Environmental Monitoring Report

Project Number: 42266-023
January 2019
Period: June 2018 – November 2018

IND: Kolkata Environmental Improvement Investment Program - Tranche 1

Submitted by:

The Kolkata Municipal Corporation (KMC), Kolkata

Asian Development Bank

Dear Sourav,

SEMR _Tr1_June to November 2018_Final _06_01_19...

Kindly find enclosed the "Semi Annual Environmental Monitoring Report, Tranche-1 KEIIP" (period from June to November, 2018), for your kind perusal.

With warm regards,

Project Director
Kolkata Environment Improvement Investment Programme
Kolkata Municipal Corporation
Kolkata

Semi-Annual Environmental Monitoring Report

ADB Loan Number 3053-IND
Period Covered: June to November 2018

December 2018

IND: KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAM (KEIIP) – Project 1

Prepared by Project Management Unit, Kolkata Environmental Improvement Investment Program, Kolkata Municipal Corporation, Government of West Bengal for Asian Development Bank

KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAM (KEIIP) – PROJECT 1

PROJECT MANAGEMENT UNIT

9th

SEMI ANNUAL ENVIRONMENT MONITORING REPORT

TRANCHE 1

ADB Loan 3053-IND

(Period June to November 2018)

December 2018

KOLKATA MUNICIPAL CORPORATION

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ABBREVATIONS

AAI	-	Airport Authority of India
ADB	-	Asian Development Bank
ASI	-	Archaeological Survey of India
BIS	-	Bureau of Indian Standards
BOD	-	Biochemical Oxygen Demand
CBO	-	Community Based Organization
COD	-	Chemical Oxygen Demand
CPCB	-	Central Pollution Control Board
CPHEEO	-	Central Public Health and Environmental Engineering Organisation
CTE	-	Consent to Establish
CTO	-	Consent to Operate
CW	-	Canal Water
DG	-	Diesel Generator
DO	-	Dissolved Oxygen
DPR	-	Detailed Project Report
DSC	-	Design and Supervision Consultants
DWF		Dry Weather Flow
KMC	-	Kolkata Municipal Corporation
EA	-	Executing Agency
EARF	-	Environmental Assessment and Review Framework
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
GRC	-	Grievance Redressal Committee
GRM	-	Grievance Redress Mechanism
GW	-	Groundwater
HC	-	Hydrocarbons
IEE	-	Initial Environmental Examination
INR	-	Indian National Rupee
KEIP	-	Kolkata Environmental Improvement Project
KEIIP		Kolkata Environmental Improvement Investment Program
KMC	-	Kolkata Municipal Corporation
KMDA	-	Kolkata Metropolitan Development Authority
LPG	-	Liquefied Petroleum Gas
MoEFCC	-	Ministry of Environment and Forest& Climate Change, Government of India
MTBM	-	Micro Tunnel Boring Machine
NIOSH	-	National Institute of Occupational Health

NGO	-	Non Government Organization
O and M	-	Operation and Maintenance
PMC	-	Project Management Consultant
PMU	-	Project Management Unit
PS	-	Pumping Station
REA	-	Rapid Environmental Assessment
ROW	-	Right of Way
RP	-	Resettlement Plan
S & D	-	Sewage & Drainage
SEIAA	-	State Level Environmental Impact Assessment Authority
SPM	-	Suspended Particulate Matter
SPS	-	Safeguard Policy Statement
STP	-	Sewage Treatment Plant
SWF	-	Storm Water Flow
SW	-	Surface Water
TDS	-	Total Dissolved Solids
TMP	-	Traffic Management Plan
TSS	-	Total Suspended Solids
UFW	-	Unaccounted For Water
USD	-	US Dollar
WBPCB	-	West Bengal Pollution Control Board
WTP	-	Water Treatment Plant

I. INTRODUCTION

A. Background

1. The completed Kolkata Environmental Improvement Project (KEIP) was a key urban infrastructure initiative of the Kolkata Municipal Corporation (KMC) and achieved improvement of the urban environment and quality of life in parts (mainly added areas) of Kolkata Municipal Corporation area. On completion of KEIP, both KMC & ADB agreed to continue their combined effort to arrest environmental degradation and to improve basic urban services of Kolkata by a multi - tranche financing program 'Kolkata Environmental Improvement Investment Program' (KEIIP). Figure in **Appendix 1** shows the areas of Kolkata considered to be taken up under KEIIP Tranche 1 & 2. On their part ADB expressed their willingness to support this program by providing a multi-tranche financing facility amounting to US $400 million. Under Tranche 1 works, ADB has already released about US $100 million and the remaining US $300 million is expected for the proposed works under Tranche 2 & 3. The total investment duration for Tranche 1, 2 & 3 is from 2014 to 2022, whereas the duration for Tranche 1 works is from 2014 to 2019.

2. The goal of the Kolkata Environmental Improvement Investment Program is to support sustainable economic growth through improved quality of urban life and urban environment.The main objective of the Program is to improve service quality and operational sustainability of increased water supply and sewerage in 20% of the KMC area. The Investment Program also aims towards increase in operational efficiency and scale of water supply, sewerage and drainage services in 5% of KMC area.

3. The Program output comprises of:

- ✓ rehabilitation of inefficient and outdated water supply assets;
- ✓ continued extension of sewerage to newly developed areas and
- ✓ further development of financial and project management capacity.

4. The Program is being carried out at Kolkata by the Govt. of West Bengal (GoWB) acting through Kolkata Municipal Corporation (KMC) as the Executing Agency (EA). Location of Kolkata city in West Bengal is shown in **Figure 1.** Sub project location map for **Tranche 1 (Project 1)** is shown in **Figure 2.**

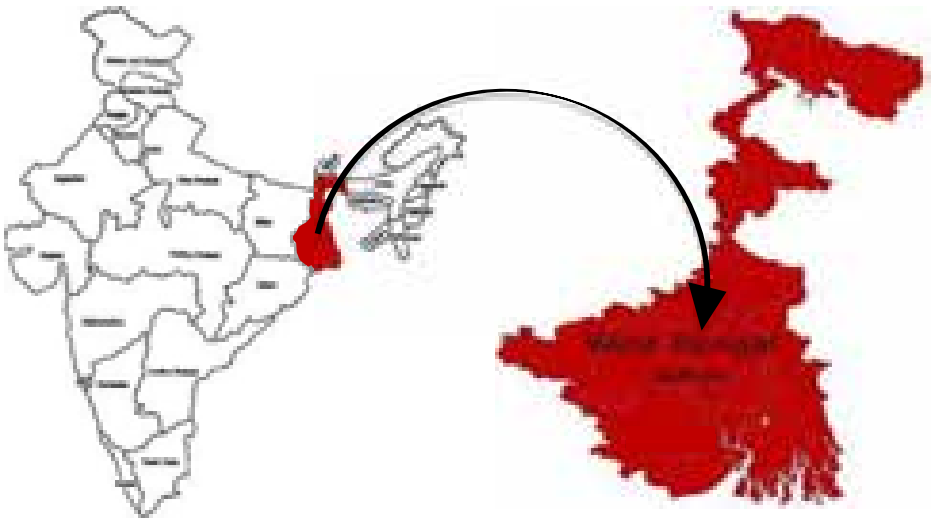


Figure 1: Map showing the location of Kolkata City in West Bengal

B. Project & Report Purpose

5. Sub projects under **Project 1** has been classified by ADB as environmental assessment category B (some negative impacts but less significant than category A) and the impacts of subprojects were assessed through Initial Environmental Examination (IEE), prepared according to ADB Safeguard Policy (SPS 2009).

6. This report is the semi-annual environment monitoring report (SEMR) for Tranche 1 project covering period from **June to November 2018** and describes the implementation of the environmental management plan (EMP) in respect of each subproject as laid down in the approved IEE.

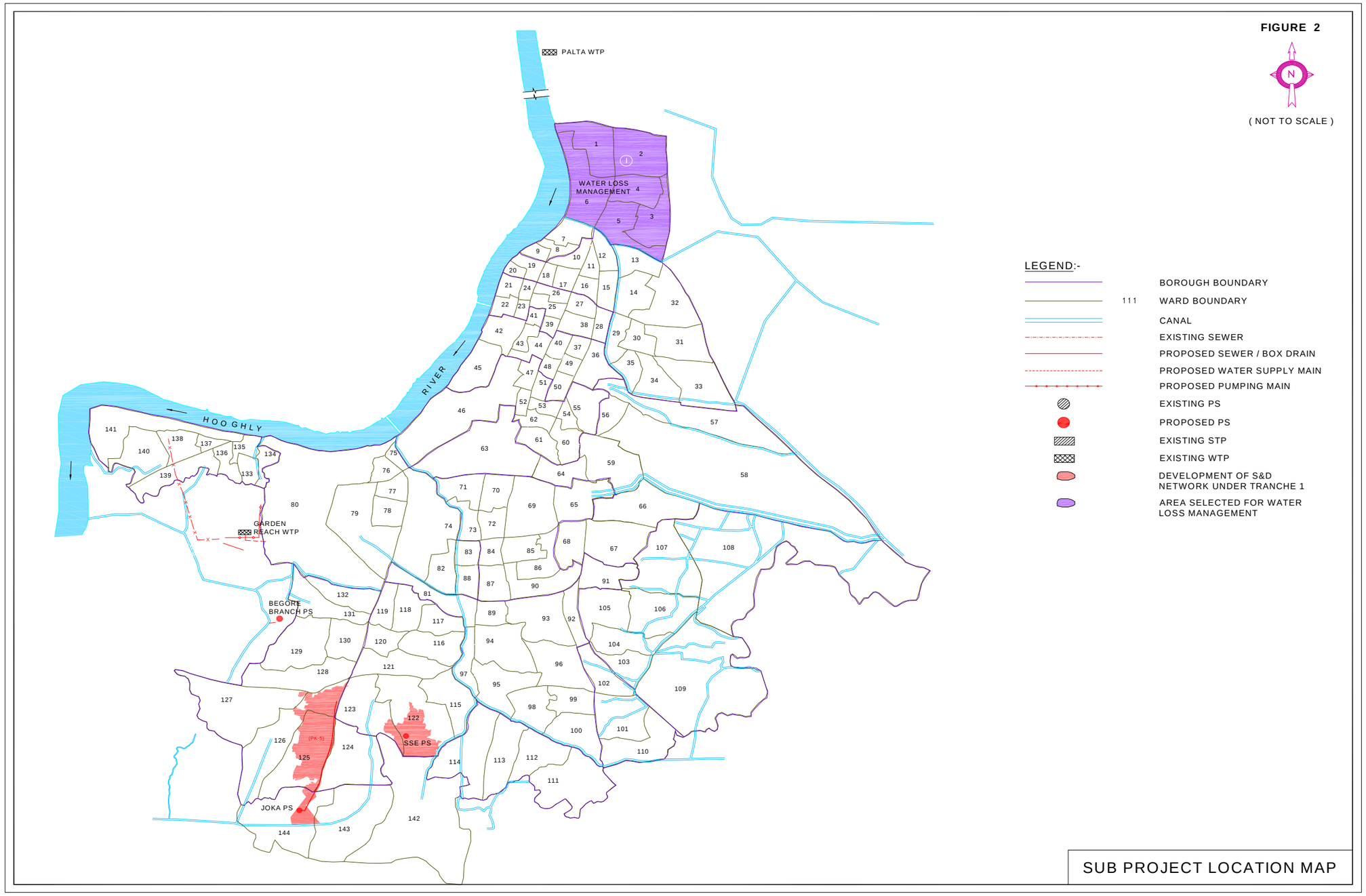


Figure 2: Sub Project location map- Project 1(Tranche 1)

II. IMPLEMENTATION PROGRESS

A. Status of Subprojects under Tranche 1

7. There are **9 packages under Tranche 1. Table 1** shows the subprojects under Tranche 1 and the works packages including the status of award of contracts as on 30th November 2018. The contract agreements for 9 packages have been signed and project is under various stages of implementation for all the 9 awarded packages. Work for some of the packages have already been completed - KEIIP/NCB/ Tr-1/SD-06/13-14, KEIIP/ICB/ Tr-1/WS03/2013-14, KEIIP/NCB/TR-1/BR-08A/2015-16, KEIIP/NCB/TR-1/BR-08B/2016-17 Lot 2 and KEIIP/ICB/ Tr-1/WS & SD-04/13-14 within 30th November 2018 since commencement of each of the packages.

Table 1: Summary status of Subprojects under KEIIP Tranche 1 (on 30th November, 2018)

Sr. No.	Package No.	Package	Status
1	**KEIIP/ICB/Tr-1/ WS01/2015- 16**	Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06	Procurement process completed. LoA issued on 4th October 2016, date of commencement of contract - 21st October 2016 **Work progress- 40.8%**
2	**KEIIP/ICB/ Tr-1/WS02/2013-14**	**Water supply** - Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach	Procurement process completed. LoA issued on 14th October 2014, Implementation started on 7th November 2014 **Physical work under progress- 94%**
3	**KEIIP/ICB/ Tr-1/WS03/2013-14 Environment non–sensitive package**	**Water supply**- Supply and Installation of Pumps & Motors at, Tallah- Palta System and Garden Reach System	Procurement process completed. LoA issued on 16th January 2014, Implementation started on 19th May 2014 **Work completed- 100 .0 %**
4	**KEIIP/ICB/ Tr-1/WS & SD-04/13-14**	**Water supply & Waste water**- Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method	Procurement process completed. LoA issued on 4th March 2014, Implementation started on 19th May 2014 **Physical work completed during report period ending November 2018 - 100.0%**
5	**KEIIP/ICB/ Tr-1/SD-05/13-14**	**Waste water -** Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment	Procurement process completed. LoA issued on 1st September 2014, Implementation started on 27th October 2014 **Physical work under progress- 69.6%**
6	**KEIIP/NCB/ Tr-1/SD-06/13-14**	**Waste water-** Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant	Procurement process completed. LoA issued on 16th January 2014, Implementation started on 19th May 2014. **Work completed on 21.05.2016**

Sr. No.	Package No.	Package	Status
			Physical work completed - 100.0 %
7	**KEIIP/ICB/ Tr-1/SD-07/15-16**	**Waste water –** Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Stations(s) and STP	Contractor selected LOA issued on12th December 2015 Agreement signed on 4th January 2016 and Notice to Proceed given for implementation on 5th January 2016. Work started on 5th January 2016. **Physical work under progress-63.26%**
8	**KEIIP/NCB/TR-1/BR-08A/2015-16**	Interior renovation of KEIIP office at Business Towers, 206 AJC Bose Road, Kolkata 700017 including Electrical works & Air-conditioning works	Contractor selected LOA issued on9th November 2015 Agreement signed on 2nd December 2015 and Notice to Proceed given for implementation on 4th February 2016. Work started on 4th February 2016 **Physical work completed-100.0%**
9	**KEIIP/NCB/TR-1/BR-08B/2016-17 Lot 1- Environment non–sensitive package**	Supply and Installation of Software & Hardware for development of project accounting system	Contractor selected Package started from 08.09.2017 Software and hardware components delivered. Development of project account system is in progress. **Work under progress- More than 90%**
	KEIIP/NCB/TR-1/BR-08B/2016-17 Lot 2 - Environment non–sensitive package	Supply and Installation of Geographical Information System (GIS) Software	Contractor selected LOA issued on 22nd September 2016 Agreement signed on 4th October 2016 Supply of software completed. Installation also completed. Training & integration remaining **Work completed: 100.0%**

8. **Table 2** shows the status of the awarded packages with details of components, starting date, and schedule date of completion, physical progress and progress of implementation of work components.

9. For all awarded packages, contractors have been mobilized and works are in different stages of implementation. **Appendix 2** shows implementation status of different components for few packages. Photo illustration of project locations is shown in **Appendix 3.**

Table 2: Status of Awarded Subproject Under KEIIP Tranche 1 (As on 30th November 2018)

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
KEIIP/ICB/Tr-1/ WS01/2015- 16	Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06 • Preparation of System improvement Plan SIP within specified period and according to the contract conditions. SIP Preparation & Implementation shall include but not limited to the survey & investigations of existing assets, distribution network, mapping, freezing selected DMA boundaries, hydraulic modelling, the necessity and the extent of rehabilitation required. • Survey and investigations of transmission and distribution network for levels- project area- 9 sq km • Supply, Laying, installation and commissioning of distribution network, length indicated herein, within tentative 25 DMAs selected in Cossipore zone, ward no. 1 to 6 (25,000 Connections: 24,750 nos. of House Service Connection for connections sizes between 15 NB to 32NB and balance connections are more than 40 NB)- 153 km	21.10.2016	36 months	20.10.2019	40.80	• Carrying out test for DMA isolation- 17 nos. • House service connection and installation of water meters – 1650 nos. • Pipe laying including rehabilitation- 51.5 km completed. • Road restoration upto - 43.5 km done.

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
	• Distribution System - Supply, Laying, installation and commissioning of distribution network with HDPE pipe- 13 km • Distribution System - Supply, Laying, installation and commissioning of distribution network with DI pipe- 140 km • Providing House Service Connections with MDPE/GI pipe on D.I pipe • Providing House Service Connections with MDPE/GI pipe on HDPE pipe • Providing and Installing Butterfly, Sluice Valves (DI), Bulk Flow Meters, PRV Valves • Finding invisible leaks in pipeline network, carrying out repairs and allied works within existing pipeline • SCADA system for distribution system management within the project area					
KEIIP/ICB/ Tr-1/WS02/2013-14	**Water supply** - Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach ***Palta Water Works:*** • Rehabilitation/Strengthening of intake jetty 2 • Strengthening of embankment/ construction of new	07.11.2014	48 months	06.11.2018	94	• Garden Reach Jetty completed. • Palta Jetty work completed. • Civil and Electromechanical work in WTP at Palta **– 90%** completed.

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
	embankment in between Pre settling tanks (length of 650 m) to facilitate movement of the vehicles for collection and removal of sludge disposed (including construction of pond) • Construction of road of width 5 m for a length of 75 m and width of 7.5 for a length of 1850 m. Including construction of culverts • Relocation /restructuring of existing drain along a portion of the proposed road alignment to a covered drain length of 245 m • Safe dismantling of existing 18 MGD WTP • Construction of 20 MGD new WTP ***Garden Reach water works:*** Rehabilitation and strengthening of existing jetty no. 1 at Garden Reach intake system					
KEIIP/ICB/ Tr-1/WS03/2013-14 **Environment non –sensitive package**	**Water supply**- Supply and Installation of Pumps & Motors at, • Tallah- Palta System • Garden Reach System	19.05.2014	24 months	18.05.2016	100.0	All works completed
KEIIP/ICB/ Tr-1/WS & SD-04/13-14	**Water supply & Waste water**- Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of	19.05.2014	36 months	18.05.2017 (Extension upto 31.03.2018)	100.0	Work completed

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
	sewer line along Diamond Harbour Road by Micro tunneling method ***Water Supply part -*** • Transmission main from Garden reach water works to Taratala valve station by micro tunnelling, approx length 4.05 km MS pipe 1829 dia (Out Dia.) *Additional scope includes Laying of water main pipe line (1100 m long) by micro tunnelling from shaft 13 to 16 (from near Taratala valve station to S. N. Roy Market on James Long Sarani)- Length – 5.1 km, Diameter – 1,500mm and 1829 mm dia (OD) , Method of laying – Micro-tunnelling (major part) + open cut* ***Waste water part-*** • Reinforced cement concrete (RCC) gravity main sewer from Sakher bazaar to Joka along Diamond Harbour Road by micro tunnelling, approx length 4.069 km RCC pipe 1400mm - 2400 mm dia *Addition of micro tunnelling from Joka PS to Churial canal approx distance of 290 m (with small open cut sections), 1829 mm OD MS pipe.. Lateral connection from western and eastern flank of DH Road*			Further Extension under process		

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
KEIIP/ICB/Tr-1/SD-05/13-14	**Waste water -** Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Harbour Road catchment • Construction of Sewage and Drainage networks within Diamond Harbour Road catchment area including house drainage connections (ward 125 &126) Approx length- 17.5 km and dia ≥250 mm • Construction of RCC box drain inside Behala AAI land • Construction of Joka pumping station inside Joka Tram depot. – ✓ DWF pumping main of dia 800 mm, approx. 3250 m long ✓ SWF pumping main of dia 1626 mm, approx. 500 m long • Construction of Begore khal pumping station located inside Behala Airport Authority of India Area ✓ DWF pumping main of dia 400 mm, approx. 675 m long	27.10.2014	42 months	26.04.2018 Extension under progress	69.6	• Electromechanical work at Joka pumping station completed upto 80%. • Electromechanical work at Begore Khal pumping station completed upto 90%. • The contractor M/s Tantia –MPPL (WILO) JV are not working for several months due to their problems and financial crunch and their site establishment is not at all functioning.

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
	✓ SWF pumping main of dia 1626 mm, approx. 270 m long • Desalting and re-sectioning of Bagore branch canal for the portion downstream of box drain upto its outfall at Bagore canal *Extra work-* *RCC pipe laying work at Upen Banerjee Road* *Construction of PS R. K. Ghosh and Behala flying club, Sewer line, including house drainage* *Noapara PS – sluice gate*					
KEIIP/NCB/ Tr-1/SD-06/13-14	**Waste water-** Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant Pressure main between Santoshpur Main pumping station (MPS) and Garden Reach Sewage Treatment Plant (STP) by micro tunnelling approx. Length 525 m, 1800 mm inner dia, RCC NP-4 pipe	19.05.2014	18 months	28.02.2016	100.0	**All works completed**
KEIIP/ICB/ Tr-1/SD-07/15-16	**Waste water** • Replacement of GAP line (approx. 3.3 km) for defunct portion (From Gandhi Maidan to Karbala Unnayan Samity and upto Santoshpur Main Road),	05.01.2016	18 months	04.07.2018	63.26	• Rehabilitation of GAP sewer work – upto 50% completed. • Laying of pumping main from trenching ground to Santoshpur pumping station - 100% completed.

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
	Extension of Existing drain, Construction of energy dissipater chamber, Desilting of GAP sewer for portion of sewer to be – utilized, Interconnection between sumps at Santoshpur SMPS,. CCTV survey for entire length of sewer about 4.0 km • Development of S & D network in Ward 122 (part) (length of sewer Approx. 5.0 km), • Laying of Pumping main (700 mm diameter about 2.7 km length DI K9 pipe) along Taratala Road and Santoshpur Road from Trenching Ground Sewage PS to Santoshpur Main Sewage PS • Construction of South Suburban East combined pumping station (capacity DWF – 76 lps and SWF – 4000 lps) • Construction of DWF and SWF pumping mains from SSE PS (300 mm dia. DI, K-9 pipe – 950m length for DWF & 1400 mm dia. MS pipe – 1500 m length for SWF)					• Laying of S&D network in ward no. 122 – 85% completed. • Construction of SSE pumping station – 70% completed. • Rehabilitation of SSE STP – 85% completed.

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 30th November 2018	Works completed and continued as of 30th November 2018
	• Rehabilitation of SSE STP					
KEIIP/NCB/TR-1/BR-08A/2015-16	Interior renovation of KEIIP office at Business Towers, 206 AJC Bose Road, Kolkata 700017 including Electrical works & Air-conditioning works	04.02.2016	12 months	03.02.2017	100.0	**All works completed**
KEIIP/NCB/TR-1/BR-08B/2016-17 Lot 2 Environment non –sensitive package	Supply and Installation of Geographical Information System (GIS) Software	04.10.2016	3 months	03.01.2017	100.0	Supply of software completed. Installation also completed. Training & integration done
KEIIP/NCB/TR-1/BR-08B/2016-17 Lot 1 Environment non –sensitive package	Supply and Installation of Software & Hardware for development of project accounting system	08.09.2017	8 months	07.05.2018	90.0	Software and hardware components delivered. Development of project account system is in progress.

B. Compliance of Safeguard Loan Covenants

10. The loan agreement for KEIIP Project 1 was signed on 3rd March 2014 and details are available in ADB website (http://www.adb.org/projects/documents/loan-agreement-kolkata-environmental-improvement-investment-program-project-1). **Table 3** provides a summary of compliance to the loan covenants related to environmental safeguards.

Table 3:Compliance of Loan Covenants – Environment part

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
Environment		
7	The Borrower shall ensure or cause the EA to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project, and all projects' facilities comply with (i) all applicable laws and regulations of the Borrower and the State relating to environment, health, and safety; (ii) the Environmental Safeguards; (iii) the EARF; and (iv) all measures and requirements set forth in the respective IEE and EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	**Under compliance** Document is prepared/ or under preparation by complying all relevant State and National Laws, Safeguard Policy Statement (SPS 2009) of ADB, Environment Assessment Review Framework (EARF) for Tranche-1 program. For **Tranche 1** project Initial Environmental Examination (IEE), Environment Management Plan (EMP) report prepared and approved by ADB. IEE for Sewage and Drainage for Tranche 1 has been updated and that report has already been disclosed in ADB website on October 2015. Further updation of Sewage and Drainage IEE was done on August 2016 due to change in scope IEE for water supply for Tranche 1 has been updated and that report has already been disclosed in ADB website on February 2016 Further updation of water supply IEE was done on August 2016 due to change in scope IEE will be revised further in case of any change of scope and location. All measures and requirements as prescribed in IEE/EIA and EMP are being considered during implementation. Corrective or preventive action plans will be reflected in Environment Monitoring Report and project implementation authority will take care of such actions when required.
Human and Financial Resources to Implement Safeguards Requirements		
11	The Borrower shall make available, or cause the EA to make available, all necessary budgetary and human resources to fully implement the EMP required.	**Complied** Budgetary provisions have been included in EMP of Tranche 1 project An Environment Specialist is in place in Project Management Unit heading Safeguard Monitoring Unit.

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
		An Environmental Specialist of DSC, for implementation of EMPs, is in place for regular monitoring to secure complete compliance.
Safeguards – Related Provisions in Bidding Documents and Works Contracts		
12.	The Borrower shall ensure, or cause the EA to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to: (a) comply with the measures and requirements relevant to the contractor set forth in the IEE, the EMP, the RP and the IPP (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report; (b) make available a budget for all such environmental measures; (c) provide the EA with a written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RP or the IPP; (d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and (e) fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	**Under compliance** (a) Approved IEE, EMP for Tranche 1 project is attached in Bidding documents. This process will be followed for all the sub projects within the present Tranche. In case of any change of scope, revised IEEs with EMP(s) will be prepared and corrective measures will be disclosed to the contractor and same will be reflected in the "Environment Monitoring Report". IEE for Sewage and Drainage for Tranche 1 has been updated and that report has already been disclosed in ADB website on October 2015. Further updation of Sewage and Drainage IEE was done on August 2016 due to change in scope IEE for water supply for Tranche 1 has been updated and that report has already been disclosed in ADB website on February 2016 Further updation of water supply IEE was done on August 2016 due to change in scope (b) IEE includes budgetary provisions for implementation of EMP. (c) During implementation of any sub project if additional impacts/risks arise due to change in scope/area that will be reflected in the revised IEEs, EMPs and Environment Monitoring Report and accordingly project Executing Agency will inform the Construction Agency for taking relevant corrective measures. (d) Haul roads will be marked properly (by avoiding residential and agricultural land) before commencement of transportation of materials. (e) Pathways, infrastructure and land which are likely to be affected for varying periods during implementation of the sub project will be restored by concerned construction agency before acceptance of the work.

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
		Restoration status will be reflected in post construction monitoring report.
Safeguards Monitoring and Reporting		
13	The Borrower shall cause the EA to do the following: (a) submit semi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission; (b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEEs, the EMPs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and (c) report any breach of compliance with the measures and requirements set forth in the EMPs, promptly after becoming aware of the breach.	**Under compliance** (a) This is 9th Semi-annual safeguard monitoring report on Environment for the period June to November 2018. The next report will be due by end of May 2019. 8th Semi-annual monitoring report on Environment for the period November 2017 to May 2018 already disclosed in ADB website (b) During implementation of any sub project, if additional impacts/risks arise due to change in scope/area, those will be reflected in revised IEEs with EMPs and accordingly Executing Agency (EA) will inform the ADB such change along with corrective action plan which will be reflected in the subsequent Monitoring Reports. (c) in case of any breach of compliance with the measures and requirements set forth in the EMP, EA will promptly inform ADB and suitable corrective action program will be planned/initiated.
rohibited List of Investments		
14	The Borrower shall ensure or cause the State to ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.	**Complied** Under Tranche -1, there is no violation of prohibited investment activities as per ADB SPS (2009) Appendix 5.
Other Social Measures		
15	The EA shall ensure that civil works contracts under the Project follow all applicable labourer laws of the Borrower and the State, and that these further include provisions to the effect that contractors: (i) carry out HIV/AIDS awareness programs for labourer and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (ii) follow and implement all statutory provisions on labourer (including not employing or using children as labourer, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the contractors.	**Complied in Bid documents and being complied during implementation** Provision are included (as per EMP & BID document) to carry out HIV/AIDS awareness programs for construction contractor, application of all relevant labour laws for health and safety including child labour law and engagement of local labours (preferably from economically backward group) covering women labours. In case of any breach of provision, necessary corrective measures as per contract clauses shall be taken. All activities including awareness program will be reflected in “Monitoring Report”.

C. Implementation Arrangement

11. The institutional arrangement follows KEIIP's organizational structure and functions **(Figure 3).** The subproject is being implemented and monitored by the Project Management Unit (PMU). The KEIIP's PMU Environment Specialist is the overall in-charge on Environmental safeguard of the program. The responsibilities of the Environmental Specialist ensures that (i) environmental safeguard issues are addressed; (ii) EMP/approved Site Environment Plan (SEP) is implemented; (iii) physical and non-physical activities under the subproject are monitored; and (iv) monitoring reports are prepared on time and submitted to ADB. Safeguard Monitoring Unit (SMU) of PMU is ensuring field level monitoring and safeguard documentation.

12. PMU is supported by the Design and Supervision Consultants (DSC). An Environment Specialist is in place to ensure: (i) EMP/ approved SEP is implemented; (ii) surveys and measurements are undertaken; (iii) inspections and observations throughout the construction period are recorded to ensure that safeguards and mitigation measures are provided as intended; and (iv) statutory clearances and permits from government agencies/other entities are obtained prior to start of civil works.

