



**KOLKATA ENVIRONMENTAL IMPROVEMENT PROJECT**

**PROJECT MANAGEMENT UNIT**

**PROGRESS REPORT ON EMP IMPLEMENTATION OF  
KOLKATA ENVIRONMENTAL IMPROVEMENT PROJECT  
FOR THE PERIOD JANUARY TO JUNE, 2011**

**(Loan Nos. 1813-IND & 2293-IND)**

**JYLY, 2011**



**KOLKATA MUNICIPAL CORPORATION**

## **List of Abbreviations**

Asian Development Bank	ADB
Design and Supervision Consultants	DSC
Dry Weather Flow	DWF
East Kolkata Wetlands	EKW
EKW Management Authority	EKWMA
Environmental Management Cell	EMC
Executing Agency	EA
Government of West Bengal	GOWB
Initial Environmental Examination	IEE
Kolkata Environmental Improvement Project	KEIP
Kolkata Municipal Corporation	KMC
Million litres per day	MLD
Occupational Health and Safety Plans	OHSP
Project Affected Persons	PAP
Project Director	PD
Project Management Consultant	PMC
Project Management Unit	PMU
Project Preparatory Technical Assistance	PPTA
Project Specific Study	PSS
Pumping Station	PS
Report and Recommendation of the President, Asian Development Bank	RRP
Sewerage and Drainage	S & D
Sewage Treatment Plant	STP
Solid Waste Management	SWM
Storm Weather Flow	SWF
Team Leader	TL
Tollygunj Panchannagram canal	T P canal

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## I. INTRODUCTION

1. Kolkata Municipal Corporation (KMC) is the Executing Agency (EA) for implementing the Kolkata Environmental Improvement Project (KEIP or the Project) with financial assistance from Asian Development Bank (ADB) since 2002. The Project consists of the following six parts or components (RRP, 2000):

- Part A: Stakeholder Consultation Process
- Part B: Sewerage and Drainage Improvement
- Part C: Solid Waste Management
- Part D: Slum Improvements
- Part E: Canal Improvements
- Part F: Implementation Assistance and Capacity Building

2. The Project Preparatory Technical Assistance (PPTA) had prepared an Initial Environmental Examination (IEE) report in 2000 designating the Project as Category B. During detailed design and implementation of the Project since then, the physical scope and design of the Project have been modified, and approved by the ADB. These include construction of new sewerage and drainage (S & D) network in borough VII and discharge of untreated sewage from S & D works under the Project in boroughs VII, XI and XII into the existing Dry Weather Flow (DWF) channel for eventual natural treatment in the fisheries of the East Kolkata Wetlands (EKW), an ecologically sensitive area listed as a Ramsar site. Accordingly, the original IEE of 2000 had been revised and updated to screen and assess potential environmental impacts and appropriate mitigation measures had been proposed. The overall IEE showed that the Project would have a positive impact on the environment of the project area particularly on terrestrial habitats, through improved sewerage and drainage facilities, reducing flood damage due to water logging during monsoon, improving the local environment and enhancing institutional capacity for providing improved civic services in the targeted areas of Kolkata and especially in the selected slum areas. The potential adverse impacts on the environment are perceived to be localized, short-term, non-significant, and can generally be mitigated. The mitigation measures have been adequately spelt out in the revised IEE including the EMP and component-wise IEEs. The summary IEE developed for the Project was publicly disclosed on ADB website in August 2006.

3. Since a part of the Project extends into the environmentally sensitive EKW area, the revised KEIP has now been categorized as B sensitive. As such an environmental management plan (EMP), as per requirements of Environment Policy of ADB, 2002, ADB's Environmental Guideline, 2003 and ADB's Environmental Operation Manual, 2006, had been developed. Meanwhile a Project Specific Study (PSS) by Dr Tim Wrigley and Dr Asis

Mazumdar of School of Water Resources Engineering, Jadavpur University has been carried out as part of TA 4814-IND (component TA for capacity building for the protection of EKW). Findings of the PSS specifically indicate that no additional STP is required to be constructed due to the additional sewage to be generated by KEIP that is proposed to be conveyed and naturally treated in the EKW.

4. With taking up of the canal re-excavation work in the EKW areas, the existing IEE and EMP were further modified with add-on data as required in August, 2010. Such re-excavation work received also the concurrence of East Kolkata Wetlands Management Authority (EKWMA)

5. The present EMP implementation report relates to the progress of implementation of the provisions of EMP of KEIP during the last six months (January-June) of 2011 in respect of various work components of Part B, Part C, Part D and Part E in which civil constructions are involved. The Stake Holder Consultation Process (Part A) is an important component of the Project in all phases of implementation of components of KEIP involving civil construction. Such consultations, during the design stage, have provided important inputs for addressing environmental concerns of the stakeholders and have been duly considered. During the construction phase, more frequent stakeholder consultations at work site levels have been carried out. These consultations were held to confirm that the implementation of the EMP to overcome the perceived adverse environmental impacts, identified during the design stage, is being adequately and effectively addressed. The Implementation Assistance and Capacity Building of KMC (Part F) is another important component of the Project that is being implemented through various studies and consultations with DFID, UK funds. Implementation of the EMP will be facilitated by such capacity building of the KMC during the operation and maintenance phase.

## II. CONSTRUCTION ACTIVITIES

### A. Sewerage and Drainage Improvement

6. Sewerage and Drainage components of KEIP have the following four sub-components.

#### (i) construction of combined S&D network

7. **Table 1** summarizes borough wise activities related to construction of combined S & D network under KEIP during January to June, 2011.

#### ii) construction and augmentation of pumping stations

8. The progress of work in the construction of S & D pumping stations (PS) during January to June, 2011 under KEIP is given in **Table 2**.

#### (iii) construction of augmented/refurbished sewage treatment plants (STPs) for discharge of treated effluents into the drainage canals.

9. Construction activities during January to June, 2011 related to this sub-component has commenced after pre-construction studies and the progress made is summarized in **Table 3**.

**Table 3.** Progress of work in the refurbishment of Sewage Treatment Plants under KEIP from January to June, 2011

Name of Sewage Treatment Plant	Refurbished Treatment Capacity (2021) in MLD	Progress of work					
		Work elements					
		Topographical survey of the total area of the STP	Dewatering of existing ponds/aerators (m <sup>3</sup> )	Earth work in excavation of existing ponds (m <sup>3</sup> )	Earth work in filling of embankments (m <sup>3</sup> )	Laying of outlet DI pipeline (m)	Laying NP3 pipe line (m)
		1	2	3	4	5	6
South Suburban East	45	Work completed and the facility handed over to KMC					
Bangur	52	0	0	838.593	361.923	0	0
Garden Reach	57	0	2980.875	0	0	0	0

**Table 1.** Borough-wise details of construction of S & D network works, January–June, 2011

Component	Borough I			Borough VII		Borough XII & XI (part)	Borough XIV	Borough XV
	SDD1	SDD3	SDD4	SDF 1	SDF 2	SDC	SDB3	SDE
Estimated approximate volume of soil excavated from new and replaced pipes and manholes (m <sup>3</sup> )	2081.115	173.546	15620.613	7988.763	21744.009	8401.49	345.037	19005.504
Estimated approximate volume of excess excavated soil disposed (m <sup>3</sup> )	0	0	0	0	0	0	87.247	0
Estimated approximate quantity of silt removed and disposed from cleaning of existing pipes (Rm)	1275.268	0	12.472	0	0	0	0	0
Estimated approximate quantity of precipitate removed from cleaning of existing drainage channels (Rm)	169.367	0	286.549	43.101	17.945	3342.463	0	1096.337
Estimated approximate volume of road crust removed (m <sup>2</sup> )	572.55	0	568.41	1386.88	5196.85	0	0	0
Approximate Length of new drainage and sewerage line (m) constructed– up to 450 mm diameter	0	0	15.87	228.528	2569.73	295.66	123	607.74
Approximate Length of proposed new drainage and sewerage line (m) constructed – above 450 mm diameter	0.47	530.7	2136.638	918.468	2815,38	1557.435	23.6	1752.02

**Table 2.** Progress of work of construction of S & D pumping stations, January– June, 2011

<b>Borough</b>	<b>Borough XII, XIII &amp; XIV</b>	<b>Borough I, XI, XIII, XV</b>		<b>Borough I</b>	<b>Borough VII</b>	<b>Borough XV (Mahestala)</b>	
<b>Contract Package</b>	SD23	SD24R1	SD24R2	SD26	SD 27	SD32	SD36
<b>Identification of PS</b>		LS1A-2B, Behala Node – C, Kamdahari, LS-5					
<b>Type DWF/SWF</b>	DWF	DWF	DWF	DQF+SWF	DWF+SWF	DWF	DWF
<b>Status (augmentation/ new)</b>	New	Augmen tation	Augmentation	New	New	New	New
<b>Status of construction</b>	Work in progress	Work in progress	Work in progress	Terminated	Work in progress	Work in progress	Work in progress
<b>Well sinking (m)</b>	0	0	0	0	0	2.6	0
<b>Concrete (cu.m.)</b>	153.814	1548.06	0	229.512	0	678.998	219.653

## **B. Solid Waste Management**

10. There was no activity to report with respect to solid waste management component of KEIP during January-June, 2011.

## **C. Slum Improvement**

11. There were no substantive construction works to report during January-June, 2011.

## **D. Canal Improvement Works**

12. Progress in construction activities in canal re-excavation works of KEIP from January to June, 2011 is given in **Tables 4A and 4B**. Progress in construction in canal pumping stations of KEIP from January to June, 2011 is given in **Table 5**.

**Table 5.** Progress of work of construction of Canal pumping stations, January–June, 2011

<b>Name of Canal P.S.</b>	Chowbhaga	Keorapurkur	Monikhali
<b>Contract Package</b>	CW 22	CW 23	CW 24
<b>Well sinking (m)</b>	-	-	-
<b>Concrete (cu.m.)</b>	2770	-	991

## **E. Construction of Housing Colonies**

13. There were five work packages related to construction of housing colonies for relocation of canal bank dwellers as part of R & R plan of KEIP. These housing colonies are Nonadanga Phase I, Kasba, Shampa Mirza Nagar, Kalagachia and Nonadanga Phase II. Construction activities (civil and non-civil) in respect of these housing colonies have been completed.

**Table 4A.** Package wise details of progress in construction activities from January to June, 2011 of rehabilitation of different canal systems under KEIP

	<b>T P main canal CW 08</b>	<b>T P main canal CW 09</b>	<b>Keorapukur CW 12A</b>	<b>Keorapukur CW 12 C R1</b>	<b>Keorapukur CW 12 C R2</b>	<b>Churial Main CW 13</b>	<b>Churial Main CW 14</b>	<b>Churial Main CW 15</b>
1. Earth work in excavation in cu. m	-	1300	4630.0	8500.00	7570.00	24300	2612	-
2. Geotextile filter in sq. m	790.00	762.00	-	-	-	-	-	-
3. Pre-cast concrete block lining in sq. m	790.00	838.00	260.0	-	-	-	-	-
4. M-30 grade concrete in structures in cu. m	35.00	376.00	700.0	2024.0	1003.0	-	-	26
5. Reinforcement in M. T.	0.99	25.3	43.0	140.0	73.5	-	-	3.2
6. Disposal of excavated material in cu.m	-	1050.00	2500.00	5000.00	6300.00	22000	2112	-
7. Topographic survey (km)	-	-	-	-	-	5.67	-	-
8. Clearing and grubbing of canal banks including disposal (km)	-	0.060	0.054	0.186	0.15	0.765	-	-
9. Clearing and removal of water hyacinth including disposal in sq.m.	12000.0	20020.0	1600.0	3450.0	2000.0	160000.0	50633.0	2850.0
10. Clearing of sludge and slush including floating debris and removal (km)	-	0.054	0.18	0.12	-	-	-	6.63

**Table 4B.** Package wise details of progress in construction activities from January to June, 2011 of rehabilitation of different canal systems of EKW under KEIP

	<b>EKW north canals CW 20 R1</b>	<b>EKW north canals CW 20 R2</b>	<b>EKW north canals CW 20 R3</b>	<b>EKW south canals CW 21A</b>	<b>EKW south canals CW 21B</b>	<b>EKW south canals CW 25</b>
1. Earth work in excavation in cu. m	13680.0	33241.0	5720.0	50700.0	56866.0	12000.0
2. Geotextile filter in sq. m	-	-	-	-	-	-
3. Pre-cast concrete block lining in sq. m	-	-	-	-	-	-
4. M-30 grade concrete in structures in cu. m	-	-	-	-	-	-
5. Reinforcement in M. T.	-	-	-	-	-	-
6. Disposal of excavated material in cu.m	13680.0	28000.0	5700.0	48000.0	55000.0	-
7. Topographic survey (km)	4.388	10.0	2.1	11.022	10.727	8.421
8. Clearing and grubbing of canal banks including disposal (km)	9.425	10.0	2.1	7.1	5.35	4.221
9. Clearing and removal of water hyacinth including disposal in sq.m.	13200.0	22801.0	1500.0	800.0	36128.0	6000.0
10. Clearing of sludge and slush including floating debris and removal (km)	6.63	9.2	1.38	3.0	1.95	-

### **III. REPORT ON EMP IMPLEMENTATION**

#### **Induction of contractors on implementation & monitoring requirements**

14. Consequent upon the award of any contract and during the construction activities, contractors are made aware of the basic provisions of EMP as related to their works. These were accomplished through instructions by the site engineers and Senior Construction Supervisors of Design and Supervision Consultants (DSC), KEIP.

#### **Compliance reports of contractors prior to commencement of works**

15. Works related to construction/refurbishment/augmentation of the pumping stations commenced after the design parameters were established so as to prevent any flooding of the facility due to inadequate space, capacity and pumping requirements. Works related to laying of pipes under S & D component started only when the site management plan including traffic diversions, if any are finalised and explained to the contractors.

16. Works related to canal improvements commenced only when the major relocation of canal bank dwellers for the selected stretches is completed. Where canal bank dwellers could not be relocated, adequate design to prevent bank collapse and/or damage to dwelling units has been adopted.

#### **Weekly construction reports of contractors and DSC**

17. Weekly reviews of all construction activities with emphasis on mitigation measures of potential environmental impacts being undertaken by the Contractors have been taken by the respective Senior Construction Supervisors. Spot flying checks on the construction sites to ensure overall quality control including environmental and social requirements are being made by Team Leader (TL), DSC.

#### **Training of contractors on mitigation of unexpected adverse impacts**

18. Mitigation measures for any unexpected adverse impacts being faced are formulated by DSC and implemented by Contractors under the supervision of site engineers of DSC as soon as they crop up and reviewed about their efficacies weekly by the Senior Construction Supervisors of DSC.

#### **Monthly monitoring report**

19. Site wise monthly reports are being prepared by Senior Construction Supervisors of DSC in consultation with Environment Specialist of DSC. These reports are available in the office of DSC.

#### **Six monthly progress report of EMP implementation**

20. Six monthly review and report of EMP implementation is being developed by Environment Specialist of DSC based on the feed back from and in consultation with Senior

Construction Supervisors of DSC and limited site visits also incorporating the results of the required sampling, laboratory analysis and measurements. The present EMP implementation report (January-June, 2011) corresponds to ninth six monthly report of KEIP.

### **Institutional Strengthening and Training**

**21.** The recently established East Kolkata Wetlands Management Authority (EKWMA) of Government of West Bengal (GOWB) has engaged M/S Wetland International for the development of an EKW EMP and they have submitted their reports outlining the proposed management plan of EKW. The proposed interventions by KEIP in the form of re-excavation of some of the canals of EKW have been planned keeping in consideration the recommendations of EKW EMP.

**22.** KMC has already established an environment management cell (EMC). The EMC is to play an advisory and overall coordination role for KMC and the KEIP to ensure that agreed mitigation measures and monitoring are being carried out. Environment has been formally introduced as a subject in the portfolio of one of the Members - Mayor-in-Council (Policy making Body in KMC). A Chief Engineer rank officer is the Nodal Officer of the EMC. Suitable staffing has been made in the EMC. At KEIP Mr Kalyan Ghosh, Special Officer (Coordination) and Mr Subhojit Dasgupta, Dy Chief Engineer II have been named as the Environmental Coordinators of KEIP. There is a fully functional Central Water Testing Laboratory in KMC now. There is also a dedicated water testing facility at Palta Water Treatment Plant. Further the ponds and water bodies in KMC area are being cleansed and preserved in keeping with the Inland Fisheries Act and the West Bengal Town and Country Planning Act. The EMC is looking into all this.

### **Statutory Clearances/Approval Status and Loan covenants**

**23.** Environmental Clearance (EC) of Nonadanga housing for rehabilitation of canal bank dwellers has been accorded by the State Level Appraisal Committee. The follow-up 'Consent to Establish' certificate from WBPCB for the housing colony has also been obtained. The housing has already been handed over to the re-settlers.

**24.** Consent to Establish certificates for the three STPs under refurbishment of KEIP have been duly obtained. Consent to Operate certificate in respect of South Suburban East (SSE) STP was obtained in 2009 and a renewal has also been granted till end of May, 2011. As the SSE STP has already been handed over to KMC subsequent environmental obligations are being met by KMC. EKWMA has accorded permission to carry out canal rehabilitation works falling in EKW areas and reconfirmed their permission after recent notification of Wetlands (Conservation and Management) Rules, 2010.

25. The main components of loan covenants for 1813-IND and 2293-IND are as follows:
- **Processing and disposal of waste water pursuant to the prescribed standard** – Currently the Project is discharging treated waste water from SSE STP in to Churial extension canal. The treated effluent meets the standard stipulated by WBPCB while granting the consent to operate certificate for the STP.
  - **Submission of report on annual environmental and safety monitoring program** - The Project is regularly submitting a six monthly EMP Implementation report to ADB detailing the required environmental and safety monitoring
  - **Completion of City Sewerage and Drainage Master Plan** – The S & D Master Plan has been prepared.
  - **Alternative treatment of sewage** – The Project has opted for natural treatment of sewage from Borough VII and Parts of Borough XI and XII through the fisheries of EKW. The option has been exercised based on the provisions of EKW Management Plan prepared by the EKWMA and based on the findings of a project specific study by the Project covering the laid down objectives

#### **IV. ENVIRONMENTAL CONDITIONS**

##### **A. Sewerage and Drainage Improvement**

###### **(i) construction of combined S & D network**

26. Construction activities have impacted the local environment in some sites mainly in the nature of inconveniences to the residents. These inconveniences are transient in nature and have disappeared once the construction phase is over. Many of the inconveniences have been mitigated to the extent practicable so that their intensities are minimized and/or shortened in time and there is no adverse permanent impact on the environment. Some of these inconveniences are to be accepted (for which informal public awareness campaign has been taken up) for a short period of time for bringing in a permanent improved environment once the construction phase is completed.

