



**GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH MINISTRY OF  
LOCAL GOVERNMENT, RURAL DEVELOPMENT AND COOPERATIVES LOCAL  
GOVERNMENT ENGINEERING DEPARTMENT**

**BIDDING DOCUMENTS**

**FOR**

**CONSTRUCTION OF 25 NEW MULTIPURPOSE DISASTER SHELTER  
STEEL FRAME BUILDINGS IN CHATTOGRAM DISTRICT (03-A)**

**MULTIPURPOSE DISASTER SHELTER PROJECT (MDSP)  
(IDA Credit No. 5561 BD)**

**VOLUME II OF IV (PART 2 OF 2)**

**ENVIRONMENTAL & SOCIAL MANAGEMENT/ MONITORING PLANS  
LGED/MDSP/CHI/14-15/NW-03-A**

District: Chattogram

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## 1 Introduction

This Volume II of IV (Part 2 of 2) should be read in conjunction with the Social and Environmental Specifications given in the Volume II of IV (Part 1 of 2). **Table 6-1** in this Volume shows the full list of School cum Shelter building proposed to be constructed under this Package in Chattogram district.

The project interventions under the MDSP involve social and environmental issues and impacts are relevant to construction and improvement of multipurpose disaster shelters.

While the social and environmental issues of the project are mostly construction-related, they are not expected to be irreversible or adverse, if properly monitored, managed and controlled.

In general, negative impacts arising from sub-projects may include drainage congestion, sound/ noise pollution, air pollution, water pollution, organic and construction waste (such as paint) pollution, etc. Obstructions to natural flow of drainage water due to storage of construction materials or improper dumping of waste materials causes drainage congestion. A wide range of construction activities, such as foundation piling, operation of construction equipment and generators, movement of vehicles can create air and noise pollution. Water pollution may result from discharge of waste from labor shed or site, and spills and leaks of oil, paint or chemical to water bodies such as drain, pond, khal or river. In addition, the occupational health of workers and the safety of students moving in the construction area may be at risk due to improper construction operations and/ or because proper facilities or safety gears are not provided. All construction activities will be carried out within the legally owned land premises of the host educational institutions and no involuntary acquisition of private land has been proposed. Land for alternative temporary school shed will also be arranged by the host institution and the community with assistance from the construction contractor. Any land temporarily required for construction method, will be the responsibility of the contractor(s) and managed following the project social management framework (SMF).

As such, each activity under MDSP has been socially and environmentally assessed in a baseline survey carried out at each sub-project, and site-specific management plans have been prepared following the project Environmental and Social Management Framework (ESMF).

## 2 The Environmental Management Plans (EMPs)

The General Environmental Management Plan in the **Table 8-1** of this volume includes all the environmental issues that need to be monitored and managed in general for all sub-projects. While most of these items are common to all sub-projects, some vary from site to site. Therefore, those varying items specific to each sub-project are included under separate project names in the Appendix. As such, a Sub-project Specific Environmental Management Plan for a particular site will comprise of the combination of the common items and the items specific to that site. As this package involves construction of steel structures, the General Environmental Management Plan also includes works and safeguard requirements for steel structures. It mentions about the appropriate mitigation plan against working at height (falling from heights), being hit by falling objects, steel structure collapse, handling of steel girder and column, fabrication, welding, operating power generator, etc. The site specific EMP provides a site plan with detailed information on the loading/unloading points, access to work areas and criteria for safety. Because of remoteness of the sites and difficulty in access, use of cranes may not be feasible and will need site-specific assessment. However, in case any contractor chooses to use a crane, should ensure all safety measures pertaining to crane operation are adhered to.

The contractor must ensure that at least 1 Environment, Health and Safety Officer (EHSO) is responsible for environmental, health and safety activities at each site, especially during superstructure construction, to ensure the safety during construction of steel frame building. The minimum number of full-time ESHO is 5 for the package. The minimum academic qualification of the aspirant EHSO will be a Bachelor's degree with minimum practical experience of 3 years in Health & Safety management of construction works.

The EHSO will (with the participation of other officials) conduct tasks including but not limited to:

1. Ensure first aid facilities and personal protective equipment (PPE) for workers at the sites.
2. Provide orientation to workers before start of the subproject activities.
3. Warn the workers of any imminent or deteriorating risk situation that could result in an accident, and instruct when it is safe to proceed.
4. Stop the work, if necessary safety would not be ensured.
5. Ensure special safety during elevated work platform work or near erection of steel girder, column or other member.
6. Ensure proper collection and disposal of solid wastes within the construction site.
7. Ensure proper infrastructure facilities, water supply and sanitation facilities for all workers.
8. Ensure proper housekeeping within the construction site.

The Environmental and Social Safeguard Officers (E&SO) will make an overall work program to address the above issues in relation to all the shelters under his/ her duty area, and the contractor will obtain EIC's approval for same prior to delivering the services.

The Contractor shall abide by the rules and regulations for Occupational Health and Safety as stipulated in the Labor Act-2006 and BNBC of Bangladesh in addition to the clauses for health and safety in the clauses at GCC and PCC of the bid document.

The contractor will prepare a monitoring report on environment and health-safety for each subproject every month during the construction of steel frame building.

### 3 The Social Management Plans

As shown in the General Social Management Plan in the **Table 9-1**, the main physical items to be monitored with respect to social impacts are the demolition of old buildings, erection of temporary sheds for the school classes and the impact on the playground (wherever applicable).

However, there are other soft issues, such as involvement of School Management Committees in decision-making, engaging local people (mainly females) in the work process, and empowering communities for taking up the operation and maintenance work that need to be promoted.

### 4 Social Inclusion and Gender Mainstreaming

The project requires that the site-specific designs will ensure that the vulnerable people of the communities, including the very poor women, traditional minority communities, disabled and children get access to benefits. Communities from each such group will be engaged in the project cycle from identification to design and implementation of the sub-projects, and their options will be given due consideration in order to maximize beneficiary feedback under the project. Site-specific information will be disclosed in the public domain, including the social management framework, tribal development framework and any subsequent social management, tribal development and resettlement action plans (as and when arises).

As such, site-specific measures need to be designed on:

- (i) Consultation, feedback and grievance-redress mechanisms to alert project staff about problems identified by beneficiaries, affected people, and other stakeholders inclusive of gender, age and ethnic identity;
- (ii) All-inclusive participatory planning to ensure that the project meets the needs of beneficiaries; and
- (iii) Participatory monitoring to identify and resolve problems. The project will promote School Management Committees (SMCs) as a gateway for formal involvement of the communities.

### 5 Contractor's Responsibility in Implementing Environmental and Social Management Plans

Contractor has a responsibility to conduct all his actions based on the principles of above Consultation, Participatory Planning and Participatory Monitoring, particularly to avoid environmental and social risks and minimize the adverse social and environmental impacts to the surrounding communities and the environment.

In addition, the Contractor has a responsibility to engage as many local people, particularly females, in the construction work process as possible, with a view to provide employment opportunities to locals and avoid risks of adverse impact of labor influx.

The contractor should engage his Environmental and Social Safeguard Officers (ESSO) in a systematic manner under the instructions of the EIC, to achieve best possible outcomes in all above by liaising with the communities, particularly with the School Management Committees (SMCs).

### ***5.1 Role of Environmental and Social Safeguard Officer (ESSO)***

Under the direction of the EIC, the Environmental and Social Safeguard Officer (ESSO) will (with the participation of other officials) conduct meetings, discussions and liaison work with the communities, particularly the School Management Committees, throughout the project, in order to:

- i. Initiate initial taking over the sites for development;
- ii. Locate the land areas for the temporary facilities such as site office, labor shed, latrines for male and female, disposal facilities for organic and inorganic waste, material stacking, temporary school shed, if needed, etc.;
- iii. Implement and monitor the environmental and social management plans, and health and safety activities;
- iv. Supervise and ensure that no social and environment-related problems are created during construction period. Even if at all created, he/ she will take necessary steps either to immediately mitigate them, or to facilitate them to be addressed by the Grievance Redress Mechanism;
- v. Facilitate employment opportunities to the community members, particularly females;
- vi. Build awareness among SMCs, community members and the students for creating a sense of ownership among them and adopting good operation and maintenance practices to ensure long-term sustainability of the shelters; and
- vii. Guide and supervise the Community Coordinators and monitor their activities to comply with the ESMP requirements for each site of physical works.
- viii. Facilitate handing over the completed works with proper inventories.

The Environmental and Social Safeguard Officers (ESSO) will make an overall work program including a consultation plan involving the Community Coordinators to address the above issues in relation to all the shelters under his/ her duty area, and the contractor will obtain EIC's approval for same prior to delivering the services.

The ESSOs will keep records of all the meetings held with the communities environmental and social aspects as required by the EIC with the help of the Community Coordinators.

### ***5.2 Qualifications and Experience of the Environmental and Social Safeguard Officer (ESSO)***

The minimum academic qualification of the aspirant ESSOs will be a Bachelor's degree in Civil Engineering/ Environmental Engineering/ Science with minimum experience of three years in environmental management works, or graduation in Sociology with experience of three years in social, environmental/ disaster management planning project having practical experience in the rural settings dealing with social compliance issues.

### ***5.3 Training for Environmental and Social Safeguard Officer (ESSO)***

Training on all above aspects will be given to the Environmental and Social Safeguard Officer (ESSO) by the Contractor.

### ***5.4 Number of Environmental and Social Safeguard Officer (ESSO) for the Package***

One (01) full-time ESSO covering all 25 shelters will be recruited by the Contractor for this package.

**IMPORTANT NOTE**

The Environmental and Social Safeguard Officer (ESSO) should engage himself in the consultation process with the School Management Committees and the Communities in relation to Social, Environmental, and Health and Safety concerns commencing from the time of taking over the sites and functioning through the full project implementation.

## 6 List of 25 Shelters with Locations

Table 6-1: List of 25 Shelter Locations in Chattogram District

Sl. No.	Database Unique ID	Education ID	Upazila	Disaster Shelter Name
1	CTGP29	411060803	Anowara	Mohotarpara GPS
2	CTGP3201	411060202	Anowara	12 No Purbo Boalia GPS
3	CTGP3202	411060801	Anowara	57 No Chatori GPS
4	CTGP3204	411010501	Anowara	Hazi Mir Ahmed
5	CTGP3205	411060108	Anowara	Mohadebpur GPS
6	CTGP3206	411060107	Anowara	Purbo Boirag GPS
7	CTGP65	411100403	Banshkhali	Purbo Jaldi Adrsho Gram GPS
8	CTGP 126	411010607	Banshkhali	14 No Ratarkhurdo GPS
9	CTGP138	411011307	Banshkhali	65 No Pairang GPS
10	CTGP3207	411080803	Banshkhali	115 No. Purbo Dongra Altaf Ali GPS
11	CTGP3209	411019008	Banshkhali	150 No. Hazi Kalamiya Para GPS
12	CTGP3210	411010401	Banshkhali	154 No Elisha GPS
13	CTGP3211	411010904	Banshkhali	Puichory Hafazia GPS
14	CTGP3212	411019007	Banshkhali	Purbo Puichori GPS
15	CTGP164	411070604	Boalkhali	Popadia GPS
16	CTGP3213	411070202	Boalkhali	100 No Dakshin Poschim Char Khijirpur Amin Sharif GPS
17	CTGP3301	41107070801	Boalkhali	58 No Charandwip Abbasia GPS
18	CTGP652	411051002	Patiya	Pingola Nabin GPS
19	CTGP676	11050705	Patiya	Habilashdwip GPS
20	CTGP909	411030803	Sandwip	Rahmatpur South East GPS
21	CTGP920	311020801	Sandwip	Hazi Bodiuzaman GPS
22	CTGP971	411030901	Sandwip	60 No Amirabad GPS
23	CTGP3225	411039027	Sandwip	Ali Nur GPS
24	CTGP3226	411031205	Sandwip	Purbo Mogdhara Hazi Mofijia GPS
25	CTGP3227	411039034	Sandwip	Purbo Sholoshar Fulmia GPS

## 7 District Map of Chattogram Showing 25 Shelter Locations





## 8 General Environmental Management & Monitoring Plan for all the Sub-Projects

Table 8-1: Environmental Management & Monitoring Plan (Please refer to the Individual Site-specific Environmental Items to be addressed in the Plan provided under the Appendix)

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
1.	Contractor's proposal for site specific temporary works	- Accurate/ proper implementation of EMP.	- Preparation of Work Schedule including construction and demolition plan, land development plan, construction camp with waste management & storage plan, Health and Safety Plan, plan for collection of borrow materials including top soil preservation and its management and access road. The contractor shall submit his/her Environmental Management Action Plan immediately before start of construction activities. Hard copies of All these documents shall be kept at site.	Contractor	-LGED -D&SC -SMC	- Prior to start of construction works
2.	Construction and operation of labor shed/ camp for workers	- Generation of sewage waste; - Generation of solid waste; - Water, soil, air & dust pollution/ environmental pollution	- Construction camp should be located at a site as shown in <b>Figure 1-1</b> and/ or at the site proposed by the contractor & approved by the Environmental Specialist of D&SC. - Construction of sanitary latrine/ Pit latrine with septic tank/ Ring slab system, - Erection of "no litter" sign, - Open areas/ surrounding bushes are not being used as toilet facility. - Provision of waste bins/ cans, where appropriate, - Litter is to be collected daily. - Bins and/or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas as shown in <b>Figure 1-1</b> and/ or at the site pre-approved by Environmental Specialist of D&SC. - Ring slab septic tank will be installed before starting construction works in order to provide wastes disposal facilities. - Camp and working areas are kept clean and tidy at all times. - Necessary measures shall be taken to avoid spills of substances i.e. chemical, oil, paint, etc.	Contractor	-LGED -D&SC -SMC	- Prior to start of construction works
		- Health of workers (Occupational health and safety)	- Raising awareness about hygiene practices among workers, - Environmental awareness & safety and motivational training for all staffs, - Staff must be trained up for operating equipment, - Availability and access to first-aid equipment and medical supplies. - During work ensure wearing appropriate all PPEs like Ear plug, Goggles, Wear, Show, Musk, Gloves, Helmets, Uniforms etc., - Ensure adequate supply of drinking water. - Sanitation facilities for male & female workers separately. - Health and Safety Plan covering all other items of works will be prepared by the Contractor and approved by the D&SC.	Contractor	-LGED -D&SC -SMC	As work progresses (Daily)
		- Possible development of labor camp into permanent Settlement	- Contractor to remove labor camp at the completion of contract.	Contractor	-LGED -D&SC	After completion of construction

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Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
		Outside labor force causing negative impact on health and social well-being of local people.	<ul style="list-style-type: none"> <li>- Contractor to employ local work force, where appropriate;</li> <li>- Promote health, sanitation and road safety awareness.</li> </ul>	Contractor	-LGED -D&SC -SMC	- As work progresses during construction phase (Daily)
3.	Construction Materials storage areas	<ul style="list-style-type: none"> <li>- Use of surrounding open area, playground, road side etc. for stockpiling of construction materials.</li> <li>- Creating dust/ air pollution,</li> <li>- Spillage of liquid/ hazardous substances i.e. oil, paint, chemicals, bitumen etc.</li> <li>- Risk of crime,</li> <li>- Access of students, children, animals, etc.</li> <li>- Not cleaning of construction materials storage areas after completion of construction.</li> </ul>	<ul style="list-style-type: none"> <li>- Proper stockpiling/ storage of construction materials at the site as shown in <b>Figure 1-1</b> and/ or at the site proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>- Proper covering of dust producing materials with polythene sheet,</li> <li>- Proper fencing around the storage area as shown in <b>Figure 1-1</b> in order to be secure, to minimize the risk of crime and to be safe from access by students, children, animals, etc.</li> <li>- spills/ hazardous substances should be disposed of at the site as shown in <b>Figure 1-1</b> and/ or at the site proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC to avoid soil/ water contamination.</li> <li>- Materials storage area must be cleaned after completion of construction.</li> </ul>	Contractor	-LGED -D&SC -SMC	- Prior to start of construction works, - As work progresses during construction phase (Daily)
4.	General construction works for the subproject	Drainage congestion, water logging and flooding	<ul style="list-style-type: none"> <li>- Drainage congestion and water logging problems are not found but extreme floods in past years had created water stagnant in the subproject area. As mitigation measure Plinth level of the Shelter should be higher than the highest flood water level.</li> <li>- Provision for adequate drainage facilities of storm water during construction period,</li> <li>- Provision of adequate diversion channel, if required,</li> <li>- Provision for pumping of congested water, if needed.</li> <li>- Ensure adequate monitoring of drainage effects, especially if construction works are carried out during the wet/ rainy season.</li> </ul>	Contractor	-LGED -D&SC -SMC	- During Planning/ Design phase - As work progresses (Daily)
		Air/ Dust pollution	<ul style="list-style-type: none"> <li>- Ensuring of vehicles/ equipment in well operating condition,</li> <li>- Sprinkle of water on dry surfaces/ unpaved roads, loose stockpile materials regularly to reduce dust generation,</li> <li>- Maintain adequate moisture content of soil during transportation, compaction and handling,</li> <li>- Sprinkling and covering of loose materials of stockpiles (e.g. fine aggregates),</li> <li>- Ensure use of equipment that produces dust or fine particulate matter during non-school day or period,</li> <li>- Provision of Masks for the workers and site staffs; Masks should be available in site during construction period.</li> <li>- Construction works should be scheduled considering site-specific situation to avoid disturbance to the students as much as possible.</li> </ul>	Contractor	- LGED - D&SC -SMC	- As work progresses (Daily)