13. The Safeguards Monitoring Unit will:

(i) prepare the REA checklist, draft the EIA/IEE and arrange for disclosure of the approved EIA/IEE in the website

(ii) ensure that Environmental Clearance (EC), Consent to Establishment and Consent to Operate and other certificates, as required, are obtained in time from appropriate authorities and ensure compliances with conditions imposed.

(iii) ensure incorporation of the EMP, environmental mitigation and monitoring measures into the contract documents

(iv) monitor disclosure and public consultation arranged by DSC during IEE process and ensure that comments are reflected in the IEE report

(v) ensure disclosure of information throughout the duration of the subproject through suitable visual means and publications

(vi) provide necessary input for grievance redress

(vii) approve contractor's proposed locations for construction work camps, storage areas, hauling roads, lay-down areas, and disposal areas for solid and hazardous wastes on recommendations of DSC

(viii) guide the Contractor for drawing up of Site Environmental Management Plan and to approve the same

(ix) induct the Contractor for taking up the construction following environmental and social safeguards

(x) facilitate scheduled monitoring during implementation of the project.

(xi) carry out regular onsite monitoring and guide the Contractor to adopt the required site management standard.

(xii) ensure the required health and safety measures at work sites

(xiii) obtain in time and to review the monthly monitoring report of the Contractors

(xiv) prepare 6-monthly monitoring and EMP implementation report, including the status of project compliance, statutory clearances and relevant loan covenants, and submit the approved 6-monthly report to ADB and seek permission to disclose the same in the investment program website

(xv) prepare monitoring report on post-construction activities by the contractors as specified in the EMP

14. The Contractor's responsibilities included:

(i). Submission of Site environmental plan (SEP) covering proposed sites / locations for construction work camps, storage areas, haul roads, lay down areas, disposal areas for solid and hazardous wastes

(ii). Compliance with all applicable legislation and be conversant with the requirements of the EMP/ approved SEP;

(iii). Briefing of his staff, employees, and labourer about the requirements of the EMP/ approved SEP;

(iv). Ensuring that any sub-contractors/suppliers engaged within the context of the contract comply with the environmental requirements of the EMP/ approved SEP. The Contractor will be held responsible for non-compliance on their behalf;

(v). Providing methodology/information for all activities requiring special attention as specified and/or requested by the DSC Environment Specialist during the duration of the Contract;

(vi). Providing environmental awareness training to staff, employees, and labourers;

(vii). Bearing the costs of any damages/compensation resulting from non-adherence to the EMP/ approved SEP or written site instructions;

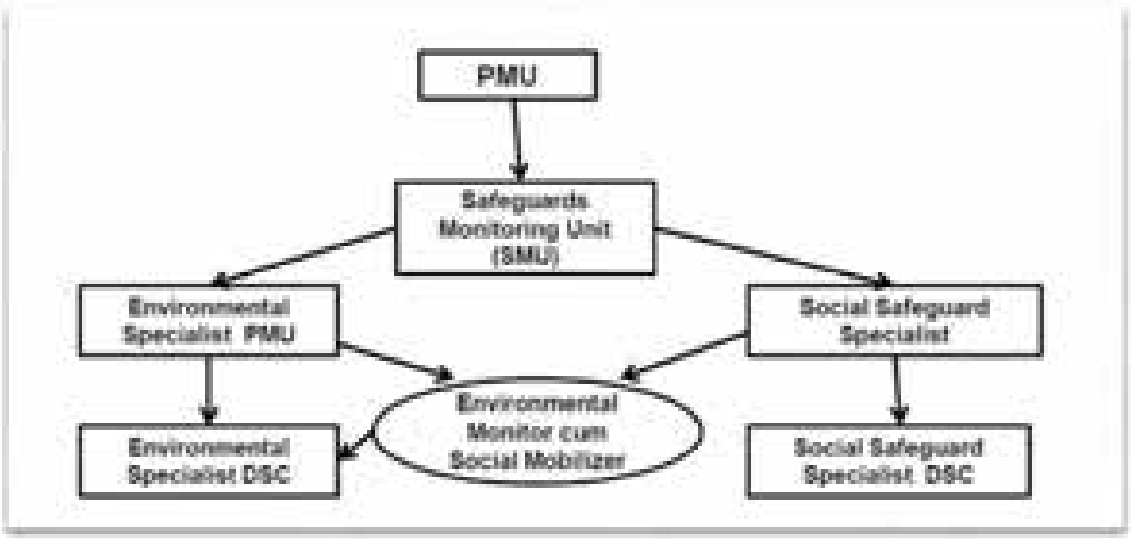
(viii). Conducting all activities in a manner that minimizes disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment.

(ix). Ensuring that the PMU and DSC Environment Specialists are timely informed of any foreseeable activities that will require their expert input

15. Environment Specialist and Junior Environmental Scientist of DSC visited all construction sites every month and arranged onsite training program for contractors and supervisory staff and instructed contractors for application of corrective action measures to mitigate impacts. **Table 4** shows detail of environment safeguard team for KEIIP.

Table 4: Details of KEIIP Environmental Safeguard Team

Designation	Name and Contact Details
PMU, Environment Specialist Safeguard Monitors in SMU	Name: Dr. Chinmoy Chakrabarti Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700017 Phone:033 2283 0169 Email:pdkeiip@gmail.com, chin_moy@yahoo.com
DSC, Environment Specialist	Name: Dr. Ardhendu Mitra Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700 017 Phone:033 2283 0044, 9830415953 Email: ardhendumitra@gmail.com , dsckeip@gmail.com
DSC, Junior Environmental Scientist	Name: Dr. Bidisha Mukherjee Office Address: Unnayan Bhawan, 206 A. J. C Bose Road, Kolkata 700 017 Phone:033 2283 0044, 9830592875 Email:dsckeip@gmail.com, bidisha1809@gmail.com



Notes: PMU = project management unit; DSC = design and supervision consultants

Figure 3: Institutional Arrangement – Safeguards

III. ENVIRONMENTAL PROCEDURE REVIEW

A. Environmental Legal Requirement

16. For implementation of the project both national and state rules & regulations need to be followed. **Table 5** in next section indicates environment legal requirement for the projects under KEIIP.

B. Compliance with Environmental Legal Requirements

17. Before implementation of the project, compliance with environmental policy, law and legislation is necessary.

18. Under **Tranche 1** present status of Environment, forest and other clearances are mentioned below.

Table 5: Status of Compliance with National and State Legal Requirements (upto 30th November 2018)

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
KEIIP/ICB/Tr-1/ WS01/2015-16	Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Noise Pollution (Regulation and Control) Rules, 2002 amended up to 2010 Also for setting up diesel generator Consent to Establish	During implementation of project compliance with Air Act , Noise Rules and Water Act will be required Not required now For acoustic type of Generator- not required	

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
		(CTE) and Consent to Operate (CTO)		
KEIIP/ICB/ Tr-1/WS02/2013-14	Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach	Water (Prevention and Control of Pollution) Act. 1974 Consent to Establish (CTE) for rehabilitation of WTP from West Bengal Pollution Control Board Consent to operate (CTO) will be required before operation	Online application has been submitted to WBPCB on 30th June 2015 for CTE for Rehabilitation of Water Treatment Plant at Palta Water Works. **CTE received on 03.09.2015,** which is valid for 5 years Consent to Operate will be collected before start of operation of plant	Consent to Establish received on 03.09.2015. Copy attached as **Appendix 4** Conditions and compliance are shown below (**Table 6)**
		Forest (Conservation) Act 1980; West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006 for felling of trees	Pipeline alignment shifted as per design modification. No tree felling is required	Not applicable till date
		The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Noise Pollution (Regulation and Control) Rules, 2002 amended up to 2010.	During implementation of project, compliance with Air Act , Noise Rules and Water Act will be required	
		Also for setting up hot mix plant, batching plant and use of diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	Not required now as per present work Green silent DGs are used	
KEIIP/ICB/ Tr-1/WS & SD-04/13-14	Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method	West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006- Tree felling permission	Tree felling- Permission obtained from Divisional Forest Officer, Forest Utilization Division, Govt. of West Bengal at Kolkata (Ref letter 655/17 T dated 29.09.14) – felling of 17 trees along Taratala Road for laying of water main. Compensatory afforestation of 75 trees	Tree felling has been done Compensatory afforestation at non forest land- Action has already been completed

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
		Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	is recommended in clearance certificate. During implementation of project compliance against Air Act , Noise Rules and Water Act will be required Not required for acoustic type of Generator Green silent DGs are used	
KEIIP/ICB/ Tr-1/SD-05/13-14	Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Noise Pollution (Regulation and Control) Rules, 2002 amended up to 2010 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act , Noise Rules and Water Act will be required Not required now For acoustic type of Generator- not required	-
KEIIP/ICB/ Tr-1/SD-07/15-16	Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Stations(s) and STP	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Noise Pollution (Regulation and Control) Rules, 2002 amended up to 2010 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance against Air Act , Noise Rules and Water Act will be required For acoustic type of Generator- not required	-

Table 6: Compliance of Consent to Establish (CTE) Water Treatment Plant under Palta Water Works

Sl. No.	Conditions		Compliances
1	The quality of sewage and trade effluent to be discharged from your factory shall satisfy the permissible limits as prescribed in IS:2490 (Pt.) of 1974, and/or its subsequent amendment and Environment (Protection) Rules 1986.		During operation of WTP sewage will be discharged after conforming permissible limit (IS:2490)
2	Suitable measures to treat your effluent shall be adopted by you in order to reduce the pollution load so that the quality of the effluent satisfies the standards mentioned above.		Effluent will be treated before discharge to reduce pollution load
3	You shall have to apply to this Board for its consent to operate and discharge of sewage and trade effluent according to the provisions of the water (Prevention & control of Pollution) Act, 1974. No sewage or trade effluent shall be discharged by you without prior consent of this Board.		Consent to Operate will be taken from Pollution Control Board before commissioning of WTP. No sewage will be discharged without prior consent of the Board.
4	All emission from your factory shall conform to the standards as laid down by this Board.		No air emission expected from WTP
5	No emission shall be permitted without prior approval of this Board and you shall apply to this Board for its consent to operate and atmospheric emission as per provision of the Air (Prevention & control Pollution) Act, 1981.		No emission expected from WTP
6	You shall comply with		
	(i)	Water (Prevention and Control of Pollution Cess Act, 1977, if applicable.	Under compliance during construction and will be complied (relevant Rules & Regulation) during operation Public Liability Insurance for the entire water treatment plant has been taken from National Insurance Company.
	(ii)	Water (Prevention and Control of Pollution) Cess Act, 1978, if applicable.	
	(iii)	Environment (Protection) Act, 1986	
	(iv)	Environment (Protection) Rules, 1986	
	(v)	Hazardous Wastes (Management and Handling) Rules, 1989 and Amended Rules, 2000	
	(vi)	Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and Amended Rules, 2000.	
	(vii)	Manufacture, Use, Import and Storage and Hazardous Micro-Organisms, Genetically Engineered Organisms or Cell Rules, 1989.	
	(viii)	The Public Liability Insurance Act, 1991 and Amended Act, 1992.	
	(ix)	The Public Liability Insurance Rules, 1991 and Amended Rules 1993.	
	(x)	Biomedical Wastes (Management & Handling) Rules, 1998 and Amended rules 2000, if applicable.	
	(xi)	Recycled Plastics Manufacture and Usage rules 1999, if applicable and	
	(xii)	Ozone Depleting Substances (Regulation & Control) Rules, 2000, if applicable.	
7	You will have to abide by any other stipulations as may be prescribed by any authority/local bodies/Government Departments, etc.		Will abide by any other stipulations as may be prescribed by any authority/local bodies/Government Departments, etc

Sl. No.	Conditions	Compliances
Special conditions		
1	Water shall be sourced from the Hooghly River.	Presently water sourced from river Hooghly
2	The surface water treatment system shall consist of flash Mixing, flocculation, inclined plate settling rapid sand filtration. Chlorination & sludge handing system.	The surface water treatment system will consist of flash Mixing, flocculation, inclined plate settling rapid sand filtration. Chlorination & sludge handing system.
3	All sorts of precaution should be taken as per statutory rules for handling and storage of chlorine. Explosive license should be obtained from appropriate authorities for handling and storage of Chlorine.	All sorts of precaution would be taken as per statutory rules for handling and storage of chlorine. Explosive license already exists for running plant.
4	No additional machinery/equipment can be installed without prior permission from WBPCB. No change in raw materials, products, production capacity and manufacturing process shall be made without prior permission from the Board.	No additional machinery/equipment will be installed without prior permission from WBPCB. No change in raw materials, products, production capacity and manufacturing process will be made without prior permission from the Board.
5	Noise Control – Ambient noise level not to exceed the permissible limit.	During construction and operation phase noise mitigation measures will be applied
6	Work shall be done under covered shed for noise reduction.	It will be maintained as per site condition
7	Good housekeeping to be maintained.	Satisfactory housekeeping already maintained
8	Free planting, sapling along the periphery of the unit.	Plantation will be done after completion of construction activity
9	Land Conversion Certificate to be obtained	Proposed site within existing premises of Palta water works
10	Consent for Operate to be obtained from the State Board before commissioning of the unit.	Consent for Operate will be obtained from the State Board before commissioning of the new treatment unit.
11	Provision of drinking water & waste water disposal shall be ensured for labour camps. Proper sanitation facilities shall be provided for construction workers to ensure environmental sanitation, health and safety of the workers shall be ensured during construction.	Drinking water and toilet facility are available at labour camp. Waste water discharges as per site condition. Also health and safety of the workers maintained during construction. Health check up camp has been arranged.
12	The project proponent shall take necessary care not to cause any inconvenience to the residents or surrounding neighbourhood. Regular supervision shall be in place all through the construction phase so as to avoid disturbance to the surrounding.	Project location within Palta Water Works campus no impact is expected on resident movement
13	The Project Proponent will ensure that no accumulation of any kind of water occurs within the project area to prevent breeding of various diseases spreading vectors.	The Project Proponent would ensure that no accumulation of any kind of water occurs within the project area to prevent breeding of various diseases spreading vectors.
14	Ground water shall not be abstracted without prior permission of the Local Body as well as the Competent Authority as per the West Bengal Ground Water Resources (Management Control and Regulation) Act, 2005.	There is no need for groundwater abstraction, as per plan only surface (river) water will be utilized Presently for drinking purpose supplied water are used
15	The unit shall be abide by the West Bengal Trees (Prevention and Conservation in Non-Forest Area) Rules, 2007. Adequate green belt shall be developed.	The unit will abide by the West Bengal Trees (Prevention and Conservation in Non-Forest Area) Rules, 2007. Adequate green belt will be developed after completion of the construction activity.

Sl. No.	Conditions	Compliances
16	No tree can be felled without prior permission from the Tree Cutting Authority constituted as per the West Bengal Tree (Prevention and Conservation in Non-Forest Area) Act, 2006 and subsequent rules.	No tree will be felled without prior permission from the Tree Cutting Authority constituted as per the West Bengal Tree (Prevention and Conservation in Non-Forest Area) Act, 2006 and subsequent rules.

IV. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

19. There are 5 environment sensitive subprojects under implementation. Site Environment plans including site specific EMPs were submitted by the contractors before starting of each construction package. These EMPs are generally revised semi-annually as per progress of construction work. **Appendix 5** shows sample Site Specific EMP.

20. Environment Specialist from DSC and PMU carried out periodic monitoring of EMP implementation through desk review of contractor's records and site inspections. Package wise findings are presented in **Tables 7 to 11.** It may be noted, that most of the sites of ongoing packages (numbering three only) during the present reporting period are environmentally well managed.

Table 7: Compliance to EMP for the Package - Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06 (KEIIP/ICB/Tr-1/ WS01/2015- 16)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase									
1	Site clearance	Site preparation work including necessary clearance and permission	• Tree felling requirement – site environment plan • NOC – paper documents from line agency	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required as per nature of work
2	Access to Site	• Access to site will be via existing roads • Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure	• Involvement of traffic dept. • Road closure planning	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied All work sites are easily accessible – working location within the city
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	• List of affected utilities if any and operators • Bid document to include requirement for a contingency plan for service interruptions	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Under compliance as per requirement
4	Water supply	Health risk due to closure of water supply	• Schedule of closure • Delivery of KMC of potable water to affected people	-	DSC/PMU	Checking of records Visual observation	Environment Specialist of DSC and PMU	Do	Not required as per present nature of work Will be mitigated as per mitigation measures and as per requirement in future

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required as per present nature of work Atleast single lane movement of traffic maintained
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas • Prioritize areas within or nearest possible vacant space in the subproject location • Non use of residential area • Arrangement of toilet and drinking water facility • No disposal of waste in water	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Worker camp not required. Local workers engaged.
7	Establishing Equipment Lay-down and Storage Area[1]	• Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on–site topography and water erosion potential of the soil. • Storage areas shall be secure so as to minimize the risk of crime. • Away from school and direct residential areas	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Under compliance Manual excavation continued Storage of pipes and other materials are secured No requirement of storage of fuels

[1] Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Fire prevention facilities must be present at all storage facilities • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials • These storage facilities (including any tanks) must be on an impermeable surface • Staff must be aware of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct[2]	• Ensure that all site personnel have a basic level of environmental awareness training • All employees must undergo safety training and wear the necessary protective clothing	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training continued for worker and recorded properly Sample training document attached as **Appendix 15**
Construction									
9	Materials Management – Sourcing[3]	• Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to	• List of approved quarry sites and sources of materials • Bid document to include requirement for verification of suitability of sources and	Quarries and material source areas	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager, Visit by Environment Specialist and Junior Environmental	Complied Approval obtained from PMU and DSC. Procurement continued

[2] These points need to be made clear to all staff on site before the subproject begin.
[3] Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		commencement of any work. • Use of Govt. approved quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC	permit for additional quarry sites if necessary. • Construction Contractor documentation					Scientist on fortnight basis	
10	Maintenance of Construction Camp	• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement • Train employees in the storage and handling of materials • Remove all wreckage, rubbish, or temporary structures	• Complaints from sensitive Receptors • Water and sanitation facilities for employees • Housekeeping – regular disposal of solid waste	Camp site	Contractor	• Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No requirement of labour camp at present. All workers are local
11	Landscape and Aesthetics	• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures • Fencing of storage areas • Disposal of construction debris if any as per mitigation measures • Prepare and implement Waste Management List • Avoid stockpiling of excess excavated soils • Coordinate with KMC for beneficial uses of excess excavated soils	• Waste Management List • Complaints from sensitive receptors • PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied. Utilization of excess earth done. Demolition waste utilized for land development Material storage at proper place continued Spoil management plan applied as per EMP (sample shown as **Appendix 6)**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
12	Dust and Air Pollution[4]	• Selection of materials storage area • Water sprinkling at construction site for arresting dust (if any during dry period) • Use tarpaulins to cover sand and other loose material- Reducing dust hazard • All vehicles and equipments mobilized to construction site and producing emission, have Pollution Under Control certification • No fire wood burning is allowed on site • Carry out air quality monitoring	• Location of stockpiles • Complaints from sensitive receptors • Monitoring data • Heavy equipment and machinery with air pollution control • Water sprinkling arrangement • Cover materials	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials done mostly. During construction of road water sprinkling done as per requirement. Pollution under Control Certificate of vehicles and equipments collected

[4] Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
13	Noise level	• Noise producing work needs to be conducted at day time • Regular maintenance of noise producing equipment • Horns not be used unless it is necessary to warn other road users • Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s • At sensitive locations, enclosures provided around generator set or other noise producing machinery.	• Complaints from sensitive receptors • Use of silencers in noise-producing equipment and sound barriers • Monitoring data	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied No noise producing machinery mobilized at site. PPE utilized as per requirement.
14	Storm water management	Arrangement of drainage of waste water and arresting of solid waste/silt from waste water generated at construction site	• Areas for stockpiles, storage of fuels and lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Drainage of waste water from construction site arranged
15	Water Quality[5]	• Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No water source near the construction site

[5]Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.							
16	Conservation of Natural Environment	• Contractor to ensure removal of only trees that have been marked beforehand • Contractor to immediately re-vegetate stripped areas • Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.	Tree felling requirement and afforestation after final design	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required. Till date not required.
17	Materials Management	• Contractor to ensure stockpiles do not obstruct natural water pathways. • Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. • Contractor to ensure all concrete mixing take place on a designated, impermeable surface.	Stockpile management	Stockpile / storage area	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas and covered as per requirement
18	Occupational Health & safety	• Develop and implement site-specific Health and Safety (H&S) Plan • Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs	• Site-specific Health and Safety (H&S) Plan • Equipped first-aid stations; • Medical insurance coverage for workers	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Site-specific Health and Safety (H&S) Plan prepared & under implementation. H & S training arranged for the labors on regular

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• H&S Training for all site personnel • Documentation of work-related accidents; • Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU • Provide specific guidance for suitable PPE for every on-site work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8hours per day without hearing protection.	• Number of accidents • Supplies of potable drinking water; • Record of H&S orientation trainings • Personal protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms						basis. Drinking water and first aid box available at site. Insurance arranged for the labors. Attached as **Appendix 8** No accident reported till date Tie up letter with nearby health center in case of emergency attached as **Appendix 9.** Overall compliance is satisfactory
19	Social Impacts[6]- Community Health & safety, accessibility	• Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites	• Traffic Management Strategy • Complaints from sensitive receptors	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Complied. Caution tape placed around excavated and working area as and when required;

[6] Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Contractor to ensure disruption of access for local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles • Consideration of public safety - as per prescribed mitigation measures • Contractors to ensure lighting on the construction site • Provide protective fencing around open trenches • Provide road signs and flag persons to warn • Schedule transport and hauling activities during non- peak hours	• Number of signages placed at subproject location						**Appendix 3** shows site photo
20	Socio cultural resources	• Strictly follow the protocol for chance archaeological finds in any excavation work • Stop work immediately to allow further investigation if any finds are suspected	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date Instruction has been given
21	Employment generation	• The use of labourer intensive construction measures will be used where appropriate • Employ local (unskilled) labourer if possible	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present mostly local labourers are engaged (almost 100%). List of labourers are attached as

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Training of labourer to benefit individuals beyond completion of the subproject							**Appendix 11**

Table 8: Compliance to EMP for the Package - Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach (KEIIP/ICB/ Tr-1/WS02/2013-14)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase									
1	Site clearance	Site preparation work including necessary clearance and permission	• Tree felling requirement – site environment plan • NOC – paper documents from line agency	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Complied Tree felling not required. Design of pipeline alignment modified
2	Access to Site	• Access to site will be via existing roads • Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure	• Involvement of traffic dept. • Road closure planning	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied Site is easily accessible – working location within the Water Treatment Plant premises and near/ at existing jetty No question of road closure
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	• List of affected utilities if any and operators • Bid document to include requirement for a contingency plan for service interruptions	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required as per nature of work

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
4	Water supply	Health risk due to closure of water supply	• Schedule of closure • Delivery of KMC of potable water to affected people	-	DSC/PMU	Checking of records Visual observation	Environment Specialist of DSC and PMU	Do	Not required as per present nature of work
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required as per present nature of work Working location within the Water Treatment Plant premises and at existing jetty
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas • Prioritize areas within or nearest possible vacant space in the subproject location • Non use of residential area • Arrangement of toilet and drinking water facility • No disposal of waste in water	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied Labour camp constructed as per specification. Toilet and drinking water facility noted Waste water discharged from the camp
7	Establishing Equipment Lay-down and Storage Area[7]	• Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on–site topography and water	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied Storage area inside. Proper storage of fuels, lubricants done. Equipment lay-down area

[7] Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		erosion potential of the soil. • Storage areas shall be secure so as to minimize the risk of crime. • Away from school and direct residential areas • Fire prevention facilities must be present at all storage facilities • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials • These storage facilities (including any tanks) must be on an impermeable surface • Staff must be aware of their potential impacts and follow the appropriate safety measures							demarcated with signage board
8	Education of site staff on general and Environmental Conduct[8]	• Ensure that all site personnel have a basic level of environmental awareness training • All employees must undergo safety training and wear the necessary protective clothing	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Site Safety training continued for worker and recorded properly Sample training document attached as **Appendix 15**
Construction									
9	Materials Management –	• Contractors shall prepare a source statement indicating the sources of	• List of approved quarry sites and	Quarries and material	Contractor	• Checking of records	Environment Specialist of DSC and	Daily visit by construction supervisor of	Complied Approval obtained from PMU and

[8] These points need to be made clear to all staff on site before the subproject begin.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Sourcing[9]	all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work. • Use of Govt. approved quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC	sources of materials • Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary. • Construction Contractor documentation	source areas		• Visual inspection of sites	PMU	DSC. Weekly visit by Construction Manager, Visit by Environment Specialist and Junior Environmental on monthly basis	DSC. Procurement continued
10	Maintenance of Construction Camp	• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement • Train employees in the storage and handling of materials • Remove all wreckage, rubbish, or temporary structures	• Complaints from sensitive Receptors • Water and sanitation facilities for employees • Housekeeping – regular disposal of solid waste	Camp site	Contractor	• Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied mostly. Established within Palta Water Treatment Plant campus. Drinking water and toilet facility available. Housekeeping maintained. Temporary labour camp arranged near Garden Reach jetty working area. Camp closed after completion of construction work Camp site photo attached as **Appendix 3**

[9] Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
11	Landscape and Aesthetics	• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures • Fencing of storage areas • Disposal of construction debris if any as per mitigation measures • Prepare and implement Waste Management List • Avoid stockpiling of excess excavated soils • Coordinate with KMC for beneficial uses of excess excavated soils	• Waste Management List • Complaints from sensitive receptors • PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Utilization of excess earth done. Demolition waste utilized for land development Material storage at proper place continued
12	Dust and Air Pollution[10]	• Selection of materials storage area • Water sprinkling at construction site for arresting dust (if any during dry period) • Use tarpaulins to cover sand and other loose material- Reducing dust hazard • All vehicles and equipments mobilized to construction site and producing emission, have Pollution Under Control certification • No fire wood burning is allowed on site	• Location of stockpiles • Complaints from sensitive receptors • Monitoring data • Heavy equipment and machinery with air pollution control • Water sprinkling arrangement • Cover materials	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials done partially. During construction of road, water sprinkling done as per requirement. Road construction completed. During construction air quality monitoring carried out as per EMP. (Complete test certificates available in DSC

[10] Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Carry out air quality monitoring							office as back up paper**).** Pollution under Control Certificate of vehicles and equipments collected
13	Noise level	• Noise producing work needs to be conducted at day time • Regular maintenance of noise producing equipment • Horns not be used unless it is necessary to warn other road users • Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s • At sensitive locations, enclosures provided around generator set or other noise producing machinery.	• Complaints from sensitive receptors • Use of silencers in noise-producing equipment and sound barriers • Monitoring data	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied No noise producing machinery mobilized at site. Work almost completed. PPE utilized as per requirement. During construction monitoring done. (Complete test certificates available in DSC office as back up paper**).**
14	Storm water management	Arrangement of drainage of waste water and arresting of solid waste/silt from waste water generated at construction site	• Areas for stockpiles, storage of fuels and lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Drainage of waste water from construction site is done.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
15	Water Quality[11]	• Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river • Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	Construction work for jetty completed. No issue of river water pollution.
16	Conservation of Natural Environment	• Contractor to ensure removal of only trees that have been marked beforehand • Contractor to immediately re-vegetate stripped areas • Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.	Tree felling requirement and afforestation after final design	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	To be complied if tree felling required.
17	Materials Management	• Contractor to ensure stockpiles do not obstruct natural water pathways. • Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. • Contractor to ensure all concrete mixing take place	Stockpile management	Stockpile / storage area	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Stockpiling of materials done at designated areas

[11]Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		on a designated, impermeable surface.							
18	Occupational Health & safety	• Develop and implement site-specific Health and Safety (H&S) Plan • Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs • H&S Training for all site personnel • Documentation of work-related accidents; • Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU • Provide specific guidance for suitable PPE for every on-site work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines • Disallow worker exposure to noise level greater than 85 dBA for a duration of more than8hoursper day without hearing protection.	• Site-specific Health and Safety (H&S) Plan • Equipped first-aid stations; • Medical insurance coverage for workers • Number of accidents • Supplies of potable drinking water; • Record of H&S orientation trainings • Personal protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Site-specific Health and Safety (H&S) Plan under implementation Sample Attached as **Appendix 7**. H & S training arranged for the labourer on regular basis. Drinking water and first aid box available at site. Insurance arranged for the labourer. Attached as **Appendix 8** No accident reported during report period. Tie up letter with nearby health center in case of emergency attached as **Appendix 9.** Overall compliance is satisfactory

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
19	Social Impacts[12]- Community Health & safety, accessibility	• Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites • Contractor to ensure disruption of access for local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles • Consideration of public safety - as per prescribed mitigation measures • Contractors to ensure lighting on the construction site • Provide protective fencing around open trenches • Provide road signs and flag persons to warn • Schedule transport and hauling activities during non- peak hours	• Traffic Management Strategy • Complaints from sensitive receptors • Number of signages placed at subproject location	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Complied Caution tape placed around excavated and working area as and when required; Working area inside WTP campus and existing jetty area. Presently no permanent barricade required
20	Socio cultural resources	• Strictly follow the protocol for chance archaeological finds in any excavation work	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date Instruction has been given

[12] Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Stop work immediately to allow further investigation if any finds are suspected							
21	Employment generation	• The use of labourer intensive construction measures will be used where appropriate • Employ local (unskilled) labourer if possible • Training of labourer to benefit individuals beyond completion of the subproject	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local labourer are mostly engaged (only 20%). List of labourer are attached as **Appendix 11**

Table 9: Compliance to EMP of for the Package - Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method (KEIIP/ICB/ Tr-1/WS & SD-04/13-14)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase									
1	Site clearance	Site preparation work including necessary clearance and permission	• Tree felling requirement – site environment plan • NOC – paper documents from line agency	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Permission obtained for felling of 17 trees along Taratala Road for laying of water main. Compensatory 150 no. trees planted along Taratala road and J.L. Sarani) done. Project work completed by July 2018 end.
2	Access to Site	• Access to site will be via existing roads • Involvement of local Traffic Department in	• Involvement of traffic dept. • Road closure planning	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure							
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	• List of affected utilities if any and operators • Bid document to include requirement for a contingency plan for service interruptions	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.
4	Water supply	Health risk due to closure of water supply	• Schedule of closure • Delivery of KMC of potable water to affected people	-	DSC/PMU	Checking of records Visual observation	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas • Prioritize areas within or nearest possible vacant space in the subproject location • Non use of residential area • Arrangement of toilet and drinking water facility	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied during June and July i.e. before completion of the package.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• No disposal of waste in water							
7	Establishing Equipment Lay-down and Storage Area[13]	• Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil. • Storage areas shall be secure so as to minimize the risk of crime. • Away from school and direct residential areas • Fire prevention facilities must be present at all storage facilities • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials • These storage facilities (including any tanks) must be on an impermeable surface • Staff must be aware of their potential impacts and follow the appropriate safety measures	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied during June and July i.e. before completion of the package.