###### **(ii) construction and augmentation of pumping stations**

27. Construction work of new pumping stations during the period continued on KMC lands with activities like installation of new pumps in some cases and well sinking and other civil works in some other cases. In some packages the construction work has advanced to completion stage with informal inauguration of the pumping stations. Environmental conditions at the construction sites remained unchanged due to low intensity construction activities. On the other hand, better drainage in the catchments of the pumping stations is likely to bring in improvement in environmental conditions.

###### **(iii) disposal of waste water into DWF channel**

28. Disposal of additional waste water in to DWF channel will commence when pipe laying works, house connections and construction and commissioning of pumping stations in the designated catchments under the KEIP are completed. Environmental condition around the DWF channel therefore was not impacted during the period due to the Project.

###### **(iv) construction of new and augmented/refurbished sewerage treatment plants (STPs) for discharge of treated effluents in to the drainage canals.**

29. Construction activities related to refurbishment of South Suburban East Sewage Treatment Plant have been completed. The facility has been handed over to KMC for operation. Completion of construction has brought in the expected improvement in local environment. Civil construction activities related to refurbishment of the other two STPs (Bangur and Garden Reach) are at the completion stage. Desludging operations had brought out large volume of sludge that has been disposed, after dewatering, in low lying areas within the premises of the STPs and covered with suitable material later on.

### **B. Solid Waste Management**

30. No activity is to be reported under this component during the period under review.

### **C. Slum Improvement**

31. The environmental conditions of selected slums have improved after the planned constructions of infra-structural facilities are completed.

### **D. Canal Improvement Works**

32. With the relocation of canal bank dwellers, re-excavations of canals and bridge constructions, the canal bank areas and their surroundings are poised for an improvement in environmental conditions (**Photographs 1, 2 & 3**) with better conveyance of storm/dry weather flows, and improvement of drainage in catchments and elimination of ugly shanties (wherever carried out) along canal banks. Such displaced canal bank dwellers have been rehabilitated with housings having basic civic amenities for a healthy and dignified living. The excavated silts are non-hazardous and are being disposed at pre arranged approved sites where no adverse impacts on environment are expected. Precautions have been taken for stabilising the canal banks through engineering measures wherever required. In EKW areas, wet excavation is in progress and work is being carried out in close liaison with local people.

## V. MEASUREMENT OR SAMPLING UNDERTAKEN AND MONITORING RESULTS

### Measurements in EKW areas

33. An intensive environmental monitoring program has been initiated in the EKW area from June, 2010 in order to closely monitor any sign of adverse impact on the environmental parameters due to intervention by KEIP works. They include the following:

#### *Ambient air quality*

34. Ambient air quality was measured at four locations in EKW area for one 24-hour period (split in 3 shifts of 8 hours) in each month. Concentrations of Respirable Particulate Matter (RPM), Suspended Particulate Matter (SPM), Sulphur Dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>), Carbon Monoxide (CO) and Lead (Pb) in SPM were monitored following BIS 5182. The results are tabulated in **Appendix 1**. Both RPM and SPM concentrations are relatively high and annual concentrations of these parameters are likely to exceed the respective notified prescribed standards (time weighted annual average PM<sub>10</sub> = 60 microgram per cubic metre) Central Pollution Control Board (CPCB). Such high concentrations are result of long distance migration of the above pollutants from the Kolkata city proper lying to the west of EKW. However, concentrations of SO<sub>2</sub> and NO<sub>x</sub> are relatively low and annual concentrations of these parameters are likely to be within respective limits of notified prescribed standards (SO<sub>2</sub> = 50 and NO<sub>x</sub> = 40 microgram by cubic meter of air) of CPCB. Concentrations of CO and Pb were always below the respective detection limits.

#### *Canal silt quality before excavation*

35. As part of work contract packages of canal excavation in the EKW area, Contractors have provided analysis (of selected parameters) of canal silt at two depth levels along stretches of canals to be re-excavated before the re-excavation commenced. The results are tabulated in **Appendix 2**. The concentrations of analysed parameters (including heavy metals like Pb, Cd, hexavalent Cr, Hg and As) are within the respective prescribed limits of Hazardous Wastes (M, H & TM) Amendment Rules 2008.

#### *Excavated canal silt*

36. Analysis was carried out by drawing samples from temporarily stacked excavated canal silt from several locations of EKW twice in each month and the results of analysis are given in **Appendix 3**. Concentrations of Arsenic, Chromium (VI) and Mercury were always below the respective detection limits. Concentrations of Lead, Nickel and Cadmium were low and were within the prescribed limits of Hazardous Wastes (M, H & TM) Amendment Rules 2008.

### ***Water quality of canals***

37. Water of sewage carrying EKW canals under re-excavation were chemically analysed once in each month and the results are given in **Appendix 4**. BOD levels in the water were variable between 34 mg/L and 100 mg/L. However, the water from DWF canal at the confluence with Bidyadhari river were always below 30 mg/L. Total solids were always high exceeding 1000 mg/L often with values greater than 1500 mg/L and rare values less than 1000 mg/L. Concentrations of heavy metals like Pb, hexavalent Cr, As, Cd, Ni, Cu and Hg were always below their respective detection limits. Iron and Zinc concentrations were around 1.0 mg/L. Fecal coliform was of the order of  $10^6$  MPN/100 ml.

### ***Ground water quality***

38. Ground water from 8 tube wells was analysed and the results are tabulated in **Appendix 5**. Concentrations of fluoride, lead, cadmium, arsenic, chromium (III and VI), mercury, phenolic compounds, cyanide and total coliform were below the respective detection limits. Total dissolved solids were always above 500 mg/L but rarely exceeding 1000 mg/L with corresponding high values of total hardness (above 200 but less than 400 mg/L), sodium (mostly between 200 and 300 mg/L) and chloride (above 100 but below 300 mg/L). Iron concentration was high varying between 0.68 and 1.28 mg/L.

### **Analysis of Sewage silt**

39. Old sewage silt from Topsis road box drain (Borough VII) was analysed and the results are tabulated in **Appendix 6**. Concentrations of analysed parameters are within the prescribed limits of Hazardous Wastes (M, H & TM) Amendment Rules 2008. However BOD was of the order of 7000 mg/L and concentrations of Pb and total Cr were about 135 and 2675 mg/Kg respectively.

### **Noise Level Measurement**

40. Noise levels in dBA have been measured at the periphery of several work sites of the KEIP where civil construction is going on (**Appendix 7**). There are two sets of measurements: one corresponding to situation when the work has been stopped and another when the work is in full force. The amount of noise added by the construction works could be estimated from the difference in values that bear direct correlation to the type and number of machineries that are in operation.

41. Elevated noise levels can not be avoided at work sites but were often of short and/or intermittent duration and during the day time only. However, total dosage to the work men was within the prescribed limit of occupational health and safety. Also necessary protection measures to the work men and those who are working near the site as per rule have been

enforced. Sites where manual operations are being carried out principally during the construction activities, the time averaged noise level in dB (A) is from 55 and 65 depending upon the type and volume of traffic on nearby road. Where work is in suspension during the monitoring time the ambient noise levels are within acceptable limit in many cases. Considering that ambient noise level is relatively high in typical congested mixed residential-commercial areas of Kolkata with high multi-modal traffic noise, the measured ambient noise levels, where exceed the standard, are to be accepted.

## VI. FINDINGS ON THE COMPLIANCE STATUS

42. The implementation including monitoring as planned in the EMP has been carried out at all major work sites of the KEIP. The works are related mainly to construction phase only. The daily observations that are required to be made as per list of monitoring agenda were noted each day by the site engineers of the Contractors and DSC in their Construction records. These were summarized on a weekly basis and were reviewed by the respective Senior Construction Supervisors of DSC and extra remedial measures, if required, were implemented. The extra remedial measures are listed in Chapter VII. A package wise monthly report was prepared by the respective Senior Construction Supervisors that have been used by the Environment Specialist of DSC to develop the six-monthly report of EMP implementation of KEIP.

43. The above structured approach for the period January to June, 2011 has ensured that the provisions of the EMP have been enforced and complied with. The potential adverse impacts have been mitigated to the extent possible by continuous and timely measures as provided in the EMP. In a few cases unexpected and unavoidable situations (like water logging, difficulty faced for movement and access to houses in narrow streets with no alternate pathways, etc) have developed leading to temporary inconveniences that have been mitigated to the extent possible by taking timely appropriate measures.

### **Sewerage & Drainage network**

#### **Construction Phase**

44. Summary observations of monitoring carried out during the Construction Phase during January to June, 2011 are given below item-wise:

i. **Soil erosion & surface run-off prevention**

Daily visual inspections have been carried out by DSC site supervisors at all running work sites to ensure exposed surfaces are resurfaced and stabilized rapidly by the Contractors. There was no case of delayed action by the Contractors. Timely precautionary measures were taken to prevent soil erosion and “landslide” in a few cases where such measures were necessary. Consequent minor damages to boundary walls and walls of individual properties have been noted in some areas due to pipe laying work apparently because these were having very shallow foundations. Remedial action taken is given in Chapter VII.

ii. **Prevention of dust nuisance**

There was no dust nuisance during the wet periods. Daily visual inspections have been carried out by DSC site supervisors at all running work sites to ensure (a) light water spraying on loose and fine debris whenever necessary during dry periods, (b) use of

masks / goggles by workmen whenever necessary & (c) covered transport of excess material whenever necessary. There was no record of heavy fugitive dust emission in the work sites. It is to be noted that site conditions did not allow use of much of heavy equipment. Generation of dust was, therefore, on the low side.

**iii. Disposal of silt and excess soil**

Monthly visual inspection of sites and delivery records of the Contractors have been carried out by DSC site supervisors to ensure that timely and adequate disposal of silt and excess soil has been undertaken by the Contractors at pre-agreed and pre-approved sites. There was no case of unnecessary silt / soil accumulation at work sites. Disposal of old sewage silt from Topsis box drain was undertaken with provision of required safety gears to the workmen.

**iv. Prevention of soil, ground and/or surface water contamination from contaminated silt**

No contaminated silt arising out of cleaning/dismantling of existing sewage lines has been excavated out during the present construction phase.

**v. Vehicular and Construction noise pollution mitigation**

Sound level monitoring has been carried out at different running work sites. The data given in **Appendix 7** bring out that the noise levels due to construction activities were elevated some decibals over the ambient noise where works were carried out manually. Where work is in suspension the ambient noise levels are within acceptable limit.

**vi. Relocation of utility services**

Intersection of major utility lines during trenching/excavation for drainage network was avoided in most cases. Diversions of water supply lines and electrical lines have been carried out observing the required formalities and with the consent of affected people.

**vii. Prevention of water logging / flooding during trenching**

Daily inspection at all running work sites has been carried out by DSC and PMU site supervisors to check water levels in the trenches. Timely dewatering was carried out as required. However, during wet periods some areas experienced temporary water-logging due to high intensity rainfall and due to impaired and insufficient drainage. Necessary draining and pumping of water logged areas were taken up to the extent feasible by deploying additional pumps.

**viii. Traffic management**

Partial/full closure of any public road including temporary diversion was done in co-ordination with the police authorities. The situation was reviewed daily by DSC site supervisors with the Contractors to minimize inconveniences to the local people. Safe

passage for bicycles and pedestrian traffic was always maintained. Cases of major traffic closures/diversions were in the places as mentioned in **Table 6**.

**Table 6.** Details of major traffic diversions/closures due to construction of S & D network under KEIP from January to June, 2011

Package	Ward	Road	Duration of diversion/ closure		Description of closure/diversion and remedial measures provided
			From	To	
SDE	138 & 139	S A Farooqui road	February 2011	June 2011	Diversion road through Murray road and Karbala bye lane
SDE	133 & 135	Paharpur road (part)	4 June 2011	30 June 2011	Passage for light vehicles is kept at one side of road
SDF 1	59	Christopher road	January 2011	April 2011	Traffic diverted through Atul Sur Road. Road is now open for traffic
SDF 1	59	Mahendra Roy lane	January 2011	June 2011	Traffic diverted through Abinash Chowdhury Lane. Road closure has now been lifted.
SDF 2	58	Tangra road	January 2011	April 2011	Traffic diverted through D C Dey Road. Road is now open to traffic.
SDF 2	57	D C Dey road	March 2011	April 2011	Traffic diverted through Mathur Babu lane. Road is now open to traffic.
SDF 2	66	G J Khan road	March 2011	April 2011	Partial closure
SDF 2	66	C N Roy road	January 2011	June 2011	Partial closure
SDF 2	66	Topsia road	January 2011	June 2011	Partial closure
SDF 2	66	Topsia road (south)	January 2011	June 2011	Partial closure
SDD 1	3	Khudiram Bose Road	January 2011	March 2011	Partial road block near Milk Colony & Fishery Sciences premises. No traffic diversion needed. Volunteers deployed
SDD 1	South Dum Dum	Jessore Road	January 2011	March 2011	Partial road block near Bagjola canal. No traffic diversion needed. Volunteers deployed.
SDD 3	1 & 6	Cossipore Road	January 2011	June 2011	Partial road block near Jackpits and Receiving Pits when needed. No traffic diversion required. Volunteers deployed.
SDD 4	4	Raja Manindra Road	March 2011	June 2011	Partial road block. No traffic diversion needed. Volunteers deployed

**ix. Health and safety of work force**

Daily visual inspection was carried out by DSC site supervisors to ensure that Occupational Health & Safety standards were followed by the Contractors.

**x. Environmental health & safety at construction camp sites**

A safety, health and environmental plan were submitted by each Contractor on acceptance of the work order detailing the provisions being made under the Plan. The Plan in each case provided for, amongst other things, temporary labour camps with

flush latrines. In addition available pay and use toilets came handy for the camp sites in some places. On the whole the camp sites did not pose any threat to environmental health and safety in the area. DSC site supervisors made daily visual inspections.

**xi. Conservation of places of cultural importance**

There was no case involving places of cultural importance falling along S&D network excavations.

**Pumping Stations**

**Construction Phase**

45. Summary observations of monitoring carried out in the Construction Phase during January to June, 2011 are given below item-wise:

**i. Soil erosion & surface run-off prevention**

Daily visual inspections have been carried out by DSC site supervisors at all running work sites to ensure working surfaces do not remain exposed and unstable after completion of the construction work.

**ii. Prevention of dust nuisance**

There was no dust emission during the wet periods. Daily visual inspections have been carried out by DSC site supervisors at all running work sites to ensure (a) light water spraying on loose and fine debris whenever necessary during dry periods, (b) use of masks / goggles by workmen whenever necessary & (c) covered transport of excess material whenever necessary. There was no record of fugitive dust emission in the work sites. It is to be noted that site conditions did not allow use of much heavy equipment. Generation of dust was, therefore, on the low side.

**iii. Prevention of soil, ground and/or surface water contamination from contaminated silt**

No contaminated silt was excavated out during the present construction phase.

**iv. Vehicular and Construction noise pollution mitigation**

Dewatering of trenches by pumps and employment of mixture machine were persistent sources of relatively high noise level at the work sites. However, noise levels as measured progressively away from the work zones show considerable reduction thereby indicating the local people are not distressed by elevated transient noise levels at the work sites compared to the construction workers, Workmen were provided with appropriate gears for adverse sound levels at work sites wherever felt necessary. No night operations were carried out.

## **Sewage Treatment Plant**

### **Construction Phase**

46. The SSE STP after completion of construction has been handed over to KMC for day to day operation. Civil construction related to Garden Reach and Bangur STPs have largely been completed by June, 2011. Only electro-mechanical works are in progress. Residual civil work will be taken up only after the electro mechanical works are completed.

### **Canal Improvements (Non-EKW areas)**

#### **Pre-construction Phase**

47. Summary observations of monitoring carried out during the Pre-construction Phase are given below item-wise:

**i. Tree replanting**

A large number of trees has been planned to be planted along the canal banks once excavation work is complete. Work order for carrying out such plantation, along with extensive beautification of the canal banks, have been finalised. Necessary permissions from competent authority have been obtained in all cases of unavoidable tree felling.

**ii. Relocation of canal bank dwellers**

All entitled canal bank dwellers have already moved in their respective apartments. The relocated sites/housings have improved environmental conditions with adequate sanitation and other facilities compared to the abominable environmental conditions in the canal bank shanties.

#### **Construction Phase**

48. Summary observations of monitoring carried out in the Construction Phase during January to June 2011 are given below item-wise:

**i. Prevention of soil erosion & surface run-off**

Daily visual inspections have been carried out by DSC site supervisors at all running canal excavation sites to ensure that the slopes of excavated banks were stabilized rapidly by the contractor. There were minimum dry excavation works with on-set of monsoon. Major re-excavation in the EKW areas was through wet excavation. Timely precautionary measures (including ballah piling and steel shoring) were taken to prevent any bank failure in case of development of any adverse situation. DSC site supervisors ensured that there was no case of delayed action by the contractors causing soil erosion..

**ii. Prevention of dust nuisance**

It is to be noted that canal silt was wet when excavated. Daily visual inspections were carried out by DSC site supervisors at all canal stretches under excavation to ensure (a) light water spraying on loose dried canal silt if necessary, (b) use of hand gloves / masks / goggles by workmen whenever necessary & (c) covered transport of dewatered and semi-dry canal silt.

**iii. Disposal of excavated silt**

Daily visual inspection of excavation sites and monthly checking of delivery records of the contractor have been carried out by DSC site supervisors to ensure that timely and adequate disposal of excavated silt at pre-agreed and pre-approved sites have been undertaken by the contractor after dewatering of the excavated silts at the canal banks. There was no case of unnecessary silt accumulation at work sites. Dry silt was transported under cover. However, in EKW areas the excavated silt was disposed along the canal banks for providing embankments and/or embankment roads. The excavated silt is non-hazardous in nature for the analysed parameters with respect to limits set in Hazardous Wastes (M, H & TM) Rules 2008 as analysed from samples taken before excavation (reported in previous chapter).