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		Traffic congestion, traffic problems	Cautionary signboards like speed limit, work ongoing shall be erected in the road in front of the GPS. Special painting of road surface will be done to caution the drivers to reduce speed in front of the GPS. Signal man with flag will stand in the front road to control the traffic in rush hours, especially to ensure safe access and exit of the Contractor's own vehicles. Special precautionary measures are needed in bends and turnings of the road section. Traffic Management Plan (TMP) for the specific site to reflect the actual situation during construction period should be prepared by the contractor and approved by D&SC	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		Noise pollution, noise produced during piling works will be significant	- Use of noise suppressors, ear plug, silencer and mufflers in heavy construction equipment, - Avoid using of construction equipment producing excessive noise at school time and night. -Avoid prolonged exposure to noise (produced by equipment) by workers. - Regulate use of horns and avoid use of hydraulic horns in subproject vehicles. - Provision of Ear plugs for the workers & site staffs should be available in site during construction period. - Construction works should be scheduled before and after school hour and during holidays.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		Water & Soil pollution	3 nos. of low lying areas exist in north, west & south sides. These low lying areas are being used for fish farming, bathing, washing & domestic purposes, etc. A portion of the adjacent south side low lying area need to be filled to construct disaster shelter, Construction wastes cannot be dumped/disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 3 nos. of small & medium trees (Mehagoni, Coconut etc.), - Clearing of vegetation	- Plantation of 15 number of trees in compensating cutting down of 3 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase

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	Accidents	<ul style="list-style-type: none"> <li>- Provision of following standard safety protocol,</li> <li>- Environmental health and safety training of Upazila Engineer's &amp; Contractor's representatives,</li> <li>- Safety &amp; protection gears, first aid box etc. should be available in the site during construction period.</li> <li>- Contingency Plan including Emergency Response Plan (ERP) to meet unusual situations in the subproject implementation site will be prepared by the Contractor and approved by the D&amp;SC before the start of activities in the site.</li> </ul>	Contractor D&SC	<ul style="list-style-type: none"> <li>-LGED</li> <li>-D&amp;SC</li> <li>-SMC</li> </ul>	<ul style="list-style-type: none"> <li>- As work progresses (Daily)</li> <li>-Training should be scheduled twice, before starting construction &amp; intermittent period of construction</li> </ul>
	Spills and leaks of oil, toxic chemicals etc.	<ul style="list-style-type: none"> <li>- Good housekeeping,</li> <li>- Proper handling of lubricating oil, chemical and fuel.</li> <li>- Collection, treatment &amp; disposal of spills.</li> <li>-Spillage should be disposed of in the waste disposal area located in <b>Figure1-1</b> and/ or at the site proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC.</li> <li>- Lay out plans for fuel and hazardous materials storage areas during construction and operation phases will be prepared by the Contractor and approved by the D&amp;SC.</li> </ul>	Contractor	<ul style="list-style-type: none"> <li>- LGED</li> <li>- D&amp;SC</li> <li>-SMC</li> </ul>	As work progresses (Daily)
	Improper stockpiling of construction materials and disposal of construction wastes & debris.	<ul style="list-style-type: none"> <li>- Proper stockpiling/ storage of construction materials &amp; wastes at the site shown in <b>Figure 1-1</b> and/ or at the site proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC,</li> <li>- Proper covering of dust producing materials &amp; wastes with polythene sheet,</li> <li>- Proper fencing around the materials &amp; wastes stockpiling/ disposal area as shown in <b>Figure1-1</b>.</li> <li>- Spills/ hazardous substances should be disposed of at waste disposal area as shown in <b>Figure1-1</b> and/ or at the site proposed by the contractor &amp; approved by the Environmental Specialist of D&amp;SC to avoid environmental contamination.</li> </ul>	Contractor	<ul style="list-style-type: none"> <li>-LGED</li> <li>-D&amp;SC</li> <li>-SMC</li> </ul>	- As work progresses during construction phase (Daily)
	Construction works related fault/ Degradation of construction works quality	<ul style="list-style-type: none"> <li>- The involvement of local community e.g. local villagers, SMC chairman/ members, and School teachers, Chairman/ Members of Upazila Parishad should be ensured in order to monitor quality of construction works.</li> </ul>	Contractor	<ul style="list-style-type: none"> <li>- LGED</li> <li>- D&amp;SC</li> <li>-SMC</li> </ul>	<ul style="list-style-type: none"> <li>- Institution and/ or Committee should be established before starting construction works</li> <li>- As work progresses during construction phase (Daily)</li> </ul>
	Beneficial impact on employment generation	<ul style="list-style-type: none"> <li>- Employ local people in the subproject activities as much as possible,</li> <li>- Give priority to poor people/ women living in/around the subproject areas for the works e.g. excavation which do not require skilled manpower.</li> </ul>	Contractor	<ul style="list-style-type: none"> <li>- LGED</li> <li>- D&amp;SC</li> <li>-SMC</li> </ul>	- As work progresses during construction phase (Daily)

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5.	Excavation/ Earth work/ Piling work	Discovery of historical items and cultural remains	Stop construction works in the chance find area immediately and follow "chance find procedure" (see Annex-6 of Environmental & Social Management Frameworks, 2014 of MDSP as shown below this EMP Table).	Contractor shall inform LGED and D&SC	-LGED and D&SC with support from SMC and Contractor	When required during construction phase
6.	Working at height	-Falling from heights, being hit by falling objects, steel structure collapse, handling of steel girder and column, fabrication, welding, operating power generator, etc.	Operational Health and Safety measures as mentioned in the following international regulations: -BS EN 354:1993: Personal protective equipment against falls from a height. Lanyards; -BS EN 355:1993: Personal protective equipment against falls from a height. Energy absorbers; -BS EN 358:1993: Personal equipment for work positioning and prevention of falls from a height. Work positioning systems for eye and face protection during welding and allied processes; -BS EN 360:1993: Personal protective equipment against falls from a height. Retractable type fall arresters; -BS EN 361: 1993 Personal protective equipment against falls from a height. Full body harnesses; -BS EN 362:1993: Personal protective equipment against falls from a height; -BS EN 363:1993: Personal protective equipment against falls from a height. Fall arrest systems; -BS EN 364:1993: Personal protective equipment against falls from a height. Test methods.	Contractor	- LGED - D&SC -SMC	- As work progresses during construction phase (Daily)
7.	Quarterly Monitoring Report Preparation and Submission to World Bank	-----	-----	LGED with the help from Environment specialist of D&SC and M&E	-LGED (PMU)	Every 3 months intervals during construction phase
8.	Issues/ activities during Operation & Maintenance phase	- Water, Sanitation, Health & Safety problems of shelter user e.g. local people, children, student & teacher during disaster period.	-Proper health & safety facilities for local people, children, student & teacher -Adequate supply of drinking water & dry food. - Septic tank & soak well should be designed in such a way so that no leakage & overflow take place because of their inundation. - Use of mobile/ floating Septic tank during disaster time to avoid water/ land contamination, - Provision of medical facilities/ equipment/ medicine.	- LGED (up to subproject liability period in operation phase with help of Emergency Preparedness Committee consisting of 30 young members lead by Chairman of SMC & UDMC, and School Headmaster), -SMC -UDMC	- LGED (During operation phase) - Environmental monitoring team of D&SC (up to 5 years monitoring period in operation phase) -SMC	- Septic tank design works will need to be conducted during planning phase, - As & when required especially during disaster period,  - Every year before rainy season to reduce disaster severity/ vulnerability

Environmental and Social Management Plan, Chattogram (Steel NW-03 A)

		Post disaster impacts	<ul style="list-style-type: none"> <li>- Institutional development i.e. formation of Emergency Preparedness Committee/ Post Disaster Management Committee.</li> <li>- Post disaster management training.</li> <li>- Provision of medical facilities/ equipment/ medicine/ transport etc.,</li> <li>- Safe return facilities of shelter users,</li> <li>- Emergency transport facilities i.e. local vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>-LGED</li> <li>-SMC</li> <li>-UDMC</li> </ul>	<ul style="list-style-type: none"> <li>-LGED</li> <li>-SMC</li> <li>-UDMC</li> </ul>	<ul style="list-style-type: none"> <li>- Just after disaster</li> <li>- Every year before rainy season to reduce disaster severity/ vulnerability</li> </ul>
		Climate Change	<ul style="list-style-type: none"> <li>- Raising the plinth level of shelter to avoid inundation of shelter during design phase,</li> <li>- Proper maintenance of planted tall trees in the periphery of the cyclone shelter to reduce cyclone wind surge,</li> <li>-Coastal afforestation with local species ensuring community participation,</li> </ul>	<ul style="list-style-type: none"> <li>-Contractor</li> <li>-LGED</li> <li>-SMC</li> <li>-UDMC</li> </ul>	<ul style="list-style-type: none"> <li>- LGED</li> <li>- D&amp;SC</li> <li>-SMC</li> <li>-UDMC</li> </ul>	<ul style="list-style-type: none"> <li>- Height of shelter ground floor should be finalized during design phase</li> <li>-As &amp; when required during O&amp;M phase to reduce disaster severity/ vulnerability</li> </ul>

## **Annex 6 of ESMF: Chance Find Procedures**

(Ref: The World Bank Operational Manual, 1999 OP 4.11)

Works could impact sites of social, sacred, religious, or heritage value. "Chance find" procedures would apply when those sites are identified during the design phase or during the actual construction period and the related activity will not be eligible for financing under the project.

1. Cultural property includes monuments, structures, works of art, or sites of significant points of view, and are defined as sites and structures having archaeological, historical, architectural, or religious significance, and natural sites with cultural values. This includes cemeteries, graveyards and graves.
2. The list of negative subproject attributes which would make a subproject ineligible for support includes any activity that would adversely impact cultural property.
3. In the event of finding of properties of cultural value during construction, the following procedures for identification, protection from theft, and treatment of discovered artifacts should be followed and included in standard bidding document.
  - (a) Stop the construction activities in the area of the chance find;
  - (b) Delineate the discovered site or area;
  - (c) Secure the site to prevent any damage or loss of removable objects.
  - (d) Notify the supervisory Engineer who in turn will notify the responsible local authorities;
  - (e) Responsible local authorities and the relevant Ministry would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.
  - (f) Decisions on how to handle the finding shall be taken by the responsible authorities and the relevant Ministry. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance), conservation, restoration and salvage.
  - (g) Implementation of the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry.
  - (h) Construction work could resume only after permission is given from the responsible local authorities and the relevant Ministry concerning safeguard of the heritage.
4. These procedures must be referred to as standard provisions in construction contracts. During project supervision, the Site Engineer shall monitor the above regulations relating to the treatment of any chance find encountered.

Relevant findings will be recorded in World Bank Supervision Reports and Implementation Completion Reports will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

## 9 Social Management Plan (SMP)

The host educational institutions, commonly the Government Primary Schools (GPS) has existing class room structures and a playground. Size of the playgrounds with the GPS premises varies by GPSs including large, medium and small. Construction of new shelters are designed to avoid the playgrounds. Only in unavoidable circumstances, they are encroached marginally. In addition, the playgrounds may also be used for material staking and storage in some sites. In extreme circumstances of inadequate available land for new construction, the playgrounds are affected in such a level that the remaining ground cannot be used for existing sports activities. In such case, the SMCs are negotiated to arrange and establish alternative playgrounds.

Normally, most of these playgrounds, apart from sports activities by the school children, the local people use them for organizing/ holding community meetings, mass prayer at religious occasions (Islamic Eid festival twice a year), marriage ceremonies, cultural functions, and the like, which may also be affected. **Table 9-1** below gives potential social impacts in terms of use of playground and existing school building demolition and new building construction, including their mitigation.

Table 9-1: General Social Management Plan (SMP)

Impact	Extent of impact and affected people	Management modality
In case, the School building needs to be demolished, in that situation, class rooms will have to be shifted temporarily	Students are temporarily affected while demolition and construction works are going on	Temporary sheds will be established by the Construction Contractor before demolishing the existing premises for continued class work of the GPS.
In case, the playground is affected	Purpose of the playground is likely to be partially hampered	SMCs will arrange for compensating the partial loss through making alternate arrangement, and to this end, SMCs have given written commitment.
Dust, noise and disturbances due to construction and demolition works	Students are affected during construction and demolition works	Construction Contractor will be instructed to take necessary precautions to minimize dust, noise and disturbances
Employment opportunities for vulnerable people, particularly vulnerable women during construction of building and road	Community, particularly poor women/ widows will get opportunities for additional income	Construction Contractor will be instructed to give employment opportunity to local vulnerable people, maintain gender balance and avoid engagement of child-labor.
In case of needing additional land for constructing the Shelter	Except School-given land, no additional land is needed. Even if needed, many community people are willing to give land free of cost	SMCs will meet additional need either from own or from the community, free of cost. LGED will ensure that land required for shelter construction is available before mobilization of the contractor.



<b>Impact</b>	<b>Extent of impact and affected people</b>	<b>Management modality</b>
In case of needing necessary land for constructing temporary School Shed	Schooling activities will hamper	SMCs will meet the need either from own or from the community with active involvement of the construction contractor. In case the SMC/ community fail to arrange land, the construction contractor will rent in the land for alternating class rooms shed construction with necessary facilities. The cost will be included in the BoQ.
In case of needing necessary land for constructing the temporary Labor Shed	Shelter construction activity will hamper	The construction contractor with assistance from SMC will arrange necessary land for terms agreed with the concern land owners. The land arrangement with terms will be documented and shared with the PMU, LGED.
In case of needing additional land for constructing/ improving connecting/ approach roads	Except public land, no additional land is needed. Even if needed, many community people are willing to give land free of cost	The social leaders will meet additional need either from own or from other affordable community members, free of cost. The voluntary donation of land for road improvement will be documented in a way recognized by the court of law.
Safety measures for class works and students' movement inside the school campus	Students are affected during construction and demolition works	Construction Contractor will be instructed to take necessary precautions to ensure necessary safety measures
Safety measures to eliminate social risks, like gender, public health and labor influx	Community people and labor are affected during construction and demolition works	Construction Contractor will be instructed to take necessary precautions to ensure necessary safety measures. Each of the construction laborers will be signing the Code of Conduct (CoC) as per the ESMP requirements.
Safety and comfort ability in schooling in the Temporary School Sheds	Students and teachers feel unsafe and uncomfortable in the Sheds due to lack of/ insufficient ventilation, light and air	Construction Contractor will be instructed to build temporary sheds ensuring necessary ventilation, light and air circulation for safety and health comfort.
Operation and Maintenance of the Shelter	Community will reap the benefit of the Shelter in the long term, only if the sustainability is ensured through adopting good operation and maintenance practices.	Awareness and capacity building of the School Management Committee, community people and the students on this aspect to be carried out, by a Community Mobilization person employed by the Construction Contractor.

