Semi-Annual Environmental Monitoring Report

Project number: 42266-023

Period: July – December 2015

IND: Kolkata Environmental Improvement Investment Program – Tranche 1

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KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAM (KEIIP) – PROJECT 1

PROJECT MANAGEMENT UNIT

3rd

SEMI ANNUAL ENVIRONMENT MONITORING REPORT

TRANCHE 1

ADB Loan 3053-IND

(Period July to December 2015)

July 2016

KOLKATA MUNICIPAL CORPORATION

Semi-Annual Environmental Monitoring Report

ADB Loan Number 3053-IND
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Prepared by Project Management Unit, Kolkata Environmental Improvement Investment Program, Kolkata Municipal Corporation, Government of West Bengal for Asian Development Bank

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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


West Bengal

6. This report is the semi-annual environment monitoring report (SEMR) covering period from July to December 2015 and describes the implementation of the environmental management plan (EMP) in respect of each subproject as laid down in the approved IEE.

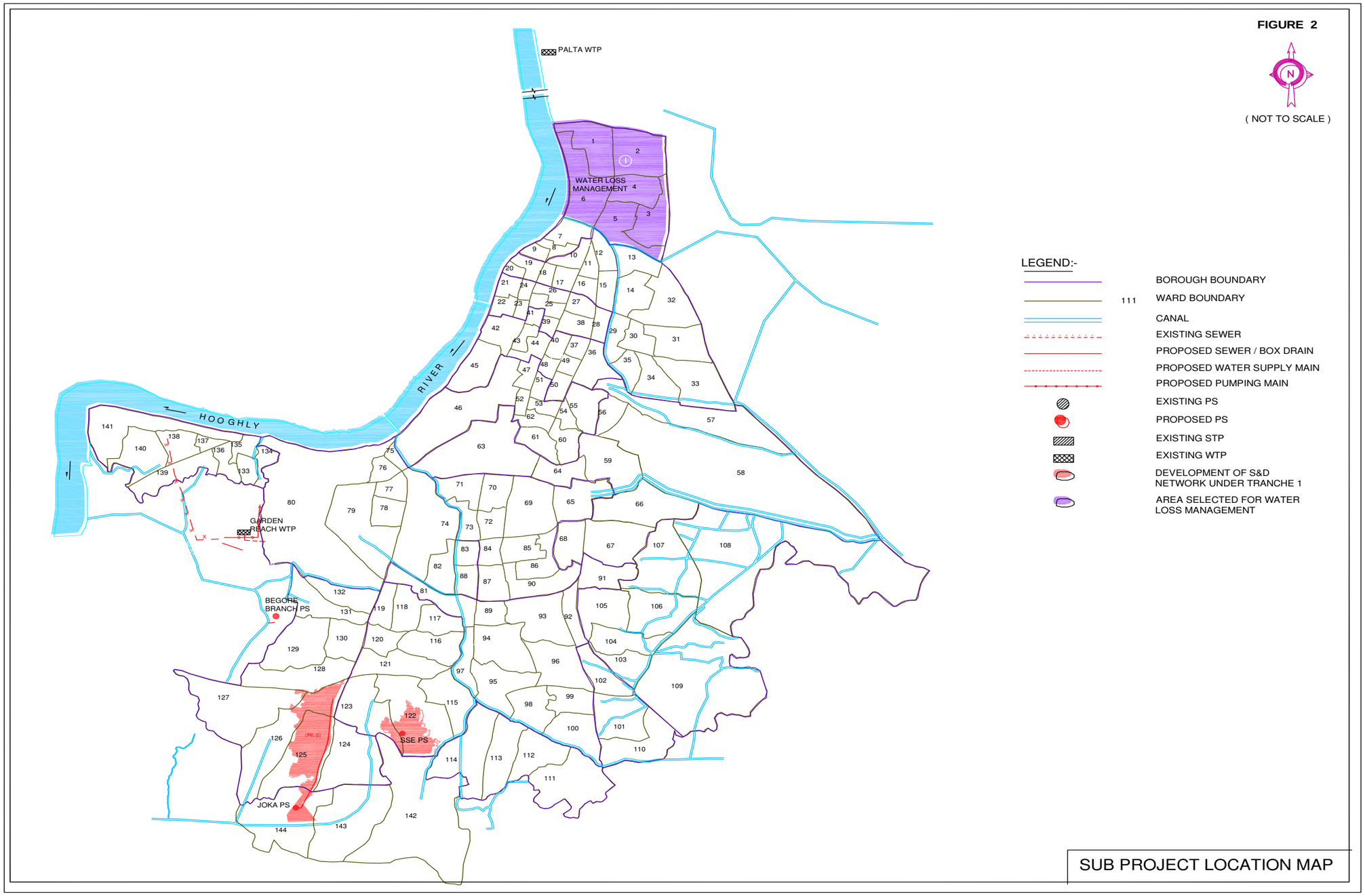


Figure 2: Sub Project location map- Project 1(Tranche 1)

II. IMPLEMENTATION PROGRESS

A. Status of Subprojects under Tranche 1

7. There are **9 packages** under **Tranche 1.** One package is related to Water Loss Management, 1 package related to building renovation, 1 package related to administrative component, 1 package for water supply, 1 package for Supply and Installation of pumps and Motors for water works, 3 packages related to sewage and drainage and one combined package related to micro-tunnelling for water and sewer pipeline. **Table 1** shows the subprojects under Tranche 1 and the works packages including the status of award of contracts as on 31st December 2015. The contract agreements for 5 packages have been signed and project implementation is continued for all the 5 awarded packages. Letter of Acceptance (LOA) has been issued for 2 packages and physical work of these will be started shortly.

Table 1: Summary of Subprojects under KEIIP Tranche 1 (on 31st December 2015)

Sr. No.	Package No.	Components	Status
1	**KEIIP/ICB/Tr-1/ WS01/R/2015-16**	Performance Based Water Loss Management Works at Cossipore Service Zone, Ward no. 01 to 06	Bid document submitted and starting of Bid process by January 2016
2	**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 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	Procurement process completed. LoA issued on 14 October 2014, Implementation started on 7th November 2014 **Physical work under progress-6.5%**
3	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	Procurement process completed. LoA issued on 16 January 2014, Implementation started on 19th May 2014 **Physical work under progress-65.80 %**

Sr. No.	Package No.	Components	Status
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 ***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.) ***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	Procurement process completed. LoA issued on 4 March 2014, Implementation started on 19th May 2014 **Physical work under progress- 45.5 %**
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 • 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 ✓SWF pumping main of dia 1626 mm, approx. 270 m long • Desilting and re-sectioning of Bagore branch canal for the portion downstream of box drain up to its outfall at Bagore canal	Procurement process completed. LoA issued on 1st September 2014, Implementation started on 27th October 2014 **Physical work under progress- 18.65%**
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 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	Procurement process completed. LoA issued on 16th January 2014, Implementation started on 19th May 2014 **Physical work under progress- 82.0 %**
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 on 12.12.2015 Agreement will be signed and project will start by February 2016
8	**KEIIP/NCB/TR-**	Interior renovation of KEIIP office at Business Towers, 206	Contractor

Sr. No.	Package No.	Components	Status
	1/BR-08A/2015-16	AJC Bose Road, Kolkata 700017 including Electrical works & Air-conditioning works	selected LOA issues on 09.11.2015 Agreement will be signed and project will start by January 2016
9	**KEIIP/NCB/TR-1/BR-08B/2015-16 Environment non –sensitive package**	Supply and Installation of Software & Hardware for development of project accounting system	Under design stage Bid to be invited shortly

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. It is expected that all works will be completed within stipulated time period except package KEIIP/NCB/Tr-1/SD-06/13-14. Completion of that package is likely to be delayed by 1-2 months due to late starting/mobilization of contractors' staff. After assessing present status of work completion date of the said package has been extended up to 28th February 2016. **Appendix 2** shows implementation status of different components (package wise). Photo illustration of project locations is shown in **Appendix 3.**

Table 2: Status of Awarded Sub-project Under KEIIP Tranche 1 (As of 31st December 2015)

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
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 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	07.11.2014	48 months	06.11.2018	6.5	**No work components completed. All are running** Palta Water works. Work status as follows- 1. WTP process design and layout approved. 2. Dismantling activity of old alumstore, switch gear room, boundary wall, watch tower - completed 3. Dismantling of existing WTP - in progress 4. Temporary access road for jetty - completed 5. Work of guard wall – primer painting completed **6 Palta jetty work**: (a) 8 Nos. temporary pile – completed (b) 3Nos. permanent structural pile- completed (c) 1No. fender pile- completed 7. Switch gear room – upto roof level.PCC for floor done. 8. Alum room-roof concreting done. 9. Chemical house piling: - 42 Nos.

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
						pile completed. Preparation for pile cap under process. **10. Construction of culvert: -** (a)Culvert No.5:-preparation for slab concreting (b)Culvert No.2:- 6No.s pile completed (c) Culvert No.4:-PCC completed 11. Chlorine room: - Lintel completed. Column up to roof level. Physical activity not started at Garden reach
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	65.80	**No work components completed. All are running.** 1. 5 nos. Foreign Motor reached at site 2. Erection of 20 valves out of 52 is completed 3. 2 no. capacitor bank panel at Palta WTP, 1 no. 1450 Kw Motor at Garden Reach Water Works erected 4. Handing over of spares of Garden Reach Water Works and Tallah PS to KMC almost completed
KEIIP/ICB/ Tr-1/WS & SD-04/13-14	**Water supply & Waste water**- Laying of water trunk main from Garden Reach	19.05.2014	36 months	18.05.2017	45.50	**No work components completed.**

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
	waterworks to Taratala valve station and laying of 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.) ***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					**All are running.** Status as follows, A. **Taratala Road (Water Main)** 1. Shaft No.0:- Sheet piling completed. Excavation & bracing work in progress. 2. Shaft No.1:- Micro tunnelling completed. 3. Shaft No. 2 :- Shaft completed. 4. Shaft No.3:- CESC inspection done. Cable shifting not yet started. 5. Shaft No.4 :- Shaft completed 6. Shaft No.5 :- Shaft completed. Micro tunnelling completed on 12.10.15. to shaft No.5 to shaft No.4(total length 388m). 7. Shaft No.6 :- Shaft completed 8. Shaft No.7:- 1800dia pipe laid 307m from shaft No.7 to 8 on 23.07.2015. & laying of 1800mm dia pipe from shaft No. 7 to 6 has been completed on 17.08.2015. Total length of pushing is 404m. 9. Shaft No.8 :- Shaft completed 10. Shaft No. 9:- Shaft No.9 to Shaft No.8 micro tunnelling work completed (283.37m).Shaft No. 9

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
						to 8 micro tunnelling in progress (282.5m). 11. Shaft No. 10 :- Shaft completed. 12. Shaft No.11:- CESC work completed, sewer diversion work 90 % done. Road widening in progress. 13. Shaft No.12:- Inspection done. Approval for off take point from user department is required. Revised drawing submitted for approval. 14. M.S. pipe cutting :- 3583.93m 15. R.C.C. Jacketing :- 3001.5 m 16. C. M. Lining :-3414.394m 17. Total supply of MS pipe :- 3704.78m B. **D. H. Road (Sewerage)** 1. Shaft No 1:- Water main 400mm dia shifting work completed. Casting of soft eye completed. Manhole work in progress. 2. Shaft No 2:- Excavation, bracing, P. C. C. work completed. 1600mm dia R.C.C. pipe laying by micro tunnelling method completed. Shaft No.2 to 1 & Shaft No 2 to 3(Total length 477.0m) Manhole of

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
						Shaft No 2 has not yet been started. 3. Shaft No 10:- Road restoration work completed. 4. Shaft No 11:- Inspection has done with Police authority. 5. Shaft No 12:- Diversion work in progress. 6. Shaft No 15: -Utility to be shifted. 7. Shaft No 16:-Sheet pile work in progress. 8. Shaft No 17:-Shaft completed. Gantry erected 9. Shaft No 18 :- Shaft completed
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. –	27.10.2014	42 months	26.04.2018	18.65	**No work components completed. All are running.** A. **S&D network**:- Total length 68 m (Survey work). **(1) Survey submitted**: - (i) Survey work for S&D pipe laying work completed for 66.708 km (ii)Data Sheet issued for :- 55.3km (iii)Drawing issued for :- 45.04Km (iv) Data issue:- 14.3Km (v) Drawing issue:- 11.06 km **(2) Design approval: -** (i) Drawings for substation building & pile foundation issued to the agency

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
	✓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 ✓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- Construction of PS R. K. Ghosh and Behala flying club					(ii) Drawings for Begore Branch Canal Rehabilitation issued to the agency **(3) Pipe laying :**- 4521.25m completed **(4) Manhole Construction** :- (i) 256 No.s completed (ii)Manhole data sheet for Zone - 1,2,3,4&5 (part) released to the agency **(5) Road Restoration** :- Up to jhama level 4071m done **(6) Drain Restoration** :- 172m completed (B) **Joka P.S.**:- Concrete work for 6thlift staining portion(11.25m) completed. (C) **Begore P.S**. :- Concrete for well sump upto 2nd lift staining portion done (8. 4m). **Substation: -** Bored pile work at Begore P.S. substation site 40 Nos. completed. Load test (2 Nos.) for substation building No. 1 & 2 completed.18No.s pile cap completed out of 20 No.s. **Piling** :- (i)Pile load test at Begore box drain done & 12Nos. completed

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
						(ii) Dismantling of earlier piling work at Begore box drain completed. (iii)Bored pile work completed at Begore box drain site(37 Nos. completed) (iv)Boundary wall piling at Begore P.S. completed 53Nos. out of 53 Nos. (v) Piling work at Joka substation completed 36No.s. **Other Works :-** (i)Deck slab, raft and vertical wall casting done for 45m length at Begore box drain site. Concreting for another 30m raft completed (ii) Begore Branch Canal Block pitching done for 147m at slope portion of bank (iii)Land filling work at Begore P.S. completed (iv) RCC pipe testing done at Bolepur, Fathepur, DH Road factory (v) 178m jhama filter & block laying at Branch Canal Bed completed (vi)61 80 No.sPCC block casting done (vii)Dismantling work of existing culvert over Begore Branch canal

Package No.	Component	Start Date	Number of Days/Months to Complete Work	Target date of completion	% Physical Progress as on 31st December 2015	Works completed and continued as of 31st December 2015
						started. **Extra Works** :- (i)R.K. Ghosh P.S.:- Inlet connection to DWF P.S.rectified (ii)BFC P.S.:- Dismantling of boundary wall, screen structures in progress ,DI piping for DWF delivery dismantled
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	18.11.2015 (**Extended up to 28.02.2016)**	82.0	**Part of the package work completed** • Jacking pit and receiving pit completed • Receiving well: well sinking completed • Micro tunneling of 1800 dia pipe (539m) has been completed. • Jack fixing for pushing MS pipes in tunnel is completed. • CCTV survey at 1800dia. tunnel completed. **Rest of the work continued** • Checking of existing equipments & machinery at Santoshpur P.S. has been started for repairing etc. • Bend making for the 750 dia. MS pipeline is in progress. • MS pipes reached at site for pipe laying

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. Same will be followed for subsequent Tranches. 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. 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 has been placed in Project Management Unit and heading Safeguard Monitoring Unit. Human resource (project consultant, i.e 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		

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
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:	**Under compliance**
	(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;	(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
	(b) make available a budget for all such environmental measures;	(b) IEE indicates budgetary provisions for implementation of EMP.
	(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;	(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) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and	(d) Haul roads will be marked properly (by avoiding residential and agricultural land) before commencement of transportation of materials.
	(e) fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	(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. 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:	**Under compliance**
	(a) submit semi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;	(a) This is 3rd Semi-annual safeguard monitoring report on Environment for the period July to December 2015. The next report will be due by end of June 2016.
	(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	(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

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
	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.	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.
Prohibited 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 labor 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 labor 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 labor (including not employing or using children as labor, 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.

12. Safeguard Monitoring Unit (SMU) of PMU is ensuring field level monitoring and safeguard documentation. 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 laborers;

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

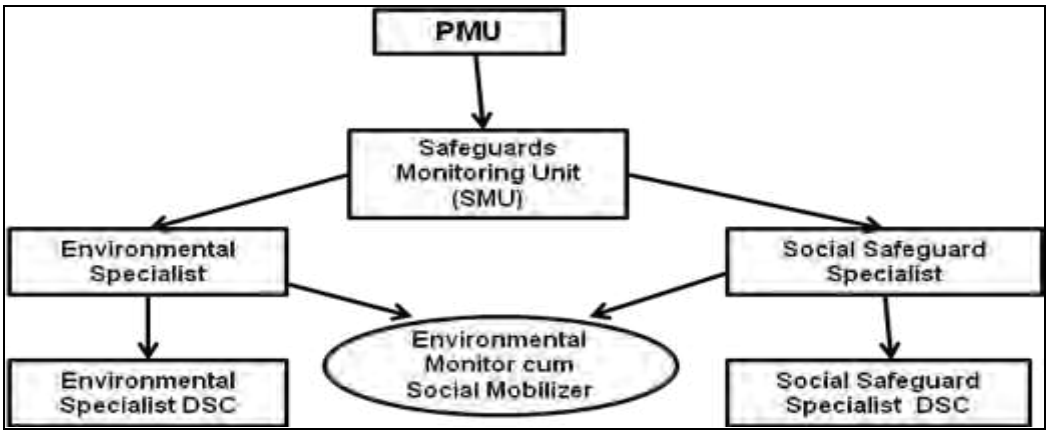
(viii). Conducting all activities in a manner that minimizes disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment.

(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 of DSC generally 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 Email: ardhendumitra@gmail.com , dsckeip@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. **Table 5** provides a list of national and state laws, rules, policies and regulations applicable to **KEIIP Tranche 1.**

Table 5: Environmental Legal Requirements Applicable to KEIIP Tranche 1

Component	Applicable Legislation	Compliance	Action Required
1. All components that require acquisition of forest land	Forest (Conservation) Act 1980; Wildlife (protection) Act 1972 West Bengal Trees	Approval from State Forest Office, Principal Chief Conservator	Identification of non- forest land and formulate an afforestation program.

Component	Applicable Legislation	Compliance	Action Required
	(Protection and Conservation in Non-Forest Areas) Act, 2006	of Forest and Ministry of Environment and Forests (MoEF), Government of India	Tree felling permission as per requirement
2. Water Treatment Plant (WTP) – Surface water and Sewage Treatment Plant (STP)	The Water (Prevention and Control of Pollution) Act, 1974, as amended in 1988	Consent to Establish (CTE) and Consent to Operate (CTO) from West Bengal Pollution Control Board (WBPCB), Government of West Bengal	Based on project review and site inspection, West Bengal Pollution Control Board (WBPCB) provides CTE before construction, and stipulates the disposal standards to be met during operation. After completion of construction, Consent to Operate (CTO) will be issued confirming compliance with the CTE conditions, if any
		Renewal of CTO during operation of surface Water Treatment Plant (WTP) and Sewage Treatment Plant (STP)	Based on the performance of the WTP/STP and its compliance with the disposal standards CTO to be renewed every year.

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 6: Status of Compliance with National and State Legal Requirements (up to 31st December 2015)

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
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 will be required before operation	Online application has been submitted to WBPCB on 30th June for CTE for Rehabilitation of Water Treatment Plant at Palta Water Works. **CTE received on 03.09.2015**	Consent to Establish received on 03.09.2015 Copy attached as **Appendix 4** Conditions and compliance are shown below (**Table 7)**
		Forest (Conservation) Act 1980; West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act,	Pipeline alignment shifted as per design modification. No tree felling is required	Not applicable till date

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
		2006 for felling of trees 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 hot mix plant, batching plant and use of 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 as per present work	
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 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)	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 is recommended in clearance certificate. **(NOC attached as Appendix 5)** During implementation of project compliance against Air Act , Noise Rules and Water Act will be required Not required for acoustic type of Generator	Tree felling has been done Compensatory afforestation at non forest land- Action has already been initiated
KEIIP/ICB/ Tr-1/SD-05/13-14	Construction of pumping stations in Begore khal and in Joka Tram Depot	Water (Prevention and Control of Pollution) Act. 1974	During implementation of project compliance with Air Act , Noise Rules and Water Act	-

Package	Main package work	National and State Legal Requirement	Status	Conditions of the Clearance/NOCs
	and Construction of Sewerage and Drainage Network within Diamond Habour Road catchment	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)	will be required Not required now For acoustic type of Generator- not required	
KEIIP/NCB/ Tr-1/SD-06/13-14	Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant	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	During implementation of project compliance against Air Act , Noise Rules and Water Act will be required	-

Table 7: 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)	No emission expected from WTP

Sl. No.	Conditions		Compliances
	Act, 1981.		
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 have to abide by any other stipulations as may be prescribed by any authority/local bodies/Government Departments, etc
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

Sl. No.	Conditions	Compliances
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 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.
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
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.
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 4 environment sensitive sub-projects under implementation. Site Environment plan including site specific EMP was submitted by the contractor before starting of each construction packages. These EMPs are generally revised semi annually as per progress of construction work. **Appendix 6** shows Site Specific EMP for the 4 packages.

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 8 to 11.** It may be noted, though most of the sites are environmentally well managed, in a few cases packages like KEIIP/ICB/ Tr-1/SD-05/13-14 and KEIIP/NCB/ Tr-1/SD-06/13-14 there are some shortfall in site management measures as mentioned below,

- Materials storage and lay-down area of equipment in some places needs more satisfactory management;
- Water sprinkling in some places is not done according to the site conditions
- More comprehensive Tool box training for labourers is required
- Housekeeping at some parts of the camps and working sites needs attention
- Use of PPE by contractors' site workers is not always maintained
- Barricading of some of the working locations needs due attention and improvement. Hard barricading mostly absent at working sites of KEIIP/ICB/ Tr-1/SD-05/13-14
- Disposal of excess earth and spoil not done on regular basis. Proper documentation of spoil management is absent
- Access of local households not satisfactory for the package KEIIP/ICB/ Tr-1/SD-05/13-14

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 Plan premises
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 now. Utility shifting plan (if any) will be planned before any progress of work
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	-	DSC/PMU	Observation and document checking	Environment Specialist of DSC and PMU	Do	Not required as per present nature of work Working location

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			implemented						within the Water Treatment Plan premises
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. Proper drainage of waste water is required
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 • Fire prevention facilities must be present at all	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

[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
		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 will be arranged after complete mobilization of workers
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 commencement of any work. • Use of Govt. approved	• 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	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 on 03.07.2015 01.08.2015 23.09.2015	Complied Approval obtained from PMU and DSC. Procurement started

[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
		quarry sites for procurement of materials • Verify suitability of all material sources and obtain approval of Investment from PMU/DSC	sites if necessary. • Construction Contractor documentation						
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 Established within Palta Water Treatment Plant campus. Drinking water and toilet facility available. Housekeeping maintained. Proper discharge of waste water is required. Camp site photo attached as **Appendix 3**
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 just started Spoil management plan will be applied as per EMP (Attached as **Appendix 6 and 7**)
12	Dust and Air	• Selection of materials	• Location of	Project	Contractor	• Checking	Environment	Do	Complied

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	Pollution[4]	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	stockpiles • Complaints from sensitive receptors • Monitoring data • Heavy equipment and machinery with air pollution control • Water sprinkling arrangement • Cover materials	Locations		of records • Visual inspection of sites	Specialist of DSC and PMU		Location of stockpiles selected. Covering of materials done partially. Water sprinkling done as per requirement. During construction air quality monitoring done as per EMP. (Result certificate shown in **Appendix 8).** Pollution under Control Certificate of vehicles 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 such noise producing machinery mobilized at site PPE utilized as per requirement. During construction monitoring done. Results are attached as **Appendix 8**.
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	To be complied as per requirement and following EMP.
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	Complied during construction of Jetty. Water quality

[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.							monitoring for River Hooghly done. Results enclosed in **Appendix 8.**
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 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
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	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 Attached as **Appendix 9**.

	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 than8hoursper day without hearing protection.	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						H & S training arranged for the labourer on regular basis. Records of trainings conducted attached as **Appendix 10.** Drinking water and first aid box available at site. Site photo enclosed in **Appendix 3.** Insurance arranged for the labourer. Attached as **Appendix 11.** No accident reported till date Overall compliance is satisfactory
19	Social Impacts[6]- Community	• Plan truck routes (for carrying construction materials including pipes)	• Traffic Management Strategy	Project Locations	Contractor	Document check and visual	Environment Specialist of DSC and	Do	Complied Caution tape placed around

[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
	Health & safety, accessibility	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	• Complaints from sensitive receptors • Number of signages placed at subproject location			observation	PMU		excavated area No permanent barricade arranged by the contractor but instruction given to the contractor for arrangement of the same as per requirement. Photo attached as **Appendix 3**.
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
21	Employment generation	• The use of labor intensive construction measures will be used where	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and	Do	At present local laboures are mostly engaged.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		appropriate • Employ local (unskilled) labor if possible • Training of labor to benefit individuals beyond completion of the subproject					PMU		List of laborers are attached as **Appendix 12**

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 afforestation of 75 trees is recommended in NOC. NOC attached as **Appendix 5.** Tree felling and compensatory afforestation done
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	• Involvement of traffic dept. • Road closure planning	Specific project location	DSC/PMU	Site observation	Environment Specialist of DSC and PMU	Do	Complied During laying of pipes, road closed near shaft location. Access to site

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		detour and available on site in the monitoring of traffic in the early stages of the operations during road closure							maintained after due consultation with traffic dept.
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 as per requirement. Discussion continued with utility dept.
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
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 and approved from traffic dept. **Appendix 13** shows traffic management plan
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	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 Rented house has been selected as labour camp. Site photo attached as **Appendix 3.**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		area • Arrangement of toilet and drinking water facility • No disposal of waste in water							
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 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	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

[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
		and follow the appropriate safety measures							
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 arranged regularly. Awareness program arranged regularly
Construction									
9	Materials Management – Sourcing[9]	• 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 on 03.07.2015 02.08.2015 24.09.2015 15.11.2015 30.12.2015	Complied Approval obtained from PMU and DSC.
10	Maintenance of Construction Camp	• Establishment of temporary camps with	• Complaints from sensitive	Camp site	Contractor	• Visual inspectio	Environment Specialist of DSC and PMU	Do	Complied Established within rented

[8] These points need to be made clear to all staff on site before the subproject begin.
[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
		drinking water, sanitary and solid waste management arrangement • Train employees in the storage and handling of materials • Remove all wreckage, rubbish, or temporary structures	Receptors • Water and sanitation facilities for employees • Housekeeping – regular disposal of solid waste			n of sites			house
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 Excess earth and slurry disposed at designated/ approved location Spoil management plan applied as per EMP (Attached as **Appendix 6-7**)
12	Dust and Air Pollution[10]	• 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 • Heavy equipment	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

[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
		• 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	and machinery with air pollution control • Water sprinkling arrangement • Cover materials						considered for storage Water sprinkling done as per requirement During construction air quality monitoring done as per EMP. (Result certificate shown in **Appendix 8).** 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 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	• 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 as such noise generating problem near the project location. PPE utilized by labourers as per requirement. During construction monitoring was done. Monitoring will be continued as per EMP. Results are attached as **Appendix 8**.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		machinery.							
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 Arrangement of drainage of waste water from construction locations done
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	No water source near the construction location
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	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 felling done and compensatory plantation completed with 75 trees

[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
		firewood, fruits, plants, crops or any other natural material on-site or in areas adjacent to the sites.							
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	Instruction has been given to contractor for stockpiling of materials at designated areas
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	• 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	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 Attached as **Appendix 9**. H & S training arranged for the labourer on regular basis. Schedule and records of trainings conducted attached as **Appendix 10.** Drinking water

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		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.	electrical devices and lines, service rooms						and first aid box available at site. Site photo enclosed in **Appendix 3.** Insurance arranged for the labourer. Attached as **Appendix 11.** No accident happened during the report period **Overall compliance is satisfactory**
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	• 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	Caution tape placed around excavated area (Ref photo **Appendix 3)** Permanent barricade arranged by the

[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
		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							contractor with diversion sign Traffic Management Plan under implementation 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 labor intensive construction measures will be used	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	At present local laboures are mostly engaged.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		where appropriate • Employ local (unskilled) labor if possible • Training of labor to benefit individuals beyond completion of the subproject							List of laborers are attached as **Appendix 12**

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 • 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 Discussion continued with utility dept. for getting NOC
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	Non-complied. During laying of pipes, road partially or fully closed near pipe laying area; Access to site not maintained properly Consultation with local councilor

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
									and locals needed before starting of construction
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 as per requirement. Discussion continued with utility dept.
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
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	Partially Complied Traffic management plan prepared and approval under process. Diversion sign not properly placed. **Appendix 13** shows

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
									traffic management plan
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. Rented house considered for staying of labourer. Camp has been established within Joka PS campus. Sufficient drinking water, toilet facility noted
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	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	Partially Complied. Improvement required. Proper storage of fuels, lubricants done after necessary instruction. Equipment lay-down area demarcated. Fire prevention

[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
		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							facilities arranged.
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	-	Partially complied Site Safety training not arranged regularly. Awareness program to be arranged on regular basis
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	• List of approved quarry sites and sources of materials • Bid document to include requirement for verification of	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,	Complied. Approval obtained from PMU and DSC.

[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
		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	suitability of sources and permit for additional quarry sites if necessary. • Construction Contractor documentation					Visit by Environment Specialist on 03.07.2015 02.08.2015 24.09.2015 15.11.2015 30.12.2015	
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. Rented house arranged for labourer. Camp has been established within Joka PS campus. Sufficient drinking water, toilet facility noted
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 partially Excess earth disposed at designated/ approved location not on regular basis. Regular removal is

	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							required without accumulation at site. Spoil management plan will be applied as per EMP (Attached as **Appendix 6-7)** Fencing of storage areas done partly
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 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 considered for storage. Water sprinkling not done on regular basis. During construction air quality monitoring done as per EMP. (Result certificate

[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
									shown in **Appendix 8).** 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 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 as such noise generating problem near the project location. PPE utilized by labourer as per requirement. During construction, monitoring done. Monitoring will be continued as per EMP. Results are attached as **Appendix 8**.
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	Project Locations	Contractor	• Checking of records • Visual inspection of sites	Environment Specialist of DSC and PMU	Do	Complied Arrangement of drainage of waste water from construction locations

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
			drainages (in slope) leading to water bodies						done
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	No water source near the construction location
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	Stockpile management	Stockpile / storage area	Contractor	• Checking of records • Visual inspection of	Environment Specialist of DSC and PMU	Do	Complied. Stockpile not obstructing natural flow of water

[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
		windy conditions or heavy rain with vegetation, cloth, or tarps. • Contractor to ensure all concrete mixing take place on a designated, impermeable surface.				sites			
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	• 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 Attached as **Appendix 9**. H & S training not arranged regularly for contractor Use of PPE – partially complied Drinking water and first aid box available at site. Site photo enclosed in **Appendix 3.** Insurance arranged for the labourer.

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		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.							Attached as **Appendix 11.** No accident recorded till date **Overall compliance is Partially satisfactory**
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	Partially Complied. Caution tape placed around excavated area but not fully Permanent barricade not arranged. Traffic Management Plan under implementation. Photo attached as **Appendix 3.**

[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	Not required till date
21	Employment generation	• The use of labor intensive construction measures will be used where appropriate • Employ local (unskilled) labor if possible • Training of labor 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 laboures are mostly engaged. List of laborers are attached as **Appendix 12**

Table 11: Compliance to EMP of for the Package - Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant (KEIIP/NCB/ Tr-1/SD-06/13-14)

	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	• Tree felling requirement –	All Project locations	DSC/PMU	Observation and document	Environment Specialist of	Before commencem	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
		permission	site environment plan • NOC – paper documents from line agency			checking	DSC and PMU	ent of final design	
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 chance of impact to any utility services 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
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 nature of work. Location pits at fixed area
6	Construction work camps (if needed), hot	• Planning for setting up worker camps, hot mix plant, stockpile area,	List of selected location for construction work	Camp and other sites	DSC/PMU	Observation and document checking	Environment Specialist of DSC and	Before start of physical	Complied. Camp has been established within

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
	mix plants, stockpile areas, storage areas, and disposal areas.	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	camps, hot mix plants, stockpile areas, storage areas, and disposal areas				PMU	work & Continuous	Santoshpur main pumping station. . Sufficient drinking water, toilet facility noted. Improvement of camp environment done after suggestion
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	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 after necessary instruction. Equipment lay-down area demarcated Fire prevention facilities to be arranged

[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
		(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[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	-	Partially complied. Site Safety training and awareness program not arranged regularly
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 on 03.07.2015 02.08.2015 24.09.2015 15.11.2015 30.12.2015	Complied. Approval obtained from PMU and DSC.

[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	Complied Camp has been established within Santoshpur PS campus. Sufficient drinking water, toilet facility noted **Appendix 3** shows camp site photo
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 partially Excess earth needs to be disposed completely on regular basis from construction sites Spoil management plan applied as per EMP (Attached as **Appendix 6-7).** NOC obtained from local household for disposal of spoil/ slurry from micro tunneling. Fencing of storage areas not done
12	Dust and Air Pollution[22]	• Selection of materials storage area • Water sprinkling at construction site for arresting dust (if any	• Location of stockpiles • Complaints from sensitive receptors	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

[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
		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	• Monitoring data • Heavy equipment and machinery with air pollution control • Water sprinkling arrangement • Cover materials						properly Water sprinkling not required during construction; air quality monitoring done as per EMP. (Result certificate shown in **Appendix 8).** Pollution under Control Certificate of vehicles and equipment obtained partially
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 No as such noise generating problem nearby the project location. PPE utilized by labourer as per requirement, but not always During construction monitoring done. Monitoring will be continued as per EMP. Results are attached as **Appendix 8**.
14	Storm water management	Arrangement of drainage of waste water and arresting solid waste/silt from waste	• Areas for stockpiles, storage of fuels	Project Locations	Contractor	• Checking of records • Visual	Environment Specialist of DSC and	Do	Complied partially Arrangement of

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		water generated at construction site	and lubricants and waste materials • Number of silt traps installed along drainages (in slope) leading to water bodies			inspection of sites	PMU		drainage of waste water from construction locations done partly
15	Water Quality[23]	• 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	No water source near the construction location
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	• Contractor to ensure	Stockpile	Stockpile /	Contractor	• Checking	Environment	Do	Complied

[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
	Management	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.	management	storage area		of records • Visual inspection of sites	Specialist of DSC and PMU		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 • 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	• 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	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 Attached as **Appendix 9**. H & S training not arranged regularly**.** Use of PPE – partially complied Drinking water and first aid box available at site. Site photo enclosed in **Appendix 3.** Insurance arranged for the labourer. Attached as **Appendix 11.** No accident recorded till date **Overall compliance is**

	Field	Mitigation Activities and Method	Parameters monitored	Location	Responsible for Mitigation	Monitoring Method	Responsible for Monitoring	Date of Monitoring	Compliance Status/ Explanation
		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.	rooms						**partially satisfactory**
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 maintain access across for people and vehicles • Consideration of public safety - as per prescribed mitigation measures • Contractors to ensure lighting on the	• 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 area Permanent barricade not arranged. Traffic Management Plan not required Photo attached as **Appendix 3**.

[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
		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	Not required till date
21	Employment generation	• The use of labor intensive construction measures will be used where appropriate • Employ local (unskilled) labor if possible • Training of labor to benefit individuals beyond completion of the subproject	Employment record	Project Locations	Contractor	Checking of records	Environment Specialist of DSC and PMU	Do	Partially complied At present local laboures less than 50%. List of laborers are attached as **Appendix 12**

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, noise levels and for one subproject monitoring has been carried out for river water quality.

22. During year 2014 and 2015 baseline air and noise quality monitoring has been carried out for all the packages. The results have been reported in SEMR covering period June to December 2014 and January to June 2015 and submitted to ADB for disclosure in the month of January and July 2015 respectively. During construction air quality monitoring has been done for all the packages during said report period. Monitoring and health safety budget of contractor is shown in **Appendix 14.**

23. Base line and during construction air quality monitoring results shown in **Table 12** below. All test certificates from monitoring agency is disclosed in **Appendix 8.**

24. Findings from air quality monitoring are,

- In all cases concentration of SO_2 is within the prescribed standard. 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 NOx for the package KEIIP/ICB/ Tr-1/WS & SD-04/13-14, KEIIP/ICB/ Tr-1/SD-05/13-14 and KEIIP/NCB/ Tr-1/SD-06/13-14 has marginally increased during construction which may be due to increased movement of traffic at construction site for transportation of workers and materials.
- In all cases concentration of $PM_{2.5}$ is within the prescribed standard. There is marginal increase of $PM_{2.5}$ for package KEIIP/ICB/ Tr-1/WS & SD-04/13-14 and KEIIP/NCB/Tr-1/SD-06/13-14 during construction, but at other construction locations there is decreasing trend for $PM_{2.5}$ level.
- Average base line concentration of PM_{10} is above the standard for all the packages. During construction PM_{10} is always less than base line concentration and within the standard. Application of provisions of EMP like dust suppression and control of vehicle emission at working sites is to be maintained.
- In most of the cases concentration of Hydrocarbon is below the detection limit

Table 12: Base line Ambient Air Quality Monitoring Data at working sites

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 $\mu g/m^3$	NO_2 $\mu g/m^3$	$PM_{2.5}$ $\mu g/m^3$	PM_{10} $\mu g/m^3$	HC $\mu g/m^3$
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
	Gardenreach Intake point	Base line	07.03.2015	7.49	30.16	52.36	121.89	3.20

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m^3	NO_2 µg/m^3	$PM_{2.5}$ µg/m^3	PM_{10} µg/m^3	HC µg/m^3
	and treatment plant- near Surinamghat							
	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**	**22.195**	**21.225**	**65.06**	**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 **KEIIP/ICB/ Tr-1/WS & SD-04/13-14**	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
	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**	

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 $\mu g/m^3$	NO_2 $\mu g/m^3$	$PM_{2.5}$ $\mu g/m^3$	PM_{10} $\mu g/m^3$	HC $\mu g/m^3$
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 khal 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 khal 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**
Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant	Santoshpur Pumping station near receiving shaft area	Base line	05.01.2015	8.2	59.5	31.25	173.1	-
	Garden reach sewage	Base line	05.01.2015	9.7	49.7	27.48	65.86	-

Package	Monitoring location	Monitoring stage	Date of monitoring	Parameters				
				SO_2 µg/m^3	NO_2 µg/m^3	$PM_{2.5}$ µg/m^3	PM_{10} µg/m^3	HC µg/m^3
KEIIP/NCB/ Tr-1/SD-06/13-14	treatment plant, Jacking shaft area							
	Railway line at Solabigha	Base line	20.06.2015	11.29	46.98	32.47	75.22	ND
	Average Base line			**9.73**	**52.06**	**30.4**	**104.76**	**ND**
	Santoshpur Pumping station near receiving shaft area	During construction*	26.12. 2015	16.68	57.95	28.71	81.22	ND
	Garden reach sewage treatment plant, Jacking shaft area	During construction*	26.12. 2015	15.4	53.98	28.30	79.95	ND
	Railway line at Solabigha	During construction*	26.12. 2015	15.69	48.81	36.44	82.46	ND
	Average During Construction*			**15.92**	**53.58**	**31.15**	**81.21**	**ND**
Standard				**80.0**	**80.0**	**60.0**	**100.0**	

Note- * During construction monitoring during July to December 2015 – Report period

25. Base line and during construction ambient noise level data is presented in **Table 13.** Noise level (base line and during construction) is always higher at working locations of package KEIIP/ICB/ Tr-1/WS & SD-04/13-14. Since all the working sites are within the main road and accordingly level of ambient noise is higher. Noise level is comparatively lower at Palta water works location, which is at an isolated area away from traffic route. In most of the cases Leq value is within the standard in respect to commercial area standard but above the limit when compared to residential area standard. In all the cases mitigation measures need to be applied as per site specific EMP.