**iv. Prevention of soil, ground and/or surface water contamination from contaminated soil**

The silt excavated from the canal was temporarily (in EKW areas permanently) stacked by the side of the same canal. The filtrate is therefore going back to where the water charged silt came from. This is to prevent any possible pollution of other water bodies and spilling of interstitial water during transportation to disposal sites. No statutory clearance is required for this operation more so because the silt itself is non-hazardous.

**v. Mitigation of noise pollution**

Sound level monitoring has been carried out at running work sites. The data bring out that the noise levels due to canal improvement activities are somewhat high where machineries like excavators were in operation. Construction noise generation due to manual excavation work was on comparatively low side. It is to be noted that construction sites are in general away from residential areas (excluding the informal shanties of the canal bank dwellers).

**vi. Traffic Management**

There was no necessity of temporary/partial diversion/closure of roads for prolonged periods during the construction phase. Traffic situation was regularly reviewed by the

Contractors and DSC site supervisors. In a few cases, however, temporary diversion of short stretches of canal bank roads by providing new temporary road has been made to facilitate canal excavation (as in Package CW12A along Keorapukur canal for a stretch of 70 m).

**vii. Health and Safety of work force**

Daily visual inspection was carried out by DSC site supervisors to ensure occupational health and safety standards are strictly followed by the Contractors. Contractors are always reminded about their obligations in this regard. Temporary labour camps have primary sanitary facilities

**Canal Improvements in EKW areas**

**Construction Phase**

49. Summary observations of monitoring carried out in the Construction Phase during January to June 2011 are given below item-wise:

**i. Prevention of soil erosion and surface run-off**

The storage sites on canal banks were chosen and managed in such a way that there were minimum soil erosion and surface run-off. Residence time of temporary storage was minimal.

**ii. Prevention of dust nuisance**

Due to wet excavation, the excavated silt was moist and therefore there was practically no dust nuisance; excess material was transported by covering

**iii. Prevention of contamination of surface water and ground water**

Excavated silt was disposed timely and adequately along canal banks to form embankments and/or embankment roads. The water coming out of the disposal sites flowed back in to the canal. Analysis of excavated silts, canal water and ground water has been carried out establishing that there is no threat of pollution to surface and ground water from the excavation work

**iv. Mitigation for vehicular and construction noise**

Dewatering by pumps and employment of mixture machine were persistent sources of relatively high noise level at the work sites. However, noise levels as measured progressively away from the work zones show considerable reduction thereby indicating the local people are not distressed by elevated transient noise levels at the work sites compared to the construction workers, Workmen were provided with appropriate gears for adverse sound levels at work sites wherever felt necessary. No

night operations were carried out. It was ensured that all operations were carried out during the day time and the deployed machineries met the maintenance standard.

**v. Prevention of air and odour nuisance from stored excavated silt:**

Monitored data indicate that there are elevated SPM and RPM concentration in the ambient air in the monitored stations in EKW. As the sites are close to the main city the concentration levels are in conformity with the general trend of concentration level found in the city.

**vi. Ensuring health and mitigation of safety hazards for work force handling sewage charged material**

It was ensured that suitable safety gears were provided by the Contractor and the same was used by the workmen.

**vii. Mitigating safety hazards, ensuring environmental health & community safety at construction camps and sites**

It was ensured that adequate provisions of proper housing, drinking water, sanitation and medical facilities, provision of adequate lighting and safe storage of construction materials are made by the Contractor.

## **VII. SUMMARY OF ANY NON-COMPLIANCE AND REMEDIAL ACTIONS TAKEN**

### **S & D network construction**

**50.** There were minor threats of deterioration of local environmental quality, mainly in terms of inconveniences to residents in a few work fronts especially in narrow roads (**Photograph 4**) opened for the construction of S & D network temporarily due to the following reasons:

- Difficulty in ingress and egress into some houses for their respective residents due to pipe laying works in narrow roads
- Bad conditions of the roads due to unavoidable time lag between laying of pipe lines and road restoration work especially during the monsoon months (June, 2011)
- Complete or partial closure of roads with restricted traffic movements
- Short-term water-logging in trenches
- Flooding of streets and low-lying houses after heavy showers because of impaired drainage arrangements
- Short term disruption of electricity and water supply to some households during diversion of underground electric and sewer lines falling along the alignment of S & D lines being laid at some sites (**Photograph 5**).
- Elevated noise levels in some sites due to
  - working of various construction machines
  - use of noisy diesel pumps for dewatering of trenches
  - use of hammering technology in sheet piling to support walls of trenches
  - plying of trucks in the night especially for removing excess silt and movement of construction materials
- In some cases damages to boundary walls and residential buildings due to pipe laying works.

**51.** The following remedial actions were taken expeditiously mitigating the inconveniences to a large extent.

- Ingress and egress to affected houses were provided as far as practicable although in some cases there were temporary restrictions on full accessibility due to non-availability of alternate space. These restrictions were withdrawn expeditiously through suitable engineering measures.
- Alternate routes were always provided for temporary closure or part closure of roads with provisions of pathways for pedestrians and two-wheelers.

- Accumulated water was pumped out as and when required to the extent possible
- Restoration of accidental disruption of electricity and water supply was arranged expeditiously by pursuing the CESC and through engagement of KMC registered plumbers to undertake diversion/repair expeditiously respectively.
- Elevated noise levels at work sites are to be accepted, in the cases mentioned, as these are work related noise that can not be avoided. However, proper maintenance of the equipments was enforced on the contractors so that the noise levels of the used equipments remained at manufacturers' specifications. Workmen were also reminded constantly to use proper gears so that the occupational health and safety norms were not violated.
- Suitable repairs to the boundary walls and buildings are being carried out.

However, the many of the above inconveniences were largely absent where trenchless pipe laying technique has been adopted.

### **Refurbishment of STP**

**52.** De-sludging operations in the Garden Reach and Bangur STPs had brought out unexpected large quantities of water charged solid waste that were stored temporarily at the sites. The sludge materials as analysed earlier were non-hazardous. The dewatered sludge material had progressively been disposed in the nearby low lying open spaces within the boundaries of the STPs. These are being covered by a soil layer and have led to development of a natural plant cover (**Photographs 6 & 7**).

### **Canal Excavation work**

**53.** Environmental problems related to stability of canal banks to be excavated were faced at few sites. Details of such problems with the adopted remedial measures taken expeditiously to mitigate the adverse situations to a large extent are discussed in the following paragraphs:

**54.** Threat of soil erosion and landslide due to bank instability arose along a few vulnerable stretches of many canals during excavation posing dangers to stability of excavated canal banks and in some cases close by hutments/buildings and roads. Extensive Eucalyptus *ballah* piling to prevent bank collapse and soil erosion along vulnerable stretches of the canals under excavation were taken up expeditiously. In cases where the design requirement is for permanent protection of canal sections, concrete lining has been provided (**Table 7**).

**Table 7.** Locations of bank protection measures carried out to prevent bank/slope failure along stretches canals from January to June, 2011

Serial No	Name of the canal	Chainage (m)		Total length (m)	Remarks
		From	To		
<b>Eucalyptus ballah piling</b>					
1	Churial main canal (CW 14)	10730.0	10750.0	20	Left bank
2		10750.0	10760.0	10	Left bank
3		10780.0	10840.0	60	Left bank
4		11195.0	11213.0	18	Right bank
5		11243.4	11275.4	32	Right bank
6		11120.0	11180.0	60	Left bank
7					
8		11287.9	11295.0	7.1	Left bank
9		10525.0	10555	30.0	Right bank
10		10580.0	10595.0	15.0	Right bank
11		10685.5	10724.0	38.5	Left bank
12					
13		11340.0	11370.0	30.0	Left bank
14		11380.0	11400.0	20.0	Left bank
15					
16		11284.9	11294.9	10	Right bank
17		10960.0	10990.0	30	Right bank
18		11234.0	11271.4	37.4	Left bank
19		10720.0	10766.2	46.2	Right bank
20		10920.0	10938.3	18.3	Right bank
21		10634.4	10653.4	19.0	Right bank
22		11330.0	11400.0	70.0	Right bank
<b>P.C.C. Lining</b>					
1	CC1 (East), CW08	1440	1650	202.00	Right bank
2	T P main canal, CW 09	1775	1925	120.00	Right bank

**55.** As per design a length of 43 m of Keorapukur canal was to be re-sectioned with RCC trough and the balance length of the canal would have lined and unlined sections. After commencement of work, from safety consideration of the canal banks and adjoining canal bank road arising out of initial encountered soil condition, the design was revised with provision of RCC trough for the entire 1063 m of the canal under re-sectioning. It was also planned that there would be continuous timber piling on both sides of the trough section during excavation. However, during early stages of construction with the above design, the timber shoring felled beyond chainage 170.0 m threatening the very stability of the adjoining canal bank road.

**56.** To mitigate the adverse situation during excavation of Keorapukur canal as mentioned above, steel shoring beyond the founding level is being put in place in locations given in **Table 8**. The steel shorings will be removed in due course after construction of U-trough and retaining wall are completed.

**Table 8.** Stretches of Keorapukur canal where bank protection measures by steel shoring were carried out from January to June, 2011

SI No	Name of the canal	Chainage (m)		Remarks	Total length (m)
		From	To		
1	Keorapukur (CW 12 C R1)	530.0	723.0	Both bank	193 X 2
2	Keorapukur (CW 12 C R2)	756.0	875.0	Both bank	119 X 2
3	Keorapukur (CW 12 A)	146.0	200.0	Right bank branch canal	54.0

### **VIII. RECOMMENDATIONS FOR IMPROVEMENT/ REVISION OF THE MITIGATION MEASURES AND/ OR IMPLEMENTATION OF THE EMP IF ANY**

**57.** At this stage of implementation of the EMP of the KEIP, no improvements/revisions of the mitigation measures of the EMP are suggested/recommended. The provisions are adequate to meet the environmental safeguards and efforts are being made by the Project to implement those provisions fully.

**58.** However, extra efforts will be made to ensure the following during implementation of the EMP in the remaining period of KEIP:

- management of the work sites particularly with respect to proper temporary storage/stacking of construction materials, of excess soil before their reuse within the site or transportation to off-site locations so that the sites look clean and better organised,
- isolation of the work sites by appropriate barricades or temporary fencing, wherever ground situation permitted, promoting better safety in the vulnerable places,
- compliance to occupational health and safety provisions through compulsory use at construction sites of hard hats, gum boots, hand gloves, protective goggles, safety belts, face masks and ear muffs, as are necessary, both by the construction workers and visiting supervisors
- disclosure of information on the work programs through prominent display of bill boards at all work sites giving essential information about the corresponding work programs
- informal public consultations and discussion with stake holders whenever felt necessary



Photograph 1. Karunamoyee khal in EKW after desiltation/re-excavation



Photograph 2. Re-excavated TP- Bajbarantala khal in EKW



Photograph 3. Fishery Feed in EKW after re-excavation



Photograph 4 Difficult S and D construction site (narrow road) at Roypara Lane (SDD 1, ward 2)



Photograph 5 Exposed Utility Services within trench at RP3



Photograph 6. Sludge Disposal Area of Garden Reach STP



Photograph 7. Sludge Disposal Area of Bangur STP



Station code	Date of monitoring	RPM	SPM	SO <sub>2</sub>	NO <sub>x</sub>	CO	Pb	Rainfall measured at the station (mm)	
A3 = Kheyadaha High School, 24 Parganas (N)	22.01.2011	123.14	223.41	6.33	29.43	<125	<0.002	0	
	to	112.46	210.28	5.91	23.4	<125	<0.002		
	23.01.2011	120.54	216.33	5.91	25.33	<125	<0.002		
	26.02.2011 to 27.02.2011	26.02.2011	121.70	230.03	6.33	32.56	<125	<0.002	0
		to	105.81	190.24	5.49	21.47	<125	<0.002	
		27.02.2011	112.69	210.80	5.91	25.09	<125	<0.002	
	26.03.2011 to 27.03.2011	26.03.2011	118.46	223.04	6.1	28.62	<125	<0.002	0
		to	102.6	206.08	5.7	24.96	<125	<0.002	
		27.03.2011	112.59	221.67	6.51	26.33	<125	<0.002	
	28.04.2011 to 29.04.2011	28.04.2011	130.15	232.42	7.57	32.47	<125	<0.002	0
		to	112.7	180.46	5.88	26.37	<125	<0.002	
		29.04.2011	121.53	210.36	6.31	28.08	<125	<0.002	
	27.05.2011 to 28.05.2011	27.05.2011	116.29	190.68	6.33	25.09	<125	<0.002	0
		to	102.37	181.62	5.49	22.91	<125	<0.002	
		28.05.2011	108.62	202.33	5.91	23.64	<125	<0.002	
13.6.2011 to 14.6.2011	13.6.2011	126.2	223.1	7.1	30.0	<125	<0.002	0	
	to	102.5	190.2	5.5	23.5	<125	<0.002		
	14.6.2011	110.8	216.5	5.8	26.5	<125	<0.002		
A4 = Khanamba Bani Vidyalaya, 24 Parganas (S)	24.01.2011	135.58	236.06	6.75	32.56	<125	<0.002	0	
	to	110.24	220.66	5.91	26.53	<125	<0.002		
	25.01.2011	123.72	226.06	6.33	26.46	<125	<0.002		
	28.02.2011 to 01.03.2011	28.02.2011	128.53	241.60	6.33	31.6	<125	<0.002	0
		to	112.82	223.69	5.91	25.09	<125	<0.002	
		01.03.2011	120.25	230.81	5.91	26.53	<125	<0.002	
	28.03.2011 to 29.03.2011	28.03.2011	116.5	218.46	6.15	28.59	<125	<0.002	0
		to	102.26	208.51	5.71	25.14	<125	<0.002	
		29.03.2011	108.51	212.86	6.59	26.12	<125	<0.002	
	26.04.2011 to 27.04.2011	26.04.2011	128.59	238.4	5.94	26.86	<125	<0.002	0
		to	112.52	210.4	5.51	23.23	<125	<0.002	
		27.04.2011	106.04	223.08	6.36	25.65	<125	<0.002	
	24.05.2011 to 25.05.2011	24.05.2011	118.62	212.46	6.23	29.91	<125	<0.002	0
		to	106.12	189.02	5.45	25.08	<125	<0.002	
		25.05.2011	112.58	206.12	5.84	26.53	<125	<0.002	
9.6.2011 to 10.6.2011	9.6.2011	126.2	231.5	6.2	28.5	<125	<0.002	0	
	to	92.5	190.0	5.6	21.5	<125	<0.002		
	10.6.2011	112.5	216.8	5.8	26.5	<125	<0.002		

*All values are in microgram per cubic meter of air*

**Shift :** 1 from 1000 to 1800 hours, 2 from 1800 to 0200 hours and 3 from 0200 to 1000 hours





## Details of sampling sites of canal silt

(Bidyadhari extension khal)

<b>Sample No.</b>	<b>Sampling Site</b>	<b>Sampling point (chainage in m)</b>
S1	Top silt	0.0
S2	Silt at 1 m depth	0.0
S3	Top silt	500
S4	Silt at 1 m depth	500
S5	Top silt	1000
S6	Silt at 1 m depth	1000
S7	Top silt	1500
S8	Silt at 1 m depth	1500
S9	Top silt	2000
S10	Silt at 1 m depth	2000
S11	Top silt	2500
S12	Silt at 1 m depth	2500
S13	Top silt	3000
S14	Silt at 1 m depth	3000
S15	Top silt	3500
S16	Silt at 1 m depth	3500
S17	Top silt	4000
S18	Silt at 1 m depth	4000
S19	Top silt	4500
S20	Silt at 1 m depth	4500





## Details of sampling sites of canal silt

(Fishery Feed canal)

<b>Sample No.</b>	<b>Sampling Site</b>	<b>Sampling point (chainage in m)</b>
S1	Top silt	4000
S2	Silt at 1 m depth	4000
S3	Top silt	4500
S4	Silt at 1 m depth	4500
S5	Top silt	5000
S6	Silt at 1 m depth	5000
S7	Top silt	5500
S8	Silt at 1 m depth	5500
S9	Top silt	6000
S10	Silt at 1 m depth	6000
S11	Top silt	6500
S12	Silt at 1 m depth	6500
S13	Top silt	7000
S14	Silt at 1 m depth	7000
S15	Top silt	7500
S16	Silt at 1 m depth	7500
S17	Top silt	8000
S18	Silt at 1 m depth	8000





<b>Sample No</b>	<b>S19</b>	<b>S20</b>	<b>S21</b>	<b>S22</b>
<b>Date</b>	24.1.11	24.1.11	24.1.11	24.1.11
<b>Sand (%)</b>	10.0	15.0	12.0	18.0
<b>Silt (%)</b>	74.0	65.0	70.0	59.0
<b>Clay (%)</b>	16.0	20.0	18.0	23.0
<b>pH</b>	6.12	6.12	6.28	6.12
<b>Bulk density (gm/cc)</b>	1.38	1.36	1.37	1.34
<b>Phenolic compound (mg/kg)</b>	<1.0	<1.0	<1.0	<1.0
<b>Pb (mg/kg)</b>	16.5	15.0	23.5	28.5
<b>Cd (mg/kg)</b>	<0.4	<0.4	<0.4	<0.4
<b>Cu (mg/kg)</b>	25.0	23.5	28.5	25.18
<b>Total Cr (mg/kg)</b>	6.8	6.2	5.0	5.2
<b>Cr(vi) (mg/kg)</b>	<1.0	<1.0	<1.0	<1.0
<b>Zn (mg/kg)</b>	410.0	385.0	425.0	610.0
<b>Ni (mg/kg)</b>	12.5	20.18	12.5	25.0
<b>K (mg/kg)</b>	1580.0	1580.0	1620.0	1420.0
<b>Total kjeldahl N (mg/kg)</b>	1920.0	1850.0	2150.0	1850.0
<b>Hg (mg/kg)</b>	<0.01	<0.01	<0.01	<0.01
<b>As (mg/kg)</b>	<0.1	<0.1	<0.1	<0.1

## Details of sampling sites of canal silt

(Kanchagheri Jhawkhali khal)