APPENDIX: Site-specific topo-sheet, EMP and BOQ for all  
Subprojects

**Compilation of 25 sets of site- specific documents, each set containing a  
topo sheet, a list of site-specific Environmental Management items and a  
BOQ for EMP for each Sub-project**

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Mohotarpara Govt. Primary School

School Code: 411060803

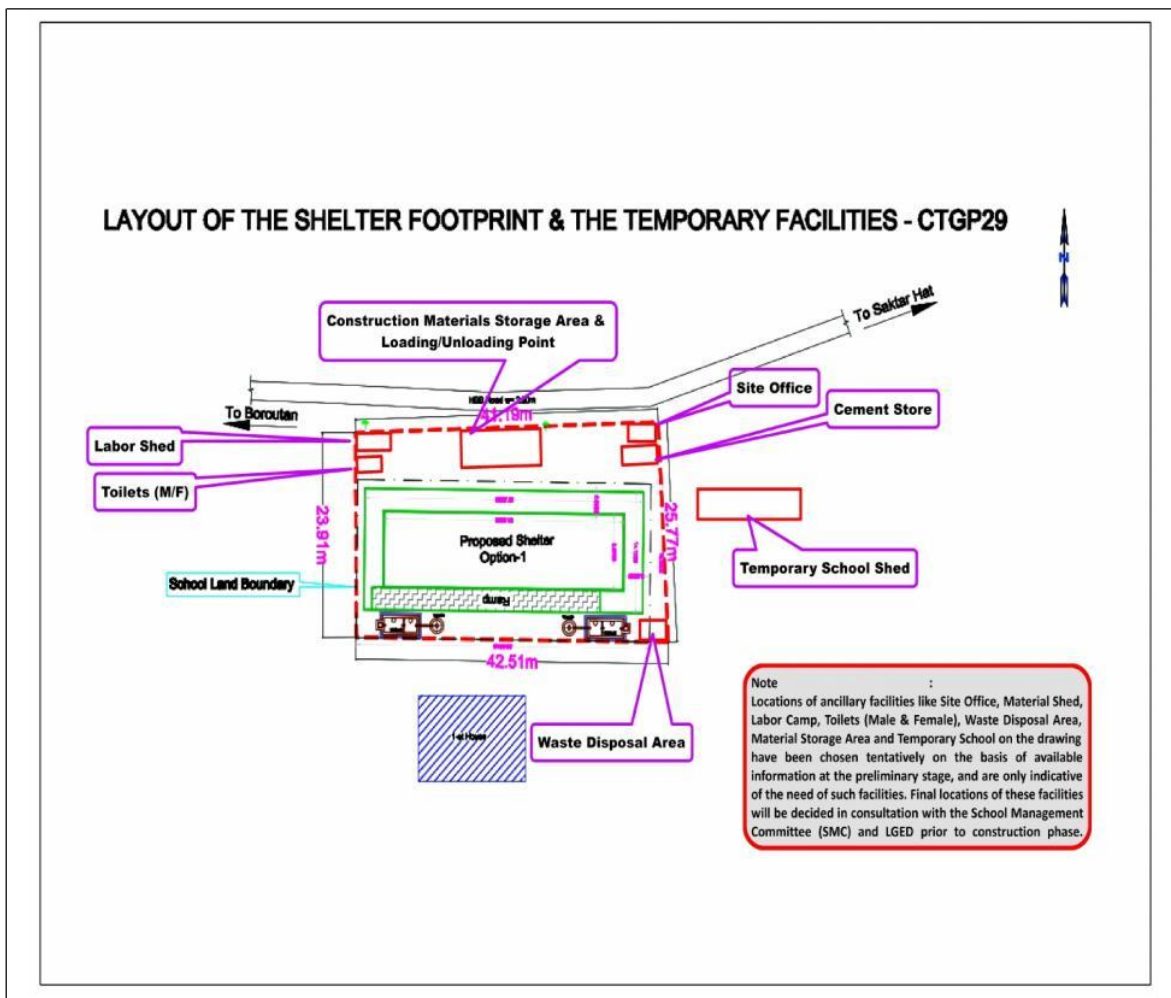
Database Unique ID: CTGP29

Village: Koyenpura Mohotarpara; Mouza: Koyenpura;

Union: Chatori; Upazila: Anowara;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in south side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of small & medium trees (Mehagoni, Coconut etc.),  - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (41 m x 8 m) = 328 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the <b>Environment &amp; Social/ Safeguard Officer</b> for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (Total 3 persons considering two persons covering 24 shelters each and the other covering 25 shelters out of 73 nos. of total new shelters).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

Sub-project: 12 No. Purbo Boalia Govt. Primary School School

Code: 411060202

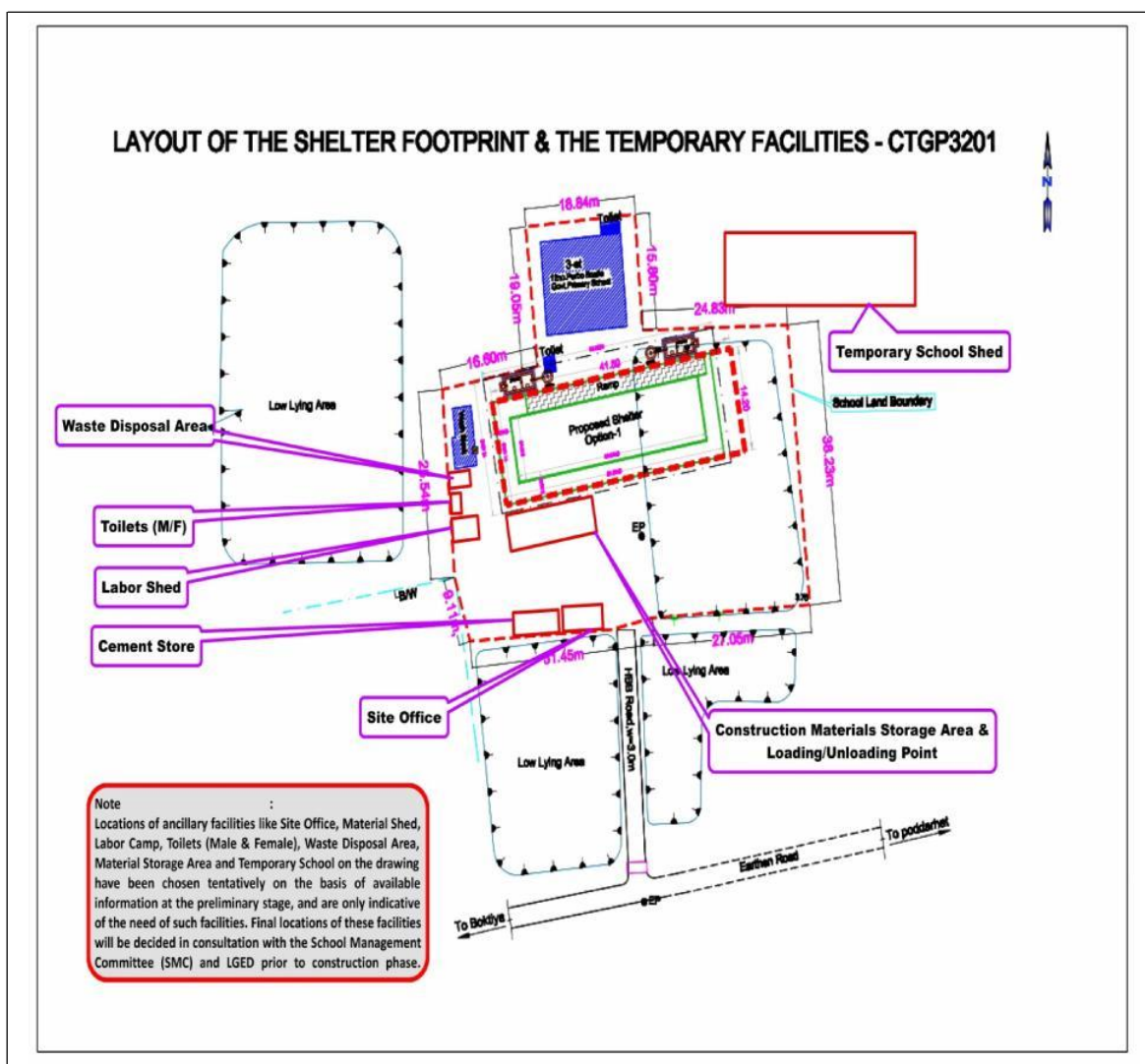
Database Unique ID: CTGP3201

Village: Boalia; Mouza: Boalia;

Union: Barasath; Upazila: Anowara;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	3 nos. of low lying areas exist in north, west & south sides. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc. A portion of the adjacent south side low lying area need to be filled to construct disaster shelter, Construction wastes cannot be dumped/disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of small & medium trees (Mehagoni, Coconut etc.),  - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (60.50 m x 38 m) = 2299 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
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	<b>Total</b>	



## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: 57 No. Chatori Govt. Primary School

School Code: 411060801

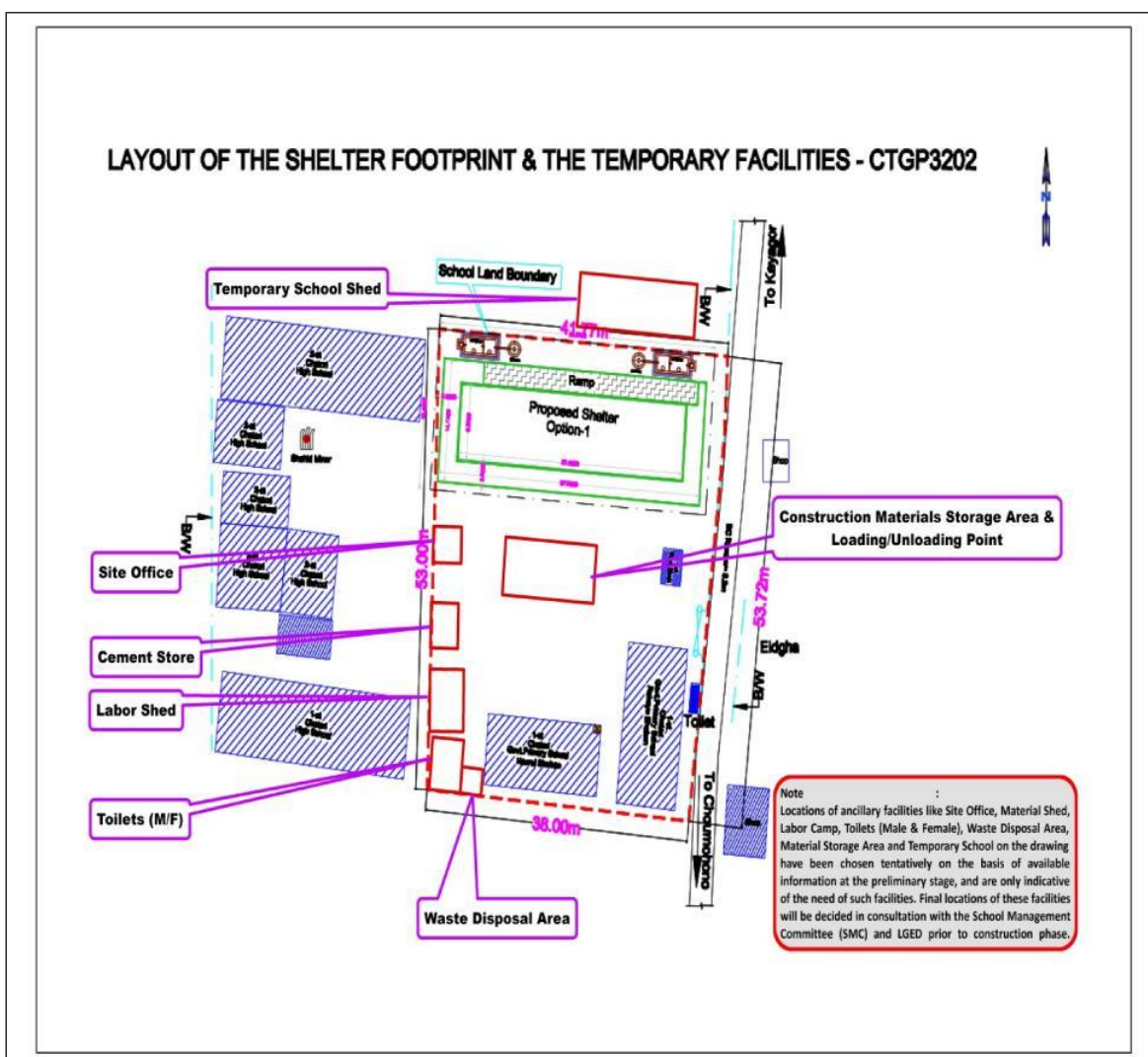
Database Unique ID: CTGP3202

Village: Chatori; Mouza: Chatori;

Union: Chatori; Upazila: Anowara;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in south side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of medium trees (Mehagoni), - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
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3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (40 m x 26 m) = 1040 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
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	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Hazi Mir Ahmed Govt. Primary School

School Code: 411010501

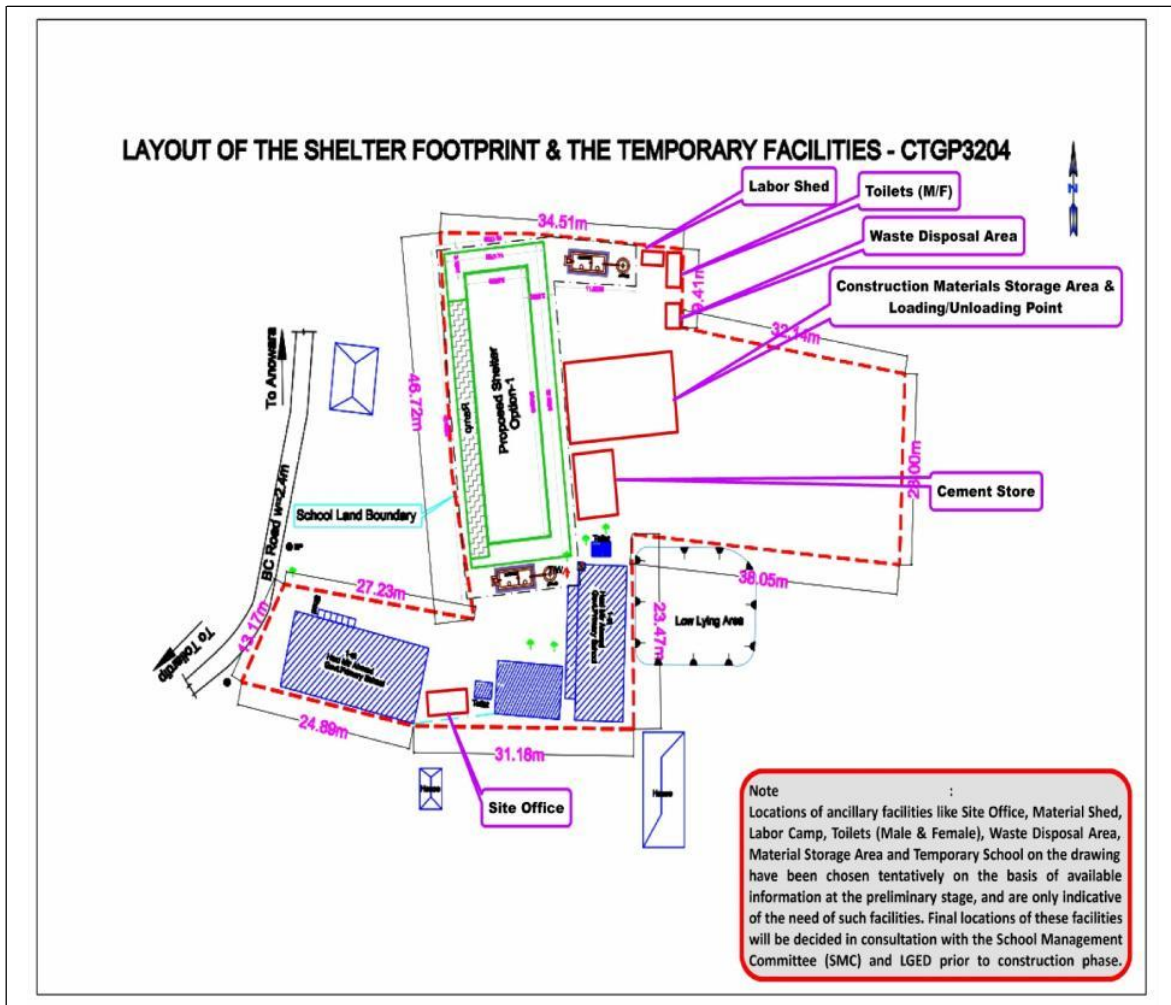
Database Unique ID: CTGP3204

Village: Barokhain; Mouza: Barokhain;

Union: Barokhain; Upazila: Anowara;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
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3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (60 m x 25 m) = 1500 square meter.	
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5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Mohadebpur Govt. Primary School

School Code: 411060108

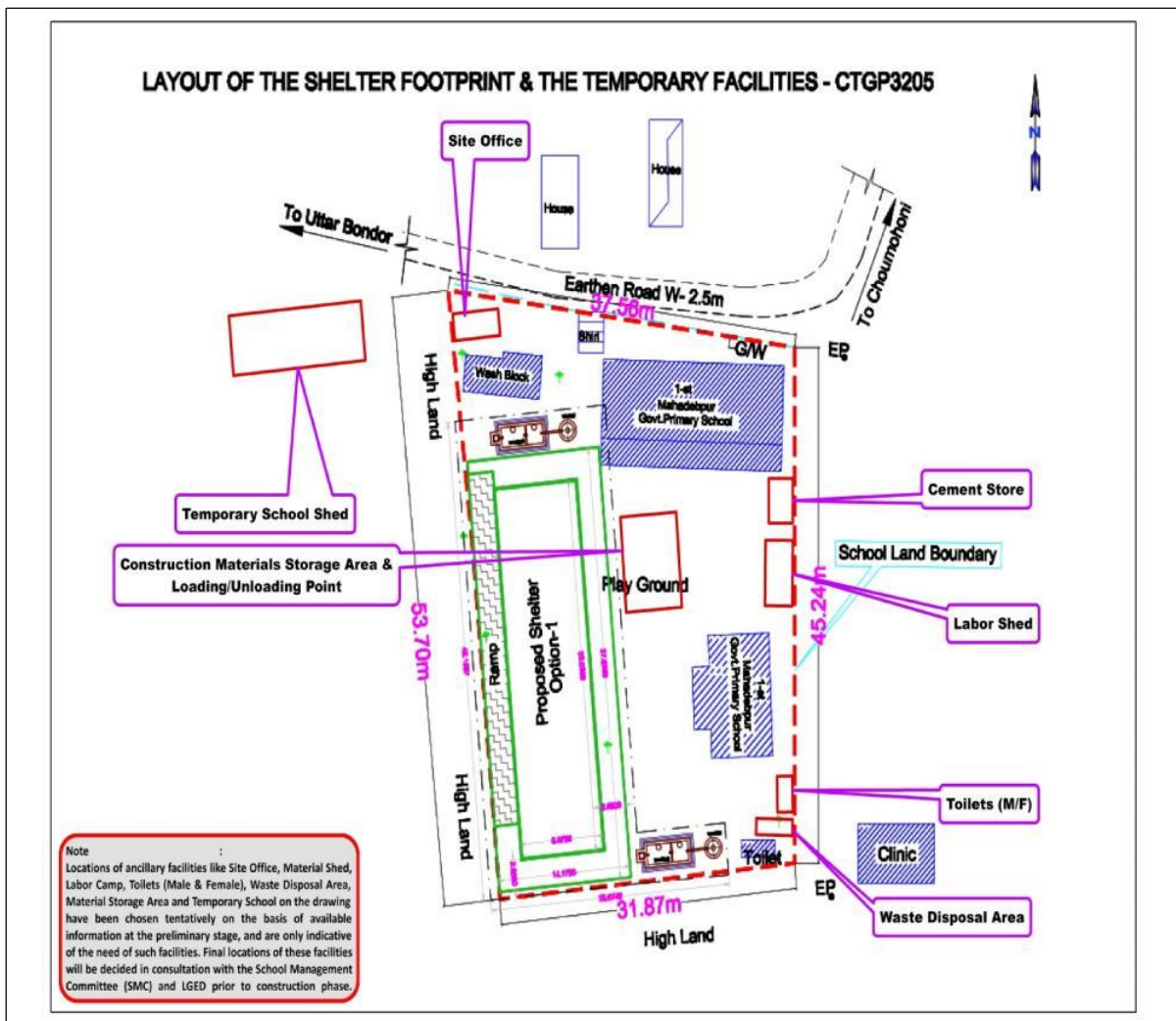
Database Unique ID: CTGP3205

Village: Boirag; Mouza: Boirag;