[13]Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
8	Education of site staff on general and Environmental Conduct[14]	• Ensure that all site personnel have a basic level of environmental awareness training • All employees must undergo safety training and wear the necessary protective clothing	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Complied during June and July i.e. before completion of the package.
Construction									
9	Materials Management – Sourcing[15]	• Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work. • Use of Govt. approved quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC	• List of approved quarry sites and sources of materials • Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary. • Construction Contractor documentation	Quarries and material source areas	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager, Visit by Environment Specialist and Junior Environmental Scientist atleast fortnightly basis	Complied during June and July i.e. before completion of the package.
10	Maintenance of Construction Camp	• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement	• Complaints from sensitive Receptors • Water and sanitation facilities for employees	Camp site	Contractor	• Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.

[14] These points need to be made clear to all staff on site before the subproject begin.
[15] Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Train employees in the storage and handling of materials • Remove all wreckage, rubbish, or temporary structures	• Housekeeping – regular disposal of solid waste						
11	Landscape and Aesthetics	• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures • Fencing of storage areas • Disposal of construction debris if any as per mitigation measures • Prepare and implement Waste Management List • Avoid stockpiling of excess excavated soils • Coordinate with KMC for beneficial uses of excess excavated soils	• Waste Management List • Complaints from sensitive receptors • PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.
12	Dust and Air Pollution[16]	• Selection of materials storage area • Water sprinkling at construction site for arresting dust (if any during dry period) • Use tarpaulins to cover sand and other loose material- Reducing dust hazard • All vehicles and equipments mobilized to	• Location of stockpiles • Complaints from sensitive receptors • Monitoring data • Heavy equipment and machinery with air pollution control • Water sprinkling arrangement • Cover materials	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package. No AQM was carried out during monsoon and the work was completed by end of July 2018.

[16] Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		construction site and producing emission, have Pollution Control Board certification • No fires are allowed on site • Carry out air quality monitoring							
13	Noise level	• Noise producing work needs to be conducted at day time • Regular maintenance of noise producing equipment • Require horns not be used unless it is necessary to warn other road users • Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s • At sensitive locations enclosures provided around generator set or other noise producing machinery.	• Complaints from sensitive receptors • Use of silencers in noise-producing equipment and sound barriers • Monitoring data	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	• Areas for stockpiles, storage of fuels and lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
15	Water Quality[17]	• Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river • Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.
16	Conservation of Natural Environment	• Contractor to ensure only trees that have been marked beforehand are to be removed • Contractor to immediately re-vegetate stripped areas • Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.	Tree felling requirement and afforestation after final design	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	15 nos. of tree felled and compensatory plantation completed with 150 trees along Taratala Road (120 nos.) and J.L. Sarani (30 nos.) **Appendix 3** shows plantation photo
17	Materials Management	• Contractor to ensure stockpiles do not obstruct natural water pathways. • Contractor to cover stockpiles exposed to windy conditions or heavy rain with	Stockpile management	Stockpile / storage area	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.

[17]Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		vegetation, cloth, or tarps. • Contractor to ensure all concrete mixing take place on a designated, impermeable surface.							
18	Occupational Health & safety	• Develop and implement site-specific Health and Safety (H&S) Plan • Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs • H&S Training for all site personnel • Documentation of work-related accidents; • Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU • Provide specific guidance for suitable PPE for every on-site work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers	• Site-specific Health and Safety (H&S) Plan • Equipped first-aid stations; • Medical insurance coverage for workers • Number of accidents • Supplies of potable drinking water; • Record of H&S orientation trainings • Personal protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate • Disallow worker exposure to noise level greater than85 dBA for a duration of more than8hoursper day without hearing protection.							
19	Social Impacts[18]- Community Health & safety, accessibility	• Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites • Contractor to ensure disruption of access for local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles • Consideration of public safety - as per prescribed mitigation measures	• Traffic Management Strategy • Complaints from sensitive receptors • Number of signages placed at subproject location	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.

[18] Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Contractors to ensure lighting on the construction site • Provide protective fencing around open trenches • Provide road signs and flag persons to warn • Schedule transport and hauling activities during non- peak hours							
20	Socio cultural resources	• Strictly follow the protocol for chance finds in any excavation work • Stop work immediately to allow further investigation if any finds are suspected	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.
21	Employment generation	• The use of labourer intensive construction measures will be used where appropriate • Employ local (unskilled) labourer if possible • Training of labourer to benefit individuals beyond completion of the subproject	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Complied during June and July i.e. before completion of the package.

Table 10: Compliance to EMP of for the Package - Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment (KEIIP/ICB/ Tr-1/SD-05/13-14)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase									
1	Site clearance	Site preparation work including necessary clearance and permission	• Tree felling requirement – site environment plan	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and	Before commencemen t of final design	Tree felling not required.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			• NOC – paper documents from line agency				PMU		
2	Access to Site	• Access to site will be via existing roads • Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure	• Involvement of traffic dept. • Road closure planning	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	• List of affected utilities if any and operators • Bid document to include requirement for a contingency plan for service interruptions	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
4	Water supply	Health risk due to closure of water supply	• Schedule of closure • Delivery of KMC of potable water to affected people	-	DSC/PMU	Checking of records Visual observation	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
6	Construction work camps (if needed), hot mix plants, stockpile	• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	No substantial physical work was carried out during the

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	areas, storage areas, and disposal areas.	• Prioritize areas within or nearest possible vacant space in the subproject location • Non use of residential area • Arrangement of toilet and drinking water facility • No disposal of waste in water	areas						reporting period.
7	Establishing Equipment Lay-down and Storage Area[19]	• Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil. • Storage areas shall be secure so as to minimize the risk of crime. • Away from school and direct residential areas • Fire prevention facilities must be present at all storage facilities • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials • These storage facilities (including any tanks)	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	No substantial physical work was carried out during the reporting period.

[19]Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		must be on an impermeable surface • Staff must be aware of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct[20]	• Ensure that all site personnel have a basic level of environmental awareness training • All employees must undergo safety training and wear the necessary protective clothing	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	No substantial physical work was carried out during the reporting period.
Construction									
9	Materials Management – Sourcing[21]	• Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work. • Use of Govt. approved quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC	• List of approved quarry sites and sources of materials • Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary. • Construction Contractor documentation	Quarries and material source areas	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by Construction Manager, Visit by Environment Specialist and Junior Environmental Scientist on fortnightly basis	No substantial physical work was carried out during the reporting period.

[20] These points need to be made clear to all staff on site before the subproject begin.
[21] Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
10	Maintenance of Construction Camp	• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement • Train employees in the storage and handling of materials • Remove all wreckage, rubbish, or temporary structures	• Complaints from sensitive Receptors • Water and sanitation facilities for employees • Housekeeping – regular disposal of solid waste	Camp site	Contractor	• Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
11	Landscape and Aesthetics	• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures • Fencing of storage areas • Disposal of construction debris if any as per mitigation measures • Prepare and implement Waste Management List • Avoid stockpiling of excess excavated soils • Coordinate with KMC for beneficial uses of excess excavated soils	• Waste Management List • Complaints from sensitive receptors • PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
12	Dust and Air Pollution[22]	• Selection of materials storage area • Water sprinkling at construction site for arresting dust (if any during dry period)	• Location of stockpiles • Complaints from sensitive receptors • Monitoring data	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.

[22] Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Use tarpaulins to cover sand and other loose material- Reducing dust hazard • All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification • No fires are allowed on site • Carry out air quality monitoring	• Heavy equipment and machinery with air pollution control • Water sprinkling arrangement • Cover materials						
13	Noise level	• Noise producing work needs to be conducted at day time • Regular maintenance of noise producing equipment • Require horns not be used unless it is necessary to warn other road users • Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s • At sensitive locations enclosures provided around generator set or other noise producing machinery.	• Complaints from sensitive receptors • Use of silencers in noise-producing equipment and sound barriers • Monitoring data	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at	• Areas for stockpiles, storage of fuels and	Project Locations	Contractor	• Checking of records	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		construction site	lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies			• Visual inspection of sites			reporting period.
15	Water Quality[23]	• Contractor to ensure run-off from vehicle or plant washing does not enter water body • Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, surface water body, or groundwater on site.	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
16	Conservation of Natural Environment	• Contractor to ensure only trees that have been marked beforehand are to be removed • Contractor to immediately re-vegetate stripped areas • Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.	Tree felling requirement and afforestation after final design	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.

[23] Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
17	Materials Management	• Contractor to ensure stockpiles do not obstruct natural water pathways. • Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. • Contractor to ensure all concrete mixing take place on a designated, impermeable surface.	Stockpile management	Stockpile / storage area	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
18	Occupational Health & safety	• Develop and implement site-specific Health and Safety (H&S) Plan • Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs • H&S Training for all site personnel • Documentation of work-related accidents; • Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU • Provide specific guidance for suitable PPE for every on-site work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers;	• Site-specific Health and Safety (H&S) Plan • Equipped first-aid stations; • Medical insurance coverage for workers • Number of accidents • Supplies of potable drinking water; • Record of H&S orientation trainings • Personal protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate • Disallow worker exposure to noise level greater than85 dBA for a duration of more than8hoursper day without hearing protection.							
19	Social Impacts[24]- Community Health & safety, accessibility	• Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites • Contractor to ensure disruption of access for local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets where required to	• Traffic Management Strategy • Complaints from sensitive receptors • Number of signages placed at subproject location	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.

[24] Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		maintain access across for people and vehicles • Consideration of public safety - as per prescribed mitigation measures • Contractors to ensure lighting on the construction site • Provide protective fencing around open trenches • Provide road signs and flag persons to warn • Scheduletransportand haulingactivitiesduringno n- peakhours							
20	Socio cultural resources	• Strictly follow the protocol for chance finds in any excavation work • Stop work immediately to allow further investigation if any finds are suspected	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.
21	Employment generation	• The use of labourer intensive construction measures will be used where appropriate • Employ local (unskilled) labourer if possible • Training of labourer to benefit individuals beyond completion of the subproject	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	No substantial physical work was carried out during the reporting period.

Table 11: Compliance to EMP of for the Package - Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Stations(s) and STP (KEIIP/ICB/ Tr-1/SD-07/15-16)

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
Pre Construction - Design phase									
1	Site clearance	Site preparation work including necessary clearance and permission	• Tree felling requirement – site environment plan • NOC – paper documents from line agency	All Project locations	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before commencement of final design	Tree felling not required till date
2	Access to Site	• Access to site will be via existing roads • Involvement of local Traffic Department in the planning stages of the road closure and detour and available on site in the monitoring of traffic in the early stages of the operations during road closure	• Involvement of traffic dept. • Road closure planning	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied. Access to site maintained after due consultation with local councilor / authority
3	Affected utilities	Shifting of affected utilities like electric and telephone poles, pipe lines	• List of affected utilities if any and operators • Bid document to include requirement for a contingency plan for service interruptions	Specific project location	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	No shifting of utilities is required till date.
4	Water supply	Health risk due to closure of water supply	• Schedule of closure • Delivery of KMC of potable water to affected people	-	DSC/PMU	Checking of records Visual observation	Environment Specialist of DSC and PMU	Do	Not required now as per present nature of work. Will be complied as and when required

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
5	Traffic Management	Planning for Traffic Management	Ensure traffic management plan is part of contract documents and being implemented	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Complied; Traffic management plan prepared; required approvals have been obtained periodically. Sample Traffic Management Plan attached as **Appendix 12**
6	Construction work camps (if needed), hot mix plants, stockpile areas, storage areas, and disposal areas.	• Planning for setting up worker camps, hot mix plant, stockpile area, storage and disposal areas • Prioritize areas within or nearest possible vacant space in the subproject location • Non use of residential area • Arrangement of toilet and drinking water facility • No disposal of waste in water	List of selected location for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied. Improvement noted need to be maintained.
7	Establishing Equipment Lay-down and Storage Area[25]	• Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to adjacent land uses, general on – site topography and water erosion potential of the soil.	List of selected location and facility	Proposed locations considered in the package	DSC/PMU	Site visit and checking	Environment Specialist of DSC and PMU	Before start of physical work & Continuous	Complied Proper storage of fuels, lubricants done Equipment lay-down area demarcated Fire prevention facilities have been arranged at site office/ near fuel store as per instruction.

[25]Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Storage areas shall be secure so as to minimize the risk of crime. • Away from school and direct residential areas • Fire prevention facilities must be present at all storage facilities • Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials • These storage facilities (including any tanks) must be on an impermeable surface • Staff must be aware of their potential impacts and follow the appropriate safety measures							
8	Education of site staff on general and Environmental Conduct[26]	• Ensure that all site personnel have a basic level of environmental awareness training • All employees must undergo safety training and wear the necessary protective clothing	Documentation – Training and awareness	-	DSC/PMU	Materials and records on awareness training program	Environment Specialist of DSC and PMU	-	Complied. Site Safety training and awareness arranged on regular basis
Construction									
9	Materials Management – Sourcing[27]	• Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural	• List of approved quarry sites and sources of materials	Quarries and material source areas	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Daily visit by construction supervisor of DSC. Weekly visit by	Complied. Approval obtained from PMU and DSC.

[26] These points need to be made clear to all staff on site before the subproject begin.
[27] Materials must be sourced in a legal and sustainable way to prevent offsite environmental degradation.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		gravels, crushed stone, asphalt, clay liners etc), and submit these to the DSC for approval prior to commencement of any work. • Use of Govt. approved quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC	• Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary. • Construction Contractor documentation					Construction Manager, Visit by Environment Specialist and Junior Environmental Scientist on fortnight basis	
10	Maintenance of Construction Camp	• Establishment of temporary camps with drinking water, sanitary and solid waste management arrangement • Train employees in the storage and handling of materials • Remove all wreckage, rubbish, or temporary structures	• Complaints from sensitive Receptors • Water and sanitation facilities for employees • Housekeeping – regular disposal of solid waste	Camp site	Contractor	• Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied. Improvement noted need to be maintained.
11	Landscape and Aesthetics	• Removal of overburden and excavated material from working site and use / preservation of the same – as per mitigation measures • Fencing of storage areas • Disposal of construction debris if any as per mitigation measures • Prepare and implement Waste Management List	• Waste Management List • Complaints from sensitive receptors • PMU/PIU/DSC to report in writing that the necessary environmental restoration work has been done	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Excess earth used mostly for backfilling Spoil management plan applied as per EMP. Sample attached as **Appendix 6**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Avoid stockpiling of excess excavated soils • Coordinate with KMC for beneficial uses of excess excavated soils							
12	Dust and Air Pollution[28]	• Selection of materials storage area • Water sprinkling at construction site for arresting dust (if any during dry period) • Use tarpaulins to cover sand and other loose material- Reducing dust hazard • All vehicles and equipments mobilized to construction site and producing emission, have Pollution Control Board certification • No fires are allowed on site • Carry out air quality monitoring	• Location of stockpiles • Complaints from sensitive receptors • Monitoring data • Heavy equipment and machinery with air pollution control • Water sprinkling arrangement • Cover materials	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Location of stockpiles selected. Covering of materials not done properly Water sprinkling done as per site condition; air quality monitoring done as per EMP. (Complete test certificates available in DSC office as back up paper**).** Pollution under Control Certificate of vehicles and equipment obtained
13	Noise level	• Noise producing work needs to be conducted at day time • Regular maintenance of noise producing equipment • Require horns not be used unless it is necessary to warn other road users • Maintain maximum sound levels not exceeding 80	• Complaints from sensitive receptors • Use of silencers in noise-producing equipment and sound barriers • Monitoring data	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied No such noise generating problem noted near the project location. PPE utilized by labourer as per requirement. During construction monitoring done. Monitoring will be

[28] Main causes of air pollution during construction are dust from vehicle movements and stockpiles, vehicle emissions and fires.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s • At sensitive locations enclosures provided around generator set or other noise producing machinery.							continued as per EMP. (Complete test certificates available in DSC office as back up paper**).**
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste water generated at construction site	• Areas for stockpiles, storage of fuels and lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied as per requirement
15	Water Quality[29]	• Contractor to ensure run-off from vehicle or plant washing does not enter Hooghly river • Contractor to ensure every effort is made that any chemicals or hazardous substances do not contaminate the soil, Hooghly river, or groundwater on site.	Non entry of pollutant in water body	Project Locations	Contractor	Site observation	Environment Specialist of DSC and PMU	Do	Other than STP pond no water source near the construction location

[29] Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
16	Conservation of Natural Environment	• Contractor to ensure only trees that have been marked beforehand are to be removed • Contractor to immediately re-vegetate stripped areas • Contractor to prohibit site staff from gathering firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.	Tree felling requirement and afforestation after final design	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	No tree felling required
17	Materials Management	• Contractor to ensure stockpiles do not obstruct natural water pathways. • Contractor to cover stockpiles exposed to windy conditions or heavy rain with vegetation, cloth, or tarps. • Contractor to ensure all concrete mixing take place on a designated, impermeable surface.	Stockpile management	Stockpile / storage area	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Stockpile not obstructing natural flow of water
18	Occupational Health & safety	• Develop and implement site-specific Health and Safety (H&S) Plan • Use Personal Protective Equipment like helmet, gumboot, gloves, nose mask and earplugs • H&S Training for all site personnel • Documentation of work-related accidents; • Designate a safeguard focal person and undertake safeguards orientation by PMU/PIU	• Site-specific Health and Safety (H&S) Plan • Equipped first-aid stations; • Medical insurance coverage for workers • Number of accidents • Supplies of potable drinking water;	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Site-specific Health and Safety (H&S) Plan under implementation. H & S training done on regular basis. Sample training document is attached as **Appendix 15** Use of PPE – improved. Shoes/ gumboots are not

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		• Provide specific guidance for suitable PPE for every on-site work assignment • Ensure availability of First aid box at all working sites and labour camp • Provide medical insurance coverage for workers; • Provide supplies of potable drinking water at working sites; • Provide H&S orientation training to all new workers • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, appropriate • Disallow worker exposure to noise level greater than85 dBA for a duration of more than8hoursper day without hearing protection.	• Record of H&S orientation trainings • Personal protective equipments • Sign boards for hazardous areas such as energized electrical devices and lines, service rooms						provided to all workers Drinking water and first aid box available at site. Site photo enclosed in **Appendix 3.** Insurance arranged for the labour. Attached as **Appendix 8.** Tie up letter with nearby health center in case of emergency attached as **Appendix 9.** Minor accident (first aid case) record is shown in **Appendix 10.** Overall compliance is Satisfactory
19	Social Impacts[30]- Community Health & safety, accessibility	• Plan truck routes (for carrying construction materials including pipes) to avoid narrow or congested roads and tourist sites • Contractor to ensure disruption of access for	• Traffic Management Strategy • Complaints from sensitive receptors • Number of signages placed	Project Locations	Contractor	Document check and visual observation	Environment Specialist of DSC and PMU	Do	Complied Caution tape placed around excavated area. Caution board noted. Within narrow lane only caution tape are used

[30] Regular communication between the Contractor and the interested and affected parties is important for the duration of the contract.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		local residents is minimized • Contractor to restrict activities and movement of staff to designated construction areas • Contractor to provide walkways and metal sheets where required to maintain access across for people and vehicles • Consideration of public safety - as per prescribed mitigation measures • Contractors to ensure lighting on the construction site • Provide protective fencing around open trenches • Provide road signs and flag persons to warn • Schedule transport and hauling activities during non- peak hours	at subproject location						Photo attached as **Appendix 3**.
20	Socio cultural resources	• Strictly follow the protocol for chance finds in any excavation work • Stop work immediately to allow further investigation if any finds are suspected	Chance find protocol	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Not required till date
21	Employment generation	• The use of labour intensive construction measures will be used where appropriate • Employ local (unskilled) labour if possible • Training of labour to benefit individuals beyond	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present outside and local labourers are engaged. (45 % local labour). List of labourer are attached as **Appendix 11**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		completion of the subproject							

V. ENVIRONMENTAL MONITORING AND EVALUATION

21. In addition to desk reviews and site inspections, monitoring of selected environmental parameters have been conducted during the reporting period. The frequencies of the environmental monitoring activities are commensurate to the type and significance of the impacts. For **Tranche 1** subprojects, the parameters to be monitored are ambient air quality and noise levels.

22. During year 2014 to 2017 base line monitoring has been conducted for different packages. "During construction" air quality monitoring has been done for all the packages. Monitoring and health safety budget of contractor is shown in **Appendix 13.**

23. Base line and during construction air quality monitoring results are shown in **Table 12** below. All test certificates are available in DSC office as back up paper.

24. Salient findings from air quality monitoring are as follows,

- In all cases concentration of SO_2 is within the prescribed standard. In KEIIP/ICB/ Tr-1/WS02 there is marginal increase in SO_2 concentration during construction phase compared to base line level. This increase may be due to local emission from burning of fuels.
- In all cases concentration of NO_x is within the prescribed standard. Concentration of NO_x for the package KEIIP/ICB/TR-1/SD-07/2015-16 has increased during construction which may be due to increased movement of traffic at construction site for transportation of workers and materials.
- Concentration of $PM_{2.5}$ is within the prescribed standard. For package KEIIP/ICB/TR-1/SD-07/2015-16, $PM_{2.5}$ has increased during construction compared to baseline condition.
- During construction, concentration of PM_{10} is within the prescribed standard. For package KEIIP/ICB/ Tr-1/WS02/2013-14 concentration of PM_{10} has decreased compared to baseline condition. For package KEIIP/ICB/TR-1/SD-07/2015-16 PM_{10} has increased compared to baseline condition. Generation of dust at that area is mostly due to poor condition of road. Instruction has been given to contractor for water sprinkling at construction site.
- Concentration of Hydrocarbon is below the detection limit

25. Contractors are being advised regularly to take necessary action on dust suppression by sprinkling of water whenever required.

Table 12: Ambient Air Quality Monitoring Data at working sites

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m³	NO_2 µg/m³	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	HC µg/m³
Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06**KEIIP/ICB/Tr-1/ WS01/2015- 16**	Olai Chandi, Ward no. 5	Base line	27.11.2017	15.64	35.50	21.30	62.14	
	Nitya Gopal Chatterjee Lane	Base line	27.11.2017	14.6	33.81	20.03	59.27	
	Sirish Chandra Chowdhury Lane	Base line	27.11.2017	15.64	34.66	22.5	64.00	
	Nilmoni Mitra Row	Base line	27.11.2017	16.88	36.35	23.78	69.44	
		Average Base line		**15.7**	**35.1**	**21.9**	**63.7**	
	Nitya Gopal Chatterjee Lane	During Construction	21.03.18	9.53	31.42	21.22	71.30	

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m³	NO_2 µg/m³	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	HC µg/m³
	There was no physical work after monsoon and the contractor could not carry out AQM till end of November 2018. Contractor has however informed, that they have conducted AQM in December 2018, the results of which will be included in next SEMR.							
Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach **KEIIP/ICB/ Tr-1/WS02/2013-14**	Proposed Water Treatment Plant – Palta at Monirampur	Base line	04.03.2015	8.17	34.8	52.63	121.62	3.50
	Near Jetty (Intake 2) - Palta at Monirampur	Base line	04.03.2015	7.50	29.92	48.62	112.81	3.50
	Garden Reach Intake point and treatment plant- near Surinamghat	Base line	07.03.2015	7.49	30.16	52.36	121.89	3.20
		Average Base line		**7.72**	**31.62**	**51.20**	**118.77**	**3.4**
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	30.09.2015	10.04	23.32	19.95	61.79	ND
	Near Jetty (Intake 2) - Palta at Monirampur	During Construction	30.09.2015	10.96	21.07	22.50	68.33	ND
		Average During construction		**10.5**	**22.19**	**21.22**	**65.06**	**ND**
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	11.02.2016	8.87	24.90	21.19	68.26	ND
	Near Jetty (Intake 2) - Palta at Monirampur	During Construction	11.02.2016	9.85	22.23	23.72	73.45	ND
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	27.05.2016.	8.75	25.38	19.95	61.62	ND
	Near Jetty (Intake 2) - Palta at Monirampur	During Construction	27.05.2016.	10.84	26.68	22.44	87.18	ND
		Average During construction		**9.57**	**24.79**	**21.82**	**72.62**	**ND**
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	31.10.2016	9.08	23.35	22.47	56.85	**ND**
	Near Jetty (Intake 2) - Palta at Monirampur	During Construction	31.10.2016	10.10	21.55	18.75	84.22	ND
		Average During construction		**9.59**	**22.45**	**20.61**	**70.53**	**ND**

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m³	NO_2 µg/m³	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	HC µg/m³
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	18.01.2017	9.39	20.02	19.98	61.34	ND
	Near Jetty (Intake 2) - Palta at Monirampur	During Construction	18.01.2017	11.48	21.84	21.22	65.85	ND
		Average During construction		**10.43**	**20.93**	**20.6**	**63.59**	**ND**
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	3.5.2017	8.87	23.62	19.95	65.29	ND
	Near Jetty (Intake 2) - Palta at Monirampur	During Construction	3.5.2017	9.93	24.67	23.47	89.54	ND
		Average During construction		**9.4**	**24.14**	**21.71**	**77.41**	**ND**
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	25.10.2017	12.47	33.23	41.15	96.62	ND
	Near Jetty (Intake 2) - Palta at Monirampur	During Construction	25.10.2017	10.17	25.42	18.70	74.65	ND
	Garden Reach Intake point jetty and treatment plant	During Construction	02.11.2017	8.89	15.74	18.77	56.03	ND
		Average During construction		**10.5**	**24.8**	**26.2**	**75.8**	
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	15.02.18	10.28	25.95	19.95	67.31	ND
	Proposed Water Treatment Plant – Palta at Monirampur	**During Construction***	**02.11.18**	**9.56**	**22.23**	**16.23**	**49.18**	**ND**
Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method	2 no. Shaft D H Road Sakherbazar	Base line	03.01.2015	8.50	35.0	28.62	123.82	
	6 no. shaft Taratala Road Jhinjira Bazar	Base line	03.01.2015	8.20	36.54	31.21	126.80	-
		Average Base line		**8.35**	**35.77**	**29.9**	**125.3**	
	DH Road Shaft no. 17 near 3A bus stand	During construction	31.07.2015	13.41	38.11	28.86	70.85	ND
	Taratala Road Shaft no. 7	During construction	31.07.2015	15.20	36.15	30.10	80.20	ND

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m³	NO_2 µg/m³	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	HC µg/m³
KEIIP/ICB/ Tr-1/WS & SD-04/13-14	Taratala Road, Shaft No. – 7 (Tunnel) Brace Bridge	During construction	31.07.2015	14.31	34.20	28.82	73.22	ND
		Average During construction		**14.30**	**36.15**	**29.26**	**74.75**	**ND**
	DH Road Shaft no. 19	During construction	07.12.2015	5.11	40.73	33.67	85.12	ND
	Taratala Road Shaft no. 1	During construction	07.12.2015	16.05	42.72	28.68	78.37	ND
		Average During construction		**10.58**	**41.72**	**31.17**	**81.74**	
	DH Road Shaft 19	During construction	08.04.2016	16.75	41.79	34.96	92.45	ND
	Taratala Road, Shaft 11	During construction	08.04.2016	18.72	45.35	29.96	88.83	ND
	DH Road Shaft 21	During construction	02.06.2016	19.29	45.76	31.02	91.32	ND
	Taratala Road, Shaft 03	During construction	02.06.2016	16.88	43.52	26.02	82.45	ND
		Average During construction		**17.91**	**44.10**	**30.49**	**88.76**	**ND**
	DH Road, Shaft 7	During construction	19.09.2016.	17.14	43.10	31.25	89.57	ND
	Taratala Road, Shaft 13	During construction	19.09.2016.	16.14	46.70	27.50	92.53	ND
		Average During construction		**16.64**	**44.9**	**29.37**	**91.05**	**ND**
	James Long Sarani, Shaft No.15	During construction	5.12.2016	18.79	54.60	41.25	123.93	ND
	DH Road, Shaft No. 6	During construction	5.12.2016	17.74	49.14	29.93	94.73	ND
		Average During construction		**18.26**	**51.87**	**35.59**	**109.33**	**ND**
	Shaft No. 15 (Taratala Road)	During construction	3.4.2017	14.47	48.50	28.50	94.55	ND
	Shaft No. 4 (DH Road, Silpara)	During construction	3.4.2017	18.09	46.19	33.08	96.04	ND
		Average During construction		**16.28**	**47.34**	**30.79**	**95.29**	**ND**
	Shaft No. 4 (DH Road, Silpara)	During construction	15.06.2017	16.10	45.27	29.93	90.13	ND
	Shaft no 21 & 21A (DH Road)	During construction	15.06.2017	17.11	46.19	32.38	95.29	ND
		Average During construction		**16.6**	**45.7**	**31.1**	**92.7**	**ND**
	DH Road, Joka Metro station, shaft no. 21A	During construction	11.10.2017	16.63	46.13	32.42	95.11	ND
	D.H. Road (Shaft no. 22)	During Construction	27.02.18	19.05	49.31	27.43	91.02	ND
	STP site Office	During Construction	27.02.18	16.93	45.30	26.18	85.28	ND