<b>Sample No.</b>	<b>Sampling Site</b>	<b>Sampling point (chainage in m)</b>
S1	Top silt	0.0
S2	Silt at 1 m depth	0.0
S3	Top silt	500
S4	Silt at 1 m depth	500
S5	Top silt	1000
S6	Silt at 1 m depth	1000
S7	Top silt	1500
S8	Silt at 1 m depth	1500
S9	Top silt	2000
S10	Silt at 1 m depth	2000
S11	Top silt	2500
S12	Silt at 1 m depth	2500
S13	Top silt	3000
S14	Silt at 1 m depth	3000
S15	Top silt	3500
S16	Silt at 1 m depth	3500
S17	Top silt	4000
S18	Silt at 1 m depth	4000
S19	Top silt	4500
S20	Silt at 1 m depth	4500
S21	Top silt	5000
S22	Silt at 1 m depth	5000

#### D. Defunct DWF canal

Sample No	S-A	S-B	S-C	S-D
Date	14.01.2011	14.01.2011	14.01.2011	14.01.2011
Sand (%)	16.0	30.0	28.0	35.0
Silt (%)	54.0	25.0	29.0	15.0
Clay (%)	30.0	45.0	43.0	50.0
pH	6.28	6.75	6.5	6.78
Bulk density (gm/cc)	1.3	1.27	1.27	1.26
Phenolic compound (mg/kg)	<1.0	<1.0	<1.0	<1.0
Pb (mg/kg)	321.5	210.0	180.0	230.0
Cd (mg/kg)	<0.4	<0.4	<0.4	<0.4
Cu (mg/kg)	180.5	120.0	118.0	128.0
Total Cr (mg/kg)	76.10	45.00	41.50	40.5
Cr(vi) (mg/kg)	<1.0	<1.0	<1.0	<1.0
Zn (mg/kg)	410.0	280.0	280.0	210.0
Ni (mg/kg)	31.5	21.5	18.5	15.0
Hg (mg/kg)	<0.01	<0.01	<0.01	<0.01
As (mg/kg)	<0.1	<0.1	<0.1	<0.1

#### Details of sampling sites of canal silt (Defunct DWF canal)

Sample No.	Sampling Site	Sampling point (chainage in m)
S – A	Top silt	2500
S = B	Silt at 1 m depth	2500
S – C	Top silt	2000
S - D	Silt at 1 m depth	2000

### E. Defunct DWF canal

Sample No	S-A	S-B	S-C	S-D
Date	23.03.2011	23.03.2011	23.03.2011	23.03.2011
Sand (%)	25.0	30.0	35.0	30.0
Silt (%)	15.0	20.0	15.0	25.0
Clay (%)	60.0	50.0	50.0	45.0
pH	6.82	6.58	6.86	6.5
Bulk density (gm/cc)	1.22	1.25	1.26	1.27
Phenolic compound (mg/kg)	<1.0	<1.0	<1.0	<1.0
Pb (mg/kg)	310.0	360.0	380.0	435.0
Cd (mg/kg)	<0.4	<0.4	<0.4	<0.4
Cu (mg/kg)	156.0	168.0	189.0	210.0
Total Cr (mg/kg)	35.0	42.5	56.5	65.0
Cr(vi) (mg/kg)	<1.0	<1.0	<1.0	<1.0
Zn (mg/kg)	260.0	310.0	350.0	432.0
Ni (mg/kg)	32.5	38.5	28.5	38.5
Hg (mg/kg)	<0.01	<0.01	<0.01	<0.01
As (mg/kg)	<0.1	<0.1	<0.1	<0.1

### Details of sampling sites of canal silt

(Defunct DWF canal)

Sample No.	Sampling Site	Sampling point (chainage in m)
S – A	Top silt	3000
S = B	Silt at 1 m depth	3000
S – C	Top silt	3500
S - D	Silt at 1 m depth	3500

**Appendix 3. Analysis of excavated silt from canal rehabilitation works of EKW and Keorapukur canal**

**A. Sampled on 27.01.2011**

<b>Canal</b>	<b>Arsenic</b>	<b>Lead</b>	<b>Chromium (VI)</b>	<b>Nickel</b>	<b>Cadmium</b>	<b>Mercury</b>
Fishery Feed Starting point	<1.0	28.5	<5.0	32.0	3.8	<0.01
Fishery Feed 1 km downstream	<1.0	26.5	<5.0	21.5	3.8	<0.01
Fishery Feed 2 km downstream	<1.0	21.5	<5.0	15.0	3.5	<0.01
Ghosh khal Starting point	<1.0	32.5	<5.0	26.0	3.5	<0.01
Ghosh khal 1 km downstream	<1.0	25.0	<5.0	16.2	2.8	<0.01
Ghosh khal 2 km downstream	<1.0	18.5	<5.0	16.2	2.8	<0.01
Ghosh khal 3 km downstream	<1.0	15.0	<5.0	16.5	2.5	<0.01
Ghosh khal 4 km downstream	<1.0	16.5	<5.0	12.8	3.0	<0.01
Paranchaprasai Starting point	<1.0	18.5	<5.0	21.5	3.8	<0.01
Paranchaprasai Starting point	<1.0	20.0	<5.0	32.5	2.5	<0.01
Charchari Starting point	<1.0	25.0	<5.0	23.5	4.1	<0.01
Charchari 1 km downstream	<1.0	20.0	<5.0	16.5	2.6	<0.01
Charchari 2 km downstream	<1.0	16.5	<5.0	12.8	5.0	<0.01
Deara khal Starting point	<1.0	12.5	<5.0	15.0	2.8	<0.01
Bajbarantala Starting point	<1.0	16.2	<5.0	10.5	4.5	<0.01

**B. Sampled on 25.02.2011 & 27.02.2011**

<b>Canal</b>	<b>Arsenic</b>	<b>Lead</b>	<b>Chromium (VI)</b>	<b>Nickel</b>	<b>Cadmium</b>	<b>Mercury</b>
Nalban khal 2 km point	<1.0	18.5	<5.0	10.0	3.0	<0.01
Nalban khal 3 km point	<1.0	16.8	<5.0	15.0	4.5	<0.01
Fishery Feed 2 km point	<1.0	23.5	<5.0	15.8	3.5	<0.01
Fishery Feed 3 km point	<1.0	21.5	<5.0	14.5	3.1	<0.01
Paranchaprasai 2 km point	<1.0	12.5	<5.0	8.5	2.5	<0.01
Paranchaprasai Starting point	<1.0	15.0	<5.0	11.5	3.5	<0.01
Deara khal 1 km point	<1.0	18.5	<5.0	11.5	3.5	<0.01
TP Bajbarantala	<1.0	20.5	<5.0	15.0	4.5	<0.01

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
Nalban khal 2 km point	<1.0	18.5	<5.0	10.0	3.0	<0.01
Nalban khal 3 km point	<1.0	16.8	<5.0	15.0	4.5	<0.01
500 m point						
Defunct DWF canal 1 km point	<1.0	19.5	<5.0	12.8	3.5	<0.01
Kharki Belekhali Starting point	<1.0	21.5	<5.0	12.8	3.6	<0.01
Charchari khal Starting point	<1.0	12.5	<5.0	8.0	3.5	<0.01
Charchari khal 500 point	<1.0	16.5	<5.0	12.6	2.8	<0.01
Charchari khal 1 km downstream	<1.0	18.6	<5.0	10.0	3.2	<0.01
District Board khal 2 km point	<1.0	19.2	<5.0	16.5	3.8	<0.01
Karunamoyee khal 1 km point	<1.0	15.0	<5.0	10.5	2.0	<0.01

#### C. Sampled on 16.03.2011 and 18.03.2011

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
Paranchaprasa khal 2 km downstream	<1.0	12.5	<5.0	15.8	3.8	<0.01
Paranchaprasa khal Starting point	<1.0	12.6	<5.0	16.5	3.2	<0.01
Charchari khal Starting point	<1.0	18.5	<5.0	15.1	3.1	<0.01
Charchari khal 1 km downstream	<1.0	16.2	<5.0	11.5	2.3	<0.01
Charchari 1.5 km downstream	<1.0	22.6	<5.0	15.8	3.2	<0.01
Deara khal 1 km downstream	<1.0	18.5	<5.0	20.6	4.3	<0.01
TP Bajbarantala khal 0.5 km downstream	<1.0	16.8	<5.0	12.8	3.5	<0.01
Fishery feed 3 km downstream	<1.0	18.6	<5.0	21.5	3.5	<0.01
Defunct DWF canal 1 km downstream	<1.0	12.5	<5.0	16.8	4.6	<0.01
Kharki Belekhali khal Starting point	<1.0	21.5	<5.0	16.5	3.5	<0.01
District Board khal 2 km downstream	<1.0	19.5	<5.0	18.1	4.1	<0.01
Karunamoyee khal 1 km downstream	<1.0	21.5	<5.0	16.2	3.1	<0.01
Karunamoyee khal 2 km downstream	<1.0	19.5	<5.0	15.2	3.2	<0.01
Nodor khal 0.5 km downstream	<1.0	23.5	<5.0	20.6	4.5	<0.01
Nodor khal 1.5 km downstream	<1.0	15.1	<5.0	11.5	2.3	<0.01

#### D. Sampled on 21.03.2011 and 30.03.2011

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
Paranchaprasa Starting point	<1.0	12.1	<5.0	16.5	3.1	<0.01
Paranchaprasa	<1.0	26.5	<5.0	18.5	3.8	<0.01

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
2 km downstream						
Charchari Starting point	<1.0	21.5	<5.0	16.7	4.1	<0.01
Charchari 1 km downstream	<1.0	18.5	<5.0	12.5	3.5	<0.01
Charchari 1.5 km downstream	<1.0	20.5	<5.0	15.0	2.6	<0.01
Deara khal 1 km downstream	<1.0	12.6	<5.0	16.2	3.1	<0.01
TP Bajbarantala khal 0.5 km downstream	<1.0	16.5	<5.0	12.8	2.8	<0.01
Fishery feed 3 km downstream	<1.0	15.0	<5.0	18.5	2.8	<0.01
Defunct DWF canal 1 km downstream	<1.0	20.5	<5.0	15.0	3.1	<0.01
Kharki Belekhali khal Starting point	<1.0	10.5	<5.0	12.6	4.8	<0.01
District Board khal 2 km downstream	<1.0	16.8	<5.0	12.5	3.8	<0.01
Karunamoyee khal 1 km downstream	<1.0	11.5	<5.0	18.9	4.5	<0.01
Karunamoyee khal 2 km downstream	<1.0	18.2	<5.0	20.6	4.3	<0.01
Nodor khal 0.5 km downstream	<1.0	12.6	<5.0	18.5	3.1	<0.01
Nodor khal 1.5 km downstream	<1.0	12.8	<5.0	16.2	3.6	<0.01

#### E. Sampled on 8.04.2011 & 9.04.2011

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
Deara Khal 1 km downstream	<1.0	21.5	<5.0	28.5	3.5	<0.01
TP Bajbarantala khal 0.5 km away	<1.0	18.5	<5.0	20.8	3.5	<0.01
Paranchaprasai 2 km downstream	<1.0	21.5	<5.0	26.5	3.5	<0.01
Defunct DWF canal 1 km downstream	<1.0	21.6	<5.0	28.5	5.1	<0.01
Kharki Belekhali khal Starting point	<1.0	22.6	<5.0	26.5	4.5	<0.01
District Board khal 2 km downstream	<1.0	23.5	<5.0	28.5	4.1	<0.01
Karunamoyee khal 1 km downstream	<1.0	21.6	<5.0	23.5	4.5	<0.01
Karunamoyee khal 2 km downstream	<1.0	21.5	<5.0	28.5	3.8	<0.01
Charchari Starting point	<1.0	18.5	<5.0	23.5	3.5	<0.01
Charchari 1 km downstream	<1.0	16.5	<5.0	20.5	3.5	<0.01
Charchari 1.5 km downstream	<1.0	21.5	<5.0	25.0	4.1	<0.01
Nodor khal 0.5 km downstream	<1.0	25.9	<5.0	28.5	3.5	<0.01
Nodor khal 1.5 km downstream	<1.0	23.6	<5.0	28.1	4.5	<0.01
Fishery feed 3 km downstream	<1.0	16.5	<5.0	25.8	4.1	<0.01
<b>Keorapukur canal 1.5 km downstream</b>	<b>&lt;1.0</b>	<b>21.5</b>	<b>&lt;5.0</b>	<b>26.5</b>	<b>3.5</b>	<b>&lt;0.01</b>

### F. Sampled on 21.4.2011 and 22.4.2011

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
Deara Khal 1 km downstream	<1.0	23.5	<5.0	21.8	3.1	<0.01
TP Bajbarantala khal 0.5 km away	<1.0	28.5	<5.0	21.67	3.1	<0.01
Paranchaprasai 2 km downstream	<1.0	16.5	<5.0	11.5	3.8	<0.01
Defunct DWF canal 1 km downstream	<1.0	16.2	<5.0	23.1	3.2	<0.01
Kharki Belekhal khal Starting point	<1.0	14.5	<5.0	16.2	3.8	<0.01
District Board khal 2 km downstream	<1.0	15.8	<5.0	12.5	3.5	<0.01
Karunamoyee khal 1 km downstream	<1.0	12.8	<5.0	21.5	4.8	<0.01
Karunamoyee khal 2 km downstream	<1.0	11.5	<5.0	16.2	3.8	<0.01
Charchari Starting point	<1.0	15.0	<5.0	18.5	3.5	<0.01
Charchari 1 km downstream	<1.0	18.2	<5.0	15.8	2.5	<0.01
Charchari 1.5 km downstream	<1.0	12.8	<5.0	16.7	3.9	<0.01
Nodor khal 0.5 km downstream	<1.0	16.1	<5.0	23.5	3.2	<0.01
Nodor khal 1.5 km downstream	<1.0	12.1	<5.0	18.5	3.1	<0.01
Fishery feed 3 km downstream	<1.0	20.5	<5.0	18.5	3.8	<0.01
<b>Keorapukur canal 1.5 km downstream</b>	<b>&lt;1.0</b>	<b>16.5</b>	<b>&lt;5.0</b>	<b>25.0</b>	<b>4.8</b>	<b>&lt;0.01</b>

### G. Sampled on 4.5.2010 & 5.5.2010

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
TP Bajbarantala khal 0.5 km downstream	<1.0	11.8	<5.0	16.5	2.8	<0.01
Deara khal 1 km downstream	<1.0	12.5	<5.0	21.6	3.9	<0.01
Paranchaprasai 2 km downstream	<1.0	8.5	<5.0	16.2	3.4	<0.01
District Board khal 2 km downstream	<1.0	12.8	<5.0	23.78	4.28	<0.01
Karunamoyee khal 1 km downstream	<1.0	14.8	<5.0	24.67	4.68	<0.01
Karunamoyee khal 2 km downstream	<1.0	12.6	<5.0	24.1	4.67	<0.01
Nodor khal 1.5 km downstream	<1.0	15.6	<5.0	25.0	4.89	<0.01
Lalkuthi khal Starting point	<1.0	8.7	<5.0	12.5	3.6	<0.01
Lalkuthi khal 1 km downstream	<1.0	12.5	<5.0	23.1	3.7	<0.01
Bidyadhari khal Starting point	<1.0	11.5	<5.0	21.5	4.18	<0.01
Bidyadhari khal 1 km downstream	<1.0	9.5	<5.0	21.8	3.5	<0.01
Defunct DWF canal	<1.0	8.5	<5.0	12.89	3.2	<0.01

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
1 km downstream						
Kharki Belekhali khal – Starting point	<1.0	8.9	<5.0	23.8	4.28	<0.01
Fishery feed 3 km downstream	<1.0	9.5	<5.0	21.5	3.28	<0.01
<b>Keorapukur khal 1.5 km downstream</b>	<b>&lt;1.0</b>	<b>18.9</b>	<b>&lt;5.0</b>	<b>26.1</b>	<b>4.67</b>	<b>&lt;0.01</b>

#### H. Sampled on 17.5.2011 & 18.5.2011

Canal	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
TP Bajbarantala khal 0.5 km downstream	<1.0	18.2	<5.0	21.5	3.2	<0.01
Deara khal 1 km downstream	<1.0	9.5	<5.0	18.5	2.3	<0.01
Paranchaprasa 2 km downstream	<1.0	23.8	<5.0	30.0	3.85	<0.01
District Board khal 2 km downstream	<1.0	18.2	<5.0	26.1	3.0	<0.01
Karunamoyee khal 1 km downstream	<1.0	12.5	<5.0	21.6	3.5	<0.01
Karunamoyee khal 2 km downstream	<1.0	12.5	<5.0	18.2	3.1	<0.01
Nodor khal 1.5 km downstream	<1.0	16.5	<5.0	28.1	3.89	<0.01
Lalkuthi khal Starting point	<1.0	10.68	<5.0	18.5	4.8	<0.01
Lalkuthi khal 1 km downstream	<1.0	9.5	<5.0	12.6	3.2	<0.01
Bidyadhari khal Starting point	<1.0	7.8	<5.0	16.5	4.1	<0.01
Bidyadhari khal 1 km downstream	<1.0	12.8	<5.0	18.6	4.7	<0.01
Defunct DWF canal 1 km downstream	<1.0	25.0	<5.0	23.5	4.5	<0.01
Kharki Belekhali khal – Starting point	<1.0	12.65	<5.0	18.5	2.8	<0.01
Fishery feed canal 3 km downstream	<1.0	8.5	<5.0	12.6	2.8	<0.01
<b>Keorapukur khal 1.5 km downstream</b>	<b>&lt;1.0</b>	<b>21.67</b>	<b>&lt;5.0</b>	<b>26.5</b>	<b>4.5</b>	<b>&lt;0.01</b>

#### I. Sampled on 13.6.2011 & 15.6.2011

	Arsenic	Lead	Chromium (VI)	Nickel	Cadmium	Mercury
Paranchaprasa 2 km downstream	<1.0	21.5	<5.0	18.7	3.2	<0.01
Fishery feed canal 3 km downstream	<1.0	20.8	<5.0	15.8	3.6	<0.01
Defunct DWF canal 1 km downstream	<1.0	16.5	<5.0	21.8	3.8	<0.01
District Board khal 2 km downstream	<1.0	16.5	<5.0	26.5	3.0	<0.01
Karunamoyee khal	<1.0	18.6	<5.0	15.8	2.6	<0.01