Union: Boirag; Upazila: Anowara;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	2 nos. of low lying areas exist in north & east sides. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of small & medium trees (Mehagoni, Coconut etc.),  - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						



## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (19 m x 15 m) = 285 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Purbo Boirag Govt. Primary School

School Code: 411060107

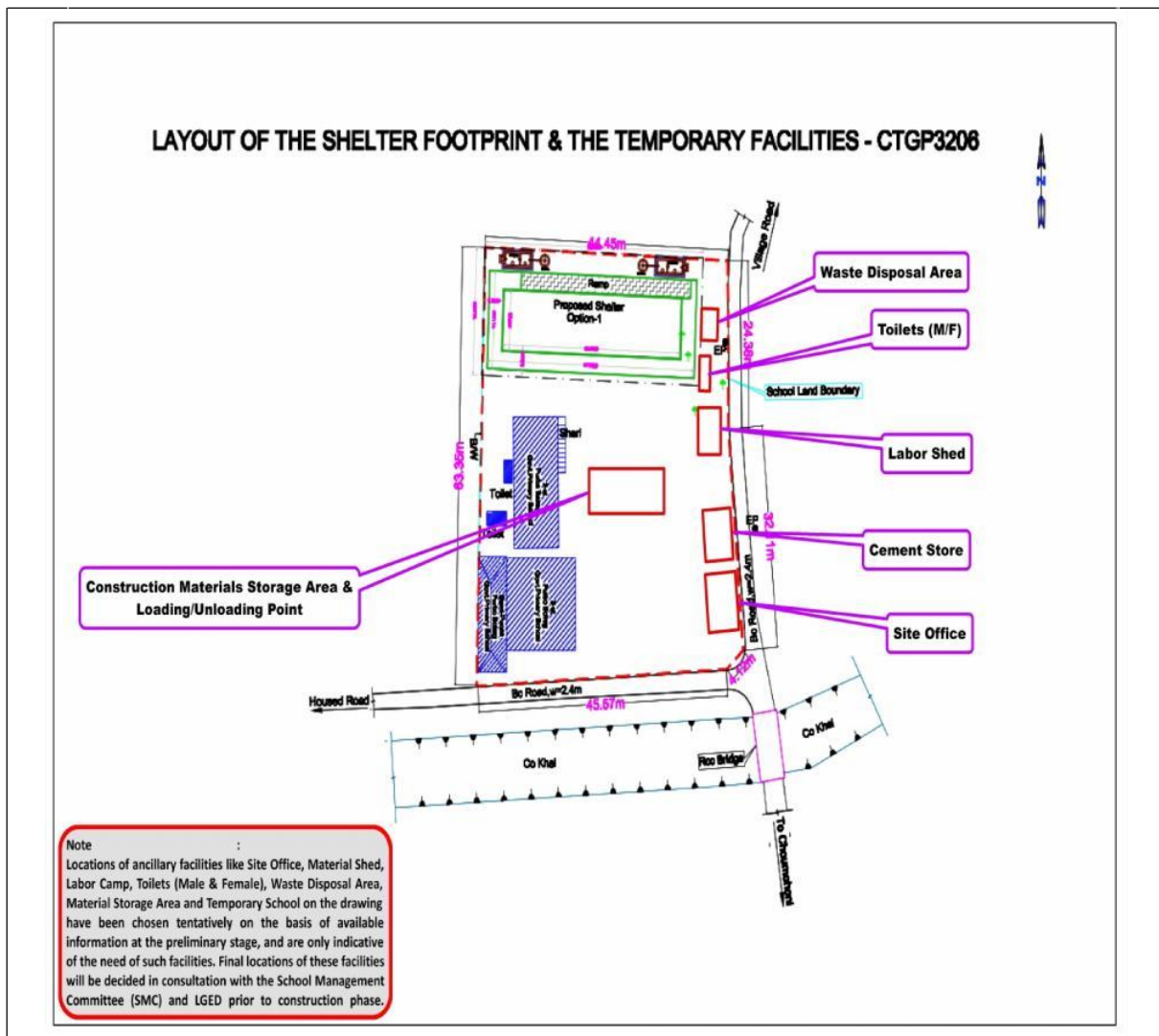
Database Unique ID: CTGP3206

Village: Purbo Boirag; Mouza: Boirag;

Union: Boirag; Upazila: Anowara;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	3 nos. of low lying areas exist in north, west & south sides. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc. A portion of the adjacent south side low lying area need to be filled to construct disaster shelter, Construction wastes cannot be dumped/disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 4 nos. of medium trees (Mehagoni), - Clearing of vegetation	- Plantation of 20 numbers of trees in compensating cutting down of 4 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (42 m x 30 m) = 1260 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 20 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Purbo Jaldi Adrsho Gram Govt. Primary School

School Code: 411100403

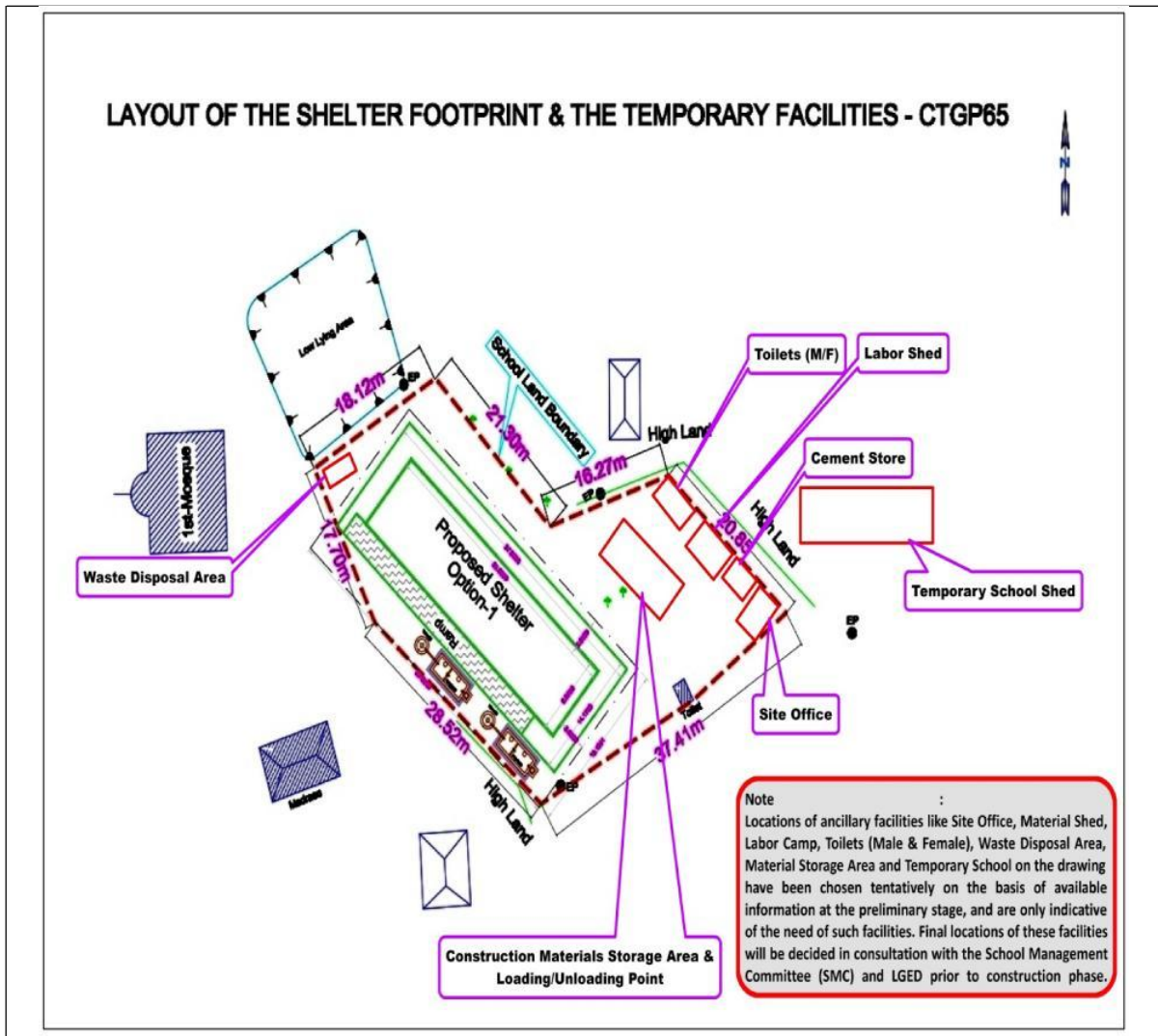
Database Unique ID: CTGP65

Village: Dakkhin Jaldi; Mouza: Jangal Jaldi;

Union: Pourashava; Upazila: Banshkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in north side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED  - D&SC  -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of medium trees (Mehagoni),  - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED  -D&SC  -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED  -D&SC  -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (23 m x 18 m) = 414 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

Sub-project: 14 No. Ratarkhurdo Govt. Primary School School

Code: 411010607

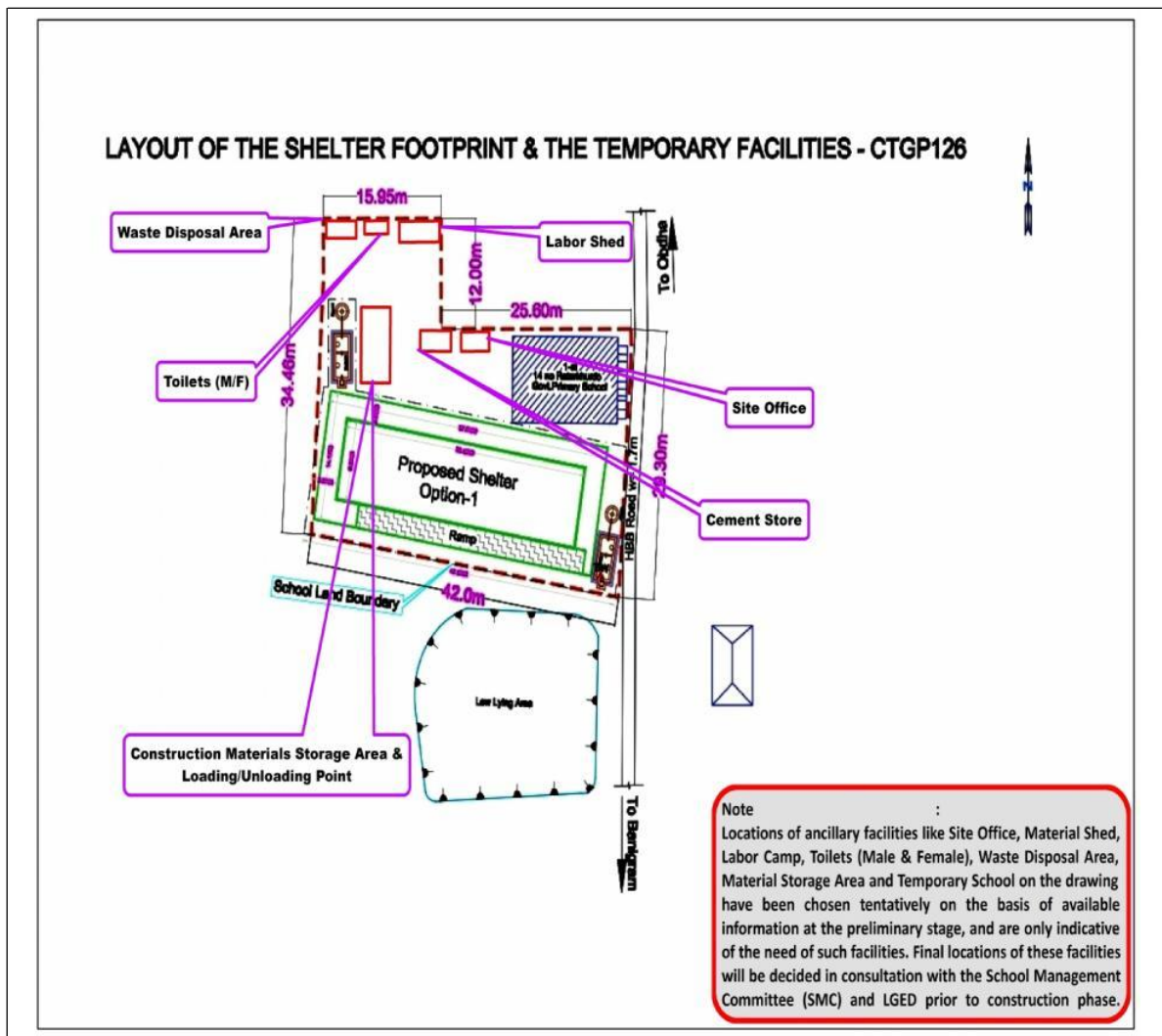
Database Unique ID: CTGP126

Village: Rata; Mouza: Rata;

Union: Sadhanpur; Upazila: Banshkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)



**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in south side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED  - D&SC  -SMC	As work progresses (Daily)
		- Cutting down of 1 no. of small & medium tree (Mehagoni),  - Clearing of vegetation	- Plantation of 5 numbers of trees in compensating cutting down of 1 number of tree (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED  -D&SC  -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (20 m x 16 m) = 320 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 5 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: 65 No. Pairang Govt. Primary School

School Code: 411011307

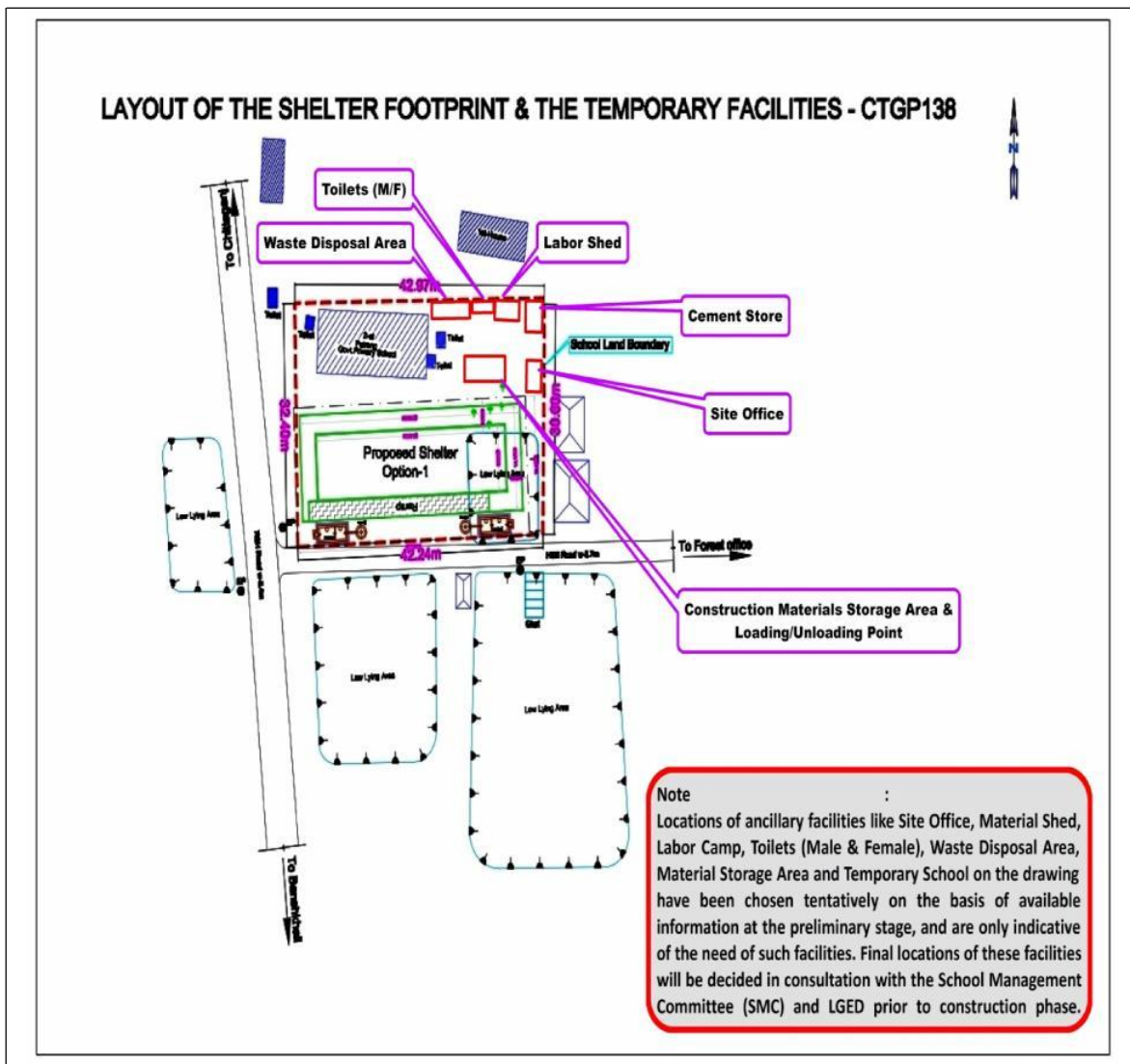
Database Unique ID: CTGP138

Village: Pairang; Mouza: Pairang;