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m³	NO_2 µg/m³	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	HC µg/m³
		Average During Construction		**17.99**	**47.30**	**26.80**	**88.15**	**-**
		No AQM was carried out during monsoon and the work was completed by end of July 2018.						
Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment **(KEIIP/ICB/ Tr-1/SD-05/13-14)**	Nearby Incoming sewer pipeline – SWF & DWF pumping main from Begore Khal Pumping station (PS) – near PS /	Base line	27.12.2014	24.15	48.21	51.19	106.44	**-**
	Box drain and Begore PS location- near Behala Airport	Base line	27.12.2014	25.33	50.89	57.36	126.84	**-**
	Near pipe laying work – Junction point of Dakshin Behala Road & Swashan Kalitala road – near Barisha Youth club	Base line	27.12.2014	24.15	49.55	41.15	89.26	**-**
	Near Joka Tram Depot. Pumping station	Base line	27.12.2014	22.22	48.60	37.41	84.24	-
		Average Base line		**23.96**	**49.31**	**46.77**	**101.69**	
	Box drain and Begore PS location- near Behala Airport	During construction	31.12.2015	22.66	42.72	38.75	89.02	ND
	Near Joka Tram Depot. Pumping station	During construction	31.12.2015	22.66	62.59	52.43	124.38	ND
	Panch Kari Ghosh Road	During construction	31.12.2015	20.77	59.61	36.30	87.30	ND
		Average During construction		**22.03**	**54.97**	**42.49**	**100.23**	**ND**
	Box drain and Begore PS location- near Behala Airport	During construction	13.06.2016.	20.11	42.06	40.32	96.53	ND
	Near Joka Tram Depot. Pumping station	During construction	13.06.2016.	25.83	57.43	52.74	117.5	ND
		Average During construction		**22.97**	**49.74**	**46.53**	**107.01**	**ND**
	Begore Khal PS	During construction	27.09.2016.	17.78	44.61	32.46	91.04	ND
	Joka PS	During construction	27.09.2016.	22.71	51.60	52.43	139.42	ND
		Average During construction		**20.24**	**48.10**	**42.44**	**115.23**	**ND**

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m³	NO_2 µg/m³	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	HC µg/m³
	Joka Pumping Staion	During construction	19.12.2016.	22.48	59.38	55.00	156.16	ND
	Begore Khal Pumping Station	During construction	19.12.2016.	19.58	55.51	29.70	95.62	ND
	Amritalal Mukherjee Road (1400 Dia. Pipe Line)	During construction	19.12.2016.	18.79	57.33	34.96	116.13	ND
		Average During construction		**20.28**	**57.40**	**39.88**	**122.63**	**ND**
	Joka Pumping Staion	During construction	26.5.2017.	24.15	55.73	47.38	106.42	ND
	Begore Khal Pumping Station	During construction	26.5.2017.	22.11	46.74	57.36	136.27	ND
	Sakher Bazar, K.K. Roy Chowdhury Road, Barisha	During construction	26.5.2017.	23.64	54.82	113.54	62.34	ND
		Average During construction		**23.3**	**52.43**	**72.76**	**101.67**	**ND**
	Joka Pumping Station	During construction	29.11.2017	25.24	57.89	51.2	115.98	ND
	Begore Khal Pumping Station	During construction	29.11.2017	23.04	49.04	63.59	145.39	ND
	Brojomoni Debya Road and Dakshin Behala Road Crossing, near Dutta Ground	During construction	29.11.2017	20.40	47.73	23.70	63.21	ND
	Dakshin Para Road	During construction	29.11.2017	19.33	49.13	24.94	68.25	ND
		Average During construction		**22.0**	**50.9**	**40.8**	**98.2**	**ND**
	Joka Pumping Station	During construction	14.05.18	24.34	56.23	49.88	112.36	
	Begore Khal Pumping Station	During construction	14.05.18	20.99	40.86	38.70	95.73	
	Jaigirghat Road	During construction	14.05.18	23.09	53.87	36.20	94.10	
		Average During construction		**22.80**	**50.32**	**41.59**	**100.73**	
		No AQM was carried out as there was no substantial physical work during the reporting period.						
Rehabilitation and Replacement of GAP sewer and allied works, **KEIIP/ICB/TR-1/SD-07/2015-16**	Sodepur Brickfield Road	Base Line	21.06.2016	11.37	26.11	26.28	79.59	-
	Inside Keorapukur STP	Base Line	21.06.2016	10.42	22.48	23.75	65.48	-
		Average Base Line		**10.89**	**24.29**	**25.01**	**72.53**	**-**
	Sodepur Brickfield Road (Doctor bagan)	During Construction	10.12.2016	10.50	28.30	29.52	71.25	ND
	K. K. road pipe laying area	During Constructio	10.12.2016	11.45	29.32	29.36	80.23	ND

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m³	NO_2 µg/m³	$PM_{2.5}$ µg/m³	PM_{10} µg/m³	HC µg/m³
		Average During construction		**10.97**	**28.81**	**29.44**	**75.74**	**ND**
	Taratala Road, Lal Gate, Near Castrol India Ltd.	During Construction	27.05.2017.	18.27	59.39	39.90	97.46	ND
	Santoshpur Road, Near Nature Park	During Construction	27.05.2017.	17.26	56.65	31.21	87.28	ND
		Average During construction		**17.76**	**58.02**	**35.55**	**92.37**	**ND**
	Inside Keorapukur STP	During Construction	24.11.2017	9.0	40.4	77.0	134.0	-
	Sodepur Brickfield Road (Doctor bagan)	During Construction	23.11.2017	8.7	37.2	48.0	117.0	-
	Akra Santoshpur Link Road, Jhilpar Kolkata 66	During Construction	23.11.2017	15.8	50.1	168.0	315.0	-
		During Construction	23.11.2017	14.5	46.0	127.0	282.0	-
		Average During construction		**12.0**	**43.4**	**105**	**212**	
	Santoshpur Pumping Station	During Construction	26.03.18	9.2	39.4	73.0	158	-
	SSE STP (Aeration Pond)	During Construction	27.03.18	7.8	38.4	53.0	107	-
	Keorapukur Pipe laying site	During Construction	26.03.18	8.3	33.9	63.0	143	-
		Average During Construction		**8.43**	**37.2**	**63.0**	**136**	
	New Pump House	**During Construction***	**28.08.18**	**6.9**	**40.0**	**41**	**79**	**-**
	STANDARD			**80.0**	**80.0**	**60.0**	**100.0**	

Note- * During construction monitoring period from June to November 2018 – Report periods have been changed as per instructions of ADB to June- November and December-May

Note- *(i) In linear pipeline construction, base line air quality data have been calculated as the average air quality status of the project working area from monitoring at 3 to 4 stations before commencement of the construction work of the package as a whole. This provides a rational basis for comparison of monitored data during construction with the average baseline data as calculated.*
(ii) In linear pipe laying packages the activity locations (sinking of shaft, site camp office, deployment of equipment etc.) shifted as construction work progressed from one site to another. Air quality sampling locations shifted accordingly. Location at which construction is complete is abandoned for new stations where construction has commenced.

26. Base line and during construction ambient noise level data are presented in **Table 13.** Noise level is comparatively low at Palta water works location, which is at an isolated area away from traffic route. In most of the cases Leq value is near the standard in respect to commercial area standard but above the limit when compared to residential area standard. For package KEIIP/ICB/TR-1/SD-07/2015-16 during construction noise is marginally increased and values are above the limit (commercial area). In all the cases mitigation measures need to be applied as per site specific EMP. Particularly use of ear plugs by workers at high noise producing area is necessary. It is ensured that the contractors will strictly

implement the action plan as per EMP for reduction of noise level and minimization of noise impact.

Table 13: Noise Level Monitoring Data at Working Sites

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06 **KEIIP/ICB/Tr-1/ WS01/2015- 16**	Olai Chandi, Ward no. 5	Base line	27.11.2017	60.33	-
	Nitya Gopal Chatterjee Lane	Base line	27.11.2017	62.33	-
	Sirish Chandra Chowdhury Lane	Base line	27.11.2017	52.69	-
	Nilmoni Mitra Row	Base line	27.11.2017	60.97	-
		Average Base line		**59.0**	
	Nitya Gopal Chatterjee Lane	During Construction	21.03.18	75.68	**-**
	There was no physical work after monsoon and the contractor could not carry out noise monitoring till end of November 2018. Contractor has however informed, that they have conducted noise monitoring in December 2018, the results of which will be included in next SEMR				
Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach **KEIIP/ICB/ Tr-1/WS02/2013-14**	Proposed Water Treatment Plant – Palta at Monirampur	Base line	04.03.2015	53.63	49.18
	Near Jetty (Intake 2) -Palta at Monirampur	Base line	04.03.2015	52.19	49.10
	Garden Reach Intake point and treatment plant-near Surinamghat	Base line	07.03.2015	53.57	52.49
	Average Base line			**50.1**	**50.2**
	Proposed Water Treatment Plant – Palta at Monirampur	During Construction	30.09.2015	56.45	47.32
	Near Jetty (Intake 2) -Palta at Monirampur	During Construction	30.09.2015	61.25	53.08
	Average During construction			**58.8**	**50.2**
	Near Jetty (Intake 2) -Palta at Monirampur	During Construction	11.02.2016	65.29	56.09
	Water Treatment Plant – Palta at Monirampur	During Construction	11.02.2016	67.09	56.65
	Near Jetty (Intake 2) -Palta at Monirampur	During Construction	03.06.2016.	58.28	52.15
	Water Treatment Plant – Palta at Monirampur	During Construction	03.06.2016.	55.10	51.67
		Average During construction		**61.44**	**54.14**
	Near Jetty (Intake 2) -Palta at Monirampur	During Construction	31.10.2016	63.65	50.59
	Water Treatment Plant – Palta at Monirampur	During Construction	31.10.2016	69.26	49.47
		Average During construction		**66.45**	**50.03**

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
	Water Treatment Plant – Palta at Monirampur	During Construction	18.01.2017.	63.93	55.38
	Intake Jetty Station No. 2	During Construction	18.01.2017.	56.42	49.37
		Average During construction		**60.17**	**52.37**
	Water Treatment Plant – Palta at Monirampur	During Construction	3.5.2017.	62.96	53.65
	Near Intake Jetty No. 2	During Construction	3.5.2017.	55.91	49.26
		Average During construction		**59.43**	**51.45**
		During Construction	25.10.2017	66.69	56.73
	Near Jetty (Intake 2) -Palta at Monirampur	During Construction	25.10.2017	57.24	50.87
	Garden Reach Intake point jetty and treatment plant	During Construction	02.11.2017	59.57	51.26
		Average During construction		**61.2**	**52.9**
	Near WTP, Barrackpore	During construction	15.02.18	62.03	
	Near WTP, Barrackpore	**During construction***	**02.11.18**	**62.8**	**57.5**
Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method **KEIIP/ICB/ Tr-1/WS & SD-04/13-14**	2 no. Shaft D H Road Sakherbazar	Base line	03.01.2015	84.50	-
	6 no. shaft Taratala Road Jhinjira Bazar	Base line	03.01.2015	74.44	-
		Average Base line		**79.47**	
	DH Road Shaft no. 17 near 3A bus stand	During construction	31.07.2015	68.71	-
	Taratala Road Shaft no. 7 near Brace Bridge	During construction	31.07.2015	67.34	-
	Average During construction*			**68.0**	**-**
	DH Road Shaft no. 19	During construction	07.12.2015	68.20	**-**
	Taratala Road Shaft no. 1	During construction	07.12.2015	60.96	**-**
	Average During construction			**64.58**	
	DH Road, shaft 19	During construction	08.04.2016.	77.58	**-**
	Taratala Road, Shaft 11	During construction	08.04.2016.	73.39	**-**
	DH Road Shaft no. 21	During construction	02.06.2016.	78.90	**-**
	Taratala Road Shaft no. 3	During construction	02.06.2016.	77.62	-
		Average During construction		**76.87**	-
	DH Road Shaft no. 7	During Construction	19.09.16.	73.17	-

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
	Taratala Road Shaft no. 13	During Construction	19.09.16.	62.94	-
		Average During construction		**68.05**	-
	James Long Sarani, Shaft No. 15	During Construction	5.12.2016.	65.77	-
	DH Road,Shaft No. 6. Near 500 KVA DG	During Construction	5.12.2016.	73.39	-
	DH Road Shaft No. 6 In Between 125 & 250 KVA DG	During Construction	5.12.2016.	71.02	-
		Average During Construction		**70.06**	
	Shaft No. 4 (D.G. Road Silpara)	During Construction	3.4.2017.	71.24	-
	Shaft No. 15 (Taratala Road)	During Construction	3.4.2017	69.82	-
		Average During construction		**70.53**	-
	Shaft No. 4 (DH Road, Silpara)	During construction	15.06.2017	68.62	-
	Shaft no 21 & 21A (DH Road)	During construction	15.06.2017	69.01	-
		Average During construction		**68.85**	
	DH Road, Joka Metro station, shaft no. 21A	During construction	11.10.2017	72.23	
	STP site Office, Taratala Road	During construction	27.02.2018	57.90	
	No noise monitoring was carried out during monsoon and the work was completed by end of July 2018.				
Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment **(KEIIP/ICB/ Tr-1/SD-05/13-14)**	Nearby Incoming sewer pipeline – SWF & DWF pumping main from Begore Khal Pumping station (PS) – near PS /	Base line	27.12.2014	63.97	56.32
	Box drain location- near Behala Airport	Base line	27.12.2014	54.23	49.91
	Near pipe laying work – Junction point of Dakshin Behala Road & Swashan Kalitala road – near Barisha Youth club	Base line	27.12.2014	60.74	52.26
	Near Joka Tram Depot. Pumping station	Base line	27.12.2014	52.77	48.86
		Average base line		**57.92**	**51.83**
	Box drain and Begore PS location- near Behala Airport	During construction	31.12.2015	57.15	51.83

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
	Near Joka Tram Depot. Pumping station	During construction	31.12.2015	60.05	55.32
	Panch Kari Ghosh Road	During construction	31.12.2015	55.68	51.15
		Average During construction		**57.6**	**52.7**
	Near Joka Tram Depot. Pumping station	During construction	13.06.2016.	50.24	47.42
	Box drain and Begore PS location- near Behala Airport	During construction	13.06.2016.	60.08	55.68
		Average During construction	**55.16**	**51.55**	**55.16**
	Box drain and Begore PS location- near Behala Airport	During construction	27.09.16	57.50	51.59
	Near Joka Tram Depot. Pumping station	During construction	27.09.16	63.04	56.98
		Average During construction		**60.27**	**54.28**
	Joka Pumping Station	During Construction	19.12.2016.	58.77	52.54
	Begore Khal Pumping Station	During Construction	19.12.2016.	65.31	51.13
	Amritalal Mukherjee Road (1400 Dia. Pipe Line)	During Construction	19.12.2016.	56.44	49.61
		Average During construction		**60.17**	**51.09**
	Begore Khal Pumping Station	During construction	26.05.2017.	60.03	56.52
	Joka Pumping Station	During construction	26.05.2017.	58.16	54.48
	Sakher Bazar, K.K. Roy Chowdhury Road, Barisha	During construction	26.05.2017.	62.06	56.49
		Average During construction		**60.08**	**55.83**
	Joka Pumping Station	During construction	29.11.2017	57.98	54.38
	Begore Khal Pumping Station	During construction	29.11.2017	58.72	53.16
	Brojomoni Debya Road and Dakshin Behala Road Crossing, near Dutta Ground	During construction	29.11.2017	56.85	52.64
	Dakshin Para Road	During construction	29.11.2017	58.28	53.20
		Average During construction		**57.9**	**53.3**
	Joka Pumping Station	During construction	14.05.18	59.3	
	Begore Khal Pumping Station	During construction	14.05.18	52.6	
	Jaigirghat Road	During construction	14.05.18	64.5	

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
		Average During construction		**58.8**	
	No noise monitoring was carried out as there was no substantial physical work during the reporting period.				
Rehabilitation and Replacement of GAP sewer and allied works, **KEIIP/ICB/TR-1/SD-07/2015-16**	Sodepur Brickfield Road	Base Line	21.06.2016	65.86	51.58
	Keorapukur STP	Base Line	21.06.2016	58.45	50,09
		Average Base Line		**62.15**	**50.83**
	Sodepur Brickfield Road (Doctor bagan)	During construction	10.12.2016*	54.84	49.59
	K. K. road pipe laying area	During construction	10.12.2016*	50.30	47.56
		Average During construction		**52.67**	**48.57**
	Taratala Road, Lal Gate, Near Castrol India Ltd.	During construction	27.05.2017	62.63	53.77
	Santoshpur Road, Near Nature Park	During construction	27.05.2017	62.74	52.47
		Average During construction		**62.68**	**53.12**
	Inside Keorapukur STP	During Construction	24.11.2017	67.3	50.7
	Sodepur Brickfield Road (Doctor bagan)	During Construction	23.11.2017	63.7	49.2
	Akra Santoshpur Link Road, Jhilpar Kolkata 66	During Construction	23.11.2017	69.1	55.1
	New Raja Bagan thana, Mitha Talab	During Construction	23.11.2017	67.1	53.0
		Average During construction		**66.8**	**52.0**
	Santoshpur Pumping station	During Construction	26.03.18	67.3	50.7
	Keorapukur M.S Pipe laying area	During Construction	26.03.18	68.7	51.9
	SSE STP (Aeration Pond)	During Construction	26.03.18	68.2	51.2
		Average During construction		**68.1**	**51.3**
	New Pump house, DG set area	**During Construction***	**20.08.18**	**67.4**	**56.0**
Standard		**Day time:** Industrial area:75 Commercial: 65 Residential area: 55 **Night time:** Industrial area:70 Commercial: 55 Residential area: 45			

Note- * During construction monitoring period from June to November 2018 – Report periods have been changed as per instructions of ADB to June- November and December-May

Note *(i) In linear pipeline construction, base line data have been calculated as the average noise level status of the project working area from monitoring at 3 to 4 stations before commencement of the construction work of the package as a whole. This provides a rational basis for comparison of monitored data during construction with the average baseline data as calculated.*
(ii) In linear pipe laying package, the activity locations (sinking of shaft, site camp office, deployment of equipment etc.) shifted as construction work progressed from one site to another. Noise level monitoring locations shifted accordingly. Location at which construction is complete is abandoned for new stations where construction has commenced.

27. "During construction" air quality, noise level monitoring will be continued for all packages as per Environment Management and Monitoring Plan. All monitoring expenses will be borne by contractors from their project Health safety monitoring budget (**Appendix 13).**

28. A performance monitoring fact sheet has been prepared to facilitate tracking and quick reference on environmental monitoring of Tranche 1 subproject packages **(Tables 14 and 15).**

Table 14: Performance Fact Sheet for Required Environmental Consents/Clearances of KEIIP Tranche 1 (Package-wise)

	Package	Name of Contractor	EMP Part of contract Document(Yes / No)	Environmental Consents / Clearances Required					
				Tree Cutting	Crusher	Batching Plant	Hot Mix Plant	Diesel Generator Set	Pollution Under Control (PUC) Certificates for Contractor's Vehicles
1	Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06 **(KEIIP/ICB/Tr-1/ WS01/2015- 16)**	M/sSuez India Pvt. Ltd. (Formerly Degremont Pvt. Ltd)	Yes	Not required till date.	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
2	Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach **(KEIIP/ICB/ Tr-1/WS02/2013-14)**	M/s ITD- CEM India JV	Yes	Not required till date.	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
3	Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method **(KEIIP/ICB/ Tr-1/WS & SD-04/13-14)**	M/s ITD- ITD CEM Jv	Yes	Done after due permission. Compensatory plantation completed	Not required	NR as per present work	NR as per present work	Acoustic type of Generator used. No permission is required. Emission monitoring done.	Obtained

	Package	Name of Contractor	EMP Part of contract Document(Yes / No)	Environmental Consents / Clearances Required					
				Tree Cutting	Crusher	Batching Plant	Hot Mix Plant	Diesel Generator Set	Pollution Under Control (PUC) Certificates for Contractor's Vehicles
4	Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment **(KEIIP/ICB/ Tr-1/SD-05/13-14)**	M/s Tantia – MPPL (WILO) Jv	Yes	Not required till date	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained
5	Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Stations(s) and STP**(KEIIP/ICB/ Tr-1/SD-07/15-16)**	M/s SNET-SSG Joint Venture	Yes	Not required till date	Not required	NR as per present work	NR as per present work	Not required as per present work	Obtained

Table 15: Performance Fact Sheet for EMP Implementation of KEIIP Tranche 1 (Package-wise)

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person[31]	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
1	Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06**(KEIIP/ICB/Tr-1/ WS01/2015-16)**	M/s Suez India Pvt. Ltd.	Yes	Nominated	Complied	2	n/a	1	0	0	2	n/a	2	n/a	2	2	n/a	2
2	Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach **(KEIIP/ICB/ Tr-1/WS02/2013-14)**	M/s ITD- CEM India JV	Yes	Nominated	Complied	2	2	2	2	2	n/a	n/a	n/a	n/a	2	n/a	n/a	2

[31]Nomination of Environmental & Social Safeguard Officer by Contractor(Nominated / Yet to be Nominated)

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person[31]	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
3	Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method **(KEIIP/ICB/ Tr-1/WS & SD-04/13-14)**	M/s ITD- ITD CEM Jv	Yes	Nominated	Complied	2	2	2	n/a	n/a	2	2	2	n/a	2	2	n/a	2
4	Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment **(KEIIP/ICB/ Tr-1/SD-05/13-14)**	M/s Tantia – MPPL (WILO) Jv	Yes	Nominated	Complied	2	1	1	n/a	n/a	2	n/a	2	n/a	1	1	n/a	2

	Package Number	Name of Contractor	EMP Part of contract Document(Yes / No)	Contractor Social/ Environment Person[31]	Overall Status of EMP Implementation	Field to be Monitored as per EMP												
						Source of Materials	Camp Sites	Landscape and Aesthetics	Air Quality	Noise Level	Traffic	Ecological Resources – Terrestrial	Accessibility	Water Quality	Occupational Health & safety	Community Health & safety	Socio cultural resources	Employment generation
						In compliance (2) / Partial Compliance (1) / Not in compliance (0) / Not applicable (n/a)												
5	Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Stations(s) and STP**(KEIIP/ICB/ Tr-1/SD-07/15-16)**	M/s SNET-SSG Joint Venture	Yes	Nominated	Complied	2	1	1	2	2	2	n/a	2	n/a	1	2	n/a	2

Note calculation of numerical value for determining performance status- Calculation is based on addition of numerical value like below-
Package - KEIIP/ICB/Tr-1/ WS01/2015- 16= Total score-- 2+1+0+0+2+2+2+2+2=13. Number of working field=9, then-**13/9=1.45,** (Complied)
Package - KEIIP/ICB/ Tr-1/WS02/2013-14= Total score- 2+2+2+2+2+2+2 = 14. Number of working field=7, Then- **14/7=2,** More than 1.5 (Complied)
Package- KEIIP/ICB/ Tr-1/WS & SD-04/13-14= Total score- 2+2+2+2+2+2+2+2+2= 18. Number of working field=9, Then- **18/9=** 2 More than 1.5 (Complied)
Package- KEIIP/ICB/ Tr-1/SD-05/13-14= Total score- 2+1+1+2+2+1+1+2= 12. Number of field=8, Then- 12**/8=1.5**, (Complied)
Package **-** KEIIP/ICB/ Tr-1/SD-07/15-16= Total score- 2+1+1+2+2+2+2+1+2+2= 17. Number of field=10, Then- **17/10=1.7** More than 1.5 (Complied)

VI. CONSULTATIONSAND DISCLOSURES CONDUCTED

29. As per approved IEE, consultations and disclosure will be a continuous process throughout Tranche 1project implementation involving public consultations and focus group discussions. Informal consultations were carried out with local people, pedestrian, etc.

30. The indicative schedule for consultations and disclosure is presented in **Table 16. Appendix 14** shows sample consultations sheet as provided by the contractor.

Table 16: Indicative Schedule for Consultations and Disclosure

Type of Consultation/ Disclosure	Target Date	Location	Target Participants	Responsible Person and Source of Funds
Local level consultation	Weekly – to be continued	At all construction locations	General public, shop keepers, pedestrian population	Construction supervisor, Environment & safety officer of contractor Project budget – continuous process
Consultation – safety issues, implementation of EMP	During June to November 2018	At KEIIP office and project site office	Supervisor Engineer, PMU Engineer, all safety and environment staff of contractors	Construction Manager, Environment specialist of DSC and PMU

31. Field level training program has been arranged for contractors, supervisors by DSC's Environment Specialist on safety and environment on regular basis.

32. There are series of informal discussions by the DSC &PMC engineering Consultants with Chief Engineers of KMC and Director General (Projects), PMU mainly on understanding current situation and optimum design to be adopted in order to attain the objectives of taking up the work items.

33. **Appendix 15** shows sample internal training documents as submitted by contractors**.**

34. **Appendix 16** indicates training components on environment, Health and safety issues as conducted by DSC at project site.

VII. GRIEVANCE REDRESSAL

35. **Common Grievance Redress Mechanism**. A common grievance redress mechanism (GRM) has been established for social, environmental or any other subproject related grievances.

36. Grievance Redress Process. PMU will maintain a Complaint Cell at KEIIP office located in 206 A J C Bose Road Kolkata 700017 headed by a designated Grievance Officer (currently the Administrative Officer) under Project Director. The Complaint Cell will also serve as Public Information Centers, where, apart from grievance registration, information on the Project, subprojects, social and environmental safeguards, etc can be provided.

37. At every Borough of KMC under which works are in progress, a Public Relations & Grievance Redressal Unit is to be established for information disclosure on request from public and for receipt of complaints.

38. At Contractors' site offices, complaint and suggestion books will be available for lodging any complaint. The concerned Executive Engineers of KEIIP will monitor these books and if possible take necessary actions for redressal of minor complaints with intimation to the complainant.

39. The Grievance Registration/Suggestion Form will be available at the Complaints Cell and in Borough Offices and will also be downloadable from the KEIIP/KMC websites. Grievances/ suggestions of affected persons can be dropped in suggestion boxes or conveyed through phone or mail. Affected Persons will also be able to register grievances - social, environmental or other, personally at the Complaint Cell and at Borough offices of KMC. The Grievance Officer and designated official at the Boroughs will be able to correctly interpret/record verbal grievances of non-literate persons and those received over telephone.

40. All complaints (unresolved at local site/Borough level) relating to KEIIP will be sent to the Project Director, KEIIP including those received in the KMC/KEIIP website for redressal The Grievance Officer will resolve simple unresolved issues and in case of complicated issues, consult/seek the assistance of the Environment/Social Specialist of the DSC/PMU. Grievances not redressed through this process within one month of registration will be brought to the notice of the Project Director, KEIIP. Action taken in respect of all complains will be communicated to the complainant by letter, over phone or e-mail or WhatsApp as the case may be.

41. Periodic community meetings with affected communities to understand their concerns and help them through the process of grievance redress (including translation from local dialect/language, recording and registering grievances of non-literate affected persons and explaining the process of grievance redress) will be conducted if required. The above Grievance Redress Process will be discussed with the stakeholders at the proposed disclosure workshop.

42. **Grievance Redressal Committee (GRC).** A PMU level GRC has already been constituted by the Project Director to address grievances. Grievances not resolved at borough level are referred to PMU level. However grievances that cannot be resolved at PMU level will be referred to an apex grievance redress committee (GRC).[32] Still unresolved issues will be referred to an appropriate court of law. Despite the project GRM, an aggrieved person shall have access to the country's legal system at any stage, and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM.

43. The time limit for grievance redressal will be as follows,

- ✓ Site level – 7 days
- ✓ Borough level – 7 days
- ✓ GRC – PMU level – 15 days
- ✓ Apex GRC- 15 days

44. **Consultation Arrangements**. This will include group meetings and discussions with affected persons, to be announced in advance and conducted at the time of day agreed on with affected persons and conducted to address general/common grievances; and if required with the Environment/Social Specialist of PMU/DSC for one-to-one consultations. Non-literate affected persons/ vulnerable affected persons will be assisted to understand the grievance redress process, to register complaints and with follow-up actions at different stages in the process.

45. Record-keeping. Records will be kept by PMU/Borough Office/Contractors' site office of all grievances received including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date these were in effect, and final outcome.

[32] The apex GRC will have the following members: KMC Commissioner as Chairperson, KEIIP Project Director, Director General (P), KEIIP, Environment/Social Safeguard Officer, Administrative Officer as the convener, representatives of APs, Community Based Organizations (CBOs), and eminent citizens. The GRC must have at least two women members.

46. Information Dissemination Methods of the GRM. Grievances received and responses provided will be documented and reported back to the affected persons (**Appendix 17 -** Sample Grievance Registration Format). The number of grievances recorded and resolved and the outcomes will be displayed/disclosed in the offices of the different Boroughs of KMC and web. The phone number where grievances are to be recorded will be prominently displayed at the construction sites.

47. Periodic Review and Documentation of Lessons Learned. PMU will periodically review the functioning of the GRM and effectiveness of the mechanism, especially on the Project's ability to prevent and address grievances.

48. **Costs.** All costs involved in resolving the complaints (meetings, consultations, communication and reporting / information dissemination) will be borne by PMU.

49. **Figure 4** shows GRM flow chart.