	<b>Arsenic</b>	<b>Lead</b>	<b>Chromium (VI)</b>	<b>Nickel</b>	<b>Cadmium</b>	<b>Mercury</b>
1 km downstream						
Karunamoyee khal 2 km downstream	<1.0	26.1	<5.0	20.5	4.5	<0.01
Kharki Belekhali Starting point	<1.0	23.5	<5.0	19.6	3.5	<0.01
Deara khal 1 km downstream	<1.0	18.5	<5.0	21.5	2.8	<0.01
TP Bajbarantala khal 0.5 km downstream	<1.0	23.5	<5.0	16.5	3.1	<0.01
Nodor khal 1.5 km downstream	<1.0	18.5	<5.0	21.7	4.1	<0.01
Lalkuthi khal Starting point	<1.0	15.6	<5.0	18.5	5.1	<0.01
Lalkuthi khal 1 km downstream	<1.0	21.7	<5.0	12.5	3.2	<0.01
Bidyadhari khal Starting point	<1.0	12.5	<5.0	9.6	2.8	<0.01
Bidyadhari khal 1 km downstream	<1.0	23.5	<5.0	20.8	5.2	<0.01
Keorapukur khal 1.5 km downstream	<1.0	23.5	<5.0	16.5	4.6	<0.01

**J. Sampled on 18.6.2011 and 20.6.2011**

	<b>Arsenic</b>	<b>Lead</b>	<b>Chromium (VI)</b>	<b>Nickel</b>	<b>Cadmium</b>	<b>Mercury</b>
Paranchaprasi 2 km downstream	<1.0	19.5	<5.0	21.5	4.8	<0.01
Fishery feed canal 3 km downstream	<1.0	16.5	<5.0	19.6	3.7	<0.01
Defunct DWF canal 1 km downstream	<1.0	18.6	<5.0	21.8	4.3	<0.01
District Board khal 2 km downstream	<1.0	18.6	<5.0	23.5	5.8	<0.01
Karunamoyee khal 1 km downstream	<1.0	21.7	<5.0	14.5	3.5	<0.01
Karunamoyee khal 2 km downstream	<1.0	25.0	<5.0	21.6	4.5	<0.01
Kharki Belekhali Starting point	<1.0	12.5	<5.0	15.6	3.8	<0.01
Deara khal 1 km downstream	<1.0	18.6	<5.0	21.5	3.8	<0.01
TP Bajbarantala khal 0.5 km downstream	<1.0	15.8	<5.0	21.5	4.1	<0.01
Nodor khal 1.5 km downstream	<1.0	18.6	<5.0	18.5	4.1	<0.01
Lalkuthi khal Starting point	<1.0	21.5	<5.0	16.9	4.5	<0.01
Lalkuthi khal 1 km downstream	<1.0	16.9	<5.0	20.5	4.5	<0.01
Bidyadhari khal Starting point	<1.0	16.5	<5.0	19.6	4.1	<0.01
Bidyadhari khal 1 km downstream	<1.0	18.6	<5.0	16.7	4.6	<0.01

	<b>Arsenic</b>	<b>Lead</b>	<b>Chromium (VI)</b>	<b>Nickel</b>	<b>Cadmium</b>	<b>Mercury</b>
Keorapukur khal 1.5 km downstream	<1.0	23.5	<5.0	18.6	4.18	<0.01

### Appendix 4. Quality of canal water in EKW

A. Month of sampling - January 2011

No.	Sampling site with date of sampling	Paran chaprasi 25.1.11	Ghosher Khal 25.1.11	Charcharia 25.1.11	Fishery Feed 25.1.11	Nalban 25.1.11
	Parameters					
1.	Temperature (°C)	12.5	14.5	12.5	14.5	14.5
2.	Colour unit	2.0	2.0	2.0	2.0	2.0
3.	Turbidity (NTU)	15.0	18.5	20.5	21.5	18.5
4.	Odour (TON)	12.0	8.0	8.0	8.0	8.0
5.	pH	6.18	6.5	6.2	6.31	6.81
6.	Total solids (mg./l)	1150.0	980.0	1020.0	980.0	910.0
7.	Total dissolved solids (mg./l)	850.0	750.0	760.0	750.0	650.0
8.	Total suspended solid (mg./l)	86.0	70.0	72.0	60.0	56.0
9.	Total volatile solids (mg./l)	128.0	120.0	160.0	160.0	147.0
10.	Dissolved oxygen (mg./l)	2.2	2.4	3.2	2.6	4.2
11.	B.O.D.3 days, 27°C (mg./l)	40.0	39.0	41.0	46.0	34.0
12.	C.O.D (mg./l)	142.8	132.0	137.7	153.0	122.4
13.	Oil & Grease (mg./l)	6.0	4.5	4.6	5.8	4.5
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	0.80	1.2	1.1	1.1	0.8
22.	Iron (mg./l)	0.90	1.18	1.12	1.2	1.2
23.	Ammoniacal Nitrogen (mg./l)	18.47	15.0	16.53	12.53	15.0
24.	Kjeldahl Nitrogen (mg./l)	22.47	26.53	26.47	23.47	28.47
25.	Total Nitrogen (mg./l)	45.9	48.5	38.5	35.0	49.5
26.	Total Ammonia (mg./l)	22.43	18.21	20.07	15.22	18.21
27.	Free Ammonia (mg./l)	0.01	0.04	0.013	0.018	0.08
28.	Sulphide (mg./l)	3.53	3.43	3.72	2.94	2.84
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	2.5 x 10 <sup>6</sup>	2.3 x 10 <sup>6</sup>	2.3 x 10 <sup>6</sup>	2.1 x 10 <sup>6</sup>	2.5 x 10 <sup>6</sup>

No.	Sampling site with date of sampling	DWF canal near Bhojarhat Football Ground 25.1.11	DWF canal near Chandipur 25.1.11	DWF canal near Ghusighata 25.1.11	Deara khal 25.1.11	Bajbaran tala khal 25.1.11
		Parameters				
1.	Temperature (°C)	15.0	15.0	12.5	16.0	16.0
2.	Colour unit	2.0	3.0	2.0	2.0	2.0
3.	Turbidity (NTU)	23.5	21.5	12.5	18.5	15.0
4.	Odour (TON)	12.0	8.0	6.0	8.0	12.0
5.	pH	6.21	6.1	6.8	6.51	6.1
6.	Total solids (mg./l)	1180.0	1150.0	850.0	970.0	1280.0
7.	Total dissolved solids (mg./l)	929.0	840.0	610.0	740.0	940.0
8.	Total suspended solid (mg./l)	80.0	84.0	70.0	68.0	86.0
9.	Total volatile solids (mg./l)	163.0	180.0	141.0	150.0	185.0
10.	Dissolved oxygen (mg./l)	1.8	1.8	4.8	2.6	1.8
11.	B.O.D.3 days, 27°C (mg./l)	51.0	52.0	26.0	42.0	63.0
12.	C.O.D (mg./l)	163.2	168.3	117.3	142.8	158.1
13.	Oil & Grease (mg./l)	5.0	5.6	4.5	5.3	6.5
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	0.90	0.8	0.6	0.8	1.2
22.	Iron (mg./l)	1.35	0.92	0.78	0.92	0.9
23.	Ammoniacal Nitrogen (mg./l)	23.47	22.53	11.53	16.53	25.0
24.	Kjeldahl Nitrogen (mg./l)	30.0	30.0	18.0	25.0	52.0
25.	Total Nitrogen (mg./l)	60.0	58.5	34.5	46.5	78.5
26.	Total Ammonia (mg./l)	28.5	27.36	14.0	20.07	30.36
27.	Free Ammonia (mg./l)	0.02	0.02	0.049	0.044	0.029
28.	Sulphide (mg./l)	3.82	4.51	2.16	3.72	6.47
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	2.4 x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>	1.4 x 10 <sup>6</sup>	2.5 x 10 <sup>6</sup>	3.4 x 10 <sup>6</sup>

B. Month of sampling - February 2011

No.	Sampling site with date of sampling	Paran chaprasi 22.2.11	Ghosher Khal 22.2.11	Charcharia 22.2.11	Fishery Feed 22.2.11	Nalban 22.2.11
	Parameters					
1.	Temperature (°C)	23.5	21.5	23.5	21.5	22.5
2.	Colour unit	2.0	2.0	2.0	2.0	2.0
3.	Turbidity (NTU)	16.5	15.0	18.5	20.8	18.5
4.	Odour (TON)	12.0	8.0	8.0	8.0	8.0
5.	pH	6.12	6.38	6.12	6.28	6.28
6.	Total solids (mg./l)	1180.0	920.0	980.0	1020.0	980.0
7.	Total dissolved solids (mg./l)	820.0	700.0	730.0	780.0	680.0
8.	Total suspended solid (mg./l)	75.0	60.0	65.0	68.0	63.0
9.	Total volatile solids (mg./l)	145.0	140.0	150.0	156.8	180.0
10.	Dissolved oxygen (mg./l)	2.6	2.4	3.6	2.2	4.0
11.	B.O.D.3 days, 27 <sup>0</sup> C (mg./l)	44.0	42.0	39.0	48.0	37.0
12.	C.O.D (mg./l)	147.0	137.2	127.4	156.8	132.3
13.	Oil & Grease (mg./l)	6.5	5.0	4.5	6.6	5.0
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.2	1.0	1.28	1.5	1.0
22.	Iron (mg./l)	0.80	1.2	1.18	1.26	1.1
23.	Ammoniacal Nitrogen (mg./l)	16.53	18.0	18.53	20.0	18.47
24.	Kjeldahl Nitrogen (mg./l)	20.45	28.0	29.47	31.53	20.0
25.	Total Nitrogen (mg./l)	43.0	56.5	56.1	62.0	56.5
26.	Total Ammonia (mg./l)	20.07	21.86	22.5	24.29	22.43
27.	Free Ammonia (mg./l)	0.028	0.059	0.037	0.052	0.051
28.	Sulphide (mg./l)	3.13	3.86	4.05	4.6	2.94
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	2.8 x 10 <sup>6</sup>	2.5 x 10 <sup>6</sup>	2.6 x 10 <sup>6</sup>	2.5 x 10 <sup>6</sup>	3.3 x 10 <sup>6</sup>

No.	Sampling site with date of sampling	DWF canal near Bhojarhat Football Ground 22.2.11	DWF canal near Chandipur 22.2.11	DWF canal near Ghusighata 22.2.11	Deara khal 22.2.11	Bajbaran tala khal 22.2.11
Parameters						
1.	Temperature (°C)	21.5	23.5	21.5	23.5	25.0
2.	Colour unit	2.0	3.0	2.0	2.0	2.0
3.	Turbidity (NTU)	26.5	22.5	12.5	20.0	16.5
4.	Odour (TON)	17.0	8.0	6.0	8.0	12.0
5.	pH	6.1	6.15	6.89	6.3	6.2
6.	Total solids (mg./l)	1480.0	1250.0	820.0	1020.0	1250.0
7.	Total dissolved solids (mg./l)	1150.0	910.0	590.0	780.0	910.0
8.	Total suspended solid (mg./l)	82.0	86.0	59.0	72.0	80.0
9.	Total volatile solids (mg./l)	189.0	190.0	132.0	160.0	210.0
10.	Dissolved oxygen (mg./l)	1.0	0.80	4.8	2.2	1.0
11.	B.O.D.3 days, 27°C (mg./l)	59.0	59.0	23.0	45.0	66.0
12.	C.O.D (mg./l)	176.4	181.3	117.6	151.6	166.6
13.	Oil & Grease (mg./l)	9.5	9.0	4.0	6.0	7.0
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.6	0.9	0.7	1.1	1.18
22.	Iron (mg./l)	1.45	1.1	0.82	0.8	1.0
23.	Ammoniacal Nitrogen (mg./l)	30.0	28.53	12.47	18.0	26.53
24.	Kjeldahl Nitrogen (mg./l)	36.53	36.76	16.53	26.47	40.0
25.	Total Nitrogen (mg./l)	78.0	78.5	36.0	54.0	72.5
26.	Total Ammonia (mg./l)	36.43	34.64	15.14	21.85	32.22
27.	Free Ammonia (mg./l)	0.043	0.056	0.123	0.055	0.065
28.	Sulphide (mg./l)	4.78	5.15	2.21	3.86	4.97
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	3.0 x 10 <sup>6</sup>	3.1 x 10 <sup>6</sup>	1.2 x 10 <sup>6</sup>	2.8 x 10 <sup>6</sup>	3.5 x 10 <sup>6</sup>

C. Month of sampling - March 2011

No.	Sampling site with date of sampling	Paran chaprasi 31.3.11	Ghosher Khal 31.3.11	Charcharia 31.3.11	Fishery Feed 31.3.11	Nalban 31.3.11
	Parameters					
1.	Temperature (°C)	26.5	28.5	28.5	28.0	29.5
2.	Colour unit	2.0	2.0	2.0	2.0	2.0
3.	Turbidity (NTU)	18.2	18.5	20.1	18.5	16.5
4.	Odour (TON)	12.0	8.0	12.0	8.0	8.0
5.	pH	6.25	6.26	6.1	6.38	6.2
6.	Total solids (mg./l)	1120.0	1050.0	1120.0	920.0	910.0
7.	Total dissolved solids (mg./l)	850.0	780.0	820.0	710.0	650.0
8.	Total suspended solid (mg./l)	86.0	68.0	70.0	60.0	72.0
9.	Total volatile solids (mg./l)	160.0	161.0	180.0	140.0	165.0
10.	Dissolved oxygen (mg./l)	2.0	1.8	2.8	3.0	3.8
11.	B.O.D.3 days, 27 <sup>0</sup> C (mg./l)	50.0	48.0	45.0	40.0	39.0
12.	C.O.D (mg./l)	163.2	158.1	142.8	137.7	132.6
13.	Oil & Grease (mg./l)	7.0	6.5	5.0	4.5	6.6
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.5	1.2	1.35	1.1	1.1
22.	Iron (mg./l)	0.90	1.38	1.2	1.2	1.2
23.	Ammoniacal Nitrogen (mg./l)	18.48	20.0	21.53	16.53	15.0
24.	Kjeldahl Nitrogen (mg./l)	23.48	31.46	31.96	27.99	16.52
25.	Total Nitrogen (mg./l)	65.0	62.8	63.0	58.562.0	42.0
26.	Total Ammonia (mg./l)	22.44	24.29	26.14	20.07	18.21
27.	Free Ammonia (mg./l)	0.07	0.08	0.05	0.09	0.05
28.	Sulphide (mg./l)	3.2	4.2	4.8	3.6	3.0
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	3.2 x 10 <sup>6</sup>	3.0 x 10 <sup>6</sup>	2.9 x 10 <sup>6</sup>	2.4 x 10 <sup>6</sup>	3.0 x 10 <sup>6</sup>

No.	Sampling site with date of sampling	DWF canal near Bhojarhat Football Ground 31.3.11	DWF canal near Chandipur 31.3.11	DWF canal near Ghusighata 31.3.11	Deara khal 31.3.11	Bajbaran tala khal 31.3.11
		Parameters				
1.	Temperature (°C)	28.5	28.5	29.5	28.5	23.5
2.	Colour unit	2.0	3.0	2.0	2.0	2.0
3.	Turbidity (NTU)	28.1	25.0	12.8	19.5	18.7
4.	Odour (TON)	24.0	17.0	8.0	8.0	12.0
5.	pH	5.89	5.9	6.8	6.1	6.35
6.	Total solids (mg./l)	1560.0	1420.0	850.0	980.0	1180.0
7.	Total dissolved solids (mg./l)	1258.0	1080.0	620.0	750.0	870.0
8.	Total suspended solid (mg./l)	90.0	95.0	65.0	65.0	75.0
9.	Total volatile solids (mg./l)	180.0	182.0	140.0	150.0	180.0
10.	Dissolved oxygen (mg./l)	0.8	0.8	4.6	2.0	1.6
11.	B.O.D.3 days, 27°C (mg./l)	70.0	88.0	25.0	52.0	57.0
12.	C.O.D (mg./l)	193.8	188.7	110.0	163.2	153.0
13.	Oil & Grease (mg./l)	8.5	6.4	3.5	5.0	6.3
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.5	0.8	0.9	1.0	1.2
22.	Iron (mg./l)	1.2	1.1	0.72	0.7	0.8
23.	Ammoniacal Nitrogen (mg./l)	42.02	31.47	15.0	15.98	23.48
24.	Kjeldahl Nitrogen (mg./l)	55.1	42.51	20.5	28.48	35.01
25.	Total Nitrogen (mg./l)	112.0	86.0	42.5	41.5	68.5
26.	Total Ammonia (mg./l)	51.02	38.21	18.15	19.4	28.51
27.	Free Ammonia (mg./l)	0.06	0.04	0.2	0.03	0.07
28.	Sulphide (mg./l)	6.4	4.0	2.5	4.6	4.4
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	3.8 x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>	1.5 x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>	3.6 x 10 <sup>6</sup>

D. Month of sampling - April 2011

No.	Sampling site with date of sampling	Paran chaprasi 26.04.11	Ghosher Khal 26.04.11	Charcharia 26.04.11	Fishery Feed 26.04.11	Nalban 26.04.11
	Parameters					
1.	Temperature (°C)	31.5	31.5	32.5	28.5	32.5
2.	Colour unit	2.0	2.0	2.0	2.0	2.5
3.	Turbidity (NTU)	16.5	20.0	23.5	21.6	18.5
4.	Odour (TON)	12.0	8.0	12.0	12.0	8.0
5.	pH	6.36	6.2	6.12	6.1	6.5
6.	Total solids (mg./l)	1150.0	1150.0	1250.0	1410.0	980.0
7.	Total dissolved solids (mg./l)	810.0	870.0	920.0	1080.0	710.0
8.	Total suspended solid (mg./l)	80.0	76.0	80.0	80.0	60.0
9.	Total volatile solids (mg./l)	180.0	178.0	210.0	190.0	160.0
10.	Dissolved oxygen (mg./l)	2.4	1.6	2.2	1.6	4.2
11.	B.O.D.3 days, 27 <sup>0</sup> C (mg./l)	45.0	48.0	50.0	55.0	35.0
12.	C.O.D (mg./l)	153.0	163.2	147.9	158.1	132.6
13.	Oil & Grease (mg./l)	6.5	7.5	6.5	8.5	6.5
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.2	1.5	1.1	1.5	1.5
22.	Iron (mg./l)	1.1	1.2	1.25	0.9	1.1
23.	Ammoniacal Nitrogen (mg./l)	16.46	22.01	25.0	25.0	12.5
24.	Kjeldahl Nitrogen (mg./l)	25.0	35.0	36.53	38.48	16.04
25.	Total Nitrogen (mg./l)	60.0	70.0	72.0	75.0	40.0
26.	Total Ammonia (mg./l)	19.99	26.73	30.36	30.36	15.18
27.	Free Ammonia (mg./l)	0.11	0.09	0.09	0.06	0.12
28.	Sulphide (mg./l)	3.46	4.61	5.18	5.76	3.36
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	3.0 x 10 <sup>6</sup>	3.5 x 10 <sup>6</sup>	3.3 x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>	3.1 x 10 <sup>6</sup>