Table 13: Base Line 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)
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
	Gardenreach Intake point and treatment plant-near Surinamghat	Base line	07.03.2015	53.57	52.49

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
	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**
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**	
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 and Begore khal PS 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	Base line	27.12.2014	60.74	52.26

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
	road – near Barisha Youth club				
	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 khal PS location- near Behala Airport	During construction*	31.12.2015	57.15	51.83
	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**
Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant **KEIIP/NCB/ Tr-1/SD-06/13-14**	Santoshpur pumping station receiving shaft	Base line	02.01.2015	57.83	**-**
	Jacking shaft area- Garden reach Treatment plant	Base line	02.01.2015	74.70	-
	Intermediate location between Jacking shaft and receiving shaft Railway line at Solabigha	Base line	02.01.2015	64.70	-
	Average base line			**65.74**	**-**
	Santoshpur pumping station receiving shaft	During construction*	26.12.2015	62.90	53.47
	Jacking shaft area- Garden reach Treatment plant	During construction*	26.12.2015	62.16	11.05
	Intermediate location between Jacking shaft and receiving shaft Railway line at Solabigha	During construction*	26.12.2015	62.89	62.42
	Average During construction*			**62.65**	**42.31**
Standard		**Day time:** Industrial area:75 Commercial: 65 Residential area: 55			

Package	Sampling Locations	Implementation Stage	Date of Monitoring	Day Time Leq dB(A)	Night Time Leq dB(A)
		Night time: Industrial area:70 Commercial: 55 Residential area: 45			

* Base line monitoring done during period June to December 2014

26. Since water source is involved for the package "Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach", water quality was monitored for the said package. Results indicate that concentration for monitored parameters during construction is within the limit. No as such increasing and decreasing trends are noted.

Table 14: Water quality monitoring data for Package KEIIP/ICB/ Tr-1/WS02/2013-14- Base line monitoring

Sl. No.	Parameters	SW1	SW2*	SW3	SW4*	Limit
	Date of sampling	**04.03.2015**	**26.09.2015**	**04.03.2015**	**26.09.2015**	
1	pH	7.27		7.42		6.5 – 8.5**
2	Total Hardness as CaCO3 (mg/l)	104.0		112.0		600.0
3	Calcium as Mg(mg/l)	33.67	38.8	33.67	94.8	200.0
4	Magnesium as Mg (mg/l)	4.8		6.72		100.0
5	Chloride as Cl (mg/l)	23.96	14.8	23.96	17.2	1000.0
6	Iron as Fe (mg/l)	2.5		2.72		1.0
7	Arsenic (mg/l)	<0.01		<0.01		0.05**
8	Cadmium (mg/l)	<0.01		<0.01		0.01**
9	Hexavalent Chromium (mg/l)	<0.05		<0.05		0.05**
10	Copper as Cu (mg/l)	<0.04		<0.04		1.5
11	Cyanide(mg/l)	<0.05		<0.05		0.05
12	Lead (mg/l)	<0.05		<0.05		0.05**
13	Mercury (mg/l)	<0.001		<0.001		0.001**
14	Nitrate as NO_3 (mg/l)	6.50		8.50		100.0
15	Total Dissolved Solid (mg/l)	295.0	210.00	313.0	280.0	2000.0
16	Phenolic Compounds as Phenol(mg/l)	<0.002		<0.002		0.002
17	Zinc as Zn (mg/l)	0.05		0.03		15.0
18	Sulphate as SO4 (mg/l)	31.0		29.0		400.0
19	Turbidity (NTU)	6.0	1.0	7.0	1.0	10.0
20	Residual Free Chloride (mg/l)	<0.04		<0.04		0.2**
21	Fluoride (mg/l)	<0.1		<0.1		1.5
22	Manganese (mg/l)	<0.1		<0.1		0.3
23	COD (mg/l)	40.0		50.0		250.0
24	BOD (mg/l)	12.0	<2.0	14.0	<2.0	30.0
25	Alkalinity (mg/l)	140.0		140.0		600.0
26	Aluminium (mg/l)	<0.02		<0.02		0.2
27	Boron (mg/l)	<0.1	<0.1	<0.1	<0.1	5.0
28	Total Suspended Solids (mg/l)	37.0		42.0		100.0

**Desirable limit and permissible limit are same due to no relaxation for permissible limit as per BIS 10500, 1991 (Revised)

Locations: SW1: Ganges river water at Palta intake jetty- upstream (Base line)
*SW2: Ganges river water at Palta intake jetty upstream (During construction)
SW3: Ganges river water at Palta intake jetty- downstream (Base line)
*SW4: Ganges river water at Palta intake jetty- downstream (During construction)

27. “During construction” air quality, noise level and water quality 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 14).**

28. A performance monitoring fact sheet has been prepared to facilitate tracking and quick reference on environmental monitoring of Tranche 1 subproject packages **(Tables 15 and 16).**

Table 15: 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	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
2	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 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
3	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
4	Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant **(KEIIP/NCB/ Tr-1/SD-06/13-14)**	M/s Siimplex Krita 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

Table 16: 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[25]	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	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	2	n/a	n/a	n/a	2	2	n/a	n/a	2
2	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 ITD- ITD CEM Jv	Yes	Nominated	Complied (2)	2	2	2	2	2	2	2	2	n/a	2	2	n/a	2

[25]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[25]	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	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)	2	2	1	2	2	1	n/a	1	n/a	1	1	n/a	2
4	Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant **(KEIIP/NCB/ Tr-1/SD-06/13-14)**	M/s Siimplex Krita JV	Yes	Nominated	Complied (2)	2	2	1	2	2	n/a	n/a	2	n/a	1	1	n/a	1

Note calculation of numerical value for determining performance status- Calculation is based on addition of numerical value like below-
Package - KEIIP/ICB/ Tr-1/WS02/2013-14= Total score- 2+2+2+2+2+2+2+2 = 16. Number of field=13, Then- 16/13=More than 1 (Complied)
Package- KEIIP/ICB/ Tr-1/SD-05/13-14= Total score- 2+2+2+2+2+2+2+2= 16. Number of field=13, Then- 16/13=More than 1 (Complied)
Package- KEIIP/ICB/ Tr-1/SD-05/13-14= Total score- 2+2+1+2+2+1+1+1+1+2= 15. Number of field=13, Then- 15/13=More than 1 (Complied)
Package- KEIIP/NCB/ Tr-1/SD-06/13-14= Total score- 2+2+1+2+2+2+1+1+1= 14. Number of field=13, Then- 14/13=More than 1 (Complied)}

VI. CONSULTATIONS AND DISCLOSURES CONDUCTED

29. As per approved IEE, consultations and disclosure will be a continuous process throughout Project 1 implementation involving public consultations and focus group discussions. However, no "planned" consultation and disclosures were conducted during the reporting period but informal consultations were carried out with local people, pedestrian, etc.

30. The indicative schedule for consultations and disclosure is presented in **Table 17. Appendix 15** shows sample consultation sheet as provided by the contractor.

Table 17: 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	By 15th February 2016	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. On environmental issues of KEIIP a meeting at the WBPCB office was held on 1st December 2015 in which Chairman, Member Secretary, Chief Engineer and other engineers of WBPCB were present. The officials of WBPCB were apprised about the proposed work program of Tranche 1 and 2 of KEIIP. **Appendix 16** shows Minutes of the Meeting.

VII. GRIEVANCE REDRESSAL

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

34. 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.

35. 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.

36. 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.

37. 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.

38. 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 WhatsAp as the case may be.

39. 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.

40. **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).26 Still unresolved issues will be referred to an appropriate court of law.

41. 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

42. **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.

43. 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.

[26] 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.

44. 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 Form). 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.

45. 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.

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

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

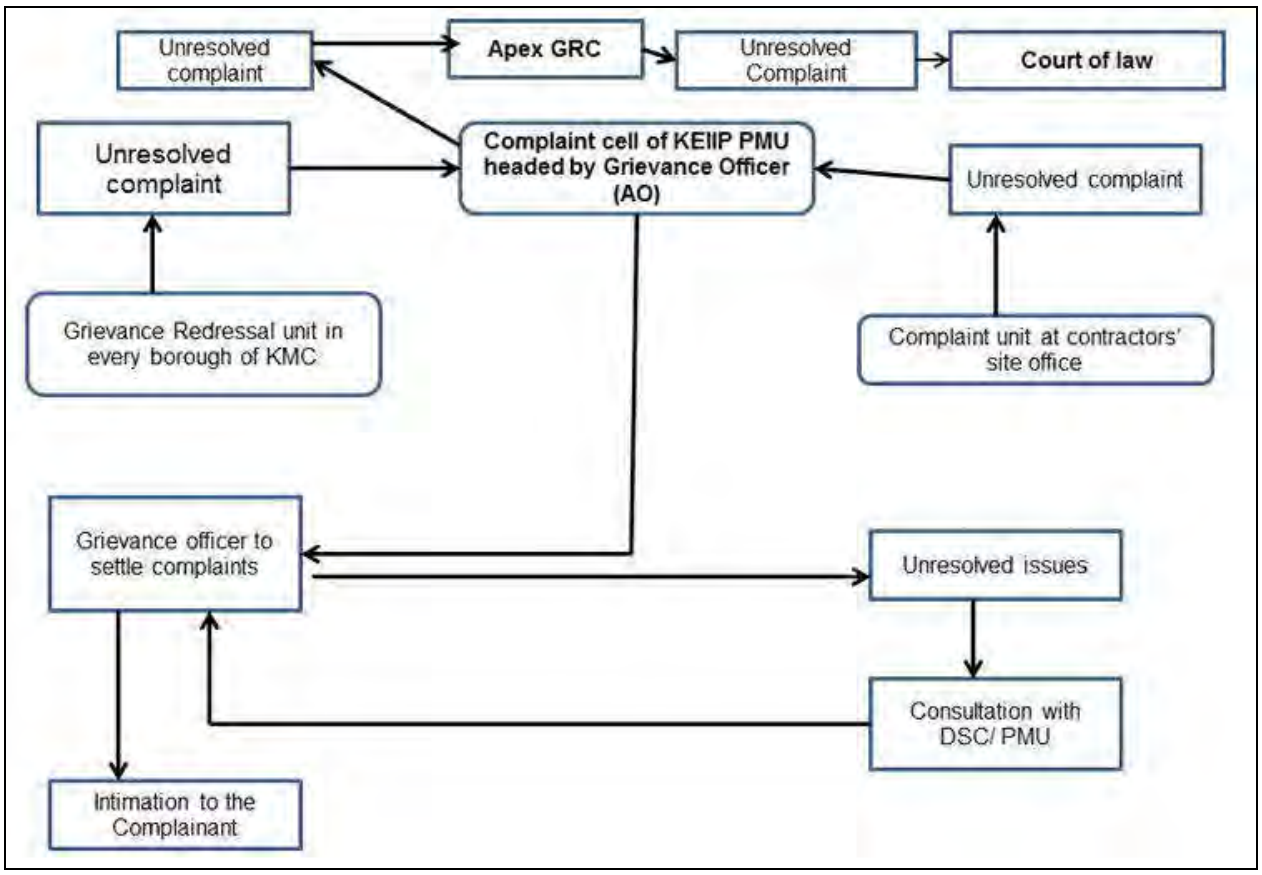


Figure 4: Grievance Redress Mechanism

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

VIII. FINDINGS AND RECOMMENDATIONS

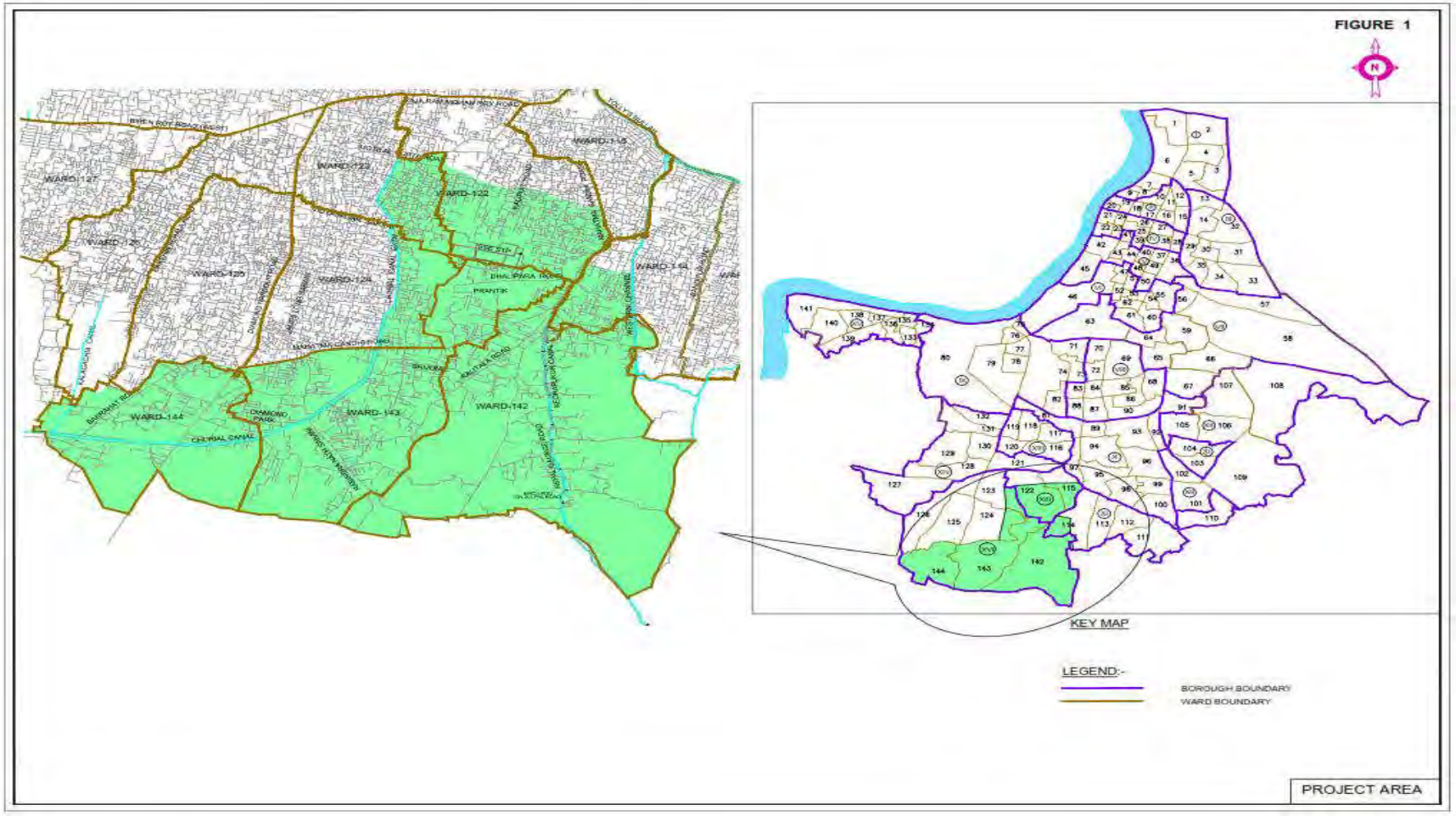
49. Based on the foregoing observations, findings and environmental monitoring carried out from July to December 2015, it may be concluded that KEIIP Tranche 1 sub projects have been implemented in almost full compliance of the required environmental safeguards. Minor, localised and short duration non-compliances in a few packages of works during this period have been listed in paragraph 20.

50. **Table 18** 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.

Table 18: Corrective Action Plan

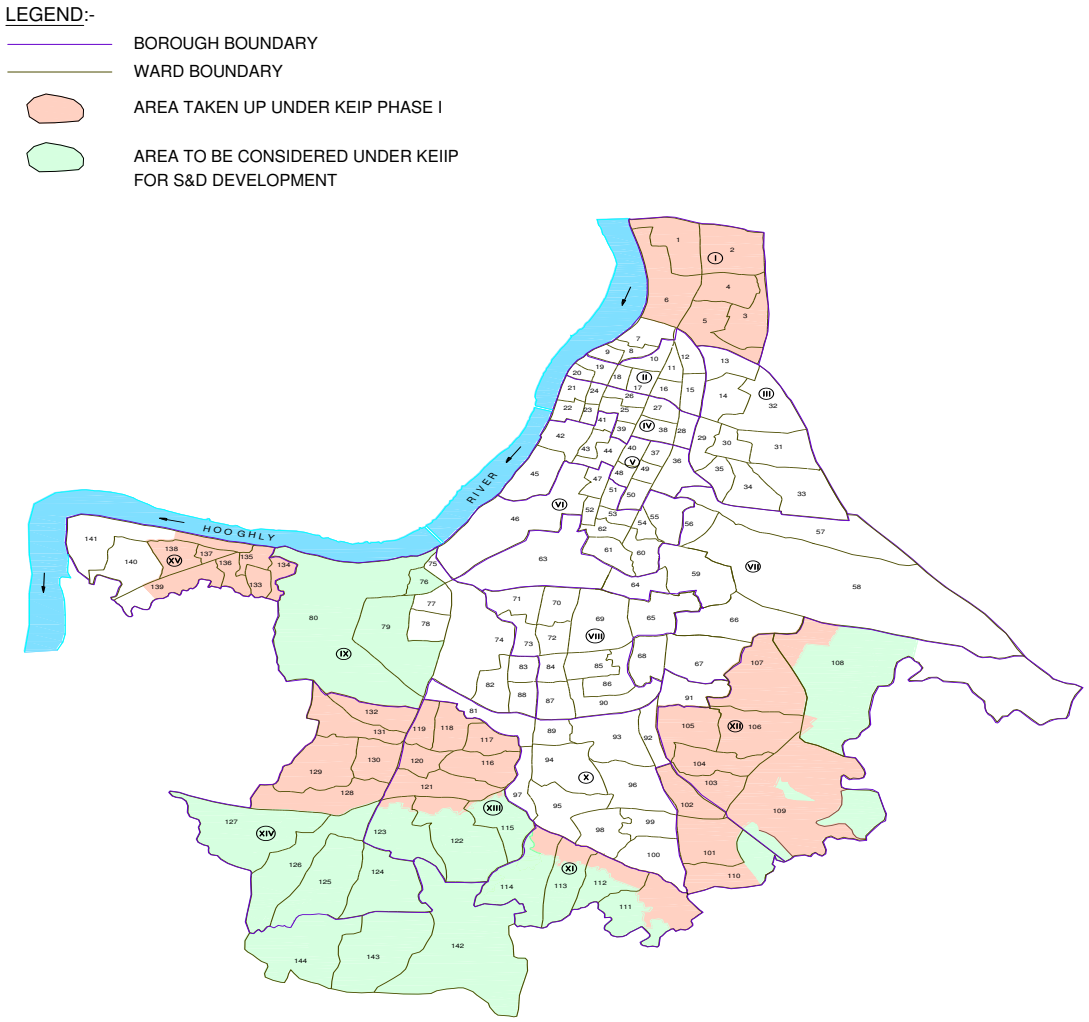
	Non-compliance	Action Required	Responsible	Target Date	Indicator of Compliance
1	Materials storage and lay-down area of equipment in some places needs more satisfactory management	Improvement of materials storage and lay-down area of equipment	Contractor	15th February 2016	Site observation and record
2	Water sprinkling in some places is not done according to the site conditions	Regular water sprinkling as per site condition	Contractor	Continue process	Site observation and reaction from local community
3	More comprehensive Tool box training for labourers is required	Induction and tool box training on regular basis	Contractor	15th February 2016	Training document, photographs
4	Housekeeping at some parts of the camps and working sites needs attention	Improvement of housekeeping	Contractor	15th February 2016	Site observation and record
5	Use of PPE by contractors' site workers is not always maintained	Use of PPE should be at all times as per site condition and work type.	Contractor	15th February 2016	Availability and use of PPE
6	Improper and insufficient barricading. Absence of hard barricading	Complete barricading and complete use of caution tape at all working sites	Contractor	15th February 2016	Site observation
7	Irregular disposal of excess earth and spoil	Regular disposal of construction waste, excess earth/ spoil	Contractor	15th February 2016	Site observation and disposal record
8	Unsatisfactory access of public movement along pipe laying area. Closing of road without information to locals	Proper access of public at working area. Arrangement of wooden/ metal platform	Contractor	15th February 2016	Site observation

APPENDIX 1: LOCATION MAP PROJECT AREA



Project Area – water Supply project

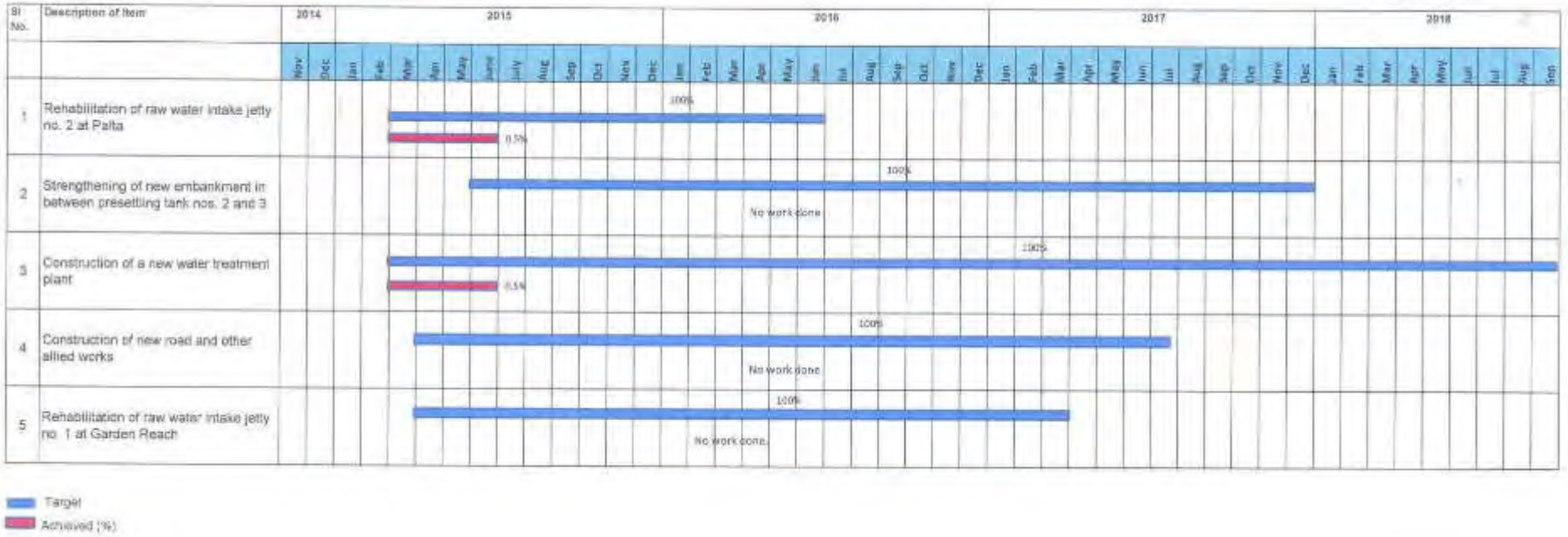
Sewerage and Drainage Project Area



APPENDIX 2: IMPLEMENTATION SCHEDULE

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

PACKAGE - WS 02



REHABILITATION AND REFURBISHMENT OF WATER WORKS AT PALTA AND GARDEN REACH (WS/02)

		2014		2015											2016		
		Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	**BILL NO. - 01**																	
	Rehabilitation of Raw water intake Jetty no. 2 at Palta (15%)					0.34		0.08	0.09	0.11	0.10	0.15	0.10	0.23	0.41	0.33	0.28	0.26
2	**BILL NO. - 02**																	
	Strengthening of new embankment in between PST No. 2 & 3 (8%)					0.18		0.04	0.04	0.06	0.04	0.06	0.05	0.12	0.22	0.17	0.15	0.14
3	**BILL NO. - 04**																	
	Constrcution of new water treatment plant at Palta (43%)					0.99		0.22	0.28	0.32	0.27	0.42	0.26	0.67	1.14	0.94	0.80	0.78
4	**BILL NO. - 05**																	
	Construction of new road, culvert & other works at Palta (22%)					0.45		0.11	0.13	0.16	0.14	0.22	0.13	0.34	0.59	0.48	0.41	0.38
5	**BILL NO. - 06**																	
	Rehabilitation of Raw water intake Jetty no. 1 at Garden reach (12%)					0.27		0.06	0.07	0.09	0.07	0.12	0.07	0.19	0.32	0.26	0.22	0.20
	Monthly Weightage (%)					**2.23**		**0.51**	**0.61**	**0.74**	**0.62**	**0.99**	**0.61**	**1.55**	**2.68**	**2.18**	**1.86**	**1.76**
	Cumulative weightage (%)					**2.23**	**2.23**	**2.74**	**3.35**	**4.09**	**4.71**	**5.70**	**6.31**	**7.86**	**10.54**	**12.72**	**14.58**	**16.34**
	Achievement					0.2	0.4	0.6	1.2	2.1	3	4	4.5	6.5				

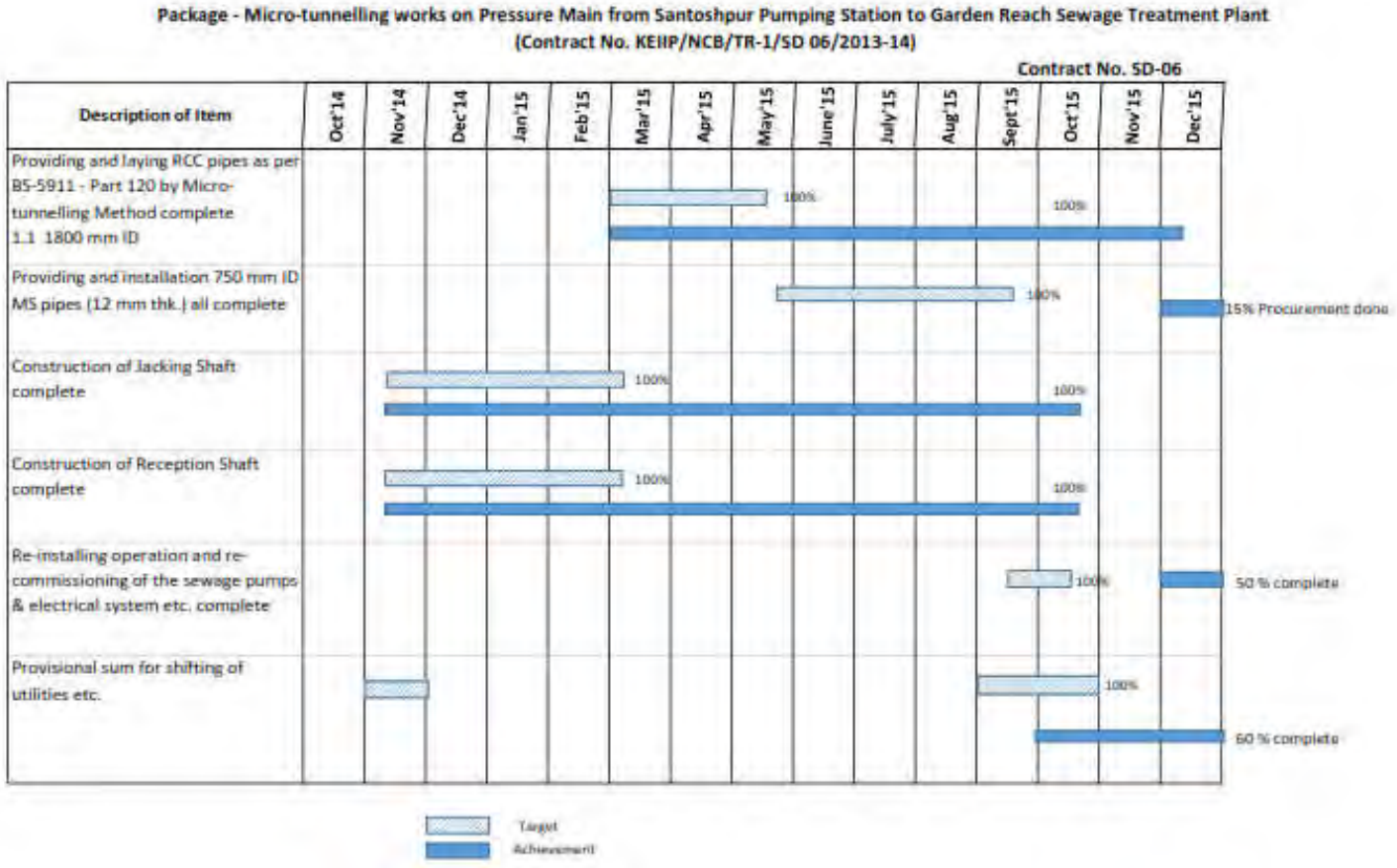
Package- Laying of water trunk main from Garden Reach waterworks to Taratala valve station and laying of sewer line along Diamond Harbour Road by Micro tunneling method KEIIP/ICB/ Tr-1/WS & SD-04/13-14

LAYING OF WATER TRUNK MAIN FROM GARDEN REACH WATER WORKS TO TARATALA VALVE STATION AND LAYING OF SEWER LINE ALONG DIMOND HARBOUR ROAD PACKAGE NO. KEIIP/ICB/T-1/WS &SD/04/13-14

	Activity	Quantity	Year 2014								Year 2015												Year 2016												Year 2017				Total
			1 May	2 Jun	3 Jul	4 Aug	5 Sep	6 Oct	7 Nov	8 Dec	9 Jan	10 Feb	11 March	12 Apr	13 May	14 Jun	15 Jul	16 Aug	17 Sep	18 Oct	19 Nov	20 Dec	21 Jan	22 Feb	23 Mar	24 Apr	25 May	26 June	27 July	28 Aug	29 Sep	30 Oct	31 Nov	32 Dec	33 Jan	34 Feb	35 Mar	36 Apr	
1	Issue of LOA																																					
2	Receipt of Mobilisation Advance																																					
3	Site Survey & Layout Fixing																																					
4	Soil Investigation																																					
5	Approval of Alignment by EPIP																																					
6	Design for shaft/Tunnel submission																																					
7	Approval of design by EPIP																																					
8	Site setup (store , Office Workshop)																																					
9	Utility identification & Relocation																																					
10	Mobilisation of MTBM-1																																					
11	Mobilisation of MTBM-2																																					
12	Mobilisation of MTBM-3																																					
13	Construction of Shaft	30 Nos.								0.6250	1.00	0.6250	1.00	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.00	0.00	0.6250	0.6250	0.6250	0.6250											12.50
	Procurement									20%																													
Water Trunk main along Taratala Road																																						
14	Supply of 1525 mm. dia MS Pipe	4850 Mtrs.					2.00	2.00	2.00	2.00	2.00	2.00																											12.50
	Procurement															81%																							
14 (f)	Cement Mortar Lining	4850 Mtrs						1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03																						12.50
	Procurement																80%																						
14 (d)	Microtunnelling work	4850 Mtrs.											0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.6250	0.75	0.6250	0.6250	0.6250	0.6250	0.6250	0.75	0.6250	0.75	0.6250	0.6250	0.6250	0.75						12.50
													50%																									
14 (e)	Testing & Commissioning	4850 Mtrs.																										1.00	1.00	1.00	1.00	1.00	1.00						12.50
SEWER Line along Sakhar Bazar to Zoka D H. Road																																						
15	R.C.C. Pipe Procurement with laying																																					
15 (i)	1600 mm. dia pipe	485.7 Mtrs.																			0.88	0.88																	1.75
	Completed	477.0M														100%																							
15 (ii)	1200 mm. dia pipe	1302.0 Mtrs.												0.50	0.50	0.50	0.50	0.50	0.50																				3.25
15 (iii)	1400 mm. dia pipe	2524.1 Mtrs.																					0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	7.50
	Procurement													50%																									
15 (iv)	Testing & Commissioning	4850.7 Mtrs.																													2.50	2.50	2.50	2.50	2.50				12.50
16	Road Restoration																															2.50	2.50	2.50	2.50	2.50	2.50	12.50
			2.01	3.03	3.13	4.25	4.13	4.25	4.25	4.25	4.13	4.25	4.25	3.38	3.38	3.88	3.00	3.00	1.88	1.25	2.25	2.38	2.00	1.75	1.75	2.00	1.75	3.25	3.13	3.13	3.25	3.13	5.50	5.50	5.50	5.63	2.50	2.62	100.00

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)

Package- Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant KEIIP/NCB/ Tr-1/SD-06/13-14

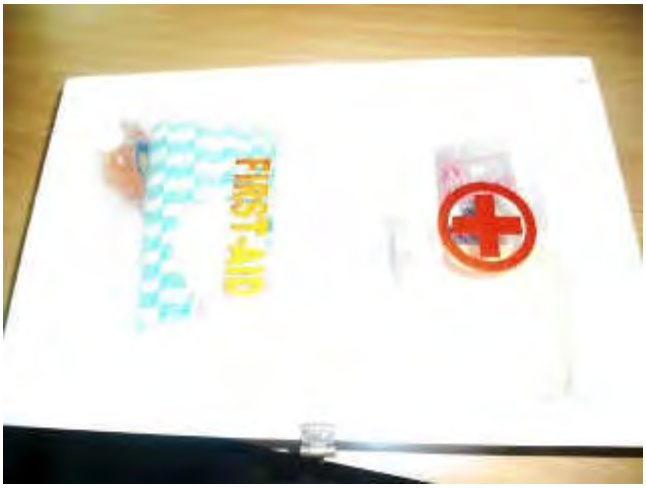


APPENDIX 3: PHOTO ILLUSTRATION

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

Labour camp within Palta WTP

Toilet arrangement at camp



First Aid box arranged

Barricading near jetty area at Palta

Training for the labourer at Palta

Use of PPE by worker

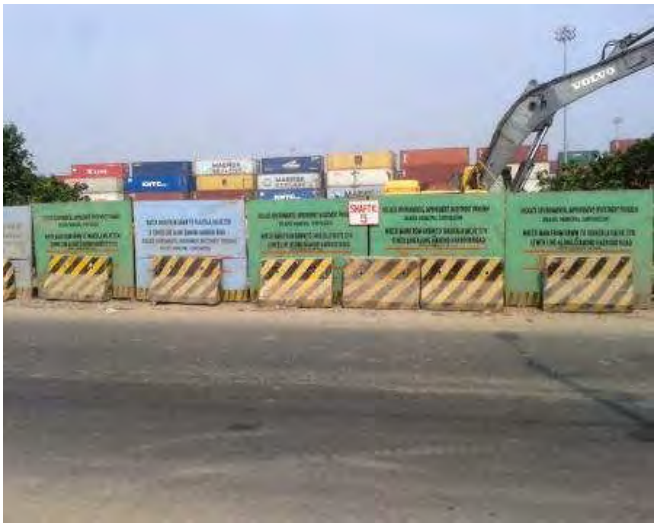
Jetty construction work going on

Demolition of WTP going on

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

Hard barricading at D H road

DH road shaft no 3- barricade with work detail display



Hard Barricading Taratala Road shaft 5

Display of emergency number at working location

Hard Barricading with diversion sign at Taratala Road

Labour hutment – rented house

Caution Board at worksite – DH Road

First aidStation at working site

Availability of First aid box

Toilet facility for worker

Drinking water/ filter facility for worker

Internal Training program – Health and Safety

Training program for worker

Internal Training program – Health and Safety

Site observation by Environment Specialist of DSC and PMU and training for contractor

Use of PPE by workers noted

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

Pipe-laying work at Panchkari Ghosh Road

Storage of fuel at working camp

Emergency contact number at Joka Pumping station work site

First aid box available at working site

Caution tape noted. Access to site at pipe laying area is poor

Road closure by work display board

Spoil stored at site of pipe laying area – affect public movement

Hard barricading and wooden platform for access to site- noted

Partial use of PPE by worker

Storage of fuel and lubricant over platform – noted

Drains are covered with wooden plate at working site after necessary instruction

Internal discussion and Training for contractor

Package: Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant

Work display board at working site

Caution board at working site

Labour camp within Santoshpur pumping station

Use of PPE by contractor – working within pit

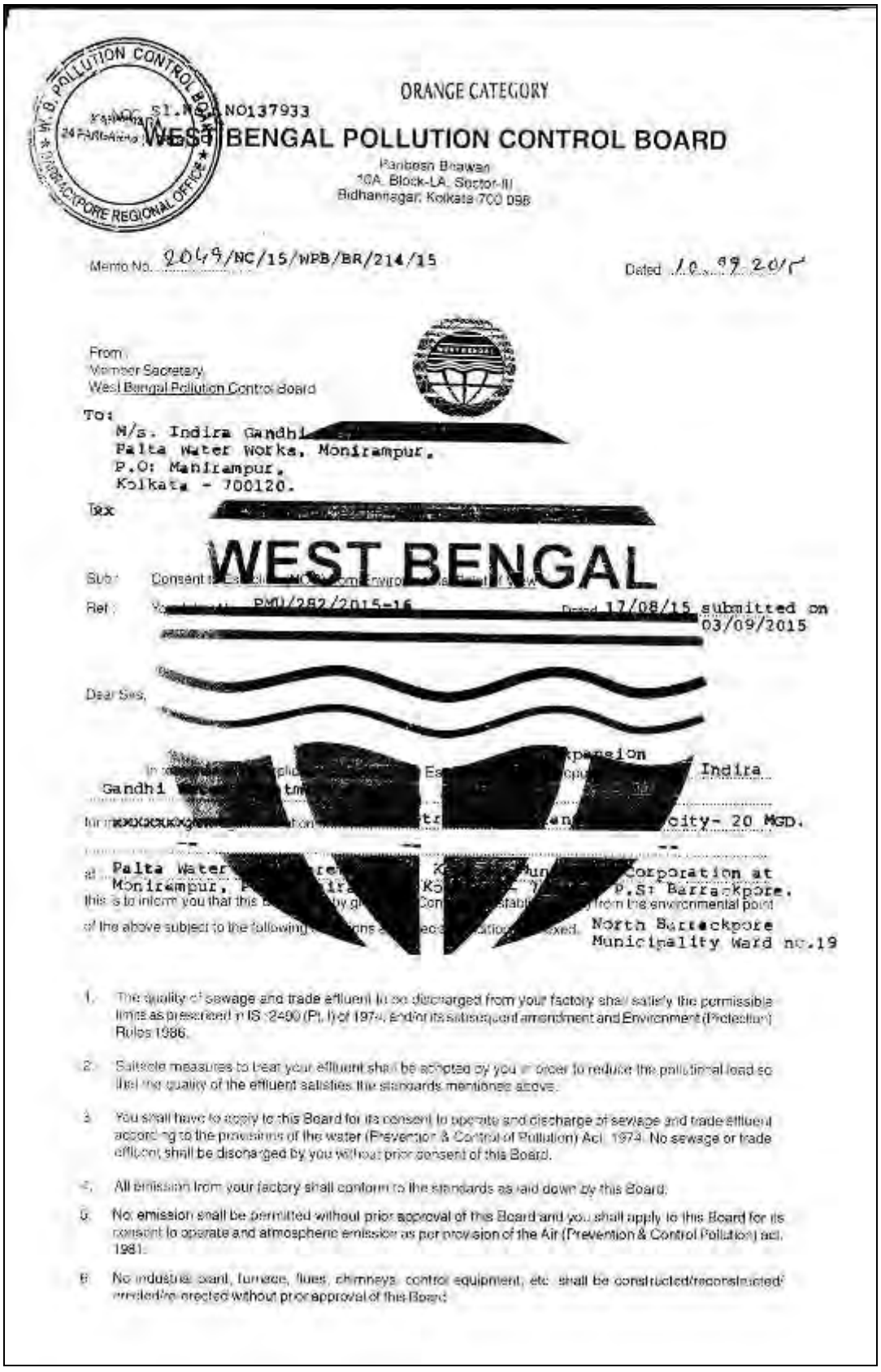
First aid arrangement at working site

Excess earth needs to dispose at Santoshpur MPS location

Drinking water arrangement at working site

Caution tape noted at working site

APPENDIX 4: CTE FOR PALTA WTP



ORANGE CATEGORY

NO137933

WEST BENGAL POLLUTION CONTROL BOARD

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

Memo No. 2049/NC/15/WPB/BR/214/15 Dated 10.09.2015

From :
Member Secretary
West Bengal Pollution Control Board

To:
M/s. Indira Gandhi
Palta Water Works, Monirampur,
P.O: Manirampur,
Kolkata - 700120.