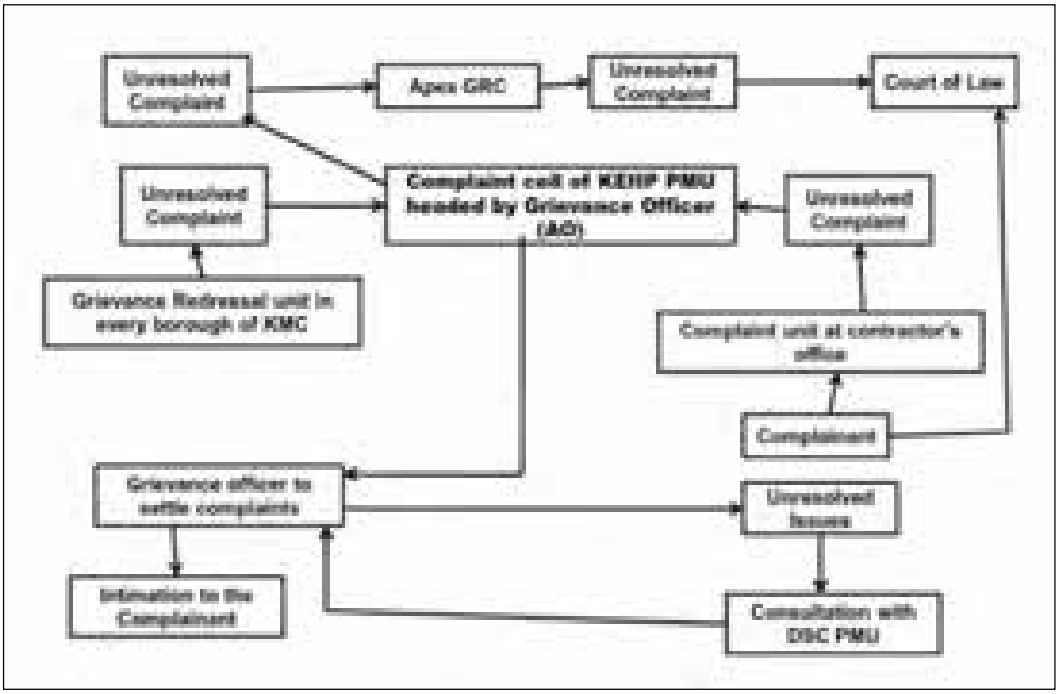


Figure 4: Grievance Redress Mechanism

50. **Appendix 18** sows sample filled up grievance register as received from contractor.

VIII. FINDINGS AND RECOMMENDATIONS

51. Based on the foregoing observations, findings and environmental monitoring carried out from June to November 2018, it may be concluded that KEIIP Tranche 1 sub projects have been implemented in almost full compliance of the required environmental safeguards.

52. **Table 17** provides the recommended corrective action plan that has been devised and target dates that have been set so as to remove these non-compliances. The concerned Contractors have been suitably advised. Contractors have also been advised to provide written commitment for implementation of corrective action plan.

Table 17: Corrective Action Plan

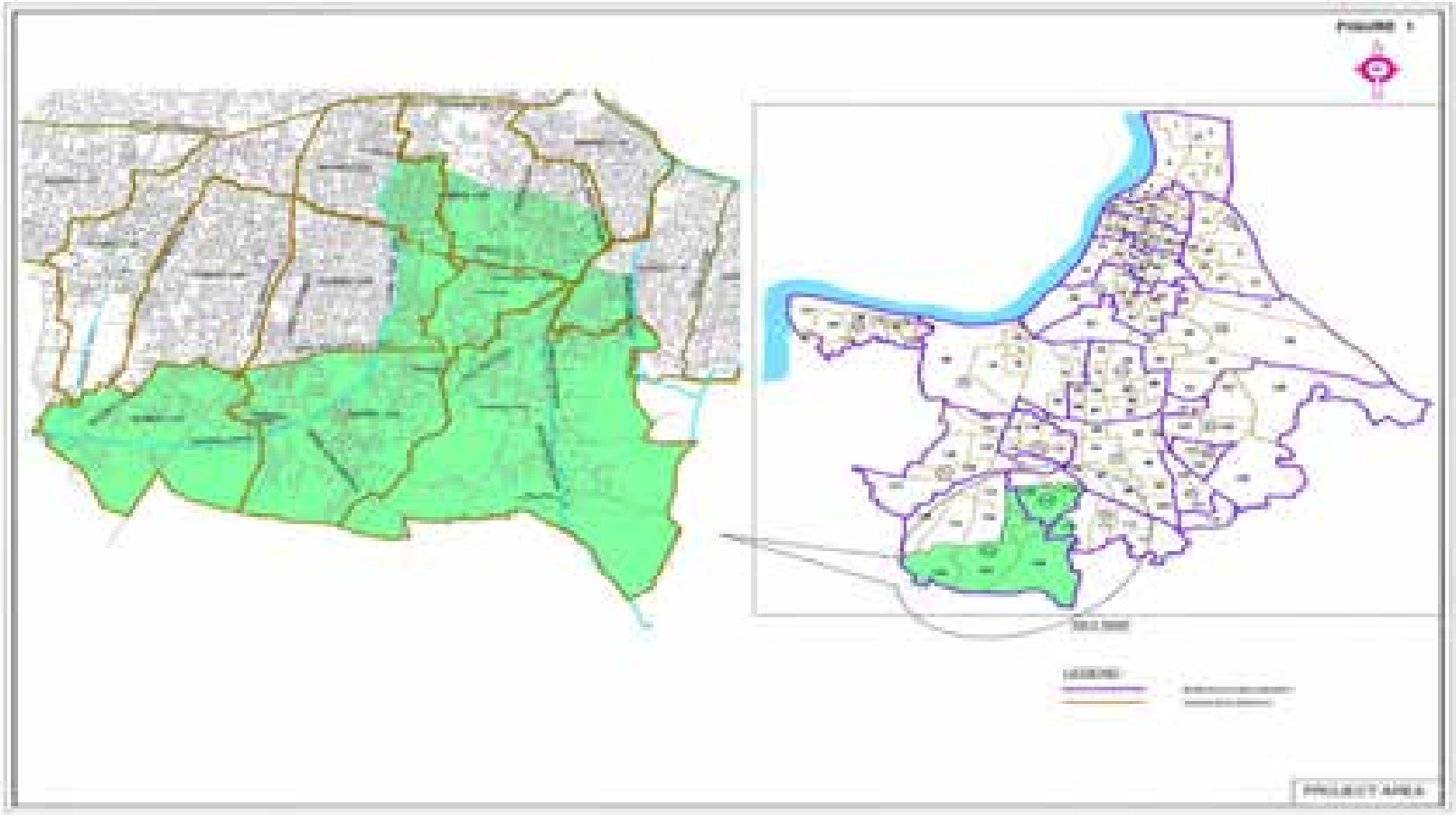
	Partial complied issues	Action Required	Responsible	Target Date	Indicator of Compliance
	No air and noise monitoring carried out after monsoon. (WS 01)	Air and noise monitoring to be completed by December 2018.	Contractor	31.12.2018	Submission of monitoring report

53. **Table 18** lists the implementation status of corrective action in work sites active during December 2017 to May 2018.

Table 18: Implementation of Corrective Action Plan

Sr. No	Issues as per SEMR December 2017 to May 2018	Action Required as per SEMR December 2017 to May 2018	Implementation status of corrective action (during June to November 2018) in work sites of identified Packages
1	Improvement of housekeeping, disposal of scrap materials from pumping station site **(KEIIP/ICB/Tr-1/SD-05/13-14)**	Improvement of housekeeping, disposal of scrap/ construction materials from pumping station sites	No substantial physical work was carried out during the reporting period.
2	Disorganized/ Improper storage of construction materials and fuels (**KEIIP/ICB/Tr-1/SD-05/13-14)**	Requirement of improvement of storage of construction materials and fuels	No substantial physical work was carried out during the reporting period.
3	Improvement of health & safety issues particularly those related to use of PPE, regular training on H & S for workers and recording and also immediate requirement of medical examination of workers (**KEIIP/ICB/Tr-1/SD-05/13-14)**	Complete use of PPE, particularly use of working shoes, gumboots; regular health and safety training for workers and immediate health check up for all workers	No substantial physical work was carried out during the reporting period.
4	Further improvement in respect of house-keeping and provision of basic facilities to labourers in the construction camp site of the SSE STP **(KEIIP/ICB/ Tr-1/SD-07/15-16)**	Immediate improvement of housekeeping and basic facilities for workers	Improvement noted, need to be maintained.
5	Improvement of housekeeping, disposal of scrap materials from pumping station site **(KEIIP/ICB/Tr-1/SD-05/13-14)**	Improvement of housekeeping, disposal of scrap/ construction materials from pumping station sites	No substantial physical work was carried out during the reporting period.

APPENDIX 1: LOCATION MAP PROJECT AREA

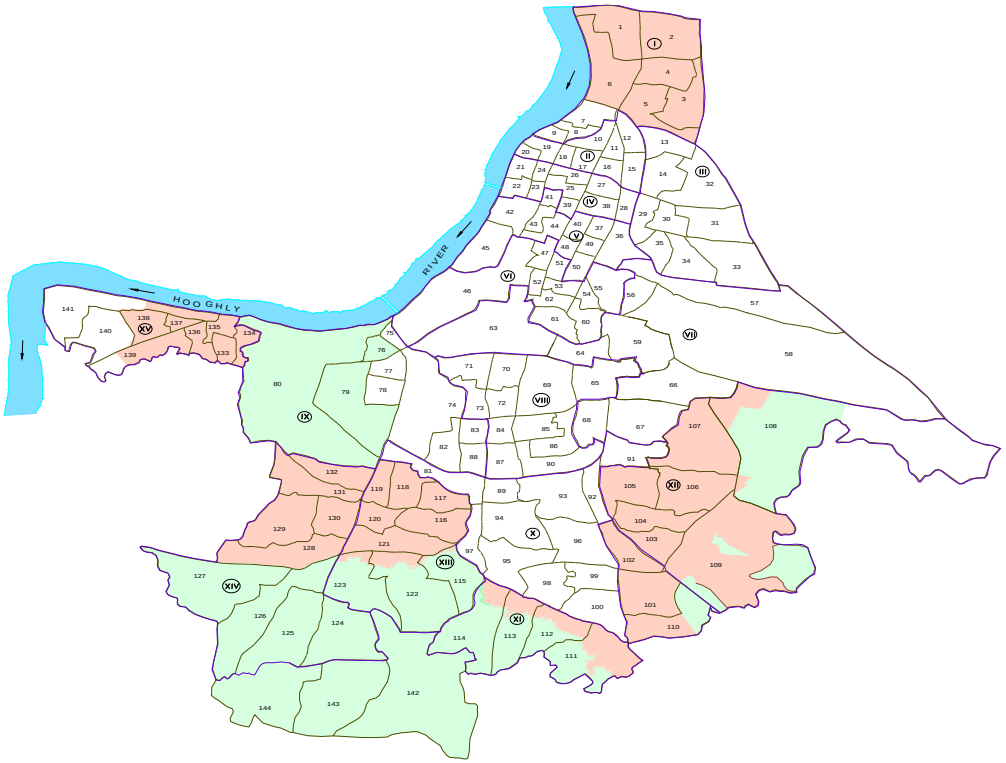


Project Area – water Supply project

Sewerage and Drainage Project Area

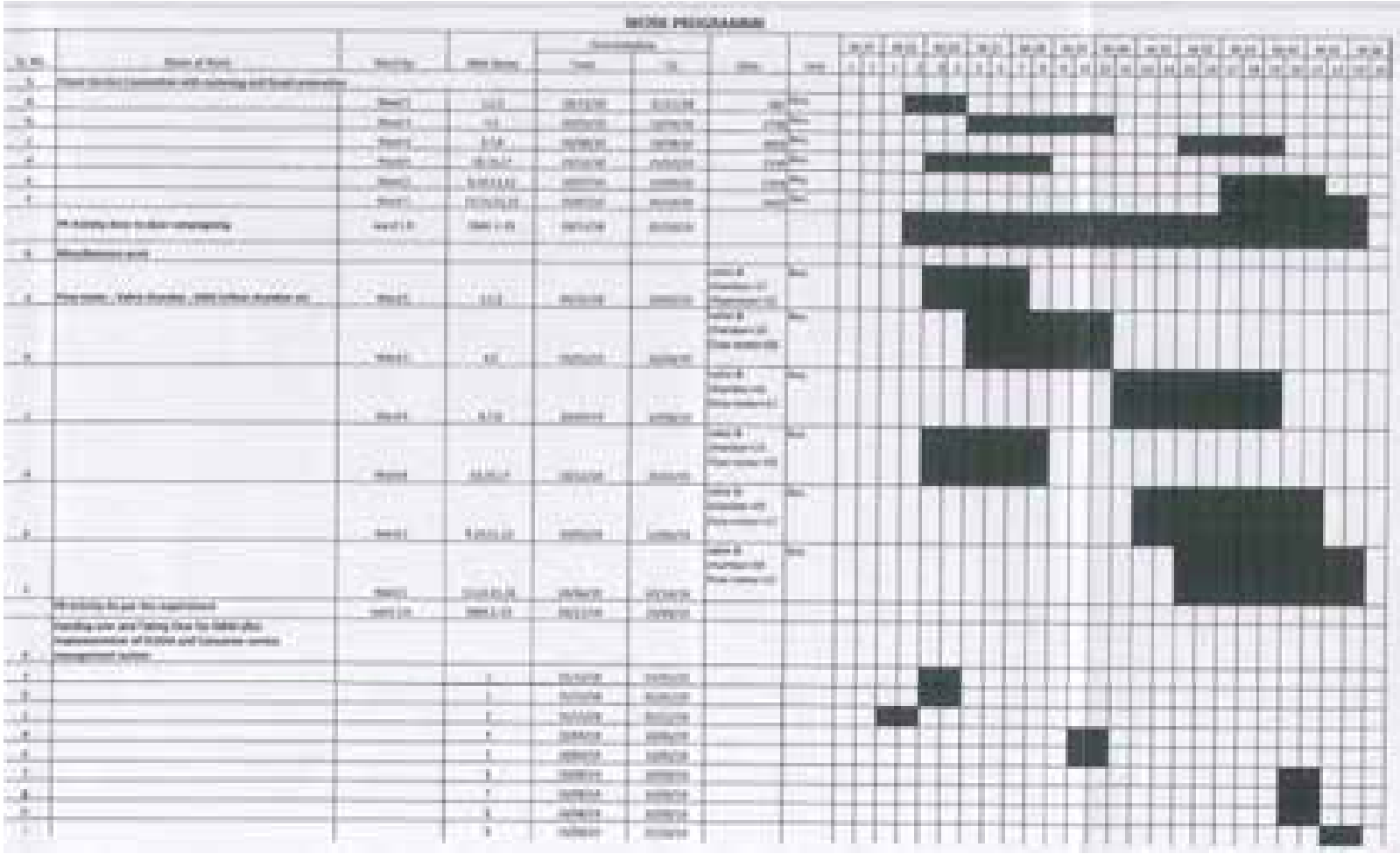
LEGEND:-

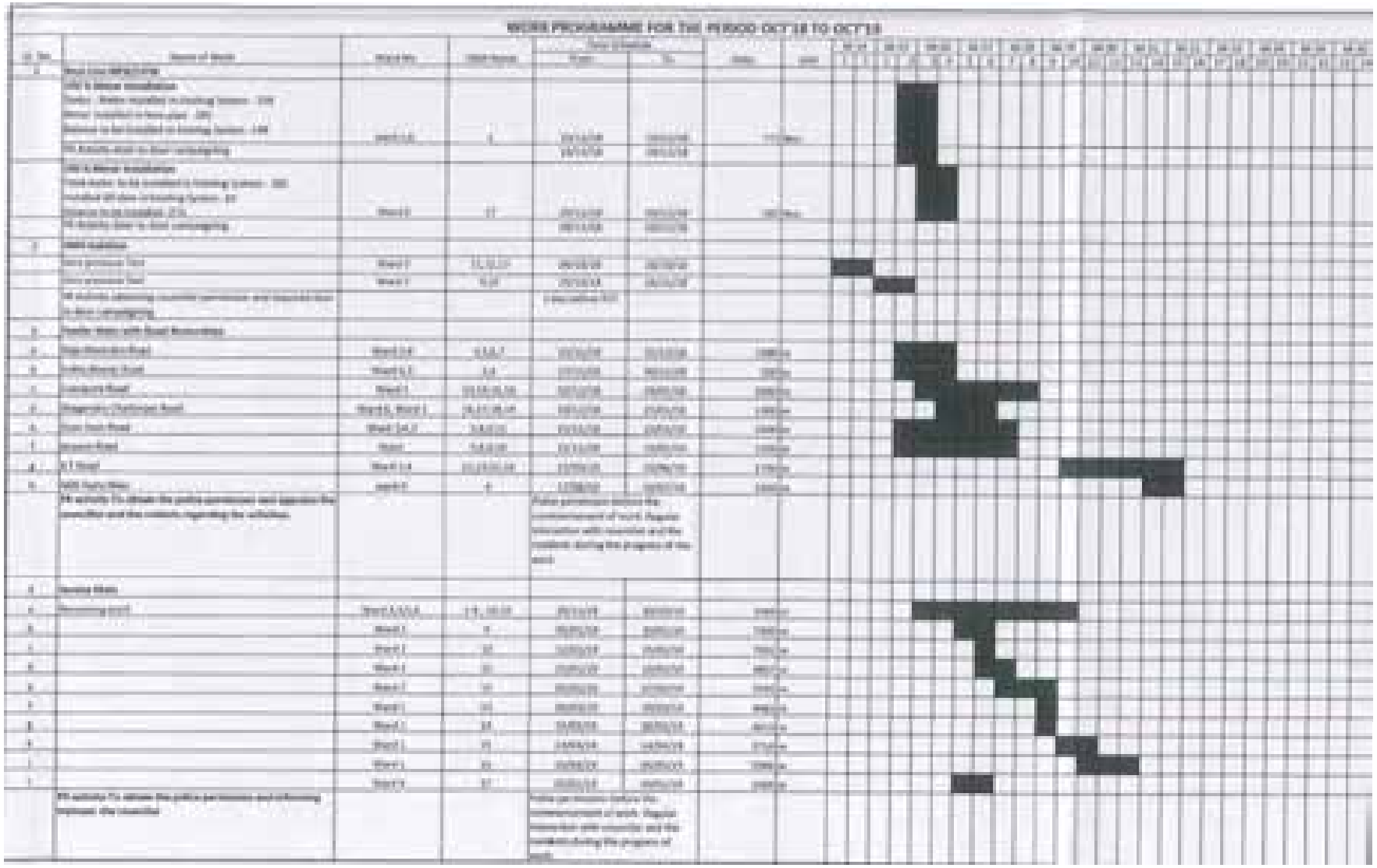
- BOROUGH BOUNDARY
- WARD BOUNDARY
- AREA TAKEN UP UNDER KEIP PHASE I
- AREA TO BE CONSIDERED UNDER KEIIP FOR S&D DEVELOPMENT



APPENDIX 2: IMPLEMENTATION SCHEDULE

Package – Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06, KEIIP/ICB/Tr-1/ WS01/2015- 16




WORK PROGRAMME FOR THE PERIOD OCT'18 TO OCT'19

WORK PROGRAMME

S. No.	Name of Work	Work No.	PMU Name	Time Schedule From	Time Schedule To	Duration	Date
	Operating costs and taking over for initial phase implementation of Hybrid and Innovative service management options						
1			[illegible]	[illegible]	[illegible]		
2			[illegible]	[illegible]	[illegible]		
3			[illegible]	[illegible]	[illegible]		
4			[illegible]	[illegible]	[illegible]		
5			[illegible]	[illegible]	[illegible]		
6			[illegible]	[illegible]	[illegible]		
7			[illegible]	[illegible]	[illegible]		
8			[illegible]	[illegible]	[illegible]		
9			[illegible]	[illegible]	[illegible]		
10			[illegible]	[illegible]	[illegible]		
11			[illegible]	[illegible]	[illegible]		
12	Other PR activity						
13	Interaction with the supplier and auditors to assess sign conversion from as provided in the name						
14	Observation of World Bank day for awareness of water conservation		[illegible]	[illegible]			
15	Observation of World Environment day for awareness of water conservation		[illegible]	[illegible]			
16	Student and community meet for awareness of water conservation		[illegible]	To be decided			
17	Organising of training competitions regarding awareness of water conservation		[illegible]	To be decided			
18	To develop the customer grievances on regular basis		[illegible]	To be decided			

Notes:

1. Work schedule is subjected to all approval from BBC Road, PWD and Traffic Police by the end of Oct'18. Assigned approval to work on all those provisionals.
2. Subjected to design approval of all the remaining DBC's by Oct'18
3. Subject to approval of [illegible] components by [illegible]

Package- Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach, KEIIP/ICB/ Tr-1/WS02/2013-14

Awaiting for time Extension – Revised Work plan under preparation

Package: Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment, KEIIP/ICB/ Tr-1/SD-05/13-14

Work suspended for long time

Package- Project: - Construction of S&D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Station(s) and STP , KEIIP/ICB/TR-1/SD07/ 2015-16)

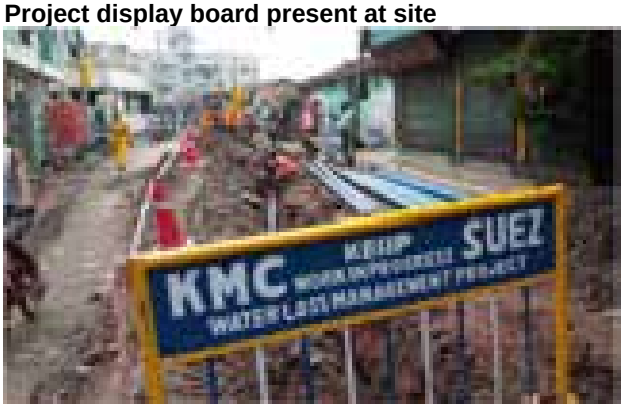
Awaiting for time Extension – Revised Work plan under preparation

APPENDIX 3: PHOTO ILLUSTRATION

Package – Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06, KEIIP/ICB/Tr-1/ WS01/2015- 16

Project display board present at site

Use of PPE satisfactory at pipe laying site



Access road maintain at pipe laying site at Kundu Lane

Pipe laying site at B.T Road

Road restoration work in progress J.K. Mitra Road

Induction training ongoing

Package: Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach (KEIIP/ICB/ Tr-1/WS02/2013-14)

Mechanical lifting work at Palta site

Use of PPEs noted during welding work

Induction training ongoing

Cleanliness maintained at labor hutment

Package- Construction of S&D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Station(s) and STP (KEIIP/ICB/TR-1/SD07/ 2015-16)

Use of green DG noted at STP site

Use of PPEs noted at SSE STP site

Shifting of pipe at STP site

Noise monitoring at work site

Cleaner labour hutment

Road restoration work ongoing

APPENDIX 4: CTE FOR PALTA WTP

ORANGE CATEGORY

WEST BENGAL POLLUTION CONTROL BOARD

Paribesh Bhawan
10A, Block-LA, Sector-III
Bidhannagar, Kolkata-700 098

Memo No. 9049/WC/15/WPB/BR/214/15 Dated 10.09.2015

From:
Member Secretary,
West Bengal Pollution Control Board

To:
M/s. Indira Gandhi [redacted]
Palta Water works, Monirampur,
P.O: Manirampur,
Kolkata - 700120.

[redacted]

WEST BENGAL

Sub: Consent [redacted]

Ref: [redacted] 17/08/15 submitted on 03/09/2015

[redacted]

Dear Sirs,

[redacted] Indira Gandhi [redacted] city- 20 MGD.

at Palta Water [redacted] Corporation at Monirampur, [redacted] P.O: Barrackpore, North Barrackpore Municipality Ward No.19

this is to inform you that the [redacted] from the environmental point of the above subject to the following [redacted]

1. The quality of sewage and trade effluent to be discharged from your factory shall satisfy the permissible limits as prescribed in IS: 2490 (Pt. I) of 1974, and/or its subsequent amendment and Environment (Protection) Rules 1986.

2. Suitable measures to treat your effluent shall be adopted by you in order to reduce the pollutional load so that the quality of the effluent satisfies the standards mentioned above.

3. You shall have to apply to this Board for its consent to operate and discharge of sewage and trade effluent according to the provisions of the water (Prevention & Control of Pollution) Act, 1974. No sewage or trade effluent shall be discharged by you without prior consent of this Board.

4. All emission from your factory shall conform to the standards as laid down by this Board.

5. No emission shall be permitted without prior approval of this Board and you shall apply to this Board for its consent to operate and atmospheric emission as per provision of the Air (Prevention & Control Pollution) act, 1981.

6. No industrial plant, furnace, flues, chimneys, control equipment, etc. shall be constructed/reconstructed nor/be erected without prior approval of this Board.

NOC Sl.No. 80137934 M/s. Indira Gandhi Water Treatment Plant.

7. You shall comply with
   (i) Water (Prevention and Control of Pollution) Cess Act, 1977, if applicable.
   (ii) Water (Prevention and Control of Pollution) Cess Act, 1978, if applicable.
   (iii) Environment (Protection) Act, 1986
   (iv) Environment (Protection) Rules, 1986
   (v) Hazardous Wastes (Management and Handling) Rules, 1989 and Amended Rules, 2000
   (vi) Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and Amended Rules, 2000
   (vii) Manufacture, Use, Import and Storage and Hazardous Micro Organisms, Genetically Engineered Organisms or Cell Rules, 1989
   (viii) The Public Liability Insurance Act, 1991 and Amended Act, 1992
   (ix) The Public Liability Insurance Rules, 1991 and Amended Rules 1992
   (x) Biomedical Wastes (Management & Handling) Rules, 1998 and Amended Rules 2000 if applicable.
   (xi) Recycled Plastics Manufacture and Usage Rules 1999, if applicable and
   (xii) Ozone Depleting Substances (Regulation & Control) Rules, 2000, if applicable

8. You will have to abide by any other stipulations as may be prescribed by any authority/local bodies/Government Departments etc.

SPECIAL CONDITION:

See Annexure attached herewith.

Gross capital investment for expansion Rs. 43,48,00,000/- (forty three crore forty eight lac only).

This NOC is valid for 5(five) years from the date of issue of this letter for setting up of the unit only.

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/ /

Any violation of the aforesaid conditions shall entail cancellation of this Consent to Establish (NOC)

Yours faithfully

Member Secretary
West Bengal Pollution Control Board

Memo No. _____
Dated _____

Copy forwarded for information to :

1. Chief Inspector of Factories, Government of West Bengal, N. S. Building, Kolkata-700 001
2. Director of Industries/Director of Cottage & Small Scale Industries, Government of West Bengal, N. S. Building, Kolkata-700 001
3. Guard file, West Bengal Pollution Control Board.
4. Environmental Engineer, HO/Algur R.O./Howrah R.O./Durgapur R.O./B.R.O./D.R.O./Haldia R.O./S.R.O./ Asansol Sub-R.O./WBPC Board

Himalaya Bhawan Delhi Road, Dankuni Dist. Hooghly	Vill. Pangur Kalyani Expressway P.O. Narayanpur Dist. 24 Pgs. (N)	Sahid Khudiram Sarani City Centre, Durgapur-16 Dist. Burdwan	10, Camac Street 2nd Floor Kolkata-700 016
Paribesh Bhawan 10A, LA Block, Sector-III Salt Lake City, Kolkata - 700 098	Block-05 at 40 Plate Complex Adjacent to Prigambada Housing Estate P.O. : Kharagpur Hat, P.S. Durgachak Haldia-721602 Dist. : Purba Medinipur	Paribahan Nagar Matigara, Siliguri Dist.-Darjeeling	

Asansol Sub-Regional Office
ADDA Commercial Market (2nd Floor)
Opposite Asansol Fire Station
G.T. Road, Asansol-713 301

Member Secretary
West Bengal Pollution Control Board

Annexure to NOC SL No. : NO1137933
Special Conditions issued to: M/s. Indira Gandhi Water Treatment Plant, Palta Water Works, Monirampur, P.O: Monirampur, Kolkata – 700120.

A. **Emission:** – Nil.

B. **Effluent :-**

1. Process wash: Water generated from rinsing and backwashing of filter media should be recirculated.
2. Domestic – to be treated through septic tank to municipal drain.

C. **Solid Waste:** Sludge generated from the water treatment plant to be disposed off to an environment friendly manner.

D. **General :-**

1. Water shall be sourced from the Hooghly River.
2. The surface water treatment system shall consist of flash Mixing, flocculation, inclined plate settling, rapid sand filtration, Chlorination & sludge handling system.
3. All sorts of precautions should be taken as per statutory rules for handling and storage of chlorine. Explosive licence should be obtained from appropriate authorities for handling and storage of Chlorine.
4. No additional machinery/equipment can be installed without prior permission from WBPCB. No change in raw materials, products, production capacity and manufacturing process shall be made without prior permission from the Board.
5. Noise Control – Ambient noise level not to exceed the permissible limit.
6. Work shall be done under covered shed for noise reduction.
7. Good housekeeping to be maintained.
8. Tree planting/ saplings – along the periphery of the unit.
9. 'Land Conversion Certificate' to be obtained.
10. 'Consent to Operate' to be obtained from the State Board before commencement of the unit.
11. Provision of drinking water & wastewater disposal shall be ensured for labour camps. Proper sanitation facilities shall be provided for construction workers to ensure an hygienic sanitation. Health and safety of the workers shall be ensured during construction.
12. The project proponent shall take necessary care not to cause any inconvenience to the residents of surrounding neighbourhood. Regular supervision shall be in place all through the construction phase so as to avoid disturbance to the surrounding.
13. The Project Proponent will ensure that no accumulation of any kind of water occurs within the project area to prevent breeding of various disease spreading vectors.
14. Ground water shall not be abstracted without prior permission of the Local Body as well as the Competent Authority as per the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005.
15. The unit shall abide by the West Bengal Tree (Protection and Conservation in Non-Forest Areas) Rules, 2007. Adequate green belt shall be developed.
16. No tree can be felled without prior permission from the Tree Cutting Authority constituted as per the West Bengal Tree (Protection and Conservation in Non-Forest Areas) Act, 2006 and subsequent rules.
17. No Water body shall be lined and no embankments shall be converted. The Water body, if any is to be kept in natural conditions without disturbing the ecological balance.
18. No expansion of the project shall be undertaken without prior permission of the State Board.
19. This NOC is valid for 5(five) years for setting up the unit effective from the date of issuance of this conditions.