No.	Sampling site with date of sampling	DWF canal near Bhojarhat Football Ground 26.04.11	DWF canal near Chandipur 26.04.11	DWF canal near Ghusighata 26.04.11	Deara khal 26.04.11	Bajbaran tala khal 26.04.11
	Parameters					
1.	Temperature (°C)	32.5	32.0	32.5	33.5	32.0
2.	Colour unit	2.0	3.0	2.0	2.0	2.0
3.	Turbidity (NTU)	25.0	25.0	12.8	21.5	16.5
4.	Odour (TON)	24.0	17.0	8.0	8.0	8.0
5.	pH	5.18	5.6	6.72	6.3	6.45
6.	Total solids (mg./l)	1620.0	1280.0	910.0	1050.0	1090.0
7.	Total dissolved solids (mg./l)	1280.0	950.0	650.0	810.0	810.0
8.	Total suspended solid (mg./l)	93.0	86.0	70.0	72.0	68.0
9.	Total volatile solids (mg./l)	210.0	180.0	160.0	160.0	165.0
10.	Dissolved oxygen (mg./l)	0.6	0.8	5.0	2.6	1.8
11.	B.O.D.3 days, 27°C (mg./l)	85.0	81.0	23.0	44.0	55.0
12.	C.O.D (mg./l)	204.0	183.6	122.4	142.8	153.0
13.	Oil & Grease (mg./l)	8.5	6.0	4.5	5.0	6.0
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.6	8.9	0.8	1.2	0.9
22.	Iron (mg./l)	1.5	1.2	0.65	0.85	0.7
23.	Ammoniacal Nitrogen (mg./l)	45.0	32.5	12.5	16.16	21.77
24.	Kjeldahl Nitrogen (mg./l)	57.99	41.53	18.48	30.49	32.5
25.	Total Nitrogen (mg./l)	118.0	85.0	39.5	58.5	65.0
26.	Total Ammonia (mg./l)	54.64	39.46	15.18	19.62	26.44
27.	Free Ammonia (mg./l)	0.01	0.03	0.19	0.11	0.16
28.	Sulphide (mg./l)	7.49	4.22	2.3	4.41	4.03
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	4.2x 10 <sup>6</sup>	3.1 x 10 <sup>6</sup>	1.2 x 10 <sup>6</sup>	3.5 x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>

E. Month of sampling - May 2011

No.	Sampling site with date of sampling	Paran chaprasi 20.05.11	Charcharia 20.05.11	Fishery Feed 20.05.11	DWF canal near Bhojarhat football ground 20.05.11	DWF canal near Chandipur 20.05.11
	Parameters					
1.	Temperature (°C)	32.5	34.5	32.5	33.5	35.0
2.	Colour unit	2.0	2.0	2.0	2.0	3.0
3.	Turbidity (NTU)	15.0	25.6	23.8	28.1	28.6
4.	Odour (TON)	12.0	12.0	12.0	24.0	24.0
5.	pH	6.3	6.1	6.2	5.1	5.2
6.	Total solids (mg./l)	1080.0	1450.0	1520.0	1850.0	1680.0
7.	Total dissolved solids (mg./l)	820.0	1120.0	1150.0	1520.0	1280.0
8.	Total suspended solid (mg./l)	70.0	86.0	90.0	90.0	82.0
9.	Total volatile solids (mg./l)	160.0	190.0	250.0	220.0	280.0
10.	Dissolved oxygen (mg./l)	2.0	1.8	1.2	0.4	0.6
11.	B.O.D.3 days, 27°C (mg./l)	46.0	51.0	56.0	100.0	89.0
12.	C.O.D (mg./l)	158.7	163.7	153.8	228.2	198.4
13.	Oil & Grease (mg./l)	7.0	6.0	8.0	9.0	8.5
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.1	1.5	1.4	1.8	4.5
22.	Iron (mg./l)	1.25	1.4	0.8	1.2	2.1
23.	Ammoniacal Nitrogen (mg./l)	18.4	30.0	35.0	56.0	40.0
24.	Kjeldahl Nitrogen (mg./l)	28.0	42.5	52.0	69.0	62.5
25.	Total Nitrogen (mg./l)	65.0	85.0	102.0	148.0	120.0
26.	Total Ammonia (mg./l)	22.5	36.4	42.5	68.0	48.6
27.	Free Ammonia (mg./l)	0.1	0.1	0.2	0.01	0.02
28.	Sulphide (mg./l)	3.8	6.6	8.4	9.4	6.4
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	3.2 x 10 <sup>6</sup>	3.6 x 10 <sup>6</sup>	3.8 x 10 <sup>6</sup>	4.6 x 10 <sup>6</sup>	3.5 x 10 <sup>6</sup>

No.	Sampling site with date of sampling	DWF canal Bidyadhari connecting-near Ghusighata 20.05.11	Deara khal 20.05.11	Bajbarantala 20.05.11	Lalkuthi khal 20.05.11	Bidyadhari khal 20.05.11
	Parameters					
1.	Temperature (°C)	33.5	34.5	33.5	32.5	33.5
2.	Colour unit	2.0	2.0	2.0	2.0	2.0
3.	Turbidity (NTU)	10.5	23.5	18.2	16.2	16.2
4.	Odour (TON)	8.0	8.0	8.0	8.0	8.0
5.	pH	6.8	6.2	6.4	6.6	6.7
6.	Total solids (mg./l)	1050.0	1120.0	1129.0	1120.0	910.0
7.	Total dissolved solids (mg./l)	780.0	890.0	850.0	865.0	680.0
8.	Total suspended solid (mg./l)	72.0	75.0	70.0	60.0	65.0
9.	Total volatile solids (mg./l)	180.0	140.0	165.0	185.0	150.0
10.	Dissolved oxygen (mg./l)	4.6	3.0	1.4	5.4	5.6
11.	B.O.D.3 days, 27°C (mg./l)	26.0	40.0	60.0	44.0	35.0
12.	C.O.D (mg./l)	129.0	148.8	158.7	133.9	124.0
13.	Oil & Grease (mg./l)	3.5	6.3	5.0	4.5	5.0
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	0.65	1.1	1.0	0.9	1.1
22.	Iron (mg./l)	0.7	0.8	0.8	1.2	1.1
23.	Ammoniacal Nitrogen (mg./l)	15.0	18.0	23.5	18.5	12.5
24.	Kjeldahl Nitrogen (mg./l)	23.5	32.5	35.0	29.9	28.5
25.	Total Nitrogen (mg./l)	45.0	60.0	70.0	62.5	56.0
26.	Total Ammonia (mg./l)	18.2	21.9	28.5	22.4	15.2
27.	Free Ammonia (mg./l)	0.3	0.1	0.2	0.2	0.3
28.	Sulphide (mg./l)	2.6	4.8	4.6	4.4	3.6
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	1.4x 10 <sup>6</sup>	3.6 x 10 <sup>6</sup>	1.2 x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>	3.1 x 10 <sup>6</sup>

E. Month of sampling - June 2011

No.	Sampling site with date of sampling	Paran chaprasi 23.06.11	Charcharia 23.06.11	Fishery Feed 23.06.11	DWF canal near Bhojarhat football ground 23.06.11	DWF canal near Chandipur 23.06.11
	Parameters					
1.	Temperature (°C)	32.5	33.5	32.0	34.5	34.0
2.	Colour unit	2.0	2.0	2.0	2.0	2.0
3.	Turbidity (NTU)	18.2	21.5	19.5	23.2	20.5
4.	Odour (TON)	12.0	12.0	12.0	24.0	12.0
5.	pH	6.1	6.1	6.2	5.2	6.1
6.	Total solids (mg./l)	1020.0	1210.0	1490.0	1520.0	1156.0
7.	Total dissolved solids (mg./l)	790.0	950.0	1150.0	1210.0	860.0
8.	Total suspended solid (mg./l)	75.0	85.0	90.0	120.0	82.0
9.	Total volatile solids (mg./l)	140.0	160.0	230.0	180.0	190.0
10.	Dissolved oxygen (mg./l)	2.2	2.2	1.2	0.8	1.0
11.	B.O.D.3 days, 27°C (mg./l)	50.0	50.0	70.0	80.0	75.0
12.	C.O.D (mg./l)	160.0	160.0	180.0	190.0	170.0
13.	Oil & Grease (mg./l)	6.0	4.5	8.0	9.5	6.5
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	1.0	1.2	1.2	1.5	3.5
22.	Iron (mg./l)	0.8	1.1	1.0	1.2	1.5
23.	Ammoniacal Nitrogen (mg./l)	22.0	25.0	30.0	40.0	30.0
24.	Kjeldahl Nitrogen (mg./l)	30.0	36.5	45.0	55.0	41.5
25.	Total Nitrogen (mg./l)	65.0	70.0	86.5	120.0	80.0
26.	Total Ammonia (mg./l)	26.6	30.3	36.3	48.4	36.3
27.	Free Ammonia (mg./l)	0.08	0.08	0.12	0.01	0.16
28.	Sulphide (mg./l)	4.6	5.2	5.76	7.0	4.4
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	3.4 x 10 <sup>6</sup>	3.5 x 10 <sup>6</sup>	4.1 x 10 <sup>6</sup>	4.5 x 10 <sup>6</sup>	3.3 x 10 <sup>6</sup>

No.	Sampling site with date of sampling	DWF canal Bidyadhari connecting-near Ghusighata 23.06.11	Deara khal 23.06.11	Bajbarantala 23.06.11	Lalkuthi khal 23.06.11	Bidyadhari khal 23.06.11
Parameters						
1.	Temperature (°C)	35.0	34.5	35.0	35.0	34.5
2.	Colour unit	2.0	2.0	2.0	2.0	2.0
3.	Turbidity (NTU)	10.5	16.2	12.8	15.8	16.8
4.	Odour (TON)	8.0	8.0	8.0	8.0	8.0
5.	pH	6.8	6.5	6.6	6.2	6.7
6.	Total solids (mg./l)	860.0	920.0	950.0	1050.0	1025.0
7.	Total dissolved solids (mg./l)	620.0	680.0	720.0	780.0	780.0
8.	Total suspended solid (mg./l)	65.0	65.0	75.0	70.0	60.0
9.	Total volatile solids (mg./l)	150.0	150.0	180.0	160.0	170.0
10.	Dissolved oxygen (mg./l)	5.2	3.5	2.0	3.8	2.0
11.	B.O.D.3 days, 27°C (mg./l)	25.0	40.0	50.0	65.0	50.0
12.	C.O.D (mg./l)	120.0	140.0	150.0	150.0	165.0
13.	Oil & Grease (mg./l)	4.0	4.5	6.0	5.0	5.0
14.	Lead (mg./l)	<0.03	<0.03	<0.03	<0.03	<0.03
15.	Trivalent Chromium (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
16.	Hexavalent Chromium (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
17.	Arsenic (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
18.	Cadmium (mg./l)	<0.01	<0.01	<0.01	<0.01	<0.01
19.	Nickel (mg./l)	<0.20	<0.20	<0.20	<0.20	<0.20
20.	Copper (mg./l)	<0.05	<0.05	<0.05	<0.05	<0.05
21.	Zinc (mg./l)	0.7	1.2	1.1	0.8	0.8
22.	Iron (mg./l)	0.8	0.8	0.8	0.7	1.1
23.	Ammoniacal Nitrogen (mg./l)	10.5	15.0	23.5	20.0	20.0
24.	Kjeldahl Nitrogen (mg./l)	15.0	20.0	35.0	32.5	32.5
25.	Total Nitrogen (mg./l)	38.0	45.0	70.0	68.0	68.5
26.	Total Ammonia (mg./l)	12.7	18.2	28.4	24.2	24.2
27.	Free Ammonia (mg./l)	0.26	0.15	0.29	0.12	0.37
28.	Sulphide (mg./l)	2.1	4.2	4.2	4.0	4.2
29.	Mercury (mg./l)	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
30.	Faecal Coliform (MPN/100 ml)	1.2x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>	3.3x 10 <sup>6</sup>	3.3 x 10 <sup>6</sup>	3.2 x 10 <sup>6</sup>



**Appendix 5. Ground water (from tube well) quality of EKW areas**

**A. Sampled on 30.01.2011**

No.	Parameters	Location of Tube wells							
		Goalbati village	Karaidanga Colony near Leather Complex	No.2 Government Colony	Uchhepota village	Khasmahal village	Bajbarantala	Charcharia	Bamunhata
1.	Temperature (°C)	12.5	12.0	14.5	15.0	14.5	14.0	14.5	15.0
2.	Colour unit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3.	Turbidity (NTU)	2.8	2.6	3.8	3.2	3.2	2.8	3.2	3.5
4.	Odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour
5.	pH	7.1	7.12	7.15	7.16	7.12	7.18	7.12	7.1
6.	Total suspended solid (mg./l)	<10	<10	<10	<10	<10	<10	<10	<10
7.	Total dissolved solid (mg./l)	890.0	980.0	1050.0	850.0	950.0	1080.0	920.0	1150.0
8.	Total Hardness (mg./l)	245.0	254.8	284.2	264.6	274.4	323.4	259.7	382.2
9.	Chloride (mg./l)	229.22	190.38	250.84	307.7	263.82	302.74	298.42	350.32
10.	Sulphate (mg./l)	12.5	15.0	20.0	28.5	32.5	28.5	25.0	32.5
11.	Nitrate (mg./l)	15.5	24.91	24.91	19.93	28.23	18.27	15.5	26.57
12.	Sodium (mg./l)	250.0	180.5	310.0	265.0	260.0	230.0	320.0	360.0
13.	Potassium (mg./l)	25.0	23.5	28.5	28.5	30.0	26.5	25.0	90.0
14.	Calcium (mg./l)	70.7	72.67	78.56	66.77	76.59	82.48	62.85	84.45
15.	Magnesium (mg./l)	16.46	17.64	21.17	23.52	19.99	25.87	24.7	41.16



**B. Date of sampling: 26.2.2011**

No.	Parameters	Location of Tube wells							
		Goalbati village	Karaidanga Colony near Leather Complex	No.2 Government Colony	Uchhepota village	Khasmahal village	Bajbarantala	Charcharia	Bamunhata
1.	Temperature (°C)	19.5	19.5	19.5	21.5	20.5	20.0	19.5	19.5
2.	Colour unit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3.	Turbidity (NTU)	2.5	2.8	3.1	2.8	2.8	2.5	2.6	2.5
4.	Odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour
5.	pH	7.12	7.18	7.2	7.15	7.1	7.23	7.16	7.2
6.	Total suspended solid (mg./l)	<10	<10	<10	<10	<10	<10	<10	<10
7.	Total dissolved solid (mg./l)	840.0	930.0	950.0	920.0	1020.0	856.0	950.0	820.0
8.	Total Hardness (mg./l)	230.0	240.8	260.0	280.6	290.0	210.0	280.0	220.0
9.	Chloride (mg./l)	207.45	169.73	216.88	268.75	273.46	160.3	271.0	249.89
10.	Sulphate (mg./l)	15.0	26.5	25.0	30.0	35.0	23.5	25.0	21.5
11.	Nitrate (mg./l)	16.39	24.8	22.14	23.47	30.11	19.93	19.93	16.3957
12.	Sodium (mg./l)	220.0	186.0	280.0	258.0	280.0	178.0	210.0	260.0
13.	Potassium (mg./l)	30.0	25.0	23.5	25.5	35.0	21.5	21.5	20.0
14.	Calcium (mg./l)	64.13	60.12	70.14	62.12	84.17	52.1	72.14	56.11
15.	Magnesium (mg./l)	16.8	21.6	20.4	30.0	19.2	19.2	22.8	19.2
16.	Iron (mg./l)	0.9	0.9	0.9	0.8	1.1	0.8	1.0	0.8



**C. Date of sampling: 29.3.2011**

No.	Parameters	Location of Tube wells							
		Goalbati village	Karaidanga Colony near Leather Complex	No.2 Government Colony	Uchhepota village	Khasmahal village	Bajbarantala	Charcharia	Bamunhata
1.	Temperature (°C)	23.5	25.0	25.0	26.5	28.5	28.5	28.5	28.5
2.	Colour unit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3.	Turbidity (NTU)	2.1	2.5	2.5	2.8	2.9	2.9	2.5	2.5
4.	Odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour
5.	pH	7.1	7.2	7.11	7.1	7.18	7.2	7.15	7.28
6.	Total suspended solid (mg./l)	<10	<10	<10	<10	<10	<10	<10	<10
7.	Total dissolved solid (mg./l)	800.0	910.0	912.0	1050.0	980.0	920.0	1020.0	915.0
8.	Total Hardness (mg./l)	212.0	232.0	216.0	280.0	312.0	240.0	316.0	252.0
9.	Chloride (mg./l)	179.35	150.42	148.49	221.78	279.63	183.21	277.7	260.48
10.	Sulphate (mg./l)	16.5	32.5	25.0	30.0	35.0	25.0	28.5	25.0
11.	Nitrate (mg./l)	18.6	20.37	20.37	24.8	24.8	19.93	21.7	18.6
12.	Sodium (mg./l)	190.0	180.0	160.0	260.0	260.0	180.0	190.0	280.0
13.	Potassium (mg./l)	32.5	21.25	21.25	65.0	29.38	12.5	25.0	24.0
14.	Calcium (mg./l)	64.13	56.11	57.72	80.16	70.54	49.7	78.56	65.73
15.	Magnesium (mg./l)	12.48	22.08	17.28	19.2	32.64	27.84	28.8	21.12
16.	Iron (mg./l)	1.1	0.8	0.85	1.12	0.9	0.9	1.0	1.28