WEST BENGAL

Sub : Consent

Ref : PMU/282/2015-16 Dated 17/08/15 submitted on 03/09/2015

Dear Sirs,

Indira Gandhi

city- 20 MGD.

Palta Water Corporation at Monirampur, P.St Barrackpore.

this is to inform you that this

from the environmental point of the above subject to the following

North Barrackpore Municipality Ward no.19

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/ remodelled/ erected without prior approval of this Board.

NOC Sl.No. NO137934 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 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

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.

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

Yours faithfully,

05/05/15

Dr. Santhosh Narayan
Senior Environmental Engineer
Kankinara Circle Office
W.B. Pollution Control Board

for 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, I/II/Alipur R.O./Howrah R.O./Hooghly 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. Panpur
Kalyani Expressway
P.O. Narayanpur
Dist. 24 Pgs. (N)

Sahid Khudiram Sarani
City Centre, Durgapur-16
Dist. Burdwan

10, Camac Street
2nd Floor
Kolkata-700 017

Paribesh Bhawan
10A, LA-Block, Sector-III
Salt Lake City,
Kolkata - 700 098

Block-05 at 40
Flats Complex
Adjacent to Priyambada
Housing Estate
P.O. : Khanjanchak,
P.S. Durgachak
Haldia-721602
Dist. : Purba Medinipur

Paribahan Nagar
Matigara, Siliguri
Dist.-Darjeeling

Satya Chowdhary
Indoor Stadium
Balurchar Bypass Road
Malda-732101

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

W.B. POLLUTION CONTROL BOARD * BARRACKPORE REGIONAL OFFICE * KANKINARA

Member Secretary,
West Bengal Pollution Control Board

Annexure to NOC Sl. No. : NO137933
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 filters needs to 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 of [illegible]

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 environmental 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 in 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 waters 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 or will be by Competent Authority as per the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005.
15. The land 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, 1948 and subsequent rules.
17. No Water body shall be filled and no embankments shall be cemented. The Water Bodies if any are 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 sixty years for setting up the unit effective from the date of issuance of the certificate.

W.B. POLLUTION CONTROL BOARD KANCHRAPARA 24 PARGANAS (NORTH)

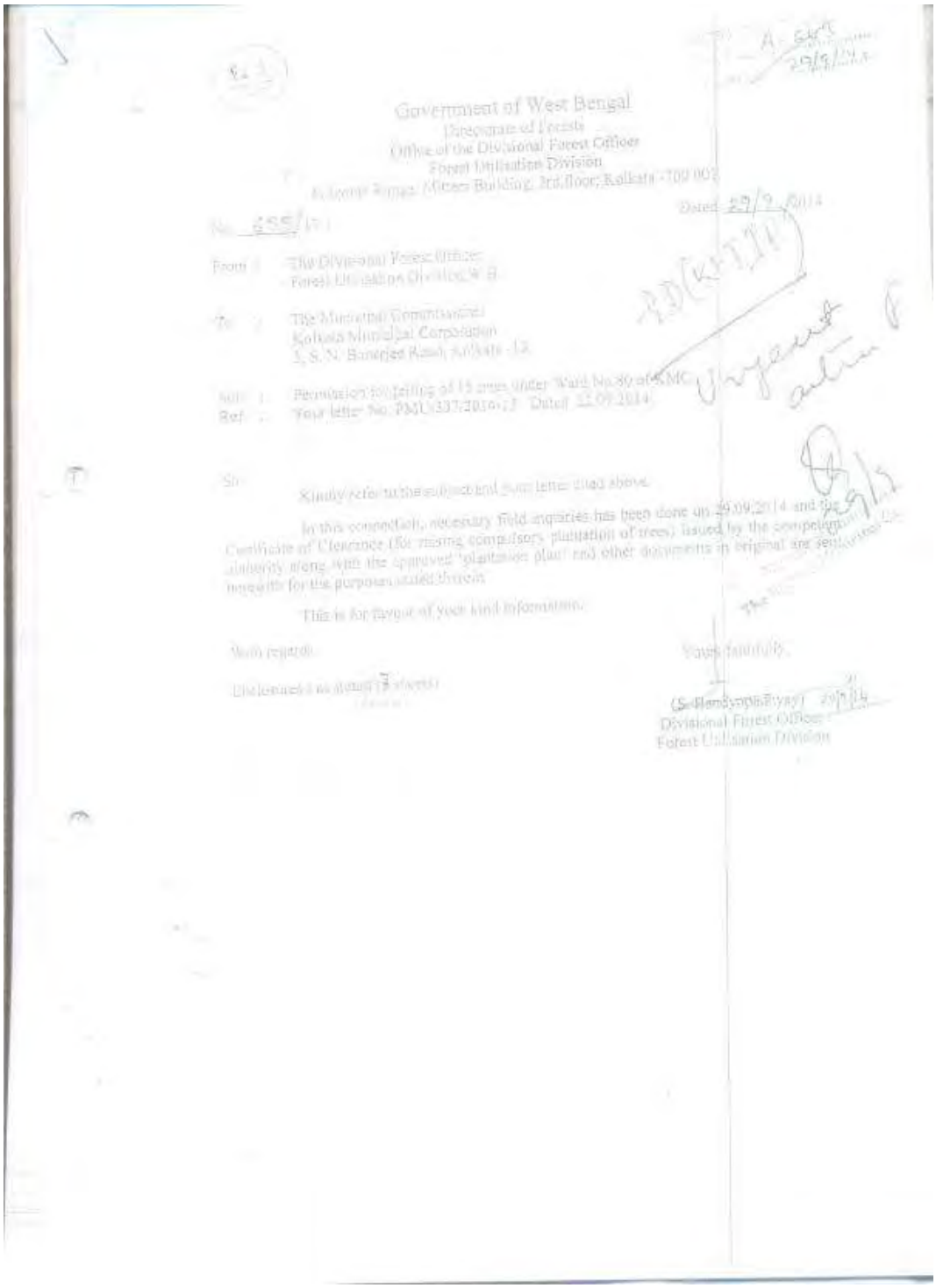
09/09/15

Senior Environmental Engineer
Dr. Somnath Narayan
Senior Environmental Engineer
Kanchrapara Circle Office
W.B., Pollution Control Board

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/ erected/re-erected without prior approval of this Board.

APPENDIX 5: TREE FELLING NOC FOR PACAKAGE – KEIIP/ICB/ TR-1/SD-05/13-14



Government of West Bengal
Directorate of Forests
Office of the Divisional Forest Officer
Forest Utilisation Division

From : The Divisional Forest Officer
Forest Utilisation Division, W.B.

To : The Municipal Commissioner
Kolkata Municipal Corporation
5, S.N. Banerjee Road, Kolkata -13

Sub : Permission for felling of 15 trees under Ward No.89 of KMC.
Ref : Your letter No. PMU/337/2010-11 Dated 22.09.2014

Sir,

Kindly refer to the subject and your letter cited above.

In this connection, necessary field enquiries has been done on 29.09.2014 and the Certificate of Clearance (for issuing compulsory plantation of trees) issued by the competent authority along with the approved 'plantation plan' and other documents in original are sent herewith for the purpose stated therein.

This is for favour of your kind information.

With regards,

Yours faithfully,

Divisional Forest Officer
Forest Utilisation Division

THE KOLKATA GAZETTE, EXTRAORDINARY, FEBRUARY 8, 2007 [illegible]

Form IV

Form for Certificate of Clearance for Developers
[see Rule 7 (5)]

Certificate No. 62/Clearance/14 Dated : 29/09/2014

Whereas the developer, Sri/Smt /Messrs :- Md. Ghulam Ali Ansari, IAS, Project Director, Kolkata Environment Improvement Investment Programme (KEIIP)

Address : Unnayan Bhavan, 200, A.J.C. Bose Road, Kolkata -700 017, has submitted an application with the prescribed fee on ... 29.09.2014 ... for Certificate of Clearance for the following developmental project :-

(a) Name of Project : Construction for laying of Water trunk main from Taratala Valve Station to Garden Reach water works, KMC along Taratala Road (by Microtunneling)

(b) Location : Left / Right flank of Taratala Road in between Taratala Valve Station and Jinjirabazar crossing, Kolkata.

(c) Details of Plot(s) of Land : Location mentioned in item (b) above in Ward No. 80 of Kolkata Municipal Corporation, P.S. -Behalapolice-

(d) Total Area (in Ha.) : not available/not ascertainable at present (laying of water trunk)

AND Whereas the aforesaid developer has also submitted a plantation plan in the prescribed format;

AND Whereas the undersigned has approved the said plantation plan after satisfying himself on proper scrutiny of the plan and completing the field inquiry that the proposed plantation of trees as shown in the plantation plan is in accordance with the provisions of the West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006 and the rules made there under;

AND Whereas the concurrence of the West Bengal Pollution Control Board has been obtained vide their letter No. ... ES/2371/T-1-3/001/2006/(1) dated 07.12.2007 being their general concurrence.

Now, therefore, the undersigned issues this Certificate of Clearance in favour of the aforesaid developer in accordance with sub-section (4) of section 9 of the West Bengal Trees (Protection and Conservation in Non-Forest Areas) Act, 2006, subject to the following conditions :-

1. This Certificate is non-transferable.

2. The developer shall take up plantation of 75(seventy five) nos. of trees over ... location(s) shown in approved plantation plan ... Ha (subject to a minimum of 5 times the trees, if any, to be felled) in the same and adjacent plot (s) of the land being developed at (a) along both flanks of Taratala Road, Kolkata and (b) inside Garden Reach Water Works of KMC – beside Santoshpur Road on Nature Park, in accordance with the approved plantation plan and complete the same within 1 (one) ... month from issuance of Certificate of Clearance. ~~from the date of sanction of the building construction plan by the sanctioning authority.~~

APPENDIX 6: SITE SPECIFIC EMP

Site Specific Environmental Management Plan

OCTOBER 2015

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: October 2015

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Infrastructure and Services	Telephone lines, electric poles and wires, water lines within proposed project area of IGWTPs, sewer line, etc.	Electric cables, water lines have not been found till date. Fast we are digging the trial pit manually, if any obstructions have come, the same will be 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 doing 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 allowed at site and it is 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 can not disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	

DSC = Design and Supervision Consultant, EIA = Environmental Impact Assessment, O & M = Operation and Maintenance, KEIIP = Kolkata Environment Improvement Investment Program

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 to dusts and increase in concentration of vehicle-related pollutants such as	Already baseline and during construction monitoring have been conducted Pollution Under Control Certificates to be collected for the vehicles presently engaged in project activity Materials carrying vehicle suitably cover. Covering of materials carrying vehicles-reducing dust hazard Covering or damp down sand/ earth stockpiled at site is maintained as per site condition	Air quality Monitoring data has been included in Environmental Monitoring Report.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	carbon monoxide, sulphur dioxides, particulate matter, nitrogen oxides, and hydrocarbons		
Drainage and hydrology	The proposed development is situated within an existing Palta water works. Due to the nature and locality of the projects there is unlikely 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 now. 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 river water source nearby the project locations. 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 disposed, consult with KEIIP / DSC on designated disposal areas; (iii) Storage areas for fuels and lubricants already selected away from any drainage leading to water bodies; (iv) Any wastes generated by construction activities dispose in designated sites; and (vi) Conducted surface quality inspection according to the Environmental Management Plan (EMP).	Surface water monitoring have been conducted in Environmental Monitoring Report.
Establishing equipment lay-down and storage area	After social life, public and transport movement	Equipment lay-down and storage areas designated and fenced. Choice of location for equipment lay-down and storage areas have 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, provided to prevent the migration of spillage.	
Biodiversity Fauna and Flora	Due to the nature and locality of the project there	No faunal activity within the impact zone till date. Within the river faunal impact is protect from jetty site..	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	is unlikely to any significant impacts on bio-diversity within the area.		
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials and people	Already contacted with air quality monitoring agency. Baseline and during construction monitoring has been conducted. We also follow the mitigation measures as mentioned in our bid documents as mentioned 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 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.
Landscape and Aesthetics character, and sense of place	Solid wastes as well as excess construction materials	We are using some excavated soil for new road filling purpose. We are maintaining our company's policy for Waste Management & also follow up the requirements of bid documents. • Solid waste has been managed according to the following preference hierarchy: reuse, recycling and disposal to designated areas; • All wreckage, rubbish disposed at pre-approved site inside the IGWTP.	Solid waste is utilized for filling purpose Company's policy for waste management & also follow up the requirements of bid document.
Accessibility/Traffic	Traffic problems and conflicts near project locations and haul road	(i) Transportation routes will be plan so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (ii) Schedule transport and hauling activities will be plan 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	Activities were started. Action was taking up with advancement of project activity.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		and contact numbers for concerns/complaints. (v) All work sites are properly barricaded.	
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 designated construction areas.	Company policies maintain.
Employment Generation	Generation of contractual employment and increase in local revenue.	• Local Workers are mostly working at site • Construction materials procured from local market.	
Occupational Health and Safety	Occupational hazards which can arise during work	Having OHSRA of our organisation and follow 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 were apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; • Moving equipment maintained with audible back-up alarms; • Workers disallowed of exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.	Company's health and safety guidelines followed
Community Health and Safety.	Traffic accidents and vehicle collision with	Having OHSRA of our organisation and follow the below mentioned mitigation measures**.**	Company's health and safety guidelines followed

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	pedestrians during material and construction waste transportation	(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.	
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; (iv) Solid waste managed according to the following preference hierarchy: reuse, recycling and disposal to designated areas; (v) All wreckage, rubbish, or temporary structures disposed at pre-approved sites inside IGWTP; and (vi) 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”	Company policy followed
Archaeological and Cultural characteristics	Risk of archaeological chance finds	Strictly follow the protocol for chance finds in any excavation work; No archaeological chances found 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.	Excavation work started. Action taken up as per requirement..

DSC = Design and Supervision Consultant, H&S = health and safety, RPM = reparable particulate matter, KEIIP = Kolkata Environment Improvement Investment Program,

Site Specific Environmental Management Plan (Revised)

DECEMBER 2015

PROJECT: **LAYING OF WATER TRUNK MAIN FROM GARDEN REACH WATER WORKS TO TARATALA VALVE STATION AND LAYING OF SEWER LINE ALONG DIAMOND HARBOUR ROAD BY MICROTUNNELING METHOD**

Contract No: **KEIIP/ICB/TR-1/WS & SD-04/2013-14**

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

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

CONTRACTOR: **ITD – ITD CEM JOINT VENTURE**

Prepared by

ITD-ITD CEM JOINT VENTURE

Pre Construction and Construction phase Site Specific Environmental Management Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Climate	The nature and intensity of rainfall events in an area, has implications for storm water management. Smoke from burning activities could be wider spread on windy days especially when dust could be blown off site.	Seasonal climatic variations during scheduling of construction activities in the area will be followed. Any excavation work will be done during dry season Storm water controlled as per method approved by PMU. As per company Health Safety & Environment (HSE) policy no open fires will be allowed	HSE work permit system of the company followed.
Air Quality	Sensitive receptors (e.g. hospitals, schools, churches) may be affected temporarily by increased traffic and related impacts during the construction phase (from the proposed detour). Fugitive dust can also impact on roadside air quality during construction. Exhaust fumes from construction machinery, and potential smoke from cooking fires. Burning of waste and cleared vegetation Odors from use of toilet 'facilities' other than provided facilities.	Guidelines that deal with the control of air pollution and dusts as per Environmental Management Plan (EMP) have been followed Compliance with the Air Act. has been ensured Compliance with emission standards has been ensured Air quality monitoring for base line environment and during construction monitoring is already taken up. Which will be continued during entire construction period Construction equipment and vehicles will be maintained regularly. Pollution Under Control Certificates have been collected for the vehicles and equipment presently engaged in project activity Materials carrying vehicle suitably cover. Covering of materials carrying vehicles-reducing dust hazard Covering or damp down sand/ earth stockpiled at site maintained as per site condition Open fires will be fully avoided at working sites Portable toilets have been provided at all working locations	Air quality Monitoring data included in Environmental Monitoring Report
Geology and soil	Strong water flows into open excavations below the water table will occur, causing micro-tunnel collapse. Layers of mixed fill cover natural ground surface in many places. Contamination from spillage of petroleum products, spent engine oil and oil leaks from construction vehicle maintenance taking place on site.	TBM will used for micro tunneling where proper drainage system is include. That drainage system shall be check regularly to control runoff from the micro-tunnels and open areas in line with topographical features of the site Rehabilitation at all sites during construction including stockpile area, temporary access and hauling routes, as soon as possible after the disturbance has ceased. Company to exercise strict care in the disposal of construction waste, with proof of disposal at an approved site provided after offloading each waste load and this logged/registered. Solid waste will be managed according to the following preference hierarchy: reuse, recycling and disposal to	Maintaining company's policy for Waste Management & also follow up the requirements of bid documents.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		designated areas. If oil spills occur, contaminated soil will be dispose at a disposal site in consultation with WBPCB. Stockpile subsoil and overburden in all construction and lay down areas. Concrete plinth Tray / Bin has shall be provided to avoid land pollution.	
Drainage and hydrology	The proposed development is situated within an existing built up area. Due to the nature and locality of the subproject there is unlikely 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. Pipeline is as a depth of 6 meter from ground level as indicated in tender. No major ground disturbance has been observed till now Waste management practices will be maintained Transport, storage, handling and disposal of hazardous substances will be done as per prevailing laws and approval of concerned authority	
Establishing Equipment Lay-down and Storage Area	Affect social life, public and transport movement	Choice of location for equipment lay-down and storage areas be taken into account as per site topography and water erosion potential of the soil. Impervious surfaces would be provided where necessary Storage areas secured so as to minimize the risk of crime. They shall also be safe from access by children / animals etc. It is very important that the proximity of residents, businesses, schools etc. will be taken into account when deciding on storage areas for hazardous substances or materials. Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area Equipment lay-down and storage areas have been designated, demarcated and fenced if necessary. Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used would be provided to prevent the migration of spillage into the ground	
Biodiversity Fauna and Flora	The proposed development is situated within an existing built up area. No areas of ecological diversity occur within the subproject location. Due to the nature and locality of the subproject there is unlikely to any significant	Divisional Forest Officer, Utilization Division, Kolkata given permission of felling of 17 trees along Taratala Road for laying of water main, and at the same time instructed to plant 75 trees along the road as compensatory afforestation. Till date 15 nos. trees have been cut & 75 nos. tree plantation	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	impacts on biodiversity within the area The pipe laying for the transmission mains may however affect existing roadside trees.	done. No faunal activity within the impact zone Landscaping will be undertaken with locally indigenous species and low maintenance requirements.	
Land Uses	Due to the location and nature of the subproject, there will be interference with access Existing public transport facilities and operations will be affected by the road closure and detours. Shops and establishments are located along the transmission mains alignment therefore will need to be relocated during construction. This may impact on livelihoods. There will be disruptions to health services, education services, local businesses, transport services, pedestrian movements, due to traffic and construction related noise, visual, and air pollution.	Project executing agency and consultant have consulted with various organizations, departments, etc within the area and will be continued during the construction phase. HSE caution board has been display at all site location to aware people Walkways and metal sheets will be provided if required to maintain access across for people and vehicles. Workforce will be increased in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools. Businesses and institutions consulted regarding operating hours and factoring this in work schedules.	
Infrastructure and Services	There is likely to have temporary disruption of infrastructure and services during the pipe laying of the transmission mains. There are a number of existing infrastructure and services (roads, railway lines, telecommunication lines, power lines and various pipelines within the vicinity of the subproject.	Utility shifting will be done by utility agency prior to commencing pipe laying/micro-tunneling for new site Keep construction-related disturbances to a minimum. Affected service providers will be consulted regarding impacts on access to infrastructure and services and alternatives. Affected communities or businesses will be consulted prior to foreseeable disruptions, for example notifying residents of a temporary severance of water supply. Executing agency and consultant have consulted with various organizations, departments, to provide access points for infrastructures and services. Regular monitoring and resolving the complaints by the public will be done by company/ DSC/ KMC	
Traffic	Increased volume of construction vehicles on the roads may lead to increased wear and tear of roads in the vicinity of the subproject site. Road safety concerns due to slow moving construction vehicles.	Traffic Management Plan is prepared and permission is obtained from Traffic Police Dept. TMP ensured safety of all the road-users along the work zone and to address: (i) protection of work crews from hazards associated with moving traffic; (ii) mitigation of the adverse impact to the road capacity and delays to the road-users; (iii) maintenance of	Before starting of project activities on the road TMP needs to be approved from DSC/ KMC and Traffic Police Dept.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	Traffic flow within the vicinity will be affected. The temporary road closure will result in a decrease in overall network performance in terms of queuing delay, travel times/speeds. The road closure will impact on a public transport operations and routing. On street parking and loading bays will be affected by the proposed road closure. Pedestrian movements will be affected by the road closure.	access to adjoining properties; and (iv) issues that may delay the subproject works. Schedule transport and hauling activities be plan during non-peak hours Site will be free from all unnecessary obstructions. Affected sensitive receptors if any will be notified by providing sign boards informing nature and duration of construction works Privately-owned public transport operators will be negotiated regarding the affected public transport facilities and routing. Business owners and social service operations will be negotiated regarding the loss of parking and loading bays. Clear roads signs has been arranged and to be maintained for the full length of the construction period. City Traffic Police available on site (as per requirement). All working sites barricaded Communicate will be done for road closure/diversion together with the proposed detour via advertising, pamphlets, road signage, etc. The implementation of the road detour is also dependent on advance road signage indicating the road detour and alternative routes. Construction area clearly defined Deliveries during peak traffic hours will be not allowed	
Health and Safety	Danger of construction related injuries. Open fires in construction camp can result in accidents Safety of workers and general public must be ensured. Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases. Standing water due to inadequate storm water drainage systems, inadequate waste management practices, pose a health hazard to providing breeding grounds for disease vectors such as mosquitoes, flies and snails. The use of hazardous chemicals in the micro-tunnelling and restoration of roads can pose potential environmental, health and safety	Implement good housekeeping practices at the site office, working area. Strictly implemented health and safety measures and audit on a regular basis. Construction site – particularly shafts area already barricaded. Warning signs has been proved at hazardous working areas. Working area clearly demarcated, barricaded to protect pedestrians from open areas- Jacking and receiving pits Thoroughly trained workers assigned to dangerous equipment. Waste management practices will be well undertaken Speed and movement of construction vehicles restricted Personal Protective Equipment are provided to all workers Visibility of workers through their use of high visibility vests when working in or walking through heavy equipment	Company's health and safety guidelines followed

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	risks. Road safety may be affected during construction, especially when traffic is detoured.	operating areas have been ensured First Aid system available at working sites Medical insurance provided to workers Drinking water arranged at working sites Mark and provide sign boards for hazardous areas Signage has been in well known to, and easily understood by workers, visitors, and the general public as appropriate. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.	
Noise and Vibrations	Sensitive receptors (hospitals, schools, religious places) may be affected temporarily by increased traffic and related impacts Use of heavy vehicles and equipment may generate high levels of noise. Vibrations resulting from bulk earthworks, micro-tunnelling and compaction may create significant disturbances to nearby people and businesses. Disturbance from afterhours work.	Construction activities to be restricted at reasonable working hours near any sensitive receptors. Ensured that machinery in a good state of maintenance. Maintenance of silencers to all machinery is ensured Base line noise level monitoring has been conducted near project sites	Noise level Monitoring data included in Environmental Monitoring Report Maintain maximum sound levels not exceeding 75 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s
Aesthetics, Landscape Character, and Sense of Place	The presence of heavy duty vehicles and equipment, temporary structures at site office, stockpiles, may result in impacts on aesthetics and landscape character	Storage areas fenced properly. Solid waste will be manage according to the following preference hierarchy: reuse, recycling and disposal to designated areas Removal of all wreckage, rubbish from the sites should be done at earliest Waste needs to dispose at suitable location after taken permission from DSC/ KMC Except few cases mature trees on and around the site remain untouched Unwanted material and litter will be remove at certain intervals	Excavated soils are utilized for filling purpose. Company's policy for Waste Management & also follow up the requirements of bid documents.
Construction camps	Affect local environment – soil, air, noise and impact on vegetation	Rented house has been provided as labour camp.	
Workers Conduct	Construction workers on site disrupting adjacent land uses by creating noise, generating litter, and possible loitering.	Ensure strict control of labourers Labourers covered under group insurance Working hours fixed as per rules Littering at project sites is being avoided	Company policy will be followed
Employment	The subproject will provide employment	Local Workers/labourers are mostly engaged at site	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Generation	opportunities for local people during construction. Expectations regarding new employment will be high especially among the unemployed individuals in the area. Labor gathering at the site for work can be a safety and security issue, and must be avoided. The training of unskilled or previously unemployed persons will add to the skills base of the area.	Construction materials will be procured from local market	
Archaeological and Cultural Characteristics	The proposed development will not require demolition of ASI- or state-protected monuments and buildings	There is no Heritage or archaeological protected sites. Construction staff members would be aware of the likelihood of heritage resources being unearthed and of the scientific importance of such discoveries. Building and other construction workers Act 1996 to follow	
Social Impacts	Impact on local social environment	Restrict activities and movement of staff to designated construction areas. ITD will assist in locating DSC Environment Specialist and/or PMU Environment Coordinator in the event construction staffs is approached by members of the public or other stakeholders.	
Security and Safety	Affect project activity and impact on workforce	Lighting on site is provided maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses. Material stockpiles or stacks, such as, pipes will be stable and well secured to avoid collapse and possible injury to site workers / local residents. Flammable materials will be stored as far as possible from adjacent residents / businesses.	

Site Specific Environmental Management Plan

December 2015

PROJECT: CONSTRUCTION OF PUMPING STATION IN BEGORE KHAL AND IN JOKA TRAM DEPOT AND CONSTRUCTION OF SEWERAGE AND DRAINAGE NETWORK WITHIN DIAMOND HARBOUR ROAD CATCHMENT

Contract No: KEIIP/ICB/TR-1/SD05/2013-14

PROGRAM: KOLKATA ENVIRONMENT IMPROVEMENT INVESTMENT PROGRAM (KEIIP)

EMPLOYER: KOLKATA MUNICIPAL CORPORATION (KMC)

CONTRACTOR: TANTIA-MPPL (WILO) JV

Prepared by

TANTIA-MPPL (WILO) JV

Construction phase Site Specific Environmental Management Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Climate	The nature and intensity of rainfall events in an area, has implications for storm water management. Smoke from burning activities could be wider spread on windy days especially when dust could be blown off site.	Seasonal climatic variations during scheduling of construction activities in the area will be followed. Any excavation work will be done during dry season Storm water will be controlled as per method approved by PMU.	HSE work permit system of the company followed.
Air Quality	Sensitive receptors (e.g. hospitals, schools, churches) may be affected temporarily by increased traffic and related impacts during the construction phase (from the proposed detour). Fugitive dust can also impact on roadside air quality during construction. Exhaust fumes from construction machinery, and potential smoke from cooking fires. Burning of waste and cleared vegetation Odours from use of toilet 'facilities' other than provided facilities.	Guidelines that deal with the control of air pollution and dusts as per Environmental Management Plan (EMP) have been followed Compliance with the Air Act. has been submitted. Compliance with emission standards have been conducted and report submitted to DSC. Air quality monitoring report for base line environment and during construction period is already submitted to DSC. Which will be continued during entire construction period Covering or damp down sand/ earth stockpiled at site will be maintained as per site condition Materials carrying vehicle suitably cover. Covering of materials carrying vehicles-reducing dust hazard Construction equipment and vehicles will be maintained regularly. Pollution Under Control Certificates have been collected and submitted to DSC for the vehicles presently engaged in project activity Open fires will be fully avoided at working sites Maintaining toilet in a clean state.	Air quality Monitoring data has been included in Environmental Monitoring Report
Geology and soil	Strong water flows into open excavations below the water table will occur, causing micro-tunnel collapse. Layers of mixed fill cover natural ground surface in many places. Contamination from spillage of petroleum products, spent engine oil and oil leaks from construction vehicle maintenance taking place on site.	That drainage system shall be check regularly to control runoff from the open areas in line with topographical features of the site Rehabilitation at all sites during construction including stockpile area, temporary access and hauling routes, as soon as possible after the disturbance has ceased. Company to exercise strict care in the disposal of construction waste, with proof of disposal at an approved site provided after offloading each waste load and this logged/registered. Solid waste will be managed according to the following preference hierarchy: reuse, recycling and disposal to designated areas. If oil spills occur, contaminated soil will be dispose at a disposal site in consultation with WBPCB.	Maintaining our company's policy for Waste Management & also follow up the requirement of bid documents.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		Stockpile subsoil and overburden in all construction and lay down areas.	
Drainage and hydrology	The proposed development is situated within an existing built up area. Due to the nature and locality of the subproject there is unlikely 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. Pipe line is at a depth of 1.5m to 6.0m from ground level as indicated in tender. No major ground disturbance has been observed till now Waste management practices will be maintained Transport, storage, handling and disposal of hazardous substances will be done as per prevailing laws and approval of concerned authority	
Biodiversity Fauna and Flora	The proposed development is situated within an existing built up area. No areas of ecological diversity occur within the subproject location. Due to the nature and locality of the subproject there is unlikely to any significant impacts on biodiversity within the area The pipe laying for the transmission mains may however affect existing roadside trees.	Permission will be obtained from the Division Forest Office for the cutting/ felling of trees if required Landscaping will be undertaken with locally indigenous species and low maintenance requirements.	
Land Uses	Due to the location and nature of the subproject, there will be interference with access Existing public transport facilities and operations will be affected by the road closure and detours. Shops and establishments are located along the transmission mains alignment therefore will need to be relocated during construction. This may impact on livelihoods. There will be disruptions to health services, education services, local businesses, transport services, pedestrian movements, due to traffic and construction related noise, visual, and air pollution.	Project executing agency and consultant have consulted with various organizations, departments, etc within the area and will be continued during the construction phase. Caution board has been display at all site location to aware people Walkways and metal sheets provided if required to maintain access across for people and vehicles. Workforce will be increased in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools. Businesses and institutions consulted regarding operating hours and factoring this in work schedules. Sign boards provided for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	
Infrastructure and Services	There is likely to have temporary disruption of infrastructure and services during the pipe laying of the transmission mains. There are a number of existing infrastructure and services (roads, railway lines,	Utility shifting will be done by utility agency prior to commencing pipe laying at new location. Keep construction-related disturbances to a minimum. Affected service providers will be consulted regarding impacts on access to infrastructure and services and alternatives.	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	telecommunication lines, power lines and various pipelines within the vicinity of the subproject.	Affected communities or businesses will be consulted prior to foreseeable disruptions, for example notifying residents of a temporary severance of water supply. Executing agency and consultant have consulted with various organizations, departments, to provide access points for infrastructures and services. Regular monitoring and resolving the complaints by the public will be done by company/ DSC/ KMC	
Traffic	Increased volume of construction vehicles on the roads may lead to increased wear and tear of roads in the vicinity of the subproject site. Road safety concerns due to slow moving construction vehicles. Traffic flow within the vicinity will be affected. The temporary road closure will result in a decrease in overall network performance in terms of queuing delay, travel times/speeds. The road closure will impact on a public transport operations and routing. On street parking and loading bays will be affected by the proposed road closure. Pedestrian movements will be affected by the road closure.	Traffic Management Plan is prepared and permission is obtained from Traffic Police Dept. TMP ensured safety of all the road-users along the work zone and to address: (i) protection of work crews from hazards associated with moving traffic; (ii) mitigation of the adverse impact to the road capacity and delays to the road-users; (iii) maintenance of access to adjoining properties; and (iv) issues that may delay the subproject works. Schedule transport and hauling activities will be plan during non-peak hours Site will be free from all unnecessary obstructions. Affected sensitive receptors if any will be notified by providing sign boards informing nature and duration of construction works Privately-owned public transport operators will be negotiated regarding the affected public transport facilities and routing. Business owners and social service operations will be negotiated regarding the loss of parking and loading bays. Clear roads signs has been arranged and to be maintained for the full length of the construction period. City Traffic Police will be available on site (as per requirement). All working sites barricaded Communicate will be done for road closure/diversion together with the proposed detour via advertising, pamphlets, road signage, etc. The implementation of the road detour is also dependent on advance road signage indicating the road detour and alternative routes. Construction area clearly defined Deliveries during peak traffic hours will be not allowed	Before starting of any particular project site on the road TMP needs to be approved from DSC/ KMC and Traffic Police Dept.
Health and Safety	Danger of construction related injuries. Open fires in construction camp can result in accidents Safety of workers and general public must be	Implement good housekeeping practices at the site office, working area. Strictly implemented health and safety measures and audit on a regular basis.	Company's health and safety guidelines will be followed

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	ensured. Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases. Standing water due to inadequate storm water drainage systems, inadequate waste management practices, pose a health hazard to providing breeding grounds for disease vectors such as mosquitoes, flies and snails. The use of hazardous chemicals in the micro-tunnelling and restoration of roads can pose potential environmental, health and safety risks. Road safety may be affected during construction, especially when traffic is detoured.	Construction site – particularly excavated area already barricaded . Warning signs has been proved at hazardous working areas. Working area clearly demarcated, barricaded to protect pedestrians from open areas like trial trench Thoroughly trained workers assigned to dangerous equipment. Waste management practices will be well undertaken Speed and movement of construction vehicles restricted Personal Protective Equipment are provided to all workers Visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas have been ensured First Aid system available at working sites Medical insurance provided to workers Drinking water arranged at working sites Mark and provide sign boards for hazardous areas Signage has been in well known to, and easily understood by workers, visitors, and the general public as appropriate. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.	
Noise and Vibrations	Sensitive receptors (hospitals, schools, religious places) may be affected temporarily by increased traffic and related impacts Use of heavy vehicles and equipment may generate high levels of noise. Vibrations resulting from bulk earthworks, and compaction may create significant disturbances to nearby people and businesses. Disturbance from afterhours work.	Construction activities to be restricted at reasonable working hours near any sensitive receptors. Adjacent landowners will be informed about noisy activities Ensured that machinery in a good state of maintenance. Maintenance of silencers to all machinery is ensured Base line and during construction noise level monitoring has been conducted near project sites	Noise level Monitoring have been done
Aesthetics, Landscape Character, and Sense of Place	The presence of heavy duty vehicles and equipment, temporary structures at site office, stockpiles, may result in impacts on aesthetics and landscape character	Storage areas fenced properly. Solid waste will be manage according to the following preference hierarchy: reuse, recycling and disposal to designated areas Removal of all wreckage, rubbish from the sites done at earliest Waste dispose at suitable location after taken permission from DSC/ KMC Except few cases mature trees on and around the site remain untouched	Excavated soils are utilized for filling purpose.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		Unwanted material and litter will be remove at certain intervals	
Construction camps	Affect local environment – soil, air, noise and impact on vegetation	Labour camp established at Joka Tram depot area nearby Joka PS site. Toilet, drinking water facility arranged	
Workers Conduct	Construction workers on site disrupting adjacent land uses by creating noise, generating litter, and possible loitering.	Ensured strict control of labourers Working hours fixed as per rules Littering at project sites is being avoided Overnight accommodation will be provided as per requirement.	Company policy followed
Employment Generation	The subproject will provide employment opportunities for local people during construction. Expectations regarding new employment will be high especially among the unemployed individuals in the area. Labor gathering at the site for work can be a safety and security issue, and must be avoided. The training of unskilled or previously unemployed persons will add to the skills base of the area.	Local Workers/labourers are mostly engaged at site Construction materials will be procured from local market	
Archaeological and Cultural Characteristics	The proposed development will not require demolition of ASI- or state-protected monuments and buildings	There is no Heritage or archaeological protected sites. Construction staff members would be aware of the likelihood of heritage resources being unearthed and of the scientific importance of such discoveries.	
Social Impacts	Impact on local social environment	Restrict activities and movement of staff to designated construction areas. Company will assist in locating DSC Environment Specialist and/or PMU Environment Coordinator in the event construction staffs is approached by members of the public or other stakeholders.	
Security and Safety	Affect project activity and impact on workforce	Lighting on site is provided maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses. Material stockpiles or stacks, such as, pipes be stable and well secured to avoid collapse and possible injury to site workers / local residents. Flammable materials stored as far as possible from adjacent residents / businesses.	