05/09/18

Senior Environmental Engineer
Dr. Somnath Sarkar
Senior Environmental Engineer
Rank-one Circle Office
W.B. Pollution Control Board

conform to operative and atmospheric emission as per provision of the Air (Prevention & Control Pollution) act, 1981.

8. No industrial plant, furnace, flues, chimneys, control equipment, etc. shall be constructed/reconstructed/installed/erected without prior approval of this Board.

APPENDIX 5 - SAMPLE SITE SPECIFIC ENVIRONMENTAL MANAGEMENT PLAN

Site Specific Environmental Management Plan

NOVEMBER 2018

PROJECT: REHABILITATION AND REFURBISHMENT OF WATER WORKS AT PALTA AND GARDENREACH

Contract No: KEIIP/ICB/TR-1/WS-02/2013-14

PROGRAM: KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAM (KEIIP)

EMPLOYER: THE KOLKATA MUNICIPAL CORPORATION (KMC)

CONTRACTOR: ITD –CEMINDIA (JOINT VENTURE)

Prepared by

ITD-CEMINDIA (JOINT VENTURE)

Table 1: Anticipated Impacts and Mitigation Measures – Pre-construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Infrastructure and Services	Telephone lines, electric poles and wires, water lines within proposed project area of IGWTP, sewer line, etc.	Electric cables, water lines have been found till date. First we are digging the trial pit manually, if any obstructions arise, the same is removed as per direction of end user.	The construction work is continuing without disturbing the cables and pipes.
Climate	The nature and intensity of rainfall events in an area, has implications for surface water management.	Seasonal climatic variations during scheduling of construction in the area will be followed. Excavation works during dry season and surface water have been controlled as per method approved by PMU. As per company Health Safety & Environment policy no open fires are allowed at site and are to be maintained.	HSE work permit system of the company maintained.
Sources of Materials	Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	No major extraction has been observed till now It is expected that extraction of materials will not disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	

Table 2: Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Material procurement	Extraction of rocks and material may cause ground instability	No major extraction has been observed till date.	
Air Quality	Emissions from construction vehicles, equipment, and machinery used for excavation and construction resulting in dust and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphur dioxides,	Already baseline monitoring has been conducted at GRWW site. Pollution Under Control Certificates submitted for the vehicles presently engaged in project activity Covering of materials carrying vehicles-	Air quality Monitoring data has been included in Environmental Monitoring Report.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	particulate matter, nitrogen oxides, and hydrocarbons	reducing dust hazard.(Cement) Covering or damp down sand/ earth stockpiled at site is maintained as per site condition. Air monitoring conducted both palta & GRWW site on october'17	
Drainage and hydrology	The proposed development is situated within the existing Palta water works. Due to the nature and locality of the projects there is unlikely to be any significant impacts on water resources within the immediate area.	The site surface has been engineered and shaped in such a way that rapid and efficient evacuation of runoff is achieved. Waste management practices maintained. No major ground disturbance observed till date. Transport, storage, handling and disposal of hazardous substances have to be done as per prevailing laws and approval of concerned authority.	
River/Surface water quality	Mobilization of settled silt materials, run-off from stockpiled materials, and chemical contamination from fuels and lubricants during construction works can contaminate nearby surface water quality.	There is a river water source near the project location(s). Therefore surface water quality monitoring is required. Baseline monitoring has been conducted (i) Avoiding stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; (ii) Prioritization of re-use of excess spoils and materials in the construction works. Spoils shall be used for our road work activity at WTP site.	Surface water monitoring has been conducted in Environmental Monitoring Report. Ecological study (Aquatic species) also tested for GRWW site.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		(iii) Storage areas for fuels and lubricants already selected away from any drainage areas leading to water bodies; (vi) Conducted surface quality inspection according to the Environmental Management Plan (EMP).	
Establishing equipment lay-down and storage area	After social life, public and transport movement	Equipment lay-down and storage areas to be designated and fenced. Choice of location for equipment lay-down and storage areas have been taken into account as per site topography. Proper storage facilities for the storage of oils, paints, grease, fuels, and any hazardous materials to be used to prevent the migration of spillage.	Transparent sheet used on the roof of diesel shed. If any oil spillage occur tray is being use beneath the diesel barrels (AS per BOCW Act). MSDS displayed near storage area.
Biodiversity Fauna and Flora	Due to the nature and locality of the project there is unlikely to be any significant impacts on bio-diversity within the area.	No faunal activity within the impact zone till date. Within the river, faunal impact is protected from jetty site.	Ecological study (Aquatic species) tested for GRWW site and the copy will submit

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials and people	Already contacted air quality monitoring agency. Baseline monitoring has been conducted. We also follow the mitigation measures as mentioned in our bid documents as given below, (i) Plan activities in consultation with KEIIP/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Require horns not be used unless it is necessary to warn other road users; (iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers; minimising the sound impact to surrounding sensitive receptor; and (iv) Maintain maximum sound levels not exceeding 75 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s.	Noise level data will be included with Environmental Monitoring report. Noise level also tested for GRWW site.
Landscape and Aesthetics character, and sense of place	Solid wastes as well as excess construction materials	We are using excavated soil for new road filling purpose. We are maintaining our company's policy for Waste Management & also follow up the	Solid waste is utilized for filling purpose. Company's policy for waste management & also follow up of the requirements of bid documents.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		requirements of bid documents. • Solid waste has been managed according to the following preferential hierarchy: reuse, recycling and dispose for temporary road works.	N.O.C submitted vide our letter no. DSC/KEIIP/TL/2015-2016/2993 dated 18.02.16 In this project we had been excavated 2200 m^3 spoil till date during our excavation work and which has been disposed inside the IGWTP. In order to mitigation measures we are regularly sprinkling the water for removing the dust at spoil dumping yard & near WTP.
Accessibility/Traffic	Traffic problems and conflicts near project locations and haul road	(i) Transportation routes will be planned so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (ii) Scheduled transport and hauling activities to be planned during non-peak hours; (iii) Site is free from all unnecessary obstructions; (iv) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. (v) All work sites are properly barricaded.	Activities were started. Action was taken up with advancement of project activity.
Social Impacts	Impede the access of residents and local social environment	Safe as well as proper access has been provided for traffic. Restrict activities and movement of staff to	Provide display board and maintain speed limit (20km/hr.) for traffic movement inside IGWTP.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		designated construction areas.	
Employment Generation	Generation of contractual employment and increase in local revenue.	• Local Workers are mostly working at site. • Construction materials procured from local market.	50% local workers working at site.
Occupational Health and Safety	Occupational hazards which can arise during work	Having OHSRA of our organisation and following the points mentioned in the bid documents • All workers provided with and use Personal Protective Equipment like helmet, gumboot, safety belt, gloves, nose mask and ear plugs; • H and S Training for all site personnel arranged and it will be continued. • Documented procedures to be followed for all site activities; • Work-related accidents will be recorded; • First Aid box arranged at working sites; • Medical insurance coverage for workers have been arranged; • Potable drinking water arranged at site; • Clean eating areas provided to workers; • H and S orientation training provided to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and	Company's health and safety guidelines followed.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		preventing injuries to fellow workers; • Moving equipment maintained with audible back-up alarms; • Workers disallowed exposure to noise level greater than 85 dB(A) for duration greater than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.	
Community Health and Safety.	Traffic accidents and vehicle collision with pedestrians during material and construction waste transportation	Having OHSRA of our organisation and following the below mentioned mitigation measures. (i) Plan routes to avoid times of peak-pedestrian activities. (ii) Liaise with KEIIP / DSC in identifying high-risk areas on route cards / maps. (iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.	Company's health and safety guidelines followed.
Construction Camps	Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	(i) Before locating project offices, sheds, and construction plants we discussed with KEIIP / DSC; (ii) Till date no trees have been cut. (iii) Employees were trained for storage and handling of materials which can potentially cause soil contamination;	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		(iv) Solid waste managed according to the following preferential hierarchy: reuse, recycling and disposal to designated areas; (v) Report will be submitted to KEIIP/DSC with the information that "camp has been vacated and restored to pre-project conditions before acceptance of work"	
Archaeological and Cultural characteristics	Risk of archaeological chance finds	Strictly follow the protocol for chance finds in any excavation work; No archaeological chance finds are reported at project sites till date. Construction staff members would be aware of the likelihood of heritage resources being unearthed and of the scientific importance of such discoveries.	If there is any such finding, action will be taken up as per requirement.

APPENDIX 6: SAMPLE SPOIL MANAGEMENT PLAN

SNET- SSG Joint Venture

Safety & Health Operation Control Procedures

Spoil Management Plan (SMP)

Name of project: Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) Including Replacement of Gap Sewer Line in Borough XV, Laying of Pumping Main and Rehabitation of SSE-STP Including Operation & Maintenance of the Pumping Station and STP.

1.0	Purpose:
	To describe how the project will manage the spoil generated and reuse related to design and construction works.
2.0	Scope:
	The procedure is applicable to **SNET-SSG JV** sites and **Dept.**
3.1	Responsibility:
	Project in charge is responsible for its implementation. Corporate head **EHS** is responsible for its review and modification.
3.2	Responsibility & Authority for **EHS** Management:

	Project in charge (pl) ➢ The project PI will have overall responsibility of EHS management at site improving safety and health in all areas. He shall: ➢ Comply with client's requirements, HSE policy of the company and relevant statutory requirement that are applicable to the relevant work. ➢ Ascertain that all plants and machinery utilized at the project site meets the safety standard and are safe for use. ➢ Get familiar with and demonstrate his commitment to continual improvement in EHS performance. ➢ Ensure that all personnel are aware of commitment to environmental protection and worker safety. ➢ Monitor EHS performance of the personnel and activities under his control. ➢ Ensure that safe system of work are implemented and maintained by the project. ➢ Engineer/supervisors/foreman and employees at the work site. ➢ Ensure that site EHS plan is accessible to all relevant parties. ➢ Ensure that sufficient induction training for all employees and workers is given before commencement of work at site and subsequently for new inductees. ➢ Undertake program of regular EHS inspection at site. ➢ Arrange and chair monthly site EHS management review meeting. <u>Site/front in charge:</u> The site/front in charge will be responsible to the PM for implementation of EHS operational control procedures. In the absence of PM he would take control of the site. His duties are similar to that of the PM. <u>Site Engineers/Supervisor:</u> ➢ They will be responsible to the PM/Site/Front in charge for implementing the requirements of this plan. In particular they are required to:- ➢ Be familiar with site workers & staff. ➢ Maintain safe working condition and good housekeeping in all areas under his supervision. ➢ Enforce use of PPE as requested by project specific rules and regulations. ➢ Liaise and cooperate with site safety EHS officer and ensure that defects brought to attention are corrected.

- Immediately inform & reports to the HES officer while any accident, near misses dangerous occurrence, occupational poisoning or diseases shall be noticed within the project sites.
- Plan safety in accordance with the approved work methodology for daily work activities.
- Prepare S.O.P and GRA for each activity and it should be explained to employee before begins work.
- Establish and maintain proper communication with all workers with regard to EHS and provide proper supervision for the work.

Environment, Health & Safety (EHS) Officer:

He will be accountable to the PM for fulfilling the duties assigned to him and ensure implementation of ESH plan.

His duties will include:-

- Monitor and advise relevant personnel on compliance with EHS statutory obligation at the site.
- Facilitate inclusion of safety elements into work method statement.
- Highlight the requirement of safety through Tool-Box (TBT) /other meeting.
- Conduct investigation of all accident/ dangerous occurrences and recommend appropriate safety measures.
- Advice & co-ordinate for implementation of operational control procedures etc.
- Convene safety meeting & minute the proceeding for circulation & follow up action.
- Provide copies of site/ office inspection report to relevant managers.
- Plan procurement of PPEs and safety devices and inspect their healthiness.
- Report to PM/DM on all matters pertaining to status of safety and promotional program at site level.
- Facilitate administration of First- Aid.
- Facilitate screening of workman and safety induction.
- Conduct fire drill and facilitate emergency preparedness.
- Design campaigns, competitions and other special emphasis program to promote safety in the work place.
- Notify site personnel non - conformance to safety norms observed during site visits/site inspection.
- Attend and participate in site EHS management review meetings.
- Access and advise PM on the perceived EHS training needs of project personnel.
- Monitor EHS performance of subcontractor and make appropriate recommendations for performance improvement.

Employees

All employees will be accountable for conforming to the required of the EHS plan and statutory requirements. In particular every employee will be required to:-

- Take care of environmental protection and safety of himself & others.
- Co-operate to fulfil statutory EHS obligations.
- Co-operate in pursuit of continuous EHS performance improvement.
- Confirm to requirement of project EHS plan.

	➢ Report defects in lifting appliances, lifting gears, transport equipments and any other equipments or tools & tackles to your immediate superior. ➢ Not to remove or interfere with any fencing, gangway, ladder, covering, life saving appliances, lighting and other things whatever required by site safety rules & regulations. ➢ Take care of personal protective equipment. ➢ Don't let your work put another worker in danger. ➢ Use only means of access provided for specific work at site. ➢ Avoid horseplay, practical jokes or other activities to create a hazard. ➢ Don't use drugs or alcohol on the job. ➢ Keep the latrines, urinals, washing place, canteen and other facilities provided in a clean and hygienic condition. ➢ Report any unsafe work practice and any injury or accident to your supervisor.
4.0	Definitions:
	Project in charge: Person responsible for the execution of the project.
5.0	Legal Requirement:
	➢ The building and other construction workers (Regular of employment and condition of service) Act. 1996 and central Rules 1998. ➢ Environmental protection Act. 1986. ➢ The water (Prevention & control of pollution) Act. 1974 and Rules 1975. ➢ The water (prevention & control of pollution) CASs Act. 1977 and Rules- 1978 as amended in 2003. ➢ The air (Prevention & control of pollution) Act. 1981 and Rules- 1983. ➢ The environmental (Protection) Act. 1986 & Rules- 1986 as amended from time to time. ➢ The hazardous waste (Management and handling) Rules-1989 as amended from time to time. ➢ Bio- Medical waste (Management & handling) Rules-2000. ➢ Noise pollution regulation & control Rules-2000. ➢ Battery (Management and handling) rules-2001.
6.0	Requirements:
6.1	Procedure:

	➢ Spoil volume calculations: Estimate the volumes of spoils produced from each of the construction sites. ➢ Characterization of spoil: Based on the type of spoil: Characterization is done (Sand stone, mud mix materials, reusable materials) Adopt spoil reduce, Reuse opportunities. An overview of the assessment methodology to be used is mentioned below. ➢ Consideration of likely spoil characteristics. ➢ Identification of possible reuse sites. ➢ Screening of possible reuse opportunities. ➢ Identification of possible safe disposal sites for spoil: Those spoils which can't be reuse shall be properly disposed in designated areas, such disposal area should be identified in project locations. Such disposal areas should be identified in project locations. Such disposal areas should be safe from environmental aspects and there should be any legal and resettlement related issues. Such areas need to be identified and prior client approval should be obtained to use it as spoil disposal area. The local administration must be consulted and if required permission should be obtained from them.

6.2	Identification and Assessment of spoil aspects impact:
	➢ There is some place assessed and identified jointly inside the Garden Reach STP for dumped and dressed the extra earth which is presently down from actual level. ➢ Potential for high winds generation airborne dust from stockpiles, potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on road, contamination of water , associated with spoil handling and haulage and storage, limited sites for storage and reuse opportunities.
7	Spoil volumes, Characteristics and Minimization:
	➢ Volumes: 52,300 cum. ➢ Characteristics: Normal earth basically clay types. ➢ Minimization: Excavation of earth to be done as per requirements only. No extra earth shall be excavated.
8	Spoil Reuses Opportunities, Identification and Assessment:
	➢ Small quantity of spoils will be reused for back filling of excavated shaft location. ➢ Balance spoils will be removed.
9	Spoil transportation methodology:
	➢ Extra earth will be shifted by truck/dumper from site to dumping yard.
10	Monitoring, Reporting, Review and Improvements:
	➢ Monitoring, reporting and all necessary improvements will be as required.
11	List of relevant guide lines/ Documents: Nil
12	References: Nil

13	Related other procedure: The key aspects of potential impacts are listed in below table

Aspects	Potential impacts
Air quality	Potential for high winds generating airborne dust from the stock piles.
Sedimentation	Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads.
Surface and ground water	Contamination of water (Surface and ground water).
Noise	Associated with spoil handling and haulage and storage.
Traffic	Impacts associated with spoil haulage.
Land use	Potential for spoil to be transported to a receivable site that doesn't have permission for storage/disposal.
Design specification	Limitation on opportunities to minimize spoil generation.
Sustainability	Limited sites for storage, reuse opportunities.

14	Silt Measurement:
	Check and ensure volatile suspended solids (VSS) fraction of total silt is less than 25% to ensure absence of foul odors.

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APPENDIX 7: SAMPLE HEALTH AND SAFETY PLAN

ENVIRONMENT, HEALTH & SAFETY PLAN

November 2018

PROJECT: **REHABILITATION AND REFURBISHMENT OF WATER WORKS AT PALTA AND GARDEN REACH**

Contract No: **KEIIP/ICB/TR-1/WS-02/2013-14**

PROGRAM: **KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAM (KEIIP)**

EMPLOYER: **KOLKATA MUNICIPAL CORPORATION (KMC)**

CONTRACTOR: **ITD CEMINDIA JOINT VENTURE**

Prepared by:

ITD Cemindia Joint Venture

Cem

आईटीडी सिमेंटेशन इंडिया लिमिटेड

एकीकृत प्रबंधन व्यवस्था नीति

गुणवत्ता - पर्यावरण - सुरक्षा और स्वास्थ्य नीति

आईटीडी सिमेंटेशन इंडिया लिमिटेड आईटीडी समूह की एक कंपनी है तथा भारत की प्रमुख निर्माण कंपनियों में से एक है। आईटीडी सीमेंटेशन इंडिया लिमिटेड गुणवत्ता पर्यावरण व्यावसायिक स्वास्थ्य और सुरक्षा को ध्यान में रखते हुए अपने कार्य कलापों को कटिबद्धतापूर्वक और जिम्मेदारीपूर्वक तरीके से चलाती है।

हम कोशिश करेंगे कि आईटीडी सीमेंटेशन इंडिया लिमिटेड में :

- ग्राहक के कार्य की गुणवत्ता और कार्य समय सीमा की आवश्यकताओं को पूरा करेंगे।
- पर्यावरण व्यावसायिक स्वास्थ्य तथा सुरक्षा के लागू होने वाले कानूनों का पालन करेंगे।
- बेहतर अभ्यास और तकनीकों को अपना कर प्रदूषण पर रोक व नियंत्रण तथा संसाधनों के उपयोग एवं अपशिष्ट की उत्पत्ति में कमी करेंगे
- अच्छी कार्यविधियों व तकनीकों को अपनाते हुए कार्यस्थलों पर चोट एवं खराब स्वास्थ्य को रोकने हेतु सुरक्षित और स्वस्थ वातावरण प्रदान करेंगे
- नियमित लेखा परीक्षण के द्वारा सुनिश्चित कराएँगे की सभी व्यवस्थाओं का संचालन सुचारू रूप से चले उनमें समय-समय पर संशोधन किया जाए तथा उनका अविरत सुधार होता रहे।
- [illegible]

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Cem

Commitment, Reliability & Quality

ITD CEMENTATION INDIA LTD.

সমন্বিত ব্যবস্থাপনা পদ্ধতি নীতিমালা
গুণবত্তা, পরিবেশ, সুরক্ষা ও স্বাস্থ্য নীতি

আইটিডি সিমেন্টেশন ইন্ডিয়া (আইটিডি সেম) একটি আইটিডি গ্রুপ কোম্পানি এবং ভারতের অগ্রগণ্য নির্মাণ সংস্থাগুলির মধ্যে অন্যতম।

গুণবত্তা, পরিবেশ, পেশাগত স্বাস্থ্য এবং সুরক্ষা জনিত উদ্বেগ আইটিডি সেমকে নিজ কার্যাবলী দায়িত্ব সচেতনতাকে পালন করতে প্রতিশ্রুতি-বদ্ধ করেছে।

আইটিডি সেমএ আমাদের প্রচেষ্টা হবে –

- ক্লায়েন্টের প্রয়োজন অনুযায়ী প্রকল্পের গুণ মান ও সময়সীমা বজায় রাখা;
- পরিবেশ, পেশাগত স্বাস্থ্য এবং সুরক্ষা সম্পর্কিত প্রযোজ্য আইন সমূহ মেনে চলা;
- উন্নত পদ্ধতি ও প্রযুক্তির সাহায্যে দূষণ এড়ানো ও নিয়ন্ত্রণ করা, সংসাধনের ব্যবহার সীমিত করা ও বর্জ্য কম করা;
- উন্নত পদ্ধতি ও প্রযুক্তির সাহায্যে সুরক্ষিত এবং সুস্থ কাজের পরিবেশ সৃষ্টি করা যেটি আমাদের ও সাবকন্ট্রাক্টরদের [illegible];
- নিয়মিত নিরীক্ষণের মাধ্যমে পদ্ধতি সমূহের পালন, আধুনিকীকরণ এবং ক্রমাগত উন্নতি নিশ্চিত করা; এবং
- প্রচার ও প্রশিক্ষণের মাধ্যমে কর্মী, ঠিকাদার এবং ক্লায়েন্টের মধ্যে গুরুত্বপূর্ণ পরিবেশগত দিক, পেশাগত স্বাস্থ্য এবং সুরক্ষার ঝুঁকি ও নিয়ন্ত্রণ ব্যবস্থা সম্বন্ধে সচেতনতা বৃদ্ধি করা।

[illegible] আইটিডি সেমকে [illegible] পরিশ্রম করা, যে সংস্থা [illegible] প্রকৃতি অনুকূল, সুস্থ এবং নিরাপদ পরিবেশ উন্নত করার পথ প্রশস্ত করে।

এই নীতিমালাকে আধুনিক প্রসারে এবং ক্রমাগত উন্নতির লক্ষ্য বজায় রাখতে এটি প্রতি তিন বছরে একবার পর্যালোচনা এবং সংশোধিত হবে।

[illegible]

আবুল [illegible]
[illegible]

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1. APPROACH TO ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT

Our approach to Environmental, Safety and Health (EHS) Management is based on overall objective of continually improving EHS performance.

The guiding principles in EHS management are:

- Prevention of environmental impact and safety risks through sound design practices;
- Establishing and maintaining systems for "Resource Conservation & Waste Minimization" and "Injury Free Work Environment" in construction activities; and
- Monitoring of EHS parameters for timely corrective and preventive actions.

The approach takes into account following :

- Statutory / regulatory and other requirements;
- Significant environmental aspects and potential hazards; and
- Clients Requirements.

2. SCOPE OF WORK

Site Address:	:	Indira Gandhi Water Treatement Plant,Manirampur,PO & PS : Barrackpore, Kolkata-700120
Client Details:	:	The Kolkata Municipal Corporation Kolkata Environmental Improvement Investment Programme 206, A.J.C.Bose Road, 2nd Floor, Kolkata-700017, West Bengal
Name of Project:	:	Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach
Brief Scope of Work:	:	a)Rehabilitation/Strengthening of Intake Jetty No. 2-(Size 15.25m(wide) X 25.50m(Length) b) Strengthening of Embankment in between Presetting Tanks. c) Construction of New Road/Strengthening & Widening of Existing Road including Allied Works. d)Construction of New Water Treatement Plant of capacity 20 MGD(90.90MDL).
Completion Period:	:	12.11.2020
Value of Work:	:	80.5680487 Crores INR

Major Activities.

- Working Near Water
- Handling of heavy material by mechanical means
- Working at height
- Temporary Site Electrification
- Operation of heavy machinery
- Welding and Cutting.
- Excavation Work
- Transportation of material
- Material handling & Housekeeping

3. RESPONSIBILITY AND AUTHORITY FOR EHS MANAGEMENT

Project In Manager(PM)

- The project PM will have overall responsibility of EHS Management at the site and improving safety and health in all areas. He shall:
- Comply with Client's requirements, HSE-Policy of the company and relevant statutory requirements that are applicable to the relevant work.
- Ascertain that all plants and machinery utilized at the project site meets the safety standard and are safe for use.
- Get familiar with and demonstrate his commitment to continual improvement in EHS performance;
- Ensure that all personnel are aware of commitment to environmental protection and worker safety;
- Monitor EHS performance of the personnel and activities under his control;
- Ensure that safe system of work are implemented and maintained by the project Engineers / Supervisors / Foreman and employees at the work site.
- Ensure that Site EHS Plan is accessible to all relevant parties;
- Ensure that sufficient induction training for all employees and workers is given before commencement of work at site and subsequently for new inductees;
- Undertake program of regular EHS Inspection at site.
- Arrange and chair monthly Site EHS Management Review Meeting.

Site/Front In-charge

The Site/Front In-charge will be responsible to the PM for implementation of EHS operational control procedures. In the absence of PM, he would take control of the Site. His duties are similar to that of the PM.

Site Engineers/Supervisors

- They will be responsible to the PM / Site / Front In-charge for implementing the requirements of this plan. In particular they are required to: -
- Be familiar with Site EHS Plan;
- Maintain safe working conditions and good housekeeping in all areas under his supervision.
- Enforce use of PPE as requested by Project Specific Rules and regulations.
- Liaise and cooperate with Site Safety EHS Officer and ensure that defects brought to attention are corrected.
- Immediately Inform & report to the HSE-Officer while any accident, near misses, dangerous occurrence, occupational poisoning or diseases shall be noticed within the project sites.
- Plan safety in accordance with the approved work methodology for daily work activities.
- Prepare S.O.P and GRA for each activity and it should be explained to employee before work begins.
- Establish and maintain proper communication with all workers with regard to EHS; and
- Provide proper supervision for the work.

Environment, Health & Safety (EHS) Officer

He will be accountable to the PM for fulfilling the duties assigned to him and ensure implementation of EHS Plan.

His duties will include: -

- Monitor and advise relevant personnel on compliance with EHS statutory obligations at the site;
- Facilitate inclusion of safety elements into work Method Statement.

- Highlight the requirement of safety through Tool-Box / other meetings.
- Conduct investigation of all accident/dangerous occurrences and recommend appropriate safety measures.
- Advice & co-ordinate for implementation of operational control procedures etc.
- Convene safety meeting & minute the proceeding for circulation & follow-up action.
- Provide copies of site / office inspection report to relevant managers;

- Plan procurement of PPEs and safety devices and inspect their healthiness.
- Report to PM/Divisional Manager on all matters pertaining to status of safety and promotional program at site level.
- Facilitate administration of FIRST – AID.
- Facilitate screening of workman and safety induction.
- Conduct fire drill and facilitate emergency preparedness.
- Design campaigns, competitions and other special emphasis programs to promote safety in the work place.
- Notify site personnel non-conformance to safety norms observed during site visits / site inspections.
- Attend and participate in Site EHS Management Review Meetings;
- Access and advise PM on the perceived EHS training needs of project personnel;
- Monitor EHS performance of subcontractors and make appropriate recommendations for performance improvement.

Employees

All employees will be accountable for conforming to the requirement of the EHS Plan and statutory requirements. In particular every employee will be required to: -

- Take care of environmental protection and safety of himself & others;
- Co-operate to fulfill statutory EHS obligations;
- Co-operate in pursuit of continuous EHS performance Improvement; and
- Conform to requirement of Project EHS plan.
- Report defects in lifting appliances, lifting gears, transport equipments and any other equipments or tools & tackles to your immediate superior.
- Not to remove or interfere with any fencing, gangway, ladder, covering, life saving appliances, lighting and other things whatsoever required by site safety rules & regulations.
- Take care of personal protective equipment
- Don't let your work put another worker in danger.
- Use only means of access provided for specific work at site.
- Avoid horseplay, practical jokes or other activities to create a hazard.
- Don't use drugs or alcohol on the job.
- Keep the latrines, urinals, wash points, canteen and other facilities provided in a clean and hygienic condition
- Report any unsafe work practice and any injury or accident to your supervisor.

4. ENVIRONMENTAL RISK ANALYSIS

As a part of preparation of Environmental Management Plan we have analyzed project activities with a view to :

- ☞ Identify environmental aspects associated with all activities that can be controlled and those activities which can be influenced;
- ☞ Assess environmental impact(s) arising out of each identified aspect;
- ☞ Decide aspects that can have significant impact on environment; and

- Decide appropriate preventive/control measures.

5. HAZARD IDENTIFICATION AND RISK ASSESSMENT

6. SAFETY AND HEALTH OPERATIONAL CONTROL PROCEDURES

To minimize hazards and risks, control measures shall be introduced in the following order of priority: -

- Engineering controls
- Administrative controls
- PPE

7. SITE SAFETY RULES

- No one (including staff and workers etc.) will be allowed to enter the work site without prior induction training & without required PPE.
- Before start of work every day, five minutes pre work briefing shall be conducted by each respective front engineers / supervisor with subcontractor's job supervisor present. The job to be undertaken that day shall be explained.
- Once every week toolbox talks on specific topics will be conducted by the front engineer/supervisor in the presence of safety officer, all talks will be documented on the company's specified format. Toolbox talks will also be given whenever a new activity is taken up or a new gang turns up for work.
- No Staff or workers will be allowed to enter the work site or to start his everyday activity without necessary job related PPE's. If there is any non compliance, Safety Officer or Site Management will issue a warning and if it is repeated impose fine on the concerned person and concerned Sub contractors.
- Smoking is strictly prohibited in all parts of the worksites except specific smoking zone as authorized by the site safety dept.
- Working under influence of drugs, alcohol etc. is strictly prohibited on worksite.
- Carrying unwanted flammable items, explosives etc. strictly prohibited at site.
- No vehicle shall be permitted to enter the work site or introduced into the job without prior induction by the plant and safety dept.

- It is mandatory that all vehicle driver and operator of lifting equipments etc. (heavy Vehicles like JCB, Tipper, and Crane etc.) should possess valid authorization certificates from the site plant dept. before starting of their respective job.

- It is mandatory that all electrical operated machinery's, equipments etc. (like Vacseal Pump, water pump, welding rectifiers/ transformers, diesel welding generators, panels, Switch gear, starter switch, D G Shed etc.) should be duly certified by ITD-ITD Cem Plant Dept. & Electrical dept. prior to introduction into operation.

