
<b>Monitoring Period - October to December 2018</b>

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.

**1. Environmental Monitoring during Construction for 4.5 years**

				2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II	4 Times / Year	Monitoring of flooding situation		No flooding		
				Not applicable for Package III						
	8	Topography and Geology	Conditions in embankment area	2 Locations (1. Embankment of Inter Change in Shivaji Nagar and 2 Cutting area at toll)	4 times / year x 4.5 years	<b>Criteria for evaluation</b> <b>Embankment shall be stabilized without any landslide and cracks</b> Monitoring of embankment	Shivaji Nagar	Chilre		
							No cracks observed			
	9	Local conflict of interests	Construction worker's township	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	<b>Criteria for evaluation</b> <b>Employment opportunity shall be provided fairly</b> Number of hired workers by community	Sewri Camp Site	Shivaji Nagar Camp Site	100-125	
	10	Infectious diseases such as HIV/AIDS	Number of infected patient	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	<b>Criteria for evaluation</b> <b>Infection disease rate shall not be caused by the project</b> Confirmation of health check record and inspect project site	Sewri Camp Site	Shivaji Nagar Camp Site	Health Checks carried out but HIV/AIDS parameter is not there.	
	11	Labour Environment	Construction worker's condition	2 Locations (major camp site in Sewri and Shivaji Nagar)	2 times / year x 4.5 years	<b>Criteria for evaluation</b> <b>"Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act,1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"</b> Site Visual Inspection	Sewri Camp Site	Shivaji Nagar Camp Site	Conforming with BOCW Act 1996	
Other	12	Accident	Number of accidents	2 Locations (major camp site in Sewri and Shivaji Nagar)	4 times / year x 4.5 years	<b>Criteria for evaluation</b> <b>Any accidents are not caused by construction</b> Number of recorded accident	Sewri Camp Site	Shivaji Nagar Camp Site	Other area	Nil

**MTHL Land Acquisition Status (Attachment 2-6):**

Total land required on Navi Mumbai side- 108.09ha

Land in possession in MMRDA – 98.75 ha

Balance land acquisition- 9.34 ha

Note: The land acquisition of 27 ha which was in progress in year 2016 is acquired by CIDCO and handed over to MMRDA. But during joint measurement of land, the area of 9.34 ha was detected as not acquired. The acquisition for this 9.34 ha is in progress by CIDCO. The balance acquisition will be likely completed by end of March 2019.

Land Required in ha		Land Acquired in ha		Balance Land to be acquired in ha	Anticipated date for Land Acquisition	Payment status (Payment made to Land Owners by CIDCO)	Remarks
Govt.	Private	Govt.	Private	Private*			
98.75	9.34	98.75	0	9.34	31/03/2019	--	1. CIDCO is the land acquisition authority for land acquisition for Navi Mumbai. 2. MMRDA has paid an amount of INR 32.16 Cr to CIDCO as per their demand. 3. The payment status to the land owners is awaited from CIDCO. The same would be communicated to JICA immediately on receipt of the same.
<b>Total</b>		<b>98.75</b>	<b>0</b>	<b>9.34</b>			
<b>108.09</b>							

**\*Portions of Private Land**

Sr. No.	Name of Village	Area (Hectare)
1	Gavhan	0.15
2	Jasai	8.72
3	Chirle	0.47
<b>Total Area</b>		<b>9.34</b>

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

### 1. General Information

a. RAP Implementation Monitoring Results:	Progress Status Report (PSR) of 4 <sup>th</sup> quarter of 2018
b. Date of Preparing This form	31.12.2018
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)	298 Hhs	Titleholders: 0 Hhs Non-titleholders: 298 Hhs
Total PAPs	1,282 persons*	Titleholders: 0 persons Non-titleholders: 1,282 persons*
PAHs who need relocation (as residents)	232Hhs	Titleholders: 0 persons Non-titleholders:232 (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:53 (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.

#### 2.2 Structures

<b>Structures</b>	Residential : 232 Commercial : 66 Residential + Commercial : 1 (counted in Commercial) Community : 9 (Religious Properties 6, Public Toilets 3) Government : 15 (MbPT Structures 8, Occupants of Leased Plots 6 & Police Chowky) Total : 322
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#### 2.3 Fishery

Categories of Fisher-folks	Identified Number		Total	Remarks
	Mumbai side	Navi Mumbai side		
C1: Fishing stakes and nets in RoW (250 m.)	137 For Trombay, Sewri & Mahul in process of approval	Survey in progress	137	Nil
C2 : Fishing Stakes and Nets within 500 m. of RoW (Southern side)	749	126	875	Scrutiny of the balance applications is in progress.
C3 : Hand-pickers	416	1279	1695	

C4 : Commercial and Artisanal Fisher-folks (Loss of Time and Increased Operating Costs)	Will be observed during construction period	Will be observed during construction period	---	Nil
C5 : Fisher-folks with Loss due to Turbidity	Will be observed during construction period	Will be observed during construction period	---	Nil
C6 : Fisher-folks with Damages due to Accidents	Will be observed during construction period	Will be observed during construction period	---	Nil

