

Environmental Monitoring Report

Project Number: 38412
Bi-Annual Report
Reporting Period: January–June 2015

India: Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program — Project 1

Prepared by the Flood and River Erosion Management Agency of Assam (FREMAA) for the State Government of Assam and the Asian Development Bank.

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BI-ANNUAL REPORT ON IMPLEMENTATION OF EMP

Project No 38412
Loan No 2684-IND

India: Multitranche Financing Facility –
Assam Integrated Flood and Riverbank Erosion Risk
Management Investment Program

Reporting Period – January 2015 to June 2015

Submitted by Executing Agency
Flood and River Erosion Management Agency of Assam (FREMAA)

Prepared for FREMAA by Project Management Consultancy (PMC-FREMAA)

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**Bi-Annual Report on Implementation of Environmental Management Plan
January 2015 to June 2015**

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ABBREVIATIONS

ADB – Asian Development Bank
AIFRERMIP – Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program
CBFRML – Community based flood risk management and livelihood
EIA – Environmental impact assessment
EMP – Environmental management plan
EMoP – Environmental Monitoring Plan
FRERM – Flood and riverbank erosion risk management
FREMAA - Flood and River Erosion Management Agency of Assam
MFF – Multitranche financing facility
MIS – Management information system
MoEF&CC – Ministry of Environment Forests and Climate Change
GOI – Government of India
NGOs – Nongovernment organizations
PMU – Project management unit
SEIA – Summary environmental impact assessment
SGOA – State government of Assam
SIO – Subproject implementation office
SPCB – State Pollution Control Board
UNDP – United Nations Development Program
WRD – Water Resources Department

LOAN PROCESSING HISTORY

Approval of PPTA 26 September 2008
Fact-finding Mission 27 January-7 February 2009
Management Review Meeting (MRM) 9 October 2009
Appraisal Mission-1 1-16 February 2010
Appraisal Mission (Final) 27 April – 10 May 2010
Staff Review Meeting (SRM) 29 July 2010
Loan Negotiations for MFF and Tranche 1 7-8 September 2010
Board Circulation 29 September 2010
Board Approval 19 October 2010
Project 1 Approval IV October 2010
Loan Agreement Signing November/December 2010
Loan Effectiveness December/January 2010
Physical Completion Date 31 March 2017
Loan Closing Date 30 September 2017

1. Introduction :

ADB's environmental and social safeguards are cornerstone of its support to inclusive economic growth and environmental sustainability. The objectives of the Safeguard Policy Statement (2009) is to avoid, or when avoidance is not possible, to minimize and mitigate adverse project impacts on the environment and affected people. Sound environmental management is critical to sustainable development and poverty reduction. Without committed efforts to safeguard the environment, pressure will continue to build on the land, forests, water systems, wetlands, and other natural resources on which people depend for their livelihoods. ADB's environmental safeguards aim to ensure the environmental soundness and sustainability of projects, and to support the integration of environmental considerations into the project decision-making process. The ADB's Safeguard Policy Statement (SPS), requires borrowers to identify project impacts and assess their significance; examine alternatives; and prepare, implement, and monitor environmental management plans.

In complying with the SPS requirements :

- (i) environmentally sustainable projects are primarily achieved through a good project design during project preparation and effective environmental management during project implementation;
- (ii) integrating environmental considerations into the project feasibility study and design calls for the incorporation of environmental assessment and management into the economic, financial, institutional, social, and technical analysis of a project; and
- (iii) good environmental assessment and management enables the continued improvement of environmental performance throughout the life of a project, and can lead to enhanced economic, financial, and social outcomes.

The Flood and River Erosion Management Agency of Assam (FREMAA) under the state government of Assam is responsible for the implementation of ADB-financed Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program (AIFRERMIP), as agreed jointly between the SGOA, Government of India and ADB, and in accordance with government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by FREMAA of their obligations and responsibilities for program implementation in accordance with ADB's policies and procedures.

Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program is likely to affect an area larger than the sites or facilities subject to physical works. The project under the program therefore come under **Category A**. Overall, the two subprojects (Dibrugarh, Palasbari and Gumi) are needed primarily to safeguard the people, property and environment from frequent floods of the Brahmaputra River, and strongly supported by the stakeholders. The AIFRERMIP

aims to integrate key Environmental Safeguards at all the levels of planning and implementation so that critical natural ecosystem. The flood plains of Brahmaputra and the resources, are not destroyed. Nevertheless, close monitoring will be operationalized so that any unforeseen impact will be detected and mitigation measures provided. Possible negative impacts include those associated with construction, which are temporary and can be mitigated through prescribed mitigation measures under the environmental monitoring and management plan to be operationalized under the Project, with the necessary capacity building of the executing agency and outsourcing. This will help in maintaining environmental sustainability along with inclusive economic growth. The FREMAA aims to integrate key Environmental Safeguards at all the levels of planning and implementation so that the natural ecosystem are maintained and are least disturbed.

Provisions for compliance:

The AIFRERMIP also aims to integrate key Environmental Safeguards at all the levels of planning and implementation so that critical natural ecosystem and the resources are not destroyed in this biodiversity hotspot. There is a need for recognition and following the compliance with national and state system and regulations on environmental standards by the contractors. Some of the specific environmental parameters are to be monitored periodically to check the compliance. This helps in maintaining environmental sustainability along with inclusive economic growth. Besides above, for achieving the compliance following specific arrangements are made in the contract.

The Contractor shall employ one fulltime inspector for supervising compliance with the environmental management plan. The environmental inspector shall keep one set of current environmental standards and regulations at the site at all times, available for consultation.

The environmental inspector shall submit an Environmental Management Plan and a monthly environmental report. The report shall be written in English language in a format acceptable to the Engineer.

Measures for monitoring and preventing pollution of air, water, noise, vehicle, waste. No part of the work shall be started before environmental and safety inspectors and first aid nurse are present at the site.

Other measures like, Borrow pit management, maintenance of access road, compensatory afforestation, emergency response plan, etc are also under the preview of the environmental safeguard measures under the project.

Structural works of the two subproject areas under Tranche-1 are :

Palasbari Sub Project:
Palasbari Reach

1. Palasbari Erosion Protection under water works below LWL (4.9 Km).
2. Construction of Palasbari Embankment and slope protection work above LWL along Brahmaputra river at Palasbari. (5.1 Km.)

Gumi Reach

3. Construction of under water and Bank Revetment with loose boulder crates over geobag apron including supply of boulders and wire mesh nets for Gumi erosion Protection works along the Brahmaputra river. (4.5 Km)

Dibrugarh Subproject

- (i) Raising, Strengthening Upgradation and Construction of Road Works for Dibrugarh Town protection (DTP) Dyke along the Brahmaputra River in Dibrugarh – 8.53 Km,
- (ii) 1.8 km of bank protection through pro-siltation measures along the town protection dykes, (Fabrication and Launching of Porcupines Lot-1, Lot 2, Lot 3 and Lot 4) and
- (iii) Construction of Revetments, Geobag Aprons for Mothola Oakland Bank Area, Dibrugarh Erosion Protection Works from Ch. 000 to ch 2400m

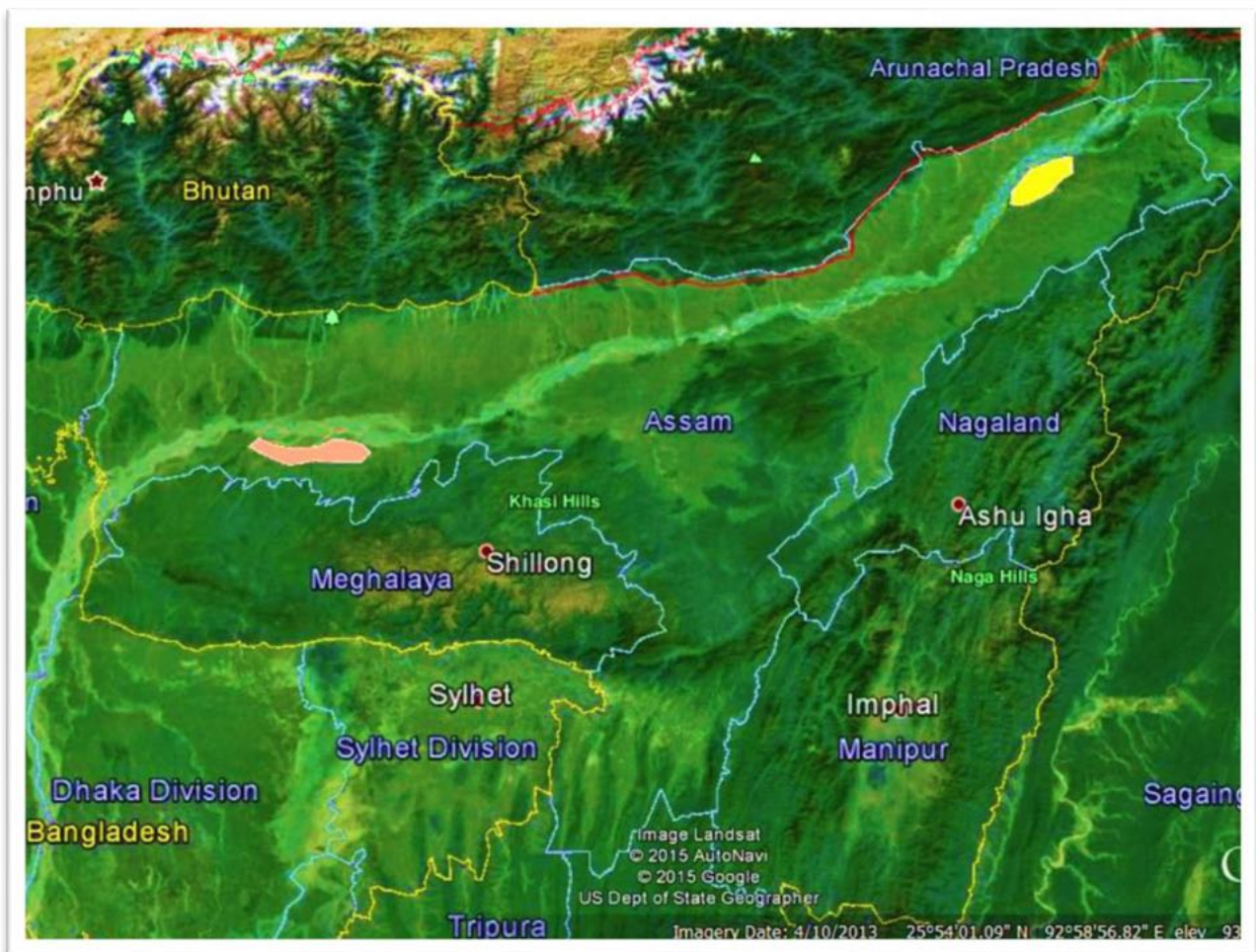
(Kaziranga Sub Project– shifted to Tranche-2)

1.1. Report Purpose :

This project at two sub project sites (Dibrugarh, Palashbari and Gumi) in Assam is implemented by FREMAA through Water Resource Department, Assam in accordance with ADB's Safeguard Policy Statement, 2009 and Ministry of Environment, Forest and Climate Change (GOI) Guidelines so as to ensure that all environmental monitoring measures and when ever applicable Environmental mitigation measures as given in Environmental Impact Assessment and subsequent Environmental Management Plans incorporating all the Environmental concerns of the project.

The principle objectives of the report are to :

- To ensure environmentally compatible project implementation by avoiding and mitigation of negative impacts that arise from the project during the period Jan to June, 2015.
- To ensure that EIA recommendations are adequately followed in EMP and EMoP to meet the Environmental Compliances of statutory requirements of MoEF&CC, GOI.



Dibrugarh sub project



Palasbari Sub Project



Project sites in Assam along the river Brahmaputra

The Bi Annual Report on the implementation of Environmental Management Plan ending June, 2015 delineates :-

- Environmental Monitoring of the project from January 2015 to June, 2015 considering the environmental activities along with environmental compliances of statutory requirements of MoEF&CC, GOI and agreement conditions.
- This report also highlights the gaps and deficiencies while executing the environmental management.