- Prior to introduction of any lifting tools, tackles, machinery's etc. in operation it is mandatory to conduct Third Party Competent Persons checking as per requirement and the SWL should be marked on the equipment.

- All employees including workers must know about the exact location and use of fire Fighting equipments. Never restrict the access towards the fire fighting equipment, always keep the access free from any obstructions.

- Considering emergency situation always keep the access around the work site area free from any obstruction for rescue operation.

- Everyone including workers should inform about the accident / incident and dangerous Occurrence to Site In charge, Site Engineer & Safety Officer.

- Always stay alert and keep your mind on the work, when you are engaged in the site work.

- Before starting of everyday work, routine checking of lifting equipments, Tools & Tackles, Winch, all types of pumps etc. to be done by concern Engineer, Supervisor and Worker.

- Don't carry out unfamiliar work without proper instruction. Any error due to ignorance can cause serious damage.

- When working at site especially around the moving machineries, operating winch machine etc., wearing of loose clothing like dhoti, lungi, open sleeve shirt etc. are strictly prohibited.

- Don't leave any tools or materials haphazardly, where they can cause obstruction and create tripping hazards.

- All platforms, walkways, gangways, ramp, work area etc. must be kept clear at all time.

- During gas cutting uses of FLASH BACK ARRESTOR / non return valve are mandatory on each cylinder & torch side.

- It is mandatory to use Earth Leakage Circuit Breaker (ELCB) / Miniature Circuit Breaker (MCB) / Residual Current Circuit Breaker (RCCB) etc. on all site temporary electrical facilities.

- Always use minimum three cores double insulated cables for site electrification job.

- During lifting a load by a crane use of guy rope on both ends is mandatory

- Never use compressed air for cleaning of your clothes or getting relief from excessive heat.

- It is mandatory to install Reverse Horn on all vehicles (Like JCB, Tipper and site vehicle) and swing horn & over hoist limit switches for lifting equipments like Cranes.

- All materials must be stored in a safe manner and height of stacking should be maintained (below the man height) to protect collapsing of the stack and when material shifting work is carried out manually

- Horseplay inside the site during or after the job is strictly prohibited.

- Never roll the compressed gas cylinders (DA & O_2) at site, either shift it manually or by gas trolley. Use of gas trolley is mandatory for all cutting sets.

- Keep all gas cylinders inside proper shed in upright condition and lock it properly.

- Keep Diesel / Oil in its tank under the shed. Use oil spill trays below diesel tanks.

- Follow the speed limit of 20 Km/hr inside the work premises religiously.

8. FIRST - AID FACILITIES AND MEDICAL TREATMENT

a) Each worksite/area shall be equipped with a first aid box catering to the needs of particular workfront.
b) Medical causality evacuation and treatment procedures involving the nearest clinic / Hospitals shall be instituted.
c) Appointment of trained first aider.

9. EMERGENCY PREPAREDNESS AND RESPONSE PLAN

APPROACH

The aim of this emergency preparedness and response plan is to guide personnel in an accident or emergency situation to prevent or minimize injury, damage and material loss and also to prevent or mitigate environmental impact from the accident or emergency.

Emergency Preparedness Facilities

Following emergency preparedness facilities have been provided at the site:

- All the buildings and structures are well supplied with fire fighting devices.
- Proper security arrangements are functioning round the clock.
- There is quick and efficient transport as well as communication system.
- Smoking is prohibited throughout the flammable premises.
- Water is kept available for fire fighting purpose.
- Sufficient number of trained manpower is available to extinguish any fire and attend emergency.
- Sufficient number of Personal Protective Equipment like helmet and gloves are available
- Audible emergency alarm/whistles are provided.
- First Aid Kit is available.
- All key personnel have been provided communication means such as telephone / walkie-talkie / mobiles. Any message can be communicated immediately.
- All work fronts / floating crafts will have emergency lights and Torches.
- All exit doors are kept unobstructed
- It is ensured that access to fire extinguishers is not obstructed.
- Proper containers are used for flammable liquids.
- Safe distance of POL is maintained from any point of ignition.
- Welding and cutting equipment is checked before and after use.
- Main electrical equipment is switched off when not in use.
- All workers and staff are familiarized with the fire fighting system.
- Escape routes are well defined.
- The POL dumps and gas cylinders are barricaded.
- Fire extinguishers are refilled on time.

Sr. No.	Item	Nos.	Location
1	First aid kits	01 each	In all work fronts
3.	Sand / Fire buckets	As reqd	Store/workshop/office/ Site office container/ All DG Rooms / casting Yard etc.,
4	Fire Extinguishers	As required	Store/workshop/office etc.
5	Safety Helmets	50 Nos	Site Store
6	Safety Shoes Pairs	10 Nos (Each sizes)	Site Store

Annexure IV: Material Safety Data Sheets and Safety Cautions

MSDS - Diesel

1. PHYSICAL PROPERTIES

Boiling Point : 170-290 deg.C

Flash point : 35-100 deg.C

Auto ignition temp. : 250-407deg.C

Lower Explosive Limit : 1.3(v/v%)

Melting/Freezing point : -34 to –18°C

Upper Explosive Limit : 6.0(v/v%)

Specific gravity : 0.841 at 16°C (liquid)

Vapour pressure : 2-6 mm @ 10°C

Category : Inflammable

Solubility in water : Floats on water

Reactivity with water : No reaction

Reactivity with other materials : Strong oxidisers

2. FIRE/EXPLOSION HAZARD

- Fire : Flammable, may be ignited by spark or flame
- Explosion: Container may explode in heat or fire Vapour explosion hazard indoor, outdoors or in sewers. Forms explosive mixture with air
- Fire-fighting: Dry chemical, CO_2, Halogen, Water spray or standard foam`

3. HEALTH HAZARDS

- Target organs : Eyes, skin, respiratory system and central nervous system.
- Pathway : Inhalation, ingestion and contact
- Symptoms**:** Dizziness, headache, nausea, irritation of eye, nose throat and vomiting

4. EMERGENCY ACTION

General

Keep unnecessary people away, isolate hazard area and deny entry.

Stay upwind, out of flow areas, and ventilate close spaces before entering.

Self-contained breathing apparatus and chemical protective clothing which is specifically recommended by the shipper or producer may be worn but they do not provide thermal protection unless it is stated by the clothing manufacturer

Fire

- Small Fires : Dry chemicals, CO_2, Halogen, water spray or standard foam.
- Large Fires : Water spray, fog or standard foam is recommended.

Spill or Leak

- Do not touch spilled material; stop leak if you can do it without risk.
- Small Spills: Take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Large Spills: Like for ahead or liquid spill for later disposal.

5. FIRST AID

- Eye**:** If this chemical contacts the eye, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical

attention immediately. Contact lenses should not be worn when working with this chemical.

- Skin: If this chemical contacts the skin, promptly wash the contaminated skin with soap and water. If this chemical penetrates the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention.

- Breath**:** If a person breathes large amount of this chemical, moves the exposed person to fresh air at once. If breathing has stopped, perform mouth-to-mouth resuscitation. Keep the affected person warm and at rest. Get medical attention as soon as possible.
- Swallow**:** If these chemicals swallowed get medical attention immediately.

6. PERSONAL PROTECTION

Clothing : Wear proper protective equipment to avoid prolonged contact.

Respiratory : Provide proper respiratory devices

Eyes : Wear goggles giving complete protection to eyes.

Gloves : Plastic or rubber gloves.

Safety Cautions: Diesel Storage

- Containers for Diesel petroleum shall be constructed of steel or iron with air space of not less than 5% of its capacity
- No petroleum receptacle shall be repaired by hot work unless thoroughly cleaned and freed from petroleum and later certified by competent person.
- Prohibition on smoking, fires, lights etc. in proximity to place of storage
- No electric line to be used in storage shed
- All apparatus used shall be spark proof.
- Earthing & Bonding: All electrical systems and equipment of structures, plant and other noncurrent carrying metallic parts of major electric equipment or where diesel is stored shall be earthed and resistance of earthing shall not be more than
- a) 4 in case of electrical system
- b) 10 in case of all non current carrying metallic parts of electrical equipment
- c) All joints in pipe line, plant & storage tank made continuously by bonding
- Portable lamp or apparatus shall not be used in hazardous area
- No person shall carry matches, fuses or other appliances or explosives in a shed used for storage of petroleum.
- Adequate no. of fire extinguishers of DCP type to be provided.
- Capacity in liters or Kilo liters of each tank shall be conspicuously marked

APPENDIX 8: SCANNED COPY OF CONTRACTOR'S INSURANCE FOR WORKERS

Package: Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06(KEIIP/ICB/Tr 1/WS01/2015-16)

EMPLOYERS LIABILITY -OTHER THAN COLLIERIES POLICY SCHEDULE

Limit

Risk Information

Package: Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach (KEIIP/ICB/TR-1/WS02/2013-14)

Policy Schedule - Employees Compensation Insurance

Policy Number: 2600041171000000

Business Source: 41010

Issuing Office: 260000

Office Code: 260000

Office Address: MUMBAI DIVISION XIV Second Floor Sterling Cinema Building60 Murzeban Street Fort Dhobi Mumbai - 400001.

State Code: 27, Maharashtra

Contact Number: 22-22019677

Mobile Number:

Sales Channel Code: 01010000000007

Firm Name: HOMDAN INSURANCE BROKERS INDIA PVT LTD - HO

Contact Number: 9000000000

National Insurance

Trusted Since 1906

National Insurance Co. Ltd.

DIVISION XIV (Bombay)

Consolidated Stamp Duty is paid vide GRAS DEFIN NO. 00000108/2018-19, 24/05/2018

Customer Name: ITD - COMMEDIA JOINT VENTURE

Customer ID: 6101220669

Pan (PAN): AAAJ0202Q

Mail Address: GOOREJ WATERSIDE, TOWER NO. 1, OFFICE - 3020, 8TH FLOOR, PLOT NO. - 5, BLOCK - DP, SECTOR - V, SALT LAKE CITY, KOLKATA - 700 091, City: KOLKATA, District: KOLKATA, State: WEST BENGAL, PIN: 700091.

Cell: 9000000000

Phone:

E-Mail:

Policy Effective from 00:00 hours, on 15/12/2017 to midnight of 14/12/2018

Premium	₹ 1,37,903.00	Cover Note Number and Date	NA
CGST	₹ 0.00	Proposal Number and Date	8000171214460700 Dt. 14/12/2017
SGST/UTGST	₹ 0.00		
IGST	₹ 24,821.00		
Recoverable Stamp Duty	₹ 0.00	Receipt Number and Date	2600000171000001000 Dt. 14/12/2017
Total Amount	₹ 1,62,724.00	Previous Policy Number and Expiry Date	NA

(Rupees One Lakh Sixty Two Thousand Seven Hundred Eighty Four Only.)

Joint Policyholder Name: NA

Joint Policyholder Address: NA

Laws: The Policy covers Liability of the Insured under the following Law(s) shown as covered, subject to claim being otherwise admissible as per terms, conditions and exclusions of the Policy and subject to Limit of Indemnity as stipulated against each Law.

Sl. No.	Law	Limit of Indemnity	Coverage
1	Employee Compensation Act, 1923 and Subsequent amendments thereto* prior to the date of issue of this Policy	Subject otherwise, to the terms, conditions &Exclusions of the Policy, the amount of liability incurred by the Insured.	Yes

Sl. No	Industry Type	Description of Work Done by Employees	Number of Employees	Declared Wages/ Contract Value	Place of Employment	Contractors Name, Contractors Address
1	Industry Type:Construction Sub Industry Type:Construction Works	Work engaged in piling, civil works not on elevated structure	75	Declared Wages:5750000 Contract Value:0	Rehabilitation and Refurbishment of Water Works at Palla and Garden Reach PROJECT(L Kolkata	Contractors Name:NA Contractors Address:NA

National Insurance Company Limited

IRDA Registration No. 58

Registered & Head Office : 3 Middleton Street, Kolkata 700 071

For any information please contact the Policy Issuing Office or visit our website at www.nationalinsuranceindia.com

Applicable to Receipts and Policies : Incase of dishonour of Cheque / DD for Premium, the Policy / Receipt stands cancelled "AB/NI132".

Package: Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method (KEIIP/ICB/ Tr-1/WS & SD-04/13-14)

Package: Construction of pumping stations in Begore khal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment (KEIIP/ICB/Tr-1/SD-05/13-14)

THE ORIENTAL INSURANCE COMPANY LIMITED

EMPLOYERS LIABILITY-OTHER THAN COLLIERIES POLICY SCHEDULE

Policy No.		Prev. Policy No.	
Cover Note No.		Cover Note Date	
Insured's Code		Issue Office code	
Insured's Name		Issue Office Name	
Address	KOLKATA	Address	7 RED CROSS PLACE KOLKATA
	CALCUTTA, 700064		WEST BENGAL, 700001
Tel./Fax/Email		Tel./Fax/Email	

Agent/Broker Details

Agent/Broker : SALASAR SERVICES INSURANCE BROKERS P LTD

Address : 23A NETAJI SUBHAS ROAD,6TH FLOOR,KOLKATTA 700001,CALCUTTA,WEST BENGAL,700001

Period of Insurance

Collection No. & Dt.

Gross Premium

Co-insurance Details : NIL

Principal Name :

Site of work :

Trade description :

Address :

State : WEST BENGAL

City : SOUTH 24 PARAGANAS

Pincode :

Contractors Information

Place :

Date :

For and on behalf of The Oriental Insurance Company Limited

Authorised Signatory

In case of any query regarding the Policy please call Toll Free No. 1800 11 8485 and 011 23208485

CIN: U66010DL1947GOI007158 All the Amounts mentioned in this policy are in Indian Rupee

Page 1 of 3

IRDA Regn. No. 556 - Now you can buy and renew selected policies online at www.orientalinsurance.org.in

ओरिएण्टल इंश्योरेंस कम्पनी लिमिटेड

THE ORIENTAL INSURANCE COMPANY LIMITED

(A Govt. of India Undertaking)

Regd. & Head Office :

Sr. No.	Name of the Contractor	Occupation	Labour (%)	Amount of Contract
1	TANTIA - MPPL (WILO) AV (100 Unskilled Workers)		100	5,021,832
2	TANTIA - MPPL (WILO) AV (25 Skilled Workers)		100	2,426,970

The Insurance under this policy is extended to cover risks of (as per forms attached). NIL

Total Premium in words : Indian Rupees Twenty-Seven Thousand Eight Hundred Twelve Only

The Insurance under this policy is subject to Warranties & Clauses(as per forms attached)

"It is hereby agreed that this policy doesnot cover medical expenses" as required under the provision 2A of the Workmen Compensation Act, 1923(as amended) and doe[illegible]

Subject to adjustment in the terms of [illegible] wages & other earnings on which premium is based.

It is hereby understood and agre[illegible] liability of the insured to workmen in the employment of [illegible] the business and occupations in respect of which [illegible] under the workmen's compensation act , 1923 and [illegible] of this Policy , the premium in respect of such [illegible]

In the event of a claim under [illegible] exceeding Rs. 1 lac,the insured will comply with the [illegible] available in all our operating offices as well as Company's [illegible]

Warranted that in case of dishonour of [illegible] shall [illegible] be liable under the policy and the policy shall be void ab-initio (from inception)

In witness whereof the undersigned being authorised by and on behalf of the Company has/have hereon to set his/their hands at OBU Kolkata (GSTIN: 19AAACT0527K3ZU) on 03RD DAY OF NOVEMBER 2017.

Place :

Date : 03/11/2017

For and on behalf of
The Oriental Insurance Company Limited

Authorised Signatory

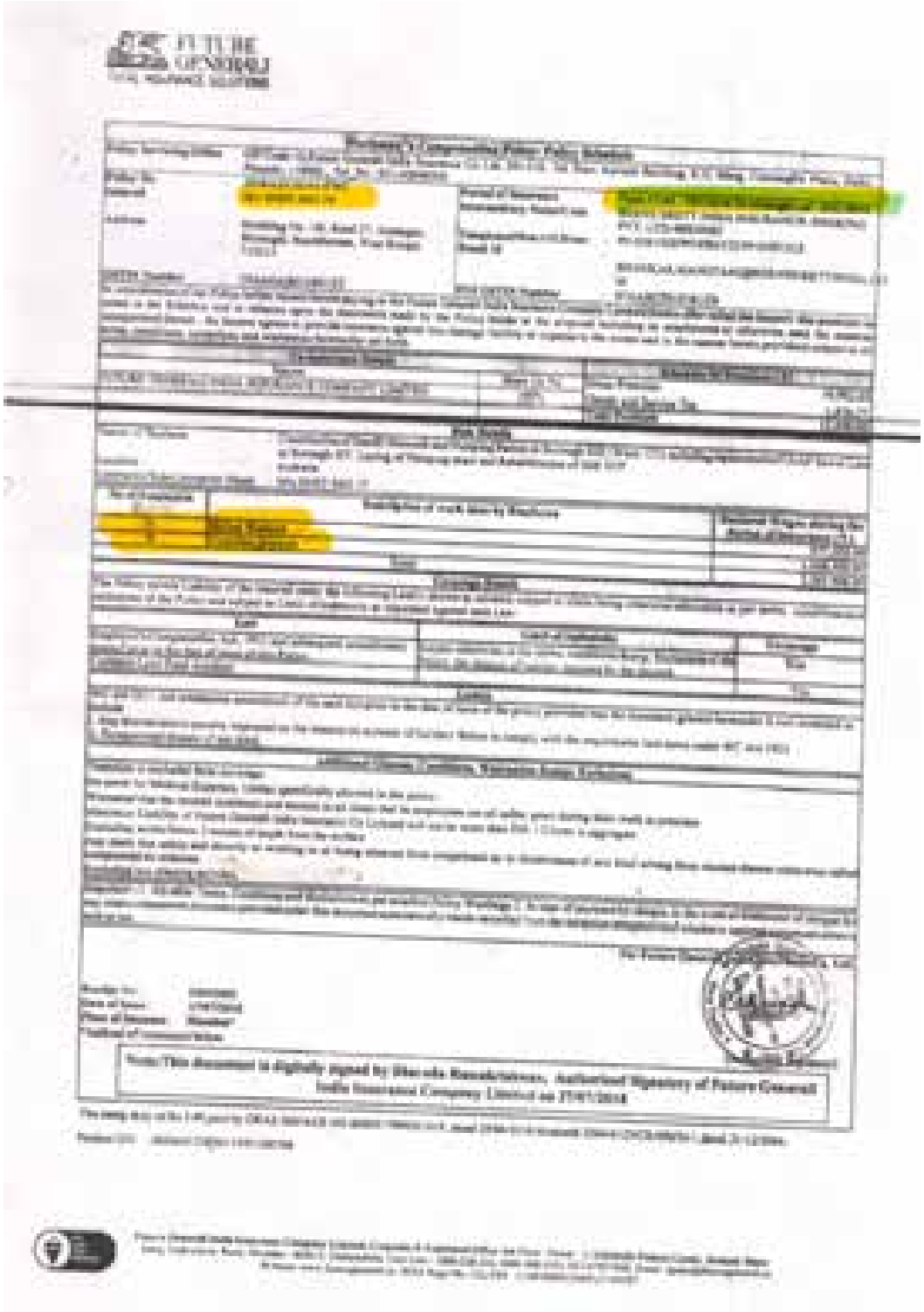
In case of any query regarding the Policy please call Toll Free No. 1800 11 8485 and 011 33208485.

CIN: U66010DL1947GOI007158 All the Amounts mentioned in this policy are in Indian Rupees

Page 2 of 3

IRDA Regn. No. 556 - Now you can buy and renew selected policies online at www.orientalinsurance.org.in

Package- Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Stations(s) and STP (KEIIP/ICB/ Tr-1/SD-07/15-16)



APPENDIX 9: TIE UP WITH HOSPITAL/ HEALTH CENTER FOR MEDICAL ATTENTION

Package Ws 01

Medical Tie Up

suez

Date: December 04, 2017

To
The Chief Manager – Administration
Bioscyn Imaging & Diagnostic Pvt. Ltd.
[illegible]
Sinchar, Kolkata – 700 [illegible]

Kind Attention: Mr. [illegible] (Medical)

Reg: Request for Medical Tie up for medical treatment of our workers working under the Project: Performance Based Contract for Water Loss Management in the Cossipore Service Zone, Ward No. 1 to 6.

Dear Sir,

With reference to the above subject and the discussion you had with the undersigned, please be informed that we have undertaken a prestigious Project for Water Loss Management, under the Kolkata Municipal Corporation and the project duration is 6 (six) years.

Our employees, of different categories including workmen, shall be around 100 for whom we would like to have a tie up in terms of periodical health checkup and hospitalisation as and when necessary.

Kindly, accept our request and offer your best corporate rate for the aforesaid arrangement.

We, await your tie up confirmation through a letter signed by your authorised signatory at the earliest.

Thanking you,

For **Suez India Pvt. Ltd.**

Uttam Kumar Ghosh
Sr. Executive – Administration

S. GHOSAL
Chief Manager
Bioscyn Imaging & Diagnostic Pvt. Ltd.

Package: WS 02

Medical Tie up

ITD-CEMINDIA JOINT VENTURE

Site Address : Indira Gandhi Water Treatment Plant, KMC (KEIIP) Monirampur, Barrackpore,
Dist 24 Parganas (North), Kolkata – 700120, West Bengal

To
The CEO,
Cantonment Board Hospital,
Barrackpore

Date: 23.04.19

Sub :- Tie-up for availing Hospital facility, in case of emergency.

Dear Sir,

This is in reference to our visit at your hospital to request for extending the facility of your base hospital in case of any emergency crowd due to any injury at our project site at Indira Gandhi Water Treatment Plant, Monirampur, Barrackpore.

We are here to execute a project (water treatment plant) of National Interest, awarded by KEIIP (A unit of KMC). Now, as you are aware that the construction activities, always having a risk factor in it & during the execution, injury can take place inspite of taking the effective safety measures. From our construction site your hospital is the nearest one & having the facilities to handle the situation.

Therefore we are requesting your kind good self for allowing us to get the medical facility at your hospital on ITC (Bill to Company) basis. We will undertake the payment against the treatment cost as per your specified rates. After your kind concession, we will select some authorised signatories, from our staff members & will forward their specimen signatures to you as a ready reference to accept the treatment advice in a prescribed format.

Hope considering the above you will be kind enough to permit us for the same.

Thanking you,

Yours faithfully,
For ITD-CEMINDIA JV,

(Somendranath Sengupta)
Sr Manager – HR/IR & Admn

ackage WS & SD 04

Medical Tie up

EKBALPUR NURSING HOME PVT. LTD.

9, IBRAHIM ROAD, KOLKATA-700 023
PHONE : 2449 4514 / 5151 / 5248 / 0455, FAX : (033) 2448 1884

01.02.17

To,
Mr. Ayan Nandy
(Admin In-Charge)
ITD- ITD CEM JOINT VENTURE

Sub: Empanelment / Tie up as health care service provider for employees and their family members.

Sir,
In response to your letter vide ref no. KEIIP/A1114AT/HOSPITALL/03 dated 31.01.17 regarding empanelment /tie-up of our Nursing Home as one of your health care service provider for the employees and their family members.

We are pleased to inform you that we accept your offer as mentioned in your letter and feel privileged in serving your employees and their family members.

We look forward for a long standing relationship.

Thanking you.

With regards

For Ekbalpur Nursing Home Pvt. Ltd.

(Administrator)

Package: SD 05

Medical Tie up

KASTURI MEDICAL CENTRE PVT. LTD.

Regd. Office : 8, Diamond Harbour Road, Thakurpukur JA Bus Stand, Kolkata - 700 104

Ref. No.: KMCPL/TANTIA/ADABN/MTU/2017-2018 Date: 30.11.2017

Shri S.K.Dasgupta
Sr. General Manager,
Tantia – MPPL /WSLDP JV,
DD - 60, Sector-II, Salt Lake City,
Kolkata – 700 064

Ref.: Your letter no. nil dated 28.11.2017

Dear Sir,

We acknowledge receipt with thanks of the above referred letter and have noted the contents there in.

We thank you once again for expressing keen interest as well as keeping confidence in respect of a 'Medical Tie up' with our hospital for providing necessary medical assistance to your employees/workers in case of any emergency during the ADB assisted 'Sewerage & Drainage Project Work' under KMC in the Ward No. 125 & 126 of Borough XV.

In this regard, we are pleased to state that your request has been accepted & approved by the management, accordingly following facilities/services will be provided under this tie-up agreement subject to the terms & conditions as follows:-

1. The employee(s)/worker(s) of your organisation will be provided emergency medical services/ assistance at our hospital round the clock.
2. Ambulance service, if available, depending on circumstances will be provided with a nominal charge.
3. A discount @ 10% on bed charge, all investigations (except investigation(s) which to be done from outside lab.) & medicines will be given in case of in patient and OPD patient both.

Terms & conditions:

1. The hospital authority shall communicate only to the person authorized by your organisation regarding the status of the treatment/treatment related matter of your resident(s)/ employee(s) /worker(s). So, name, contact no. & E-mail ID of the said authorised person to be provided to the hospital authorities at the earliest.
2. Bill for the medical treatment as well as for medicines, investigations etc. shall be addressed to the organisation and payment to be made within fifteen days from the date of receipt of the bill.
3. In case of O.P.D., only consultation fee of the concerned doctor is to be paid in cash at the billing counter at the time of registering the name of the patient/person.

P-1/2

Phone : [illegible]
Fax : [illegible]

KASTURI MEDICAL CENTRE PVT. LTD.

Regd. Office : [illegible]

Ref. No.: [illegible] Date: [illegible]

4. Mode of payment: In/by cash, Credit Card, Debit Card, A/c Payee Cheque & NEFT only. Bank details are attached herewith in a separate sheet.
5. Please note all the above facilities are not applicable for mediclaim cashless settlement(s).
6. Patient(s) should produce either their ID card issued by your organisation or photocopy of this agreement letter to the 'Reception Counter' for availing the above facilities.
7. This 'Medical Tie-up Agreement' will be effective on & from [illegible] and will be valid till further notice is issued in this regard.

Kindly acknowledge the receipt of this 'Agreement Letter' as a token of your acceptance.

With regards,

Yours sincerely,
For Kasturi Medical Centre Pvt. Ltd.

(Amal Bhattacharyya)
Incharge (Corporate Sales)
(M): [illegible]

Date: [illegible]
Encl.: As stated

P – 2/2

Package: SD 07

Medical Tie up

SNET-SSG JV

[illegible]

[illegible]

To,
The In-charge
Urban Primary Health Centre,
Dhobe Bagan, Sodepur Brick Field Road,
Kolkata-700002.

Sub: Medical Tie up with Urban Primary Health Centre & SNET-SSG JV.

Dear Sir,

This is to inform you that M/s SNET-SSG JV has started a project for "Construction of SRU Renewal and pumping station in Borough XIII (Ward NO. 127) under Kolkata Environmental Improvement Investment Program (Contract Package no KEIIP/PCU/TN-1/Sb-07/2015-16)". We have engaged labour to execute the work. The labour strength for this work will be gradually increased from [illegible] and expected for peak labour strength of [illegible] nos.
In this regard we need a Medical Tie up with your Health Center for our workers engaged for this work in case of any associated ailments arise or if the earlier treat and injury we need your immediate medical attention.
The following criteria's will be applicable for our labour working medical treatment in your Health center will be as follows:

1. The labour suffering from any injury at work site will be provided with necessary medical assistance at your health center.
2. The injured person has to furnish valid identity card issued by us to the health centre to avail such medical treatment.
3. The health center shall communicate to us regarding the status of the treatment.
4. Bills arising for the medical treatment shall be authorised by us and the payment shall be made accordingly.
5. Medical assistance shall be given on 24x7 basis.
6. Ambulance facility if available depending on circumstances may be provided.
7. This medical tie up shall be valid till date the contractual work is ongoing.

Thanking you

With Best Regards,
For SNET-SSG JV
Project Manager

APPENDIX 10: SAMPLE ACCIDENT RECORD

Package WS 02

ITD CEMENTATION INDIA LIMITED

ANALYSIS OF INJURIES AND DANGEROUS OCCURRENCES

Site Name & No. : KEIIP - A1114AT

Month: AUGUST'18

Sr. No.	Date	Name of person	Sex	Age	Time	Designation	Company / Subcontractor	* Agency	Type of Accident	Unsafe Condition / Act	Nature of Injury	Location of Injury	Brief Cause
1	11.08.2018	JIYAUL ISLAM	M	45	5.00 P.M	Helper	KELLABLE	Material	Stuck By object	Unsafe Act	First - Aid	FINGER	A Worker cutting rec bar dropped from Blue Boom platform to underground pole where the worker peak his pipe by his left hand and his right hand finger stuck with the reinforcement column and a cut occurred
2	14.08.2018	TAFAI RAHMAN	M	19	11.25 A.M	Helper	MARCON	Material	Stuck By object	Unsafe	First - Aid	FINGER	Worker shifting the gratings from the nearest openings, where one gratings fell from his hand and a cut occurred

* Note: Agency is the object or substance which is most closely associated with the accident causing the injury like machines, equipments, vehicles, hand tools, ladders, scaffolds, explosives, dust, gases, chemical, radiations, fire, water, floor, road, animals, insects etc.