## 2.4 Land Acquisition / Transfer

Location	Land Required in Ha.		Land Acquired in Ha.		Balance Land to be acquired in Ha	Remarks
	Govt.	Private	Govt.	Private		
Sewri	10.089	0	10.089	0	0	
Navi Mumbai	98.75	9.34	98.75	0	9.34	
<b>Total</b>	<b>118.179</b>		<b>108.839</b>	<b>0</b>	<b>9.34</b>	

## 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	232	75	0	75	32%	
	No. of Residential PAHs given possession of Alternate Tenements	232	0	0	0	0%	
	No. of Commercial/R+C PAPs provided with Allotment Letters of Alternate Shops/Tenements	66	0	0	0	0%	
	No. of Commercial R+C PAPs given possession of Alternate Shops/Tenements	66	0	0	0	0%	



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 Occupants of MbPT Leased Plots provided Compensation	6	0	0	0	0%	
	No. of Religious properties Relocated / Removed	6	0	0	0	0%	
	No. of Other Community properties Relocated / Removed	4	0	0	0	0%	
	No. of Structures in possession of MbPT Dismantled / Cleared	8	0	0	0	0%	
	No. of PAHs/PAPs provided Shifting Charges / Arrangement	298	0	0	0	0%	
Rehabilitation	No. of PAHs / PAPs identified for Livelihood Support in Post Resettlement Assessment						
	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	0					
	No. of Grievances Received by SLGRC	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						
	No. of CHSs' Office Bearers provided training						

### 3.2 Fishery Compensation

Categories of Fisher-folks	Identified Number		Total	Remarks
	Mumbai side	Navi Mumbai side		
C1: Fishing stakes and nets in RoW (250 m.)	137 For Trombay, Sewri & Mahul in process of approval	Survey in progress	137	Nil
C2 : Fishing Stakes and Nets within 500 m. of RoW (Southern side)	749	126	875	An amount of about 49 crores has been deposited with the Fisheries Department towards disbursement of compensation to 2564 Nos. of beneficiaries.  Further, the Fisheries Department has started disbursing the amount to the individual PAPs on following due procedure.  The scrutiny of the balance Nos. of applications of fisherfolk is in the process of scrutiny for deciding their eligibility for the compensation.
C3 : Hand-pickers	416	1279	1695	
C4 : Commercial and Artisanal Fisher-folks (Loss of Time and Increased Operating Costs)	Will be observed during construction period	Will be observed during construction period	---	Nil
C5 : Fisher-folks with Loss due to Turbidity	Will be observed during construction period	Will be observed during construction period	----	Nil
C6 : Fisher-folks with Damages due to Accidents	Will be observed during construction period	Will be observed during construction period	----	Nil

### List as per C2 & C3 category

Sr. No	Village name	Total No of family units surveyed	No of eligible family units
<b>Mumbai side</b>			
1.	Mahul & Sewri	336	336
2.	Trombay	829	829
<b>Total Mumbai side</b>		<b>1165</b>	<b>1165</b>
<b>Navi Mumbai side</b>			
3.	Bamandongri	235	25

<b>Sr. No</b>	<b>Village name</b>	<b>Total No of family units surveyed</b>	<b>No of eligible family units</b>
4.	Belpada	484	329
5.	Ganeshpuri	25	50
6.	Jasai	26	18
7.	Gavhan	5	4
8.	Morave	190	83
9.	Kopar	548	228
10.	Mora	70	1
11.	Uran	65	0
12.	Jawale	232	1
13.	Shelghar	1	15
14.	Shivaji Nagar	2	64
15.	Ulwe	29	14
16.	Vahal	119	3
17.	Navakhadi	673	326
18.	Moha	222	146
19.	Kombadbhuja	134	92
<b>Total Navi Mumbai side</b>		<b>3060</b>	<b>1399</b>
<b>Total (Mumbai side + Navi Mumbai side)</b>		<b>4225</b>	<b>2564</b>

Note: MMRDA has received 13,112 new applications from Fishing families which are yet to be scrutinized.  
Note: The category of fishermen is as per the Fishermen Compensation Policy

#### **Grievance Redressal Committee (GRC) for Fisher-folk Compensation**

<b>No. of Cases referred to GRC</b>	<b>No. of Cases</b>		<b>No. of Cases Rejected</b>	<b>No. of Cases under Consideration</b>
	<b>Allowed</b>	<b>Compensation Paid</b>		
Nil	Nil	Nil	Nil	Nil