Union: Sorol; Upazila: Banshkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	<p>3 nos. of low lying areas exist in west &amp; south sides respectively. These low lying areas are being used for fish farming, bathing, washing &amp; domestic purposes etc.</p> <p>A portion of the adjacent south side low lying area need to be filled to construct disaster shelter,</p> <p>Construction wastes cannot be dumped/ disposed in these low lying areas.</p>	Contractor	<p>- LGED</p> <p>- D&amp;SC</p> <p>-SMC</p>	As work progresses (Daily)
		<p>- Cutting down of 4 nos. of medium trees (Mahagoni, Coconut etc.),</p> <p>- Clearing of vegetation</p>	<p>- Plantation of 20 numbers of trees in compensating cutting down of 4 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises.</p> <p>-The disturbed area will be properly compacted to reduce soil erosion from there.</p> <p>-Drainage of rainwater will be directed through channels to reduce soil erosion.</p> <p>-Sand traps will be introduced at the end of the flow path.</p> <p>- Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.</p>	Contractor	<p>-LGED</p> <p>-D&amp;SC</p> <p>-SMC</p>	<p>-As &amp; when possible during construction phase</p> <p>-Mainly after completion of construction.</p>
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (20 m x 15 m) = 300 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 20 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub Project: 115 No. Purbo Dongra Altaf Ali Govt. Primary School

School Code: 411080803

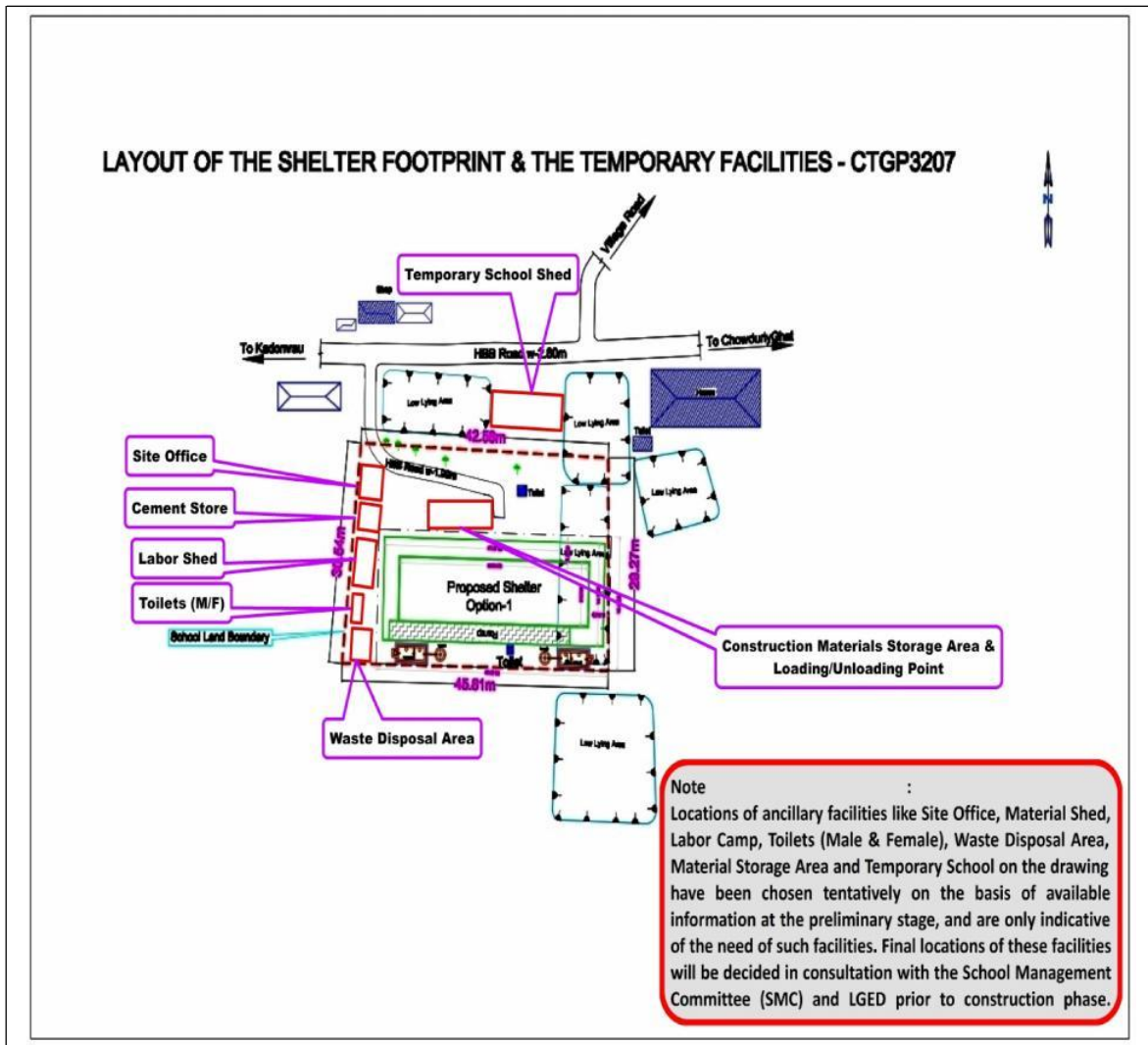
Database Unique ID: CTGP3207

Village: Dongra; Mouza: Dongra;

Union: Khanabad; Upazila: Banshkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	5 nos. of low lying areas exist in north, south, east and west sides respectively. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc. A portion of the adjacent east side low lying area need to be filled to construct disaster shelter, Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of small & medium trees (Mehagoni, Coconut etc.),  - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (43 m x 10m) = 430 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	



## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: 150 No. Hazi Kalamiya Para Govt. Primary School

School Code: 411019008

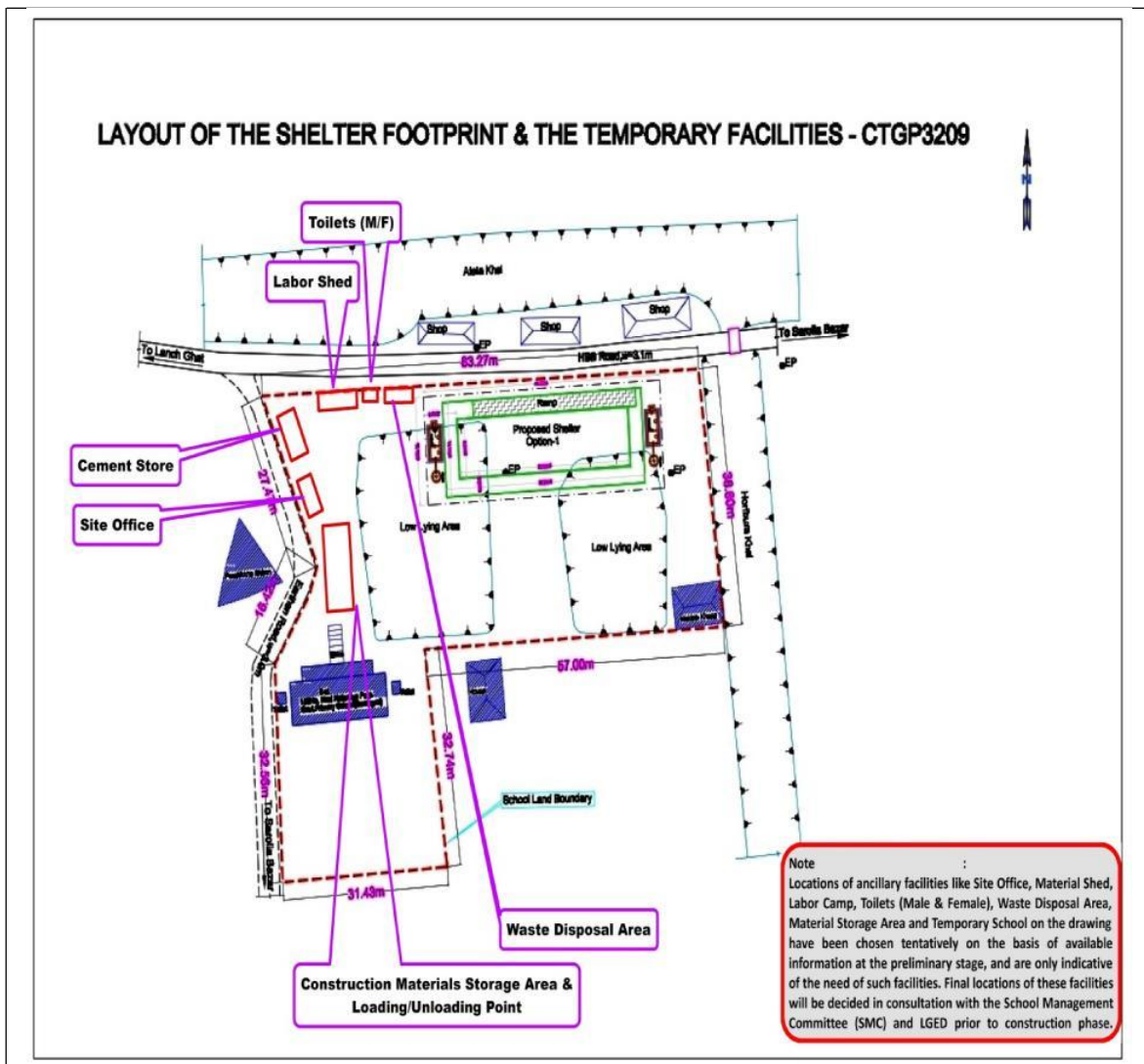
Database Unique ID: CTGP3209

Village: Kutubkhali ; Mouza: Kutubkhali;

Union: Sanua; Upazila: Banshkali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	<p>2 nos. of low lying areas exist in west and east sides respectively. These low lying areas are being used for fish farming, bathing, washing &amp; domestic purposes etc.</p> <p>A portion of the adjacent west side low lying area need to be filled to construct disaster shelter,</p> <p>Construction wastes cannot be dumped/ disposed in these low lying areas.</p>	Contractor	<p>- LGED</p> <p>- D&amp;SC</p> <p>-SMC</p>	As work progresses (Daily)
		<p>- Cutting down of 2 nos. of medium trees (Mehagoni),</p> <p>- Clearing of vegetation</p>	<p>- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises.</p> <p>-The disturbed area will be properly compacted to reduce soil erosion from there.</p> <p>-Drainage of rainwater will be directed through channels to reduce soil erosion.</p> <p>-Sand traps will be introduced at the end of the flow path.</p> <p>- Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.</p>	Contractor	<p>-LGED</p> <p>-D&amp;SC</p> <p>-SMC</p>	<p>-As &amp; when possible during construction phase</p> <p>-Mainly after completion of construction.</p>
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (80 m x 22 m) = 1760 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: 154 No. Elsha Govt. Primary School

School Code: 411010401

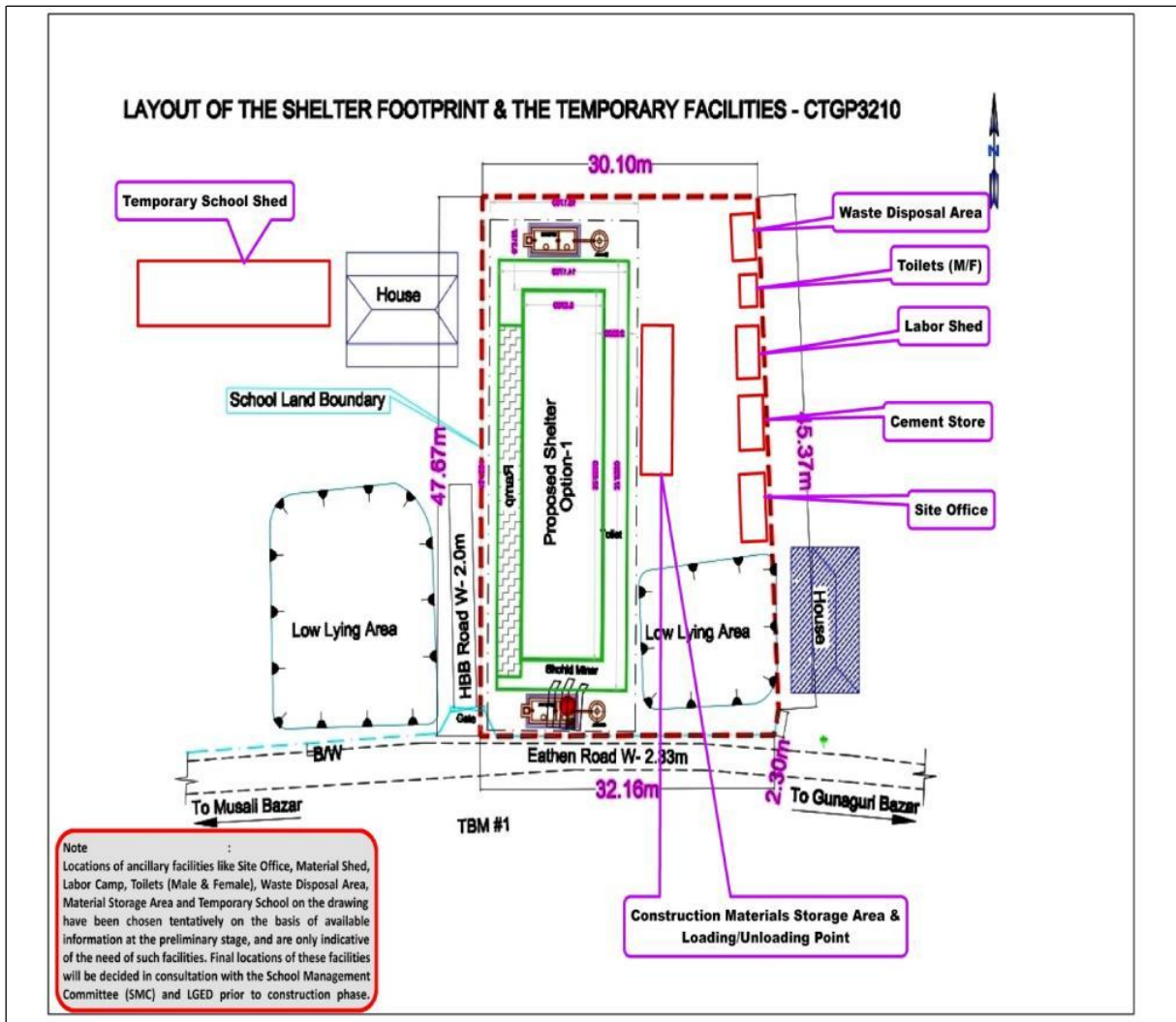
Database Unique ID: CTGP3210

Village: Elsha; Mouza: Elsha; Union:

Baharchara; Upazila: Banshkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	2 nos. of low lying areas exist in east and west sides respectively. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of medium trees (Mehagoni), - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (46 m x 15 m) = 690 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Puichory Hafazia Govt. Primary School