Site Specific Environmental Management Plan

December 2015

PROJECT: **Micro Tunneling Works on sewage Pressure Main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant, SIMPLEX-KRITA JV/SD 06**

Contract No: KEIIP/NCB/TR-1/ SD-06/2013-14

PROGRAM: KOLKATA ENVIRONMENT IMPROVEMENT INVESTMENT PROGRAM (KEIIP)

EMPLOYER: KOLKATA MUNICIPAL CORPORATION (KMC)

CONTRACTOR: M/S SIMPLEX-KRITA JV

Prepared by

SIMPLEX-KRITA JV

Pre Construction and Construction phase Site Specific Environmental Management Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Climate	The nature and intensity of rainfall events in an area, has implications for storm water management. Smoke from burning activities could be wider spread on windy days especially when dust could be blown off site.	Seasonal climatic variations during scheduling of construction activities in the area will be followed. Any excavation work will be done during dry season Storm water will be controlled as per method approved by PMU. As per company Health Safety & Environment (HSE) policy no open fires will be allowed	Health safety & Environment work permit system of the company is followed.
Air Quality	Sensitive receptors (e.g. hospitals, schools, churches) may be affected temporarily by increased traffic and related impacts during the construction phase (from the proposed detour). Fugitive dust can also impact on roadside air quality during construction. Exhaust fumes from construction machinery, and potential smoke from cooking fires. Burning of waste and cleared vegetation Odors from use of toilet 'facilities' other than provided facilities.	Guidelines that deal with the control of air pollution and dusts as per Environmental Management Plan (EMP) have been followed Compliance with the Air Act. has been ensured Compliance with emission standards has been ensured Air quality monitoring for base line environment and during construction is already taken up. Which will be continued during entire construction period Construction equipment and vehicles will be maintained regularly. Pollution Under Control Certificates have been collected for the vehicles presently engaged in project activity Materials carrying vehicle suitably cover. Covering of materials carrying vehicles-reducing dust hazard Covering or damp down sand/ earth stockpiled at site will be maintained as per site condition Open fires will be fully avoided at working sites Portable toilets have been provided at all working locations	Air quality Monitoring data included in Environmental Monitoring Report
Geology and soil	Strong water flows into open excavations below the water table will occur, causing micro-tunnel collapse. Layers of mixed fill cover natural ground surface in many places. Contamination from spillage of petroleum products, spent engine oil and oil leaks from construction vehicle maintenance taking place on site.	TBM will used for micro tunneling where proper drainage system is include. That drainage system shall be check regularly to control runoff from the micro-tunnels and open areas in line with topographical features of the site Rehabilitation at all sites during construction including stockpile area, temporary access and hauling routes, as soon as possible after the disturbance has ceased. Company to exercise strict care in the disposal of construction waste, with proof of disposal at an approved site provided after offloading each waste load and this logged/registered. Solid waste will be managed according to the following preference hierarchy: reuse, recycling and disposal to designated areas. If oil spills occur, contaminated soil will be dispose at a disposal site in consultation with WBPCB. Stockpile subsoil and overburden in all construction and lay down	Maintaining company's policy for Waste Management & also follow up the requirements of bid documents.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
		areas. Concrete plinth Tray / Bin has shall be provided to avoid land pollution.	
Drainage and hydrology	The proposed development is situated within an existing built up area. Due to the nature and locality of the subproject there is unlikely 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. Pipeline is as a depth of 06 meter from ground level as indicated in tender. No major ground disturbance has been observed till now Waste management practices will be maintained Transport, storage, handling and disposal of hazardous substances will be done as per prevailing laws and approval of concerned authority	
Establishing Equipment Lay-down and Storage Area	Affect social life, public and transport movement	Choice of location for equipment lay-down and storage areas will be taken into account as per site topography and water erosion potential of the soil. Impervious surfaces would be provided where necessary Storage areas secured so as to minimize the risk of crime. They shall also be safe from access by children / animals etc. It is very important that the proximity of residents, businesses, schools etc. will be taken into account when deciding on storage areas for hazardous substances or materials. Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area Equipment lay-down and storage areas have been designated, demarcated and fenced if necessary. Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used would be provided to prevent the migration of spillage into the ground and groundwater regime around the temporary storage area(s).	
Biodiversity Fauna and Flora	The proposed development is situated within an existing built up area. No areas of ecological diversity occur within the subproject location. Due to the nature and locality of the subproject there is unlikely to any significant impacts on biodiversity within the area The pipe laying for the transmission mains may however affect existing roadside trees.	No tree cutting is required as per present site condition. Only jungles and shrubs was cleaned and removed. No faunal activity within the impact zone	
Land Uses	Due to the location and nature of the subproject, there will be interference with access Existing public transport facilities and operations will be affected by the road closure and detours. Shops and establishments are located along the	Project executing agency and consultant have consulted with various organizations, departments, etc within the area and will be continued during the construction phase. HSE caution board has been display at site location to aware people Walkways and metal sheets will be provided if required to maintain	

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	transmission mains alignment therefore will need to be relocated during construction. This may impact on livelihoods. There will be disruptions to health services, education services, local businesses, transport services, pedestrian movements, due to traffic and construction related noise, visual, and air pollution.	access across for people and vehicles. Sign boards to be provided for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	
Infrastructure and Services	There is likely to have temporary disruption of infrastructure and services during the pipe laying of the transmission mains. There are a number of existing infrastructure and services (roads, railway lines, telecommunication lines, power lines and various pipelines within the vicinity of the subproject.	Utility shifting will be done by utility agency prior to commencing pipe laying/micro-tunnelling if required. Keep construction-related disturbances to a minimum. Affected service providers will be consulted regarding impacts on access to infrastructure and services and alternatives. Regular monitoring and resolving the complaints by the public will be done by company/ DSC/ KMC	
Traffic	Increased volume of construction vehicles on the roads may lead to increased wear and tear of roads in the vicinity of the subproject site. Road safety concerns due to slow moving construction vehicles. Traffic flow within the vicinity will be affected. The temporary road closure will result in a decrease in overall network performance in terms of queuing delay, travel times/speeds. The road closure will impact on a public transport operations and routing. On street parking and loading bays will be affected by the proposed road closure. Pedestrian movements will be affected by the road closure.	Traffic Management Plan is not needed as per present nature of site as the project area is inside the boundary area. Schedule transport and hauling activities will be plan during non-peak hours Site will be free from all unnecessary obstructions. Affected sensitive receptors if any will be notified by providing sign boards informing nature and duration of construction works Clear roads signs has been arranged and to be maintained for the full length of the construction period. Local volunteers will be available on site (as per requirement). All working sites barricaded Communicate will be done for road closure/diversion together with the proposed detour via advertising, pamphlets, road signage, etc. The implementation of the road detour is also dependent on advance road signage indicating the road detour and alternative routes. Construction area clearly defined Deliveries during peak traffic hours will be not allowed	Project area is inside the closed premises, so that there is no TMP is required, if any required then TMP to be approved from DSC/ KMC and Traffic Police Dept and local representative.
Health and Safety	Danger of construction related injuries. Open fires in construction camp can result in accidents Safety of workers and general public must be ensured. Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases.	Implement good housekeeping practices at the site office, working area. Strictly implemented health and safety measures and audit on a regular basis. Construction site – particularly shafts area already barricaded . Warning signs has been proved at hazardous working areas. Working area clearly demarcated, barricaded to protect pedestrians from open areas- Jacking and receiving pits	Company's health and safety guidelines will be followed

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
	Standing water due to inadequate storm water drainage systems, inadequate waste management practices, pose a health hazard to providing breeding grounds for disease vectors such as mosquitoes, flies and snails. The use of hazardous chemicals in the micro-tunnelling and restoration of roads can pose potential environmental, health and safety risks. Road safety may be affected during construction, especially when traffic is detoured.	Thoroughly trained workers assigned to dangerous equipment. Waste management practices will be well undertaken Speed and movement of construction vehicles restricted Personal Protective Equipment are provided to all workers Visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas have been ensured First Aid system available at working sites Medical insurance provided to workers Drinking water arranged at working sites Mark and provide sign boards for hazardous areas Signage has been in well known to, and easily understood by workers, visitors, and the general public as appropriate. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.	
Noise and Vibrations	Sensitive receptors (hospitals, schools, religious places) may be affected temporarily by increased traffic and related impacts Use of heavy vehicles and equipment may generate high levels of noise. Vibrations resulting from bulk earthworks, micro-tunnelling and compaction may create significant disturbances to nearby people and businesses. Disturbance from afterhours work.	Construction activities to be restricted at reasonable working hours near any sensitive receptors. Adjacent landowners will be informed about noisy activities Ensured that machinery in a good state of maintenance. Maintenance of silencers to all machinery is ensured Base line and during construction noise level monitoring has been conducted near project sites	Noise level Monitoring data included in Environmental Monitoring Report Maintain maximum sound levels not exceeding 75 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s
Aesthetics, Landscape Character, and Sense of Place	The presence of heavy duty vehicles and equipment, temporary structures at site office, stockpiles, may result in impacts on aesthetics and landscape character	Storage areas fenced properly. Solid waste will be manage according to the following preference hierarchy: reuse, recycling and disposal to designated areas Removal of all wreckage, rubbish from the sites should be done at earliest Waste needs to dispose at suitable location after taken permission from DSC/ KMC Except few cases mature trees on and around the site remain untouched Unwanted material and litter will be remove at certain intervals	Excavated soils will not be utilized for any filling purpose and that should be removed from site time to time. Company's policy for Waste Management & also follow up the requirements of bid documents.

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Construction camps	Affect local environment – soil, air, noise and impact on vegetation	Camp established within Santoshpur main pumping station with drinking water and toilet facility. Site office has been established	
Workers Conduct	Construction workers on site disrupting adjacent land uses by creating noise, generating litter, and possible loitering.	Ensured strict control of labourers Labourers covered under group insurance Working hours fixed as per rules Littering at project sites is being avoided	Company policy will be followed
Employment Generation	The subproject will provide employment opportunities for local people during construction. Expectations regarding new employment will be high especially among the unemployed individuals in the area. Labor gathering at the site for work can be a safety and security issue, and must be avoided. The training of unskilled or previously unemployed persons will add to the skills base of the area.	Local Workers/labourers are mostly engaged at site Construction materials procured from local market	
Archaeological and Cultural Characteristics	The proposed development will not require demolition of ASI- or state-protected monuments and buildings	There is no Heritage or archaeological protected sites. Construction staff members would be aware of the likelihood of heritage resources being unearthed and of the scientific importance of such discoveries. Building and other construction workers Act 1996 to follow	
Social Impacts	Impact on local social environment	Restrict activities and movement of staff to designated construction areas. Simplex-krita will assist in locating DSC Environment Specialist and/or PMU Environment Coordinator in the event construction staffs is approached by members of the public or other stakeholders.	
Security and Safety	Affect project activity and impact on workforce	Lighting on site is provided maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses. Material stockpiles or stacks, such as, pipes will be stable and well secured to avoid collapse and possible injury to site workers / local residents. Flammable materials will be stored as far as possible from adjacent residents / businesses.	

APPENDIX 7: Spoil Management

ITD CemIndia (Joint Venture)

SAFETY & HEALTH OPERATION CONTROL PROCEDURES

SPOIL MANAGEMENT PLAN (SMP)

- Name of Project: **Rehabilitation And Refurbishment Of Water Works At Palta And Garden Reach Water Works.**

▪ 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 ITD CEMINDIA (JOINT VENTURE) sites and depots.
▪ 3.1	▪ Responsibility
	Project In charge is responsible for its implementation. **Corporate Head EHS is responsible for its review and modification.**
3.2	RESPONSIBILITY AND AUTHORITY FOR EHS MANAGEMENT
	RESPONSIBILITY **Project In charge (PI)** • The project PI 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 EHS-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 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 fulfil 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.
▪ 4.0	▪ Definitions
	Project In charge: Person responsible for the execution of the project.
▪ 5.0	▪ Legal Requirement
	☞ The Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996 and Central Rule 1998 Rule ☞ 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 Environment [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. ☞ Municipal Solid Waste (Management and Handling) Rules 2000 ☞ Noise Pollution Regulation & Control rules, 2000.
▪ 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 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 cliental 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 and Impacts
	☞ In this project, there are some places assessed and identified jointly along with design engineer. Places inside the Indira Gandhi Water Treatment Plant for dumping and dressing the extra earth have been selected, which is presently down from actual ground level. ☞ Potential for high winds generating 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 40,000 Cu.M approx • 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**
	• **All quantity of spoils will be re used for new road.** • **Balance spoils will be removed and disposed after approval**
9.	**Spoil Transportation Methodology**
	• No extra earth will generate.
10	**Monitoring, Reporting, Review and Improvements**

<table>
<tr><td></td><td>• Monitoring, Reporting and all necessary improvements will be as required.</td></tr>
<tr><td>11</td><td>List of Relevant Guide Lines/ Documents
Nil</td></tr>
<tr><td>12</td><td>References
Nil</td></tr>
<tr><td>13</td><td>Related other Procedures

The key aspects of potential impacts are listed in table below
<table>
<tr><th>Aspects</th><th>Potential Impacts</th></tr>
<tr><td>Air Quality</td><td>Potential for high winds generating airborne dust from the stock piles</td></tr>
<tr><td>Sedimentation</td><td>Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads</td></tr>
<tr><td>Surface and Groundwater</td><td>Contamination of water (surface and ground water)</td></tr>
<tr><td>Noise</td><td>Associated with spoil handling and haulage and storage</td></tr>
<tr><td>Traffic</td><td>Impacts associated with spoil haulage</td></tr>
<tr><td>Land Use</td><td>Potential for spoil to be transported to a receivable site that doesn’t have permission for storage/disposal</td></tr>
<tr><td>Design specifications</td><td>Limitations on opportunities to minimize spoil generation</td></tr>
<tr><td>Sustainability</td><td>Limited sites for storage, reuse opportunities</td></tr>
</table></td></tr>
</table>

ITD CemIndia (Joint Venture)

SAFETY & HEALTH OPERATION CONTROL PROCEDURES

SPOIL MANAGEMENT PLAN (SMP)

- Name of Project: **Laying of Water Trunk Main from Garden Reach Water Works to Taratala Valve Station and Laying of Sewer Line along Diamond Harbor Road by Micro-tunneling Method.**

▪ 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 ITD-ITD CEM JV sites and depots.
▪ 3.1	▪ Responsibility
	Project In charge is responsible for its implementation. **Corporate Head EHS is responsible for its review and modification.**
3.2	RESPONSIBILITY AND AUTHORITY FOR EHS MANAGEMENT
	Project In charge (PI) • The project PI 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 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 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 fulfil 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.
▪ 4.0	▪ Definitions
	Project In charge: Person responsible for the execution of the project.
▪ 5.0	▪ Legal Requirement
	☞ The Building and Other Construction Workers (Regulations of Employment and Conditions of Service) Act 1996 and Central Rule 1998 Rule ☞ 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 Environment [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) Rules1998 ☞ Municipal Solid Waste (Management and 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 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 cliental 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	<u>Identification and Assessment of Spoil Aspects and Impacts</u>
	☞ There is some place assessed and indentified jointly inside the Garden reach STP for dumped and dressed the extra earth which is presently down from actual level. ☞ Potential for height winds generating 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 73489 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 re used for back filling of excavated shaft location.** • **Balance spoils will be removed.**
9.	**Spoil Transportation Methodology**
	• Extra earth/ slurry will be shifted by Truck / Dumper from site to dumping yard. Address of dumping yard: Dag no:- 156 & 158, Khaatian No:- P-973, J.L.No:- 93, Mouza Amghachia, Police Station : Bishnupur, District:- South 24

<table>
<tr><td></td><td>Parganas, West Bengal.

NOC is already obtained for dumping of spoil at that location</td></tr>
<tr><td>10</td><td>Monitoring, Reporting, Review and Improvements</td></tr>
<tr><td></td><td>• Monitoring, Reporting and all necessary improvements will be as required.</td></tr>
<tr><td>11</td><td>List of Relevant Guide Lines/ Documents
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</table></td></tr>
</table>

WS 04- Estimation of excess earth/ spoil

Taratala road					
Shaft Loccations					
Sl. No.	**Area of generation of spoil**	**Volume of soil (Cu.M)**	**Type of spoil**	**Detail location Preliminary local storage**	**Detail location final disposal**
1	Shaft No 0	**288**	**Soil**	**Beside Shaft No 1**	**Dag No. 15C, 158, KhatianNo. P-973/ J.L. No. 93, Mouja - Amgachia, Vill+PO- Amgachia, PS-Bishnupur,Distric: - South 24 Parganas, West Bengal**
2	Shaft No 1	393	**Soil**		
3	Shaft No 2	288	**Soil**		
4	Shaft No 3	401	**Soil**		
5	Shaft No 4	259	**Soil**		
6	Shaft No 5	393	**Soil**		
7	Shaft No 6	230	**Soil**		
8	Shaft No 7	393	**Soil**		
9	Shaft No 8	259	**Soil**		
10	Shaft No 9	349	**Soil**		
11	Shaft No 10	259	**Soil**		
12	Shaft No 11	349	**Soil**		
13	Shaft No 12	259	**Soil**		
	Total Soil	4122			

DH Road					
1	Shaft No 1	210	Clay	NA	Dag No. 15C, 158, KhatianNo. P-973/ J.L. No. 93, Mouja - Amgachia, Vill+PO- Amgachia, PS- Bishnupur,Distric: - South 24 Parganas, West Bengal
2	Shaft No 2	275	Clay		
3	Shaft No 3	277	Clay		
4	Shaft No 4	276	Clay		
5	Shaft No 5	361	Clay		
6	Shaft No 6	391	Clay		
7	Shaft No 7	286	Clay		
8	Shaft No 8	391	Clay		
9	Shaft No 9	391	Clay		
10	Shaft No 10	308	Clay		
11	Shaft No 11	421	Clay		
12	Shaft No 12	308	Clay		
13	Shaft No 13	421	Clay		
14	Shaft No 14	285	Clay		
15	Shaft No 15	421	Clay		
16	Shaft No 16	289	Clay		
17	Shaft No 17	425	Clay		
18	Shaft No 18	308	Clay		
19	Shaft No 19	370	Clay		
20	Shaft No 20	288	Clay		

21	Shaft No 21	567	Clay		
	Shaft No 21A	421			
22	Shaft No 22	311	Clay		
	Total =	**7999**			
Pipe pushing					
Taratala Road					
1	Shaft No 0-12	9193	Clay	**Beside Shaft No 1**	Dag No. 15C, 158, KhatianNo. P-973/ J.L. No. 93, Mouja - Amgachia, Vill+PO- Amgachia, PS-Bishnupur,Distric: - South 24 Parganas, West Bengal
Pipe pushing					
DH Road					
1	Shaft No 1-22	16429	Clay	NA	Dag No. 15C, 158, KhatianNo. P-973/ J.L. No. 93, Mouja - Amgachia, Vill+PO- Amgachia, PS-Bishnupur,Distric: - South 24 Parganas, West Bengal

Total volume of Spoil = 37743

NOC from land owner

AMGACHIA GRAM PANCHAYAT OFFICE
Bishnupur – I Block South 24 Paraganas

(NO OBJECTION CERTIFICATE)

This is to certify that Lavica Estates Ltd (Amgachia) (Name)
S / D / W of Bishnupur of Vill+P.O = Amgachia
P.S. Bishnupur, Dist - 24 Pgs (S) (Address) has
been possessing a plot of land having Dag No 156/158 Khatian
No R. 2737 J.L.No 93 Mouza Amgachia which he
wish to convert from Sali (Low land) to Bastu (Homesite).

I do hereby declare that I have no objection on this conversion at all.

05/01/15

Signature of Prodhan
Prodhan
Amgachia Gram Panchayat Office
Bishnupur-I, 24 Parganas (S)

Preliminary Discharge Area


Final Disposal Area (Before dispose)






Final Disposal Area (Before dispose)

Final Disposal Area (After dispose)

Final Disposal Area (After dispose)

- No residence, water body effected
- No risk involved from disposal

Thanking You

ITD-ITD Cem Joint Venture

Spoil Management Plan

December 2015

PROJECT: CONSTRUCTION OF PUMPING STATION IN BEGORE KHAL AND IN JOKA TRAM DEPOT AND CONSTRUCTION OF SEWERAGE AND DRAINAGE NETWORK WITHIN DIAMOND HARBOUR ROAD CATCHMENT

Contract No: KEIIP/ICB/TR-1/SD05/2013-14

PROGRAM: KOLKATA ENVIRONMENT IMPROVEMENT INVESTMENT PROGRAM (KEIIP)

EMPLOYER: KOLKATA MUNICIPAL CORPORATION (KMC)

CONTRACTOR: TANTIA-MPPL (WILO) JV

Prepared by

TANTIA-MPPL (WILO) JV

SPOIL MANAGEMENT PLAN

M/S – TANTIA-MPPL (WILO) JV

KEIIP/ICB/TR-1/SD05/2013-14 PROJECT

1. INTRODUCTION OF SMP

SMP is to describe how the project will manage the spoil generated and reuse related to design and construction works. This is an integral part of EMP. The objective of SMP is to reuse of spoil from works.

2. LEGAL AND OTHER REQUIRMENTS

In the project, there is no legal litigation at site for land and working area or site office establishment, and also there are no legal requirements yet.

3. ROLES AND RESPONSIBILITY

In this project, there are major roles and responsibilities are followings

1) Extra excavated earth should be removed from site
2) Traffic movement should not be obstructed by dumping soil during the work
3) No low land, pond, ditch etc will be filled up by extra soil
4) No accident occurs during rainy season by excavated earth during or finished the work
5) All the drains, outlet should be free from our excavated earth

4. IDENTIFICATION AND ASSESSMENT OF SPOIL ASPECTS AND IMPACTS

In this project, there are some places assessed and identified jointly along with design engineer. Places inside our own RMC Plant located near Nature park Rail Gate for dumping and dressing the extra earth have been selected, which is not a low land area and to raise the ground level to avoid water logged. Potential for high winds generating 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.

5. SPOIL VOLUMES, CHARACTERISTICS AND MINIMIZATION

In this project, backfilling of any trenches has done by excavated earth. So that the excavated earth do not disturbed areas during construction phase and also minimize the quantity of excavated earth.

6. SPOIL REUSE OPPOETUNITIES, IDENTIFICATION AND ASSESMENT

There are many spaces to reuse spoil. But excess spoils are properly disposed to approve disposal area.

7. ON SITE SPOIL MANAGEMENT APPROACH

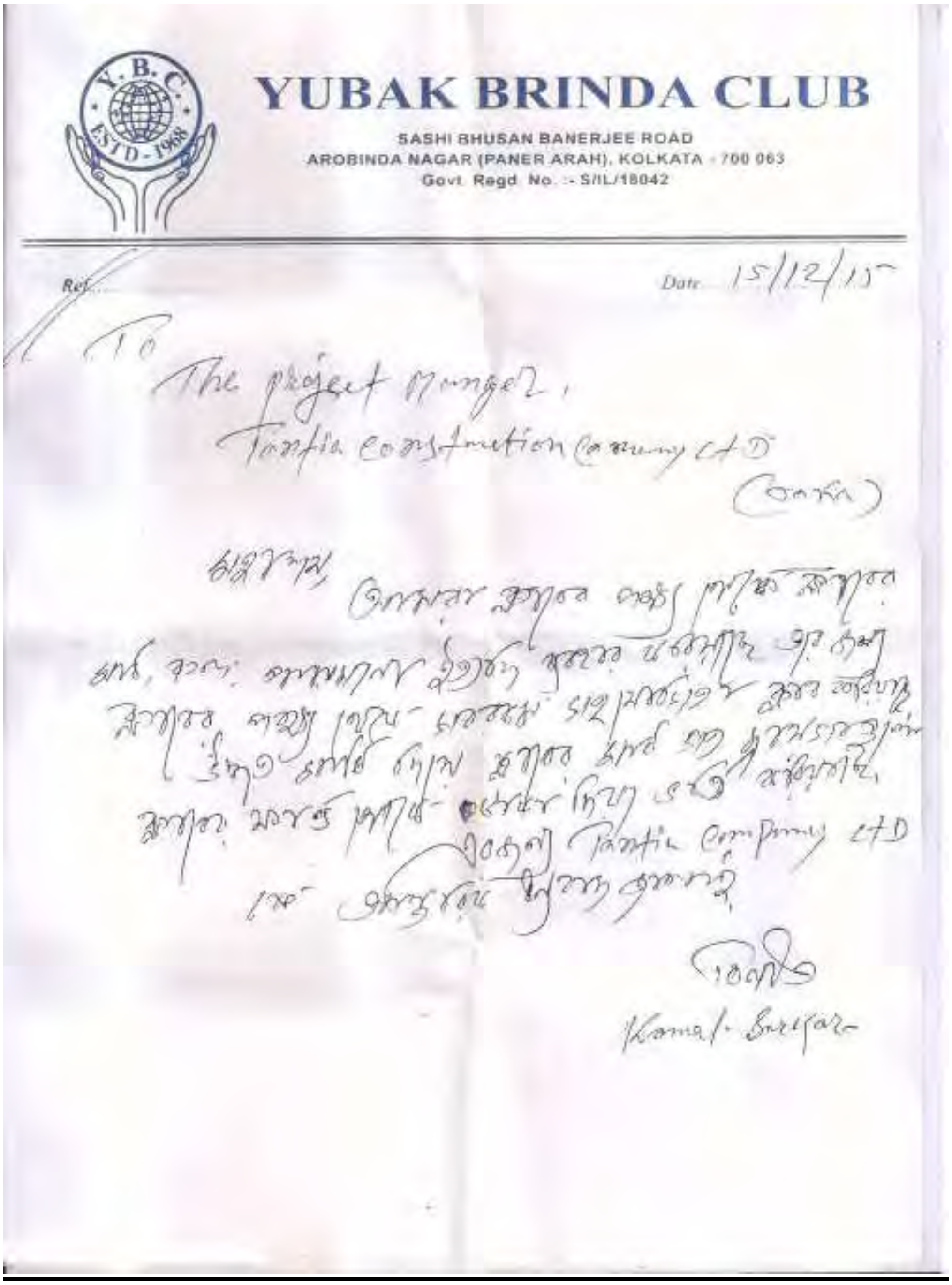
In this project, the approach is ready where soil is shifted.

8. SPOIL TRANSPORTATION METHODOLOGY

Extra excavated earth is shifted by truck from working site to disposal area.

9. MONITORING, REPORTING, REVIEW, AND IMPROVEMENTS

Monitoring, Reporting and all necessary improvements is done as per requirement.



YUBAK BRINDA CLUB

SASHI BHUSAN BANERJEE ROAD
AROBINDA NAGAR (PANER ARAH), KOLKATA - 700 063
Govt. Regd. No. :- S/IL/18042

Ref.

Date 15/12/15

To
The project Manger,
Tantia construction Company LTD
(কলকাতা)

[illegible]

Tantia Company LTD

[illegible]

Kamal Sarkar

Transcription- NOC from club in front of temple for utilization of excess earh for land development

SPOIL MANAGEMENT PLAN
M/S –SIMPLEX-KRITA JV
KEIIP SD-06 PROJECT

1. INTRODUCTION OF SMP

SMP is to describe how the project will manage the spoil generated and reuse related to design and construction works. This is an integral part of EMP. The objective of SMP is to reuse of spoil from works.

2. LEGAL AND OTHER REQUIRMENTS

In this project, there is no legal litigation at site for land and working area or site. Disposal of spoil will confirming the Environmental Protection Rules and Regulations of Govt. of India and The state Govt.

3. ROLES AND RESPONSIBILITY

In this project, there are major roles and responsibilities are followings

1) Extra excavated earth should be removed from site
2) Traffic movement should not be obstructed by dumping soil during the work
3) No low land, pond, ditch etc will be filled up by extra soil
4) No accident occurs during rainy season by excavated earth during or finished the work
5) All the drains, outlet should be free from our excavated earth

4. IDENTIFICATION AND ASSESSMENT OF SPOIL ASPECTS AND IMPACTS

In this project, there are some places assessed and identified jointly along with design engineer. Places inside the garden reach STP and Santoshpur Main Pumping station for dumping and dressing the extra earth have been selected, which is presently down from actual ground level. Potential for high winds generating 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.

5. SPOIL VOLUMES,CHARACTERISTICS AND MINIMIZATION

In this project, approx. generation of excavated earth will be 2750 cum. There is no plan to reuse the excess earth in the project. As per report from soil expert excavated earth is clayey in nature. Generation of excavated earth would be minimize as per design

6. SPOIL REUSES OPPORTUNITIES,IDENTIFICATION AND ASSESMENT

In this project, there is no opportunity to reuse of excavated earth; total excavated earth would be dispose as per plan. As required level and dressing to be done at the both work site (JP & RP) and balance excess to be dispose as planned.

7. ON SITE SPOIL MANAGEMENT APPROACH

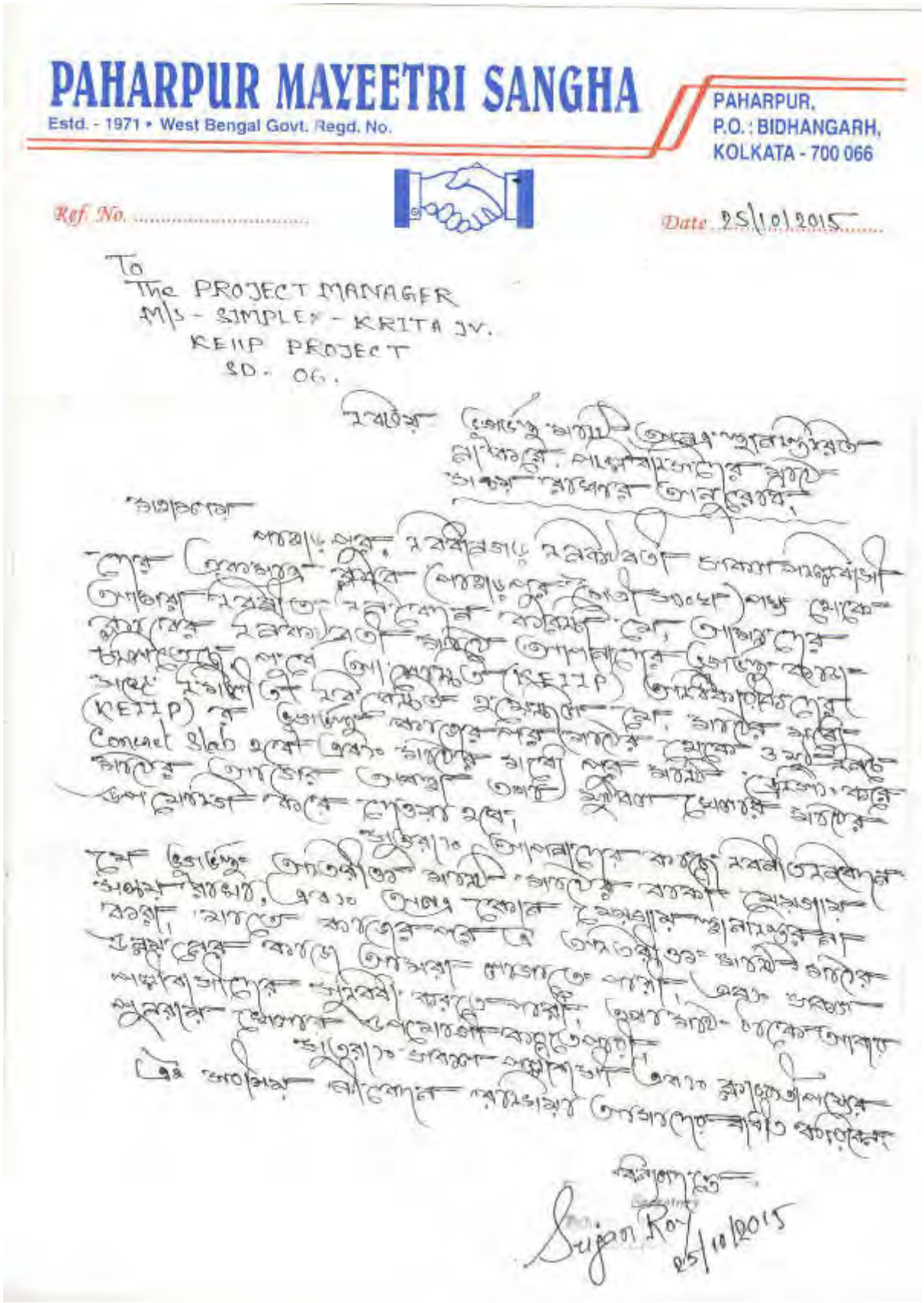
In this project, the approach is ready where soils to be dispose

8. SPOIL TRANSPORTATION METHODOLOGY

Extra excavated earth will be shifted by truck from working site to disposal area if required after levelling of the land and dressing.

9. MONITORING,REPORTING,REVIEW,AND IMPROVEMENTS

Monitoring, Reporting and all necessary improvements will be done as per requirement.



PAHARPUR MAYEETRI SANGHA
Estd. - 1971 • West Bengal Govt. Regd. No.

PAHARPUR,
P.O.: BIDHANGARH,
KOLKATA - 700 066

Ref. No. .....