**Implementation Schedule for Fisher-folks Compensation & Land Acquisition in Navi Mumbai**

**A. Implementation Schedule for Fisher-folks Compensation:-**

<b>Sr. No.</b>	<b>Task Designation</b>	<b>Approving authority</b>	<b>Start Date</b>	<b>Completion Date</b>
1	Approval of fisher-folks' 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	Detailed list of PAP and compensation plan	Detailed list of Fisher-folk PAP & disbursement is finalized by the Fisheries Department.	23-12-2015	<ol style="list-style-type: none"> <li>1. 1<sup>st</sup> round of scrutiny of applications is completed on 12<sup>th</sup> September 2017.</li> <li>2. 2<sup>nd</sup> round of scrutiny of applications is completed on 25<sup>th</sup> April 2018.</li> <li>3. 3<sup>rd</sup> round of scrutiny of applications is completed on 20<sup>th</sup> November 2018.</li> <li>4. 4<sup>th</sup> Round of scrutiny of applications is will be completed in January 2019.</li> </ol>
5	Validation of compensation plan	Fisher-folks Compensation Committee (FCC)	23-12-2015	<ol style="list-style-type: none"> <li>1. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk from Sewri, Mahul &amp; Trombay (Mumbai side) – 12<sup>th</sup> September 2017 and 20<sup>th</sup> November 2018 for C-2 &amp; C3 Category only.</li> </ol>

Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
			23-12-2015	<p>2. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk of Navi Mumbai of C2 &amp; C3 on 25<sup>th</sup> April 2018.</p> <p>3. Validation of compensation is forecasted to be completed in April 2019.</p>
6	Approval of compensation plan	FCC	23-11-2015	28-12-2017
7	Approval by MMRDA	MMRDA	23-11-2015	09-03-2018

**B. Implementation Schedule for Land Acquisition in Navi Mumbai:-**

Land Required in Ha.		Land Acquired in Ha.		Balance Land to be acquired in Ha	Anticipated date for Land Acquisition	Payment status (Payment made to Land Owners by CIDCO)	Remarks
Govt.	Private	Govt.	Private	Private			
98.75	9.34	98.75	0	9.34	31/03/2019	--	<p>1. CIDCO is the land acquisition authority for land acquisition for Navi Mumbai</p> <p>2. MMRDA has paid an amount of INR 32.16 Cr to CIDCO as per their demand.</p> <p>3. The payment status to the land owners is awaited from CIDCO. The same would be communicated to JICA immediately on receipt of the same.</p>
<b>Total</b>		<b>108.839</b>	<b>0</b>	<b>9.34</b>			

### Implementation Schedule for SIA (Sewri Section)

Task No.	Task Designation	Start Date	Completion / Forecast Date
<b>1</b>	<b>Preparation of Final SIA</b>		
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
<b>2</b>	<b>LARP Implementation</b>		
2.1	Grievance redress mechanism established	August 2016	August 2016
2.2	Staff deployment SIA implementation	June 2016	March 2020
2.3	Staff Deployment Public Relation	June 2016	June 2016
2.4	Hiring of Independent Evaluation Agency	November 2018	April 2019
2.5	Preparation and issue of allotment letters to	June 2018	June 2019
2.6	Notice of PAPs for shifting (Sewri Section)	December 2018	June 2019
2.7	Allotment of dwelling units to PAP's	September 2016	June 2019
2.8	Shifting of PAPs to resettlement Colony	December 2018	July 2019
2.9	Transfer of compensation / allowance/ assistance to PAPs	December 2018	July 2019
2.10	Creation of Community Revolving fund (within 3 months post handing over)	April 2019	July 2019
2.11	Assessment of economic rehabilitation needs by individual household (within 6 months after handing over)	September 2019	December 2019
2.12	Registration of Co-operative housing societies, transfer of maintenance funds. (6 months period)	December 2019	June 2020
2.13	Signing of Civil Contract		January 2017
2.14	Notice of Civil works to proceed		March 2017
<b>3</b>	<b>Monitoring &amp; Evaluation</b>		
3.1	Internal Monitoring- Monthly/ Quarterly	June 2016	January 2020
3.2	Independent Evaluation Mid-term and End term evaluation		
	Mid Term	May 2019	July 2019
	End Term	November 2019	January 2020

## **Attachment 3- JICA's Concurrence Status**

## Status of JICA'S Concurrence

Sl. No.	Brief description	Procurement procedure	Bid Cost		JICA'S Concurrence on					
			Local Currency (Cr Rs.)	Total (Cr Rs)	PQ Documents	PQ Evaluation	Bid Documents	Technical Evaluation	Financial Evaluation	Contract
1.	Package-1 (CH 0+000 km to CH10+380 km)	ICB with PQ (2P)	7637.30	7637.30	JICA's Concurrence - 9th May 2016	JICA's Concurrence - 22 <sup>nd</sup> Dec 2016	JICA's Concurrence - 4 <sup>th</sup> Jan 2017	JICA's Concurrence - 12 <sup>th</sup> Sep 2017	JICA's Concurrence - 12 <sup>th</sup> Oct 2017	JICA's Concurrence - 15 <sup>th</sup> Feb 2018
2.	Package-2 (CH 10+380 km to CH18+187 km)	ICB with PQ (2P)	5612.61	5612.61	JICA's Concurrence - 9 <sup>th</sup> May 2016	JICA's Concurrence - 22 <sup>nd</sup> Dec 2016	JICA's Concurrence - 4 <sup>th</sup> Jan 2017	JICA's Concurrence - 12 <sup>th</sup> Sep 2017	JICA's Concurrence - 12 <sup>th</sup> Oct 2017	JICA's Concurrence - 15 <sup>th</sup> Feb 2018
3.	Package-3 (CH18+187 to CH21+800)	ICB with PQ (2P)	1013.79	1013.79	JICA's Concurrence - 9 <sup>th</sup> May 2016	JICA's Concurrence - 4 <sup>th</sup> Jan 2017	JICA's Concurrence - 4 <sup>th</sup> Jan 2017	JICA's Concurrence - 15 <sup>th</sup> Sep 2017	JICA's Concurrence - 12 <sup>th</sup> Oct 2017	JICA's Concurrence - 15 <sup>th</sup> Feb 2018
4.	Package-4 Intelligent Transport System	ICB with PQ (2P)	144.26	144.26	-	-	-	-	-	-