School Code: 411010904

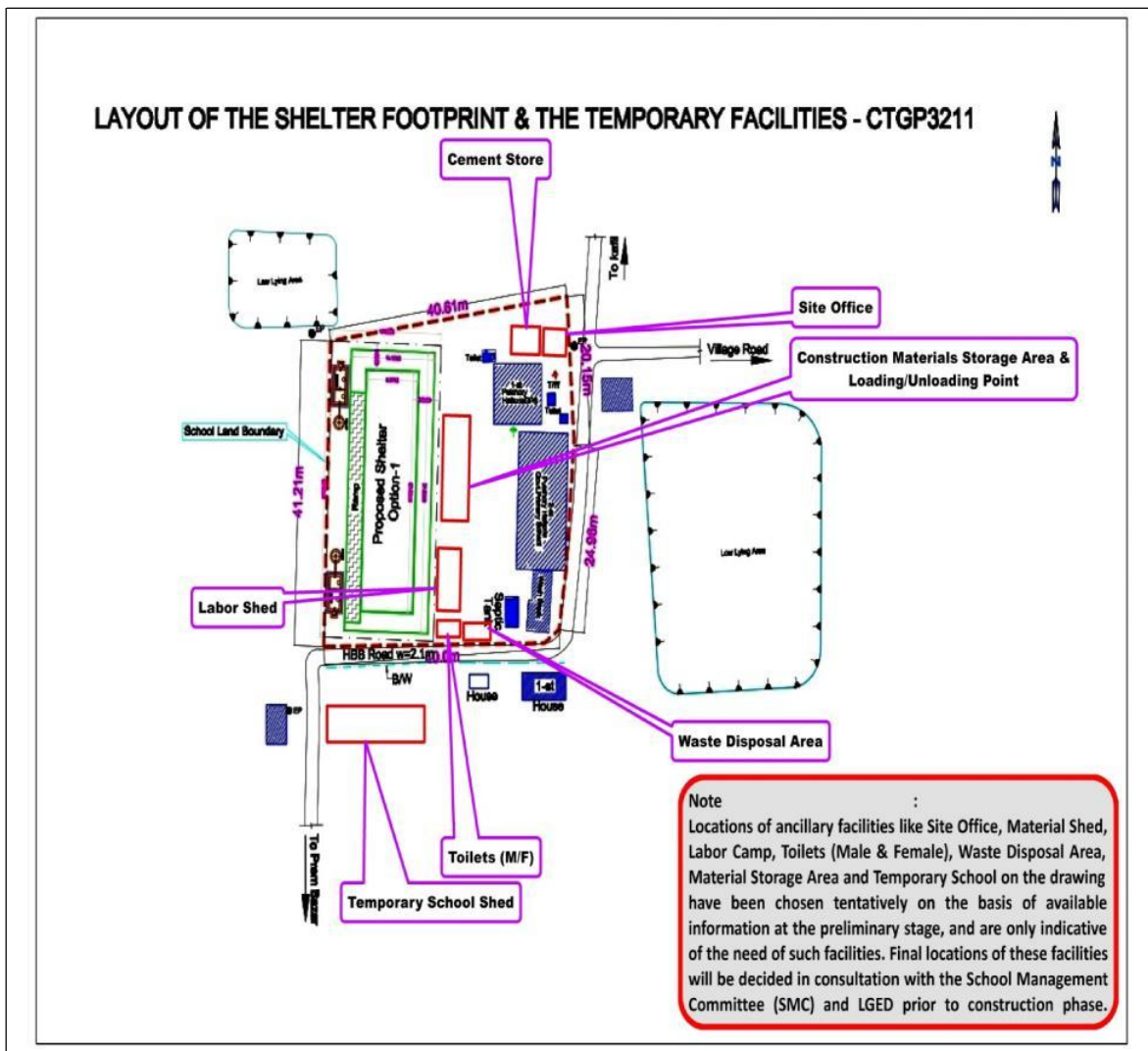
Database Unique ID: CTGP3211

Village: Purbo Puichari; Mouza: Puichari;

Union: Puichari; Upazila: Banshkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	2 nos. of low lying areas exist in north & east sides respectively. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of medium trees (Mehagoni), - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						



## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (30 m x 14 m) = 420 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Purbo Puichori Govt. Primary School

School Code: 411019007

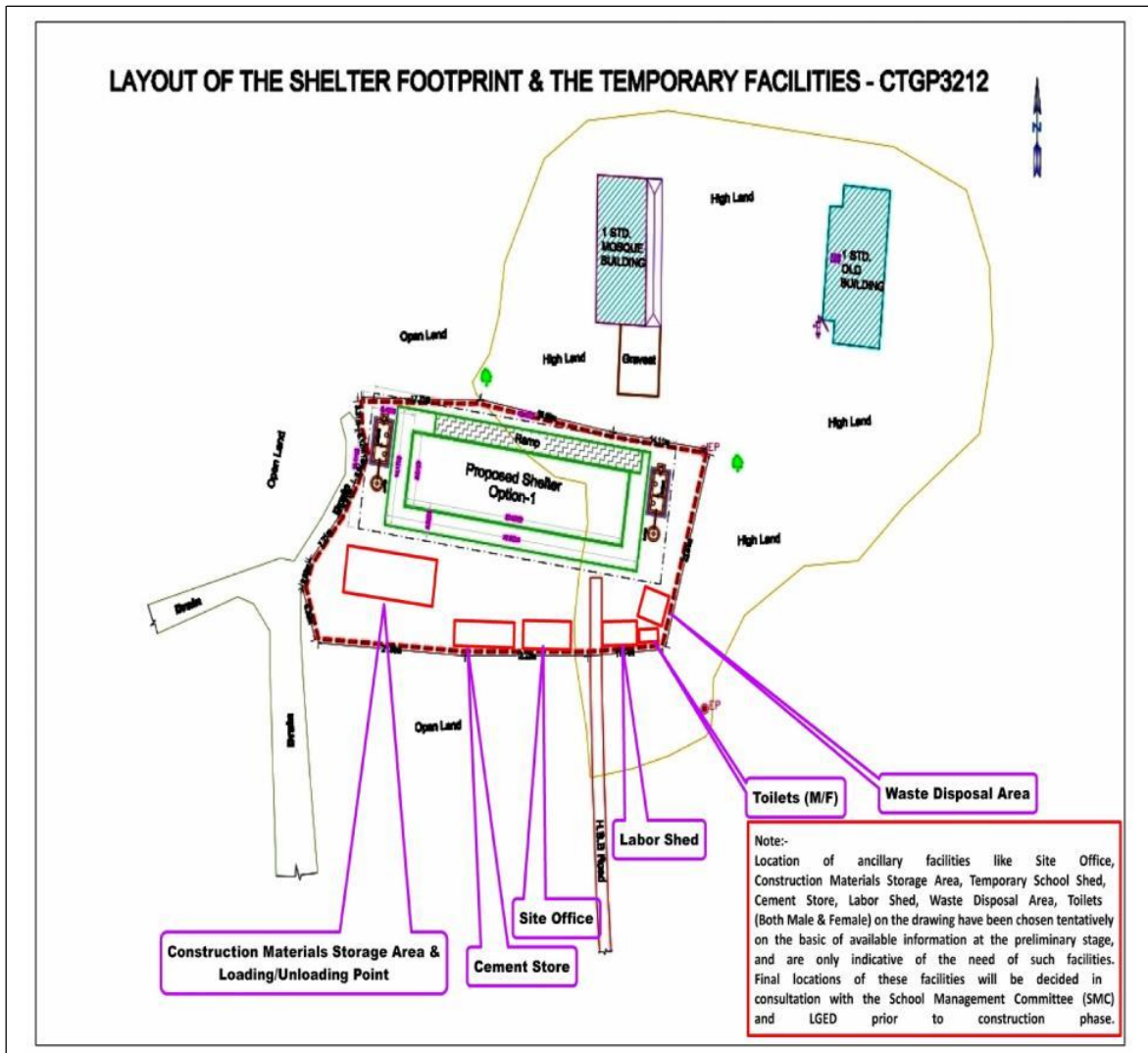
Database Unique ID: CTGP3212

Village: Puichori; Mouza: Jungal Puichori;

Union: Puichori; Upazila: Banshkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in south side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED  - D&SC  -SMC	As work progresses (Daily)
		- Cutting down of 1 no. of medium tree (Coconut etc.),  - Clearing of vegetation	- Plantation of 5 numbers of trees in compensating cutting down of 1 number of tree (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED  -D&SC  -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (52 m x 13 m) = 676 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 5 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Popadia Govt. Primary School

School Code: 411070604

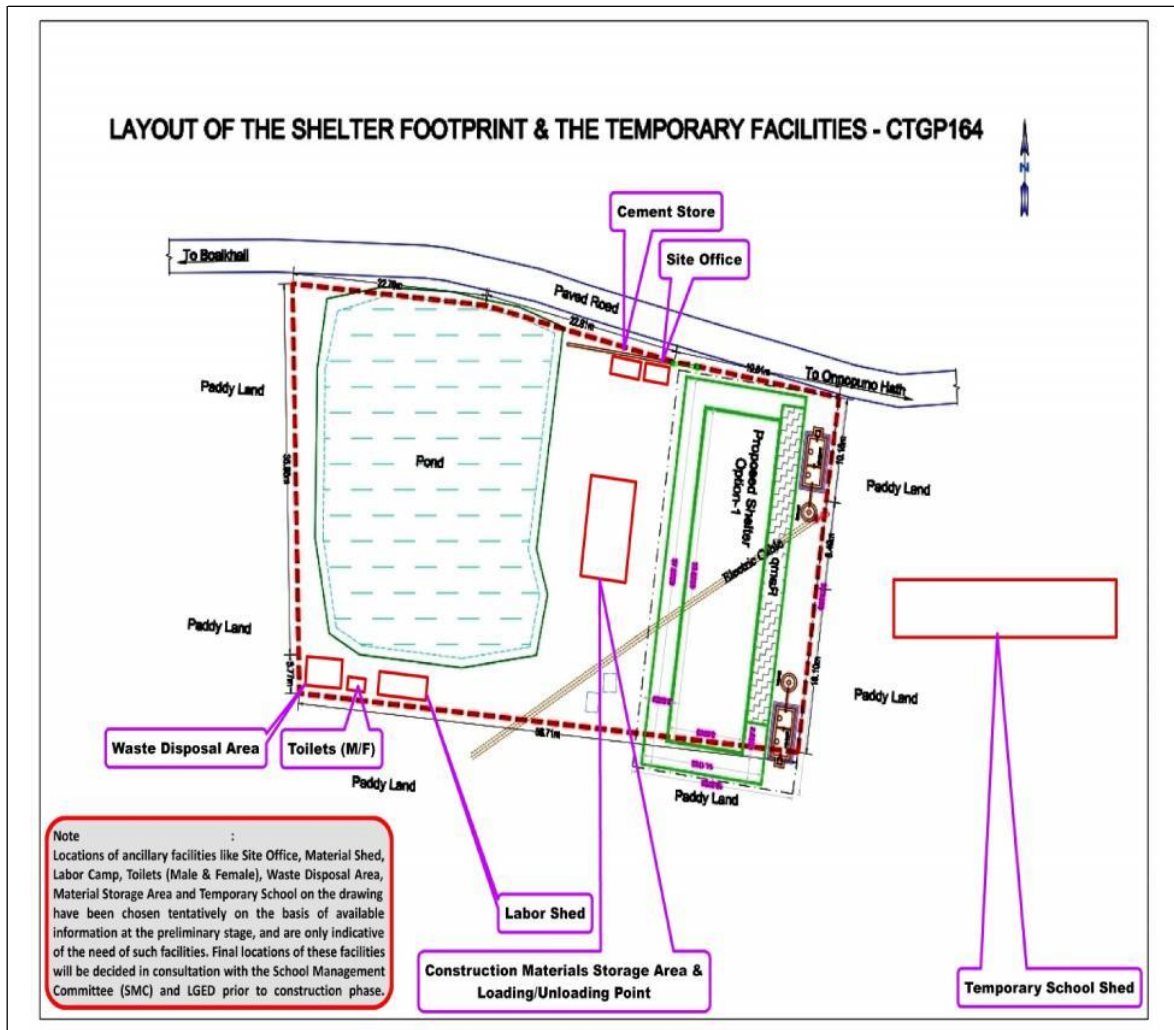
Database Unique ID: CTGP164

Village: Popadia; Mouza: Popadia;

Union: Popadia; Upazila: Boalkhali;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in west side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 1 no. of medium tree (Mehagoni),  - Clearing of vegetation	- Plantation of 5 numbers of trees in compensating cutting down of 1 number of tree (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (30 m x 10 m) = 300 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 5 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	





**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	2 nos. of low lying areas exist in west and south sides respectively. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 1 no. of medium tree (Mehagoni), - Clearing of vegetation	- Plantation of 5 numbers of trees in compensating cutting down of 1 number of tree (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

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Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (50 m x 10 m) = 500 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 5 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	



**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in east side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED  - D&SC  -SMC	As work progresses (Daily)
		- Cutting down of 1 no. of medium tree (Mehagoni),  - Clearing of vegetation	- Plantation of 5 numbers of trees in compensating cutting down of 1 number of tree (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED  -D&SC  -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (50 m x 4 m) = 200 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 5 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Pingola Nabin Govt. Primary School

School Code: 411051002

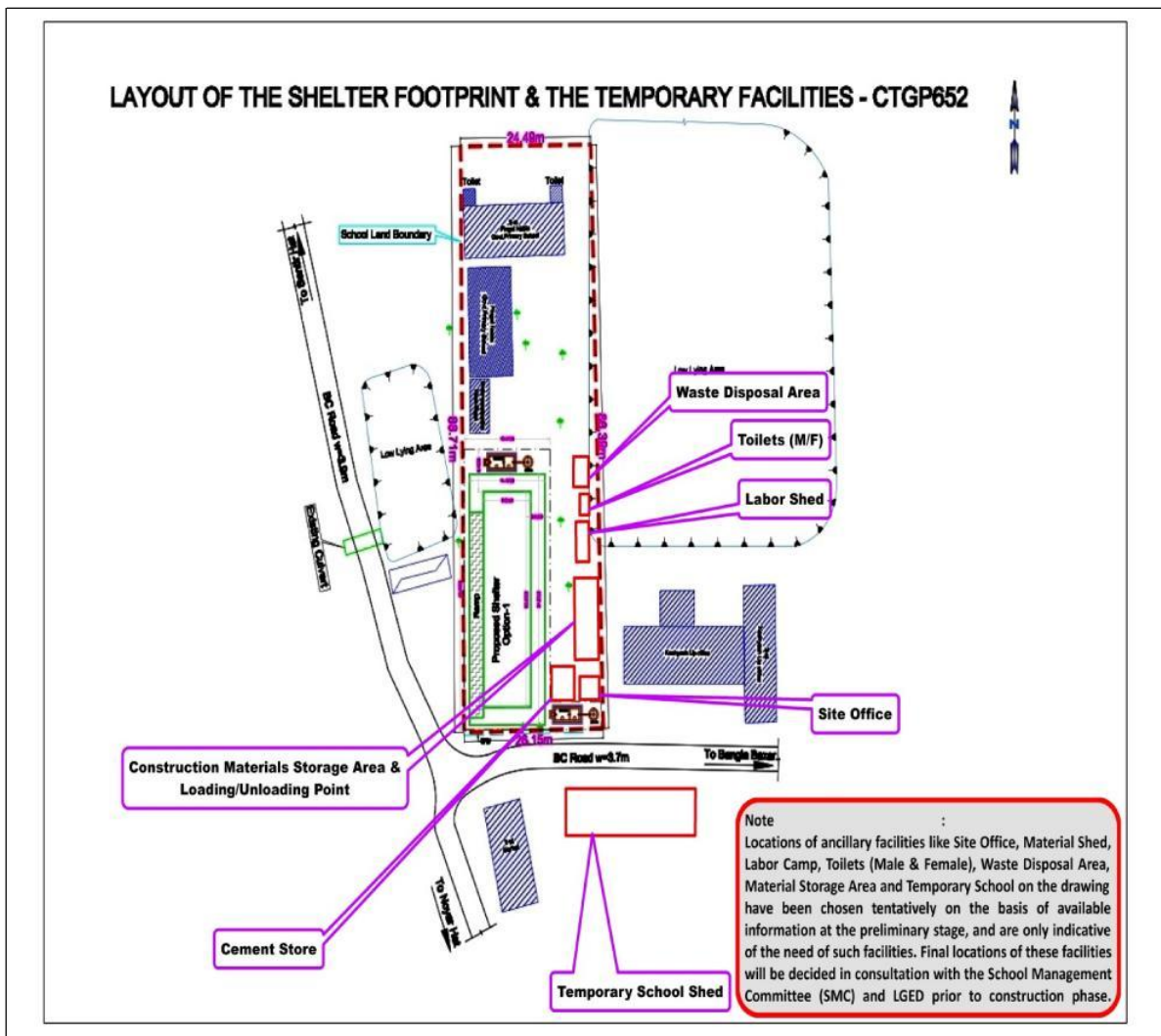
Database Unique ID: CTGP652

Village: Pingala; Mouza: Pingala;

Union: Kashyash; Upazila: Patiya;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in west side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED  - D&SC  -SMC	As work progresses (Daily)
		- Cutting down of 4 nos. of small & medium trees (Mehagoni, Coconut etc.),  - Clearing of vegetation	- Plantation of 20 numbers of trees in compensating cutting down of 4 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED  -D&SC  -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED  -D&SC  -SMC	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (70 m x 10 m) = 700 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 20 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	



## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-Project: Habilashdwp Govt. Primary School

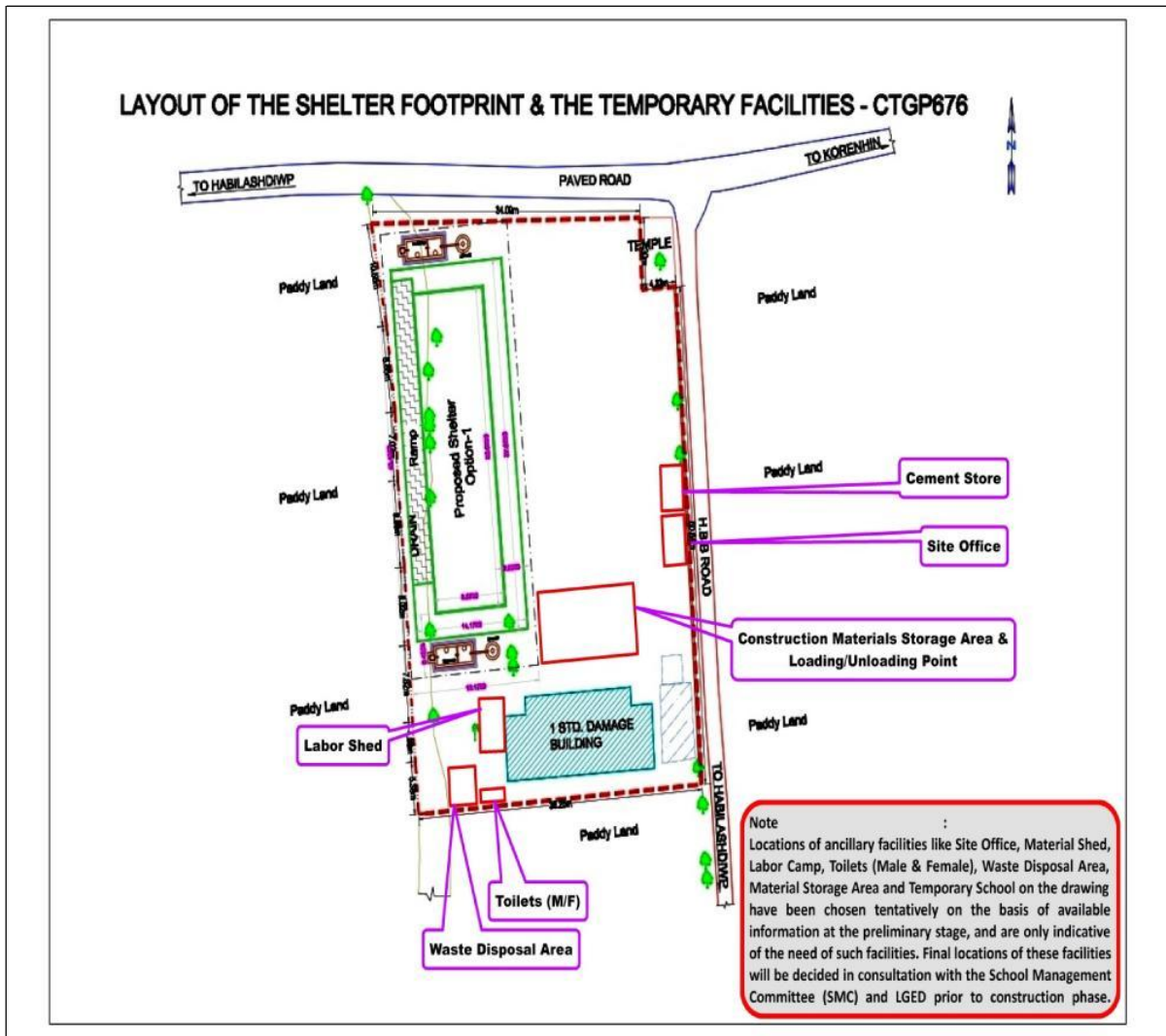
School Code: 411050705

Database Unique ID: CTGP676

Village: Habilashdwp; Mouza: Habilashdwp;

Union: Habilashdwp; Upazila: Patiya; District:  
Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in south side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED  - D&SC  -SMC	As work progresses (Daily)
		- Cutting down of 4 nos. of small & medium trees (Mehagoni, Coconut etc.),  - Clearing of vegetation	- Plantation of 20 numbers of trees in compensating cutting down of 4 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED  -D&SC  -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (48 m x 21 m) = 1008 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 20 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
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13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-Project: Rahmatpur South East Govt. Primary School School

Code: 411030803

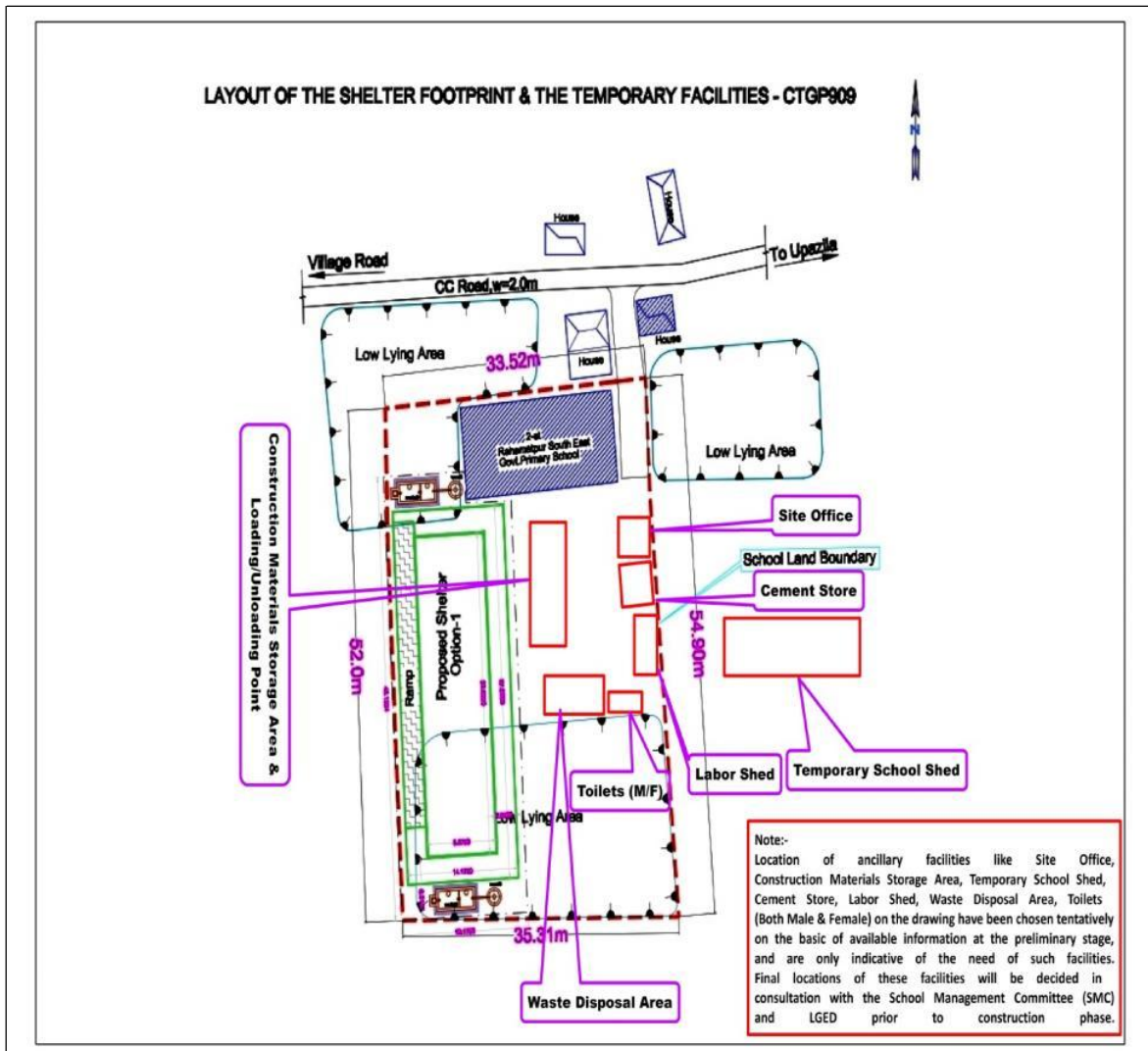
Database Unique ID: CTGP909

Village: Rahmatpur; Mouza: Rahmatpur;

Union: Rahmatpur; Upazila: Sandwip;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	<p>3 nos. of low lying areas exist in north, south and east sides respectively. These low lying areas are being used for fish farming, bathing, washing &amp; domestic purposes etc.</p> <p>A portion of the adjacent south side low lying area need to be filled to construct disaster shelter,</p> <p>Construction wastes cannot be dumped/ disposed in these low lying areas.</p>	Contractor	<p>- LGED</p> <p>- D&amp;SC</p> <p>-SMC</p>	As work progresses (Daily)
		<p>- Cutting down of 1 no. of medium tree (Coconut etc.),</p> <p>- Clearing of vegetation</p>	<p>- Plantation of 5 numbers of trees in compensating cutting down of 1 number of tree (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises.</p> <p>-The disturbed area will be properly compacted to reduce soil erosion from there.</p> <p>-Drainage of rainwater will be directed through channels to reduce soil erosion.</p> <p>-Sand traps will be introduced at the end of the flow path.</p> <p>- Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.</p>	Contractor	<p>-LGED</p> <p>-D&amp;SC</p> <p>-SMC</p>	<p>-As &amp; when possible during construction phase</p> <p>-Mainly after completion of construction.</p>
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	<p>-LGED</p> <p>-D&amp;SC</p> <p>-SMC</p>	- Before starting construction works during construction phase.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (44 m x 20 m) = 880 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 5 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	



**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	3 nos. of low lying areas exist in north and east sides respectively. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of medium trees (Rain tree), - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						



## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (49 m x 12 m) = 588 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: 60 No. Amirabad Govt. Primary School

School Code: 411030901

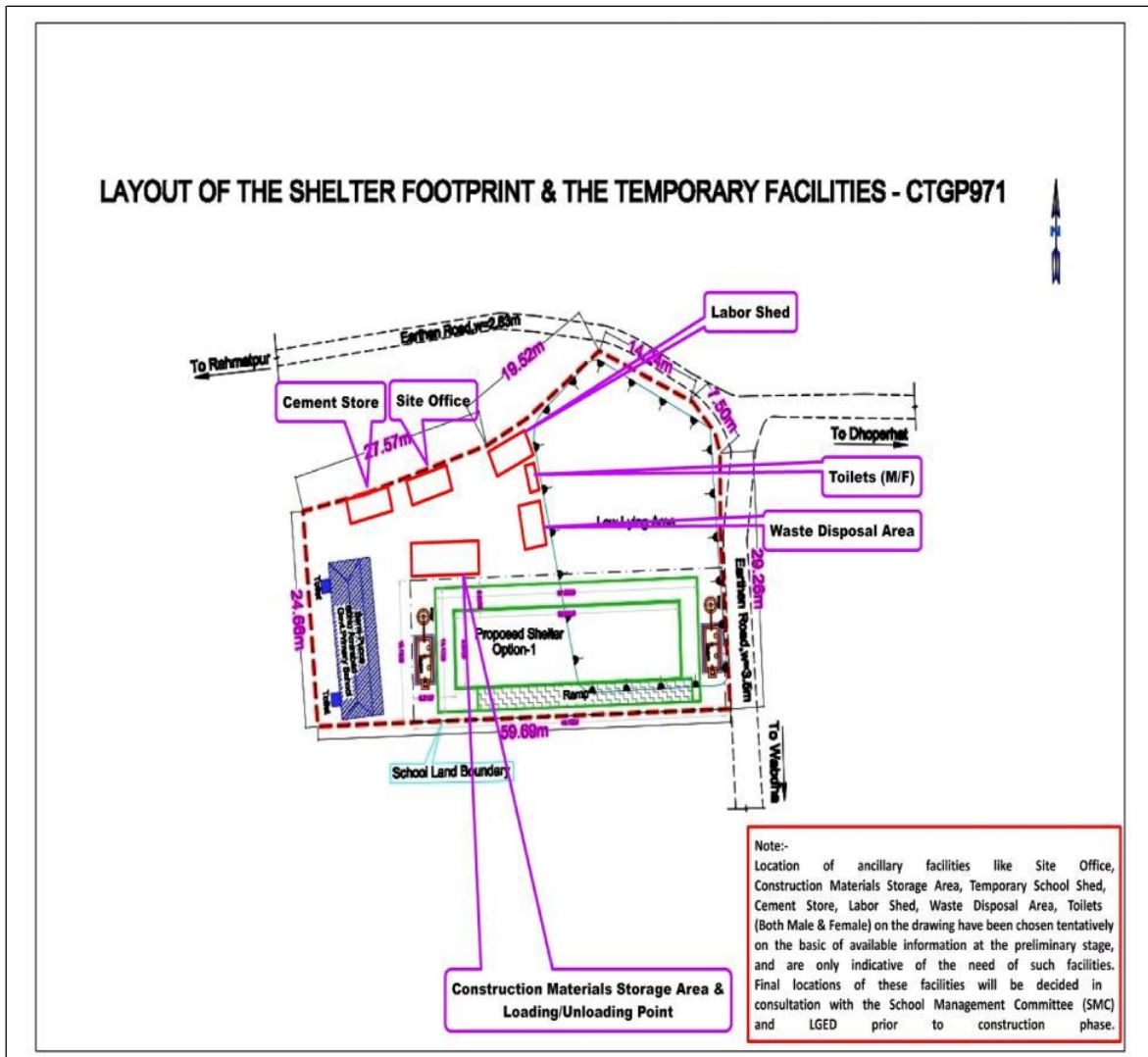
Database Unique ID: CTGP971

Village: Musapur; Mouza: Musapur;

Union: Musapur; Upazila: Sandwip;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	<p>1 no. of low lying area exists in east side. These low lying areas are being used for fish farming, bathing, washing &amp; domestic purposes etc.</p> <p>A portion of the adjacent east side low lying area need to be filled to construct disaster shelter</p> <p>Construction wastes cannot be dumped/ disposed in these low lying areas.</p>	Contractor	<p>- LGED</p> <p>- D&amp;SC</p> <p>-SMC</p>	As work progresses (Daily)
		<p>- Cutting down of 2 nos. of medium trees (Rain tree),</p> <p>- Clearing of vegetation</p>	<p>- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises.</p> <p>-The disturbed area will be properly compacted to reduce soil erosion from there.</p> <p>-Drainage of rainwater will be directed through channels to reduce soil erosion.</p> <p>-Sand traps will be introduced at the end of the flow path.</p> <p>- Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.</p>	Contractor	<p>-LGED</p> <p>-D&amp;SC</p> <p>-SMC</p>	<p>-As &amp; when possible during construction phase</p> <p>-Mainly after completion of construction.</p>
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (48 m x 20 m) = 960 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Ali Nur Govt. Primary School