Date 25/10/2015

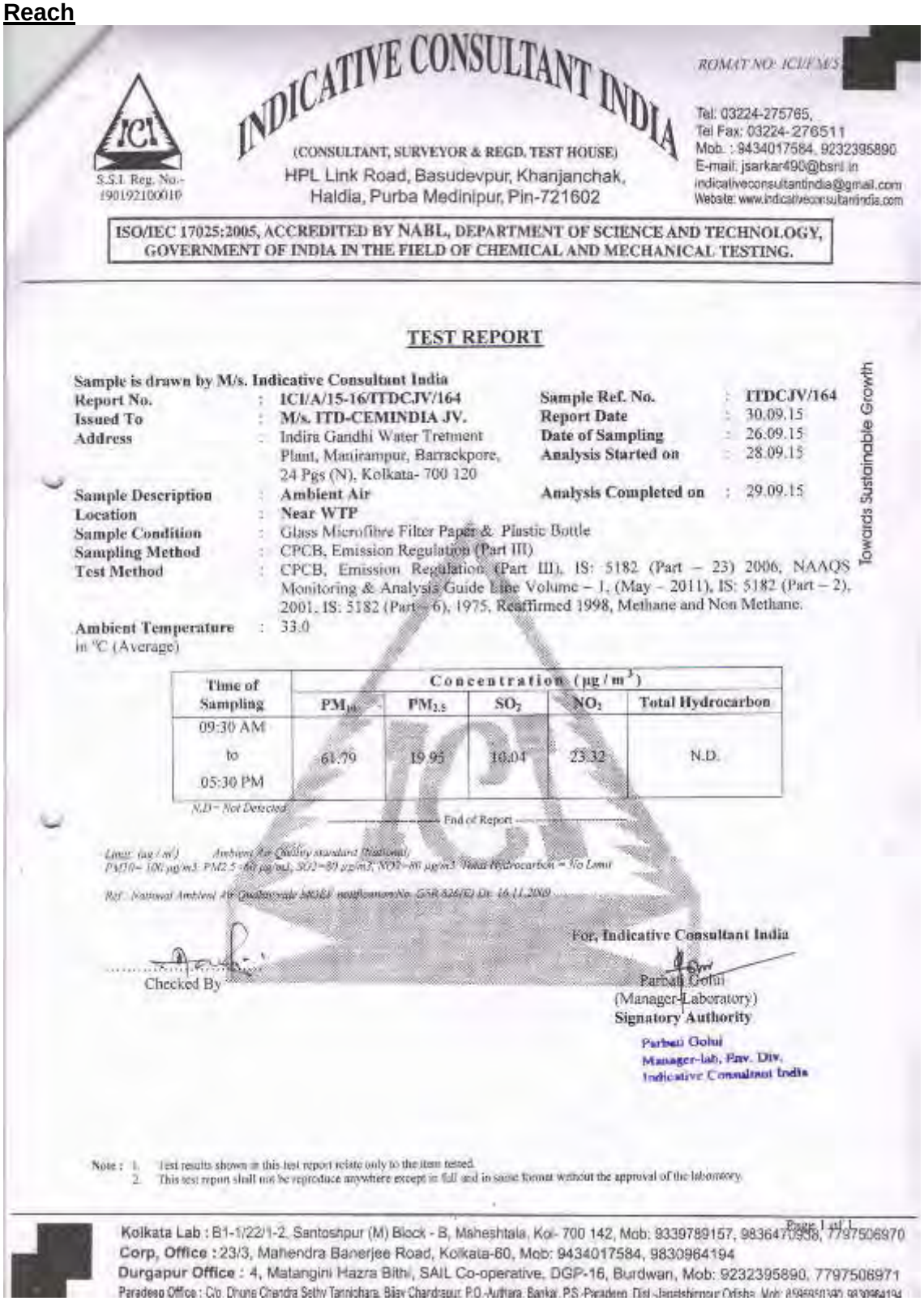
To
The PROJECT MANAGER
M/s - SIMPLEX - KRITA JV.
KEIIP PROJECT
SD. 06.

Sujoy Roy
25/10/2015

Transcription- NOC from land owner for disposal of slurry as generated from micro tunneling on their land

APPENDIX 8 – AIR, NOISE, WATER QUALITY DATA

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



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Towards Sustainable Growth

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	**ICI/A/15-16/ITDCJV/164**	**Sample Ref. No.**	:	**ITDCJV/164**
Issued To	:	**M/s. ITD-CEMINDIA JV.**	**Report Date**	:	30.09.15
Address	:	Indira Gandhi Water Tretment Plant, Manirampur, Barrackpore, 24 Pgs (N), Kolkata- 700 120	**Date of Sampling**	:	26.09.15
			Analysis Started on	:	28.09.15
Sample Description	:	**Ambient Air**	**Analysis Completed on**	:	29.09.15
Location	:	**Near WTP**			
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	:	CPCB, Emission Regulation (Part III)			
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.			
Ambient Temperature in °C (Average)	:	33.0			

Time of Sampling	Concentration (µg / m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:30 AM to 05:30 PM	61.79	19.95	16.04	23.32	N.D.

N.D= Not Detected

End of Report

Limit: (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5 =60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon = No Limit

Ref: National Ambient Air Quality Standards notification No. GSR 826(E) Dt. 16.11.2009

For, Indicative Consultant India

Checked By

Parbati Gohil
(Manager-Laboratory)
Signatory Authority

Parbati Gohil
Manager-lab, Env. Div.
Indicative Consultant India

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Durgapur Office : 4, Matangini Hazra Bithi, SAIL Co-operative, DGP-16, Burdwan, Mob: 9232395890, 7797506971
Paradeep Office : C/o. Dhuna Chandra Sethy Tamrichara, Bijay Chandrapur, P.O.-Authara Bankar, P.S.-Paradeep, Dist.-Jagatsinghpur Odisha, Mob: 8596950340, 9830964194

INDICATIVE CONSULTANT INDIA

ROMAT NO: ICI/FM/5

S.S.I. Reg. No.- 190192100010

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TEST REPORT

Towards Sustainable Growth

Sample is drawn by M/s. Indicative Consultant India

Report No.	: **ICI/A/15-16/ITDCJV/165**	**Sample Ref. No.**	:	**ITDCJV/165**
Issued To	: **M/s. ITD-CEMINDIA JV.**	**Report Date**	:	30.09.15
Address	: Indira Gandhi Water Tretment Plant, Manirampur, Barrackpore, 24 Pgs (N), Kolkata- 700 120	**Date of Sampling**	:	26.09.15
		Analysis Started on	:	28.09.15
Sample Description	: **Ambient Air**	**Analysis Completed on**	:	29.09.15
Location	: **Near Intake Jetty No. - 2**			
Sample Condition	: Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	: CPCB, Emission Regulation (Part III)			
Test Method	: CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – I, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.			
Ambient Temperature in °C (Average)	: 33.0			

Time of Sampling	Concentration ($\mu g/m^3$)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:15 AM to 05:15 PM	68.33	22.50	10.96	21.07	N.D.

N.D.= Not Detected

End of Report

Limit (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5 =60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon = No Limit

Ref : National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

For, Indicative Consultant India

Checked By

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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Durgapur Office : 4, Matangini Hazra Bithi, SAIL Co-operative, DGP-16, Burdwan, Mob: 9232395890, 7797506971

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Towards Sustainable Growth

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India
Sample submitted and identified by customer as: N.A

Report No. : **ICI/W/15-16/766**
Issued To : **M/s. ITD Cem. India Limited.**
Address : Indira Gandhi Water Treatment Plant, Manirampore, 24 Pgs. (N), Kolkata – 700 120.
Sample Condition : In Plastic Bottle
Sample Description : **Surface Water**
Sampling Method : IS:3025 (Part I) 1987 (Reaffirmed 2003), APHA 22nd ed 2012
Test Method : APHA 22nd ed 2012, IS:3025
Location : **Intake Jetty No. – 2 (Up Stream)**

Sample Ref. No. : W/766
Report Date : 06.10.15
Date of Sampling : 26.09.15
Analysis Started on : 28.09.15
Analysis Completed on : 05.10.15
Time of Sampling : 10:40 AM

Sl. No.	Parameters	Unit	Result	Method Followed
1.	Colour	Hazen Unit	<5.0	IS:3025(Part-4) 1983 Reaff. 1996
2.	Turbidity	N.T.U.	1.0	IS:3025(Part-10):1984, Reaff.2002 APHA 22nd Edition 2130 B
3.	Bio-Chemical Oxygen Demand (for 3 days at 27^{0}C)	mg/L	<2.0	IS:3025 (Part-44): 1993, Reaffirmed 2003
4.	Dissolved Oxygen	mg/L	6.59	APHA 21st Edition 4500OC, IS:3025 (Part-38): 1989, Reaffirmed 2003
5.	Total Dissolved Solid (TDS)	mg/L	210.0	IS:3025(Part-16):1984, Reaff.2002 APHA 22nd Edition 2540 C
6.	Calcium as Ca + Magnesium as Mg	mg/L	38.8	IS:3025(Part-40):1991, Reaff.2003 APHA 22nd Edition 3500Ca B & IS:3025(Part-46):1994, Reaff.2003 APHA 22nd Edition 3500Mg B
7.	Chloride as Cl	mg/L	14.8	IS:3025(Part-32):1988, Reaff.2003 APHA 22nd Edition 4500Cl B
8.	Boron as B	mg/L	<0.1	IS:3025(Part-29):1964 APHA 22nd Edition 3500B
9.	Sodium Ratio (upstream/ downstream)	---	0.24	APHA 22nd Edition) 3500 Na
10.	Total Coliform	MPN per 100 ml	520	APHA 21st Edition 9222 B
11.	Heterotropic Plate Count	CFU/ml	48	IS: 1622:1981
12.	Floating Matter as TSS	mg/L	10.0	APHA 22nd Edition 2540D, IS 3025 (Part-17):1984, Reaffirmed 1999, Reprint 2000

End of Report

Checked By

For, Indicative Consultant India

Parbati Golui
(Manager Laboratory)
Signatory Authority

Parbati Golui
Manager Lab, Env. Div.
Indicative Consultant India

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Durgapur Office : ...

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TEST REPORT

Towards Sustainable Growth

Sample is drawn by M/s. Indicative Consultant India
Sample submitted and identified by customer as: N.A

Report No.	:	**ICI/W/15-16/767**	**Sample Ref. No.**	:	W/767
Issued To	:	**M/s. ITD Cem. India Limited.**	**Report Date**	:	06.10.15
Address	:	Indira Gandhi Water Treatment Plant, Manirampore, 24 Pgs. (N), Kolkata – 700 120.	**Date of Sampling**	:	26.09.15
			Analysis Started on	:	28.09.15
Sample Condition	:	In Plastic Bottle	**Analysis Completed on**	:	05.10.15
Sample Description	:	**Surface Water**	**Time of Sampling**	:	05:40 PM
Sampling Method	:	IS:3025 (Part I) 1987 (Reaffirmed 2003), APHA 22nd ed 2012			
Test Method	:	APHA 22nd ed 2012, IS:3025			
Location	:	**Intake Jetty No. – 2 (Down Stream)**			

Sl. No.	Parameters	Unit	Result	Method Followed
1.	Colour	Hazen Unit	<5.0	IS:3025(Part-4) 1983 Reaff. 1996
2.	Turbidity	N.T.U.	1.0	IS:3025(Part-10):1984, Reaff.2002 APHA 22nd Edition 2130 B
3.	Bio-Chemical Oxygen Demand (for 3 days at 27°C)	mg/L	<2.0	IS:3025 (Part-44): 1993, Reaffirmed 2003
4.	Dissolved Oxygen	mg/L	6.14	APHA 21st Edition 4500OC, IS:3025 (Part-38): 1989, Reaffirmed 2003
5.	Total Dissolved Solid (TDS)	mg/L	280.0	IS:3025(Part-16):1984, Reaff.2002 APHA 22nd Edition 2540 C
6.	Calcium as Ca + Magnesium as Mg	mg/L	94.8	IS:3025(Part-40):1991, Reaff.2003 APHA 22nd Edition 3500Ca B & IS:3025(Part-46):1994, Reaff.2003 APHA 22nd Edition 3500Mg B
7.	Chloride as Cl	mg/L	17.2	IS:3025(Part-32):1988, Reaff.2003 APHA 22nd Edition 4500Cl B
8.	Boron as B	mg/L	<0.1	IS:3025(Part-29):1964 APHA 22nd Edition 3500D
9.	Sodium Ratio (upstream/ downstream)	-	0.24	APHA 22nd Edition) 3500 Na
10.	Total Coliform	MPN per 100 ml	700	APHA 21st Edition 9222 B
11.	Heterotropic Plate Count	CFU/ml	90	IS:1622:1981
12.	Floating Matter as TSS	mg/L	12.0	APHA 22nd Edition 2540D, IS:3025 (Part-17):1984, Reaffirmed 1999, Reprint 2000

End of Report

For, **Indicative Consultant India**

Checked By

Parbati Golui
(Manager Laboratory)
Signatory Authority

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WATER QUALITY STANDARD FOR SURFACE WATER SOURCES AS PER CPCB (New Delhi)

Water Quality Criteria	*Designated Best Use*	*Parameters Affecting*	*Quality Criteria*
A	*Drinking water source, without conventional treatment but after disinfection*	*Coliform, MNP* *Turbidity* *Colour* *BOD* *DO* *Plate Count* *Floating Matter* *Odour*	*<50/100 ml* *<10 units* *<10 units* *<2 mg/l* *>6 mg/l* *<50/100 ml* *Absent* *Not Perceptible*
B	*Bathing, Swimming and Recreation*	*Coliform, MNP* *Turbidity* *Colour* *BOD* *DO* *Floating Matter* *Odour*	*<500/100ml* *<25 units* *<10 units* *<3 mg/l* *>5 mg/l* *Not Perceptible* *Not Perceptible*
C	*Drinking water source after conventional treatment*	*Coliform, MNP* *Colour* *BOD* *DO*	*<5000/100 ml* *<25 units* *<3 mg/l* *>4 mg/l*
D	*Propagation of wildlife Fisheries*	*Coliform, MNP* *BOD* *DO*	*<5000/100ml* *<6 mg/l* *>4 mg/l*
E	*Irrigation, Industrial cooling and controlled waste disposal*	*TDS* *Ca+Mg* *Sodium Ratio* *Chlorids* *Boron*	*<1000 mg/l* *<100 mg/l units* *<0.5* *<250 mg/l* *<2 mg/l*

Towards Sustainable Growth

Purbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/557**
Issued To : **M/s. ITD-CEMINDIA JV.**
Address : Indira Gandhi Water Tretment Plant, Manirampur, Barrackpore, 24 Pgs (N), Kolkata- 700 120

Sample Ref. No. : SL/55
Report Date : 30.09.15
Date of Monitoring : 26.09.15

Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Location : **Near Intake Jetty No. - 2**
Limit : Industrial Area Day Time : 75 dB (A)
: Commercial Area Day Time : 65 dB (A)
: Residential Area Day Time : 55 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :
Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 10:05 AM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	60.7	0.111111111	117489.755	13350109.990
2	62.4		173780.083	
3	61.3		134896.288	
4	59.5		89125.094	
5	60.8		120226.443	
6	62.4		173780.083	
7	61.3		134896.288	
8	62.5		177827.941	
9	59.8		95499.259	
10	60.7		117489.755	
* The equivalent Noise Level Leq.			61.25	dB(A)

Maximum dB(A): 62.5
Minimum dB (A): 59.5

End of Report

Checked By

For, INDICATIVE CONSULTANT INDIA

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-Lab, Env. Div.
Indicative Consultant India

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Towards Sustainable Growth

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : ICI/SI./15-16/558
Issued To : M/s. ITD-CEMINDIA JV.
Address : Indira Gandhi Water Tretment Plant, Manirampur, Barrackpore, 24 Pgs (N), Kolkata- 700 120

Sample Ref. No. : SI./558
Report Date : 30.09.
Date of Monitoring : 26.09

Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Location : **Near Intake Jetty No. - 2**
Limit : Industrial Area Night Time : 70 dB (A)
: Commercial Area Night Time : 55 dB (A)
: Residential Area Night Time : 45 dB (A)
The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :
Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 10:35 PM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	53.2	0.1111111	23442.288	203457.727
2	51.2		13182.567	
3	52.5		17782.794	
4	54.7		29512.092	
5	53.5		22387.211	
6	51.3		13489.629	
7	52.8		19054.607	
8	54.8		30199.517	
9	53.0		19952.623	
10	51.6		14454.398	
* The equivalent Noise Level Leq.			53.08	dB(A)

Maximum dB(A): 54.8
Minimum dB (A): 51.2

End of Report

Checked By

For, INDICATIVE CONSULTANT INDIA

Parbati Ghosh
(Manager-Laboratory)
Signatory Authority

Parbati Ghosh
Manager-Lab, Env. Div.
Indicative Consultant India

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INDICATIVE CONSULTANT INDIA

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Towards Sustainable Growth

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/555** — **Sample Ref. No.** : SL/55

Issued To : **M/s. ITD-CEMINDIA JV.** — **Report Date** : 30.09.

Address : Indira Gandhi Water Tretment Plant, Manirampur, Barrackpore, 24 Pgs (N), Kolkata- 700 120 — **Date of Monitoring** : 26.09.

Sample Description : **Ambient Noise**

Sampling Method : By Digital Noise Meter

Location : **Near WTP**

Limit : Industrial Area Day Time : 75 dB (A)
: Commercial Area Day Time : 65 dB (A)
: Residential Area Day Time : 55 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor : 1.5 M — Starting Time : 11:45 AM

Distance of Source : 3.0 M — Total Time (T) : 18 Min

Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	57.3	0.111111	53703.180	441604.309
2	56.8		44668.359	
3	54.1		25703.958	
4	55.3		33884.416	
5	58.7		74131.024	
6	57.0		50118.723	
7	55.1		32359.366	
8	54.9		30902.954	
9	57.2		52480.746	
10	56.4		43651.583	

*** The equivalent Noise Level Leq. 56.45 dB(A)**

Maximum dB(A): 58.7

Minimum dB (A): 54.1

..... End of Report .....

Checked By

For, INDICATIVE CONSULTANT INDIA

Parbati Goswami
(Manager-Laboratory)
Signatory Authority

Parbati Goswami
Manager-lab, Env. Div.
Indicative Consultant India

Note : 1. Test results shown in this test report relate only to the item tested.

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Kolkata Lab : B1-1/22/1-2, Santoshpur (M) Block - B, Maheshtala, Kol- 700 142, Mob: 9339789157, 9836470938, 7797506970

INDICATIVE CONSULTANT INDIA

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/556** — **Sample Ref. No.** : SL/556

Issued To : **M/s. ITD-CEMINDIA JV.** — **Report Date** : 30.09.15

Address : Indira Gandhi Water Tretment Plant, Manirampur, Barrackpore, 24 Pgs (N), Kolkata- 700 120 — **Date of Monitoring** : 26.09.15

Sample Description : **Ambient Noise**

Sampling Method : By Digital Noise Meter

Location : **Near WTP**

Limit : Industrial Area Night Time : 70 dB (A)
: Commercial Area Night Time : 55 dB (A)
: Residential Area Night Time : 45 dB (A)
The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor : 1.5 M — Starting Time : 2:35 PM

Distance of Source : 3.0 M — Total Time (T) : 18 Min

Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	47.3	0.111111111	5370.318	53920.871
2	45.2		3311.311	
3	48.3		6760.830	
4	47.5		5623.413	
5	46.7		4677.351	
6	48.9		7762.471	
7	46.2		4168.694	
8	47.2		5248.075	
9	45.1		3235.937	
10	48.9		7762.471	
^ The equivalent Noise Level Leq.			47.32	dB(A)

Maximum dB(A): 48.9

Minimum dB (A): 45.1

End of Report

Checked By

For, INDICATIVE CONSULTANT INDIA

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-Lab. Env. Div.
Indicative Consultant India

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Durgapur Office : 4, Matangini Hazra Bithi, SAIL Co-operative, DGP-16, Durgapur, Mob: [illegible]

Towards Sustainable Growth

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

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & ROAD TEST HOUSE)

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TEST REPORT

Towards Sustainable Growth

Sample is drawn by M/s. Indicative Consultant India

Report No.	: ICI/A/15-16/ITDCJ/229	Sample Ref. No.	:	ITDCJ/229
Issued To	: M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant	Report Date	:	10.12.15
Address	: Near Nature Park, Taratala Road, Kolkata - 700 066	Date of Sampling	:	07.12.15
		Analysis Started on	:	08.12.15
Sample Description	: Ambient Air	Analysis completed on	:	09.12.15
Location	: Shaft No. – 1, Taratala Road			
Sample Condition	: Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	: CPCB, Emission Regulation (Part III)			
Test Method	: CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.			
Ambient Temperature in °C (Average)	: 28.0			

Time of Sampling	Concentration (µg/m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:10 AM to 05:10 PM	78.37	28.68	16.05	42.72	N.D

N.D= Not Detected

---------- End of Report ----------

Limit: (µg/m³) Ambient Air Quality standard /Removal:
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon – No Limit

Ref: National Ambient Air Quality Vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, Indicative Consultant India

Purbali Gohil
(Manager-Laboratory)
Signatory Authority

Note : 1. Test results shown in this test report relate only to the item tested.
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INDICATIVE CONSULTANT INDIA

ROMAT NO: ICI/FM/5

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	ICI/A/15-16/ITDC3/230	Sample Ref. No.	: ITDC3/230
Issued To	:	M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant	Report Date	: 10.12.15
Address	:	Near Nature Park, Taratala Road, Kolkata - 700 066	Date of Sampling	: 07.12.15
			Analysis Started on	: 08.12.15
Sample Description	:	Ambient Air	Analysis completed on	: 09.12.15
Location	:	Shaft No. – 19 , D.H. Road		
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle		
Sampling Method	:	CPCB, Emission Regulation (Part III)		
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – I, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane		
Ambient Temperature in °C (Average)	:	28.0		

Time of Sampling	Concentration (µg/m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:50 AM to 05:50 PM	85.12	33.67	15.11	40.73	N.D.

N.D.- Not Detected

---------- End of Report ----------

Limit: (µg / m³) : Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5 =60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3,Total Hydrocarbon = No Limit.

Ref: General Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, Indicative Consultant India

Parbati Ghoker
(Manager-Laboratory)
Signatory Authority

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	**: ICI/SL/15-16/867**	**Sample Ref. No.**	**: SL/867**
Issued To	**: M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant**	**Report Date**	**: 15.12.15**
		Date of Monitoring	**: 07.12.15**
Address	: Near Nature Park, Taratala Road, Kolkata - 700 066		
Sample Description	: Ambient Noise		
Sampling Method	: By Digital Noise Meter		
Test Method	: IS 10988:1984, Reaffirm 2005		
Location	: **Shaft No. - 1, Taratala Road**		
Limit	: Day Time : 75 dB (A)		
	The Noise Pollution (Regulation & Control) Rules, 2000		
	Gazette of India, vide S.O. 59 (E) dated 11.01.2010 under the EPA Act, 1986		

Monitoring Details :

Height from the floor	: 1.5 M	Starting Time	: 3:10 PM
Distance of Source	: 3.0 M	Total Time (T)	: 18 Min
		Difference (dt)	: 2 Min

Sl. No.	Noise Level (Li)	ft – dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	60.7	0.11111111	117489.755	266445.391
2	61.3		134896.288	
3	59.8		95499.259	
4	60.4		109647.820	
5	62.5		177827.941	
6	60.9		123026.877	
7	61.2		131825.674	
8	59.9		97723.722	
9	60.3		107151.931	
10	61.8		151356.125	

*** The equivalent Noise Level Leq. 60.96 dB(A)**

Maximum dB(A): 62.5

Minimum dB (A): 59.8

End of Report

Checked By

For, INDICATIVE CONSULTANT INDIA

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Manager-Lab, Env. Div.
Indicative Consultant India

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : ICI/SL/15-16/868

Issued To : M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant

Address : Near Nature Park, Taratala Road, Kolkata - 700 066

Sample Description : Ambient Noise

Sampling Method : By Digital Noise Meter

Test Method : IS 10988:1984, Reaffirm 2005

Location : Shaft No. - 19, D.H. Road

Limit : Day Time : 75 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000

Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Sample Ref. No. : SL/868

Report Date : 15.12.15

Date of Monitoring : 07.12.15

Monitoring Details :

Height from the floor : 1.5 M

Distance of Source : 3.0 M

Starting Time : 4:25 PM

Total Time (T) : 18 Min

Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	fi = dt/T	fi X 10^(Li/10)	Sum of fi X 10^(Li/10)
1	64.3	0.11111111	269753.480	6603885.609
2	62.9		194984.460	
3	65.8		380189.396	
4	63.9		245470.892	
5	75.2		3311311.215	
6	62.8		190546.072	
7	64.8		301995.172	
8	70.6		1148153.621	
9	62.8		190546.072	
10	65.7		371535.229	

* The equivalent Noise Level Leq. 68.20 dB(A)

Maximum dB(A): 75.2

Minimum dB (A): 62.8

End of Report

Checked By

For, INDICATIVE CONSULTANT INDIA

Paibali Sarkar

(Manager-Laboratory)

Signatory Authority

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	**ICI/A/15-16/ITDCJ/110**	**Sample Ref. No.**	:	**ITDCJ/110**
Issued To	:	**M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant**	**Report Date**	:	04.08.15
Address	:	Near Nature Park, Taratala Road, Kolkata - 700 066	**Date of Sampling**	:	31.07.15
			Analysis Started on	:	03.08.15
Sample Description	:	**Ambient Air**	**Analysis completed on**	:	03.08.15
Location	:	**Taratala Road, Shaft No. - 7, (Tunnel) Brace Bridge**			
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	:	CPCB, Emission Regulation (Part III)			
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.			
Ambient Temperature in °C (Average)	:	27.0			

Time of Sampling	Concentration ($\mu g/m^3$)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
10:00 AM to 06:00 PM	73.22	28.82	14.31	34.20	N.D.

N.D= Not Detected

---------- End of Report ----------

Unit: (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon = No Limit.

Ref: National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt. 16.11.2009

Checked By

For, Indicative Consultant India

Parbati Gohil
(Manager-Laboratory)
Signatory Authority

Parbati Gohil
Manager-Lab, Env. Div.
Indicative Consulting India

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INDICATIVE CONSULTANT INDIA

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	**ICI/A/15-16/ITDCJ/111**	**Sample Ref. No.**	:	**ITDCJ/111**
Issued To	:	**M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant**	**Report Date**	:	04.08.15
Address	:	Near Nature Park, Taratala Road, Kolkata - 700 066	**Date of Sampling**	:	31.07.15
			Analysis Started on	:	03.08.15
Sample Description	:	**Ambient Air**	**Analysis completed on**	:	03.08.15
Location	:	**D.H. Road, Shaft No. - 17, (3A, Bus Stand)**			
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	:	CPCB, Emission Regulation (Part III)			
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.			
Ambient Temperature in °C (Average)	:	27.0			

Time of Sampling	Concentration ($\mu g/m^3$)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
11:00 AM to 07:00 PM	70.85	28.86	13.41	38.11	N.D.

N.D= Not Detected

---------- End of Report ----------

Limit (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon = No Limit

Ref : National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, Indicative Consultant India

Parbati Gului
(Manager-Laboratory)
Signatory Authority

Parbati Gului
Manager-Lab, Env. Div.
Indicative Consultant India

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	: ICI/SL/15-16/408	Sample Ref. No.	: SL/408
Issued To	: M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant	Report Date	: 04.08.15
		Date of Monitoring	: 31.07.15
Address	: Near Nature Park, Taratala Road, Kolkata - 700 066		
Sample Description	: Ambient Noise		
Sampling Method	: By Digital Noise Meter		
Location	: Taratala Road, Shaft No. - 7, (Brace Bridge)		
Limit	: Day Time : 75 dB (A)		

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor	: 1.5 M	Starting Time	: 10:20 AM
Distance of Source	: 3.0 M	Total Time (T)	: 18 Min
		Difference (dt)	: 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	64.3	0.11111111	269153.480	5423696.592
2	63.9		245470.892	
3	66.7		467735.141	
4	63.8		239883.292	
5	65.9		389045.145	
6	68.2		660693.448	
7	67.5		562341.325	
8	69.9		977237.221	
9	70.1		1023292.992	
10	67.7		588843.655	

*** The equivalent Noise Level Leq. 67.34 dB(A)**

Maximum dB(A): 70.1
Minimum dB (A): 63.8

.... End of Report ....

Checked By

For, INDICATIVE CONSULTANT INDIA

Parbati Gorai
(Manager-Laboratory)
Signatory Authority
Parbati Gorai
Manager-Lab, Env. Div.
Indicative Consultant India

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Corp. Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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S.S.I. Reg. No.- 192.92100510

ISO/IEC 17025:2005, ACCREDITED BY NABL, DEPARTMENT OF SCIENCE AND TECHNOLOGY, GOVERNMENT OF INDIA IN THE FIELD OF CHEMICAL AND MECHANICAL TESTING

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/409** — **Sample Ref. No.** : SL/409

Issued To : **M/s. ITD-ITD CEM JV, KEIIP Micro Tunneling Project, Garden Reach Sewage Treatment Plant** — **Report Date** : 04.08.15

Address : Near Nature Park, Taratala Road, Kolkata - 700 066 — **Date of Monitoring** : 31.07.15

Sample Description : **Ambient Noise**

Sampling Method : By Digital Noise Meter

Location : **D.H. Road, Shaft No. - 17, (3A, Bus Stand)**

Limit : Day Time : 75 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000

Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor : 1.5 M — Starting Time : 12:30 PM

Distance of Source : 3.0 M — Total Time (T) : 18 Min

Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	66.3	0.11111111	426579.519	7426266.738
2	69.4		870963.590	
3	71.3		1348962.883	
4	69.5		891250.938	
5	72.3		1698243.652	
6	68.3		676082.975	
7	64.9		309029.543	
8	66.2		416869.383	
9	67.1		512861.384	
10	64.4		275422.870	
	*** The equivalent Noise Level Leq.**		**68.71**	**dB(A)**

Maximum dB(A): *72.3*

Minimum dB (A): *64.4*

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-Lab, Env. Div.
Indicative Consultant India

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Corp. Office : 23/3, Manendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194

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

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

HPL Link Road, Basudevpur, Khanjanchak, Haldia, Purba Medinipur, Pin-721602

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	**ICI/A/15-16/TMJ/246**	**Sample Ref. No.**	: **TMJ/246**
Issued To	:	**M/s. Tantia-MPPL (WILO) JV**	**Report Date**	: 06.01.16
Address	:	Joka Tram Depot. Gate No. – 3, Kolkata – 700 104.	**Date of Sampling**	: 31.12.15
			Analysis Started on	: 04.01.16
Sample Description	:	**Ambient Air**	**Analysis Completed on**	: 05.01.16
Location	:	**Begore Khal Pumping Station**		
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle		
Sampling Method	:	CPCB, Emission Regulation (Part III)		
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2) 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.		
Ambient Temperature in °C (Average)	:	24.0		

Towards Sustainable Growth

Time of Sampling	Concentration (µg / m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:05 AM to 05:05 PM	89.02	38.75	22.66	42.72	N.D.

N.D= Not Detected

---------- End of Report ----------

Limit (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3,Total Hydrocarbon = No Limit

Ref : National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, **Indicative Consultant India**

Parbati Golui
(Manager-Laboratory)
Signatory Authority
Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	**ICI/A/15-16/TMJ/247**	**Sample Ref. No.**	:	**TMJ/247**
Issued To	:	**M/s. Tantia-MPPL (WILO) JV**	**Report Date**	:	06.01.16
Address	:	Joka Tram Depot. Gate No. – 3, Kolkata – 700 104.	**Date of Sampling**	:	31.12.15
			Analysis Started on	:	04.01.16
Sample Description	:	**Ambient Air**	**Analysis Completed on**	:	05.01.16
Location	:	**Joka Pumping Station**			
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	:	CPCB, Emission Regulation (Part III)			
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.			
Ambient Temperature in °C (Average)	:	24.0			

Time of Sampling	Concentration ($\mu g/m^3$)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:25 AM to 05:25 PM	124.28	52.43	22.66	62.59	N.D.

N.D= Not Detected

---------- End of Report ----------

Limit: ($\mu g/m^3$) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3,Total Hydrocarbon = No Limit

Ref : National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, **Indicative Consultant India**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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Corp, Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194
Durgapur Office : 4, Matangini Hazra Pithi, SAIL Co-operative, DGP-16, Burdwan, Mob: 9232395890, 7797506971

Towards Sustainable Growth

INDICATIVE CONSULTANT INDIA

FORMAT NO: ICI/FM/

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	**ICI/A/15-16/TMJ/248**	**Sample Ref. No.**	:	**TMJ/248**
Issued To	:	**M/s. Tantia-MPPL (WILO) JV**	**Report Date**	:	06.01.16
Address	:	Joka Tram Depot. Gate No. – 3, Kolkata – 700 104.	**Date of Sampling**	:	31.12.15
			Analysis Started on	:	04.01.16
Sample Description	:	**Ambient Air**	**Analysis Completed on**	:	05.01.16
Location	:	**Panch – Kari Ghosh Road**			
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	:	CPCB, Emission Regulation (Part III)			
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998, Methane and Non Methane.			
Ambient Temperature in °C (Average)	:	24.0			

Towards Sustainable Growth

Time of Sampling	Concentration (µg/m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:45 AM to 05:45 PM	87.30	36.20	20.77	59.61	N.D.

N.D= Not Detected

---------- End of Report ----------

Limit: (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon = No Limit

Ref : National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, **Indicative Consultant India**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	**: ICI/SL/15-16/910**	**Sample Ref. No.**	**: SL/910**
Issued To	**: M/s. Tantia-MPPL (WILO) JV.**	**Report Date**	**: 06.01.16**
Address	: Joka Tram Depot. Gate No. – 3, Kolkata – 700 104	**Date of Monitoring**	**: 31.12.15**
Sample Description	**: Ambient Noise**		
Sampling Method	: By Digital Noise Meter		
Test Method	: IS 10988:1984, Reaffirm 2005		
Location	**: Begore Khal Pumping Station**		
Limit	: Day Time : 75 dB (A)		

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor	:	1.5 M	Starting Time	:	9:20 AM
Distance of Source	:	3.0 M	Total Time (T)	:	18 Min
			Difference (dt)	:	2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	56.5	0.11111111	44668.359	518333.428
2	58.8		75857.758	
3	55.7		37153.523	
4	60.4		109647.820	
5	56.5		44668.359	
6	54.7		29512.092	
7	57.2		52480.746	
8	53.1		20417.379	
9	58.9		77624.712	
10	54.2		26302.680	

*** The equivalent Noise Level Leq. 57.15 dB(A)**

Maximum dB(A): 60.4
Minimum dB (A): 53.1

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority
Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/911**
Issued To : **M/s. Tantia-MPPL (WILO) JV.**
Address : Joka Tram Depot. Gate No. – 3, Kolkata – 700 104

Sample Ref. No. : SL/911
Report Date : 06.01.16
Date of Monitoring : 31.12.15

Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Begore Khal Pumping Station**
Limit : Night Time : 70 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 10:05 PM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	52.7	0.11111111	18620.871	152426.974
2	50.6		11481.536	
3	48.9		7762.471	
4	53.6		22908.677	
5	51.5		14125.375	
6	54.0		25118.864	
7	50.3		10715.193	
8	52.5		17782.794	
9	49.6		9120.108	
10	51.7		14791.084	

*** The equivalent Noise Level Leq. 51.83 dB(A)**

Maximum dB(A): ***54.0***
Minimum dB (A): ***48.9***

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	**: ICI/SL/15-16/912**	**Sample Ref. No.**	**: SL/912**
Issued To	**: M/s. Tantia-MPPL (WILO) JV.**	**Report Date**	**: 06.01.16**
Address	: Joka Tram Depot. Gate No. – 3, Kolkata – 700 104	**Date of Monitoring**	**: 31.12.15**
Sample Description	**: Ambient Noise**		
Sampling Method	: By Digital Noise Meter		
Test Method	: IS 10988:1984, Reaffirm 2005		
Location	**: Joka Pumping Station**		
Limit	: Day Time : 75 dB (A)		

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor	:	1.5 M	Starting Time	:	10:10 AM
Distance of Source	:	3.0 M	Total Time (T)	:	18 Min
			Difference (dt)	:	2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	58.7	0.11111111	74131.024	1010614.384
2	62.3		169824.365	
3	56.4		43651.583	
4	60.7		117489.755	
5	55.2		33113.112	
6	59.4		87096.359	
7	65.1		323593.657	
8	57.2		52480.746	
9	56.5		44668.359	
10	58.1		64565.423	

*** The equivalent Noise Level Leq. 60.05 dB(A)**

Maximum dB(A): 65.1
Minimum dB (A): 55.2

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/913**
Issued To : **M/s. Tantia-MPPL (WILO) JV.**
Address : Joka Tram Depot. Gate No. – 3, Kolkata – 700 104
Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Joka Pumping Station**
Limit : Night Time : 70 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Sample Ref. No. : SL/913
Report Date : 06.01.16
Date of Monitoring : 31.12.15

Towards Sustainable Growth

Monitoring Details :

Height from the floor : 1.5 M
Distance of Source : 3.0 M
Starting Time : 10:50 PM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	54.7	0.11111111	29512.092	340626.904
2	57.6		57543.994	
3	55.1		32359.366	
4	52.3		16982.437	
5	54.6		28840.315	
6	55.1		32359.366	
7	53.6		22908.677	
8	56.4		43651.583	
9	57.2		52480.746	
10	53.8		23988.329	

*** The equivalent Noise Level Leq. 55.32 dB(A)**

Maximum dB(A): *57.6*
Minimum dB (A): *52.3*

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Gofui
(Manager-Laboratory)
Signatory Authority

Parbati Gofui
Manager-lab, Env. Div.
Indicative Consultant India

Note : 1. Test results shown in this test report relate only to the item tested.
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Kolkata Lab : B1-1/22/1-2, Santoshpur (M) Block - B, Maheshtala, Kol- 700 142, Mob: 9339789157, 9836470938, 7797506970
Corp, Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

HPL Link Road, Basudevpur, Khanjanchak, Haldia, Purba Medinipur, Pin-721602

S.S.I. Reg. No.- 190192100010

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Tel Fax: 03224- 276511
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indicativeconsultantindia@gmail.com
Website: www.indicativeconsultantindia.com

ISO/IEC 17025:2005, ACCREDITED BY NABL, DEPARTMENT OF SCIENCE AND TECHNOLOGY, GOVERNMENT OF INDIA IN THE FIELD OF CHEMICAL AND MECHANICAL TESTING.