**D. Date of sampling: 28.4.2011**

No.	Parameters	Location of Tube wells							
		Goalbati village	Karaidanga Colony near Leather Complex	No.2 Government Colony	Uchhepota village	Khasmahal village	Bajbarantala	Charcharia	Bamunhata
1.	Temperature (°C)	30.5	29.5	31.0	28.5	31.5	31.5	32.5	31.5
2.	Colour unit	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3.	Turbidity (NTU)	2.1	2.5	2.8	2.5	3.1	2.6	3.0	2.8
4.	Odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour
5.	pH	6.2	7.28	7.18	7.12	7.12	7.18	7.2	7.1
6.	Total suspended solid (mg./l)	<10	<10	<10	<10	<10	<10	<10	<10
7.	Total dissolved solid (mg./l)	1050.0	850.0	1060.0	1080.0	910.0	1050.0	1120.0	920.0
8.	Total Hardness (mg./l)	306.0	216.0	207.0	315.0	279.0	324.0	351.0	243.0
9.	Chloride (mg./l)	188.03	144.64	154.28	231.42	250.7	289.27	284.45	212.13
10.	Sulphate (mg./l)	20.5	28.5	28.5	32.5	32.5	30.0	38.5	25.0
11.	Nitrate (mg./l)	16.5	26.5	180.0	26.5	22.5	26.0	23.5	23.5
12.	Sodium (mg./l)	180.0	160.0	25.0	285.0	240.0	280.0	215.0	168.0
13.	Potassium (mg./l)	35.0	25.0	65.0	76.0	25.0	35.0	30.0	21.5
14.	Calcium (mg./l)	61.32	50.5	36.07	82.97	63.13	75.75	88.38	59.52
15.	Magnesium (mg./l)	36.72	21.6	28.08	25.92	29.16	32.4	31.32	22.68
16.	Iron (mg./l)	0.9	0.85	0.8	1.2	1.1	0.8	1.58	1.1



**E. Date of sampling: 19.5.2011**

No.	Parameters	Location of Tube wells							
		Goalbati village	Karaidanga Colony near Leather Complex	No.2 Government Colony	Uchhepota village	Khasmahal village	Bajbarantala	Charcharia	Bamunhata
1.	Temperature (°C)	31.0	30.5	31.5	29.5	30.0	30.5	31.5	30.0
2.	Colour unit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3.	Turbidity (NTU)	2.8	2.6	3.1	2.9	3.5	2.5	4.1	2.6
4.	Odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour
5.	pH	6.8	7.2	7.1	7.2	7.2	7.2	7.3	7.1
6.	Total suspended solid (mg./l)	<10	<10	<10	<10	<10	<10	<10	<10
7.	Total dissolved solid (mg./l)	1120.0	910.0	920.0	980.0	982.0	1125.0	1050.0	870.0
8.	Total Hardness (mg./l)	317.5	231.3	180.3	215.0	309.7	340.0	313.6	227.4
9.	Chloride (mg./l)	189.5	232.2	139.3	209.9	278.6	310.2	250.8	185.8
10.	Sulphate (mg./l)	25.0	28.5	25.0	23.5	26.8	36.5	35.0	21.5
11.	Nitrate (mg./l)	18.6	17.7	16.4	24.8	35.4	31.0	26.6	19.9
12.	Sodium (mg./l)	207.5	126.3	128.8	160.0	257.5	310.0	180.0	145.0
13.	Potassium (mg./l)	38.8	29.4	39.4	62.5	25.0	38.8	26.3	18.5
14.	Calcium (mg./l)	70.7	56.6	36.1	62.9	69.1	84.8	80.1	50.3
15.	Magnesium (mg./l)	33.9	21.8	21.6	14.1	32.9	31.1	27.3	24.5



**F. Date of sampling: 22.6.2011**

No.	Parameters	Location of Tube wells							
		Goalbati village	Karaidanga Colony near Leather Complex	No.2 Government Colony	Uchhepota village	Khasmahal village	Bajbarantala	Charcharia	Bamunhata
1.	Temperature (°C)	29.5	29.0	30.5	28.5	31.5	30.0	31.5	31.5
2.	Colour unit	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
3.	Turbidity (NTU)	2.1	2.8	2.5	2.5	2.8	2.7	2.8	2.7
4.	Odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour	No odour
5.	pH	6.9	7.2	7.1	7.2	7.1	7.1	7.1	7.2
6.	Total suspended solid (mg./l)	<10	<10	<10	<10	<10	<10	<10	<10
7.	Total dissolved solid (mg./l)	960.0	920.0	1020.0	920.0	950.0	890.0	1050.0	850.0
8.	Total Hardness (mg./l)	280.0	190.0	180.0	290.0	260.0	310.0	312.0	230.0
9.	Chloride (mg./l)	179.4	160.1	175.5	210.2	130.2	250.7	320.1	183.2
10.	Sulphate (mg./l)	25.0	30.0	30.0	35.0	25.0	32.5	40.0	23.5
11.	Nitrate (mg./l)	15.0	26.5	15.0	25.0	20.0	21.5	25.0	18.5
12.	Sodium (mg./l)	210.0	140.0	145.0	265.0	238.0	212.0	210.0	158.0
13.	Potassium (mg./l)	30.0	28.5	60.0	60.0	31.5	30.0	25.0	20.0
14.	Calcium (mg./l)	62.5	56.1	42.5	73.8	64.1	64.9	75.4	49.7
15.	Magnesium (mg./l)	29.8	12.0	17.8	25.4	24.0	35.5	29.8	26.5
16.	Iron (mg./l)	0.8	0.9	0.9	1.1	1.2	0.7	1.4	0.9



## Appendix 6. Analysis of Sewage silt

### Sample from Topsia road box drain

Parameter	Unit	Concentration value
pH		7.12
BOD <sub>3 days/27°C</sub>	mg/Lit	7005
Oil & Grease	mg/kg	1.12
Solid Content	mg/Lit	251.2
Chloride (as Cl)	mg/kg	0.64
Hexavalent Chromium (as Cr <sup>6+</sup> )	mg/kg	<1
Total Chromium (as Cr)	mg/kg	2677
Lead (as Pb)	mg/kg	135.6
Sulphide (as S)	mg/kg	767
Sodium (as Na)	mg/kg	1.3
Boron (as B)	mg/kg	8.2
Analysis by Construction Engineering Department, Jadavour University		

## Appendix 7. Noise monitoring at peripheries of work places

### A. March, 2011

Station Code: 01      Location: Pudirhati pumping station

Package: SD 36

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB(A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.03.2011	78.4	86.5	82.1	82.5	1 no 5 H P pump was running	16.03.2011	69.4	74.3	72.1	71.9	Residential area; much vehicle movement in the road

Station Code: 02      Location: Topsia pumping station

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.03.2011	69.1	74.9	73.7	72.0	1 no mixture machine was running	16.03.2011	62.7	68.9	63.9	65.8	Residential area; vehicle movement light

Station Code: 03      Location: Kulia Tangra pumpingstation

Borough: Vii

Ward: 57

Package:SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB )	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.03.2011	72.5	81.9	73.2	72.3	1 no 3 HP pump was running	16.03.2011	59.4	69.3	63.1	64.4	Residential area; vehicle movement light

Station Code: 04      Location: Chingrighata pumping station

Borough: VII

Ward: 57

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.03.2011	69.3	75.4	70.3	72.4	1 no 3 HP pump was running	16.03.2011	59.8	68.0	64.8	63.9	Residential area; vehicle movement light

Station Code: 05    Location: Duttabagan pumping station    Borough: I    Ward: 03    Package: SDD

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; much vehicle movement in the road
16.03.2011	74.3	85.4	78.4	79.9		16.03.2011	62.4	70.0	68.2	66.2	

Station Code: 06    Location: Birpara pumping station    Borough: I    Ward: 02    Package: SD26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; no vehicle movement as road was closed
17.03.2011	70.3	75.7	72.9	73.0		17.03.2011	52.5	59.3	56.4	55.9	

Station Code: 07    Location: Baliyapara pumping station    Borough: I    Ward: 02    Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Main entrance road with considerable vehicle movement
17.03.2011	72.2	80.1	75.2	76.2		17.03.2011	60.1	69.8	65.3	65.0	

Station Code: 08    Location: Panchajanya    Borough: XII    Ward: 109    Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement light
17.03.2011	68.9	74.5	70.4	71.7		17.03.2011	59.9	69.7	63.3	64.8	

Station Code: 09    Location: Baghajatin station    Borough: XII    Ward: 102    Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; considerable vehicle movement
17.03.2011	74.9	81.7	79.4	78.3		17.03.2011	65.3	70.2	66.3	67.8	

Station Code: 10 Location: Baghajatin Station

Borough: XII Ward: 101 Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
17.03.2011	72.4	81.9	78.4	77.2	1 no 3 HP pump was running	17.03.2011	66.7	73.9	69.4	70.3	Residential area; considerable vehicle movement

Station Code: 11 Location: Chak Garia pumping station

Borough: XIII Ward: 109

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
22.03.2011	78.4	86.7	83.1	82.6	1 no 5 HP pump was running	22.03.2011	60.1	69.8	65.9	65.0	Residential area; vehicle movement light

Station Code: 12 Location: Pagladanga pumping station

Borough: VII

Ward: 57

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
22.03.2011	70.2	79.8	76.4	75.0	1 no 5 HP pump was running	22.03.2011	61.2	67.8	65.2	64.5	Residential area; vehicle movement light

Station Code: 13 Location: Garden Reach pumping station

Borough: Maheshtala municipality Package: SD 30

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
22.03.2011	69.3	77.8	74.2	73.6	1 no 5 HP mixture machine was running	22.03.2011	63.4	71.6	68.1	67.5	Near railway line

Station Code: 14 Location: Bangur pumping station

Borough: South Dum Dum municipality

Package: SD 29

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
22.03.2011	63.4	69.3	67.12	66.35	1 no mixture machine was running	22.03.2011	59.4	63.9	60.4	61.7	Vacant area

Station Code: 15 Location: Keora pukur pumping station

Borough: XI & XII Ward: 114 & 115

Package: CW 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
22.03.2011	85.2	87.3	85.18	86.25	1 no 5 HP pump was running	22.03.2011	52.3	56.7	55.3	54.5	Residential area; vehicle movement light

Station Code: 16 Location: CPT canal pumping station

Borough: XIV Ward: 132

Package: SD 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
23.03.2011	64.9	73.3	70.1	69.1	1 no 5 HP pump was running	23.03.2011	51.3	54.7	53.7	53.0	Residential area; vehicle movement light

Station Code: 17 Location: Behala flying club pumping station

Borough: XIV

Ward: 132

Package: SD 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
23.03.2011	61.0	67.5	65.2	64.3	1 no 3 HP pump was running	23.03.2011	55.3	62.7	57.3	59.0	Residential area; vehicle movement light

Station Code: 18 Location: Choubhaga pumping station

Package: CW 22

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
23.03.2011	65.3	71.9	67.1	68.6	1 no 3 HP pump was running	23.03.2011	58.9	63.7	59.4	61.3	Light vehicles were plying

Station Code: 19 Location: Charcharia khal

Borough: Charcharia panchayet

Package: CW 20R2

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
23.03.2011	72.9	81.7	76.3	77.3	1 no 5 HP pump was running	23.03.2011	65.7	71.9	69.9	68.8	Light vehicles were plying

Station Code 20 Location: Lalkuthi khal

Borough Kheyadaha panchayet

Package: CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
23.03.2011	71.3	81.9	75.2	76.6	1 no 3 HP pump was running	23.03.2011	61.9	70.9	65.2	66.4	Light vehicles were plying

Station Code: 21 Location: Deara khal

Package: CW 21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
25.03.2011	79.4	88.9	85.2	84.2	1 no 5 HP pump was running	25.03.2011	60.3	70.4	66.8	65.4	Light vehicles were plying

Station Code: 22 Location: Kharki Belekhal khal

Package: CW 21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
25.03.2011	64.5	79.1	70.9	71.8	1 no mixture machine was running	25.03.2011	57.9	68.7	64.5	63.3	Light vehicles were plying

Station Code: 23 Location: TP Bajbarantala khal

Package: CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
25.03.2011	78.4	87.9	84.5	83.2	1 no winch machine was running	25.03.2011	60.4	67.5	62.4	64.0	Light vehicles were plying

Station Code: 24 Location: Nodor khal

Borough : Kheyadaha panchayet

Package: CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
25.03.2011	75.6	80.1	78.4	77.9	1 no 5 HP pump was running	25.03.2011	58.7	69.4	63.2	64.1	Light vehicles were plying

**B. April, 2011**

**Station Code:** 01

**Location:** Lalkuthi khal , Kheyadaha panchayet

**Package:**

CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
11.04.2011	70.0	83.3	76.2	76.7	1 no 3 H.P. pump was in operation	11.04.2011	63.3	74.2	67.9	68.8	Vehicle movement was light

**Station Code:** 02

**Location:** Charcharia khal, Charcharia panchayet

**Package:** CW20R2

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
11.04.2011	69.9	83.5	75.92	76.7	1 no 5 HP pump was running	11.04.2011	68.2	77.6	71.89	72.9	Residential area but vehicle movement was heavy

**Station Code:** 03

**Location:** TP Bajbarantala khal, Kheyadaha panchayet

**Package:** CW21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB )	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
11.04.2011	76.8	88.5	81.89	82.7	Tata Hitachi machine was running	11.04.2011	59.9	64.2	60.69	62.1	Vehicle movement was light

**Station Code:** 04

**Location:** Nodor khal, Kheyadaha panchayet:

**Package:** CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
11.04.2011	75.6	84.2	78.86	79.9	1 no 5 HP pump was running	11.04.2011	61.1	72.3	66.2	66.7	No vehicle movement due to road closure

**Station Code:** 05

**Location:** Chak Garia pumping station.

**Borough:** XIII

**Ward:** 109

**Package:** SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
11.04.2011	72.6	87.1	78.8	79.9	1 no mixture machine was running	11.04.2011	64.3	72.2	68.1	68.3	No vehicle movement due to road closure

Station Code: 06 Location: Topsia pumping station i Borough: VII: Ward: 57: Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
12.04.2011	67.4	78.8	72.5	73.1		12.04.2011	59.3	70.5	63.5	64.9	

Station Code: 07 Location: Kulia Tangra pumping station : Borough: VII Ward: 57 Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
12.04.2011	68.7	79.2	72.95	73.95		12.04.2011	57.7	68.6	62.1	63.15	

Station Code: 08 Location: Chingrghata pumping station Borough: VII Ward: 57 Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was heavy
12.04.2011	70.2	76.6	72.9	73.4		12.04.2011	63.5	75.9	68.8	69.7	

Station Code: 09 Location: Pagladanga pumping station Borough: VII Ward: 57 Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
12.04.2011	67.1	83.1	74.6	75.1		12.04.2011	54.4	66.2	60.12	60.3	

Station Code: 10 Location: Dutta bagan pumping station Borough: I Ward: 03 Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
13.04.2011	72.0	81.5	75.7	76.8		13.04.2011	63.5	75.0	68.2	69.25	

Station Code: 11

Location: Birpara pumping station

Borough: I

Ward: 02:

Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	No vehicle movement; road was closed
13.04.2011	63.9	78.2	70.9	71.1		13.04.2011	50.8	62.2	55.9	56.5	

Station Code: 12

Location:: Ballyapara pumping station

Borough: I

Ward::02

Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
13.04.2011	66.2	80.5	72.9	73.4		13.04.2011	70.5	78.2	73.9	74.4	

Station Code: 13

Location: Bangur pumping station, South Dum Dum Municipality

Package: SD 29

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vacant area; no activity
13.04.2011	64.8	72.6	68.5	68.7		13.04.2011	61.5	67.9	63.9	64.7	

Station Code: 14

Location: CPT canal pumping station

Borough: XIV

Ward:: 132

Package: SD 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential; no vehicle movement
14.04.2011	62.2	72.8	66.8	67.5		14.04.2011	50.0	58.3	54.0	54.2	

Station Code: 15

Location: Garden Reach pumping station, Maheshtala Municipality

Package: SD 30

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Near Railway line; but no train movement
14.04.2011	65.5	79.3	71.3	72.4		14.04.2011	60.2	72.1	66.1	66.15	

Station Code: 16      Location: Keora Pukur pumping station      Borough: XI      Ward: 114:      Package: CW 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; light vehicle movement
14.04.2011	79.2	89.0	83.9	84.1		14.04.2011	50.1	65.1	56.69	57.6	

Station Code: 17      Location: Pudirhati pumping station      Borough: XI      Ward: 114      Package: SD36

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area but vehicle movement was heavy
14.04.2011	76.6	88.2	81.9	82.4		14.04.2011	65.3	72.0	67.8	68.7	

Station Code: 18      Location: Deara khal, Dourgatala      Package: CW 21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no JCB machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Read was open with light vehicle movement
14.04.2011	76.2	85.6	79.93	80.9		14.04.2011	55.5	70.2	62.95	63.0	

Station Code: 19      Location: Near Bagha Jatin station      Borough: XII      Ward: 101:      Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement light
16.04.2011	70.7	89.9	79.56	80.3		16.04.2011	64.5	72.9	67.93	68.7	

Station Code: 20      Location: Bagha Jatin station      Borough: XII      Ward: 102:      Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement light
16.04.2011	71.1	80.8	75.12	76.0		16.04.2011	62.8	76.0	68.36	69.4	

Station Code: 21

Location: Panchajanya

Borough: XII:

Ward: 109:

Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB (A)	Mean dB (A)	Residential area; vehicle movement light
16.04.2011	62.8	75.2	68.12	69.0		16.04.2011	58.2	70.7	63.89	64.5	

Station Code: 22

Location: Behala Flying Club pumping station

Borough: XIV

Ward:: 132

Package: SD 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential; no vehicle movement
16.04.2011	61.0	70.1	64.12	65.6		16.04.2011	58.2	65.7	61.96	62.0	

Station Code: 23

Location: Chowbhaga pumping station

Borough: XII

Ward: 107

Package: CW 22

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; light vehicle movement
16.04.2011	66.8	73.5	69.89	70.2		16.04.2011	56.7	68.1	61.56	62.4	

Station Code: 24

Location: Kharki Belekhal khal, Dourgatala:

Package: CW 21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB (A)	Residential area; vehicle movement light
16.04.2011	66.3	80.0	72.78	73.2		16.04.2011	56.9	71.3	63.29	64.1	