School Code: 411039027

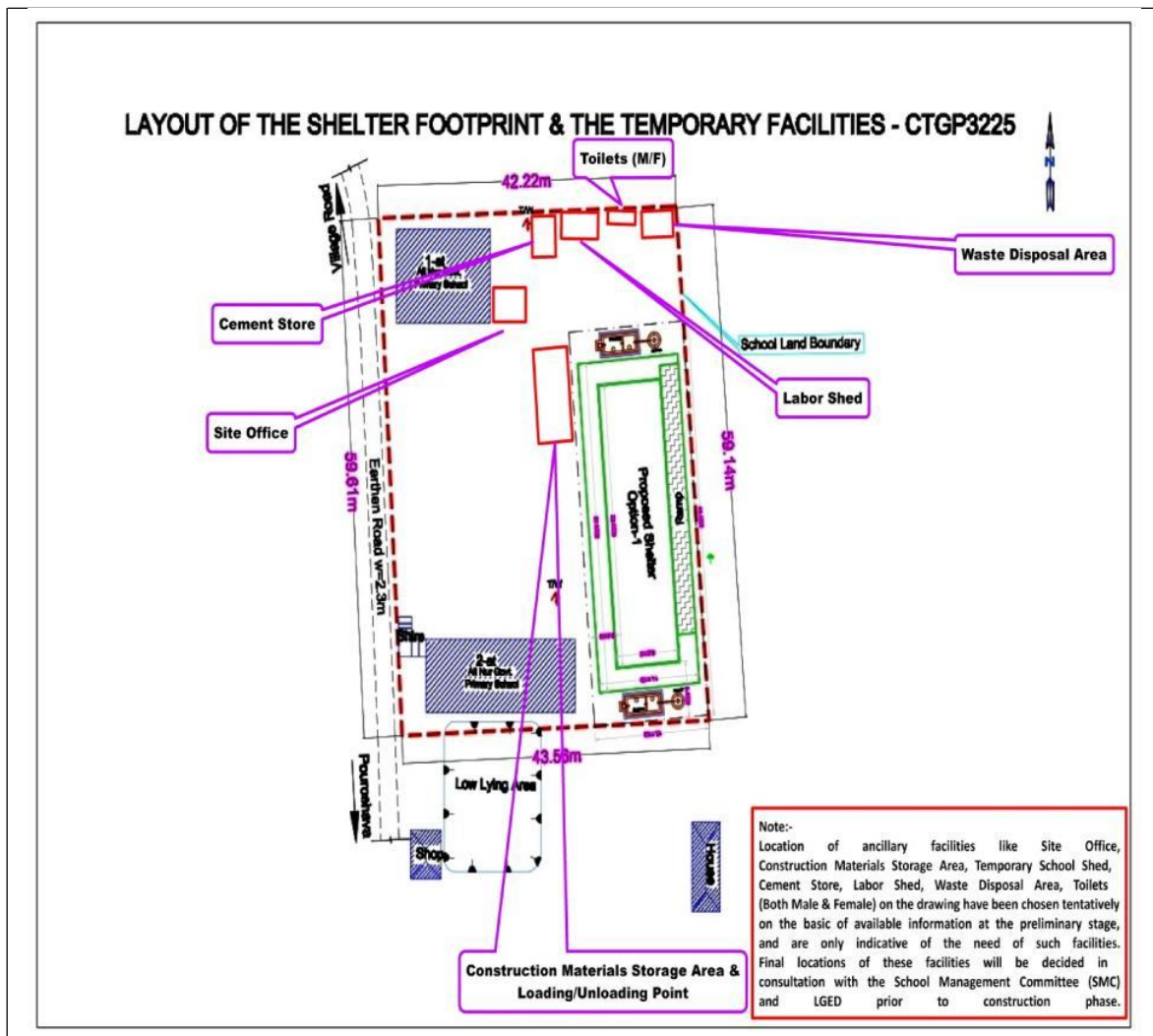
Database Unique ID: CTGP3225

Village: Bauria; Mouza: Bauria; Union:

Pourashava; Upazila: Sandwip;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

<b>Sl. No.</b>	<b>Activity/ Issues</b>	<b>Potential Impacts</b>	<b>Proposed Mitigation &amp; Enhancement Measures</b>	<b>Responsible for implementation</b>	<b>Responsible for monitoring</b>	<b>Frequency of monitoring</b>
01	Issues related with construction works	Water & Soil pollution	1 no. of low lying area exists in south side. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED  - D&SC  -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of medium trees (Rain tree),  - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED  -D&SC  -SMC	-As & when possible during construction phase -Mainly after completion of construction.
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (37 m x 28 m) = 1036 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

### Sub-project: Purbo Moghdhara Hazi Mofijia Govt. Primary School

School Code: 411031205

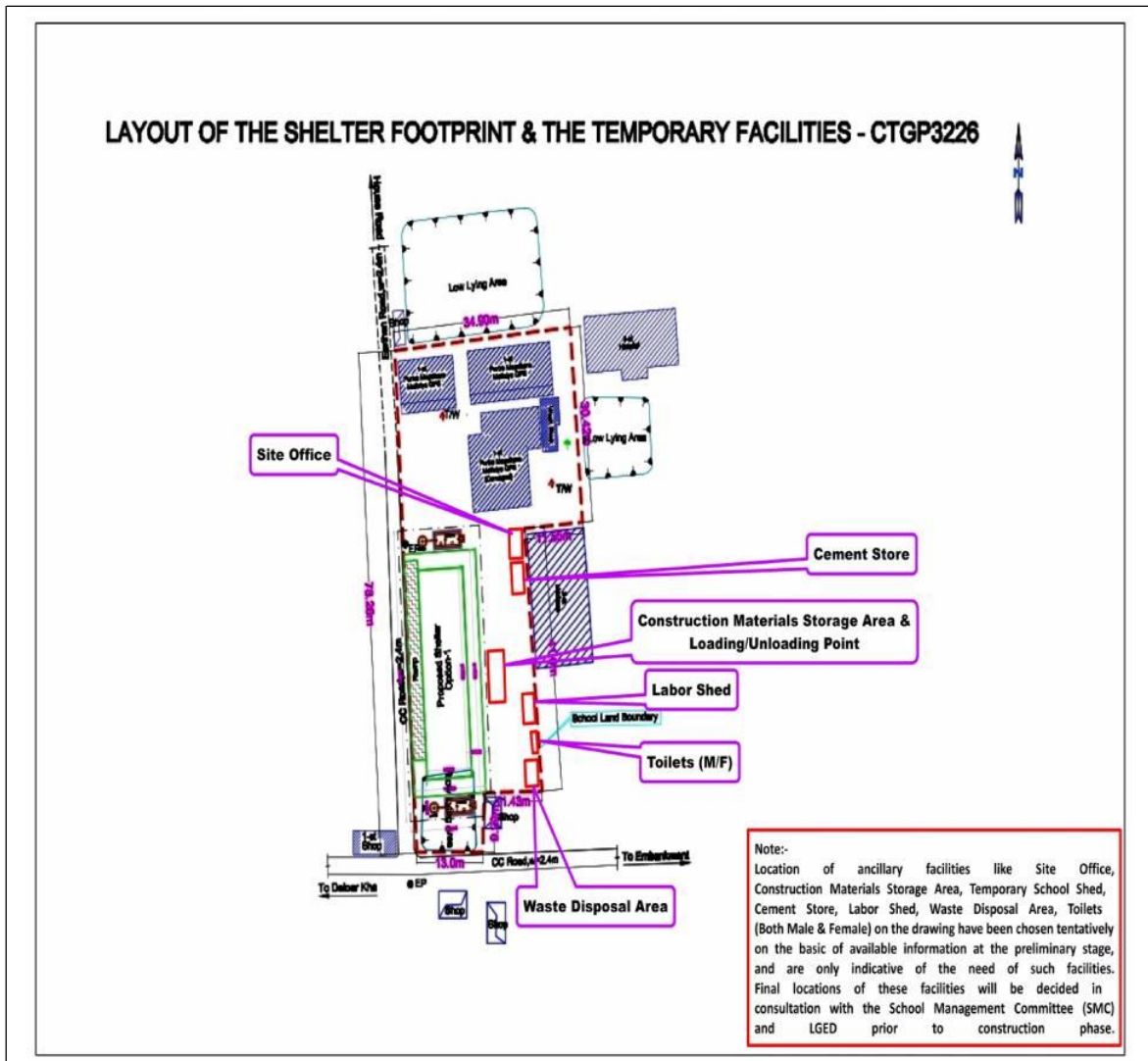
Database Unique ID: CTGP3226

Village: Moghdhara; Mouza: Moghdhara;

Union: Moghdhara; Upazila: Sandwip;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)



**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	<p>3 nos. of low lying areas exist in north, east &amp; south sides respectively. These low lying areas are being used for fish farming, bathing, washing &amp; domestic purposes etc.</p> <p>A portion of the adjacent south side low lying area need to be filled to construct disaster shelter</p> <p>Construction wastes cannot be dumped/ disposed in these low lying areas.</p>	Contractor	<p>- LGED</p> <p>- D&amp;SC</p> <p>-SMC</p>	As work progresses (Daily)
		<p>- Cutting down of 2 nos. of medium trees (Rain tree),</p> <p>- Clearing of vegetation</p>	<p>- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises.</p> <p>-The disturbed area will be properly compacted to reduce soil erosion from there.</p> <p>-Drainage of rainwater will be directed through channels to reduce soil erosion.</p> <p>-Sand traps will be introduced at the end of the flow path.</p> <p>- Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.</p>	Contractor	<p>-LGED</p> <p>-D&amp;SC</p> <p>-SMC</p>	<p>-As &amp; when possible during construction phase</p> <p>-Mainly after completion of construction.</p>
<b>Note: All the other items of EMP have been mentioned in General Environmental Management &amp; Monitoring Plan applicable for all the Sub-projects.</b>						

## Cost of Environmental Enhancement Works in BOQ

The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (44 m x 11 m) =484 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
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13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
	<b>Total</b>	

## ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

Sub-project: Purbo Sholoshar Fulmia Govt. Primary School School

Code: 411039034

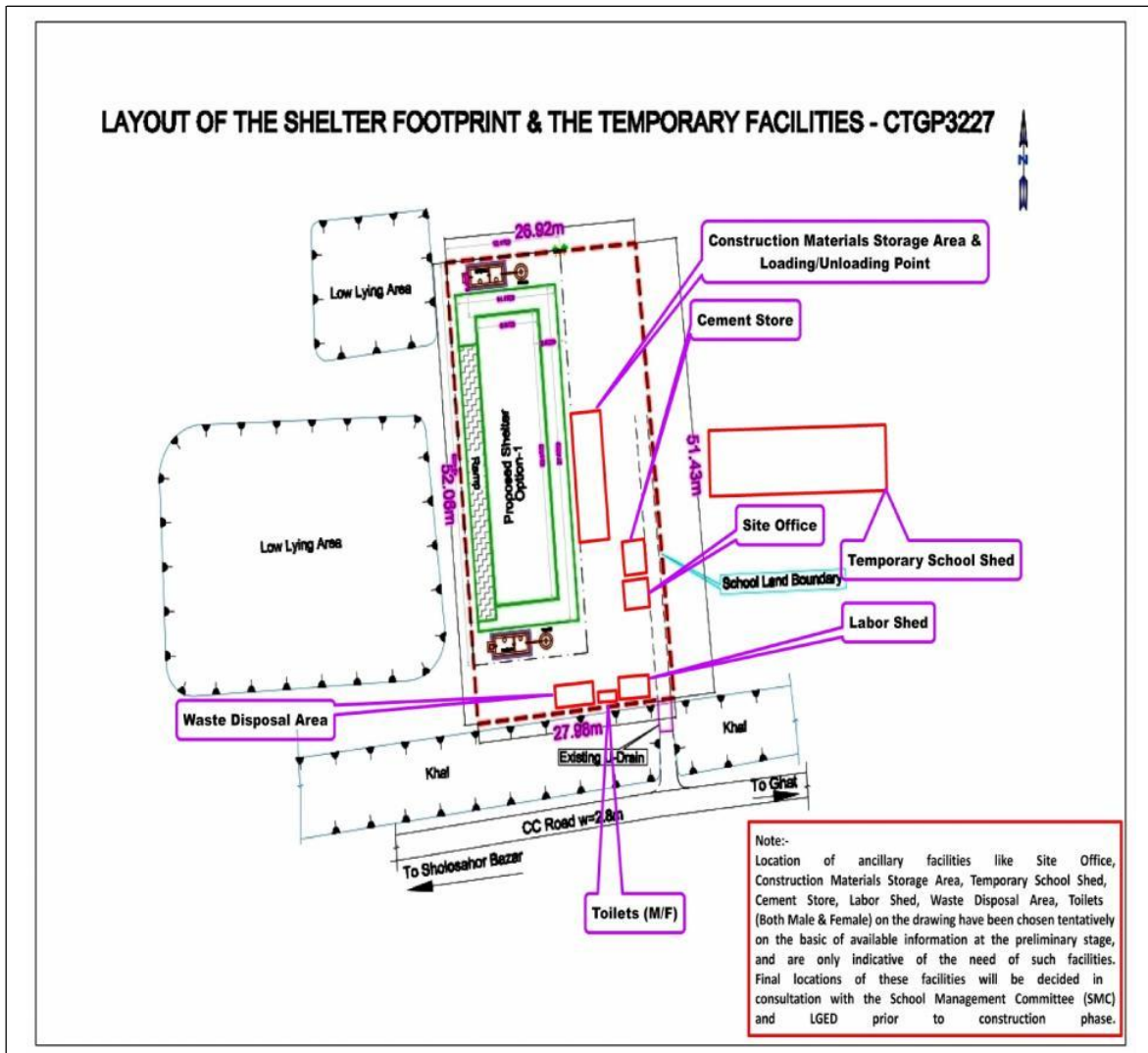
Database Unique ID: CTGP3227

Village: Moghdhara; Mouza: Moghdhara;

Union: Moghdhara; Upazila: Sandwip;

District: Chattogram

January 2019



**Figure 1: Topographical Map of the Sub-project**  
(Indicative of the layout of the Shelter cum School Building and the Temporary Facilities)

**Table 1: Site –specific Items of the Environmental Management & Monitoring Plan**

Sl. No.	Activity/ Issues	Potential Impacts	Proposed Mitigation & Enhancement Measures	Responsible for implementation	Responsible for monitoring	Frequency of monitoring
01	Issues related with construction works	Water & Soil pollution	2 nos. of low lying areas exist in north and west sides respectively. These low lying areas are being used for fish farming, bathing, washing & domestic purposes etc.  Construction wastes cannot be dumped/ disposed in these low lying areas.	Contractor	- LGED - D&SC -SMC	As work progresses (Daily)
		- Cutting down of 2 nos. of medium trees (Rain tree), - Clearing of vegetation	- Plantation of 10 numbers of trees in compensating cutting down of 2 numbers of trees (same species as fallen down and other local species i.e. wooden, fruit, herbal) in the school premises. -The disturbed area will be properly compacted to reduce soil erosion from there. -Drainage of rainwater will be directed through channels to reduce soil erosion. -Sand traps will be introduced at the end of the flow path. - Ensure re-vegetation and/ or grass turf when soil is exposed/ disturbed.	Contractor	-LGED -D&SC -SMC	-As & when possible during construction phase -Mainly after completion of construction.
		Temporarily shifting of School	Existing School will be shifted to a temporary shed that will be built up before starting construction works.	-Contractor	-LGED -D&SC -SMC	- Before starting construction works during construction phase.
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The following **Table 2** shows the items in the BOQ for which costing needs to be done on the environmental enhancement items described in the previous Environmental Management and Monitoring Plan.

**Table 2: Cost of Environmental Enhancement Works as given in the BOQ**

Sl. No.	Description of Item	Costs (Tk.) BDT.
1	Providing 2 nos. of <b>first aid boxes</b>	
2	<b>Site Cleaning and preparation</b> including providing necessary protective fencing by C.I. sheet and safety measures with sign board, and removal and disposal at a safe distance etc. all complete as per direction of E.I.C.	
3	<b>Grass turfs</b> on embankment top and slope, building compound & any critical place with good quality turf supplied by the contractor of not less than 225mm square in dimension including placing and watering till grass is fully grown, etc. all complete as per direction of E.I.C. and as requirement of the site engineer to the satisfaction level over an area of (43 m x 12 m) = 516 square meter.	
4	<b>Vegetation &amp; Tree plantation</b> around the site including fencing/ conservation/ maintenance as per direction of E.I.C and as requirement of the site engineer to the satisfaction level. (Coconut, Mango, Jackfruit, Korai, Sundori, herbal or tall tree etc. to be planted). Total 10 nos. of trees need to be replanted around the periphery of the proposed site at an interval of 10 feet.	
5	Supply of best quality <b>Water Filter</b> (32 liters) including extra set of faucets ceramic and at least 3 sets of ceramic filters as per direction of E.I.C.	
6	Providing <b>Safety gear</b> package like hand gloves, eye protection glasses, helmets, rubber shoes, light reflecting dress etc. for 20 sets.	
7	<b>Motivation training</b> (twice: before and after construction start) of the Upazila Engineer's and Contractor's representatives on safety practice for 20 persons approx.	
8	Temporary <b>Sanitary Latrine/ Septic Tank/ Portable Toilet</b> : 2 nos. (1 no of Toilet for female and 1 no of Toilet for male).	
9	Temporary <b>camp site waste disposal facility</b> improvement 2 nos. (1 no of organic waste and 1 no of inorganic waste disposal facility)	
10	<b>Dust suppression measures</b> like water sprinkling on aggregates/ unpaved roads, in and around the work site (Lump Sum).	
11	Individual shelter wise Cost (for this shelter only) of the Environmental and Social Safeguard Officer for Environmental and Social Management and Monitoring during construction and operation phase for their salary & transport at monthly basis for 24 months (One person covering all 25 new shelters in this Package - Net payment excluding Tax & VAT).	
12	<b>Health/ Safety warning sign</b> (Lump Sum).	
13	Out of 05 nos. of Tube well to be installed in each shelter, 01 no of <b>Tube well</b> should be installed at the beginning of the construction works so that labor & other site staffs can get drinking water. In addition, <b>Water samples</b> to be collected periodically (half yearly) for one Tube well of the shelter for laboratory analysis (from BUET, BADC, DPHE, Other Public Universities) of different quality parameters such as pH, arsenic, iron, chloride, hardness, total dissolved solids, nitrate, nitrite, coliform, electrical conductivity etc. all complete as per direction of E.I.C. (including the cost of actual fees for testing from above mentioned reputed laboratory and report as desired by E.I.C.). Total 03 nos. of sets of tests need to be conducted during 24 months construction period (Lump Sum).	
14	Making a Temporary shed (75 feet x 20 feet) for Schooling with tin shed roof with false ceiling, tarza fencing, brick soling floor with plain concrete including neat cement finishing and class running facilities as per direction of the EIC. Cost of rental of land for construction of the shed is also included.	
	<b>Total</b>	