## **Attachment 4- Project Procurement and Financial Status till 31st Dec 2018**

**PROJECT PROCUREMENT AND FINANCIAL STATUS TILL 31ST DEC 2018**

Type	Contract	Awarded or Estimated Value (in Rs. Crore)	Current Status	Contractors	Award Date/ As per PIP Mar- 2018	Actual/ Projected Completion as per PIP Mar-2018	Physical % completion up to Dec. 2018	Project Amount Disbursement including Mobilization Advance (Till 31 <sup>st</sup> Dec. 2018) in %
CIVIL	Package-1 (CH 0+000 km to CH 10+380 km)	7637.30	Awarded	L&T-IHI Consortium	Nov 2017	Sep 2022	Nil	14.38%
	Package-2 (CH 10+380 km to CH18+187 km)	5612.61	Awarded	DAEWOO-TPL JV	Nov 2017	Sep 2022	Nil	6.98%
	Package-3 (CH18+187 to CH21+800)	1013.79	Awarded	L&T	Nov 2017	Sep 2021	Nil	5.40%
ITS	Package-4 Intelligent Transport System	144.26 (Estimated)	Design Stage	--	Jul 2020 (Estimated)	Sep 2022	Nil	Nil

## **Attachment 5- Project Progress Photos**

JICA- Site Visit Photos

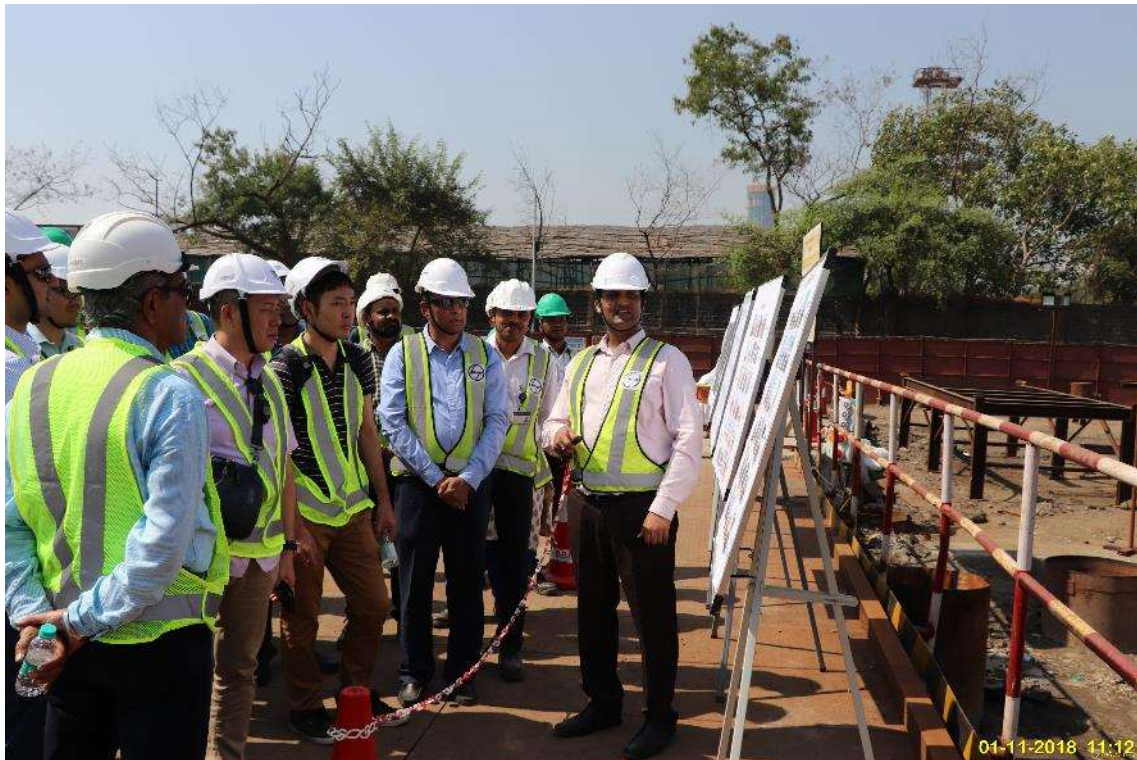


Photo No. 1: JICA Site visit – Package 1 dated 1<sup>st</sup> November 2018



Photo No. 2: JICA Site visit – Package 1 dated 1<sup>st</sup> November 2018



**Package 1- Site Progress Photos**



Photo No. 1: Permanent Pile Casting at MP6 Location in progress



Photo No. 2: Marine Test Pile boring at MP72 Location in progress



Photo No. 3: Piling Gantry Assembly Works at MP43 Location in progress



Photo No. 4: Floating Batching Plant is anchored at MP95 Location





Photo No. 5: Reinforcement cage erection for Test Piling in intertidal portion in progress