1.2. Project Implementation Progress :

Although the effectiveness of the loan started from December, 2010 and January 2011, consideration of the environment safeguard of the project started in the early part of 2013. Construction works started in February-2012 in both the subprojects of Dibrugarh and Palasbari and Gumi. Kaziranga subproject could not be started as required environmental clearance from the standing committee for National Board of Wildlife, MoEF&CC, GOI in 3rd quarter of 2014 and hence, the work shifted to tranche-2. Several meetings, trainings and workshops were conducted jointly by PMC and FREMAA with the contractors and SIO's in the month of April, 2013, May, 2014 and in subsequent months at the respective SIO office and in the site offices of the contractor for generating the awareness about the environmental safeguard and stipulations of the contract document on environment.

1.2.1. Provisions for compliance :

The AIFRERMIP aims to integrate key Environmental Safeguards at all the levels of planning and implementation so that critical natural ecosystem and the resources are not destroyed in this biodiversity hotspot. There is a need for recognition and following the compliance with national and state system and regulations on environmental standards by the contractors. Some of the specific environmental parameters are to be monitored periodically to check the compliance. This helps in maintaining environmental sustainability along with inclusive economic growth. Besides above, for achieving the compliance following specific arrangements are made in the contract.

- The Contractor shall employ one fulltime inspector for supervising compliance with the environmental management plan. The environmental inspector shall keep one set of current environmental standards and regulations at the site at all times, available for consultation. The environmental inspector shall submit an

Environmental Management Plan and a monthly environmental report. The report shall be written in English language in a format acceptable to the Engineer.

- Measures for monitoring and preventing pollution of air, water, noise, vehicle, waste.
- No part of the work shall be started before environmental and safety inspectors and first aid nurse are present at the site.
- Other measures like, Borrow pit management, maintenance of access road, compensatory afforestation, emergency response plan, etc are also under the preview of the environmental safeguard measures under the project.

2. Incorporation of Environmental Requirements into Project Contractual Agreements

Manner by which EMP requirements are incorporated into contractual arrangements, such as with contractors or other parties.

Each project requires a suite of environmental safeguards defined by impact mitigations and environmental monitoring requirements that are specific to the project type, scale, activities, and location.

The key design considerations and elements of environmental monitoring are incorporated in the contract agreement enabling with ADB's Safeguard Policies and with environmental compliances of statutory requirements of MoEF&CC, GOI.

FIDIC-BASED BID DOCUMENTS

GC 4.18 Protection of the Environment

Contractor shall protect the environment on and off site and limit damage/nuisance to public from water/soil/air pollution, noise and other adverse impacts.

Section 6, Clause 2.1 - Environment

Contractor must submit EMP for approval, employ full time environmental inspector, and submit monthly reports to Engineer and monitor impacts and the success of mitigation measures.

Section 6, Clause 2.3 – Safety Precautions & Medical Attendance

Contractor shall employ a full time safety inspector, provide safety and first aid equipment, access to nurse and doctor, etc

In terms of allowable pollutant values and occupational health and safety, the laws, standards and regulations in force in India will be the references to be adhered to by the Contractor.

Following the above clause of the ADB contract document were prepared.

- **Environmental Management Plan (EMP) Compliance as per Bid Document**

Procurement of Works, Section 6 - Employers Requirements, Subsection 2

2A. Components of Environmental Safeguards:

To look after the safeguard issues FREMAA and PMC has one unit comprising of Environmental expert, Land acquisition expert, resettlement expert and Social safeguard expert. Environmental Safeguards are against the work packages executed under the project. These are as mentioned below.

- **Compliance to Environmental Management and Environmental Monitoring**

Under each packages of works, contract documents were prepared to safeguard the environment under subsection 2 of the Section 6.

- **Environmental Management Plan and Environmental Inspector:** In that section the Contractor have to appoint one fulltime Environmental Inspector for supervising compliance with the environmental management plan. The environmental inspector have to keep one set of current environmental standards and regulations at the site at all times, available for consultation. The environmental inspector has to submit an ***Environmental Management Plan*** including the Monitoring Plan and a ***Monthly environmental report***. The report should be acceptable to the Engineer in Charge.
- Provisions were also made in the contract document that, the Contractor shall remedy any damages resulting from non-compliance of stipulations of this Sub-section 2 at his own cost. All work shall be stopped until compliance is assured.
- **Monitor Pollution and measures for prevention :** To monitor the effect of the civil work on the local environment following provisions were kept in the contract.
 - Prevention of spills of oil and lubricants from vehicles, engines, etc at work sites are required. Used engine oil must be removed in an environmentally acceptable manner in accordance with current legislation of India.
In the event of any spoil, debris, waste or any deleterious substance from the Site being deposited on any adjacent land, the Contractor shall immediately remove all such material and restore the affected area to its original state to the satisfaction of the Engineer.
 - **Measures for prevention of Air Pollution**

The Contractor shall devise and arrange methods of working to minimise dust, gaseous or other air-borne emissions and carry out the Works in such a manner as to minimise adverse impacts on air quality.

The Contractor shall utilise effective water sprays during delivery manufacture, processing and handling of materials when dust is likely to be created, and to dampen

stored materials during dry and windy weather. Stockpiles of friable materials shall be covered with clean tarpaulins, with application of sprayed water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement, except where this is contrary to the Specification.

Any vehicle with an open load-carrying area used for transporting potentially dust producing material shall have properly fitting side and tail boards. Materials having the potential to produce dust shall not be loaded to a level higher than the side and tail boards, and shall be covered with a clean tarpaulin in good condition. The tarpaulin shall be properly secured and extend at least 300 mm over the edges of the side and tail boards.

In the event that the Contractor is permitted to use gravel or earth roads for haulage, he shall provide suitable measures for dust palliation, if these are, in the opinion of the Engineer, necessary. Such measures may include spraying the road surface with water at regular intervals.

- **Measures for prevention of Noise Pollution**

The Contractor shall: consider noise as an environmental constraint in his planning and execution of the Works.

The Contractor shall take all necessary measures so that the operation of all mechanical equipment and construction processes on and off the Site shall not cause any unnecessary or excessive noise, taking into account applicable environment requirements. The Contractor shall use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimise the noise emission during construction works.

The Contractor shall avoid unnecessary noise, especially at night.

- **Measures for prevention of Water Pollution**

The Contractor shall prevent any interference with the supply to or abstraction from, and prevent any pollution of, water resources (including underground percolating water) as a result of the execution of the Works.

Areas where water is regularly or repetitively used for dust suppression purposes shall be laid to fall to specially-constructed settlement tanks to permit sedimentation of particulate matter. After settlement, the water may be re-used for dust suppression and rinsing.

All water and other liquid waste products arising on the Site shall be collected and disposed of at a location on or off the Site and in a manner that shall not cause either nuisance or pollution.

The Contractor shall not discharge or deposit any matter arising from the execution of the Works into any waters except with the permission of the Engineer and the regulatory authorities concerned.

The Contractor shall at all times ensure that all existing stream courses and drains within, and adjacent to, the Site are kept safe and free from any debris and any materials arising from the Works.

The Contractor shall protect all watercourses, waterways, ditches, canals, drains, lakes and the like from pollution as a result of the execution of the Works.

- **Measures to prevent Vehicular Pollution**

The Contractor shall regulate vehicle emission and noise in accordance with current legislation of India.

- **Control of Wastes**

The Contractor shall control the disposal of all forms of waste generated by the construction operations and in all associated activities. No uncontrolled deposit ion or dumping shall be permitted. Wastes to be so controlled shall include, but shall not be limited to, all forms of fuel and engine oils, all types of bitumen, cement, surplus aggregates, gravels, bituminous mixtures etc. The Contractor shall make specific provision for the proper disposal of these and any other waste products, conforming to local regulations and acceptable to the Engineer.

- **Land Use**

The Contractor shall remove and store topsoil for replacement after construction. The Contractor shall restore the surface vegetation in his work areas to the level found before the start of work. This includes the replacement of topsoil removed before construction.

- **Disruption of Agricultural Activities**

The Contractor shall minimize the disruption of any agricultural activities within the flood embankments. To the extent possible, land outside the flood embankments used for construction purposes shall consist of WRD property. Any disruption of private agricultural land used shall be compensated by the Contractor at the current market value.

- **Access Routes**

Roads -The Contractor shall inspect all access roads for their appropriateness for moving construction equipment or materials. Roads found inappropriate shall be strengthened by the Contractor. If the access road degrades, by more than expected normal use, due to the Contractor's activities, it will be repaired by the Contractor at his own cost.

- **Site Installations**

The Contractor must provide and maintain reasonable sanitary facilities, proper lighting and adequate protection of the Site against accidents and the like. The Contractor shall organize the disposal of wastes in an environmentally acceptable manner, in accordance with environmental standards and regulations of India.

- **Excavation and Filling of Earth for Raising and Strengthening works**

Earth excavation and filling activities shall take place after the area has been surveyed and inspected by the Engineer. The Contractor shall submit a map indicating the areas of planned earth excavation and filling activities; together with cross-sections showing earth cut and fill areas, based on the results of the baseline survey, within one week of survey completion. These earth excavation and fill volumes must be confirmed and revised during the subsequent pre-work survey, before actual excavation and filling work can proceed.

- **Borrow materials :**

Where the materials are to be obtained from designated borrow areas, the location, size and shape of these areas shall be as indicated by the Engineer and the same shall not be opened without his written permission. Where specific borrow areas are not designated by the Employer/the Engineer, arrangement for locating the source of supply of material for embankment and subgrade as well as compliance to environmental

requirements in respect of excavation and borrow areas as stipulated, from time to time by the Ministry of Environment and Forests, Government of India and the local bodies, as applicable, shall be the sole responsibility of the Contractor. Borrow pits along the road shall be discouraged. If permitted by the Engineer, these shall not be dug continuously. Ridges of not less than 8 m width should be left at intervals not exceeding 300 m. Small drains shall be cut through the ridges to facilitate drainage. The depth of the pits shall be so regulated that their bottom does not cut an imaginary line having a slope of 1 vertical to 4 horizontal projected from the edge of the final section of the bank, the maximum depth in any case being limited to 1.5 m. Also, no pit shall be dug within the offset width from the toe of the embankment required as per the consideration of stability with a minimum width of 10 m. Haulage of material to embankments or other areas of fill shall proceed only when sufficient spreading and compaction plant is operating at the place of deposition. No excavated acceptable material other than surplus to requirements of the Contract shall be removed from the site. Should the Contractor be permitted to remove acceptable material from the site to suit his operational procedure, then he shall make good any consequent deficit of material arising there from. Where the excavation reveals a combination of acceptable and unacceptable materials, the Contractor shall, unless otherwise agreed by the Engineer, carry out the excavation in such a manner that the acceptable materials are excavated separately for use in the permanent works without contamination by the unacceptable materials. The acceptable materials shall be stockpiled separately. The Contractor shall ensure that he does not adversely affect the stability of excavation or fills by the methods of stockpiling materials, use of plants or siting of temporary buildings or structures. The Contractor shall obtain representative samples from each of the identified borrow areas and have these tested at the site laboratory following a testing programme approved by the Engineer. It shall be ensured that the subgrade material when compacted to the density requirements shall yield the design CBR value of the subgrade.

- **Emergency Response**

The Contractor shall plan and provide for remedial measures to be implemented in the event of occurrence of emergencies such as spillages of oil or bitumen or chemicals.

The Contractor shall, provide the Engineer with a statement of the measures he intends to implement in the event of such an emergency which shall include a statement of how he intends to provide personnel adequately trained to implement such measures.

- **Measurement and Payment**

Protecting the Environment

The Bill of Quantities contains a separate line item to include all costs for protecting the environment. Cost for complying with all requirements related to construction of labour camps/ancillary sites, strengthening and/or repair of roads, rehabilitation of ancillary sites etc. are deemed to be included in the bill of quantities. Cost for specific activities related to the work, such as stripping and replacing top soils (agricultural soil), dust suppression, water supply, sanitation facilities, camp site waste disposal, control of pollution from leakage and spill of oils and lubricants, safety and warning signs/signals etc., should be included in this line item in the bill of quantities.

2B. Monitoring Contractors activities

The activities that may have environmental impact are to be checked periodically or by recurrent spot checks. Contractor's activities are looked after by one Environmental

Inspector for each site. In all the field visits the following activities of the contractors were checked by FREMAA officers PMC experts and by the SIOs:

- Sprinkling of water during movement of trucks
- The vehicles used during the work has due pollution control certificate
- Solid waste management in the labour camps
- Quality checks for drinking water in the camps
- Sanitary toilets in the camps
- Use of LPG gas for preparing food in the labour camps,
- Burrow pit areas
- Oil and grease spilling
- Test to check the ambient environment

2C. Tests to check the ambient environment

The following parameters are to be monitored with the frequencies described.