Station Code: 25

Location: 8 no nikasi (1600 dia)Borough: VII

Ward: 57

Package: SDF1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Jack pushing machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicles movement was light
16.4.11	78.4	89.4	82.7	83.9		16.4.2011	62.2	69.4	64.8	65.8	

Station Code: 26

Location: Govinda Khatik road

Borough: VII

Ward: 59

Package: SDF1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB )	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.4.11	79.9	89.4	83.6	84.7	Jack pushing machine was running	16.4.11	72.4	82.4	76.9	77.4	Vehicles movement was light

Station Code: 27

Location: Mahendra Roy Lane

Borough: VII

Ward: 59

Package: SDF 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.4.11	78.4	85.9	81.7	82.1	1 No 5 HP pump was running	16.4.11	59.1	68.9	63.9	64.0	Light vehicles were plying

Station Code: 28

Location:: Maruti gate

Borough: VII

Ward: 59

Package: SDF1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.4.11	78.4.	89.3	82.1	83.9	1 no 5 HP pump was running	16.4.11	64.3	71.9	67.3	68.1	Light vehicles were plying

Station Code: 29

Location: Roy para lane

Borough: I

Ward: 2

Package: SDD1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.4.11	76.3	87.9	80.9	82.1	1 no 5 HP pump was running	16.4.11	58.4	69.7	62.8	64.1	Light vehicles were plying in residential area

Station Code: 30

Location: D Gupta Lane

Borough I

Ward: 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
16.4.11	79.4	88.9	82.7	84.2	1 no mixture machine was running	16.4.11	59.3	68.4	61.6	63.9	Residential area

Station Code: 31

Location: South Sinthee road

Borough: I

Ward : 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying in residential area
16.4.11	86.4	91.9	87.6	89.2		16.4.11	69.6	72.9	70.9	71.3	

Station Code: 32

Location: Harey Krishta Sett Lane

Borough: I

Ward: 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in residential area
16.4.11	78.9	84.9	79.9	81.9		16.4.11	58.4	69.4	61.9	63.9	

Station Code: 33

Location: Kali charan Sett Lane

Borough I

Ward: 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying in residential area
16.4.2011	77.9	84.3	79.6	81.1		16.4.2011	59.4	67.9	62.5	63.7	

Station Code: 34

Location: Uma kanta Sen Lane

Borough: I

Ward: 4

Package: SDD IV

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area
16.4.2011	80.8	88.9	82.6	84.9		16.4.2011	58.4	64.3	59.9	61.4	

Station Code: 35

Location: Raja Manindra road

Borough: I

Ward: 4

Package: SDD IV

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement light
16.4.11	78.6	85.6	80.8	82.1		16.4.11	69.6	79.9	72.2	74.8	

C. May, 2011

Station Code: 01 Location : Lalkuthi khalt Borough : Kheyadaha panchayet Package: CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
11.5.2011	72.4	89.3	80.7	82.0		11.5.11	58.9	72.7	65.8	67.0	

Station Code: 02 Location: Charcharia khal Borough : Charcharia panchayet Package: CW 20 R2

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area
11.5.2011	75.4	92.3	82.5	83.6		11.5.2011	52.7	60.1	54.4	56.4	

Station Code: 03 Location: t TP Bajbarantala khal Borough : Kheyadaha Panchayet Package: CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB )	Max dB (A)	Leq dB(A)	Mean dB(A)	Tata Hitachi machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
11.5.11	79.4	92.5	86.2	87.0		11.5.11	65.3	73.4	61.6	62.9	

Station Code: 04 Location: Nodor khal Borough : Kheyadaha panchayet Package: CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
11.5.11	72.7	88.9	80.0	81.3		11.5.11	52.7	70.1	56.8	57.9	

Station Code: 05

Location: Chak Garia pumping station

Borough: XIII

Ward: 109

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles wereplying in residential area
11.5.11	72.2	84.9	78.4	80.1		11.5.11	54.4	68.8	60.5	61.1	

Station Code: 06

Location: i Topsia pumping station

Borough: VII

Ward: 59

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was heavy
11.5.11	76.4	83.9	80.1	81.3		11.5.11	65.4	82.9	72.9	73.9	

Station Code: 07

Location: Kulia Tangra pumping station :

Borough: VII Ward: 57

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying in residential area
11.5.11	75.9	85.4	80.7	81.8		11.5.11	58.1	68.9	60.4	62.7	

Station Code: 08

Location: Chingrighata pumping station

Borough: VII

Ward: 57

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying in residential area
12.5.11	74.3	86.9	79.9	80.1		12.5.11	64.9	70.0	65.8	67.5	

Station Code: 09

Location: Pagladanga pumping station

Borough: VII

Ward: 57

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying in residential area
12.5.11	70.4	89.4	78.0	79.9		12.5.11	63.9	78.9	68.8	69.3	

Station Code: 10      Location: Duttabagan pumping station      Borough: I      Ward: 03      Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying
12.5.11	75.3	84.3	78.6	79.9		12.5.11	59.4	66.7	60.6	62.9	

Station Code: 11      Location: Birbara pumping station      Borough: I      Ward: 02      Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Lightvehicles were plying
12.5.11	77.9	88.9	82.5	83.1		12.5.11	65.4	71.9	66.3	67.8	

Station Code: 12      Location: Baliyapara pumping station      Borough: I      Ward: 2      Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying
12.5.11	71.2	84.5	77.3	78.3		12.5.11	50.6	62.3	58.3	59.9	

Station Code: 13      Location: Bangur pumping station      Borough: South Dum Dum Municipality      Package: SD 29

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vacant area
12.5.11	80.9	89.4	79.5	80.1		12.5.11	58.6	65.9	61.2	62.6	

Station Code: 14      Location: C.P.T. Canal Pumping Station      Borough: XIV      Ward: 132      Package: SD-23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 3 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area
12.05.11	73.4	85.5	75.18	76.15		12.05.11	51.3	64.1	55.28	57.34	

Station Code: 15

Location: Garden Reach PS

Borough: Maheshtala Municipality

Package: SD-30

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Near Railway Line
13.05.11	72.9	86.2	77.13	79.65		13.05.11	57.4	73.50	58.76	60.9	

Station Code: 16

Location: Kaorapukur Pumping Station

Borough: XI

Ward: 114

Package: CW-23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in Residential area
13.05.11	76.3	91.4	79.35	81.77		13.05.11	62.8	72.10	67.99	68.4	

Station Code: 17

Location: Pudirhati Pumping Station

Borough: XII

Ward: 109

Package: SD36

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Heavy vehicles plying in Residential area
13.05.11	83.2	94.0	85.96	87.45		13.05.11	59.3	71.10	62.88	64.21	

Station Code: 18

Location: Deara Khal

Borough: Dourgatala

Package: CW-21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. J.C.B Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Road was open
13.05.11	74.2	78.9	74.03	76.76		13.05.11	60.2	72.9	67.49	68.25	

Station Code: 19

Location: Near Baghajatin Station

Borough: XII

Ward: 101

Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in Residential area
13.05.11	80.1	87.70	83.74	84.21		13.05.11	59.8	63.9	60.03	61.06	

Station Code: 20      Location: Baghajatin Station      Borough: XII      Ward: 102      Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. Mixture Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in Residential area
13.05.11	85.9	91.4	87.59	88.3		13.05.11	62.0	73.6	65.57	67.77	

Station Code: 21      Location: Panchajanya      Borough: XII      Ward: 109      Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 3 H.P. pump was running	Date	Min dB (A)	Max dB (A)	Leq dB (A)	Mean dB (A)	Light vehicles plying in Residential area
13.05.11	70.1	88.5	77.89	79.3		13.05.11	60.4	69.6	64.04	65.85	

Station Code: 22      Location: Behala Flying Club Pumping Station      Borough: XIV      Ward: 132      Package: SD-23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. Mixture Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in Residential area
14.05.11	78.0	85.9	80.12	82.54		14.05.11	56.3	69.40	59.46	60.51	

Station Code: 23      Location: Chowbaga Pumping Station      Borough: XII      Ward: 107      Package: CW-22

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 3 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Road was open
14.05.11	87.8	95.3	90.23	91.46		14.05.11	58.9	67.5	61.59	63.2	

Station Code: 24      Location: Kharki Belekhali Khal      Package: CW 21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. Mixture Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB (A)	Light vehicles plying in Residential area
14.05.11	75.7	85.6	81.56	82.69		14.05.11	60.1	67.9	63.68	64.12	

Station Code: 25

Location: 8 No. Nekashe (1600 dia)

Borough: VII

Ward: 57

Package: SDF 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Jack Pushing Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying
14.05.11	80.1	93.4	86.98	87.39		14.05.11	53.9	69.8	62.84	63.27	

Station Code: 26

Location: Gobinda Khatik Road

Borough: VII

Ward: 59 Package: SDF 1:

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB )	Max dB (A)	Leq dB(A)	Mean dB(A)	Jack Pushing Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying
14.05.11	72.4	89.3	80.67	81.96		14.05.11	59.1	68.7	62.6	63.9	

Station Code: 27

Location: Mahendra Roy Lane

Borough: VII

Ward: 59

Package: SDF 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in residential area
14.05.11	70.4	89.4	78.98	79.85		14.05.11	53.4	64.3	58.68	59.26	

Station Code: 28

Location: Maruti Gate

Borough: VII

Ward: 59

Package: SDF 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying
14.05.11	77.8	83.9	79.69	80.28		14.05.11	54.4	64.4	61.72	62.39	

Station Code: 29

Location: Roy Para Lane

Borough: I

Ward: 02

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in residential area
17.05.11	71.2	84.5	77.31	78.33		17.05.11	63.7	69.9	65.45	66.8	

Station Code: 30 Location: D Gupta Lane Borough I Ward: 2 Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. Mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying
17.05.11	81.3	87.4	81.97	83.48		17.05.11	57.8	64.3	59.93	60.39	

Station Code: 31 Location: South Sinthee Road Borough: I Ward: 02 Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in Residential area
17.05.11	79.3	84.9	80.95	82.6		17.05.11	59.4	68.3	64.7	65.7	

Station Code: 32 Location: Harey Krishta Sett Lane Borough: I Ward: 02 Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. Mixture Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in Residential area
17.05.11	70.1	80.3	76.47	76.20		17.05.11	57.8	64.3	59.85	60.39	

Station Code: 33 Location: Kali Charan Sett Lane Borough: I Ward: 02 Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. 5 H.P. Pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles plying in Residential area
17.05.11	88.4	90.7	88.10	89.12		17.05.11	52.6	61.8	56.23	57.91	

Station Code: 34 Location: Uma Kanta Sen Lane Borough: I Ward: 04 Package: SDD 4

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No. Mixture Machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area
17.05.11	78.9	87.8	82.28	83.8		17.05.11	60.1	68.8	62.89	63.55	



Station Code: 04

Location: Nodor khal

Package: CW 21A

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
24.6.11	73.7	89.9	80.0	81.4		24.6.11	53.7	71.1	61.3	62.4	

Station Code: 05

Location: Chak Garia pumping station

Borough: XIII

Ward: 109

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
24.6.11	71.2	83.9	77.7	77.6		24.6.11	55.4	69.8	61.7	62.6	

Station Code: 06

Location: i Topsia pumping station

Borough: VII

Ward: 59

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
24.6.11	77.4	84.9	80.3	81.2		24.6.11	55.4	69.8	61.7	62.6	

Station Code: 07

Location: Kulia Tangra pumping station :

Borough: VII

Ward: 57

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
24.6.11	76.9	86.4	81.5	81.7		24.6.11	59.7	67.8	63.0	63.8	

Station Code: 08

Location: Chingrighata pumping station

Borough: VII

Ward: 57

Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
25.6.11	72.3	84.9	77.9	78.6		25.6.11	58.9	69.5	63.8	64.2	

Station Code: 09

Location: Pagladanga pumping station

Borough: VII

Ward:: 57 Package: SD 28

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
25.6.11	71.5	88.6	79.6	80.1		25.6.11	59.9	69.7	63.7	64.8	

Station Code: 10

Location: Duttabagan pumping station

Borough: I

Ward: 3

Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
25.6.11	74.3	86.8	79.5	80.6		25.6.11	58.4	65.7	61.3	62.1	

Station Code: 11

Location: Birpara pumping station

Borough: I

Ward: 2

Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 No 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
25.6.11	76.9	87.8	81.8	82.4		25.6.11	62.1	71.0	65.5	66.6	

Station Code: 12

Location: Baliyapara pumping station

Borough: I

Ward: 2

Package: SD 26

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
25.6.11	70.2	85.7	76.7	78.0		25.6.11	55.8	63.7	58.9	59.8	

Station Code: 13

Location: Bangur pumping station

Borough: South Dum Dum Municipality

Package: SD 29

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vacant area
25.6.11	79.9	84.9	81.9	82.4		25.6.11	59.5	62.9	61.0	61.2	

Station Code: 14 Location: CPT pumping station

Borough: XIV

Ward: 132

Package: SD23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area few vehicle movement
25.6.11	71.7	83.6	76.8	77.7		25.6.11	56.6	62.7	58.8	59.7	

Station Code: 15 Location: Garden Reach pumping station

Borough: Maheshtala Municipality

Package: SD 30

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Near railway line
27.6.11	71.7	84.6	77.7	78.2		27.6.11	58.9	68.2	62.8	63.6	

Station Code: 16 Location: Keorapukur pumping station

Borough: XI

Ward: 114

Package: CW 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area: vehicle movement was light
27.6.11	74.8	88.2	80.3	81.5		27.6.11	60.1	70.1	64.7	65.1	

Station Code: 17 Location: Pudirhati pumping station

Borough: XII

Ward: 109

Package: SD 36

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was heavy
27.6.11	81.2	90.1	84.7	85.7		27.6.11	60.1	68.8	63.8	64.5	

Station Code: 18 Location: Deara khal

Package: CW 21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no JCB machine was working	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Road was open
27.6.11	72.2	79.6	74.8	75.9		27.6.11	59.7	65.7	62.1	62.7	

Station Code: 19

Location: Near Bagha Jatin station

Borough: XII

Ward:: 101

Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
27.6.11	79.2	88.9	83.9	84.1		27.6.11	60.1	65.6	61.6	62.9	

Station Code: 20

Location: Bagha Jatin station

Borough: XII

Ward: 102

Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was working	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
27.6.11	81.0	92.4	84.5	86.7		27.6.11	58.9	67.9	62.7	63.4	

Station Code: 21

Location: Panchajanya

Borough: XII

Ward:: 109

Package: SDC

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB (A)	Mean dB (A)	Residential area; vehicle movement was light
27.6.11	70.2	87.8	78.5	79.0		27.8.11	57.9	65.7	60.2	61.8	

Station Code: 22

Location: Behala Flying Club pumping station

Borough XIV

Ward:: 132

Package: SD 23

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was runnin	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
28.6.11	74.8	87.8	80.6	81.3		28.6.11	58.7	69.2	62.5	64.0	

Station Code: 23

Location: Chowbaga pumping station

Borough: XII

Ward: 107

Package: CW 22

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 3 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Road was open
28.6.11	82.6	91.8	87.0	87.2		28.6.11	59.6	64.8	61.2	62.2	

Station Code: 24

Location: Kharki Belekhal khal

Package: CW 21B

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB (A)	
28.6.11	74.7	84.6	78.5	79.7	1 no mixture machine was running	28.6.11	58.6	65.7	61.3	62.2	Residential area; vehicle movement was light

Station Code: 25

Location: No 8 Nekashe (1600 dia)

Borough: VII

Ward: 57

Package: SDF1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
28.6.11	82.4	92.8	86.7	87.6	Jack pushing machine was working	28.6.11	55.7	64.7	59.8	60.2	Light vehicles was plying

Station Code: 26

Location: Govinda Khatik road

Borough: VII

Ward: 59

Package: SDF 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB )	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
28.6.11	73.4	87.9	78.5	80.9	Jack pushing machine was running	28.6.11	60.1	67.8	61.8	64.0	Residential area; vehicle movement was light

Station Code: 27

Location: Mahendra Roy Lane

Borough: VII

Ward: 59

Package: SDF 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
28.6.11	72.4	88.7	79.5	80.6	1 no 5 HP pump was running	28.6.11	55.9	63.8	58.3	59.9	Residential area; vehicle movement was light

Station Code: 28

Location: Maruti Gate

Borough: VII

Ward: 59

Package: SDF 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Vehicle movement was light
29.6.11	78.8	84.9	80.7	81.9		29.6.11	56.7	68.9	61.8	62.8	

Station Code: 29

Location: Roy para Lane

Borough: I

Ward: 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
29.6.11	73.5	86.8	79.7	80.2		29.6.11	61.4	68.9	64.5	65.2	

Station Code: 30

Location: D Gupta Lane

Borough: I

Ward: 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was working	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Light vehicles were plying
29.6.11	82.8	90.1	86.0	86.5		29.6.11	58.9	65.9	61.7	62.4	

Station Code: 31

Location: South Sinthee road

Borough: I

Ward: 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no 5 HP pump was working	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
29.6.11	78.4	88.7	82.5	83.6		29.6.11	60.1	69.8	63.8	65.0	

Station Code: 32

Location: Harey Krishna Seth Lane

Borough: I

Ward: 2

Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	1 no mixture machine was running	Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	Residential area; vehicle movement was light
29.6.11	75.8	84.9	79.3	80.4		29.6.11	58.7	62.8	59.8	60.8	

Station Code: 33

Location: Kali Charan Sett Lane

Borough: I

Ward: 2 Package: SDD 1

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
29.6.11	77.9	87.9	81.6	82.9	1 no 5 HP pump was running	29.6.11	57.6	67.9	61.3	62.8	

Station Code: 34

Location: Uma Kanta Sen Lane

Borough: I

Ward: 4 Package: SDD 4

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
29.6.11	77.6	88.9	82.5	83.3	1 no mixture machine was running	29.6.11	58.7	67.9	61.8	63.3	Residential area

Station Code: 35 Location: Raja Manindra Road

Borough: I

Ward: 4

Package: SDD 4

Noise level when activity was going on at the periphery of work site					Activity at site	Ambient Noise level at periphery of the worksite when activity was stopped					Ambient Activity Details
Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)		Date	Min dB (A)	Max dB (A)	Leq dB(A)	Mean dB(A)	
29.6.11	79.6	88.6	83.5	84.1	1 no 5 HP pump was running	29.6.11	60.3	69.4	63.8	64.9	Residential area; vehicle movement was light