Photo No. 6: Reinforcement cage erection for Test Piling in intertidal portion in progress





Photo No. 7: Reinforcement cage installation at MP 95 in Marine Portion in progress



Photo No. 8: Bi-directional Pile Load test monitoring at AP 42 B location





Photo No. 9: Jack-up Barge installation at MP 95 location in progress



Photo No. 10: M1T Batching Plant commissioned at STP Yard



Photo No. 11: Cross-hole Sonic Test at MP 95 Location in progress



Photo No. 12: Marine Piling Survey Works in progress





Photo No. 13: Trenching Works for physically identifying the utilities at AP 15 Location



Photo No. 14: Gantry Track Foundation Casting Works at STP Yard in progress

**Package 2 – Site Progress Photos**



Photo No. 15: Temporary Access Bridge (TAB) Decking works in progress



Photo No. 16: Temporary Access Bridge (TAB) – Front Side Piling works in progress





Photo No. 17: Temporary Access Bridge (TAB) Piling works in progress



Photo No. 18: TAB - Composite Slab Concreting Works in progress



Photo No. 19: Marine Batching Plant Set-up



Photo No. 20: Overall set-up view of Test Pile at Location MP 179 L



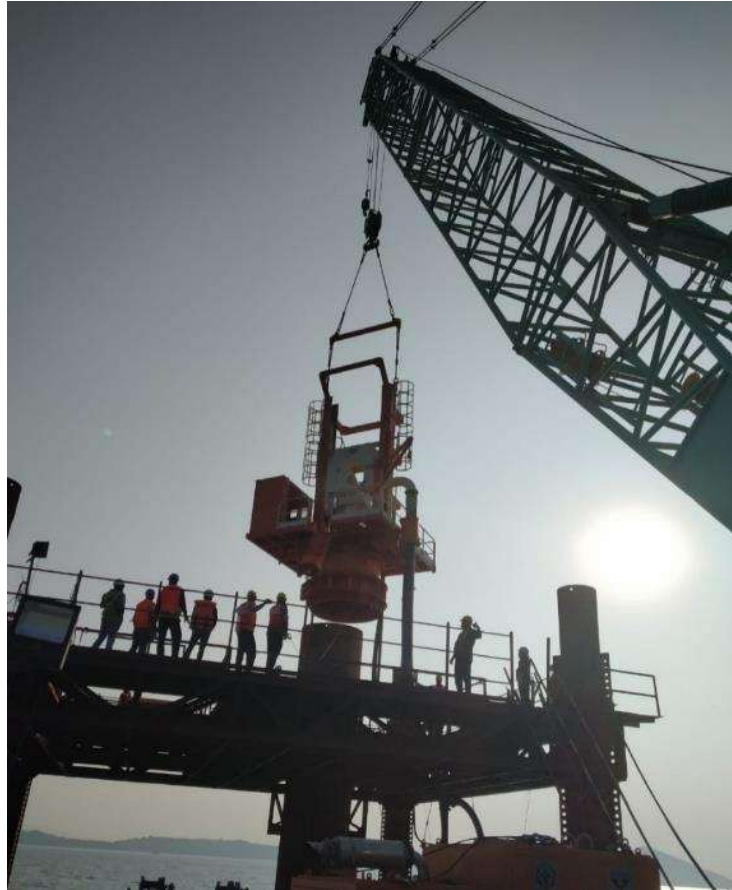


Photo No. 21: Test Pile Boring using RCD Machine in progress



Photo No. 22: Test Pile Concreting Works in progress



Photo No. 23: Bay-1 Segment Stacking Foundation concrete in progress



Photo No. 24: Aggregate Shed Construction Works in Progress



**Package 3 – Site Progress Photos**



Photo No. 25: OGL Survey at CH 18+200 in progress



Photo No. 26: Survey Works (Traversing) at Point S1 in progress





Photo No. 27: Fencing Works at Casting Yard in progress



Photo No. 28: Excavation work at Pier No 269 RMP (CH 18+325) in progress





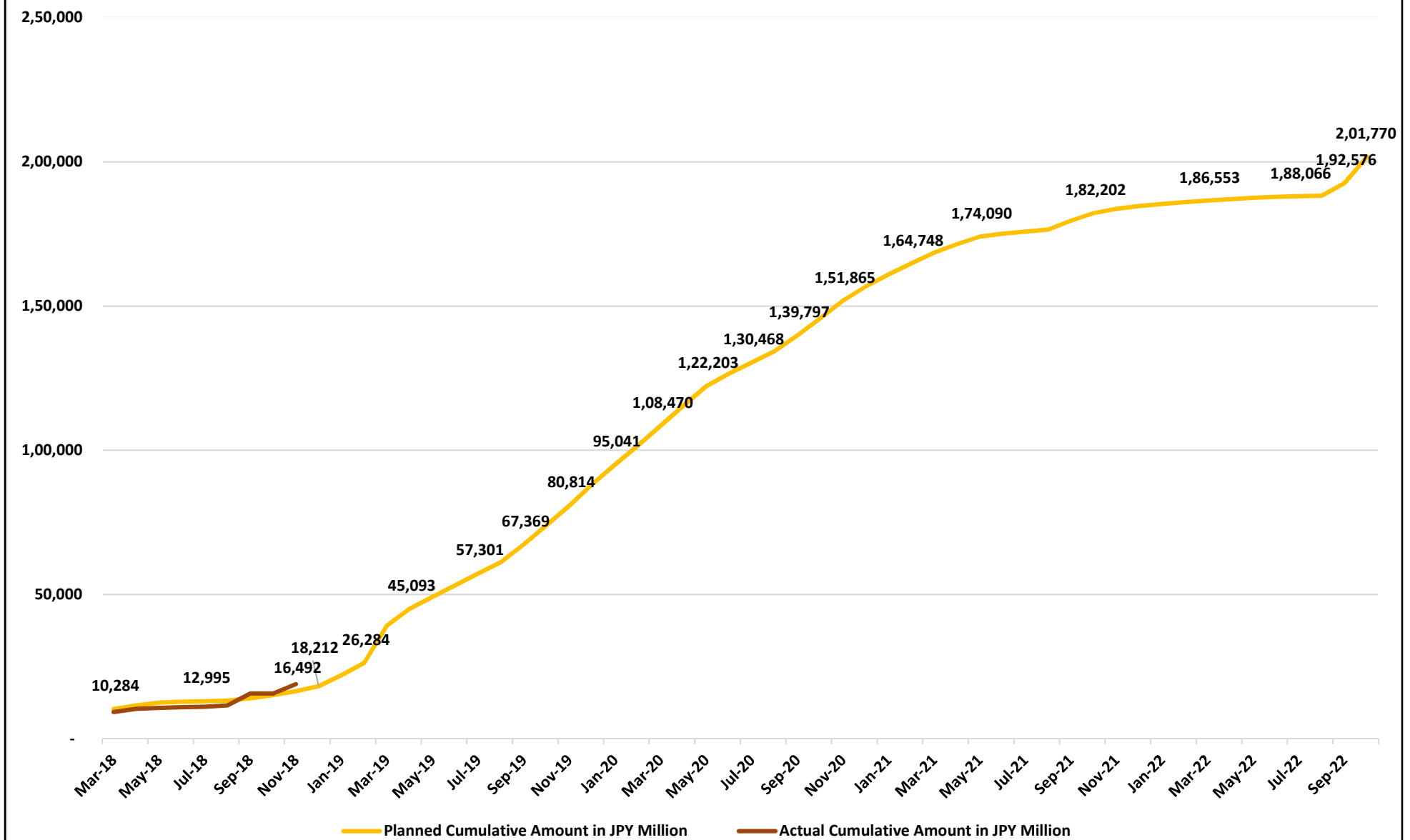
Photo No. 29: MMRDA & MSEDCL Officials site visit on 12<sup>th</sup> Dec 2018 at Chirle Inter.