For Air Quality : SPM, RSPM, SO₂, NO_x, CO, Pb - With in 100 m of Hot mix plant, construction camp, crusher and near sensitive locations/ settlement –Continuous 24-hourly, twice a week, for two weeks once every year (summer).

For Dust & Smoke- Details of water sprinkling and frequency of sprinkling per day

Vehicular pollution - Emission records of vehicular pollution of all the vehicles used (updated PUC)

Surface Water - pH, BOD, COD, TDS, TSS, DO, Oil and Grease – from Brahmaputra River - Once during the dry season.

Ground water - pH, BOD,DO, total coliform, As, Cd, Mn and Ground Water levels – Construction site, Rehabilitation site, service areas, - Once at the start of construction

Noise - Noise Level in dB (A) – Near the construction sites and sensitive locations close to embankment – One day hourly measurement, once in six months

2.DEnvironmental Clearances required during Construction Stage

(this list excludes clearance from MOEF&CC for forest land diversion and areas falling under critical habitats)

Table :1

Sl. No	Description	Approval from Assam Forest Department	Approval from SIO, WRD	Approval from Pollution Control Board, Assam	Responsibility
1	Camp Site	X	√	X	Contractor
2	Borrow area for soil	√	√	√	Contractor
3	Stone from Quarry	√	X	√	Contractor
4	Borrow area for sand	√	√	X	Contractor
5	Top soil monitoring	X	√	X	Contractor
6	DG set noise and oil spill monitoring	X	X	√	Contractor
7	PUC certificate for Vehicles	X	X	√	Contractor
8	Loss of agricultural land	X	√	X	Contractor
9	Environment Monitoring	√	√	√	Contractor, SIO, FREMAA
Required		√	Not Required	X	

2.5 Compliance with Environmental Management Plan.

2.5.1: *“The Contractor shall work in strict compliance with the principles of the Environmental Management Plan. No part of the work shall be started before environmental and safety inspectors and first aid nurse are present at the site. No part of the work shall be started, or if defects are found later, continued or restarted before complying with all conditions of Sub-section 2 in this Section.”*

2.5.2 *“The Contractor shall remedy any damages resulting from non-compliance of stipulations of this Sub-section 2 at his own cost. All work shall be stopped until compliance is assured.”*

2.5.3 *“If the Contractor is not able or unwilling to start remedial work within five working days after detection of any defect or omission, the Engineer can order remedial works through third parties. The cost for third-party services are to be borne by the Contractor and shall be deducted from the Contractor’s invoices or from the Retention Money.”*

2.6 Measurement and Payment.

2.6.1 Protecting the Environment:

“The Bill of Quantities contains a separate line item to include all costs for protecting the environment. Cost for complying with all requirements related to construction of labour camps/ancillary sites, strengthening and/or repair of roads, rehabilitation of ancillary sites etc. are deemed to be included in the bill of quantities. Cost for specific activities related to the work, such as stripping and replacing top soil (agricultural soil), dust suppression, water supply, sanitation facilities, camp site waste disposal, control of pollution from leakage and spill of oils and lubricants, safety and warning signs/signals etc., should be included in this line item in the bill of quantities. Payments will be made on the basis of available market rates and prevailing schedule of rates of Government of Assam.”

3. Summary of Environmental Mitigation and Compensation Measures Implemented

Based on EMP, may include measures related to air quality, water quality, noise quality, pollution prevention, biodiversity and natural resources, health and safety, physical cultural resources, capacity building and others.

3.1. Preparation of site specific EMPs :

Following the contract stipulations Environmental Inspectors prepared the site specific EMPs following the EIA and the EMPs on DTP Dyke works, Mothola Oakland works, Porcupine liot-3 under Dibrugarh subproject, Palasbari and Gumi

work packages and was approved by the concerned SIO. EMP of Palasbari embankment is under preparation during the report period Jan-June, 2015.

Environmental Management Plan

Construction of Revetments, Geo-bag Apron, for Motholla- Oakland bank protection works along Brahmaputra River, Dibrugarh

Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program

Dibrugarh Sub Project



Contract No : AIFRERMA/DIB/M-O/CW/East of 2010/1 & AIFRERMA/DIB/M-O/BPW/East of 2011/1

Date of Commencement : **BN Garodia company Address** Date of Completion :

Environmental Management Plan

Raising, Strengthening, up-gradation and construction of road works for Dibrugarh Town Protection (DTP) dyke, Dibrugarh

Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program

Dibrugarh Sub Project



FREMAA/DIB/RSR-DTPD/East of 2013/5

Mr Jugal Kishore Mahanta
Usha Court, RG Baruah Road
Guwahati - 21

Environmental Management Plan

Fabrication and Supply of Pre Stressed Concrete Porcupines Lot-3 for use in establishment of anti erosion measures in the critical sections of River Brahmaputra in Dibrugarh district.

Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program
Dibrugarh Sub Project

AFRERM(P)/PROJ/23-2010/PI-II/202 dated 23/12/2013



:- Prepared By :-

Hemen Kumar Dutta
Nava Giri Road, 1st Bye Lane
Chandmari, Guwahati-781003

3.2. Measures taken to reduce pollution:

Several measures taken to reduce the environmental pollution, some of them are :

- **Air**
 - Spray water on dry surface to reduce dust in the air
 - Use tarpaulins to cover sand and other loose materials where transported by vehicles
 - Clean wheels and undercarriage of vehicles while leaving the site
 - Certificates on Vehicular Emission of all the vehicles used in the site
 - Checked air quality by PCB approved lab
- **Noise**
 - Plan activities in consultation with SIO, community to reduce noise level
 - Provide information to public about work schedule
 - Horns not used, unless essential
 - Minimize the noise by silencers
 - Do not allow workers to an exposure of 80 dBA or above without ear plug
 - Use of heavy vehicles during specified period of day
 - Use of Generators during specified period of day
 - Checked Noise level by PCB approved lab
- **Surface water quality**
 - Avoid stockpiling of earth fill, especially during monsoon unless covered by tarpaulin or plastic sheets
 - Install temporary silt traps or sedimentation basins along the drainage leading to water bodies
 - Store fuel and lubricants away from the drains
 - Checked surface water quality by PCB approved lab
- **Pollution**
 - Spills of oils on the site and on river regularly checked
 - Specific measures taken to remove the Used engine oils
 - Surface discharges monitored
- **Site Installations**
 - Protection of trees for their preservation
 - temporary roads were constructed
 - environmental friendly waste disposal system properly monitored and executed in the work sites
- **Labour Camps**
 - Minimize the removal of vegetation and donot allow cutting of trees
 - Provide safe drinking water to the camp inhabitants
 - Sanitation facility to the camp inhabitants
 - Solid waste management practiced in the camps
 - before vacating the camp after the work, SIO and fringe community inspect the labour camp sites

3.3. Status of the mechanisms present for the Implementation of EMP

STATUS REPORT ON IMPLEMENTATION OF EMP

Table : 1 . Status of implementation of EMP as on 30.06.15

Following the contract stipulations Compliance Inspectors in the form of Environmental Inspector were deployed by all the contractors and Safety Inspectors are also recruitment by all the contractors.

Table-3

	Sub Projects according to the contract packages	Environmental Inspector appointed	EMP prepared	EMP approved by SIO	EMoP	Safety Inspector or appointed	Monthly Environmental report	First aid Nurse engaged
1	Palasbari Apron	√ - Same Inspector for Palasbari and Gumi as the work is done by same contractor.	√- Submitted to SIO	Approval status not known	√- Submitted to SIO	√	Prepared & submitted to SIO	√ - Agreement has been made with the local Pharmacy
2	Gumi	√ - Same Inspector for Palasbari and Gumi as the work is done by same contractor.	√- submitted to SIO	√	√- submitted to SIO	X	√- submitted till May, 2015 to SIO	√- Agreement has been made with the local Pharmacy
3	Palasbari Embankment	√- Appointed	initiated	X- Not submitted	initiated	√	X- Not initiated	X- Not initiated
4	DTP Dyke	√ – Appointed	√- EMP submitted to SIO and approved by SIO	√	√- submitted to SIO	√	√- submitted. Tests carried out. (March, 2015)	√- Agreement with local nursing home
5	Mothola Oakland	√ – Appointed	√- EMP submitted to SIO	√	√- submitted to SIO	√	√- Test reports not submitted	Agreement with local nursing home
6	Porcupine Lot-3 (work completed)- EMP and reports submitted							
7	Porcupine Lot-4	Not required	X- Not initiated	X- Not initiated	X- Not initiated	Not required	X- Not initiated	Not required

As most of the contractors doing the ADB supported works for the first time, they do not have the knowledge about the safeguards requirements by the ADB. To improve the scenario following Actions were taken :

- Several meetings and training were organized (detail in QPRs and Bi annual reports) to aware the contractors on the environmental safeguard of ADB (Strategy and directions), stipulations of the contract document, testing of selected environmental parameters, national environmental standards, acts and rules of MoEF&CC, GOI and Government of Assam.
 - Helped in the preparation of EMP and EMoP,
 - Assisted in preparation of monthly environmental Reports
 - In the training workshop and in all the meetings with contractors and SIO's during field visits and review meetings it has been emphasized to carry out the required numbers of tests as per EMP.
- Moreover, special efforts has been made so that that the contractors adheres to the EMP norms.

Most of the contractors has employed Environmental Inspectors and they have submitted the Environmental Management Plans to the respective Engineers in Charge. In most of the cases the compliance were now net but are in different level of compliance (Package wise details in table-1).

Table -2: Environmental Clearances during Construction Stage

Sl. No	Description	Approval from Assam Forest Department	Approval from SIO, WRD	Approval from Pollution Control Board, Assam	Responsibility	Status
1	Camp Site	X	√	X	Contractor	Obtained
2	Borrow area for soil	√	√	√	Contractor	Obtained, by DTP dyke
3	Stone from Quarry	√	X	√	Contractor	Obtained
4	Borrow area for sand	√	√	X	Contractor	Obtained
5	Top soil monitoring	X	√	X	Contractor	Obtained
6	DG set noise and oil spill monitoring	X	X	√	Contractor	Obtained
7	PUC certificate for Vehicles	X	X	√	Contractor	Obtained
8	Loss of agricultural land	X	√	X	Contractor	Monitored
9	Environment Monitoring	√	√	√	Contractor, SIO, FREMAA	Obtained
		Required	√	Not Required	X	

4. Summary of Environmental Monitoring

4.1. Compliance Inspectors (if relevant)

Following the contract stipulations Compliance Inspectors in the form of Environmental Inspector were deployed by all contractors and Safety Inspectors were also recruited by all the contractors (detail in Table-1).

4.1.1. Summary of Inspection Activities

Environmental Inspectors monitors the day to day environmental safeguards at the site and reports to the SIO. Moreover, FREMAA along with PMC also monitors the implementation of the EMP (Table- 3).

Table 3. Showing the site inspections by FREMAA and PMC during January, 2015 to June, 2015.