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/914**
Issued To : **M/s. Tantia-MPPL (WILO) JV.**
Address : Joka Tram Depot. Gate No. – 3, Kolkata – 700 104

Sample Ref. No. : SL/914
Report Date : 06.01.16
Date of Monitoring : 31.12.15

Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Panch Kari Ghosh Road**
Limit : Day Time : 75 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 10:50 AM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	54.7	0.11111111	29512.092	370083.186
2	52.8		19054.607	
3	56.6		45708.819	
4	55.1		32359.366	
5	58.9		77624.712	
6	56.4		43651.583	
7	53.1		20417.379	
8	55.1		32359.366	
9	53.1		20417.379	
10	56.9		48977.882	

*** The equivalent Noise Level Leq. 55.68 dB(A)**

Maximum dB(A): *58.9*
Minimum dB (A): *52.8*

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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Kolkata Lab : B1-1/22/1-2, Santoshpur (M) Block - B, Maheshtala, Kol- 700 142, Mob: 9339789157, 9836470938, 7797506970
Corp, Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194

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S.S.I. Reg. No.- 190192100010

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/915**
Issued To : **M/s. Tantia-MPPL (WILO) JV.**
Address : Joka Tram Depot. Gate No. – 3, Kolkata – 700 104
Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Panch Kari Ghosh Road**
Limit : Night Time : 70 dB (A)
The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Sample Ref. No. : SL/915
Report Date : 06.01.16
Date of Monitoring : 31.12.15

Towards Sustainable Growth

Monitoring Details :

Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 11:30 PM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	50.6	0.11111111	11481.536	130377.459
2	53.2		20892.961	
3	48.5		7079.458	
4	51.0		12589.254	
5	47.3		5370.318	
6	50.6		11481.536	
7	52.9		19498.446	
8	51.6		14454.398	
9	49.7		9332.543	
10	52.6		18197.009	

*** The equivalent Noise Level Leq. 51.15 dB(A)**

Maximum dB(A): ***53.2***
Minimum dB (A): ***47.3***

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-lab, Env. Div.
Indicative Consultant India

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Kolkata Lab : B1-1/22/1-2, Santoshpur (M) Block - B, Maheshtala, Kol- 700 142, Mob: 9339789157, 9836470938, 7797506970
Corp, Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194

Package: Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant

INDICATIVE CONSULTANT INDIA

FORMAT NO: ICI/FM

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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TEST REPORT

Towards Sustainable Growth

Sample is drawn by M/s. Indicative Consultant India

Report No.	: ICI/A/15-16/SKJV/243	Sample Ref. No.	:	SKJV/243
Issued To	: M/s. Simplex Krita J.V.	Report Date	:	01.01.16
Address	: Plot No.- 22, Block-EN, Sector - V, 4th Floor, Saltlake, Kolkata, Pin- 700 091	Date of Sampling	:	26.12.15 to 27.12.15
		Analysis Started on	:	29.12.15
		Analysis Completed on	:	31.12.15
Sample Description	: Ambient Air			
Location	: Santoshpur Pumping Station (R.P. Side)			
Sample Condition	: Glass Microfibre Filter Paper & Plastic Bottle			
Sampling Method	: CPCB, Emission Regulation (Part III)			
Test Method	: CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998.GC analysis.			
Ambient Temperature in °C (Average)	: 18.0			

Time of Sampling	Concentration (µg/m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:10 AM to 05:10 PM	76.06	23.69	14.16	54.64	N.D.
05:20 PM to 01:20 AM	81.20	26.25	16.05	58.62	N.D.
01:40 AM to 09:40 AM	86.40	36.20	19.83	60.60	N.D.

N.D= Not Detected

---------- End of Report ----------

Limit: (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon = No Limit

Ref : National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, Indicative Consultant India

Parbati Golui
(Manager-Laboratory)
Signatory Authority

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Parbati Golui
Manager-Laboratory, Dte.
Indicative Consultant India

Page 1 of 1

Kolkata Lab : B1-1/22/1-2, Santoshpur (M) Block - B, Maheshtala, Kol- 700 142, Mob: 9339789157, 9836470938, 7797506970
Corp. Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194
Durgapur Office : 4, Matangini Hazra Bithi, SAIL Co-operative, DGP-16, Burdwan, Mob: 9232395890, 7797506971

INDICATIVE CONSULTANT INDIA

FORMAT NO: ICI/FM/

S.S.I. Reg. No.- 190192100010

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No.	:	ICI/A/15-16/SKJV/244	Sample Ref. No.	: SKJV/244
Issued To	:	M/s. Simplex Krita J.V.	Report Date	: 01.01.16
Address	:	Plot No.- 22, Block-EN, Sector - V, 4th Floor, Saltlake, Kolkata, Pin- 700 091	Date of Sampling	: 26.12.15 to 27.12.15
			Analysis Started on	: 29.12.15
			Analysis Completed on	: 31.12.15
Sample Description	:	Ambient Air		
Location	:	Garden Reach Sewerage Treatment Plant (J.P. Side)		
Sample Condition	:	Glass Microfibre Filter Paper & Plastic Bottle		
Sampling Method	:	CPCB, Emission Regulation (Part III)		
Test Method	:	CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – 1, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998.GC analysis.		
Ambient Temperature in °C (Average)	:	18.0		

Towards Sustainable Growth

Time of Sampling	Concentration (µg/m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:25 AM to 05:25 PM	73.54	26.22	13.22	51.66	N.D.
05:35 PM to 01:35 AM	78.28	27.47	15.11	53.65	N.D.
01:45 AM to 09:45 AM	86.05	31.21	17.94	56.63	N.D.

N.D= Not Detected

---------- End of Report ----------

Limit: (µg / m³) Ambient Air Quality standard (National)
PM10= 100 µg/m3, PM2.5=60 µg/m3, SO2=80 µg/m3, NO2=80 µg/m3, Total Hydrocarbon = No Limit

Ref: National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, Indicative Consultant India

Parbati Golui
(Manager-Laboratory)
Signatory Authority

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Corp. Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194
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S.S.I. Reg. No.- 190192100010

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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Haldia, Purba Medinipur, Pin-721602

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Towards Sustainable Growth

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/A/15-16/SKJV/244A**
Issued To : **M/s. Simplex Krita J.V.**
Address : Plot No.- 22, Block-EN, Sector - V, 4th Floor, Saltlake, Kolkata, Pin- 700 091

Sample Ref. No. : **SKJV/244A**
Report Date : 01.01.16
Date of Sampling : 26.12.15 to 27.12.15
Analysis Started on : 29.12.15
Analysis Completed on : 31.12.15

Sample Description : **Ambient Air**
Location : **Railway Line At Solabigha**
Sample Condition : Glass Microfibre Filter Paper & Plastic Bottle
Sampling Method : CPCB, Emission Regulation (Part III)
Test Method : CPCB, Emission Regulation (Part III), IS: 5182 (Part – 23) 2006, NAAQS Monitoring & Analysis Guide Line Volume – I, (May – 2011), IS: 5182 (Part – 2), 2001, IS: 5182 (Part – 6), 1975, Reaffirmed 1998.GC analysis.
Ambient Temperature in °C (Average) : 18.0

Time of Sampling	Concentration (µg/m³)				
	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Total Hydrocarbon
09:45AM to 05:45 PM	79.54	32.82	14.66	45.28	N.D.
06:00PM to 02:00 AM	82.73	37.18	15.21	49.11	N.D.
02:15AM to 10:15 AM	85.12	39.32	17.22	52.06	N.D.

N.D – Not Detected

---------------------------- End of Report ----------------------------

Limit (µg/m³) Ambient Air Quality standard (National)
PM10 – 100 µg/m3, PM2.5 – 60 µg/m3, SO2 – 80 µg/m3, NO2 – 80 µg/m3, Total Hydrocarbon – No Limit

Ref: National Ambient Air Quality vide MOEF notification No. GSR 826(E) Dt: 16.11.2009

Checked By

For, **Indicative Consultant India**

Parbati Gului
(Manager-Laboratory)
Signatory Authority

Parbati Gului
Manager-Lab. ... Div.
Indicative Consultant India

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Durgapur Office : 4, Matangini Hazra Bithi, SAIL Co-operative ...

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/905**
Issued To : **M/s. Simplex Krita JV.**
Address : Plot No. 22, Block - EN, Sector-V, 4th Floor, Salt Lake, Kolkata - 700 091

Sample Ref. No. : SL/905
Report Date : 31.12.15
Date of Monitoring : 26.12.15

Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Santoshpur Pumping Station (R.P. Side)**
Limit : Day Time : 55 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

towards Sustainable Growth

Monitoring Details :

Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 10:05 AM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	60.5	0.11111111	112201.845	1949344.512
2	62.3		169824.365	
3	58.7		74131.024	
4	67.2		524807.460	
5	61.6		144543.977	
6	59.4		87096.359	
7	63.6		229086.765	
8	58.5		70794.578	
9	62.4		173780.083	
10	65.6		363078.055	

*** The equivalent Noise Level Leq. 62.90 dB(A)**

Maximum dB(A): *67.2*
Minimum dB (A): *58.5*

End of Report

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Gehri
(Manager-Laboratory)
Signatory Authority

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INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/906**
Issued To : **M/s. Simplex Krita JV.**
Address : Plot No. 22, Block - EN, Sector-V, 4th Floor, Salt Lake, Kolkata - 700 091

Sample Ref. No. : SL/906
Report Date : 31.12.15
Date of Monitoring : 26.12.15

Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Santoshpur Pumping Station (R.P. Side)**
Limit : Night Time : 45 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :

Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 10:10 PM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	53.1	0.11111111	20417.379	222438.180
2	52.9		19498.446	
3	54.6		28840.315	
4	53.0		19952.623	
5	54.1		25703.958	
6	52.7		18620.871	
7	52.2		16595.869	
8	53.8		23988.329	
9	54.8		30199.517	
10	52.7		18620.871	

*** The equivalent Noise Level Leq. 53.47 dB(A)**

Maximum dB(A): 54.8
Minimum dB (A): 52.2

End of Report

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

Parbati Golui
Manager-Lab, Env. Div.
India

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Corp. Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194
Durgapur Office : 4, Matangini Hazra Bithi, SAIL Co-operative, DGP 16, [illegible]

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/907**
Issued To : **M/s. Simplex Krita JV.**
Address : Plot No. 22, Block - EN, Sector-V, 4th Floor, Salt Lake, Kolkata - 700 091
Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Garden Reach Sewerage Treatment Plant (J.P. Side)**
Limit : Day Time : 55 dB (A)
The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Sample Ref. No. : SL/907
Report Date : 31.12.15
Date of Monitoring : 26.12.15

Towards Sustainable Growth

Monitoring Details :
Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 11:25 AM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	62.5	0.11111111	177827.941	1645019.690
2	60.4		109647.820	
3	61.5		141253.754	
4	63.2		208929.613	
5	61.5		141253.754	
6	62.8		190546.072	
7	60.9		123026.877	
8	63.5		223872.114	
9	62.4		173780.083	
10	61.9		154881.662	

*** The equivalent Noise Level Leq. 62.16 dB(A)**

Maximum dB(A): *63.5*
Minimum dB (A): *60.4*

End of Report

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Gohil
(Manager-Laboratory)
Signatory Authority

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Corp, Office : 23/3, Mahendra Banerjee Road, Kolkata-60, Mob: 9434017584, 9830964194
Durgapur Office : 4, Matangini Hazra Bithi, SAIL Co-operative, DGP-16, Burdwan, Mob: 9232395890, 7797506971

INDICATIVE CONSULTANT INDIA

(CONSULTANT, SURVEYOR & REGD. TEST HOUSE)

HPL Link Road, Basudevpur, Khanjanchak, Haldia, Purba Medinipur, Pin-721602

S.S.I. Reg. No.- 19019210001O

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ISO/IEC 17025:2005, ACCREDITED BY NABL, DEPARTMENT OF SCIENCE AND TECHNOLOGY, GOVERNMENT OF INDIA IN THE FIELD OF CHEMICAL AND MECHANICAL TESTING.

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/908**
Issued To : **M/s. Simplex Krita JV.**
Address : Plot No. 22, Block - EN, Sector-V, 4th Floor, Salt Lake, Kolkata - 700 091
Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Test Method : IS 10988:1984, Reaffirm 2005
Location : **Garden Reach Sewerage Treatment Plant (J.P. Side)**
Limit : Night Time : 45 dB (A)
The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Sample Ref. No. : SL/908
Report Date : 31.12.15
Date of Monitoring : 26.12.15

Towards Sustainable Growth

Monitoring Details :
Height from the floor : 1.5 M
Distance of Source : 3.0 M
Starting Time : 11:05 PM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	52.7	0.11111111	18620.871	179900.357
2	51.6		14454.398	
3	52.7		18620.871	
4	53.1		20417.379	
5	52.8		19054.607	
6	52.0		15848.932	
7	51.9		15488.166	
8	53.7		23442.288	
9	52.9		19498.446	
10	51.6		14454.398	

*** The equivalent Noise Level Leq. 52.55 dB(A)**

Maximum dB(A): *53.7*
Minimum dB (A): *51.6*

..... End of Report .....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Golui
(Manager-Laboratory)
Signatory Authority

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TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/908A**
Issued To : **M/s. Simplex Krita JV.**
Address : Plot No. 22, Block - EN, Sector-V, 4th Floor, Salt Lake, Kolkata - 700 091

Sample Ref. No. : SL/908A
Report Date : 31.12.15
Date of Monitoring : 26.12.15

Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Location : **Railway Line At Solabigha**
Limit : Day Time : 55 dB (A)
The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Monitoring Details :
Height from the floor : 1.5 M
Distance of Source : 3.0 M
Starting Time : 12:10 PM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	62.5	0.11111111	177827.941	1744325.855
2	62.0		158489.319	
3	61.8		151356.125	
4	62.0		158489.319	
5	62.8		190546.072	
6	61.9		154881.662	
7	63.0		199526.231	
8	63.1		204173.794	
9	62.8		190546.072	
10	62.0		158489.319	

*** The equivalent Noise Level Leq. 62.42 dB(A)**

Maximum dB(A): 63.1
Minimum dB (A): 61.8

.... End of Report ....

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Gorui
(Manager-Laboratory)
Signatory Authority

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ISO/IEC 17025:2005, ACCREDITED BY NABL, DEPARTMENT OF SCIENCE AND TECHNOLOGY, GOVERNMENT OF INDIA IN THE FIELD OF CHEMICAL AND MECHANICAL TESTING.

TEST REPORT

Sample is drawn by M/s. Indicative Consultant India

Report No. : **ICI/SL/15-16/908B**
Issued To : **M/s. Simplex Krita JV.**
Address : Plot No. 22, Block - EN, Sector-V, 4th Floor, Salt Lake, Kolkata - 700 091
Sample Description : **Ambient Noise**
Sampling Method : By Digital Noise Meter
Location : **Railway Line At Solabigha**
Limit : Night Time : 45 dB (A)

The Noise Pollution (Regulation & Control) Rules, 2000
Gazette of India, vide S.O. 50 (E) dated 11.01.2010 under the EPA Act, 1986

Sample Ref. No. : SL/908B
Report Date : 31.12.15
Date of Monitoring : 27.12.15

Towards Sustainable Growth

Monitoring Details :

Height from the floor : 1.5 M
Distance of Source : 3.0 M

Starting Time : 12:15 AM
Total Time (T) : 18 Min
Difference (dt) : 2 Min

Sl. No.	Noise Level (Li)	ft = dt/T	ft X 10^(Li/10)	Sum of ft X 10^(Li/10)
1	61.8	0.11111111	151356.125	1946090.398
2	61.0		125892.541	
3	62.0		158489.319	
4	62.2		165958.691	
5	65.3		338844.156	
6	64.1		257039.578	
7	60.2		104712.855	
8	62.5		177827.941	
9	64.1		257039.578	
10	63.2		208929.613	

*** The equivalent Noise Level Leq. 62.89 dB(A)**

Maximum dB(A): *65.3*
Minimum dB (A): *60.2*

End of Report

Checked By

For, **INDICATIVE CONSULTANT INDIA**

Parbati Gollı
(Manager-Laboratory)
Signatory Authority

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APPENDIX 9: SITE-SPECIFIC HEALTH AND SAFETY PLAN

ENVIRONMENT, HEALTH & SAFETY PLAN

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

SCOPE OF WORK

Site Address:	:	Eastern Tower ,Ghatakpara,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
Key Environmental Issues:		☞ Noise Generation due to Plant & Machinery ☞ Dust Generation Due to Vehicle Movement ☞ Disposal of Construction Waste ☞ Spillage of Diesel and lubricating oils.

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 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 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.

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.

6. HAZARD IDENTIFICATION AND RISK ASSESSMENT

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

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 posses 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 introduce 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 machinery's, 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 s & torch side. • It is mandatory to use of 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.

FIRST - AID FACILITIES AND MEDICAL TREATMENT

a) Each worksite/area shall be equipped with it's 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.

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 mean 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	25 Nos	Site Store
6	Safety Shoes Pairs	10 Nos (Each sizes)	Site Store

–

ENVIRONMENT, HEALTH & SAFETY PLAN (Revised Date – 30.12.2015)

PROJECT: LAYING OF WATER TRUNK MAIN FROM GARDEN REACH WATER WORKS TO TARATALA VALVE STATION AND LAYING OF SEWER LINE ALONG DIAMOND HARBOUR ROAD BY MICROTUNNELING METHOD

Contract No: KEIIP/ICB/TR-1/SD-04/2013-14

PROGRAM: KOLKATA ENVIRONMENT IMPROVEMENT INVESTMENT PROGRAM (KEIIP)

EMPLOYER: KOLKATA MUNICIPAL CORPORATION (KMC)

CONTRACTOR: ITD – ITD CEM JOINT VENTURE

Prepared by:

–

ITD-ITD Cem Joint Venture

1. SCOPE OF WORK

Site Address:	:	Garden Reach Sewerage Treatment Plant, Near Nature park /Tatamotors Service Centre Railway level Crossing, Taratala Road, Kolkata-700088
Client Details:	:	The Kolkata Municipal Corporation Business Towers 206, A.J.C.Bose Road, 2nd Floor, Kolkata-700017, West Bengal
Name of Project:	:	Laying of Water Trunk Main from Garden Reach Water Works to Taratala Valve Station and Laying of Sewer Line along Dimond Harbour Road by Microtunneling Method
Brief Scope of Work:	:	Laying of RCC NP Pipes. Construction of RCC Grade Box. Constructi0on of Manholes. Installation of HDPE Flap Gates / valves. Laying of MS Spirally Welded Pipes. Installation of air valves and sluice valves. Installation of Butterfly valves. Road restoration work, site preparation, spoil, removal, miscellaneous work etc.
Completion Period:	:	1095 days from date of commencement (19th May-2014)
Value of Work:	:	146 Crores INR
Major Activities.		☞ Vehicle movement – site transport and construction ☞ Use of heavy cranes for lifting and shifting operations.

- ☞ Use of hydraulic piling rigs /jack-up Platform
- ☞ Temporary Site Electrification
- ☞ Operation of floating crafts & vessels
- ☞ Fabrication of Steel Liners & Reinforcement Cage.
- ☞ Welding and Cutting.
- ☞ Storage of brought out finishing items.
- ☞ Placing of precast beam.
- ☞ Scaffolding and staging for civil works.

Key Environmental Issues:

- ☞ Noise Generation due to Plant & Machinery
- ☞ Dust Generation Due to Vehicle Movement
- ☞ Disposal of Construction Waste
- ☞ Spillage of Diesel and lubricating oils.

2. RESPONSIBILITY AND AUTHORITY FOR EHS MANAGEMENT

Project In charge (PI)

- The project PI 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 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 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.

3. 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.

4. HAZARD IDENTIFICATION AND RISK ASSESSMENT

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

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 introduce 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 machinery's, 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 s & torch side.

- It is mandatory to use of 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.

FIRST - AID FACILITIES AND MEDICAL TREATMENT

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

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 mean 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/ Site office container/ All DG Rooms / casting Yard etc.,
5	Safety Helmets	50 Nos	Site Store
6	Safety Shoes Pairs	10 Nos (Each sizes)	Site Store

7	Stretchers	4 Nos.	First Aid room / Ambulance / Store
8	Oil spill absorbent materials (Hesian Cloth / Foam)	Sufficient Quantity	Site Store

Reporting System for Emergency

Important Telephone Numbers of Persons at Corporate /Division Level

Name	Designation	Location	Mobile	Phone Office	Phone Residence
Mr. Pravin Panchal	Corporate Head – Safety & Environment	Mumbai	09619183102	022-67680836	
Mr. Anup Bhattacharya	Division Head - Safety & Environment	Kolkata	09433038445	033-23577384	
Mr. Rupak Sarkar	Head Div. 1	Kolkata	9163329955	033-2357 7384/5213	
Mr. Adun Saraban	Managing Director	Mumbai		022-66931600/7	

Important Internal Telephone Numbers at Site

Name	Designation	Contact No.
Mr.Kamrop Proprinkit	Project Manager	+91 8584864124
Mr. Sourav Das	Dy. Project Manager	+91 9831387615
Mr. Ayan Nandy	Admin. In-Charge	+91 9163302969
Mr. Arghasree Saha	Safety In-Charge	+91 8584864132

Important Contact Number of Client

Name	Contact No.
Mr. Souma Ganguly	+91 9831080056
Mr. Santanu Das	+91 9830671296
Mr. Kalyan Ghosh	+91 9434177691

Important Contact Number - Outside

Agency /Office	Address	Telephone
Local Fire Station	New Alipore	03364149408/ 9433422791
Private Hospital	Ekbalpur Nursing Home Pvt. Ltd	033-24490456/30910909/ 9903035156
Police Station	Taratala	03324011881/03324092100

Health and Safety Management Plan

December 2015

PROJECT: CONSTRUCTION OF PUMPING STATION IN BEGORE KHAL AND IN JOKA TRAM DEPOT AND CONSTRUCTION OF SEWERAGE AND DRAINAGE NETWORK WITHIN DIAMOND HARBOUR ROAD CATCHMENT

Contract No: KEIIP/ICB/TR-1/SD05/2013-14

PROGRAM: KOLKATA ENVIRONMENT IMPROVEMENT INVESTMENT PROGRAM (KEIIP)

EMPLOYER: KOLKATA MUNICIPAL CORPORATION (KMC)

CONTRACTOR: TANTIA-MPPL (WILO) JV

Prepared by

TANTIA-MPPL (WILO) JV

Pre Construction and Construction phase Health and Safety Management Plan

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Health and Safety	Danger of construction related injuries. Open fires in construction camp can result in accidents Safety of workers and general public must be ensured. Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases. Standing water due to inadequate storm water drainage systems, inadequate waste management practices, pose a health hazard to providing breeding grounds for disease vectors such as mosquitoes, flies and snails. The use of hazardous chemicals in the micro-tunneling and restoration of roads can pose potential environmental, health and safety risks. Road safety may be affected during construction, especially when traffic is detoured.	Implement good housekeeping practices at the site office, working area. Strictly implemented health and safety measures and audit on a regular basis. Construction site – particularly excavated area already barricaded . Warning signs has been proved at hazardous working areas. Working area clearly demarcated, barricaded to protect pedestrians from open areas like trial trench Thoroughly trained workers assigned to dangerous equipment. Waste management practices will be well undertaken Speed and movement of construction vehicles restricted Personal Protective Equipment are provided to all workers Visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas have been ensured First Aid system available at working sites Medical insurance provided to workers Drinking water arranged at working sites Mark and provide sign boards for hazardous areas Signage has been in well known to, and easily understood by workers, visitors, and the general public as appropriate. 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 will be followed

Health & Safety plan for the package Package: Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant

Pre Construction and Construction phase Health and Safety Management Plant

Field/Issues	Anticipated Impact	Mitigation Measures	Remarks
Health and Safety	Danger of construction related injuries. Open fires in construction camp can result in accidents Safety of workers and general public must be ensured. Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases. Standing water due to inadequate storm water drainage systems, inadequate waste management practices, pose a health hazard to providing breeding grounds for disease vectors such as mosquitoes, flies and snails. The use of hazardous chemicals in the micro-tunnelling and restoration of roads can pose potential environmental, health and safety risks. Road safety may be affected during construction, especially when traffic is detoured.	Implement good housekeeping practices at the site office, working area. Strictly implemented health and safety measures and audit on a regular basis. Construction site- particularly excavated area already barricaded Warning signs has been proved at hazardous. Working area clearly demarcated, barricaded to protect pedestrians from open areas like trial trench. Thoroughly trained workers assigned to dangerous equipment. Waste management practices will be well undertaken. Speed and movement of construction vehicles restricted Personal Protective Equipment are provided to all workers Visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas have been ensured First Aid system available at working sites Medical insurance provided to workers Drinking water arranged at working sites Mark and provide sign boards for hazardous areas Signage has been in well known to, and easily understood by workers, visitors, and the general public as appropriate. Maintain regularly the vehicles and use of manufacture-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.	Company health and safety guidelines will be followed.

APPENDIX 10 FIELD LEVELTRAININGS CONDUCTED DURING REPORTING PERIOD

During site visit on 03.07.2015, 02.08.2015, 24.09.2015, 15.11.2015, 30.12.2015 field level training has been conducted by Environmental specialist of DSC at different project locations.

The issues discussed like,

- Preparation of site specific EMP
- Labour and Office Camp site management- requirement of proper sanitation and solid waste management
- Disposal / utilization of overburden earth , spoil materials after work
- Storage of construction materials
- Occupational and public safety during construction
- Traffic management during laying of pipes (as per requirement)
- Requirement of Pollution Under Control (PUC)/ No Objection Certificate (NOC) from concerned department and renewal of the same before expiry
- Requirement of baseline monitoring data- inclusion of air quality parameters like PM_{10}, $PM_{2.5}$, SO_2,, NO_2 and HC in monitoring program

EMP application requirement and methodology have also been discussed.

Instruction is given to supervisor engineer and environmental officer of construction contractor to arrange weekly consultation/ training program particularly on safety and other safeguard issues for labours.

Instruction has been given to contractor,

- Submission of air, noise, water quality data once in 4 months
- Monthly monitoring report by 5^{th} of the next month
- Submission of valid PUC, revised and applicable traffic management & spoil management plan

APPENDIX 11: SCANNED COPY OF CONTRACTOR'S INSURANCE FOR WORKERS

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

नल इन्श्योरेन्स कंपनी लिमिटेड
सरकार का उपक्रम)
कार्यालय - १४, स्टर्लिंग सिनेमा बिल्डींग, २री मंजिल,
र्जबान रोड, मुंबई - 400 001.
2201 9971 / 2201 9630 • फैक्स : 2201 9973

नेशनल इन्श्योरेन्स
National Insurance

NATIONAL INSURANCE COMPANY LTD.
(A Govt. of India Undertaking)
DO - XIV, Sterling Cinema Bldg., 2nd Floor,
65, Murzban Street, Mumbai - 400 001.
Tel.: 2201 9971 / 2201 9630 • Fax : 2201 9973

ICY SCHEDULE 266230

rpt :Workmen Compensation   Employees Compensation Insurance Policy

licy Number :260600/41/15/6600000030

ent Code:9126300000001   Agent Name: Howden Insurance Brokers India Pvt. Ltd.   Agent Contact No: 9920970055

INSURANCE

ured's Name: ITD ITD CEM JV
ress : NATIONAL PLASTIC BUILDING, A-SUBHASH ROAD, PARANJAPE E-SCHEME, VILE PARLE (E), MUMBAI
Dist. : GREATER MUMBAI, Maharashtra
Pin Code: 400057

Issuing Office Code : 260600
Address :Second Floor, Sterling Cinema Building, 65, Murzaban Street, Fort, Mumbai, Greater Mumbai,
Telephone :022 22019850 (D) 22019971 (G)
Special Client Code : 339
Paid Up Capital Upto Rs. 15 Crores

elopment Officer : 912650
e Of Proposal & Declaration:15/12/2015 Client Type:Corporate
icy Period:00:00 Hrs On 15/12/2015 To Midnight of 14/12/2016
Premium :132306   RUPEES ONE LAKH THIRTY TWO THOUSAND THREE HUNDRED SIX ONLY7/12/2015 260600/81/15/9000000954
IC 260600 : 100%

Srl.No	Description	Sum Insured (Rs)
1	70 INDIAN WORKERS ENGAGED IN PILING, CIVIL WORKS NOT ON ELEVATED STRUCTURE	63,00,000.00
2	19 INDIAN WORKERS EARNING ENGAGED IN CLERICAL STAFF INCLUDING TECHNICLA ASST., PEONS, SECURITY GUARD, COOKS ETC. EMPLOYED FOR INDOOR AS WELL AS OUT DOOR WORK	25,76,000.00
	Total Sum Insured (Rs.) :	Rs.88,76,000.00

al Sum Insured (In Words) : RUPEES EIGHTY EIGHT LAKH SEVENTY SIX THOUSAND ONLY

ks Covered : 89 INDIAN WORKERS ENGAGED -REHABILITATION AND REFURBISHMENT OF WATER WORKS AT PALTA AND GARDEN REACH PROJECTS, EMPLOYER : KOLKATA MUNICIPAL CORPORATION, KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PROGRAMME CONTRACT NO: KEIIP/ICB/TR-1/WS03/2013-14
ation : KOLKATA, INDIA
cial Peril : AS PER STANDARD WC POLICY WITH COVERING WC ACT 1989 WITH ALL SUBSEQUENT AMENDMENTS, FATAL ACCIDENT ACT 1855 / COMMON LAW
cial Exclusion : AS PER STANDARD WC POLICY
ject To Clause : AS PER STANDARD WC POLICY, OCCUPATIONAL DISEASES LIMIT RS. 1 LACS PER EMPLOYEE, MEDICAL EXPENSE LIMIT RS. 25,000/- PER ACCIDENT PER EMPLOYEE, AGGREGATE LIABILITY FOR ALL ACCIDENT DURING THE PERIOD OF INSURANCE RS.20,00,000/-
cial Excess : AS PER STANDARD WC POLICY
cial Conditions: AS PER STANDARD WC POLICY.
THE DATA PROVIDED CONSIST OF LOCAL EMPLOYEES, CONTRACTUAL LABOURERS, SUB CONTRACTORS AT ALL LEVEL & EXPAT WORKERS.
RENEWAL POLICY NO: 260600/41/14/6600000061

emium Computation :
t Premium : Rs.1,32,306.00   Service Tax : Rs.19,184.00   Stamp Duty : Rs.1.00 Chargeable :No   Total : Rs.1,51,490.00

witness whereof this policy has been signed at 2ND FLOOR, STERLING CINEM
this 17th day of December , 2015.

For And On Behalf Of
National Insurance Company Limited

Authorised Signatory

No: U10200WB1906GOI001713, IRDA Regn. No: 58
पंजीकृत एवं प्रधान कार्यालय : 3, मिडिलटन स्ट्रीट, कोलकाता 700 071 • Registered & Head Office : 3, Middleton Street, Kolkata 700 071 • Visit us at : www.nationalinsuranceindia.com

Terms and conditions attached. You are requested to check the document and if any discrepancy is observed, please contact policy issuing office immediately.

AX-DIPAR-17/12/2015 14:31:49-5-1 26860816300088 - 6.9.3.0 All other terms and conditions remain unaltered Page 1of 2

ल इन्श्योरेन्स कंपनी लिमिटेड
कार का उपक्रम)
ालय - १४, स्टर्लिंग सिनेमा बिल्डींग, २री मंजिल,
न रोड, मुंबई - 400 001.
01 9971 / 2201 9630 • फैक्स : 2201 9973

नेशनल इन्श्योरेन्स
National Insurance

NATIONAL INSURANCE COMPANY LTD.
(A Govt. of India Undertaking)
DO - XIV, Sterling Cinema Bldg., 2nd Floor,
65, Murzban Street, Mumbai - 400 001.
Tel. : 2201 9971 / 2201 9630 • Fax : 2201 9973

C.D. Debit/Credit Advice 266239

G OFFICE : 268600 (Office Code),
Floor, Sterling Cinema Building,
rzban Street, Fort, Mumbai, Greater
, Maharashtra, Pin : 400001

Voucher Number : 268600/81/15/0000000954
Voucher Date : 17/12/2015
Development Officer : 912630
Bank Account : 9100

de : 239
D CHM IV
AL PLASTIC BLDG., VILE PARLE(E),
- 57

lance of your CD A/C before inception of Risk was Rs. 1,62,664.09. Adjustment made on 17/12/2015 is Rs.1,51,490.00 Your e after adjustment is Rs.11,174.09 (RUPEES ELEVEN THOUSAND ONE HUNDRED SEVENTY FOUR AND PAISE NINE ONLY). and your balance as e is Rs.11,174.09 (RUPEES ELEVEN THOUSAND ONE HUNDRED SEVENTY FOUR AND PAISE NINE ONLY).

icy Number / icy Effective Dt.	TR Code	End/Ren/Dec/Clm Year Number	Particulars	CreditAmount (Rs.)	Debit Amount (Rs.)	Amount Received (Rs.)	A/C Head Genl Sub
600/41/15/1600000030 12/2015	11		CASH PREMIUM A/C	1,32,306		1,32,306	5803
600/41/15/1600000030 12/2015	11		SERVICE TAX	19,184		19,184	5443
600/41/15/1600000030 12/2015	11		EDUCATION CESS				5443
600/41/15/1600000030 12/2015	11		C.D CONTROL A/C		1,51,490	-1,51,490	5076 239
			Total(in Rs.) :	1,51,490	1,51,490	1,51,490	

alars : .

For National Insurance Company Limited

Authorised Signatory

ase quote Document No Voucher No and date in all correspondence

पंजीकृत एवं प्रधान कार्यालय : 3, मिडिलटन स्ट्रीट, कोलकत्ता 700 071 • Registered & Head Office : 3, Middleton Street, Kolkata 700 071 • Visit us at : www.nationalinsuranceindia.com

17/12/2015 14:51:41-5-1 Page : 1 of 1

ms and conditions attached. You are requested to check the document and if any discrepancy is observed, please contact policy issuing office immediately.

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

NATIONAL INSURANCE COMPANY LTD.

Employees Compensation Insurance Policy

Policy Number : [illegible]

Agent Code : [illegible] Agent Name: [illegible] Insurance Brokers India Pvt. Ltd. Agent Contact No: [illegible]

Insured's Name: ITD ITD CEM JV
Address : NATIONAL PLASTIC BUILDING, [illegible] ROAD, [illegible], VILE PARLE (E), MUMBAI
Dist. : GREATER MUMBAI Maharashtra
Pin Code: 400057

Issuing Office Code : [illegible]
Address : Second Floor, Sterling Cinema Building, [illegible] Marzaban Street, Fort, Mumbai, Greater Mumbai
Telephone : [illegible]

Development Officer : [illegible]

Date Of Proposal & Declaration: 23/06/2015 Client Type: Corporate

Policy Period: 00:00 Hrs On 24/06/2015 To Midnight of 23/06/2016

Net Premium : [illegible] RUPEES TWO LAKH NINETY FOUR THOUSAND THREE HUNDRED SEVENTY EIGHT ONLY

Sl. No	Description	Sum Insured (Rs.)
1	[illegible] WORKERS ENGAGED IN CONSTRUCTION OF TUNNELING & SHAFT RELATED WORK [illegible] WORKERS EARNING UPTO Rs. [illegible]/-	[illegible]
2	[illegible] WORKERS ENGAGED IN CONSTRUCTION OF TUNNELING, [illegible] CLERICAL STAFF, [illegible] ENGAGED IN OPEN CUT & PIPE LAYING, [illegible] WORKERS IN FABRICATION OF PIPES AND RELATED WORK; INDIAN WORKERS EARNING UPTO Rs. [illegible]/-	[illegible]
3	[illegible] WORKERS ENGAGED IN CONSTRUCTION OF TUNNELING, [illegible] CLERICAL STAFF, [illegible] ENGAGED IN OPEN CUT & PIPE LAYING, [illegible] WORKERS IN FABRICATION OF PIPES AND RELATED WORK; INDIAN WORKERS EARNING UPTO Rs. [illegible]/-	[illegible]
	Total Sum Insured (Rs.)	Rs. 2,41,15,000.00

Total Sum Insured (In Words) : RUPEES TWO CRORE FORTY ONE LAKH FIFTEEN THOUSAND ONLY

Risks Covered : TOTAL [illegible] WORKERS: [illegible] INDIAN WORKERS AND [illegible] THAI WORKERS UNDER EMPLOYEE COMPENSATION INSURANCE POLICY ENGAGED IN PROJECT OF LAYING OF WATER TRUNK MAIN AT KOLKATA. DETAILS OF NATURE OF WORK AS PER SHEET ATTACHED WITH POLICY

Location : KOLKATA

Special Perils : AS PER STANDARD EMPLOYEE COMPENSATION INSURANCE POLICY WITH COVERING [illegible] ACT [illegible] WITH ALL SUBSEQUENT AMENDMENTS, FATAL ACCIDENT ACT 1855 & COMMON LAW

Special Exclusion : AS PER STANDARD EMPLOYEE COMPENSATION INSURANCE POLICY. MEDICAL EXPENSES ARE NOT COVERED

Subject To Clause : AS PER STANDARD EMPLOYEE COMPENSATION INSURANCE POLICY

Special Excess : NIL

Special Conditions: PROJECT COVERS EMPLOYEES ENGAGED IN CONSTRUCTION OF TUNNELING & SHAFT SINKING & RELATED WORKS; CLERICAL STAFF [illegible] WORKERS ENGAGED IN OPEN CUT & PIPE LAYING RELATED WORK; WORKERS ENGAGED IN FABRICATION OF PIPES & RELATED WORK.
THE DATA PROVIDED CONSIST OF LOCAL EMPLOYEES, CONTRACTUAL LABOURERS, SUB CONTRACTORS AT ALL LEVELS & [illegible] WORKERS.
NATURE OF WORK AS PER SHEET ATTACHED. RENEWAL POLICY NO : [illegible]

In witness whereof this policy has been signed at 2ND FLOOR, STERLING CINEMA on this 24th day of June, 2015.

For and On Behalf Of National Insurance Company Limited

Authorised Signatory

[illegible]

Page 1 of 2

NATIONAL INSURANCE COMPANY LTD.

(A Govt. of India Undertaking)

[illegible]

Employees Compensation Insurance Policy

Policy Number : [illegible]

Premium Computation :

Net Premium :	Rs.[illegible]	Service Tax :	Rs.[illegible]	Stamp Duty : Rs.[illegible] Chargeable :No		Total :	Rs.[illegible]

Visit us at www.nationalinsuranceindia.com for information on Products,Services and Grievance Redressal.

In witness whereof this policy has been signed at [illegible] on this [illegible] day of June , 2015.