Photo No. 30: Weekly Safety tool box talk in progress

## **Attachment 6- S-Curve for Cumulative Planned Vs Actual Amount in JPY Million**

### S - Curve for Planned Vs Actual Cumulative Amount in JPY Millions



**Attachment 7- Project Implementation Programme  
Updated Till 31<sup>st</sup> Dec 2018**

Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017				2018				2019				2020				2021				2022				2023				2024				2025	
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
<b>Mumbai Trans Harbour Link (MTHL) PIP</b>						[Gantt bar from Q1 2017 to Q4 2024]																																	
<b>Milestones</b>						[Gantt bar from Q1 2017 to Q4 2024]																																	
<b>MTHL-GC</b>						[Gantt bar from Q1 2017 to Q4 2024]																																	
A1000	Commencement of GC Services	0	14-Dec-16 A		100%	[Milestone diamond at Q1 2017]																																	
A1020	Completion of GC Services	0		09-Oct-24	0%	[Milestone diamond at Q4 2024]																																	
<b>Package of Civil &amp; ITS</b>						[Gantt bar from Q1 2018 to Q4 2021]																																	
A2750	Package-3 Completion & Handover to MMRDA	0		21-Mar-22	0%	[Milestone diamond at Q1 2022]																																	
A2740	Package-2 Completion & Handover to MMRDA	0		28-Sep-22	0%	[Milestone diamond at Q3 2022]																																	
A2730	Package-1 Completion & Handover to MMRDA	0		09-Oct-22	0%	[Milestone diamond at Q4 2022]																																	
A2760	Package-4 Completion & Handover to MMRDA	0		10-Oct-22	0%	[Milestone diamond at Q4 2022]																																	
A2770	Commercial Operation Date	0		10-Oct-22	0%	[Milestone diamond at Q4 2022]																																	
<b>Package - 1 Millstones</b>						[Gantt bar from Q1 2018 to Q4 2021]																																	
P1-1170	Project Commencement Date	0	23-Mar-18 A		100%	[Milestone diamond at Q1 2018]																																	
P1-1180	KD-1 Construction Programme, completion of Soil Investigation, Submit Final plans	0		22-Oct-18 A	100%	[Milestone diamond at Q4 2018]																																	
P1-1190	KD-2 Technical Design documents & Drawings for Foundation /substructure Superstructure (concrete and Steel)	0		23-Mar-19	0%	[Milestone diamond at Q1 2019]																																	
P1-2170	KD-3 GFC for Foundation /Substructure, Superstructure (concrete & Steel)	0		18-Dec-19	0%	[Milestone diamond at Q4 2019]																																	
P1-2180	KD-4 Substantial completion of Foundation, Piles, Piers, Abutments, Earthworks and dolphins.	0		30-Aug-21	0%	[Milestone diamond at Q3 2021]																																	
P1-2190	KD-5 Substantial completion of Pile Caps, Piers and Abutments and Pre-Casting Segment Completion.	0		10-Oct-21	0%	[Milestone diamond at Q4 2021]																																	
P1-2210	KD-7 Substantial completion of Kerbs /Traffic Signs, Marking & Noise barriers, Removal of jetties, Restoration	0		11-Jul-22	0%	[Milestone diamond at Q3 2022]																																	
P1-2200	KD-6 Substantial completion of Concrete Superstructure /cast-in-situ concrete structures, & Steel structures	0		31-Jul-22	0%	[Milestone diamond at Q4 2022]																																	
P1-2220	KD-8 Substantial completion of all works in all respects and Starting the Trail Run operation.	0		16-Feb-23	0%	[Milestone diamond at Q1 2023]																																	
<b>Package - 2 Millstones</b>						[Gantt bar from Q1 2018 to Q4 2021]																																	
P2-2110	Project Commencement Date	0	23-Mar-18 A		100%	[Milestone diamond at Q1 2018]																																	
P2-2120	KD-1 Construction Programme, completion of Soil Investigation, Submit Final plans	0		22-Oct-18 A	100%	[Milestone diamond at Q4 2018]																																	
P2-2130	KD-2 Technical Design documents & Drawings for Foundation /substructure Superstructure (concrete and Steel)	0		23-Mar-19	0%	[Milestone diamond at Q1 2019]																																	
P2-2140	KD-3 GFC for Foundation /Substructure, Superstructure (concrete & Steel)	0		23-Jan-20	0%	[Milestone diamond at Q4 2019]																																	
P2-2150	KD-4 Substantial completion of Foundation, Piles, Piers, Abutments, Earthworks and dolphins.	0		01-Jul-21	0%	[Milestone diamond at Q2 2021]																																	
P2-2160	KD-5 Substantial completion of Pile Caps, Piers and Abutments and Pre-Casting Segment Completion.	0		25-Dec-21	0%	[Milestone diamond at Q4 2021]																																	
P2-2170	KD-6 Substantial completion of Concrete Superstructure /cast-in-situ concrete structures, & Steel structures	0		24-Jun-22	0%	[Milestone diamond at Q2 2022]																																	
P2-2180	KD-7 Substantial completion of Kerbs /Traffic Signs, Marking & Noise barriers, Removal of jetties, Restoration	0		30-Jun-22	0%	[Milestone diamond at Q3 2022]																																	
P2-2190	KD-8 Substantial completion of all works in all respects and Starting the Trail Run operation.	0		28-Sep-22	0%	[Milestone diamond at Q4 2022]																																	
<b>Package - 3 Millstones</b>						[Gantt bar from Q1 2018 to Q4 2021]																																	
P3-1860	Project Commencement Date	0	23-Mar-18 A		100%	[Milestone diamond at Q1 2018]																																	
P3-1870	KD-1 Construction Programme, completion of Soil Investigation, Submit Final plans	0		31-Dec-18	0%	[Milestone diamond at Q4 2018]																																	
P3-1880	KD-2 Technical Design documents & Drawings for Foundation /substructure Superstructure (concrete and Steel)	0		29-Jul-19	0%	[Milestone diamond at Q3 2019]																																	
P3-1890	KD-3 GFC for Foundation /Substructure, Superstructure (concrete & Steel)	0		26-Nov-19	0%	[Milestone diamond at Q4 2019]																																	
P3-1900	KD-4 Substantial completion of Foundation, Piles, Piers, Abutments, Earthworks and dolphins.	0		31-Aug-20	0%	[Milestone diamond at Q3 2020]																																	
P3-1910	KD-5 Substantial completion of Pile Caps, Piers and Abutments and Pre-Casting Segment Completion.	0		05-Feb-21	0%	[Milestone diamond at Q1 2021]																																	

█ Actual Work       Summary  
█ Remaining Work  
█ Critical Remaining Work  
◆ ◆ Milestone

Project Implementation Programme Progress Updated up to 30th September 2018

Date	Revision	Checked	Approved
31-D...	Progress Updated up to 31 Dec 2018	JS	DYTL / TL

