Date	Site inspected, Meeting	FREMAA	PMC
12.01.2015	Meeting with villagers on the riverbank of Palasbari and Gumi on the evaluation of economic benefits of the villagers from the project with Prof. Kalyan Das of OKDISCD.	SIO,	√
13.02.2015	Meeting with WRD officers at Bokakhat regarding the effected villages and it was a part of the evaluation of economic benefits of the villagers with OKDISCD.	SIO	√
14.02.2015	Meeting with villagers on the riverbank of Dibrugarh on the evaluation of economic benefits of the villagers of with Prof. Kalyan Das.	√, SIO	√
20.02.15 to 23.02.15	SIO Dibrugarh, both Contractor's representatives, and villagers regarding implementation of EMP	√, SIO	√
21.04.15	Meeting on Implementation of EMP at Palasbari.	SIO	√

Inspection activities on Environmental Safeguards are done in several stages :

- Monthly Environmental Reporting Formats were developed at PMC to check the compliance. These reports are to be complied by the Environmental Inspector and to be submitted to the SIO for his approval (Form-1).
- Site Engineers of PMC also monitor the Environmental Safeguards (Form-2).
- SIO also monitor the implementation of EMP during their inspection (Form-3)

Form-1

Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program	
Tranche-1	Sub Project :
Contractor :	Project No : 38412
Date of Agreement :	Contract Period :
Target Date of Completion :	Extended upto :
Name of the Environmental Inspector :	Month : Year:

Monthly Environmental Report			
		Status	Remarks
	Environment		
1	Sources of materials		
1.a	Use quarry sites and sources permitted by Government		
1.b	Verify suitability and approval by SIO		
1.c	Submission of monthly documentation of all material sources		
2	Air		
2.a	Spray water on dry surface to reduce dust in the air		
2.b	Use tarpaulins to cover sand and other loose materials where transported by vehicles		
2.c	Clean wheels and undercarriage of vehicles while leaving the site		
2.d	Certificates on Vehicular Emission of all the vehicles used in the site		
2.e	Checked air quality by PCB approved lab		
3	Noise		
3.a	Plan activities in consultation with SIO, community to reduce noise level		
3.b	Provide information to public about work schedule		
3.c	Horns not used, unless essential		
3.d	Minimize the noise by silencers		
3.e	Do not allow workers to an exposure of 80 dBA or above without ear plug		
3.f	Use of heavy vehicles from to		
3.g	Use of Generators KV from to		
3.h	Checked Noise level by PCB approved lab		
4	Surface water quality		
4.a	Avoid stockpiling of earth fill, especially during monsoon unless covered by tarpaulin or plastic sheets		
4.b	Install temporary silt traps or sedimentation basins along the drainage leading to water bodies		
4.c	Store fuel and lubricants away from the drains		
4.d	Checked surface water quality by PCB approved lab		
5	Land Use		
5.a	Has the contractor preserved the top soil for replacement after construction		
5.b	Status of the surface vegetation on the construction site prior to the initiation of the work (Detail report with number of trees cut and initial photographs of the area)		
5.c	Borrow pit – Rehabilitation of the borrow pit was done		
6	Pollution		
6.a	Spills of oils on the site and on river regularly checked		
6.b	Necessary measures taken to stop it		
6.c	What measures taken to remove the Used engine oils		
6.d	Surface discharges monitored		
7	Disruption of Agricultural activities		
7.a	Any agricultural activity in the flood embankment		
7.b	Any measures taken to minimize the impact on agricultural activity in the flood embankment		
7.c	Land used outside the flood embankment belongs to WRD or private		
7.d	If private agricultural land is used proper compensation is made by the Contractor at current market value		
	Access routes (River)		
a	Whether the Navigation routs are blocked ?		
b	How interference with the riverine traffic is minimized ?		
c	All the floating equipments following navigation standards applicable in India.		

d	All the floating equipments following safety standards applicable in India.		
e	Any dredging operation done ?		
	Road		
a	All the access roads inspected for their appropriateness for moving construction equipments		
b	If found inappropriate, strengthened by Contractor		
c	Due to the movement of the heavy vehicles, the access road is degraded more than normal use		
d	Contractor repaired the degraded access road		
e	Access road for the fringe community is used / blocked and alternate route provided		
f	Conduct the work during light traffic		
	Excavation and filling of Earth in Slope Protection		
a	Whether the area has been surveyed, inspected and approved by the SIO after the identification of excavation and filling site.		
b	Whether contractor has submitted a map indicating the area of earth excavation and filling activities showing the earth cut and fill areas, based on the baseline survey.		
	Sand Excavation		
	Whether the sand excavation area was approved by the SIO in writing.		
b	Whether contractor has submitted a map indicating the area of planned sand excavation		
c	Whether the sand excavation area is close to the work site or to char inhabitants		
	Site Installations		
a	Protection of trees for their preservation		
b	Whether temporary roads were constructed ?		
c	Whether environmental friendly waste disposal system properly monitored and executed in the work sites ?		
	Labour Camps		
a	Consult SIO and fringe community for establishing the temporary office shed, camp and plant		
b	Minimize the removal of vegetation and donot allow cutting of trees		
c	Provide safe drinking water to the camp inhabitants		
d	Sanitation facility to the camp inhabitants		
e	Solid waste management practiced in the camps		
f	Report SIO and fringe community before vacating the camp after the work		
	Agricultural Land and Crop Loss		
a	Any loss or damage of agricultural land and crops due to project construction activities		
	Homestead Loss		
a	Any home stead loss (including loss of trees, ponds, shifting of any other installations)		Addressed by RAP
	Drainage from Adjacent Area		
a	Natural drainage system blocked or disrupted.		
	Wildlife		
a	Sighting of Dolphin (National Aquatic Animal)		
	Fish productivity		
a	Fish productivity increased or decreased (survey in the boat ghats)		
b	Landing facility- Change of Boat Ghats		
	Display Materials		
a	Signs like "Only Staff", "Restricted Area" displayed in relevant area		
b	Safety (including traffic signs), notice board is available		
	Health and Safety		
a	Provision of First Aid and medical service available		
<i>Provide GPS coordinates for most of the descriptions so that map can be prepared.</i>			
5	Additional comments or actions required :		
	Signature by Environmental Inspector	Accepted/ Approved by SIO	
	Date :	Date :	
	Contact Details :	Contact Details :	

Form-2

Environmental Safeguards : Monitoring at site

Location : _____ Month : _____

(Give ✓ as applicable)

	Item	Yes	No	Remarks
1	Environmental Inspector present in all the works carried out at site			
2	EMP			
3	EMoP			
4	Baseline information of environment are present at site office			
5	Relevant Acts and Rules are available at site camps			
6	Air, water and Noise standards present at site			
7a	Air water and noise test results are kept in the site office			
7b	If Yes, Name the company performing the test			
7c	Test conducted			
8	Vehicles are checked in the camp before the work			
9	Oil seepage are checked for generators and motors of boats daily			
10	Oils are stored safely (to avoid soil & water contamination)			
11	Solid waste management practiced at the site			
12	Measures taken to reduce the dust pollution			
13	Access roads and navigation routes obstructed			
14	Access road maintained by the contractor			
15	Sand collected from the chars which are not inhabited			
16	Borrow pit rehabilitation done			
17	Loss of agricultural area if any			
18	Sanitation facility at campus is adequate			
19	Quality of drinking water tested			
20	Quantity of drinking water is sufficient.			
21	Record kept for cutting of trees			
22	Sitting of dolphin, If yes give dates and mention site			
23	Register checked weekly (attendance of Environmental Inspector, PUC certificate of all the vehicles used at site)			
24	Meeting related to awareness on environmental safeguards carried out during the month			
25	Any grievances lodged / discussed during the meeting related to Environment			
26	Monthly environmental report submitted to SIO . If submitted give the date.			

Remarks:

*Take photographs of the important events with date and location,

**Mention any other measures taken to protect the environment and the people.

Date :

Signature

Form-3

SIO CHECKLIST FOR ENVIRONMENTAL SUPERVISION AND MONITORING DURING CONSTRUCTION

Contractor's Name : _____

Month : _____ Dates of Inspection : _____

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

1. Is the Environmental Management Plan being implemented during the construction phase of the river bank protection work ? Yes No
2. Environmental Inspector present during the construction work ? Yes No
3. Are there sufficient measures incorporated in the subproject to prevent water pollution of nearby water bodies ? Yes No
4. Are there adequate erosion control measures to prevent erosion and sedimentation during the riverbank protection works ? Yes No
5. Is the project taking adequate measures to control dust and noise pollution ? Yes No
6. Is the project providing adequate alternative traffic routes (diversion/temporary access roads, etc) during the riverbank protection work ? Yes No
7. Is the subproject avoiding mining of sand from locations adjacent to inhabited char land areas, where applicable ? Yes No
8. Has the contractor used permitted sites for collection of materials (Boulders, Soil, etc) Yes No
9. Has the project resolved issues related to land accusation and compensation under the RAP ? Yes No
10. Have the Labour Camps and project Site Office and storage areas been constructed with sufficient sanitation and water supply facilities and other environmental and social associates with the construction ? Yes No
11. Is the sub project taking adequate measures to avoid spills of oil/lubricants smoke and noise pollution ? Yes No
12. Is the composite generated waste / garbage being disposed in an environmentally acceptable manner ? Yes No
13. Is there sufficient safety looked after by Safety Inspector at the work place and health care facilities (First Aid Nurse, and regular visit by Physician) or clinic close by to composites ? Yes No
14. Is the construction contractor adequately prepared to handle emergency situations like accidents and illness ? Yes No
15. Is the contractor keeping the records of the trees destroyed during the construction work ? Yes No
16. Is the subproject taking adequate measures to preserve the topsoil for later replacement ? Yes No
17. Are there adequate measures to avoid disturbances to the habitat of fish and other aquatic fauna and flora ? Yes No
18. Do the vehicles used in the site has valid PUC certificates ? Yes No
19. Is there any complaints lodged by the local community on environmental issues ? Yes No
20. **Major observations, Conclusion, Recommendations :**

Contractor or his representative

Name and Signature of the Supervisor

Designation _____

Date _____

4.1.2. Mitigation Compliance :

Following measures were taken to meet the compliance.

Construction Site Set-Up

- Contractor comply with Section 6, Clause 2.4 – Site installations for construction camp, and all working and storage areas
- Safe drinking water and adequate sanitation facilities to be provided.

Waste Materials

- solid waste were either reused or recycled when practical,
- waste lubricant oils and spent oils will be stored in proper containers in a designated area until recycled or properly disposed offsite.
- general waste (metal, paper, cardboard, plastics, etc) are stored in bins and removed to suitable disposal site
- no hazardous wastes are anticipated to be generated from the site.

Niose

- Major construction activities were scheduled during normal daylight working hours and consistent with applicable standards.
- Contractor use equipment that is operated with appropriate noise muffling devices resulting in the least possible noise.

Air Quality and Emissions Management

- Most of all transport vehicles moving soil, granular material and rock to and from the site were covered
- The Contractor implement dust control measures at the source of emissions. The standard method is to wet dry surfaces, over which traffic passes; and encouraged natural re-vegetation or replant as early as practical after the completion of construction
- suitable emission controls and exhaust systems for all equipment will be maintained, and regular inspection and maintenance of trucks were conducted to control pollutants from exhaust fumes

Spills Prevention

- specific sites with barrier protection and impervious pads for fuelling and servicing were established at sites
- fuel, lubricants and chemical products were kept in special, water tight area, without drainage exit to the river; material to be kept in drums or safe tanks as per practicable
- appropriate pumps and nozzles for refueling were used. Disconnected hoses were placed in containers to prevent spills of residual fuel
- off-site spent lubricants mostly collected and safely disposed
- storm water that collects in secondary containment areas were inspected before release

		Explanatory comments
Overall Compliance	Good	<ol style="list-style-type: none"> 1. Sanitary toilets are installed in all the site camps. As most of the labours are local, sanitary toilets are not present at the temporary labour camps. Suggestions has been made to develop the facility in the labour camps particularly at the 'char areas' (Sand bars) in the next working season. 2. Safe drinking water used in all the site camps. 3. Awareness meeting has been carried out on solid waste management in all the camps 4. Generators are used during the daylight hours 5. Contractors use dust control measures 6. Soil and granular materials are mostly covered by tarpaulin during transport 7. Fuel and lubricants are kept far away from river 8. Oil checks of the vehicles and generators are done regularly 9. The environmental standards (Central Pollution Control Board, MoEF&CC, GOI) applicable for the sites are kept at the site for reference.

4.1.3. Mitigation Effectiveness

- To monitor the mitigation effectiveness the parameters mentioned in EMP were monitored.
- No complaints were lodged to SIO on environmental pollution by any of the fringe villagers, NGO's or other institutions
- Results of the ambient environmental tests were within the permissible limit of Central Pollution Control Board, MoEF&CC, GOI.
- Frequency of monitoring (particularly the Test frequency) were not as per the EMP schedule.

To monitor the mitigation effectiveness the following parameters weremonitored.