For And On Behalf Of
National Insurance Company Limited

Authorised Signatory

CIN No: [illegible], IRDA Regn. No: 58

[illegible] Registered & Head Office : [illegible]

If any discrepancy is observed, please contact policy issuing office [illegible]

This Policy/Endorsement is valid subject to realisation of cheque. In case of dishonour of cheque the Policy/Endorsement will automatically stand cancelled and void ab initio and the Company will not be at risk under this Policy/Endorsement. All correspondence are to be made only with the Policy issuing Office quoting the Policy No.

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

EMPLOYERS LIABILITY-OTHER THAN COLLIERIES POLICY SCHEDULE

Policy No	: 311800/48/2016/385	Prov. Policy No	: 311800/48/2015/259
Cover Note No.	310000419741	Cover Note Date	01-NOV-15
Insured's Code	83371089	Issue Office code	311800
Insured's Name	TANTIA - MPPL (WILO) JV	Issue Office Name	CBU Kolkata
Address	DD-30, SALT LAKE CITY, SECTOR-1, KOLKATA - 64 CALCUTTA 700091	Address	7 RED CROSS PLACE KOLKATA WEST BENGAL 700001
Tel /Fax/Email	///0 / NA	Tel/Fax/Email	(033)2248-2608 / (033)2248-2555 311800@orientalinsurance.co.in

Agent/Broker Details

Dev.Off.Code :

Agent/Broker : LG0000000136 SALASAR SERVICES INSURANCE BROKERS P LTD

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

Tel/Fax/Email : 0333294343/0/03332943438/

Period of Insurance : FROM 00:00 ON 01/11/2015 TO MIDNIGHT OF 31/10/2016

Collection No. & Dt. : CHQ 4018001200 - 06/11/2015

Gross Premium : 45,835 Service Tax : 6720 Stamp Duty : 41 Total : 46,076

Co-insurance Details : NIL

Laws

Risk Information

Contract Details

Principal Name :

Site of work : Begore Khal, Joka Tram Depot, and Diamond Harbour Road Catchment, Kolkata, West Bengal

Trade Description : Construction of pumping stations in Begore Khal and in Joka Tram Depot. And construction of Sewerage and Drainage network within Diamond Harbour Road Catchment

Address : Begore Khal, Joka Tram Depot, and Diamond Harbour Road Catchment, Kolkata, West Bengal

State : WEST BENGAL

City : SOUTH 24 PARAGANAS

Pincode : 743512

Contractors Information

Place :

Date : 06/11/2015

For and on behalf of
The Oriental Insurance Company Limited

CBU Kolkata

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 the 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

...ached to and forming part of policy number 311200/48/2016/385

Sr. No.	Name of the Contractor	Occupation	Labour (%)	Amount of Contract
1	TANTIA - MPPL (WLO) JV (100 Unskilled Workers)		100	8,021,832
2	TANTIA - MPPL (WLO) JV (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 Forty-Six Thousand Five Hundred Seventy-Five Only

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

"It is hereby agreed that this policy does not cover medical expenses" as required under the provision 2A of the Workmen Compensation Act, 1923(as amended) and described above.

...t to adjustment in the terms of Condition 6 The estimated amount of wages/salaries & other earnings on which premium ...based

...is hereby understood and agreed that the indemnity herein is extended to cover the legal liability of the insured to workmen in the employment of contractors performing work for the insured while engaged in the business and occupations in respect of which the within Policy is granted, but only so far as regard claims under the workmen's compensation act, 1923 and subsequent amendments of said Act prior to the date of the issue of this Policy. The premium in respect of such extended insurance to be calculated.

...the event of a claim under the policy exceeding Rs. 1 lac or a claim for refund of premium exceeding Rs. 1 lac, the insured will comply with the provisions of the AML policy of the Company. The AML policy is available in all our operating offices as well as Company's website.

Not applicable

...arranted that in case of dishonour of premium cheque(s) the Company shall not be liable under the policy and the policy shall ...void ab initio (from inception).

...witness whereof the undersigned being authorised by and on behalf of the Company has/have hereto set his/their hands at ...U Kolkata on 09TH DAY OF NOVEMBER 2015.

09/11/2015

For and on behalf of
The Oriental Insurance Company Limited

CEU Kolkata

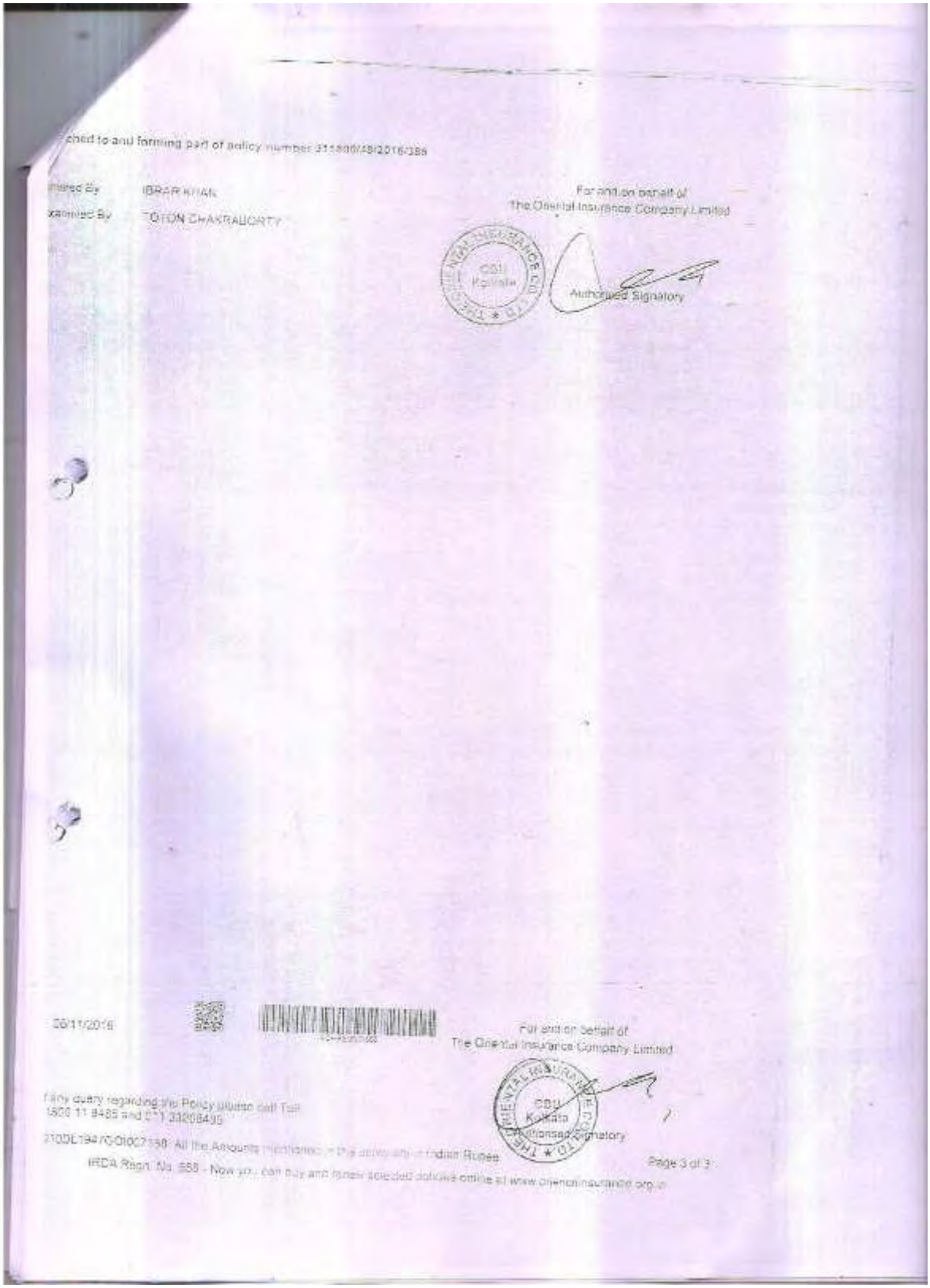
Authorised Signatory

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

J882100I [illegible] All the Amounts [illegible] Indian Rupee

Page 2 of 3

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



ched to and forming part of policy number 311600/48/2016/388

ared By IBRAR KHAN

xamined By TOTON CHAKRABORTY

For and on behalf of
The Oriental Insurance Company Limited

Authorised Signatory

03/11/2015

For and on behalf of
The Oriental Insurance Company Limited

Authorised Signatory

Page 3 of 3

Package: Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant

THE NEW INDIA ASSURANCE CO. LTD.
(Wholly owned by the Govt. of India)

1	5% of Claim Amount subject to Minimum of Rs. 15000 each claim	5% of Claim Amount subject to Minimum of Rs. 50000 each claim	5% of Claim Amount subject to Minimum of Rs. 50000 each claim	0.5 % of Total Sum Insured subject to minimum of Rs 1,00,000/- for each and every claim

Excesses For Specific AddOn Covers :

Sl. No.	Description Of Cover	Excess

Terrorism Covered	Terrorism Premium
NO	0

Risk Serial No.	Earth Quake Cover
1	YES

Risk Serial No.	STFI Cover
1	YES

Installment Details

Installment Number	Installment Date on or before	Installment Amount (Rs.)	
		Premium	Service Tax
1	13/02/2014	44022	5443
2	13/05/2014	29873	3693
3	13/08/2014	29873	3693
4	13/11/2014	29873	3693
5	13/02/2015	29873	3693
6	13/05/2015	29873	3693
7	13/08/2015	29873	3693
8	13/11/2015	29873	3693
9	13/02/2016	29855	3656

ENDORSEMENTS ATTACHED TO & FORMING PART OF THE POLICY

Sl. No.	Endorsement Number	Endorsement Title
1	ENG 004	Escalation
2	PR 033	Extended Maintenance Cover
3	PR 005	Installment Facility
4	PR 011	Extension of policy period
5	PR 014	Cancellation of policy
6	LR 005	Clearance & Removal of Debries Clause
7	LR 009	Owners Surrounding Property
8	LR 011	Cover for Cross Liability
9	LR 018	Continuity of cover
	ENG 020	Exclusion of terrorism damage

In witness whereof the undersigned being duly authorised by the Insurers and on behalf of the Insurers has (have) hereunder set his (their) hand(s) on this 17th day of FEBRUARY ,2014.

For and on behalf of
The New India Assurance Company Limited

Duly Constituted Attorney(s)

Policy No. : [illegible] Document generated by 31507 at 17/02/2014 13:27:48 Hours.
Regd. & Head Office: New India Assurance Bldg., 87 M.G. Road, Fort, Mumbai - 400 001. TOLL FREE No. 1 800 209 1415.
Page No. 3

SIMPLEX KRITA JV
Authorised Signatory

THE NEW INDIA ASSURANCE CO. LTD.
(Wholly owned by the Govt. of India)

INSURANCE

POLICY SCHEDULE FOR EMPLOYEES COMPENSATION INSURANCE

Insured's Name	:	SIMPLEX INFRASTRUCTURE LTD.			
Insured's Details			Issuing Office Details		
Customer ID	:	463457958	Office Code	:	Kolkata LCO 950000 (950000)
Address	:	27, SHAKESPEARE SARANI, KOLKATA-, Dist. : KOLKATA, West Bengal WEST BENGAL, 700017	Address	:	4, MANGOE LANE, 2ND FLOOR, KOLKATA ,700001
Phone No	:	9830512922	Phone No	:	3322485868
E-mail/Fax	:	neepco@cal2.vsnl.net.in, /	E-mail/Fax	:	nia.950000@newindia.co.in /
PAN No	:		S.Tax Regn. No	:	AAACN4165CST178

Policy Details					
Policy Number	:	950000361501000000 66	Business Source Code		
Period of Insurance	:	From: 29/07/2015 05:45:00 PM To: 27/12/2015 11:59:59 PM	Dev.Off./Broker/Corp. Agent	:	DIRECT BUSINESS (1D10774823)
Date of Proposal	:	29-Jul-15	Agent/Bancassurance	:	SESHADRI CHANDRA (1D10769238) AGENT SITE 34234 (1D10777236)
Prev. Policy no.	:		Phone No	:	9331092404 / NA
Client Type	:	Corporate	E-mail/Fax	:	/

Premium(₹)	Service Tax(₹)	Total (₹)	Total (₹ in words)	Receipt No. & Date
4130	579	4709	RUPEES FOUR THOUSAND SEVEN HUNDRED NINE ONLY	9500008115000000107 2 - 29/07/15

Details of Employees with monthly wages upto ₹ 8000:

Categories	Sub Categories	No of Employee	Cash Total Wages
Builders All employees engaged in shop or yard or in construction demolition of buildings and other civil construction like dams, bridges etc. incl. excavation	Excl. blasting and tunneling	25	750750

Details of Employees with monthly wages above ₹ 8000:

Categories	Sub Categories	No of Employee	Cash Total Wages
Trade Description	Particular of Works	Location Details	Included All Sub - Contractors
CIVIL CONTRACTOR	MICROFUNNELING WORK ON SEWARAGE PRESSURE MAIN FROM SANTOHPUR PUMPING STATION TO GARDEN REACH SEWAGE TREATMENT PLANT	AT KOLKATA-KOLKATA ENVIRONME NTAL IMPROVEMENT PROGRAMME	Yes

Extensions under the Policy Cover

Name of the Extension	Sub Limit of the Extension	Deductibles of the Extension
Special Conditions	NA ESTIMATED WAGES:RS.750750 ESTIMATED NO.OF WORKERS 25(SKILLED UNSKILLED SEMISKILLED) NA	

Special Exclusions	NA
Special Excess/Deductible	NA
The Policy shall be subject to EMPLOYEES COMPENSATION INSURANCE Policy clauses attached herewith.	
Clauses	Description

In witness whereof the undersigned being duly authorised by the Insurers and on behalf of the Insurers has (have) hereunder set his (their) hand(s) on this 29th day of July,2015.

For and on behalf of

Policy No. : 950000361501000000 66 Document generated by 16595 at 29/07/2015 13:27:27 Hours.

Regd. & Head Office: New India Assurance Bldg., 87 M.G. Road, Fort, Mumbai - 400 001. TOLL FREE No. 1 800 209 1415.

Page No. 1

THE NEW INDIA ASSURANCE CO. LTD.
(Wholly owned by the Govt. of India)

The New India Assurance Company Limited
Duly Constituted Attorney(s)

Stamp Duty under the Policy is ₹1

Mudrank_____Dt._____consolidated Stamp Fees Paid by Pay Order Number_____vide receipt

Policy No. : 950000361501000000066 Document generated by 16585 at 20/07/2015 13:27:27 Hours.
Regd. & Head Office: New India Assurance Bldg., 87 M.G. Road, Fort, Mumbai - 400 001. TOLL FREE No. 1 800 209 1415.
Page No. 2

दि न्यू इन्डिया एश्योरन्स कंपनी लिमिटेड

(भारत सरकार का एक उपक्रम)

THE NEW INDIA ASSURANCE COMPANY LIMITED

(A Govt. of India Undertaking)

बृहत् कार्पोरेट कार्यालय 950000
LARGE CORPORATE OFFICE-950000
4, मैंगो लेन (द्वितीय तल), कोलकाता -700 001
4, Mangoe Lane (2nd Floor), Kolkata - 700 001

दूरभाष/Phone : 2248-5888
2248-0446 / 0448
फैक्स/Fax : 2243-0909
ई-मेल/e-mail : nia950000@rediffmail.com

ENDORSEMENT DOCUMENT

Insured Name	Kolkata Environmental Improvement Investment Programme	Insurer Office Code	950000 Large Corporate & Brokers Office
Address	206 A, A. J. C. Bose Rd. Kolkata West Bengal -700017	Address	4, Mangoe Lane 2nd Floor Kolkata-700001
Contractor Address	Simplex Infrastructures Ltd. 27, Shakespeare Sarani Kolkata – 700017		
Telephone		Telephone	033-2248-5888
Fax		Fax	033-2243-0909
Email		Email	

Endorsement attached to forming part of Policy Number -950000441303000000019

Department	Engineering	Cover	CAR
Period of Insurance	From 13/02/2014 To 12/08/2016	Endorsement No.	1
Reason	IT IS HEREBY DECLARED AND AGREED THAT THE POLICY SHOULD BE READ AS "SIMPLEX KRITA JV" IN THE PLACE OF SIMPLEX INFRASTRUCTURES LTD. UNDER THE ABOVE POLICY All other terms and conditions remain unaltered.		

IN WITNESS WHEREOF THIS POLICY HAS BEEN SIGNED AT LCO (KOLKATA)

Place Kolkata
Date 7 Nov 2014

For and behalf of
The New India Assurance Co. Limited

Authorised Signatory(s)

SIMPLEX KRITA JV

दि न्यू इन्डिया एश्योरन्स कंपनी लिमिटेड

(भारत सरकार का एक उपक्रम)

THE NEW INDIA ASSURANCE COMPANY LIMITED

(A Govt. of India Undertaking)

बृहत् कार्पोरेट कार्यालय - 950000
LARGE CORPORATE OFFICE- 950000
4, मैंगो लेन (द्वितीय तल), कोलकाता -700 001
4, Mangoe Lane (2nd Floor), Kolkata - 700 001

दूरभाष/Phone : 2248-5888
2248-0446 / 0448
फैक्स/Fax : 2243-0909
ई-मेल/e-mail : nia950000@rediffmail.com

ENDORSEMENT DOCUMENT

Insured Name	Kolkata Environmental Improvement Investment Programme	Insurer Office Code	950000 Large Corporate & Brokers Office
Address	206 A, A. J. C. Bose Rd Kolkata West Bengal -700017	Address	4, Mangoe Lane 2nd Floor Kolkata-700001
Contractor	Simplex Infrastructures Ltd.		
Address	27, Shakespeare Sarani Kolkata – 700017		
Telephone		Telephone	033-2248-5888
Fax		Fax	033-2243-0909
Email		Email	

Endorsement attached to forming part of Policy Number -950000441303000000019

Department	Engineering	Cover	CAR
Period of Insurance	From 13/02/2014 To 12/08/2016	Endorsement No	1
Reason	IT IS HEREBY DECLARED AND AGREED THAT THE POLICY SHOULD BE READ AS "SIMPLEX KRITA JV " IN THE PLACE OF SIMPLEX INFRASTRUCTURES LTD. UNDER THE ABOVE POLICY All other terms and conditions remain unaltered.		

IN WITNESS WHEREOF THIS POLICY HAS BEEN SIGNED AT LCO (KOLKATA)

Place Kolkata
Date 7 Nov 2014

For and behalf of
The New India Assurance Co. Limited

Authorised Signatory(s)

SIMPLEX KRITA JV

दि न्यू इंडिया एश्योरन्स कंपनी लिमिटेड
(भारत सरकार के पूर्ण स्वामित्वाधीन)
THE NEW INDIA ASSURANCE CO. LTD.
(Wholly Owned by Govt. of India)
एल.सी.बी.ओ, कोलकाता / **L.C.B.O, KOLKATA - 950000**
4, मैंगो लेन, (दूसरी मंजिल), कोलकाता - 700 001 / **4, Mangoe Lane (2nd Floor), Kolkata - 700 001**

Phone : 2248-5888
Fax 2243-0909
Website : www.newindia.co.in

ENDORSEMENT DOCUMENT

Insured's Name	:	KOLKATA ENVIRONMENTAL IMPROVEMENT INVESTMENT PRGM.	Insurer Office & Code	:	Large Corporate & Brokers' Office 950000
Address	:	206, A.J.C. BOSE ROAD, WEST BENGAL 700017	Address	:	4, Mangoe Lane, 2nd Floor, Kolkata, WB- 700001
Contractor	:	SIMPLEX INFRASTRUCTURES LTD.			
Address	:	27, Shakespeare Sarani, Kolkata-700017			

Endorsement attached to forming part of Policy Number			950000441303000000019		
Department	:	Engineering	Cover	:	CAR

Premium		Rs. 29,873.00
Service Tax		Rs. 4,183.00
Total Premium		Rs. 34,056.00

Period of Insurance	:	FROM 13/02/2014 TO 12/08/2017	Endorsement No.	:	NA

Reason	:	IT IS HEREBY DECLARED AND AGREED THAT: 8th INSTALLMENT PREMIUM OF Rs. 34,056/- (INCLUDING SERVICE TAX OF 14%) IS RECEIVED AND COLLECTED FROM THE INSURED VIDE CHEQUE 873874. ALL OTHER TERMS AND CONDITIONS REMAIN UNALTERED.

IN WITNESS WHEREOF THIS POLICY HAS BEEN SIGNED AT LCBO (KOLKATA)

Place : Kolkata
Date : 13-Nov-15

For and behalf of
The New India Assurance Co. Limited

Authorised Signatory(s)

APPENDIX 12: SUMMARY OF LABORERS PER PACKAGE

Package No.	Contractor	Total Number of Employees	No of Female Employees	No. of Local Employees
Rehabilitation and Refurbishment of Water Works at Palta and Garden Reach **(KEIIP/ICB/ Tr-1/WS02/2013-14)**	M/s ITD- CEM India JV	Staff: 25 Worker: 50 Total- 75	Nil	47
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 ITD- ITD CEM Jv	Staff: 50 Workers: 572 Total- 622	Nil	545
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	Staff: 80 Workers: 122 Total- 202	Nil	127
Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant **(KEIIP/NCB/ Tr-1/SD-06/13-14)**	M/s Siimplex Krita JV	45	Nil	20

APPENDIX 13: TRAFFIC MANAGEMENT PLAN

ITD-ITD Cem Joint Venture

SAFETY & HEALTH OPERATION CONTROL PROCEDURES

Traffic Management Plan (TMP) - Revised

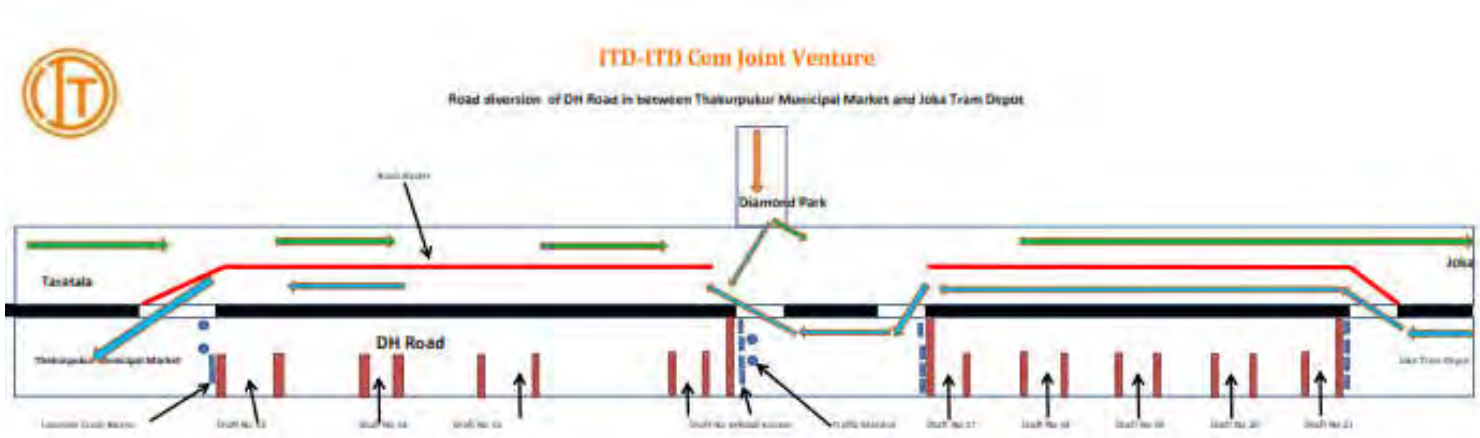
LOCATION (AS ON 30TH NOVEMBER'2015)

Traffic Diversion: From western Franken of Diamond harbour Road approximate 1000 Meters from 3A bus stand to Joka Metro Station (towards Joka). Shaft no 13 to Shaft no 21 – micro tunneling zone.

▪ 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 ITD-ITDCEM 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 (Regulations 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	<u>General</u>
	☞ 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 necessity 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 in 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 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 bellow 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 reflective jacket as well as required PPE's. • Conducting Toolbox training as regular basis. • Road has been closed with proper permission. • Reflective type Diversion board has been placed in required places. • Road diversion drawing has been submitted (Ref. Attached drawing)
6.7	**Loading and unloading** • Only authorised 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 Intimation 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; o cones; o barriers; o road hazard warning lights; o information boards; and o site lighting ☞ Adequate lighting has been provided. ☞ All persons wear high visibility jackets.


ITD-ITD Cem Joint Venture
Road diversion of DH Road in between Thakurpukur Municipal Market and Joka Tram Depot
Diamond Park
Taratala
DH Road

Traffic Management Plan

DECEMBER 2015

PROJECT: CONSTRUCTION OF PUMPING STATION IN BEGORE KHAL AND IN JOKA TRAM DEPOT AND CONSTRUCTION OF SEWERAGE AND DRAINAGE NETWORK WITHIN DIAMOND HARBOUR ROAD CATCHMENT

Contract No: KEIIP/ICB/TR-1/SD05/2013-14

PROGRAM: KOLKATA ENVIRONMENT IMPROVEMENT INVESTMENT PROGRAM (KEIIP)

EMPLOYER: KOLKATA MUNICIPAL CORPORATION (KMC)

CONTRACTOR: TANTIA-MPPL (WILO) JV

Prepared by

TANTIA-MPPL (WILO) JV

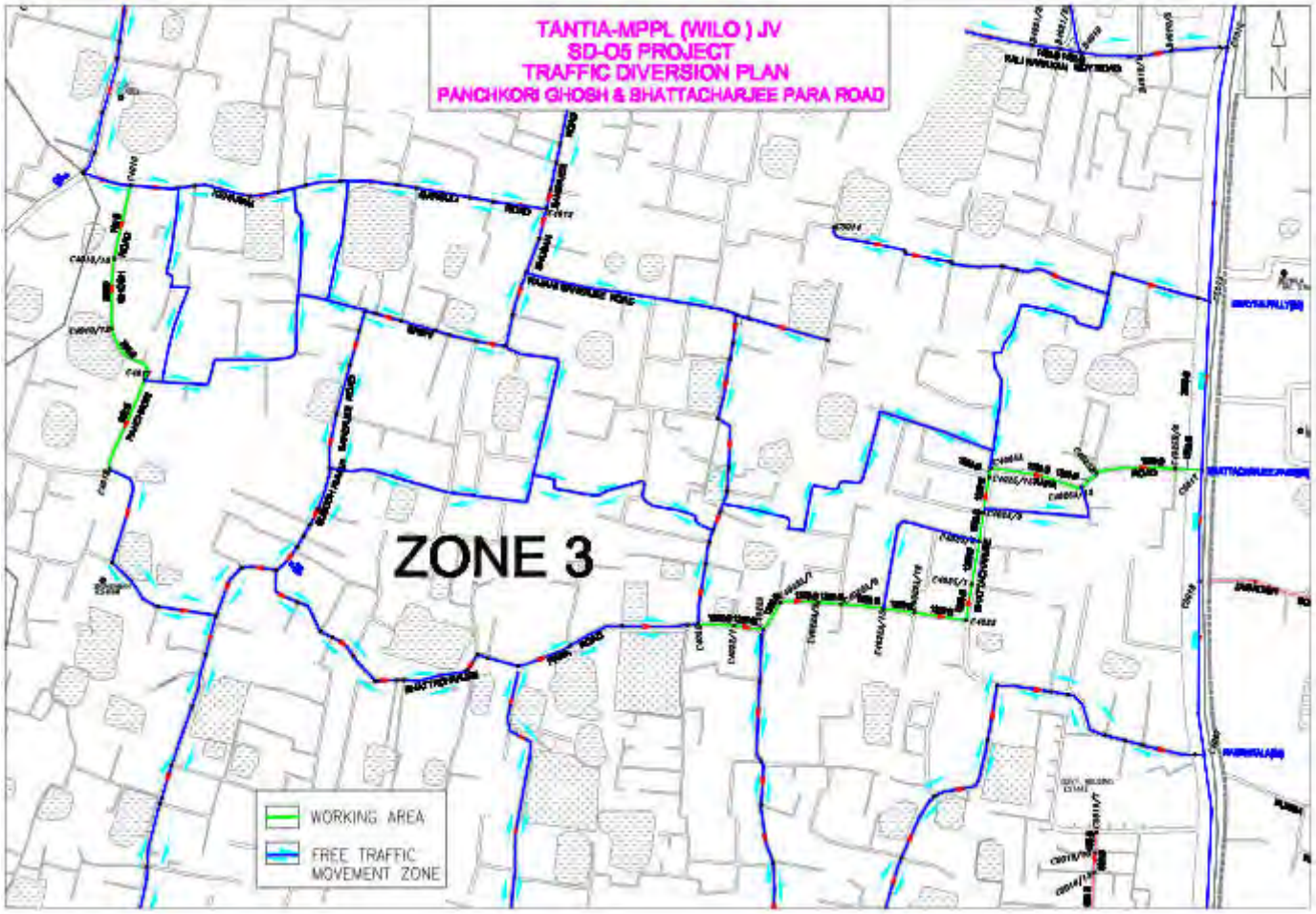
LOCATION (AS ON 28TH DECEMBER 2015)

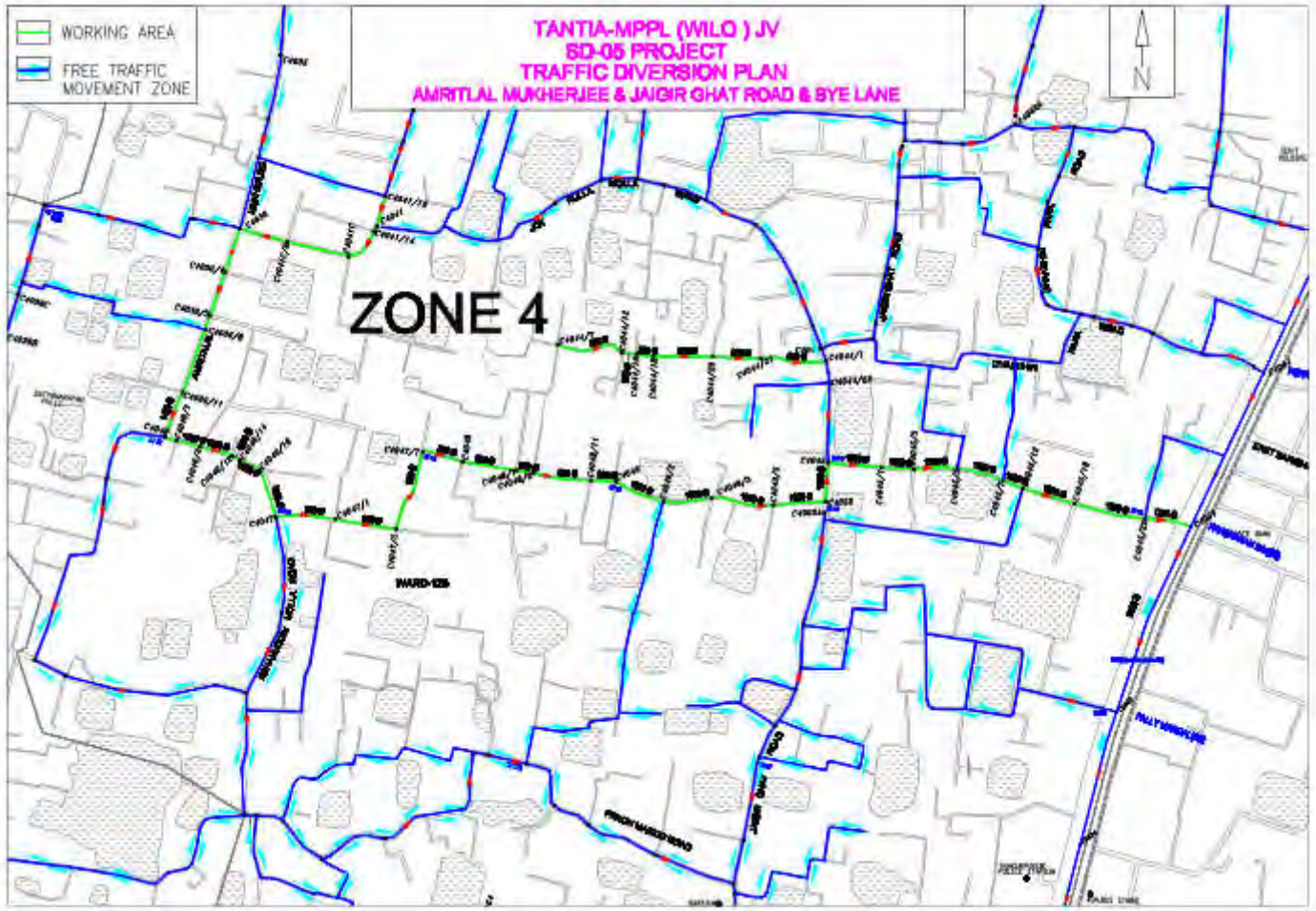
Traffic Diversion: Rakhal Mukherjee Road of Ward no-126, Panchkori Ghosh Road, Jaigir Ghat Road and Rehanuddin Molla Road of Ward no-125 for RCC NP3 Pipe Laying Work

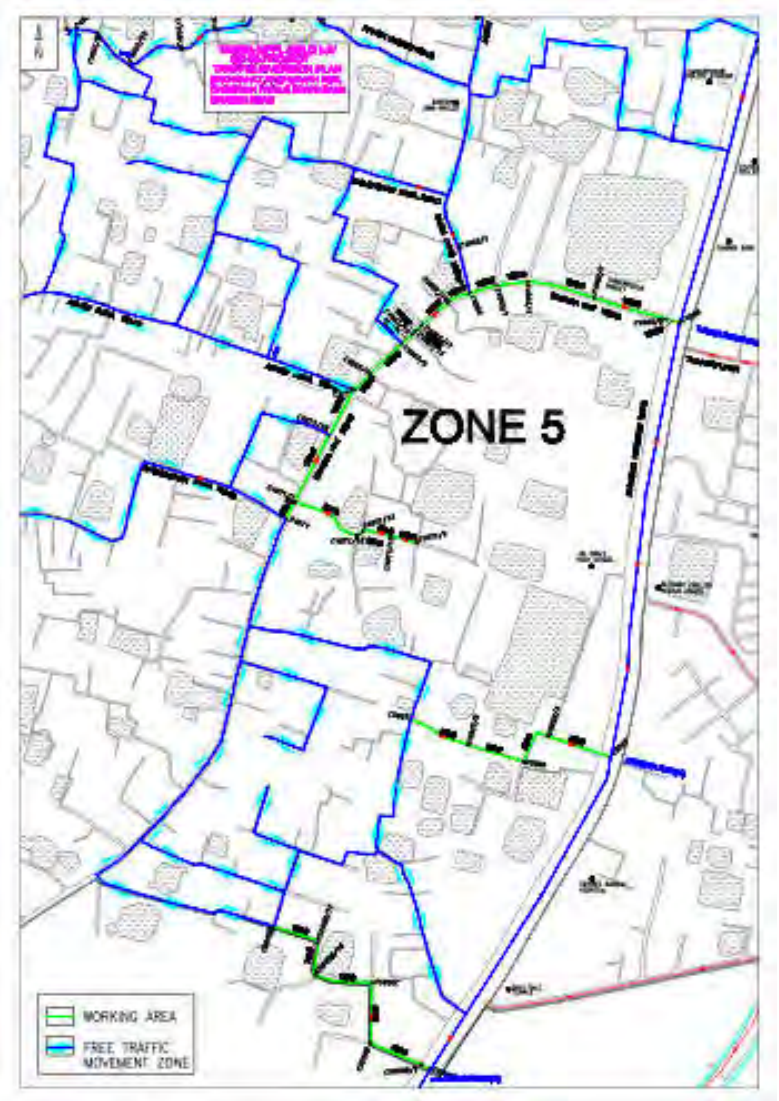
▪ 1.0	▪ Purpose
	To provide a clear and simply worded procedure to be understood by most employees on preventing injury to persons and damage to property arising from site traffic and site transport.
▪ 2.0	▪ Scope
	The procedure is applicable to TANTIA MPPL (WILO) JV sites and depots.
▪ 3.0	▪ Responsibility
	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 (Regulations 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	<u>General</u>
	• 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	<u>Planning stage</u>
	• 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 necessity of traffic control systems such as temporary Stop/Go boards.