Name: Sandip Banerjee

Signature: _____

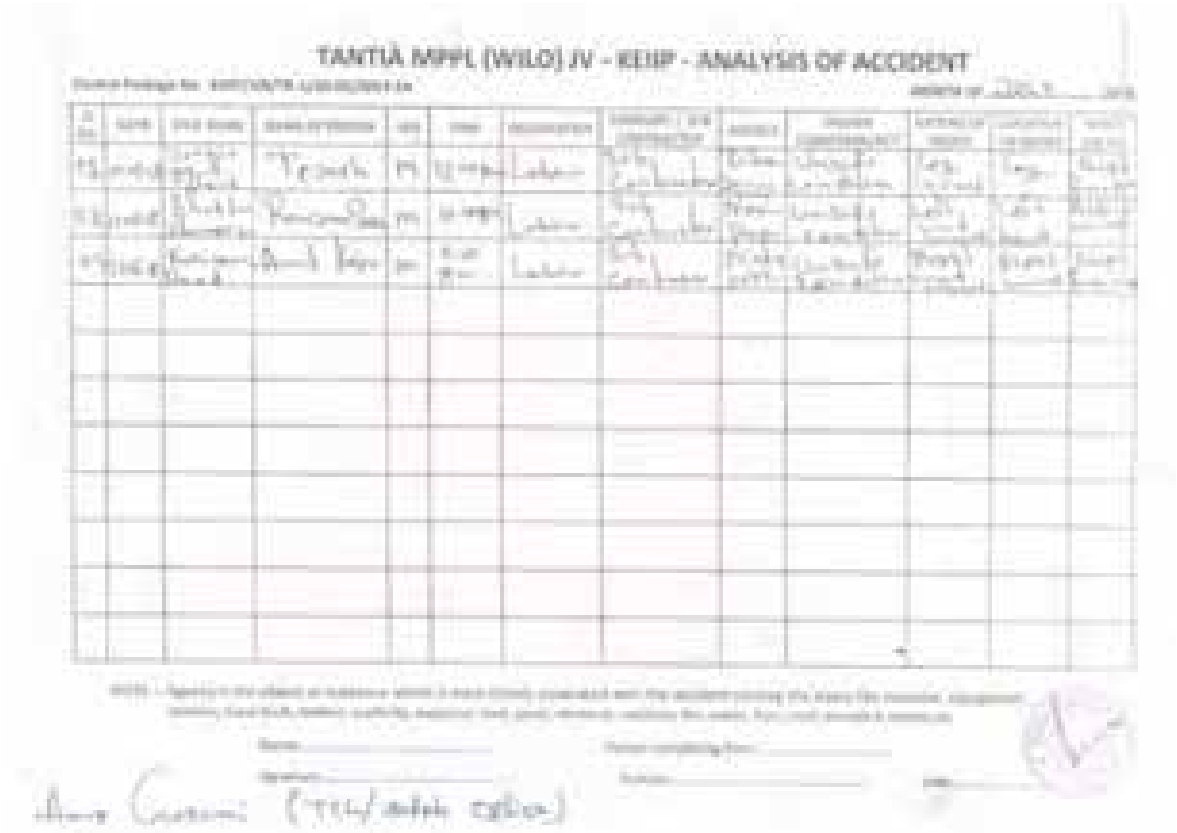
PERSON COMPLETING FORM

Designation: Asst. Engineer

Location : PKLTA

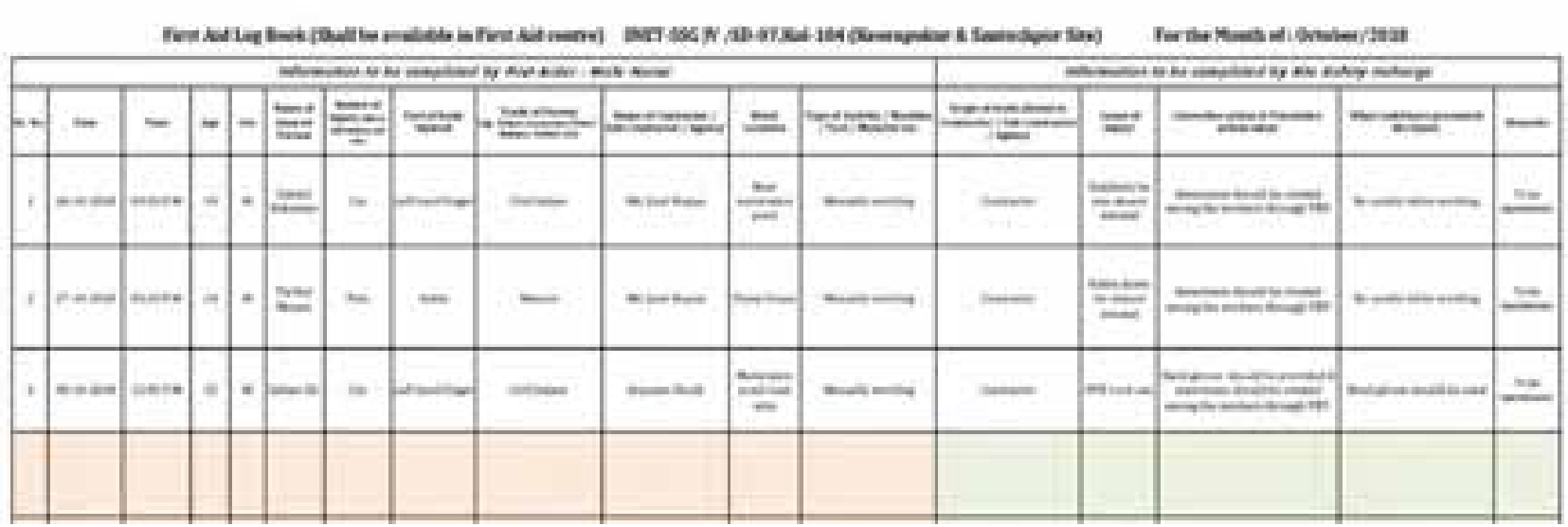
Date: 03.09.2018

Package SD 05



TANTIA MPPL (WILO) JV - KEIIP - ANALYSIS OF ACCIDENT

Package SD 07



APPENDIX 11: SUMMARY OF LABOURERERS PER PACKAGE

Package No.	Contractor	Total Number of Employees	No of Female Employees	No. of Local Employees
Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06 **(KEIIP/ICB/Tr-1/ WS01/2015- 16)**	M/s Suez	Contractor-69 Sub-contracotor-100	1	All
Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach **(KEIIP/ICB/Tr-1/WS02/2013-14)**	M/s ITD- CEM India JV	Contractor-14 Sub-contracotor-44	Nil	10
Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method**(KEIIP/ICB/ Tr-1/WS & SD 04/2013-14)**	M/s ITD- ITD CEM Jv	Contractor-47 Sub-contractor-21 (upto completion of work)	Nil	40
Construction of pumping stations in Begorekhal and in Joka Tram Depot and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment **(KEIIP/ICB/ Tr-1/SD-05/13-14)**	M/s Tantia – MPPL (WILO) Jv	No as such work	-	-
Rehabilitation and Replacement of GAP sewer and Allied Works **(KEIIP/ICB/Tr-1/SD-07/2015-16)**	Snet-SSG JV	Contractor-106 Sub-contractor-7	Nil	90

APPENDIX 12: TRAFFIC MANAGEMENT PLAN

Traffic Management Plan

Package SD 07: SNET – SSG JOINT VENT

SNET – SSG Joint Venture

SAFETY & HEALTH OPERATION CONTROL PROCEDURES

Traffic Management Plan (TMP)

1.0	PURPOSE
	To provide a clear and simply worded procedure to be understood by most employees on preventing injury to persons and damage to property arising from site traffic and site transport.
2.0	SCOPE
	The procedure is applicable to SNET – SSG JV sites and Depots.
3.0	RESPONSIBILITY
	It is the responsibility of the Project In Charge and Depot head to implement this procedure and ensure that delegated staff under their supervision carries it out.
4.0	DEFINITIONS
	Project In Charge: Person responsible for the execution of the project
5.0	LEGAL REQUIREMENT
	The Building and Other Construction Workers (Regulation of employment and Conditions of Service) Act 1996 and Central Rule 1998 Rule 48, 88, and 95, Motor vehicle Act 1988
6.0	REQUIREMENTS
6.1	GENERE
	➢ All road works create inconvenience and are a potential hazard to the safety of all road users and those employed in carrying out the work. ➢ All the effects should be mitigated or reduced to the minimum, and to ensure that the works are properly guarded, lighted and signed. ➢ A clear and early warning of any obstruction to all road users should be provided. ➢ All areas where work is going on should be clearly demarcated by barricading and entry into these areas should be restricted to only authorized personnel.
6.2	Planning Stage
	➢ The client and DSC's Engineer should be consulted as regards the execution of the works and the safety measures which would be put in place. ➢ Particular attention should be given to : o Traffic signs o Cones o Barriers o Road hazard warning lights o Information boards, and o Site lighting ➢ Consider necessary of traffic control systems such as temporary traffic lights or Stop/Go boards. ➢ Access should be planned to eliminate dangerous movements of site traffic (e.g. reversing of vehicles) and personnel (e.g. crossing dual carriageways). ➢ Provision of adequate lighting. ➢ All persons working on or near the road shall wear high visibility jackets or a cross belt.
6.3	On Site
	➢ The working area (the live road / footway shall be defined. ➢ The working space shall be defined – this includes the area of storage of tools and equipment and space to move around the job. ➢ Provision of safety zone – it shall be kept clear of all work, material storage and

SNET – SSG Joint Venture

SAFETY & HEALTH OPERATION CONTROL PROCEDURES

Traffic Management Plan (TMP)

	people and shall be clear of working radius of all plant.
6.4	**Operators/ Drivers**
	• Experienced operators and drivers with valid licensed has been appointed. • One copy of license has been collected by safety department.
6.5	**Equipment**
	• Drivers are made a daily inspection of their vehicles include steering, brakes, mirrors, lights, horn, tyres and windshield wipers. • Safety Department along with plant department has been checking the vehicles monthly basis. • All vehicles have reverse horns and it is in working properly. • All vehicles periodical maintenance has conducted.
6.6	**Roads**
	For safe operation we are following the below safety measure: • Safe width has been provided. • One-way traffic roads have been used. • Speed limit is not greater than 15km/hr within the site. • Safe walkway with proper guard has been provided. • 24 nos. round the clock Traffic marshal has been appointed for safe road diversion. • Caution board has been placed in every location within the site. • During night alert light has been provided. • Workers are working with reflected jackets as well as required PPE's. • Conducting Toolbox training on regular basis. • Road has been closed with proper permission. • Reflected type Diversion board has been placed in required places. • Road diversion drawing has been submitted (Ref. Attached drawing).
6.7	**Loading and unloading**
	• Only authorized persons were engage for loading/ unloading. • Materials loaded within the permitted safe weigh limit for the truck. • Dimensions of loads carried on a vehicle in strict accordance with relevant provisions. • A red flag is being used at the rear extremity of an overhanging load. • During the hours of darkness or in poor visibility conditions, a white light showing ahead at each side of the front extremity and a red light showing to the rear extremity of the hanging load are has been provided. • During Toolbox talks information has been delivered to all drivers/ operators that when the driver leaves the driving seat, the engine of the truck shall be switched off, the gear engaged and parking brakes applied. On slopes, wheel blocks shall be applied. • Helper has been provided with all vehicles.
6.8	**Working Area**
	➢ The working area in the live road/footway has defined and barricaded. ➢ The working area has been restricted from unauthorized entry. ➢ The working space has been defined – this includes the area of storage of tools and equipment and space to move around the job. ➢ Particular attention has been taken in working area: o Traffic signs

2

SNKT – SSG Joint Venture

SAFETY & HEALTH OPERATION CONTROL PROCEDURES

Traffic Management Plan (TMP)

	○ Cones; ○ Barriers; ○ Road hazard warning lights; ○ Information boards; and ○ Site lighting ► Adequate lighting has been provided. ► All persons wear high visibility jackets.

APPENDIX 13: ENVIRONMENT, HEALTH AND SAFETY BUDGET

Sr. No.	Package	Tentative Budget for Environment Monitoring (Rupees)
1	Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06	8,29,950.00
2	Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach	4,10,000.00
3	Construction of S & D Network and Pumping Station in Borough XIII (Ward 122) including Replacement of GAP Sewer Line in Borough XV, Laying of Pumping Main and Rehabilitation of SSE STP including Operation & Maintenance of the Pumping Stations(s) and STP	3,68,000.00

APPENDIX14: PUBLIC CONSULTATION ON ENVIRONMENTAL ISSUES DURING CONSTRUCTION/ IMPLEMENTATION – Sample filled format

Package WS 01: Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06

Package - KEIIP/CSB/TR-1/WS01/2018-19

Area – Ward = 01 to 06

Sr. No.	Road/ Lane No.	Date	PHE Connection/ Utility Restoration- (in case affected) Remarks	Overburden soil removal Remarks	Road Restoration- Remarks	Dust and noise problem- Remarks	Social safety arrangement- Caution tape/ barricade etc. by contractor - Remarks	Problem of local movements due to project activity - Remarks	Other Problem faced if any	Name of the person with address/ contact No.	Signature
1)	Nilmani [illegible] Road	19/09/18	NO	NO	Quality of Road Restoration	NO	YES	NO	NO	Tapan Chakraborty	[illegible]
2)	Kanai Dhar Lane	19/09/18	NO	NO	Arrangement of Road Restoration	NO	YES	NO	NO	Kanaiyalal Adhikari	[illegible]

Package WS & SD 04

Package - KEIIP/ICB/TR 1/SD-04/2013-14 Month: June'18

Area – Dhi Road / Taratala Road

Sr. No.	Road/ Lane No.	Date	Pell Connection Restoration- (In case affected) Remarks	Overburden soil removal -Remarks	Road Restoration- Remarks	Dust and noise problem- Remarks	Social safety arrangement- Caution tape/ barricade etc. by contractor - Remarks	Problem of local movements due to project activity - Remarks	Other Problem faced if any	Name of the person with address/ contact No.	Signature
1	Dhi road Shaft No. 21A	09.06.18	No Issue	Satisfactory	Satisfactory	No Issue	Satisfactory	No Issue	No Issue	Rajkumar Das	
2	Dhi road Shaft No. 22	09.06.18	No Issue	Satisfactory	Satisfactory	No Issue	Satisfactory	No Issue	No Issue	Rabi Nagkar	
3	Dhi road Shaft No. 24	09.06.18	No Issue	Satisfactory	Satisfactory	No Issue	Satisfactory	No Issue	No Issue	Malay Sardar	
4	Dhi road Outfall	09.06.18	No Issue	Satisfactory	Satisfactory	No Issue	Satisfactory	No Issue	No Issue	Raja Das	

Package SD 05

APPENDIX 15 FIELD LEVELTRAININGS CONDUCTED DURING REPORTING PERIOD

Package WS 01: Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06

SUEZ INDIA PRIVATE LIMITED

TOOL BOX MEETING REGISTER

DATE: 21/6/18

SITE / LOCATION: Kaji Bazar Road

CONDUCTED BY: Ranjit Kumar

SUBJECTS DISCUSSED:

DETAILS OF DISCUSSION:

Excavation work safety

ATTENDANCE

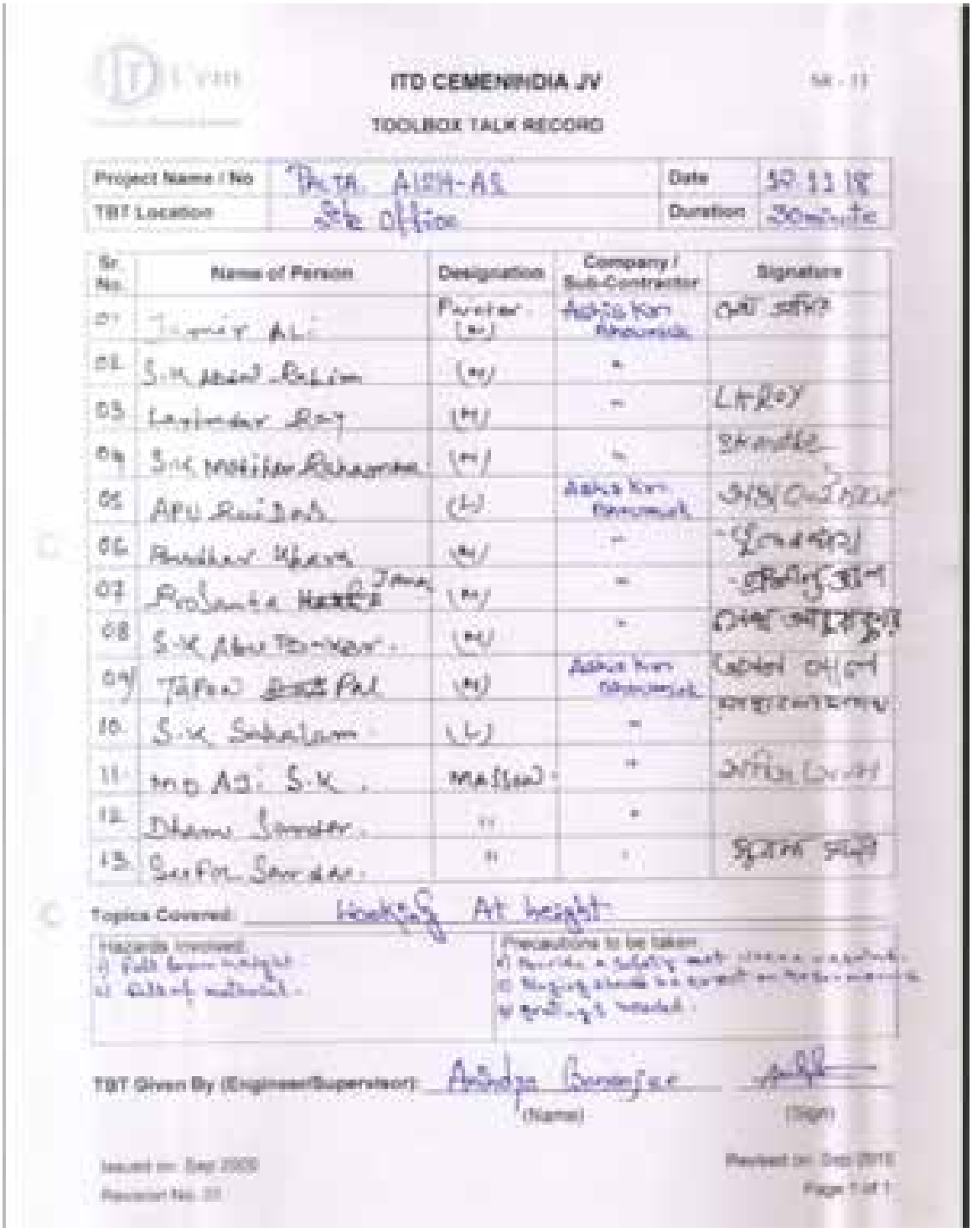
SL.NO	NAME	DESIGNATION / TRADE	AGENCY/ COMPANY	INITIAL / SIGNATURE
1)	Babu SK	Sardar	AMCL	
2)	Vakil SK	"	"	
3)	Gajendra mahato	"	"	
4)	Akash SK	"	"	
5)	Sadikul SK	"	"	
6)	Akbar Ali	"	"	

NAME :	DESIGNATION :	SIGNATURE :
Ranjit Kumar	Field assistance	

Package WS 02: Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach

Induction Training:

Tool Box Talk:



ITD CEMENTHDIA JV

TOOLBOX TALK RECORD

Project Name / No	PATA AISH-AS	Date	19.11.18
TBT Location	Site Office	Duration	30 minute

Sr. No.	Name of Person	Designation	Company / Sub-Contractor	Signature
01	Tomar Ali	Painter (M)	Asha Kan Renewable	
02	S.K. Abdul Rahim	(M)	"	
03	Lalindar Roy	(M)	"	
04	S.K. Mokibar Rahaman	(M)	"	
05	Abu Raihan	(M)	Asha Kan Renewable	
06	Bhaskar Khara	(M)	"	
07	Prosanta Hazra	(M)	"	
08	S.K. Abu Tomar	(M)	"	
09	Tapan Das Pal	(M)	Asha Kan Renewable	
10	S.K. Sabulam	(M)	"	
11	Md Ali S.K.	Mason	"	
12	Dhanu Sarder	"	"	
13	Sarfin Sarder	"	"	

Topics Covered: Working At height

Hazards Involved:
i) Fall from height
ii) Other methods

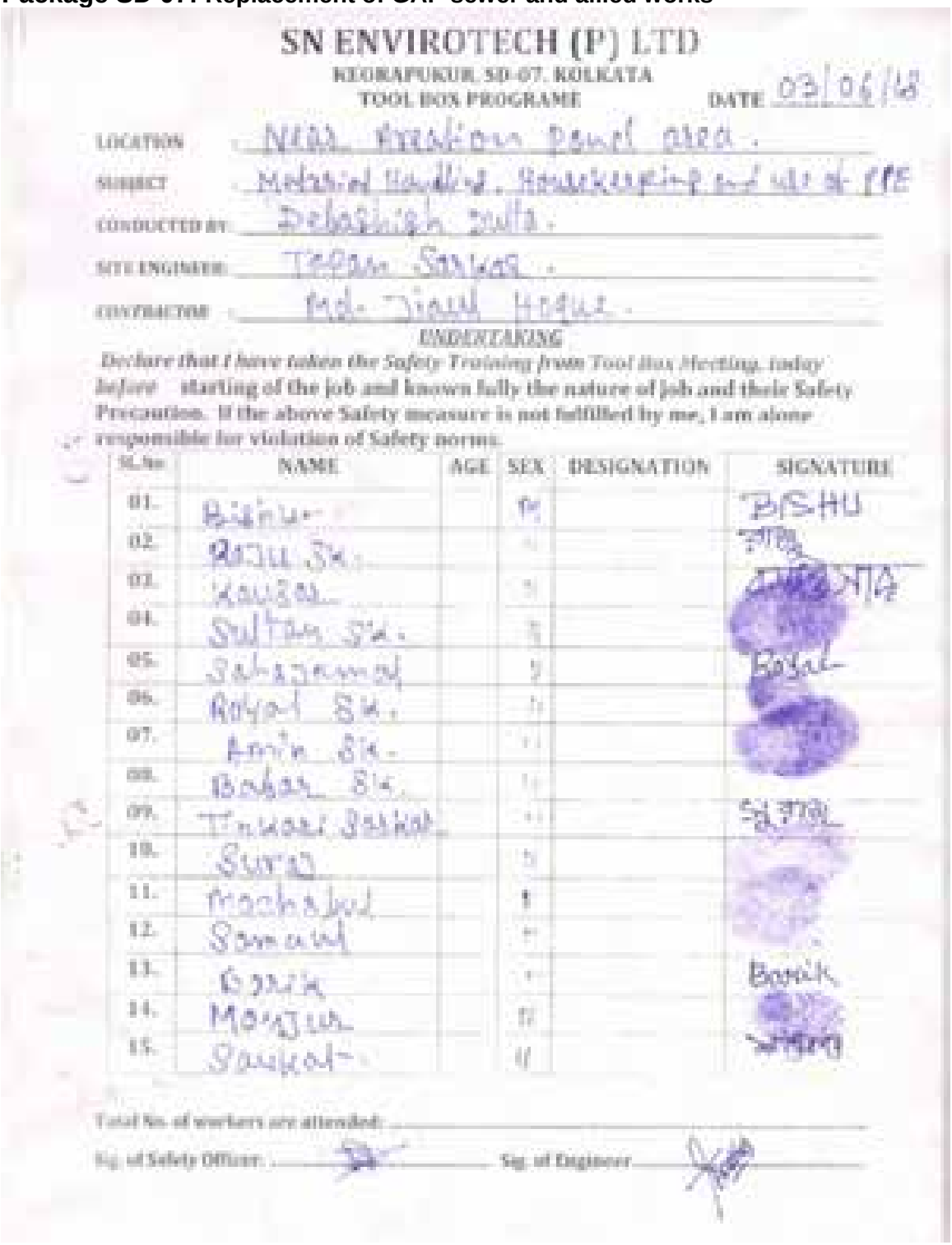
Precautions to be taken:
i) Provide a safety belt
ii) Ringing should be fixed on horizontal
iv) Ringing needed

TBT Given By (Engineer/Supervisor): Anindya Banerjee (Name) (Sign)

Issued on: Sep 2009
Revision No. 00

Revised on: Dec 2010
Page 1 of 1

Package SD 07: Replacement of GAP sewer and allied works



SN ENVIROTECH (P) LTD

KEORAPUKUR, SD-07, KOLKATA

TOOL BOX PROGRAME

DATE 03/06/18

LOCATION: Near Kestopur Panel area.

SUBJECT: Material Handling, Housekeeping and use of PPE

CONDUCTED BY: Debasish Dutta.

SITE ENGINEER: Tapan Sarkar.

CONTRACTOR: Md. Jiaul Haque.

UNDERTAKING

Declare that I have taken the Safety Training from Tool Box Meeting, today before starting of the job and known fully the nature of job and their Safety Precaution. If the above Safety measure is not fulfilled by me, I am alone responsible for violation of Safety norms.

Sl.No	NAME	AGE	SEX	DESIGNATION	SIGNATURE
01.	Bishu		M		BISHU
02.	Raju Sk.		"		
03.	Kausar		"		
04.	Sultan Sk.		"		
05.	Sahajamal		"		Bosal
06.	Royal Sk.		"		
07.	Amin Sk.		"		
08.	Babar Sk.		"		
09.	Tinkari Sarkar		"		
10.	Surad		"		
11.	Machabul		"		
12.	Samaul		"		
13.	Bonik		"		Bonik
14.	Monjur		"		
15.	Saukat		"		

Total No. of workers are attended: ____

Sig. of Safety Officer: ____ Sig. of Engineer ____

APPENDIX 16 TRAININGS CONDUCTED DURING REPORTING PERIOD

ENVIRONMENTAL SAFEGUARD – REVIEW MEETING AND ENVIRONMENT, HEALTH & SAFETY TRAINING AT FIELD – During Site Visit

During site visit review meeting and training on Environment Safeguard conducted

Issues discussed for compliance as below.

Environment, Health & Safety requirement

- Nomination of environment-safety officer in contractor team
- Setting up camp office with proper sanitation condition, solid waste management facility and sufficient drinking water supply. Non cutting of trees during setting up camp
- Removal / disposal of overburden/surplus earth/ stone, sludge materials at earliest without any accumulation at working sites - Use of overburden materials at site (preferred option)
- Proper disposal of other construction waste –Reuse in other projects
  - Site should be selected in consultation with concerned Supervisor Engineer of DSC
- Proper storage of construction materials - wastage of materials to be checked. Slope should be avoided
- Felling of trees if done to be compensated by plantation (1:3 ratio)
- Scheduling of work without any social impact – movement of pedestrian (particularly during tourist/ festive seasons) or other disturbances etc.
- Regular water sprinkling (at least 2-3 times in a day during dry period) at construction site for arresting of dust – record should be maintain at site
- Covering of materials carrying vehicles in case of transportation of wind- blown material like sand
- Personnel safety of workforce – use of ear plugs (noise producing area), nose mask (dust producing area and sewer connection work), helmet, gloves, gumboots, safety belt etc at working sites (as per site condition).
- Filling up trenches and restoration of road after pipe laying at earliest
- Arrangement of shoring, if required
- Instruction to material supplier/ contractor to arrange pollution under control (PUC) certificate for material carrying vehicles, equipments and machinery – Timely Renewal of PUC
- In case of purchase of stone aggregates consent to establish and operate of stone crusher should be collected from supplier
- No objection certificate from pollution control board for use of DG set(5 KVA and above capacity)
- Regular maintenance of noise producing machinery
- Arrangement of enclosure for noise producing equipment like generator, concrete mixture
- Implementation of traffic stop/diversion measures including use of safety tape/ barricade/ caution board/ diversion board at working sites with proper diversion sign
- Proper drainage of waste water/ rain water from working sites

- Arrangement of First Aid box at camp site, site office and working area
- At all working sites there should be a display board which shows location and contact phone number of PIU/ DSC/ Respective Borough office and grievance redress cell and respective officers for registering public complain. Keep Grievance Redress register at PMU/ contractor's site office for recording and addressing public complain.
- Display of all emergency contact number at site office/ storage depot
- Awareness program on HIV/AIDS
- Maintain chance find protocol for archeological objects
- Non use of child labour below 14 yrs age
- Carry out monitoring work base line & during construction (air, water, noise) as per schedule EMP
- Regular public consultation at all sensitive receptor within project influence area

APPENDIX 17: Sample Grievance Registration Form

(To be available in Hindi and English or local language - Bengalee)

The **Kolkata Environmental Improvement Investment Program (KEIIP)** welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.

Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date	**Place of registration**

Contact Information/Personal Details					
Name		**Gender**	**Male** **Female**	**Age**	
Home Address					
Village / Town					
District					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below: **If included as attachment/note/letter, please tick here:**					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of official registering grievance)	
If – then mode: • **Note/Letter** • **E-mail** • **Verbal/Telephonic**	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	• **Yes** • **No**
Means of Disclosure:	

GRIVENCE REDRESS REGISTAR
GRIVENCES RECORD AND ACTION TAKEN

Sr. No.	Date	Name and Contact No. of Complainer	Type of Complain	Place	Status of Redress	Remarks

APPENDIX 18: FILLED GRIEVANCE REDRESSAL FORMAT- SAMPLE COPY

Package WS 01:

1)	18/04/18	Site Ward-3	[illegible]	[illegible]	Temporary [illegible]	18/04/18	
		Bhagalpur					
2)	18/04/18	Site Ward-3	Sambha Kumar Sahu	Heavy Dust in front of [illegible]	Immediately [illegible] water sprinkling [illegible]	18/04/18	
		Bhagalpur					

Package SD 05

TANTIA -MPPL(WILO)JV

Grievance Redressal Register

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Complaint Number	Date	Complaint through (phone/letter/date)	Name of complainer	Complaint details	Action taken by Contractor/PMU/CSC	Date : case resolved(days required)	Remarks further action if any
185	[illegible]	Jayagiri [illegible] Road	Rabin Mondy	Drain cleaning required	Cleaning done.	04.07.18	
186	[illegible]	Bhatta [illegible] Road	Tulin Green	Soil [illegible] removed	Soil removed from Str.	14.07.18	
187	[illegible]	Dayabin [illegible] Road	Rabi Bhai	Drainage need for cleaning	Drain cleaning done	18.07.18	
188	[illegible]	Jayagiri Road	Tuni Bhatta	House water connection need	Water Connection done	27.07.18	
189	[illegible]	Bhatta [illegible] Road	Anotoly Baer	Drain clogging [illegible]	Cleaning done.	31.07.18	

Amp Government (TEL / Safety Officer).