Table-4 :Mitigation Effectiveness during January to June, 2015

	Palashbari– Embankment (May, 2014)	Gumi(May- 2014)	Palashbari– Dyke (June, 2015)	Dibrugarh – DTP Dyke (March, 2015)	Dibrugarh – Mothola(Test Carried out , report not submitted)	Porcupine (Lot- 4)(Tests not carried out)
Ambient Air quality	Within the permissible limit	Within the permissible limit	Within the permissible limit	Within the permissible limit		
Surface Water Quality	Within the permissible limit	Within the permissible limit	Not done	Within the permissible limit		
Ground Water Quality	Within the permissible limit	Within the permissible limit	Test report awaited	Within the permissible limit		
Noise level	Within the permissible limit	Within the permissible limit	Within the permissible limit	Within the permissible limit		
Pollution level of the vehicles used at site	PUC certificates present	PUC certificates present	PUC certificates present	PUC certificates present	PUC certificates present	PUC not submitted
Complain lodged by the local residents on Environmental pollution by the construction activity. January to June, 2015	No complaints lodged	No complaints lodged	No complaints lodged	No complaints lodged	No complaints lodged	No complaints lodged

		Explanatory comments
Mitigation	Good	<ul style="list-style-type: none"> • No complaints were lodged to SIO on

Effectiveness		<p>environmental pollution by any of the fringe villagers, NGO's or other institutions</p> <ul style="list-style-type: none"> Results of the ambient environmental tests were within the permissible limit of Central Pollution Control Board, MoEF&CC, GOI.
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4.2. Emission Discharge (Source) Monitoring Program (if Relevant)

Not relevant to this project..

4.3. Ambient Monitoring Program (if Relevant)

To monitor the ambient environment the following parameters are to be monitored with the frequencies described in the SEIA. All the tests were performed from the Pollution Control Board, Assam and its approved labs..

- For **AirQuality** :
SPM, RSPM, SO₂, NO_x, CO, Pb - With in 100 m of Hot mix plant, construction camp, crusher and near sensitive locations/ settlement – Continuous 24- hourly, once every year (summer).
- For **Dust & Smoke** :
Details of water sprinkling and frequency of sprinkling per day
- **Vehicular pollution** :
Emission records of vehicular pollution of all the vehicles used
- **Surface Water** :
pH, BOD, COD, TDS, TSS, DO, Oil and Grease – from Brahmaputra River - Once during the dry season.
- **Ground water** :
pH, BOD,DO, total coliform, As, Cd, Mn and Ground Water levels – Construction site, Rehabilitation site, service areas, - Once at the start of construction
- **Noise** :
Noise Level in dB (A) – Near the construction sites and sensitive locations close to embankment – One day hourly measurement, once in six months

4.3.1. Summary of Monitoring

Table-5 : Ambient Environment Monitoring Plan

Attribute	Parameter	Special Guidance	Standards	Frequency	Duration	Location	Implementation
Air	SO ₂ , NO _x , SPM, RSPM, CO, Pb	High volume sampler to be located 50m from the river bank site Downwind direction. Use method specified by PCB, Assam for analysis	Air (prevention and Control of Pollution) Rules, CPCB, 2009	Six times	24 hours Sampling	Along the river bank area	Contract or
Surface Water	pH, BOD, COD, TDS, TSS, DO	Grab sample collected from source and Analyse as per Standard Methods for Examination of Water	Indian Standards for Inland Surface Waters (IS: 2296, 1982)	Two times including baseline	Grab Sampling	Along the Surface water sources	Contract or
Ground Water	pH, BOD, DO, Total Coliform, As, Cd, Mn			Two times including baseline			Contract or
Noise	Noise levels on dB (A) scale	Equivalent noise levels using an integrated noise level meter kept at a distance of 15 m from the river bank construction area.	MoEF Noise Rules, 2000	One time including baseline	Leq in dB(A) of day time and night time	Along the river bank	Contract or

4.3.3. Results

Results of the specific tests on the selected parameters (during January 2015 to June, 2015), for Air Quality, noise, surface water and ground water from Pollution

Control Board approved labs provide some indicators to compare them with the baseline information and national permissible standards. The test results of the samples collected lies within permissible limits described in the '*Environmental Standards for Ambient Air, Automobiles, Fuels, Industries and Noise, 2000*' (Central Pollution Control Board) and a minor difference between the baseline and the test results during the work being observed, this suggest that the contractor's activity has complied with the contract stipulations on protection of environment.

Table-6. Quality of ambient Air at the site during January- June, 2015

Parameter	Palashbari– Dyke, Ch 3560m (June, 2015)	Palashbari– Dyke, Ch 250m (June, 2015)	Dibrugarh- DTP Dyke (Site-A1) (March, 2015)	Dibrugarh- DTP Dyke (Site-A2) (March, 2015)
PM10	61.4	62.8	81.7	72.5
NO2	4.5	3.89	ND	ND
SO2	2.9	2.3	ND	ND
Pb	-	-	ND	ND
Weather	clear	clear	clear	clear

(Ref: Appendix-1)

Table-7. Quality of Surface Water at the site during January- December, 2014

Parameter	Dibrugarh- DTP Dyke
pH	6.7
DO mg/l	4.1
BOD mg/l	14
COD mg/l	32
TDS mg/l	813
TSS mg/l	47
Oil & Grease mg/l	<0.5

(Ref: Appendix-1)

Table-8. Quality of Ground Water at the site during January - June, 2015

Parameter	Dibrugarh-
-----------	------------

	DTP Dyke
pH	6.8
DO mg/l	4.3
BOD mg/l	0.4
COD mg/l	12
As	ND
Cd	ND
Mn	ND
Total Coliform	Absent

Table-9. Quality of Noise at the site during January- June, 2015

Parameter	Palashbari– Dyke (June, 2015) (Day Time)	Dibrugarh- DTP Dyke (Day time)	Dibrugarh- DTP Dyke (Night time)
Noise levels on dB (A) scale	46.2 – Ch 3560m	59 – Near Office	54 – Near Office
	41.9 – Ch 250m	62 – near Maijan	55 – near Maijan
		57 – 800 m upstream of Maijan	54 - – 800 m upstream of Maijan
		62 – Near Camp House	58 – Near Camp House

		Explanatory comments
Ambient Environment condition	Good	<ul style="list-style-type: none"> For those site where the tests are being conducted, the results are within the prescribed limits of the Central Pollution Control Board, MoEF&CC, GOI. As the surface water at the working site contains grease and oils below the detectable level, it indicates that the contractor is following the environmental norms prescribed to reduce water pollution. All the works are limited within daylight hours.

4.3.3. Assessment

Table-10.Comparison of ambient Air, Surface water, Ground water and Noise at the site with the baseline data and National Standards.

	Parameter	National Standard	Palashbari dyke Ch 3560m (June, 2015)	Palashbari dyke Ch 250m (June, 2015)	Dibrugarh (DTP Dyke) (Site-A1) (March, 2015)	Dibrugarh (DTP Dyke) (Site-A2) (March, 2015)
Air	PM10	100 µg/m ³	61.4	62.8	81.7	72.5
	NO2	80 µg/m ³	4.5	3.89	ND	ND
	SO2	80 µg/m ³	2.9	2.3	ND	ND
	Pb	1.00 µg/m ³	-	-	ND	ND
	Weather		clear	clear	clear	clear
Surface Water	pH	6.5-8.5			6.7	
	DO mg/l	Not less than 5mg/l			4.1	
	BOD				14	
	COD				32	
	TDS (IS 10500)				813	
	TSS				47	
	Oil & Grease				<0.5	
Ground Water	pH	6.5 - 8.5			6.8	
	DO mg/l				4.3	
	BOD	3 mg/l or less			0.4	
	As	0.05			ND	
	Cd	0.01			ND	
	Total Coliform	10 /100 ml			Absent	
Noise on dB (A) scale		75 Industrial area in daytime			59	62
		55 residential area in daytime	46.2	41.9		

		Explanatory comments
Ambient Environment condition	Good	<ul style="list-style-type: none"> Noise pollution was within the prescribed limit for rural areas under palasbari works and within the prescribed limit of Industrial areas in DTP dyke works Surface Water quality of the river in Dibrugarh was polluted because of the Dinrugarh municipality garbage dumping site within the reach of the DTP works Air quality was within the prescribed standards of residential or rural area.

5. Key Environmental Issues

5.1.1. Key Issues Identified

- Environmental Inspector was not recruited by the contractor in time.
- Preparation of EMP, EMoP, monthly environmental Reports
- Documentation of environmental safeguards.
- Contractors usually do not go through the environment section of the contract document thoroughly.
- Contractors were not aware of the tests to be conducted to know the ambient air quality, surface water quality ground water quality and noise levels.
- Frequency of the tests for ambient environment to be followed
- Contractors were also not aware of the solid waste management at worksite, Use of vehicles with PUC, etc.
- Monitoring by SIO's should be improved on safeguard issues and they must be trained on ADB's safeguard procedures

5.1.2. Action Taken

- Several meetings and training were organized (Table-3) to aware the contractors on the environmental safeguard of ADB (Strategy and directions), stipulations of the contract document, testing of selected environmental parameters, national environmental standards, acts and rules of MoEF&CC, GOI and Government of Assam.
- Helped in the preparation of EMP and EMoP,
- Assisted in preparation of monthly environmental Reports

- Check list prepared for the SIOs to check the environmental safeguards followed or not during preparation of the bills by the contractors.

5.1.3. Additional Action Required

- Constant monitoring and providing suggestions on the implementation of the EMP by FREMAA and PMC.
- Frequency of the tests to be maintained as per EMP submitted by the contractors
- Awareness on environmental safeguards – contractor, SIO and local residents / fringe communities

6. Conclusion

6.1. Overall Progress of implementation of Environmental Management Measures

		Explanatory comments
Overall Project implementation measures	Good	<ul style="list-style-type: none"> • After the training the contractors become aware about the importance of the environmental safeguards. • The contractors after few trainings developed perceptions on the National Acts and Rules and standards. • 5 contractors prepared the EMP and rest 2 are in the process of preparing the EMP. • Monthly environmental reporting on the implementation of EMP has started. 5 of the contractors in Palasbari, Gumi and Dibrugarh already prepared the Monthly Environmental Reports and are submitting regularly to SIO. • They also developed few mitigation measures like spraying or water, covering the sand and soil with tarpaulin while transport. Solid waste management at camp sites • Drinking water facility at work site or camp site

6.2. Problems Identified and Actions Recommended



Problems

- Awareness about the importance of environmental safeguards in the construction works, particularly in this part of India is very poor
- Local people have less knowledge on the environmental issues and environmental standards
- Officials of Water Resource Department do not practice the Environmental Safeguards for the projects of the State or Central Government of India, so they are not trained for such implementation of the EMP prescribed measures. Hence the implementation of the EMP were not as per the schedule including the frequency of the tests to be performed by the contractors. But at the later stages they are now following the procedures as per EMP.

Actions Recommended

- Awareness Training on Environmental Safeguards required for the contractors
- Awareness required for the implementing officers on the ADB's safeguard policy statements
 - Awareness and training required to incorporate basic ideas on current environmental safety issues and relate it with the development and economy.
 - Use of special enclosures and critical grade silencersto be used to reduce the noise level during geo bag damping.

Appendix 1 Ambient Monitoring Results(Scanned copy of the reports)

 <p>Recognized By Pollution Control Board, Assam</p>		<p>Digboi Stores Building, New Market Digboi, Assam Ph: 03751-264434, 9435008657, 8876028672 e-mail: envirocon@rediffmail.com</p>					
<p>Report No: ENV/PM/DO/Mar/A4/01/2015</p>							
<p>AMBIENT AIR QUALITY TEST RESULTS</p>							
<p>Jugal Kishore Mahanta Usha Court R. G. B Road, Guwahati-21 Assam</p>							
<p>(March 2015)</p>							
LOCATION	Date of Sampling	PM 2.5 ($\mu\text{g}/\text{m}^3$)	PM 10 ($\mu\text{g}/\text{m}^3$)	NO_x ($\mu\text{g}/\text{m}^3$)	SO_2 ($\mu\text{g}/\text{m}^3$)	CO (mg/m^3) (1 hr. limit)	Lead ($\mu\text{g}/\text{m}^3$)
LIMITS		60	100	01	80	4.0	1.0
A 1	20.03.2015	22.3	81.7	ND	ND	ND	ND
A 2	21.03.2015	17.4	72.5	ND	ND	ND	ND
<p>MD: Not Detected</p>							
<p>Report verified by: Mr. Easling Basol</p>							
<p>Location Code:</p>							
<p>A 1: Near Majnoon Ghat, A2: 800 Mtr Up Stream of Majnoon Ghat.</p>							
<p>NOTE:</p> <ol style="list-style-type: none"> 1. Results reported are valid at the time of test under the prevailing conditions of weather. 2. Results refer only to the particular parameters listed. 3. This test report shall not be reproduced (copy) in full, without the written permission of ENVIROCON, Digboi Stores Building, New Market, Digboi - 786071, Assam. 							