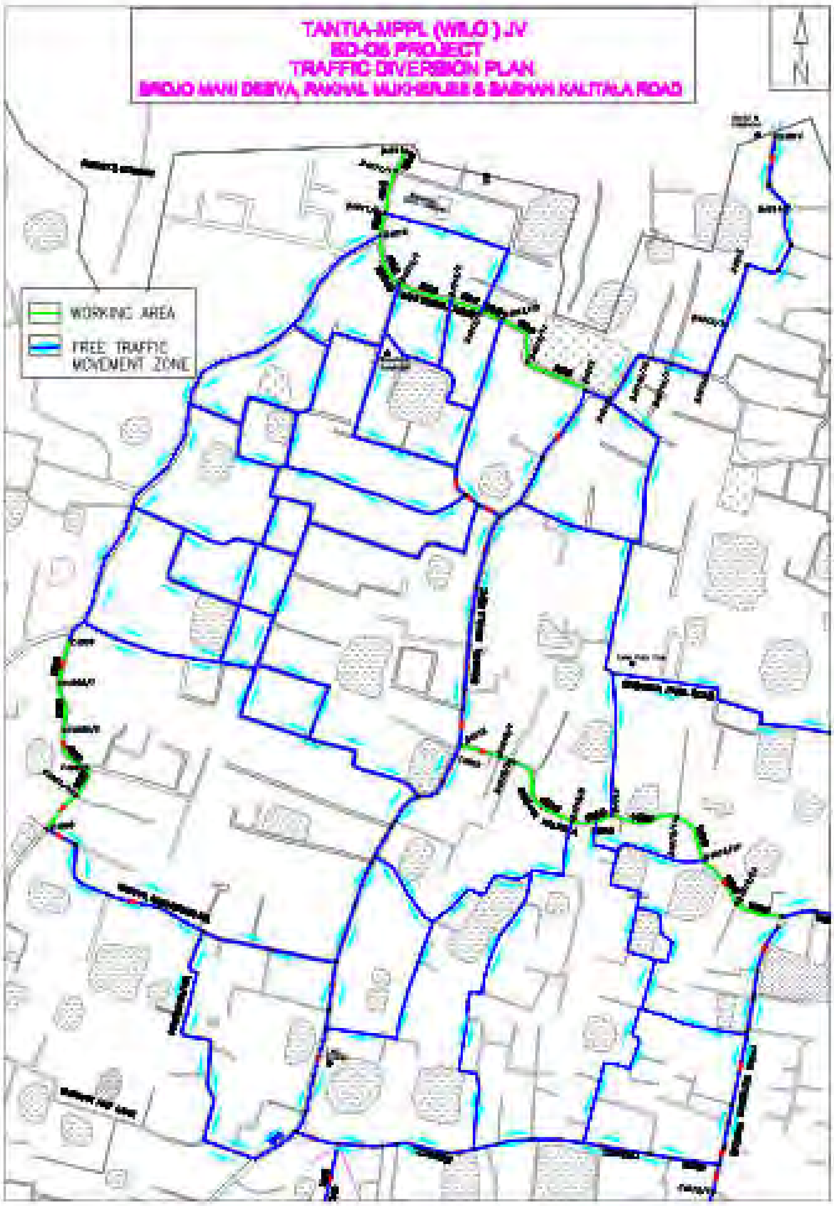
	• Access should be planned to eliminate dangerous movements of site traffic (e.g. reversing of vehicles) and personnel (e.g. crossing dual carriageways). • Provision of adequate lighting.
6.3	<u>On site</u>
	• The working area in the live road/footway is defined. • The working space is defined – this includes the area of storage of tools and equipment and space to move around the job. • Provision of safety zone- it is kept clear of all work, material storage and people and is 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 bellow safety measure: • Safe width has been provided. • Speed limit is varied as per the site. • Safe walkway with proper guard has been provided. • Caution board has been placed in every location within the site. • During night alert light has been provided. • Conducting Toolbox training as regular basis. • Road will be closed with proper permission (if required). • Reflective type Diversion board has been placed in required places. • Road diversion drawing has been submitted (Ref. Attached drawing)
6.7	**Loading and unloading**
	• Only authorised 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 Intimation 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 :

	○ traffic signs; ○ cones; ○ barriers; ○ road hazard warning lights; ○ information boards; and ○ site lighting • Adequate lighting has been provided.


TANTIA-MPPL (WILO) JV
SD-05 PROJECT
TRAFFIC DIVERSION PLAN
PANCHKORI GHOSH & BHATTACHARJEE PARA ROAD
N
ZONE 3
WORKING AREA
FREE TRAFFIC MOVEMENT ZONE


WORKING AREA
FREE TRAFFIC MOVEMENT ZONE
TANTIA-MPPL (WILO) JV
SD-05 PROJECT
TRAFFIC DIVERSION PLAN
AMRITLAL MUKHERJEE & JAIGIR GHAT ROAD & BYE LANE
N
ZONE 4


ZONE 5
WORKING AREA
FREE TRAFFIC MOVEMENT ZONE


TANTIA-MPPL (WILO) JV
TRAFFIC DIVERSION PLAN
N
WORKING AREA
FREE TRAFFIC MOVEMENT ZONE

APPENDIX 14: ENVIRONMENT, HEALTH AND SAFETY BUDGET

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

ITD Cemindia Joint Venture

Environment, Health and Safety Management Plan

KEIIP Water works project at Palta and Garden Reach ,

HSE budgets for the year of 2015-16

Sl. No.	Contents		Ramarks
		Amt.	
1.0	**Contractor SHE Organisation**		
	SHE In-Charge	150000	
2.0	Other purpose	200000	
3.0	Personal Protective Equipments (PPEs)	450000	
		800000	
Gross total (Rs.)		**800000.0**	

NOTE: Other purpose for Air, Noise & Water Quality Monitoring

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

ITD-ITD Cem Joint Venture

Environment, Health and Safety Management Plan

KEIIP Micro tunneling Project, Kolkata

HSE budgets for the year of 2015-16

Sl. No.	Contents	Requirement and Cost			Remarks
		Items			
		Qty.	Rate	Amt.	
1.0	**Contractor SHE Organisation**	**No**	**Yr**		
	SHE In-Charge	1	700000	700000	
	Sr. SHE Engineer	1	500000	500000	
	Safety Steward	10	240000	2400000	
	Medical Support Staff - First Aider	1	300000	300000	
	Traffic Marshals	150	120000	18000000	
	Watch man / Security Guard	40	120000	4800000	
	Housekeeping workers	10	120000	1200000	
	Labour welfare officer	1	480000	480000	
	Welfare support staff - clerk	4	180000	720000	
				0	
2.0	Sound Level Monitorring	8	1000	8000	
	Alir quality monitoring	16	2500	40000	
	Stack gas monitoring of DGs	16	2000	32000	
	Round the clock Ambulance	1	480000	480000	
	ID card and first day at work, SHE orientation training	1000	10	10000	
	SHE handbook (pocketbook)	300	70.0	21000	
	SHE training	24	1000.0	24000	
	Half yearly inspection of lifting machinery, lifting appliances, equipment and gears by Govt. approved comopetent person	500	2000	1000000	
	Celebration - Safety / Environment / other days -14, Safety / earth weeks-2, red cross month-1	1	50000	50000	

	Posters	200	50	10000	
	Signages-metallic boards	700	5000	3500000	
				0	
3.0	Working at Height			0	
	Full body harness	50	2500	125000	
	40 NB MS Pipe for railing / barricades	500	300	150000	
	6" wide, 1" thk wooden plank / sheet for toe board	1000	75	75000	
				0	
4.0	Site electricity			0	
	30 mA sensitivity ELCB / RCCB	300	3000	900000	
	Earthing pits	30	1500	45000	
	Lightning arrestors	10	4000	40000	
	Distribution board with Industrial socket and connectors	200	5000	1000000	
5.0	Welding, gouging and cutting				
	Cylinder trolleys	100	2500	250000	
	Flash back arrestor - set	200	2500	500000	
	Non-return valve	200	2500	500000	
6.0	Fire prevention, protection and fighting system				
	Fire extinguishers - 2 Kg, ABC (dry powder)	10	2000	20000	
	Fire extinguishers - 10 Kg, ABC (dry powder)	20	3500	70000	
	Fire extinguishers - 9 Kg, CO2	6	3500	21000	
	Fire extinguishers - 5 Kg, Foam	5	4000	20000	
	Fire buckets	200	300	60000	
	Refilling of fire extinguishers	0	L.S.	200000	
7.0	Traffice management				
	Traffic warning signs	100	1250	125000	
	Other traffic signs	150	1250	187500	
	Delineators	500	350	175000	
	Other traffic signs	300	700	210000	
	Safety ribbon	50000	4	200000	
	Electric blinkers	100	1700	170000	
	Illuminated traffic control beacons	100	1500	150000	
	Tow away vehicle (50 months)	1	70000	70000	
8.0	Personal Protective Equipments (PPEs)				

	Safety helmets	10000	90	900000	
	Safety footwear, gumboots	10000	450	4500000	
	High visibility clothing (jacket)	4000	200	800000	
	Fall arrestor	10000	1800	18000000	
	Full body harness	500	1250	625000	
	Goggles	1000	1555	1555000	
	Hand gloves	10000	35	350000	
	Nose mask	5000	25	125000	
	Ear plugs	5000	15	75000	
	Ear muffs	500	125	62500	
	Welder's apron	100	700	70000	
	Electrician's rubber hand gloves	100	250	25000	
9.0	Medical examination of all workers	1500	200	300000	
	Medical Facilities				
	Occupational Health Centre	1	L.S.	100000	
	Ambulance van and room (tie-up with local hospitals)	-	-	650000	
	First aid boxes	15	1250	18750	
	Fumigation,/spraying of insecticides for mosquitoes	28	2500	70000	
10.0	Reuses of Waste water	4	40000	160000	
Gross total (Rs.)		**67924750.0**			

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)

TANTIA-MPPL(WILO)JV

SD-05 (PROJECTS)

To whom it may concern

I do hereby declare that an amount of Rs. 11,00,000/- are budgets for implement mitigation measures and monitoring program per year.

The details are given below

Sl. No.	Description	Amount (Yearly)
1.	Safety Officers	Rs. 4,20,000/-
2.	Safety Assistant	Rs. 2,40,000/-
3.	Red Danger Tape	Rs. 30,000/-
4.	Barricading Board	Rs. 30,000/-
5.	Diversion Board	Rs. 20,000/-
6.	Safety Shoe, Jacket, Helmet, Gumboot, etc. for staff and labour	Rs. 2,60,000/-
7.	Ambient Air and Noise pollution testing	Rs.1,00,000/-
	Total =	**Rs. 11,00,000/-**

TANTIA-MPPL(WILO)JV

Package: Micro-tunneling works on pressure main from Santoshpur Pumping Station to Garden Reach Sewage Treatment Plant (KEIIP/NCB/ Tr-1/SD-06/13-14)

SIMPLEX-KRITA JV

BUDGET OF IMPLEMENTATION MITIGATION AND MONITORING PROGRAMME (ANNUAL BUDGET)

1.	**COST OF SAFTEY OFFICER (ANNUAL CTC) -**	**7.00 LAKH**
2.	**MONITORING CHARGES (NOISE,AIR,HYDROCARBON,WATER,POLLUTION)-**	**2.00 LAKH**
3.	**SAFTEY AND PPP EQUIPMENTS FOR SITE AND OFFICE-**	**8.00 LAKH**

(Helmet, Gumboot, Saftey Jacket,Mask,Saftey Belt,Saftey Board,

Volunteer, Oxygen, Hand Gloves, Sunglass, Saftey Divider/Barrier,

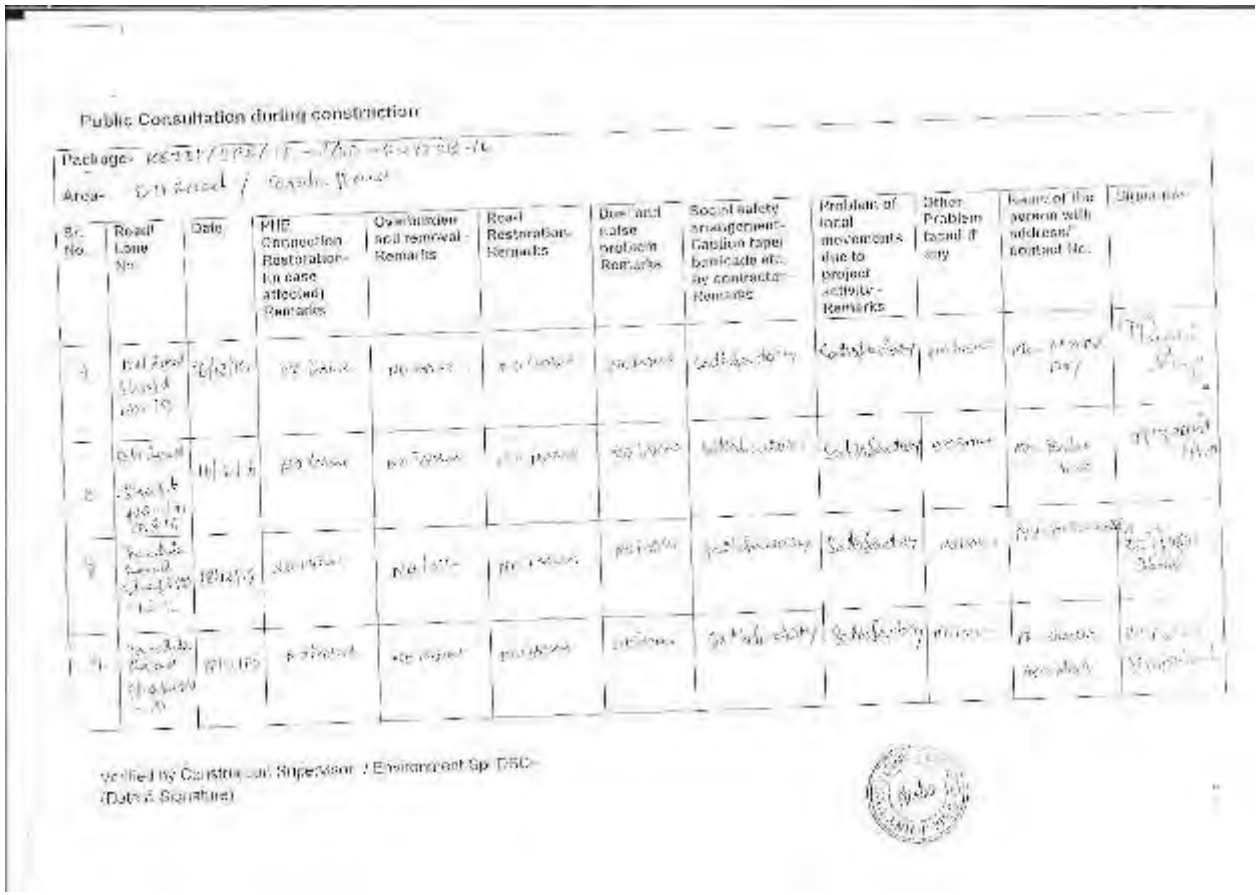
First Aid Box With Medicine,Red Danger Tape,Saftey Signs,Saftey Net,Saftey Lights,Saftey Mirror,Barricadding Board,Extinguisher,Rubbish Bin,Fire

Alarm, Fire Hose Roll, Bio Toilet, Insects Killer Liquids, Circular Cutter With Noise Barrier For Tmt Cutting, Silent Dg Set.)

TOTAL-	**17.00 LAKH**

APPENDIX 15: PUBLIC CONSULTATION ON ENVIRONMENTAL ISSUES DURING CONSTRUCTION/ IMPLEMENTATION – Sample filled format

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



Public Consultation during construction

Package-

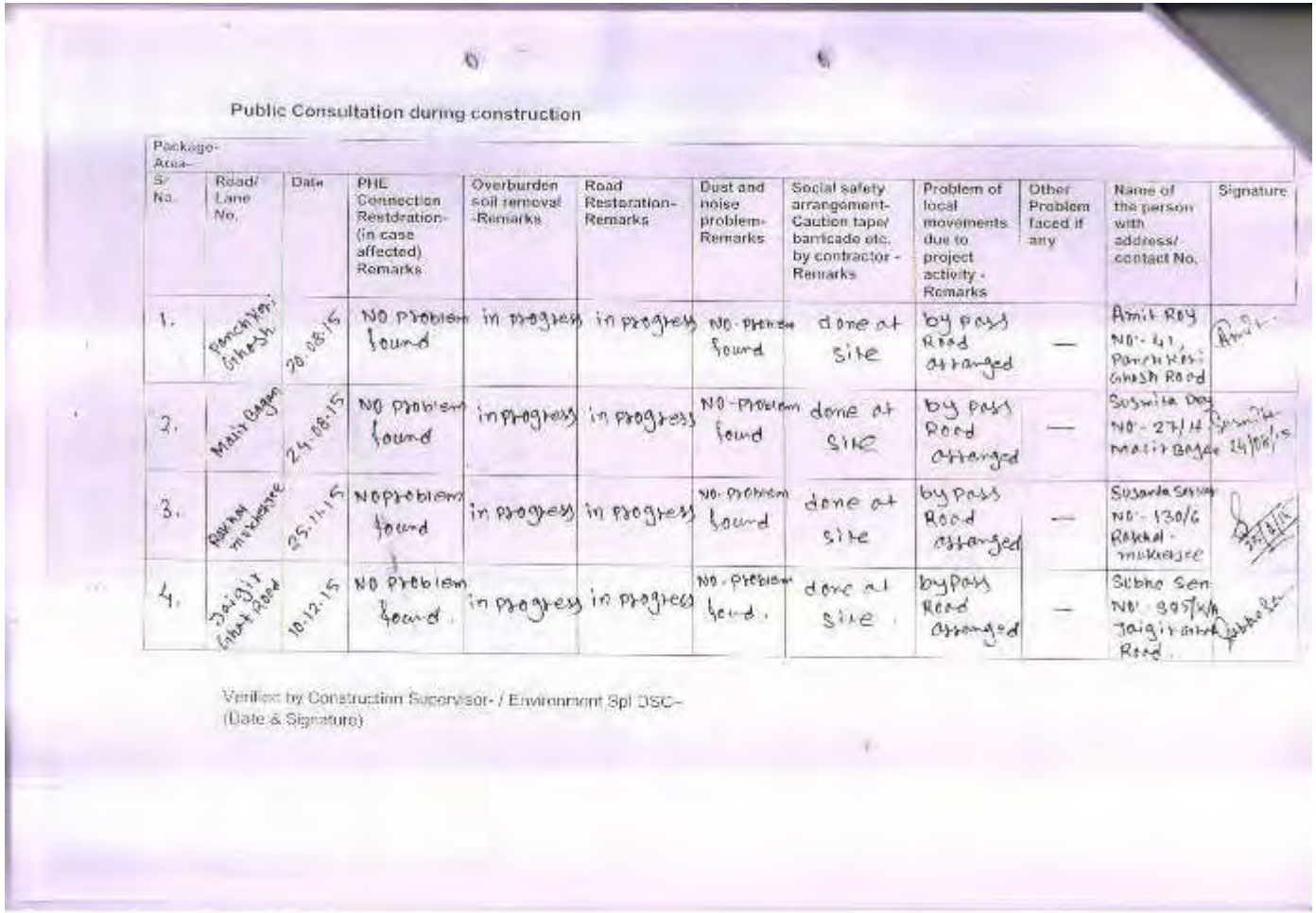
Area-

Sr. No.	Road/ Lane No.	Date	PHE Connection Restoration (in case affected) Remarks	Overburden soil removal - Remarks	Road Restoration Remarks	Dust and noise control 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											
2											
3											
4											

Verified by Construction Supervisor / Environment Sp. DSC

(Date & Signature)

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



Public Consultation during construction

Package-
Area-

S/ No.	Road/ Lane No.	Date	PHE 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.	Panchanan Ghosh	20.08.15	NO Problem found	in progress	in progress	NO Problem found	done at site	by pass Road arranged	—	Amit Roy NO- 41, Panchanan Ghosh Road	
2.	Main Bagan	24.08.15	NO Problem found	in progress	in progress	NO Problem found	done at site	by pass Road arranged	—	Susmita Dey NO- 27/H Main Bagan	
3.	Bagan Mukherjee	25.11.15	NO problem found	in progress	in progress	NO Problem found	done at site	by pass Road arranged	—	Susanta Sarkar NO- 130/6 Rakhal Mukherjee	
4.	Jaigir Ghat Road	10.12.15	NO Problem found.	in progress	in progress	NO Problem found.	done at site.	bypass Road arranged	—	Subho Sen NO- 305/K/A Jaigir Ghat Road.	

Verified by Construction Supervisor- / Environment Spl DSC-
(Date & Signature)

Appendix 16: Minutes of the Meeting

Meeting held on Dec 01, 2015 at Paribesh Bhawan, Salt Lake between officials of WBPCB, KMC and KEIIP

The following persons attended the meeting

On behalf of KEIIP & KMC			
Sl. No.	Name	Contact no	E-mail
1.	Md. G.A. Ansari	9800862246	pdkeiip@gmail.com
2.	Soumya Ganguly	9831080056	soumya.ganguly@rediffmail.com
3.	Subhajit Das Gupta	9830060382	Subhajit.Dasgupta@gmail.com
4.	Ranajit Banerjee	9831074177	rbanerjee1946@gmail.com
5.	Dr. Chinmoy Chakrabarti	9830284360	chin_moy@yahoo.com
6.	Diptarup Kahali	9051022223	Diptarup.kahali@gkw.consult.com
7.	Dr. Ardhendu Mitra	9830415953	ardhendumitra@gmail.com

On behalf of WBPCB			
Sl. No.	Name	Contact no.	E-mail
1.	Dr. Kalyan Rudra	9433507176	chairman@wbpcb.gov.in
2.	Dr. Subrat Mukherjee, IFS	9874948678	ms@wbpcb.gov.in
1.	Dr. Ujjal Mukhopadhyay	9830063508	ujjal@wbpcb.gov.in
1.	S.K. Adhikari	9830596338	shyamala@wbpcb.gov.in
2.	Sarmistha Kundu	9831165615	Sormistha @wbpcb.gov.in
3.	Ranadip Mondal	9331934875	rmondal@wbpcb.gov.in
4.	Ruby Sinha	9330869729	ruby@wbpcb.gov.in
1.	D. Sarkar	9434031887	debasarkar@wbpcb.gov.in
2.	Barna Mujumdar	9038090305	barna@wbpcb.gov.in

At the outset the officials of KEIIP and KMC explained that the purpose of their visit to WBPCB and this meeting was to apprise the Board officials about the various activities being undertaken under the Kolkata Environmental Improvement Project (KEIP) and also under the Kolkata Environmental Improvement Investment Program (KEIIP).

They mentioned that the purpose of KEIP was primarily to focus on the development and environment of the KMC Wards 1-6 and 101 to 141 which had several infrastructural deficiencies leading to frequent flooding and lack of basic urban services. The duration of the KEIP was from the year 2002 to the year 2013.

Subsequently, the second phase i.e. KEIIP started in the year 2014 and is expected to run upto 2022. The KEIIP aims at rrehabilitation of inefficient and out-dated water supply assets to minimize cost of operation, restoration and enhancement of production capacities, and reduction of water loss in distribution and construction of sewer network to newly developed areas.

They explained and indicated the different locations where the new STPs were planned for installation. During the discussion, the KMC and KEIIP officials were intimated about the new CPCB standards of Sewage Treatment Systems for implementation. A copy of the same was handed over to them for reference.

The KMC and KEIIP officials submitted that in the course of their activities under the KEIP and KEIIP, they would conform to all statutory formalities (CFE and CFO) as and when applicable. Statutory environmental obligation of KEIIP with respect to currently planned work programs including those requiring authorisation from WBPCB was presented by KEIIP which is reproduced below:

1. No Environmental Clearance (EC) under EIA Notification 2006 is required for any work packages under KEIIP
2. Under Tranche 1: Rehabilitation of WTP (20 MGD) at Palta – CTE received on 10.09.2015. CTO to be obtained before commission
3. Under Tranche 1: Rehabilitation of SSE STP - ***work for ponds embankment, work on floating aerator, removal of silt & sludge from aerobic, ponds, aerated lagoons and maturation pond*** – CTE and CTO exist. No change in design and capacity; therefore no fresh CTE required
4. No CTE and CTO required for other projects under Tranche 1 & 2

5. Tentative KEIIP Works Requiring WBPCB's clearance

Sr. No.	Name	Capacity	Technical summary	Status	Outfall to
1	Jiadgore STP	40 MLD	Sequential Batch Reactor (SBR)	To be applied for CTE & CTO	Keorapukur canal
2	SSE STP*	60 MLD	Facultative Aerated Lagoon (FAL)	To be applied for CTE & CTO	Churial Extension canal
3	Kalagachia & Suti STP	70 MLD	Sequential Batch Reactor (SBR)	To be applied for CTE & CTO	Churial canal
4	Bantala STP	Yet to be worked out	Sequential Batch Reactor (SBR)	To be applied for CTE & CTO	SWF Channel

5	Joka STP	Yet to be worked out	Sequential Batch Reactor (SBR)	To be applied for CTE & CTO	Keorapukur canal
6	Baghajatin STP	Yet to be worked out	Sequential Batch Reactor (SBR)	To be applied for CTE & CTO	TP system

SBR: Probable option of sewage treatment considering the minimum land requirement

* Rehabilitation & renovation (with increase in capacity)

The meeting ended after discussing the following two issues which are not directly connected with the current work program of KEIIP.

1. Wastewater treatment for the dyeing-bleaching units in and around Maheshtala, Chatta area - KEIIP officials informed that they were aware of the fact that MSME Dept. is looking into the matter and that the MSME has already identified a land which may accommodate about 200 units along with the Common Effluent Treatment Plant. It was further informed that MSME Dept. has also appointed a consultant for this purpose.

2. Unauthorised activities of leather shaving units in and around the CLC, Bantala - It was decided that the concerned stakeholders viz. KEIIP, Directorate of Industries, WBPCB, KMC and the local administration would meet on a mutually convenient date to resolve the issue.

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

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

Grievance Redressal Register

Complaint Number	Date	Complaint through (phone/ letter/ site)	Name of complainer	Complaint details	Action taken by Contractor/ PMU/DSC	Date – case resolved (days required)	Remarks – further action if any
1	07.10.2015	Site	Mr.Bapan Biswas	Around 6.00AM, in-front of Shaft no7, Taratala road, road was blocked due to 75MT crane was working.	ITD-ITD Cem JV	07.10.2015	

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

TANTIA -MPPL(WILO)JV

4

Grievance Redressal Register

Complaint Number	Date	Complaint through (phone/letter/site)	Name of complainer	Complaint details	Action taken by Contractor/PMU/DSC	Date - case resolved(days required)	Remmarks-further action if any
016	04.12.15	Site	Mr. A. Biswas	Removal of excavated earth from site to make easy pathway for the pedestrian	Contractor	07.12.15 (3 days)	
017	12.12.15	Site	Mr. P. Sen	Jagu Khal Road CESC Pole no. 213/8 shifting request as it is very old & damaged.	DSC	22.12.15	
018	20.12.15	Site	Mr. Anil Kumar Jha	Rakhal Mukherjee Road Side drain water logged and water back flow to home	Contractor	24.12.15	

3

TANTIA -MPPL(WILO)JV

Grievance Redressal Register

Complaint Number	Date	Complaint through (phone/letter/site)	Name of complainer	Complaint details	Action taken by Contractor/PMU/DSC	Date - case resolved(days required)	Remmarks-further action if any
011	01.07.15	Site	Mr. Raju Sarkar	Natan Sarkar Road:– Drain overflow immediate action to be taken	Contractor	05.07.15	
012	15.07.15	Site	Mr. Susanta Banik	Natan Sarkar Road. Area become water logged due to heavy Rainfall dewatering to be done.	Contractor	19.07.15	
013	03.08.15	Site	Mr. Goutam Kar	Amritalal Mukherjee Road De-silting of drain to be done.	Contractor	08.08.15	
014	20.08.15	Site	Ms. Susmita Saha	Amritalal Mukherjee Road. Road become slippery. Some sand spreading is required	Contractor	23.08.15	
015	07.10.15	Site	Samiran Aich	Brojoman Debya Road Road to be made motorable before durga puja.	Contractor	14.10.15	

Clarification/ suggestion request from ADB on SEMR of Tranche 1 KEIIP- July to December 2015

(Ref. ADB mail on 11th July 2016)

Serial No.	Issues Observed By ADB	Reply	Reference
1.	It is noted and appreciated that ADB's comments/suggestions on the immediately preceding SEMR (January-June2015) **were already complied with**: (i) "Clarify and clearly state in the report if there were grievances during the reporting period". This is complied. The SEMR covering July-December 2015 provided an information on one (1) complaint (Appendix 18) during the period. From the report, this complaint was resolved immediately on site. (ii) "Complete the details of Appendix 14: Minutes of the Public Consultations (summary of topics and concerns discussed)". This is complied. The SEMR covering July-December 2015 provided more detailed discussions on public consultations made during the period (Appendix 16).	Noted and will continue to be complied accordingly for the entire construction period	-
2.	On pages 70-73 (Part V. Table 12: Baseline Ambient Air Quality Monitoring Data at working sites). (i) **Package KEIIP/ICB/Tr-1/WS02/2013-14** - Explain why no sampling was done at Garden Reach Intake Point and Treatment Plant-Near Surimnamghat. (ii) **Package KEIIP/ICB/Tr-1/WS & SD-04/13-14** - Explain why the periodic sampling sites differ from the baseline data sampling sites. The periodic sampling sites should follow the baseline sites. If there are changes in sampling locations, please provide an explanation/justification. (iii) **Package KEIIP/ICB/Tr-1/SD-05/13-14** - It is noted that there was a non-compliance on parameter PM_{10} with an average reading of 100.23 $\mu g/m^3$ against standard of 100 $\mu g/m^3$. However, it is also noted that the average baseline reading was already above the standard at 101.69 $\mu g/m^3$; - Standardize the naming of sampling sites to avoid confusion. The baseline sampling sites used are the following: (a) nearby incoming sewer pipeline –	(i) For **Package KEIIP/ICB/Tr-1/WS02/2013-14** base line air quality monitoring has been done at Garden Reach intake location and included in the report. Till report period no physical work started at Garden Reach. As per EMP "During construction" monitoring will be carried out after commencement of construction work (ii) **Package KEIIP/ICB/Tr-1/WS & SD-04/13-14** is a linear pipe laying project. 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. Locations at which construction is complete is abandoned for new stations where construction has commenced. 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. (iii) Part of work for **Package KEIIP/ICB/Tr-1/SD-05/13-14** is a combination of fixed pumping station construction and linear pipe laying project. It is noted that there is	Minor correction of name included in the report ref Table 12 page 70

Serial No.	Issues Observed By ADB	Reply	Reference
	SWF & DWF pumping main from Begore Khal Pumping station (PS) – near PS, (b) Box drain and Begore PS location- near Behala Airport, (c) Near pipe laying work- Junction point of Dakshin Behala Road & Swahan Kalitala Road- near Barisha Youth club, and (d) Near Joka Tram Depot Pumping Station. Therefore, the periodic sampling sites should also be named in the same way. If there are changes in the periodic sampling sites, then please provide an explanation. -Explain why no periodic sampling was made at locations (b) and (c) as named above	marginal low level of average PM_{10} at working location in compared to average base line condition, which indicates there is no as such change of ambient level concentration of pollutants due to working at that area. Joka Tram Depot Pumping Station (d) and Begore PS location (b) are 2 fixed construction locations where monitoring will be continued throughout the construction period. But locations of other monitoring stations along the pipe laying construction changed as the construction progressed. It is reiterated that base line data is the average air quality status of the project working areas as monitored from 3-4 locations before commencement of the construction in a the linear pipe laying work. Small correction of name of location required-incorporated in the report	
3.	On pages 73-75 (Part V. Table 13: Baseline Noise Level Monitoring Data at working sites). (i) **Package KEIIP/ICB/Tr-1/WS02/2013-14** - Explain why no sampling was made at Gardenreach Intake point and treatment plant – near Surinamghat. (ii) **Package KEIIP/ICB/Tr-1/WS & SD-04/13-14** - Explain why the periodic sampling sites differ from the baseline data sampling sites. Periodic sampling sites should follow the baseline sampling sites. If there are changes in sampling locations, please provide an explanation/justification. - When was the sampling at DH Road Shaft No. 19 and Taratala Road Shaft No. 1 done? Please provide the date in the table. - Explain why no noise sampling was done for the night time period. (iii) **Package KEIIP/ICB/Tr-1/SD-05/13-14** - Standardize the naming of sampling sites to avoid confusion. The baseline sampling sites used are the following: (a) nearby incoming sewer pipeline – SWF & DWF pumping main from Begore Khal Pumping station (PS) – near PS, (b) Box drain and Begore PS location- near Behala Airport, (c) Near pipe laying work-Junction point of Dakshin Behala Road & Swahan Kalitala Road- near Barisha Youth club, and (d) Near Joka	(i) For **Package KEIIP/ICB/Tr-1/WS02/2013-14** base line noise level monitoring has been carried at Garden Reach intake location and included in the report. Till report period no physical work commenced at Garden Reach. As per EMP "During construction" monitoring will be carried out after commencement of construction work. (ii) **Package KEIIP/ICB/Tr-1/WS & SD-04/13-14** is a linear pipe laying project. 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. Locations at which construction is complete is abandoned for new stations where construction has commenced. 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. - Monitoring date will be 31.07.2015, typographical mistake - Since no activity carried out at night monitoring not done (iii) **Package KEIIP/ICB/Tr-1/SD-05/13-14** is a combination of fixed pumping station construction and linear pipe laying project. Joka Tram Depot Pumping Station (d) and Begore PS location (b) are 2 fixed	(ii) Monitoring date included in revised report. Ref Table 13 page 74 (iv) Minor correction of name included in the report ref Table 13 page 73

Serial No.	Issues Observed By ADB	Reply	Reference
	Tram Depot Pumping Station. Therefore, the periodic sampling sites should also be named in the same way. If there are changes in the periodic monitoring sites, then please provide an explanation. (iv) **Package KEIIP/NCB/Tr-1/SD-06/13-14** - Standardize the naming of sampling sites to avoid confusion. The periodic monitoring sites should follow the baseline sampling sites. If there are changes in the periodic monitoring sites, then please provide an explanation.	construction locations where monitoring will be continued throughout the construction period. But locations of other monitoring stations along the pipe laying construction changed as the construction progressed. It is reiterated that base line data is the average air quality status of the project working areas as monitored from 3-4 locations before commencement of the construction in a the linear pipe laying work. (iv) **For Package KEIIP/NCB/Tr-1/SD-06/13-14** monitoring has been carried out at fixed location like Santoshpur pumping station receiving shaft and Jacking shaft area-Garden Reach Treatment plant. Monitoring sites for the linear pipe laying work have been changed for reasons explained above Small correction of name of location required-incorporated in the report	
4.	On page 29 (Part IV. Compliance Status With The Environmental Management and Monitoring Plan) - Explain why the observations (shortfalls) already identified during the previous monitoring covering January-June 2015 remained unresolved up to the present reporting period. - Provide detailed status of implementation of the corrective action plan presented in the SEMR covering January – June 2015	During the report period July to December 2015 overall compliance status improved. For packages KEIIP/ICB/ Tr-1/SD-05/13-14 and KEIIP/NCB/ Tr-1/SD-06/13-14 still there are some issues like, ○ More comprehensive Tool box training for labourers is required – **Action taken-** Contractors have organized training without any record. Instruction has been given for proper recording ○ Housekeeping at some parts of the camps and working sites needs attention – **Action taken** - Though substantially improved but still there is scope of improvement of housekeeping for package KEIIP/ICB/ Tr-1/SD-05/13-14 to bring it to more satisfactory level. After field visit instruction has been given accordingly for improvement ○ Use of PPE by contractors' site workers is not always maintained – Use of PPE varied from worker to worker depending on individual mind set. On the whole use of PPE improved but 100 per cent compliance was not possible to achieve. During orientation training program, requirement of use of PPE explained to worker. ○ Regular disposal of excess earth and access to local households not satisfactory for the package KEIIP/ICB/ Tr-1/SD-05/13-14- **Action taken-** Though visible improvement noted for disposal of excess earth and provision of access for households but still there is scope of improvement. During orientation training	

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		program and site visits by supervisors and experts, requirement of such improvement explained. o Hard barricading mostly absent at working sites of KEIIP/ICB/ Tr-1/SD-05/13-14 – **Action taken** – Construction work is being carried out mostly within narrow lanes where availability of space for placement of hard barricade is a constrain and there are competing users of space. Caution tape placed and flag person placed at working area for smooth movement of locals and vehicles	
5.	On page 39, Table 8 (Compliance to EMP for Package KEIIP/ICB/Tr-1/WS02/2013-14). - It has been noted there is still no permanent barricades around the excavated areas/trenches. Tapes, as shown in photos, are not sufficient and would still may pose potential hazards and risks to workers and community. This is a mitigation measure as per EMP. Failure to implement is a non-compliance. Provide detailed update supported by documents and photos of activities conducted by the contractors and PMU to address the issue.	For package KEIIP/ICB/Tr-1/WS02/2013-14 overall implementation of EMP is very much satisfactory. Project is located within the Palta water works campus and therefore no outside person is allowed near the construction site. Caution tape has been placed around excavated area. This mitigation measures has been judged to be adequate as the excavation is for a short period and quiet shallow.  **Caution tape placed**	
6.	On pages 50-60, Table 10 (Compliance to EMP for Package KEIIP/ICB/Tr-1/SD-05/13-14) - Explain why the following non-compliances remain unresolved: (a) access to the site is blocked and not maintained, (b) road diversion signs not properly placed, (c) no site safety training arranged, (d) not regular disposal of excess earth, (e) use of PPE is partially complied, and (f) no permanent barricades arranged around the excavated areas/trenches.	**Package KEIIP/ICB/Tr-1/SD-05/13-14)** In general compliance statement is based on overall observation of different working sites throughout the semi annual report period. Improvement is noticed for each issues and mentioned as partially complied instead of non- compliance. (a) Partial availability of proper access was noticed at only a few working locations. In most of the locations adequate access is available for public movement (b) It was noticed during field visit that sufficient road closure and diversion board not available with contractor. Instruction has been given to contractor for sufficient boards (c) Site safety training arranged not on regular basis. Instruction has been given for improvement (d) Practice for regular disposal of excess	

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		earth from pipe laying area improved. Further improvement is possible and being insisted upon (e) Use of PPE varied from worker to worker depending on individual mind set. On the whole PPE improved but 100 per cent compliance was not possible to achieve. During orientation training program requirement of use of PPE explained to worker. (f) Construction work is being carried out mostly within narrow lanes where availability of space for placement of hard barricade is a constrain and where there are competing users of space. Caution tape placed and flag person placed at working area for smooth movement of locals and vehicle Instruction has been given to contractor from project Executing Agency for immediate rectification of shortfall and training has been arranged for the contractor for immediate action. Hopefully improvement will be noticed during next semi annual period Regular monitoring is continued from DSC	
7.	On page 81, Table 17, check/correct the target dates in the Indicative Schedule for Consultations and Disclosures. Should they be in the year 2016 and not 2015?	Consultation and disclosure is continuous process. Corrected year 2016 instead of 2015	Revised ref Table 17, page 80
8.	On page 83, Table 18, check/ correct the target dates of the activities for the Corrective Action Plan Should they be in the year 2016 and not 2015?	Target date corrected year 2016 instead of 2015	Revised ref Table 18, page 80