Activity ID	Activity Name	Duration in Days	Start	Finish	Activity % Complete	2017				2018				2019				2020				2021				2022				2023				2024				2025	
						Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
<b>Package 3: 3.6 km long road &amp; bridge(10+187 to 21+800) + interchanges</b>																																							
<b>Mobilisation</b>																																							
P3-1950	Mobilisation	30	23-Mar-18 A	22-Apr-18 A	100%																																		
P3-1960	Construction Programme, completion of Soil Investigation, Submit Final plans	150	22-Apr-18 A	19-Sep-18 A	100%																																		
<b>Schedule No. 1: General Items</b>																																							
P3-1080	Provision and maintenance of health and safety measures during the Time for Completion (Section VII GC Sub-Clause 6.7)	1278	23-Mar-18 A	21-Sep-21	22.14%																																		
P3-1090	Provision (construction) of office facilities with furniture and office equipment	1278	23-Mar-18 A	21-Sep-21	22.14%																																		
P3-1100	Maintenance of above office facilities for the Employer during the Time for Completion (Section VII GC Sub-Clause 6.6)	1278	23-Mar-18 A	21-Sep-21	22.14%																																		
P3-1150	Supply of vehicles, boats, etc. for the Employer (Section VII GC Sub-Clause 6.6)	1278	23-Mar-18 A	21-Sep-21	22.14%																																		
P3-1160	Operation and maintenance of above vehicles, boats, etc. for the Employer during the Time for Completion	1278	23-Mar-18 A	21-Sep-21	22.14%																																		
P3-1000	Performance Security (Section VII. GC Sub-Clause 4.2)	1	22-Apr-18 A	23-Apr-18 A	100%																																		
P3-1010	Insurance for Works (Section VII GC Sub-Clause 18.2)	1	22-Apr-18 A	23-Apr-18 A	100%																																		
P3-1020	Insurance for Contractor's Equipment (Section VII GC Sub-Clause 18.2)	1	07-May-18 A	08-May-18 A	100%																																		
P3-1030	Insurance against Injury to Persons and Damage to Property ( Section VII GC Sub-Clause 18.3)	2	07-May-18 A	08-May-18 A	100%																																		
P3-1040	Insurance for Contractor's Personnel (Section VII GC Sub-Clause 18.4)	2	07-May-18 A	08-May-18 A	100%																																		
P3-1050	Insurance for Design Liability (Section VIII, PC Sub-Clause 18.5)	2	22-May-18 A	23-May-18 A	100%																																		
P3-1060	Automobile Liability Insurance	2	22-May-18 A	23-May-18 A	100%																																		
P3-1070	Allow for DNP Services (Section VII GC Clause 11)	2	19-Sep-21	21-Sep-21	0%																																		
P3-1110	Removal/clearing of above office facilities for the Employer and for the Engineer (Section VII GC Sub-Clause 6.6)	2	19-Sep-21	21-Sep-21	0%																																		
P3-1120	Provision and removal of diversion roads (Section VII GC Sub-Clause 4.15)	2	19-Sep-21	21-Sep-21	0%																																		
P3-1130	Operation and maintenance of diversion roads during the Time for Completion (Section VII GC Sub-Clause 4.15)	2	19-Sep-21	21-Sep-21	0%																																		
P3-1140	Clearing from Site and Works after Taking-Over (Section VII GC SubClause 4.23)	2	19-Sep-21	21-Sep-21	0%																																		
<b>Schedule No. 2: Contractor's Documents</b>																																							
P3-1170	Technical Design documents of highway and interchange alignments	90	31-May-18 A	18-Jan-19	80%																																		
P3-1200	Technical Design documents of foundation	210	30-Jun-18 A	17-Jun-19	20%																																		
P3-1230	Technical Design documents of superstructure (steel)	210	30-Jun-18 A	17-Jun-19	20%																																		
P3-1350	Submission of samples (GC Sub-Clause 7.2)	90	30-Jun-18 A	13-Mar-19	20%																																		
P3-1210	Technical Design documents of substructure	150	30-Jul-18 A	30-Apr-19	20%																																		
P3-1360	Tests	60	31-Aug-18 A	17-Feb-19	20%																																		
P3-1220	Technical Design documents of superstructure (concrete)	150	30-Sep-18 A	30-May-19	0%																																		
P3-1270	Construction Design documents of foundation	180	31-Oct-18 A	15-Sep-19	10%																																		
P3-1280	Construction Design documents of substructure	240	31-Oct-18 A	27-Oct-19	10%																																		
P3-1180	Aesthetic Strategy Report	1	31-Dec-18	01-Jan-19	0%																																		
P3-1190	Technical Design documents of earthwork	90	31-Dec-18	31-Mar-19	0%																																		
P3-1300	Construction Design documents of superstructure (steel)	240	18-Jan-19	15-Sep-19	0%																																		
P3-1250	Technical Design documents of bridge ancillaries	120	30-Jan-19	30-May-19	0%																																		

█ Actual Work      ▬ Summary  
█ Remaining Work  
█ Critical Remaining Work  
◆ Milestone

Project Implementation Programme Progress Updated up to 30th September 2018

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