ENVIROCON

Recognized By

Pollution Control Board, Assam

Digboi Stores Building, New Market
Digboi, Assam
Ph. 03751-264414, 9435008667, 8876028672
e-mail: envirocon@rediffmail.com
website: www.envirocon.net.in



Report No.: ENV/IKM/DNB/Mar/Noise/01/2015

NOISE LEVEL MEASUREMENT RESULTS

Jugal Kishore Mahanta
Usha Court
R. G. B Road, Guwahati-21
Assam

(March '2015)

Noise Levels in dB (A) during day time & Night time in a normal day

Measured on 20.03.2015

Sl. No.	Location	Day Time			Night Time		
		Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)	Maximum (dB-A)	Minimum (dB-A)	L_{eq} (dB-A)
1	Near Office Area	64.1	57.3	59	55.1	52.1	54
2	Near Majoon Ghat	66.3	60.5	62	57.4	53.0	55
3	Near 800 mtr. Up Stream of Majoon Ghat	59.8	55.2	57	55.0	52.7	54
4	Near Camp House	66.2	59.7	62	60.2	55.9	58

Report prepared & verified by:


Pankaj Baroi
ENVIROCON

NOTE:

1. Results reported are valid at the time of and under the prevailing conditions of measurements.
2. Results refer only to the particular parameters tested.
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Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management jobs
Associate Services: Certification by Competent Person (ICF), NDT, Hydraulic Testing, Chartered Engineer Services etc.

AMBIENT AIR ANALYSIS REPORT

Rep.No. 150630_1503048_01_1002 ²⁴¹

Date: 30/06/2015

Name & Address:

M/s. Shree Gautam Construction Co. Ltd.

Project Name: (Construction of palasbari Embankment with black topped road and slop protection works above LWL along the Brahmaputra River), Dist: Kamrup, Assam.

SL. NO.	DATE OF SAMPLING	LOCATION/ SOURCE	WEATHER	PARAMETERS			
				PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	NO _x (µg/m ³)	SO ₂ (µg/m ³)
i)	27/06/15	Near Palasbari Ward No. 7 (Ch. 3560m)	Clear	61.4	30.7	4.5	2.9
ii)		Near Palasbari Ward No. 1 (Ch. 250m)		62.8	35.3	3.9	2.3

Remarks: Parameters are within the permissible limit.

NATIONAL AMBIENT AIR QUALITY STANDARDS:

SL.No	Pollutant	Time Weighted Average	Concentration in Ambient Air
			Industrial, Residential, Rural and Other Area
1	Sulphur Dioxide (SO ₂), µg/m ³	24 hours	80
2	Nitrogen Dioxide (NO _x), µg/m ³	24 hours	80
3	Particulate Matter (PM ₁₀), µg/m ³	24 hours	100
4	Particulate Matter (PM _{2.5}), µg/m ³	24 hours	60

Envision Enviro Technologies North East, Guwahati



Note: i) The results relate only to the parameters tested

ii) The test report shall not be reproduced except in full, without written approval of laboratory.

Page 1 of 1

House No. 6, 1st Floor, Sankardev Path, Pub-Sarania, Chandmarl, Guwahati-781003, Assam.

Phone : +91 8811096201 ♦ e-mail : envisionghy@gmail.com ♦ visit us at : www.en-vision.in

H.O.: 2nd Floor, Shri Ram Complex, Nr. Kargil Chowk, Piprod, Surat-7, Gujarat ♦ Phone : 261 2223003 ♦ e-mail : info@en-vision.in

Recognized by Pollution Control Board, Assam.

AMBIENT NOISE LEVEL MEASUREMENT REPORT

Rep No.:150630_1503048_06A_1001 ²⁴¹

Date: 30/06/2015

Name & Address:

M/s. Shree Gautam Construction Co. Ltd.

Project Name: (Construction of palasbari Embankment with black topped road and slop protection works above LWL along the Brahmaputra River), Dist: Kamrup, Assam.

SL. NO.	DATE OF SAMPLING	LOCATION /SOURCE	NOISE LEVEL in dB(A)Leq
i)	27/06/15	Near Palasbari Ward No. 7 (Ch. 3560m)	46.2
ii)		Near Palasbari Ward No. 1 (Ch. 250m)	41.9

Remarks: Noise level are carried out during day time.

Ambient Noise Standards:

Area Code	Category of area	Limits in dB(A) Leq	
		Day (6:00 am to 10:00 pm)	Night (10:00 pm to 6:00 am)
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Envision Enviro Technologies North East, Guwahati.



(Quality Control Manager)

Note: i) The results relate only to the parameters tested
ii) The test report shall not be reproduced except in full, without written approval of laboratory.

Page 1 of 2

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H.O.: 2nd Floor, Shri Ram Complex, Nr. Kargil Chowk, Piplod, Surat-7, Gujarat ♦ Phone : 261 2223003 ♦ e-mail : info@en-vision.in

Quality of Water :



envirocon
Recognized By
Pollution Control Board, Assam

Digboi Stores Building, New Market
Digboi, Assam
Ph: 03751-264414, 9435008657, 88 76029672
e-mail : envirocon@rediffmail.com
website : www.envirocon.net.in

ISO 9001 ISO 14001



ISO 9001 ISO 14001
Certified Certified

Report No.: ENV/KM/Dib/Mar/CW/01/2015

GROUND WATER ANALYSIS RESULTS

Jugal Kishore Mahanta
Usha Court
R. G. B Road, Guwahati-21
Assam

(March 2015)

Sample Type : Ground Water
Sample Source : Sample Collected from Tube Well of the Camp Site of Construction Site, (DTP)DYKE
Collected by : Collect by Client & sent to Laboratory
Collected On : 20.03.2015
Sample Received on : 20.03.2015

Sl. No.	Parameters	Results
1	pH	6.8
2	DO, (mg/l)	4.3 mg/l
3	COD, (mg/l)	12 mg/l
4	BOD, (mg/l)	04 mg/l
5	Arsenic (as As) , (mg/l)	ND
6	Cadmium (as Cd) , (mg/l)	ND
7	Manganese (as Mn) , (mg/l)	ND
8	Total Coliform, MPN/100 ml	Absent

Report Prepared & Verified by


 Pankaj Baral
 envirocon

NOTE:

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2. Results refer only to the particular parameters tested.
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Associate Services: Certification by Competent Person (CP), NDT, Hydraulic Testing, Chartered Engineer Services etc.



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Recognized By

Pollution Control Board, Assam

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website : www.envirocon.net.in



Report No: ENV/JKM/Dib/Mar/SW/01/2015

SURFACE WATER ANALYSIS RESULTS

Jugal Kishore Mahanta
Usha Court
R. G. B Road, Guwahati-21
Assam

(March 2015)

Sample Type : Surface Water
Sample Source : Sample Collected from Brahmaputra River (Dibrugarh Town Protection (DTP) DYKE), Site
Collected By : Collect by Client & sent by Laboratory
Collected On : 20.03.2015
Sample Received on : 20.03.2015

Sl. No.	Parameters	Results
1	pH	6.7
2	DO	4.1 mg/l
3	COD	32 mg/l
4	BOD	14 mg/l
5	TSS	47 mg/l
6	TDS	813 mg/l
7	Oil & Grease	<0.05 mg/l

Report Prepared & Verified by





Pankaj Baroi
ENVIROCON

NOTE:

1. Results reported are valid at the time of and under the prevailing conditions of measurement.
2. Results refer only to the particular parameters tested.
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Core Services: Environmental Monitoring & Data Generation, EIA & EMP, Environmental Audit & Allied Environmental Management Jobs
Associate Services: Certification by Competent Person (C/P), NDT, Hydraulic Testing, Chartered Engineer Services etc.

Sample PUC

POLLUTION UNDER CONTROL CERTIFICATE (Under the West Bengal Motor Vehicles Rules, 1988)						
Vehicle Registr. No.:		AS01DC2919		WB-01-A 9970104		
Date of issue:		10/Aug/2014		Valid upto: 09/Feb/2015		
	Pollution Level:					
	CO (%)					
	HC (ppm)	3.62				
	SO (HSU)					
PUC Certificate issued by:			License No. and Seal:			
TOOFANGANJ CONS. & ENGG. CO. PVT. LTD.			CBR/0052			
Signature						
			WB-01-A 9970104			
POLLUTION UNDER CONTROL CERTIFICATE (Under the Bengal Motor Vehicles Rules, 1988)						
TOOFANGANJ CONS. & ENGG. CO. PVT. LTD BAROKODALI, BOXIRHAT, COOCHBEHAR						
Label Code:	WB	License Number:	CBR/0052	Station Code:	00	
PUC Number:	WB00001974	Vehicle Type:	TRUCK			
Name:	MD ANUL HAQUE	Reg No:	AS01DC2919			
Address:	BASISTHA CHARALI	Reg Date:	2011			
	GUWAHATI	Manufacture:	TATA			
	GUWAHATI	Model:	3118			
Test Date/Time:	10/Aug/2014 01:38 PM	Odometer Rdnq:	0			
Tuning:	NO	Engine Number:	956800			
Fuel	Diesel	Chassis Number:	13037			
Free Acceleration Test Result:						
#	Min.RPM	Max.RPM	OT(°C)	HC(%)	K(m ⁻¹)	Test Result: PASS Grade: A Valid Upto: 09/Feb/2015 Test fee: Rs. 100
1	870	1890	89	3.62	0.076	
2	940	2210	89	3.52	0.080	
3	970	1950	89	3.62	0.076	
4	020	7360	89	3.72	0.089	
---	---	---	---	---	---	
---	---	---	---	---	---	
---	---	---	---	---	---	
---	---	---	---	---	---	
---	---	---	---	---	---	
	925	2102	80	3.62	0.080	
Auto Emission Testing Centre Tested by: T.O. & Engr. Co. Pvt. Ltd. VOT Certified for this purpose under the rules under 155(2) of CMV Rules, 1989 License No. 288, Guwahati & Coochbehar (For Diesel & Petrol Vehicles) Emission Test Centre Stamp						
Authorised Signatory						

PUC Valid till February, 2015 (sample)

Appendix2:

Site Inspection and Monitoring Report

24.02.2015	Meeting on Implementation of EMP by Sri Gautam Construction Company Limited at PMC. Mr. BittuChutia, Safety Inspector, SGCCL Mr. DipankarKalita, Environment Inspector, SGCCL
02.03.2015	DrDasgupta of BME regarding the environmental issues of the project and how they are addressed by the Contractors, SIO, FREMAA.
21.04.15	Meeting on Implementation of EMP at Palasbari.

MINUTES OF MEETING

Subject:	Meeting on Implementation of EMP by Sri Gautam Construction Company Limited on 24.02.15			
Meeting Time:	From: 12.10 PM	To: 13.00 PM	Date: 24.02.15	Remarks:
Meeting Venue:	PMC office			
Attendees (FREMAA):	Not planned			
Attendees (SIO):	Not Planned			
Attendees (PMC):	1. Dr. J. Das, NES			
Attendees from Contractors:	1. Mr. Bittu Chutia, Safety Inspector, SGCCL 2. Mr. Dipankar Kalita, Environment Inspector, SGCCL			

POINTS OF DISCUSSIONS :

1. Environmental Inspector :
SGCCL has appointed one full time Environmental Inspector and one Safety Inspector, but they were requested to submit his CV to the SIO for approval immediately. SGCCL to take the necessary measures on Environmental safeguards immediately and suggestions may be taken from SIO, FREMAA and PMC in this aspect.
2. Stipulation of the contract on Environmental Management Plan :
SGCCL has to submit the Environment Management Plan and Environmental Monitoring Plan for Palashbari site to the SIO for his approval, which was not done till date.
3. Monthly Environmental Reports :
Monthly Environmental Reporting should be submitted to SIO in the prescribed format monthly.
4. Environment Management related documents to be kept at the field site of SGCCL :
 - List of Documents to be kept at the field site office of the contractor.
 - Environment Management Plan (EMP),
 - Environment Monitoring Plan (EMoP),

OFFICE OF THE PROJECT MANAGEMENT CONSULTING SERVICES (PMC)
Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program
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E-mail: c.stere@nubox.co.in; s.kocwars1973@yahoo.co.in; riteshsingh@tetratech.com; sjit31oct@gmail.com

- EMP Budget,
- EMP Record keeping including photographic records with dates,
- Appointment letter of the Environmental Inspector,
- Relevant Pollution Acts and Rules applicable for the site,
- The environmental standards applicable for the site,
- Pollution Under Control (PUC) certificates for all the vehicles used at site,
- GPS coordinates and maps of
 - a. Sand excavation site,
 - b. Pollution level monitoring and testing sites,
 - c. location of Boat Ghats (original and changed if any), etc;
- Test reports of Air, Water (surface and ground), Noise,
- Test report of Drinking water of camp sites
- Burrow pit map, photographs, GPS coordinates and management plan

5. Register to check the implementation of EMP :

It was also suggest by PMC to maintain a Register at site of work to record the following related to the implementation of EMP.

- a. Location and frequency of tests done under EMoP on selected parameters
- b. Daily water sprinkling schedule to reduce dust pollution
- c. Pollution Under Control (PUC) certificates for all the vehicles used at site, records of validity
- d. Checking of leakage of fuel, lubricants / oil / grease at work site from the vehicles and instruments
- e. Works schedule (Working hours)
- f. Record of accidental contamination of water and soil
- g. Schedule of operation of generator (time of operation, power in KV, etc)
- h. Record of trees in pre construction phase and record of trees during construction – to calculate the loss of trees (wherever applicable)
- i. Details on supply of drinking water at work sites (chars, barge, etc)
- j. Public consultation – date, list of participants, issues discussed, resolutions taken
- k. Daily Attendance Register for the Environmental Inspector

PROJECT MANAGEMENT CONSULTANTS TO FLOOD AND RIVER EROSION MANAGEMENT AGENCY OF ASSAM (PREMA)
 TETRA TECH INDIA LTD, in association with VISION EIS Consulting Ltd.
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Tel: +9111-47374000 Fax: +9111-47374050 makeshkumar.goyal@tetratech.com, Robert.Devlin@tetratech.com
www.tetratechindia.com; www.visioneis.com;

ACTION ITEM SUMMARY:

No.	Discussion Point / Issue	Discussion / Action	Responsibility and Action by	Target Date
1.	Environmental Inspector	CV to be submitted to SIO	SGCC L	Within 7 days
2.	Environmental Management Plan	EMP and EMoP should be submitted to SIO and get their approval.	SGCC L	Soon (as they are newly appointed they do not have the authority)
3	Monthly Environmental Reporting on the Safeguards	Format developed by PMC were already with them as it was given to them on 12.11.14. Contractors must do the monthly reporting to SIO.	SGCC L, SIO	Immediately
4	Environment Management related documents to be kept at the field site	List above	SGCC L	Immediately
5	Register to check the implementation of EMP and the test of ambient environment	List above	SGCC L	Immediately
6	Documentation	Photographs and videos on implementation of EMP to be submitted to SIO on monthly basis	SGCC L	Immediately

MINUTES OF MEETING

Subject:	MEETING ON Environmental Safeguard as a part of CMM of the works- PALASHBARI			
Meeting Time:	From: 2.00 PM	To: 4.00 PM	Date: 21.04.15	Remarks:
Meeting Venue:	At BIL office, Palashbari			
Attendees (FREMAA):	1. Mr. B.N. Thakuria, EO (T) 2. Ms. N. Firdoushi, TO			
Attendees (SIO):	1. Mr. A. Azad, AEE 2. Mr. J. Doley, AE			
Attendees (PMC):	1. Mr. DP Jaishy, Int Const. Engineer 2. Mr. JR Chattopadhyay, Senior Engineer, PMC 3. Mr. P.M. Das, ID & IC 4. Dr. J. Das, NES 5. Mr. S.C. Dutta, Site Engineer 6. Mr. S. Khersa, Sr. Support Engineer			
Attendees from Contractors:	1. Mr. S. Baig, PM, BIL 2. Mr. A. Shakh, Site Engineer, BIL 3. Mr. H. Bhattacharjee, SGCL			

On the very onset compliance for the environmental safeguard under the contract documents and ADB's requirements were explained to the contractors in presence of the SIO's representatives by Dr. Jayanta Das, NES, PMC and Mr. DP Jaishy, International Construction Engineer, PMC. Reference of the earlier correspondence and inputs from the PMC on the above issue were also discussed. In spite of the repeated requests from PMC, FREMAA and SIO, contractors yet to develop the Environmental Safeguard Mechanism.

POINTS OF DISCUSSIONS :

1. Environmental Inspector :

There was no full time Environmental Inspector exclusively for monitoring the environmental compliance under BIL and SGCL. One person was engaged by BIL but he was never found in the site inspections. This was against the contract stipulation under section 6 and subsection 2.1.1. Environment Inspector of SGCL was supposed to come to PMC office with all related documents on Monday, 2015 but he did not come and did not inform PMC.

2. Stipulation of the contract on Environmental Management Plan :

As in the previous meetings, stipulations of the contract on environmental safeguards were again demonstrated to the contractors on preparation of Environmental Management

OFFICE OF THE PROJECT MANAGEMENT CONSULTING SERVICES (PMC)
Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program
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Tel. : +91-908 3201016 | INTL : +91-876 12 07 321 | INTL : +91-999992 12 84 | MANAGER : +91-94016 39216 | OMI :
E-mail : c.s@re@runbox.com; koc@es1973@yahoo.co.in; riteshsingh@tetratech.com; sjit31oct@gmail.com

Plan and Environmental Monitoring Plan and guidelines for preparation were provided to both the contractors. An EMP was prepared by the BIL, but the approval copy from the SIO was never received. SGCCCL has yet to develop the EMP for the work.

3. Monthly Environmental Reports :

Monthly Environmental Reporting format developed by PMC was prepared by the BIL along with the supportive documents and submitted to SIO till February, 2015. SGCCCL has yet to start the process.

ACTION ITEM SUMMARY:

No.	Discussion Point / Issue	Discussion / Action	Responsibility and Action by	Target Date
1.	Environmental Safety	Full time Environmental Inspector exclusively for this purpose will give better performance and reporting. Environmental Inspector should be present during the work and during the site inspections and attend the meetings.	BIL, SGCCCL	Immediate effect
2.	Environmental Management Plan	EMP and EMoP prepared by BIL, but not approved by SIO. SGCCCL has not started the process.	BIL, SGCCCL	Immediate effect
4	Monthly Environmental Reporting on the Safeguards	PMC developed the reporting format and also helped the contractor to demonstrate each points in the format. Documents required for the Monthly report were also explained by PMC. Reports prepared by BIL and submitted to SIO till February, 2015. SGCCCL has yet to start the process.	BIL, SGCCCL	Immediate effect

Prepared by :

Dr. Jayanta Das
National Environmental Specialist,
PMC, FREMAA

PROJECT MANAGEMENT CONSULTANTS TO FLOOD AND RIVER EROSION MANAGEMENT AGENCY OF ASSAM (FREMAA)
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www.tetratechindia.com; www.visioneis.com;

Appendix3
Monthly Environmental Reports submitted by Contractors to the SIO (1 copy)

o/c
Jugal Kishore Mahanta

Registered Contractor Class 1 (A)
Assam PWD (National Highway) • Water Resource Department, Govt. of Assam • Oil India Limited

Letter no: JKM/RSR_DTP/2014-15/104 Dated: Dibrugarh, the 7th April 2015

To
✓ The SIO cum Executive Engineer
Dibrugarh Water Resource Division
Dibrugarh

Name of Work: Raising, Strengthening, Upgradation & construction of road works for Dibrugarh
Town Protection (DTP) Dyke in Dibrugarh District.

Sub: Submission of Monthly environmental report for the month of March 2015.

Sir,
With reference to the subject cited above, I have the honour to submit the Monthly
environmental report for the month of March 2015.


Thanking you.

Yours sincerely
Ansuman Mahanta
Ansuman Mahanta
(For Jugal Kishore Mahanta)

Letter no: JKM/RSR_DTP/2014-15/105 Dated: Dibrugarh, the 7th April 2015

Copy to: Assistant Executive Engineer, Department of Water Resources, Dibrugarh.

Ansuman Mahanta
Ansuman Mahanta
(For Jugal Kishore Mahanta)

Received
7th April 2015


USHA COURT, RGB ROAD, GUWAHATI - 781 011, ASSAM, INDIA
Tel : 0361-2207344 • Fax : 0361-2418761
E-mail : jkmc@in.com • jkmsahanta@gmail.com

**Assam Integrated Flood and Riverbank Erosion Risk Management
Investment Program**

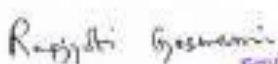
Tranche	1	Sub Project	Dibrugarh, DTP DYKE
Contractor	: Jugal Kishore Mahanta	Project No	:
Date of Agreement	: 18 /10/ 2013	Contract Period	: 18 Month
Target Date of Completion	: 17/04/2015	Extended upto	:
Name of the Environmental Inspector	: Rupjyoti Goswami	Month and Year	: March, 2015

Monthly Environmental Report

Sl.		Status	Remarks
1	Environment		
1.1	Sources of Materials		
1.1.a	Use quarry sites and sources permitted by Government	Yes.	Environmental clearance from Contingent Authority (SEIAA) [Submitted with Monthly Environmental Report, Letter no :JKM/RSR_DTP/2013-14/23]
1.1.b	Verify suitability and approval by SIO	Yes.	After joint verification with the Revenue circle office, Dib., District Forest office, Dib. And WR Division, Dib, the Borrow Pit sites are used. Copy of NOC for excavations of soil is submitted. [Monthly Environmental Report, Letter no :JKM/RSR_DTP/2013-14/23]
1.1.c	Submission of monthly documentation of all material sources.	----	
1.2	Air		
1.2.a	Spray water on dry surface to reduce dust in air.	Yes.	Photograph attached. (Monthly Environmental Report, Letter no :JKM/RSR_DTP/2013-14/45)
1.2.b	Use tarpaulins to cover sand and other loose materials where transported by vehicles.	Yes.	Photograph attached. (Monthly Environmental Report, Letter no :JKM/RSR_DTP/2013-14/45)
1.2.c	Clean wheels and undercarriage of vehicles while leaving the site.	Yes.	Photograph attached. (Monthly Environmental Report, Letter no :JKM/RSR_DTP/2013-14/45)
1.2.d	Certificates on Vehicular Emission of all the vehicles used in the site.	Yes.	PUC of vehicles submitted.
1.2.e	Checked air quality by PBC approved Lab.	Yes.	Copy of Test Report enclosed.
1.3	Noise		
1.3.a	Plan activities in consultation with SIO, community to reduce noise level.	Yes.	We try to minimize the noise level by using silencers.
1.3.b	Provide information to public about work schedule.	Yes.	
1.3.c	Horns not used, unless essential.	Yes.	
1.3.d	Minimize the noise by silencers.	Yes.	
1.3.e	Do not allow workers to an exposure of 80dBA or above without ear plug.	Yes.	No exposure of sound greater than 80dBA in the work site.

1.3.f	Use of heavy vehicles from 01/03/2015 to 31/03/2015.	Yes.	26 number of heavy vehicles like Dumper, JCB, Roller etc. are used in site this Month.
1.3.g	Use of Generators KV _____ from _____ to _____	----	No use of generator.
1.3.h	Checked Noise level by PBC approved lab.	Yes.	Copy of Test Report enclosed.
1.4	Surface water quality		
1.4.a	Avoid stockpiling of earth fill, especially during monsoon unless covered by tarpaulin or plastic sheets.	No.	Not applicable for this month.
1.4.b	Install temporary silt traps or sedimentation basins along the drainage leading to water bodies.	No.	Not applicable for this month.
1.4.c	Store fuel and lubricants away from the drains.	Yes.	
1.4.d	Checked surface water quality by PCB approved lab.	Yes.	Copy of Test Report enclosed.
1.5	Land Use		
1.5.a	Has the contractor preserved the top soil for replacement after construction?	No.	We use the top soil for leveling the low position of (country side) near embankment.
1.5.b	Status of the surface vegetation on the construction site prior to the initiation of the work (Detail report with number of trees cut and initial photographs of the area.	----	The trees falling on the crest and slope of the embankment are handed over to the forest Department.
1.5.c	Borrow pit – Rehabilitation of the borrow pit was done.	----	Borrow pit areas are private land. The owners of Land of borrow pit areas will use it for fishery purpose.
1.6	Pollution		
1.6.a	Spills of oils on the site and on river regularly checked.	Yes.	Copy of Register enclosed.
1.6.b	Necessary measures taken to stop it.	Yes.	Checked regularly.
1.6.c	What measures taken to remove the used engine oils?	----	Kept in storage (container with cover) place and send it to Contractor's special store room.
1.6.d	Surface discharges monitored.	Yes.	
1.7	Disruption of Agricultural activities		
1.7.a	Any agricultural activity in the flood embankment?	No.	No agricultural land is used for flood embankment. So it needs not any measures taken to minimize the impact on agricultural activity.
1.7.b	Any measures taken to minimize the impact on agricultural activity in the flood activity?	----	
1.7.c	Land used the flood embankment belongs to WRD or private.	----	
1.7.d	If private agricultural land is used proper compensation is made is made by the contractor at current market value.	----	
2	Access routes (River)		
2.a	Whether the Navigation routs are blocked?	----	Not Applicable
2.b	How interference with the riverine traffic is minimized?	----	Not Applicable
2.c	All the floating equipments following navigation standards application in India.	----	Not Applicable
2.d	All the floating equipments following safety standards applicable in India.	----	Not Applicable.
2.e	Any dredging operation done?	No.	

3	Road		
3.a	All the access roads inspected for their appropriateness for moving construction equipments.	Yes.	Enclosed photograph.(Monthly Environmental Report, Letter no JKM/RSR_DTP/2013-14/25)
3.b	If found inappropriate, strengthened by Contractor.	Yes.	Enclosed photograph.(Monthly Environmental Report, Letter no JKM/RSR_DTP/2013-14/23)
3.c	Due to the movement of the heavy vehicle, the access road is degraded more than normal use.	Yes.	Repaired the degraded access road regularly.
3.d	Contractor repaired the degraded access road.	Yes.	Enclosed photograph.(Monthly Environmental Report, Letter no JKM/RSR_DTP/2013-14/23)
3.e	Access road for the fringe community is used / blocked and alternate route provided.	-----	Not arise situation.
3.f	Conduct the work during light traffic.	Yes.	
4	Excavation and filling of Earth in Slope Protection		
4.a	Whether the area has been surveyed, inspected and approved by the SIO after the identification of excavation and filling site.	Yes.	
4.b	Whether the contractor has submitted a map indicating the area of earth excavation and filling activities showing the earth cut and fill areas, based on the baseline survey.	Yes.	Google map submitted. .(Monthly Environmental Report, Month- January Letter no JKM/RSR_DTP/2013-14/23)
5	Sand Excavation		
5.a	Whether the sand excavation area was approved by the SIO in writing.	-----	Not Arise.
5.b	Whether contractor has submitted a map indicating the area of planned sand excavation.	-----	
5.c	Whether the sand excavation area is close to the work site or to char inhabitants.	-----	
6	Site Installations		
6.a	Protection of trees for their preservation.	Yes.	Enclosed photograph.(Monthly Environmental Report, Letter no JKM/RSR_DTP/2013-14/24)
6.b	Whether temporary roads were constructed?	No	
6.c	Whether environmental friendly waste disposal system properly monitored and executed in the work sites?	Yes.	
7	Labour Camps		
7.a	Consult SIO and fringe community for establishing the temporary office shed, camp and plant.	Yes.	Most of the work done by Machinery and we use very small number of Labor in the worksite and they are Local so no Labor camp is required in the site.
7.b	Minimize the removal of vegetation and do not allow cutting of trees.	Yes.	
7.c	Provide safe drinking water to the camp inhabitants.	Yes.	
7.d	Sanitation facility to the camp inhabitants.	Yes.	
7.e	Solid waste management practiced in the camps.	Yes.	
7.f	Report SIO and fringe community before vacating the camp after the work.	-----	Not Arise.
8	Agricultural Land and Crop Loss		
8.a	Any loss or damage of agricultural land and crops due to project construction activities.	-----	Not Arise.

9	Homestead Loss		
9.a	Any home stead loss (including loss of trees, ponds, shifting of any other installations)	-----	Trees uprooted by Forest Department
10	Drainage from Adjacent Area		
10.a	Natural drainage system blocked or disrupted.	No.	
11	Wildlife		
11.a	Sighting of Dolphin (National Aquatic Animal)	No.	
12	Fish productivity		
12.a	Fish productivity increased or decreased (survey in the boat ghats)	----	Not affect any fish productivity.
12.b	Landing facility - Change of Boat Ghats	No	
13	Display Materials		
13.a	Sings like " Only Staff", "Restricted Area" displayed in relevant area.	Yes.	Enclosed photograph.(Monthly Environmental Report, Letter no :JKM/RSR_DTP/2013-14/27)
13.b	Safety (including traffic sings) , notice board is available.	Yes.	Enclosed photograph.(Monthly Environmental Report, Letter no :JKM/RSR_DTP/2013-14/27)
14	Health and Safety		
14.a	Provision of First Aid and medical service available.	Yes.	Enclosed copy of Medical service available
Provide GPS coordinates for most of the descriptions so that map can be prepared.			
15	Additional comments or actions required:		
Signature by Environmental Inspector		Accepted / Approved by SIO	
 Rajyoti Ghosh Environment Inspector For Jugal Kishore Narasimha Date: 06/04/2015 Contact Details: 9864897283		Date: Contact Details:	

Raising, strengthening & repair gradation and construction of Road Works for Dibrugarh Town Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh.

Jugal Kishore Mahanta

1. Environmental Inspector
2. Safety officer

[illegible]

	At site(days)	At office(days)	Leave(days)	Holiday	Total(days)
Environmental Inspector	25	4	NIL	2	31
Safety Officer	25	4	NIL	2	31

For Jungal Kachharia Panchayat
Bansbari, Panchayat, Panchajanya
Panchajanya, Panchajanya

Anish Hoyal
Signature of Project Manager

Name of Work:

Raising, strengthening & up gradation and construction of Road Works for Dibrugarh Town Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh.

Name of Contractor:

Jugal Kishore Mahanta

Water sprinkling Register

Month and Year : March, 2015

Date		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Working Days	Morning	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
	Evening	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
Raining Day																												✓				
No work																												✓				
Signature Environment Inspector		[Signature]																														

Jugal Kishore Mahanta
For Jugal Kishore Mahanta
Environment Inspector

A. L. H. H. H.
Signature of Project Manager

Name of Work:

Raising, strengthening & up gradation and construction of Road Works for Dibrugarh Town
Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh.

SUB: List of Vehicles with PUC (March, 2015)

Registration No, Vehicle type	Date of Registration	Date of Issue of last PUC	Due date	Remarks
AS23BC 1116 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1117 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1118 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1119 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1120 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1123 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1124 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1125 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1126 Dumper	16-11-2013	21/11/14	22/05/2015	
AS23BC 1127 Dumper	16-11-2013	21/11/14	22/05/2015	
Dumper AS01BC 9701	01-10-2009	18-02-2015	17-08-2015	
Dumper AS01BC 9702	01-10-2009	18-02-2015	17-08-2015	
Dumper AS01BC 9705	01-10-2009	18-02-2015	17-08-2015	
Dumper AS01BC 9707	01-10-2009	18-02-2015	17-08-2015	
Dumper AS01BC 9708	01-10-2009	18-02-2015	17-08-2015	
Dumper AS01BC 9709	01-10-2009	18-02-2014	17-08-2015	
Dumper AS01BC 9710	01-10-2009	18-02-2015	17-08-2015	
Dumper AS01BC 9711	01-10-2009	18-02-2015	17-08-2015	
Dumper AS01BC 9712	01-10-2009	18-02-2015	17-08-2015	

Rajni Goswami
Environment Inspector
For Jugal Kishore Hazarika

Name of Work:

Raising, strengthening & up gradation and construction of Road Works for Dibrugarh Town Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh.

SUB: List of Vehicles with PUC (March, 2015)

Registration No. Vehicle type	Date of Registration	Date of Issue of last PUC	Due date	Remarks
Dumper AS018C 9713	01-10-2009	18-02-2015	17-08-2015	
Water Tanker AS23D 2501	29-09-2004	18-02-2015	17-08-2015	
Water Tanker 23D 2503	29-09-2004	18-02-2015	17-08-2015	
Excavator AS23AC 5192	10-03-2011	18-02-2015	17-08-2015	
Excavator AS23AC 5193	10-03-2011	18-02-2015	17-08-2015	
Excavator AS23AC 5194	10-03-2011	18-02-2015	17-08-2015	
Excavator AS23AC 5195	10-03-2011	18-02-2015	17-08-2015	

Rupali Senapati
Environment Inspector
For Jugal Kishore Mahanta

Name of Work:

Raising, strengthening & up gradation and construction of Road Works for Dibrugarh Town Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh.

Name of Contractor:

Jugal Kishore Mahanta

Register for Leakage of fuel, lubricants and Grease

Date Vehicle	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
AS238C1116 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS238C1117 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS238C1118 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS238C1119 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS238C1120 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS238C1123 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS238C1124 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS238C1125 DUMPER	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Signature Environmental Inspector	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Month and Year: March, 2015

No. 10

Ranjit Goswami

Environment Inspector
for Jugal Kishore Mahanta

Avishkar Hyder
Signature of Project Manager

Name of Work:

Raising, strengthening & up gradation and construction of Road Works for Dibrugarh Town Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh,

Name of Contractor:

Jugal Kishore Mahanta

Register for Leakage of fuel, lubricants and Grease

Date Vehicle		Month and Year: March, 2015																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
AS23BC1126 DUMPER	✓	✓	✓	✓	H	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS23BC1127 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS01BC 9701 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS01BC 9702 DUMPER	✓	✓	✓	✓	O	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS01BC 9705 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS01BC 9707 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS01BC 9708 DUMPER	✓	✓	✓	✓	L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS01BC 9709 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AS01BC 9709 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Signature Environmental Inspector																																	

Register is maintained by
Environmental Inspector
For Jugal Kishore Mahanta

Anil K. Hazarika
Signature of Project Manager

Name of Work:

Raising, strengthening & up gradation and construction of Road Works for Dibru Gush Town Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh.

Name of Contractor:

Jugal Kishore Mahanta

Register for Leakage of fuel, Lubricants and Grease

Date		Month and Year: March, 2015																														
Vehicle	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
AS018C 9710 DUMPER	✓	✓	✓	✓	H	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AS018C 9711 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AS018C 9712 DUMPER	✓	✓	✓	✓	O	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AS018C 9713 DUMPER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AS23D 2501 WATER TANKER	✓	✓	✓	✓	L	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
AS23D 2503 WATER TANKER	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Signature Environmental Inspector	✓	✓	✓	✓	I	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Kishore Mahanta
For Jugal Kishore Mahanta
Environment Inspector

Anita Singh
Signature of Project Manager

Name of Work:

Raising, strengthening & upgradation and construction of Road Works for Dibru Gaidi Town Protection (DTP) Dyke along the Brahmaputra River in Dibrugarh.

Name of Contractor:

Jugal Kishore Mahanta

Register for Leakage of fuel, lubricants and Grease

		Month and Year : March, 2015																															
Date	Vehicle	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	ROLLER 10 Ton	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ROLLER 10 Ton	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AS23AC 5192 EXCAVATOR	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AS23AC 5193 EXCAVATOR	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AS23AC 5194 EXCAVATOR	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	AS23AC 5195 EXCAVATOR	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Signature Environmental Inspector	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

For Jugal Kishore Mahanta
Environment Inspector

Signature of Project Manager

Appendix4Photographs

	
<p>Water sprinkled over DTP Dyke to reduce dust</p>	
	
<p>DTP Dyke before grass turving</p>	<p>Grass turving, DTP Dyke in embankment slope, Dibrugarh</p>
	
<p>Access Road kept on the DTP dyke during works</p>	<p>Site developed for vehicle parking at Dibrugarh</p>



Ground Water and Surface Water Sampling at Palasbari



Dust pollution is negligible at DTP Dyke

Water sprinkling vehicle at work site, Dibrugarh



Access road prepared over DTP Dyke for garbage dumping

Temporary Labour camp on the sand, Dibrugarh



Field Visit to Dibrugarh & meeting
18.03.2015



Field Visit to Gumi & meeting 10.03.2015



Meeting with villagers at Kaziranga,
13.02.15



Meeting with villagers at Dibrugarh,
14.02.15

